Environmental GEO-Technologies, LLC

October 31, 2016

Mr. Allan Batka
United States Environmental Protection Agency
Region 5 (WU-16J)
77 West Jackson Blvd.
Chicago, Illinois 60604

Re: EGT Monthly Report (in conformance with MI-163-1W-C010 & MI-163-1W-C011)

Dear Mr. Batka:

Environmental Geo-Technologies, LLC ("EGT") hereby timely submits its thirty-fifth Monthly Report in conformance with the requirements of its two EPA UIC permits (#s MI-163-1W-C010 & MI-163-1W-C011).

EGT is providing all of the attached information in the same sequence as required by both subject permits, i.e. Part II.D.1 (a – i), Part III, Attachment A, and Part III, Attachment E.G.2 & E.I.

EGT also hereby timely submits its sixteenth Injection Fluid Analyses (for September, 2016) identified on both Pages A-3 of 3 also in conformance with EGT's two EPA UIC permits with the attached "Data Summary Sheet" from a contract laboratory, Ann Arbor Technical Services, Inc., and, those results demonstrate compliance with all of the limits for each of the chemical entities ("Names) identified on Page A-3 of 3 for F039 waste which EGT accepted in April.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

We trust that you find this report satisfactory, however, if you have any questions or comments, please feel free to contact us.

Sincerely,

Richard J. Powals, P.E.
Vice-President

cc: J. Frost (EGT), T. Athans (EGT), P.Sullivan (EGT)

att.

rjp103116/EGTEPAMonthlyReport-September, 2016

290 South Wagner Road
Ann Arbor, Michigan 48103
Tel. 734/995-0995 Fax. 734/995-3731
Michigan Laboratory ID: 9604
Wisconsin Laboratory ID: 998321720

Semivolatile Organic Compound
Data Summary Shee

For: Mr. Richard Powals
Environmental Geo-Technologies, Inc.
28470 Citrin Drive
Romulus, MI 48174

ATS Project: Environmental Geo-Technologies, Inc. #E008-0
Report Date: 10/27/16
ATS SRF: 1005161

Sample Identification: September Composite 2016

Sample Date:	10/3/16	QC Batch Number:	QCORG1006161-E
Laboratory Receipt Date:	10/5/16		B6J0078
Preparation Date:	10/6/16, 10/17/16	Sample Matrix:	Wastewater
Analysis Date:	10/14/16, 10/22/16	Dilution Factor:	500

Parameter (CAS)	Method	Units	Result	Reporting Limit
Aldrin (309-00-2)	EPA 8270 Mod	mg/mL	<0.00001	0.00001
Benzidine (92-87-5)	EPA 8270 Mod	mg/mL	<0.00075	0.00075
N-Nitrosodimethylamine (62-75-9)	EPA 8270 Mod	mg/mL	<0.0001	0.0001
Tetraethyl Lead (78-00-2)	EPA 8270 Mod	mg/mL	<0.00005	0.00005
Hexachlorodibenzo-p-dioxins	EPA 1613B	mg/mL	<0.00000000005	0.00000000005
Octachlorodibenzofuran (39001-02-0)	EPA 1613B	mg/mL	<0.00000000005	0.00000000005
Octachlorodibenzo-p-dioxin (3268-87-9)	EPA 1613B	mg/mL	<0.00000000005	0.00000000005
Tetrachlorodibenzo-p-dioxins	EPA 1613B	mg/mL	<0.00000000004	0.00000000004

Surrogates / Labeled Standards:	Method	Percent Recovery	Recovery Limits
2-Fluorobiphenyl	EPA 8270 Mod	104.8	(50 - 150)
Nitrobenzene-d5	EPA 8270 Mod	99.6	(50 - 150)
p-Terphenyl-d14	EPA 8270 Mod	136.3	(50 - 150)
Tetrachloro-m-xylene (TCMX)	EPA 8270 Mod	82.1	(50 - 150)
13C-1,2,3,4,7,8-HxCDD	EPA 1613B	89.5	(32 - 141)
13C-1,2,3,6,7,8-HxCDD	EPA 1613B	91.8	(28 - 130)
13C-1,2,3,7,8,9-HxCDD	EPA 1613B	94.1	(32 - 141)
13C-OCDF	EPA 1613B	73.5	(17 - 157)
13C-OCDD	EPA 1613B	67.9	(17 - 157)
13C-2,3,7,8-TCDD	EPA 1613B	93.7	(25 - 164)

Comments:
USEPA Analysis 1613B performed by Vista Analytical.

AVERAGE INJECTION RATE

Calculation of Average Injection Rate

CURRENT REPORTING YEAR 2016

CURRENT REPORTING MONTH SEPTEMBER

Date (month, year) of the first injection into either well at the Citrin Road Facility NOV 2013

CURRENT MONTH (all volumes in gallons)

	Injected Waste	Injected Non-Waste	Total injected
MI-163-1W-C010, Well #1-12			
Current Month	188,460	0	188,460
Since facility first injected			6,149,727
MI-163-1W-C011, Well #2-12			
Current Month	86,201	0	86,201
Since facility first injected			3,985,092
		Lifetime Combined	10,134,819

Conversion factors
365.25 days per year ÷ 12 months per year = 30.4375 days per month
30.4375 days per month × 1440 minutes per day = 43,830 minutes per month

Calculations
Whole number of months of injection 34

34 lifetime number of months of injection × 43,830 minutes/month
= 1,490,220 minutes of injection

Lifetime combined injected volume 10,134,819 ÷ 1,490,220 minutes of injection
= 6.8 gpm average injection rate

WELL 1 DATA

WELL 01 Monthly Data

Date	Min Injection Pressure (PSIG)	Max Injection Pressure (PSIG)	Min Sight Glass Level (in)	Max Sight Glass Level (in)	Min Annulus Pressure (PSIG)	Max Annulus Pressure (PSIG)	Min Injectate pH	Max Injectate pH	Min Flow Rate (GPM)	Max Flow Rate (GPM)	Min Differentail Pressure (PSIG)	Max Differential Pressure (PSIG)
9/1/2016	-9.9	632.6	24.6	27.5	836.3	1202.7	0.9	1.6	23.6	203.3	439.9	1016.3
9/2/2016	-9.9	691.7	24.9	27.8	888.9	1202.1	0.5	1.4	17.7	261.2	392.0	1016.9
9/3/2016	-1.5	-0.5	24.9	25.3	914.2	969.1	0.6	8.6	0.0	0.0	915.2	970.3
9/4/2016	-1.6	-0.6	24.9	25.2	901.7	914.3	-0.5	8.6	0.0	0.0	902.6	915.5
9/5/2016	-1.6	-0.5	24.4	25.3	900.0	1007.6	1.6	1.7	0.0	0.0	900.7	1008.7
9/6/2016	-2.0	0.0	24.5	24.7	0.0	1006.6	1.5	8.6	0.0	21.0	0.0	1007.4
9/7/2016	-3.1	-1.7	24.5	24.7	993.7	1001.3	1.7	5.7	0.0	0.0	996.1	1003.4
9/8/2016	-3.1	-2.2	24.5	24.7	991.0	1006.7	1.6	1.9	0.0	0.0	993.3	1009.4
9/9/2016	-3.2	-1.7	24.4	24.7	994.7	1000.3	0.8	2.1	0.0	1.9	997.2	1003.2
9/10/2016	-3.1	-2.0	24.5	24.7	987.3	994.8	0.8	0.9	0.0	3.7	989.8	997.6
9/11/2016	-9.6	665.5	24.5	27.5	888.7	1201.0	0.5	0.9	8.1	153.6	359.5	1019.8
9/12/2016	-10.1	427.0	24.9	25.3	908.0	1135.0	0.5	1.1	0.7	109.4	697.2	947.2
9/13/2016	-9.8	-9.8	24.5	25.3	900.0	1006.6	0.9	1.0	0.0	1.6	909.8	1016.4
9/14/2016	-9.8	-9.8	24.5	24.7	992.0	999.6	-0.7	10.1	0.0	1.5	1001.7	1009.4
9/15/2016	-9.8	-9.8	24.5	24.7	986.2	992.0	-2.0	12.2	0.9	387.6	996.0	1001.8
9/16/2016	-9.8	-9.8	24.5	24.7	981.5	986.3	1.4	12.9	0.0	42.2	991.2	996.0
9/17/2016	-9.8	-9.8	24.5	24.7	976.2	981.5	-0.1	9.9	0.0	0.0	985.9	991.3
9/18/2016	-9.8	-9.8	24.5	24.8	971.7	976.3	-0.3	12.7	0.0	0.0	981.4	986.0
9/19/2016	-9.8	228.8	24.6	24.8	962.8	1167.5	-0.5	8.1	4.3	361.1	873.7	1111.3
9/20/2016	-9.8	417.6	24.6	26.5	899.7	1200.4	7.9	7.9	6.4	292.7	615.5	1082.3
9/21/2016	-10.0	433.9	24.6	27.3	897.5	1202.4	0.4	10.6	14.8	148.4	571.0	1025.3
9/22/2016	-10.0	473.5	24.5	27.5	889.1	1205.0	1.1	10.1	11.7	133.6	527.3	1050.6
9/23/2016	-9.7	86.2	24.5	25.2	900.0	1008.4	0.8	12.0	0.2	87.2	902.1	1007.7
9/24/2016	-9.1	460.3	24.4	27.3	890.5	1203.7	0.5	2.1	10.1	107.4	527.3	1042.4
9/25/2016	-9.2	-8.2	24.3	24.6	984.7	1002.6	1.1	1.5	0.4	3.3	993.2	1011.4
9/26/2016	-9.8	345.3	24.4	26.6	897.5	1201.7	0.5	8.5	5.7	117.0	665.3	1049.4
9/27/2016	-9.9	428.5	24.5	26.9	896.1	1200.0	7.9	8.2	13.9	115.9	568.8	1037.9
9/28/2016	-9.9	123.0	24.2	24.9	900.0	1045.8	1.1	8.2	0.5	81.7	904.6	1010.3
9/29/2016	-9.9	383.3	24.2	26.1	897.6	1201.8	1.2	1.8	6.9	92.5	653.7	1077.2
9/30/2016	-3.9	-0.6	24.4	24.6	960.3	969.7	1.6	2.1	0.6	4.1	961.1	973.6
#VALUE!												

Circle Chart Index

Environmental Geo-Technologies, LLC 28470 Citrin Drive Romulus, MI 48174

Chart Recorder #1

Channel #1

Blue Pen - Well 1 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 1 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 1 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 1 Annulus Tank Level (chart value x 0)

Chart Recorder #2

Channel #1

Blue Pen – Well 2 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 2 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 2 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 2 Annulus Tank Level (chart value x 0)

Chart Recorder #3

Channel #1

Blue Pen – Injection pH Well 1 & 2 (chart value x 30)

Channel #2

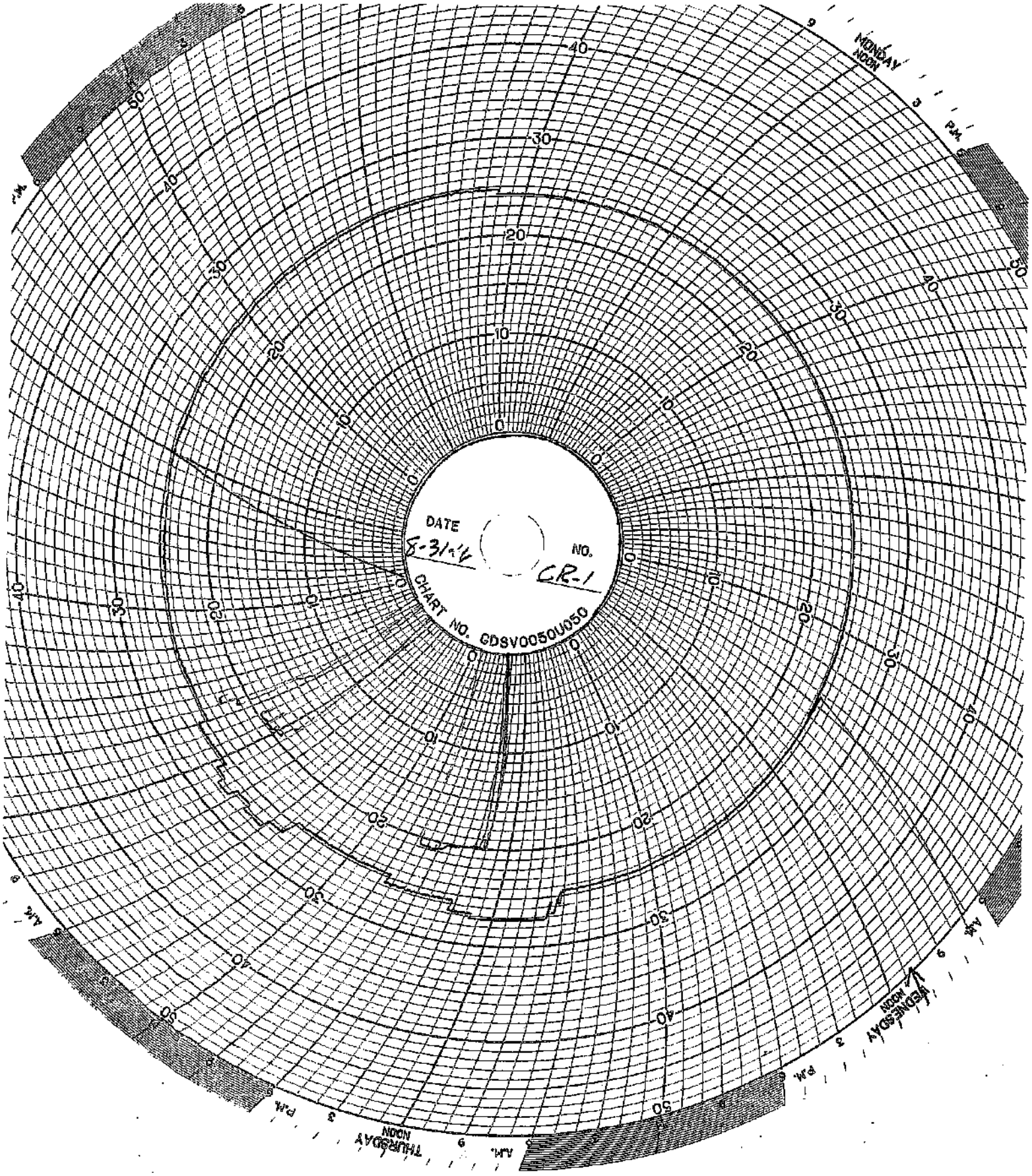
Red Pen – Well 1 Monthly Volume (chart value x 30)

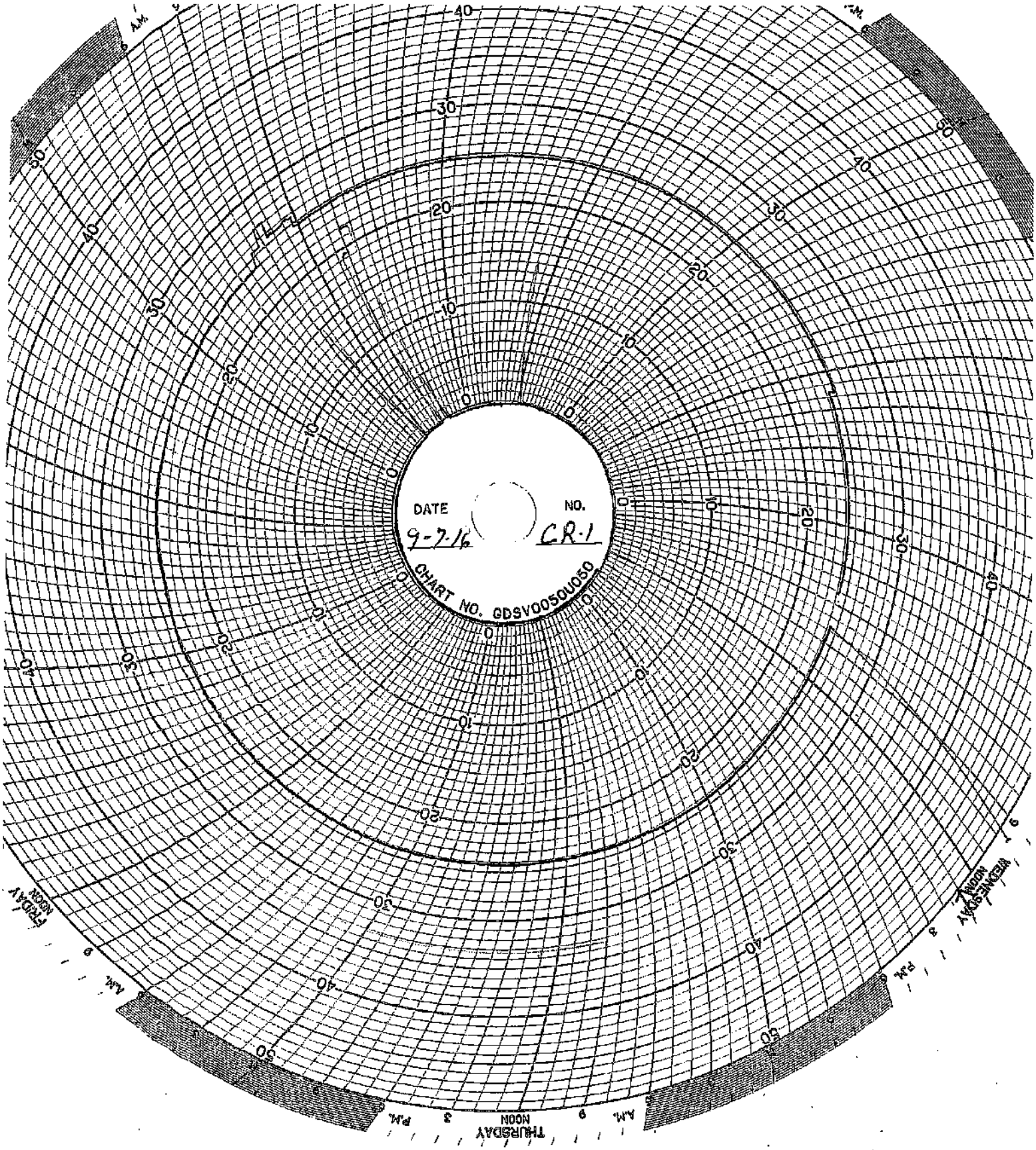
Channel #3

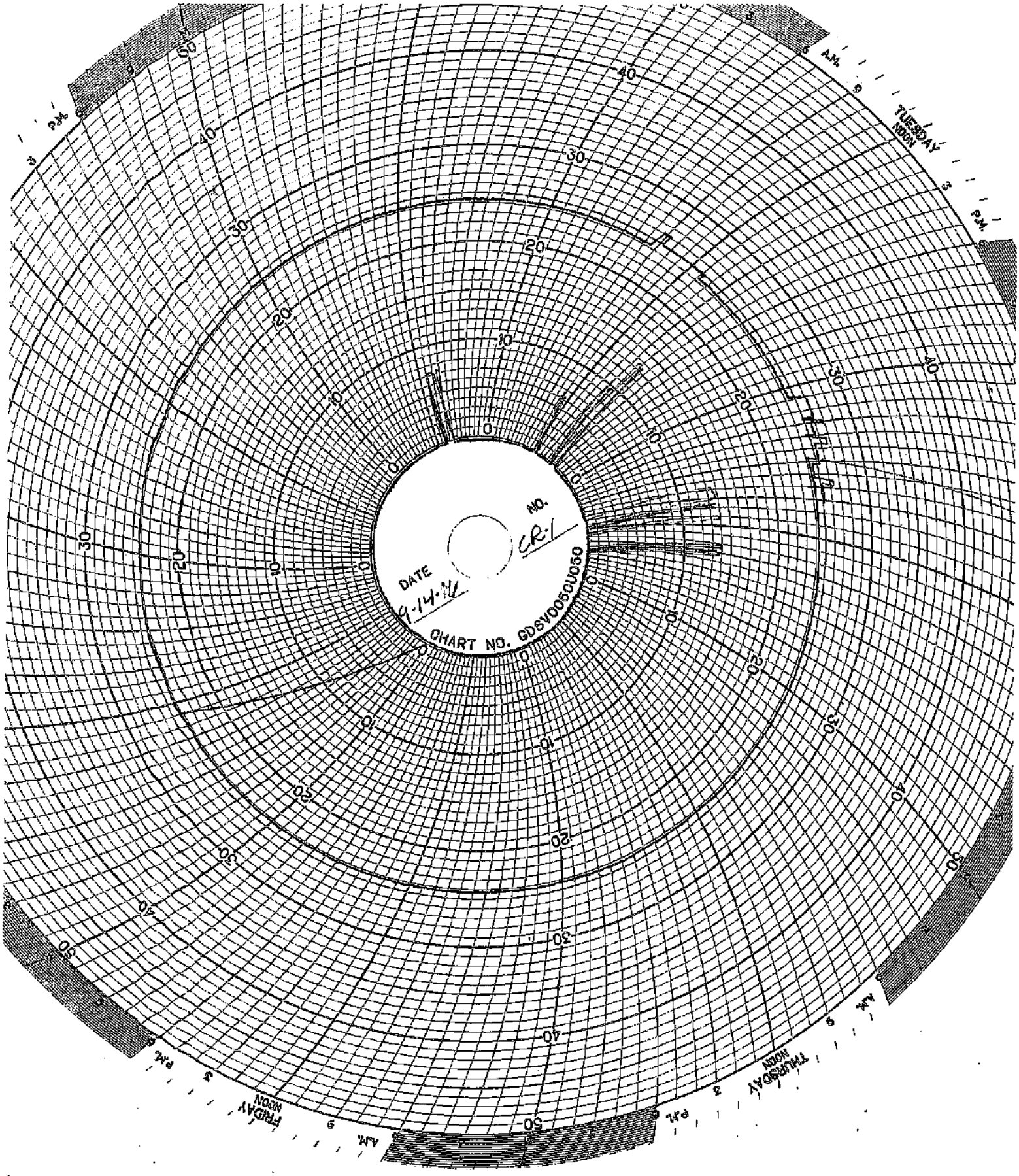
Green Pen – Well 2 Monthly Volume (chart value x 4)

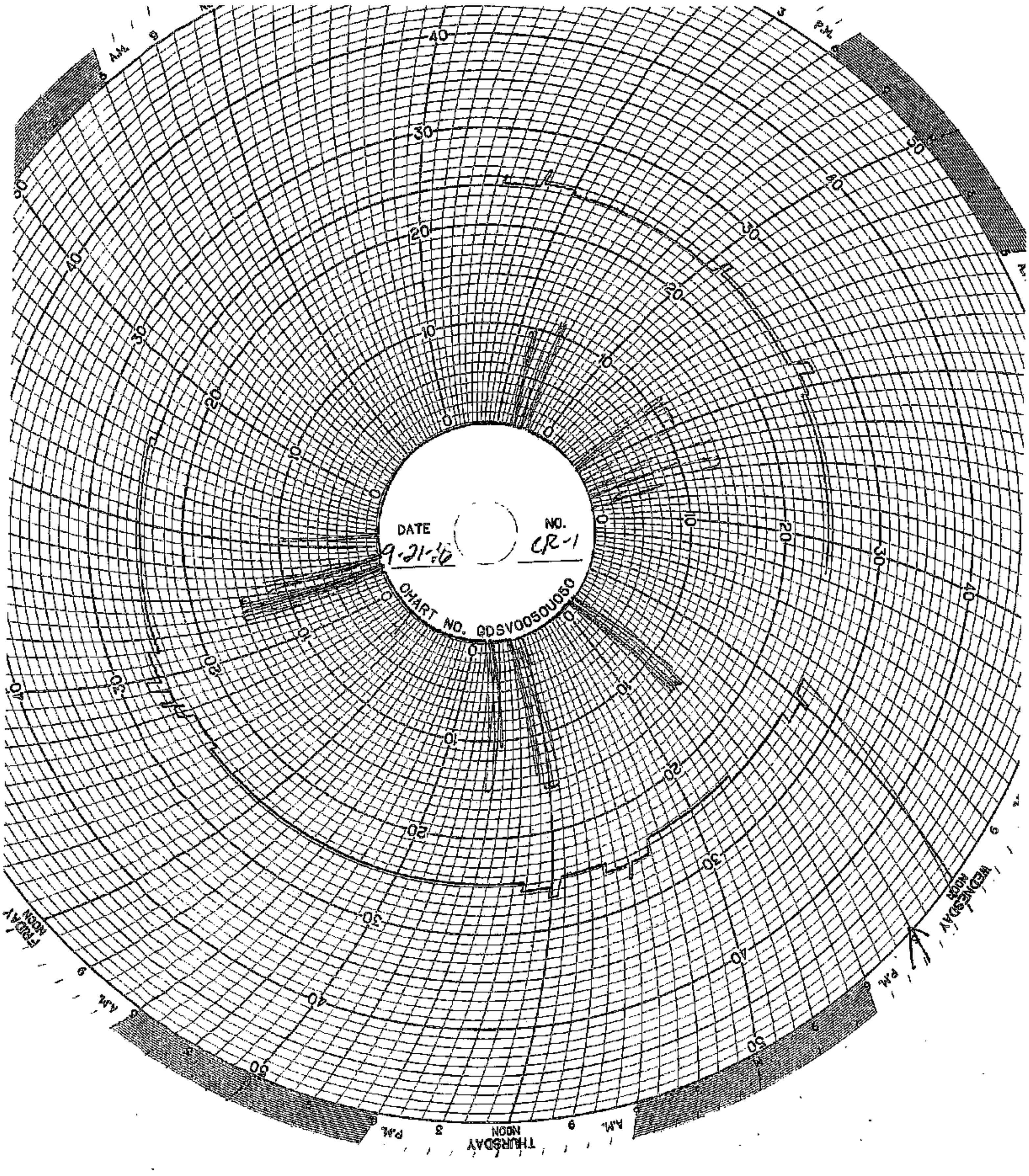
Channel #4

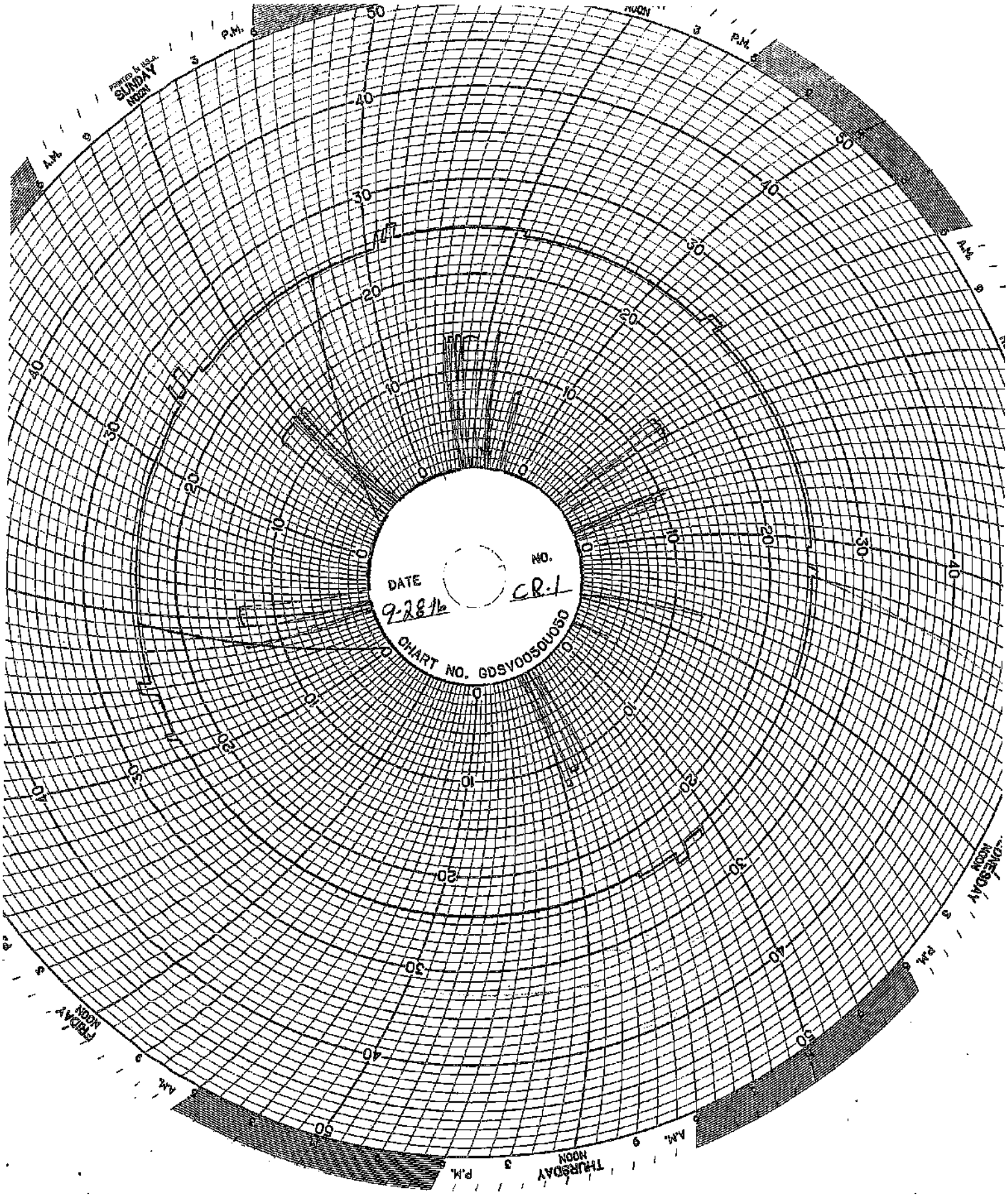
Black Pen – Temperature (chart value x 0)


DATE
5-31-17
NO.
CR-1
CHART NO. GDSV0050U050
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
AM
PM


DATE
9-7-16
NO.
CR-1
CHART NO. GDSV0050U050
THURSDAY
NOON
FRIDAY
NOON
WEDNESDAY
NOON


TUESDAY
NOON
P.M.
A.M.
THURSDAY
FRIDAY
NO.
DATE
CHART NO. GDSV0050U050


DATE
9-21-16
NO.
CR-1
CHART NO. GDSV0050U050
WEDNESDAY
THURSDAY
FRIDAY
NOON
A.M.
P.M.


PRINTED IN U.S.A.
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
A.M.
P.M.
DATE
9-28-16
NO.
CR-1
CHART NO. GDSV0050U050

WELL 2 DATA

Well 02 Monthly Data

Date	Min Injection Pressure (PSIG)	Max Injection Pressure (PSIG)	Min Sight Glass Level (in)	Max Sight Glass Level (in)	Min Annulus Pressure (PSIG)	Max Annulus Pressure (PSIG)	Min Injectate pH	Max Injectate pH	Min Flow Rate (GPM)	Max Flow Rate (GPM)	Min Differentail Pressure (PSIG)	Max Differential Pressure (PSIG)
9/1/2016	-5.9	634.2	22.4	27.4	265.2	1199.7	0.9	1.6	2.7	62.3	258.8	873.3
9/2/2016	-10.0	727.3	22.4	26.4	299.8	1197.5	0.5	1.4	1.9	109.6	150.2	863.5
9/3/2016	-2.4	-1.4	24.1	25.0	299.9	407.8	0.6	8.6	0.0	0.0	301.8	409.7
9/4/2016	-2.4	-1.3	24.0	24.7	376.3	387.5	-0.5	8.6	0.0	0.0	378.2	389.5
9/5/2016	-2.4	-1.3	24.0	24.7	370.8	376.8	1.6	1.7	0.0	0.0	372.7	378.8
9/6/2016	-9.9	444.1	22.8	25.6	314.8	966.4	1.5	8.6	0.4	128.0	324.6	768.1
9/7/2016	-10.0	-9.2	24.2	25.0	300.0	404.6	1.7	5.7	0.0	0.0	309.4	413.9
9/8/2016	-9.4	-3.0	24.2	24.3	392.9	399.6	1.6	1.9	0.0	0.6	396.1	408.9
9/9/2016	-5.0	747.1	22.3	27.9	300.0	1205.7	0.8	2.1	10.2	138.1	263.9	893.8
9/10/2016	6.2	11.4	24.6	25.6	299.8	406.0	0.8	0.9	0.0	0.0	289.9	397.4
9/11/2016	-5.0	733.2	22.0	26.1	299.8	1200.8	0.5	0.9	3.5	104.9	241.3	902.3
9/12/2016	-10.0	747.9	22.2	27.7	299.8	1200.0	0.5	1.1	10.8	112.9	227.3	809.3
9/13/2016	-10.0	-9.4	24.1	25.4	300.0	407.6	0.9	1.0	0.0	0.5	310.0	417.6
9/14/2016	-9.5	728.7	23.0	27.1	299.8	1199.8	-0.7	10.1	7.1	110.2	229.9	869.6
9/15/2016	-10.0	745.8	22.9	27.3	299.7	1199.9	-2.0	12.2	8.3	64.0	187.6	816.2
9/16/2016	-10.0	741.4	22.5	25.7	299.8	1199.6	1.4	12.9	3.7	86.2	309.8	859.0
9/17/2016	-10.0	-10.0	23.8	23.9	318.0	381.9	-0.1	9.9	0.0	1.9	328.0	391.9
9/18/2016	-10.0	-10.0	23.5	24.1	302.5	318.4	-0.3	12.7	0.0	4.0	312.5	328.4
9/19/2016	-10.0	226.8	22.0	24.5	300.2	816.0	-0.5	8.1	0.6	76.7	310.1	740.3
9/20/2016	-8.8	428.2	22.6	23.5	363.8	804.2	7.9	7.9	1.2	77.4	350.2	627.7
9/21/2016	-8.7	438.9	22.7	22.8	531.8	826.3	0.4	10.6	2.7	125.3	335.2	643.2
9/22/2016	-10.0	484.3	22.4	23.0	524.2	855.2	1.1	10.1	16.7	399.9	320.2	649.3
9/23/2016	-10.0	85.2	22.7	22.8	505.6	619.0	0.8	12.0	0.3	121.3	512.0	581.5
9/24/2016	-10.0	466.5	22.6	24.2	300.0	815.0	0.5	2.1	1.4	135.1	310.0	617.1
9/25/2016	-10.0	-10.0	22.9	23.5	380.3	396.0	1.1	1.5	0.0	0.0	390.3	405.9
9/26/2016	-10.0	347.4	22.0	25.0	300.1	862.0	0.5	8.5	0.8	127.1	310.1	717.8
9/27/2016	-10.0	430.3	23.0	23.6	371.5	655.2	7.9	8.2	1.9	177.7	211.4	474.3
9/28/2016	-10.0	124.7	22.9	23.5	358.6	482.8	1.1	8.2	0.4	87.0	358.2	428.1
9/29/2016	-10.0	388.3	21.5	23.2	355.2	931.7	1.2	1.8	1.1	112.1	365.1	770.5
9/30/2016	-7.5	-4.2	21.6	24.1	306.1	647.8	1.6	2.1	0.0	7.1	310.6	655.3
#VALUE!												

Circle Chart Index

Environmental Geo-Technologies, LLC 28470 Citrin Drive Romulus, MI 48174

Chart Recorder #1

Channel #1

Blue Pen - Well 1 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 1 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 1 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 1 Annulus Tank Level (chart value x 0)

Chart Recorder #2

Channel #1

Blue Pen – Well 2 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 2 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 2 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 2 Annulus Tank Level (chart value x 0)

Chart Recorder #3

Channel #1

Blue Pen – Injection pH Well 1 & 2 (chart value x 30)

Channel #2

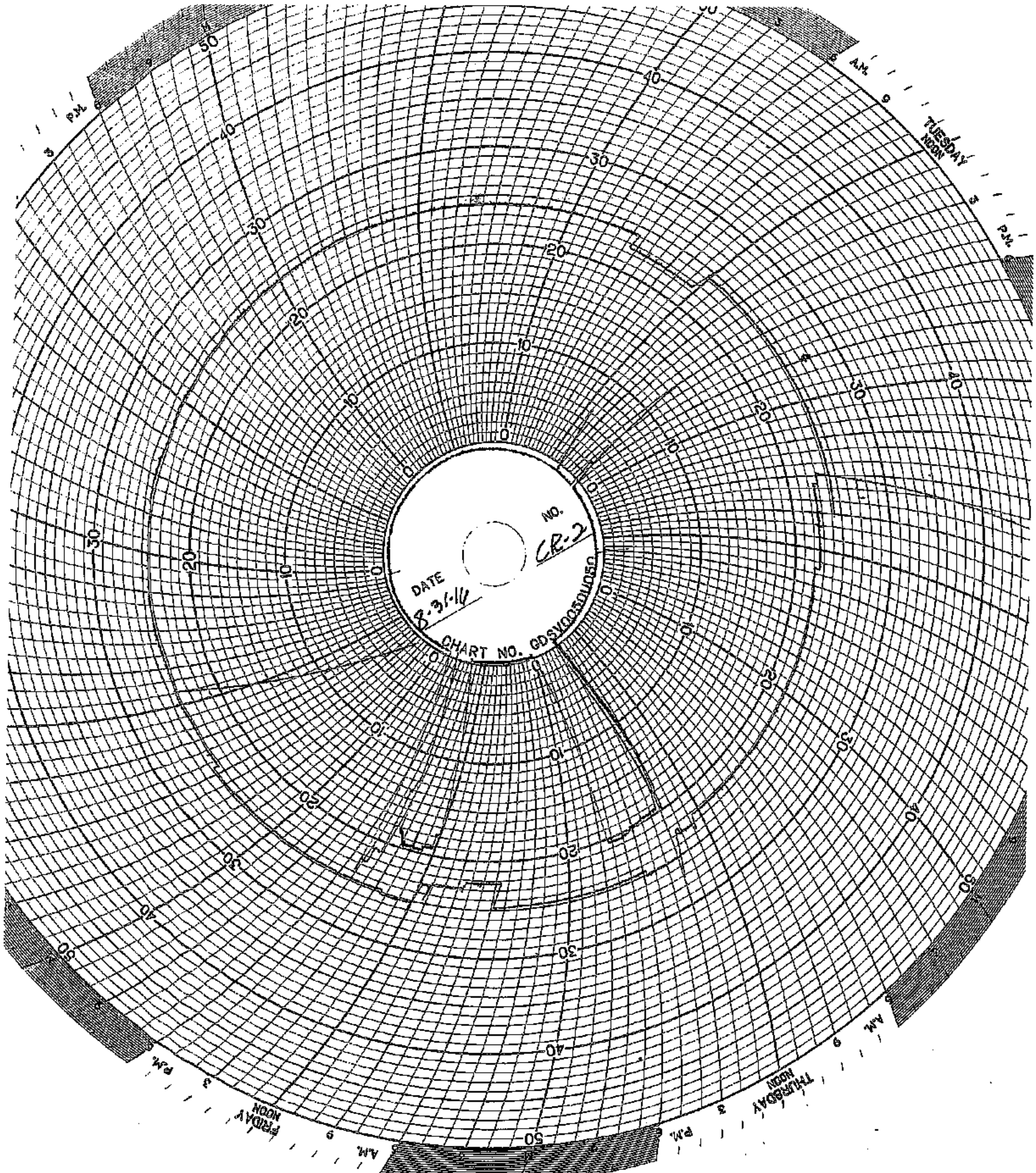
Red Pen – Well 1 Monthly Volume (chart value x 30)

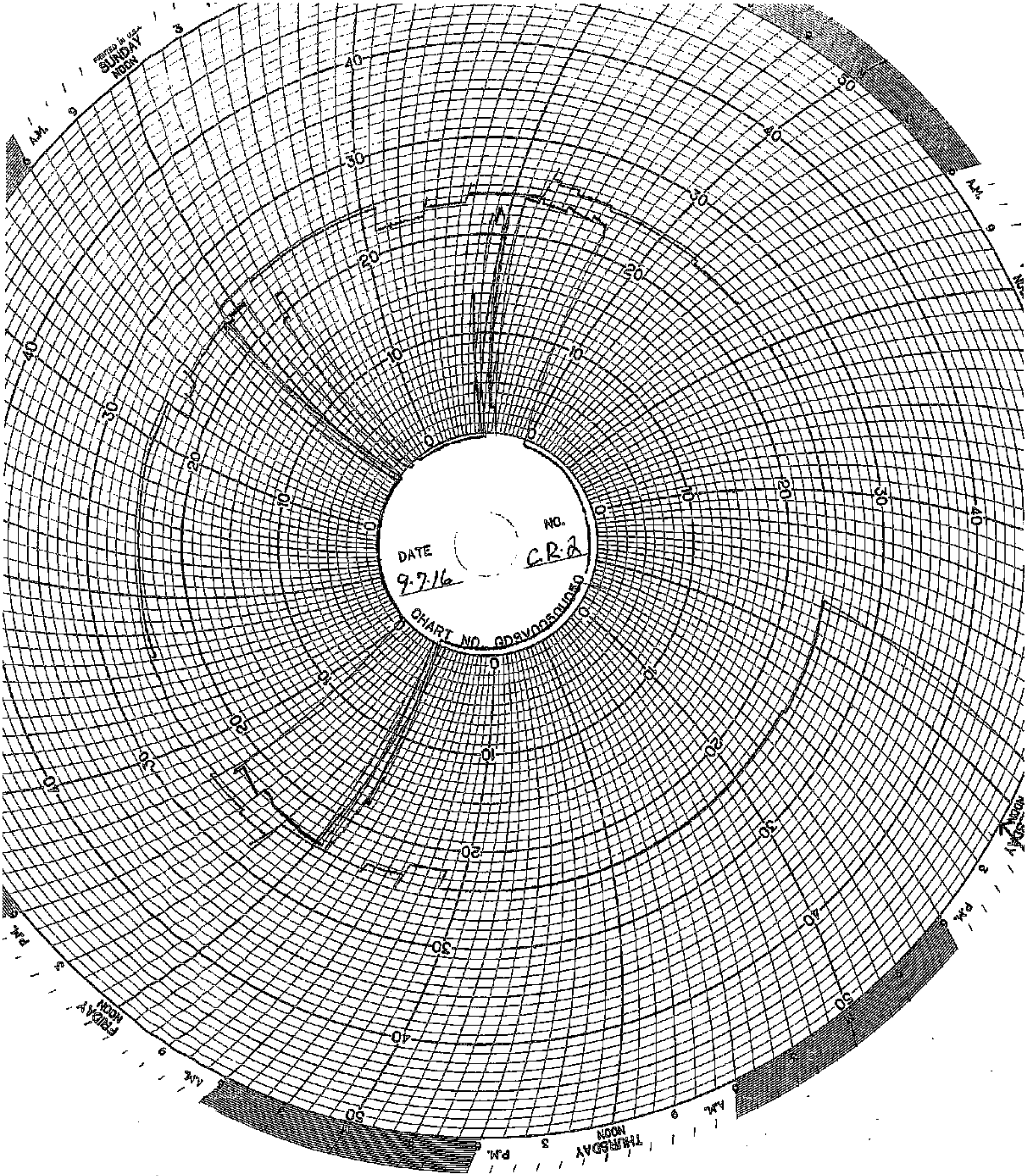
Channel #3

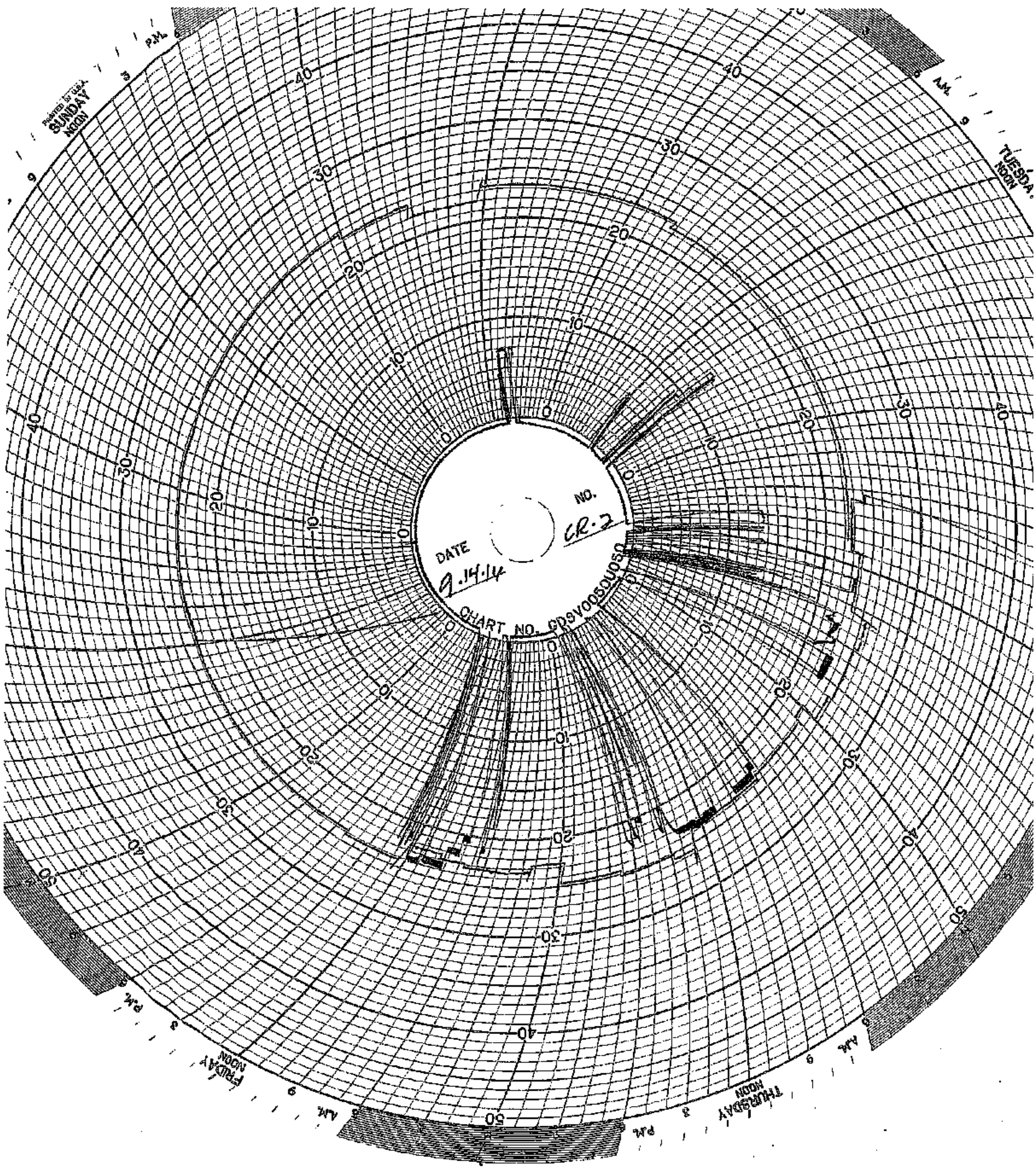
Green Pen – Well 2 Monthly Volume (chart value x 4)

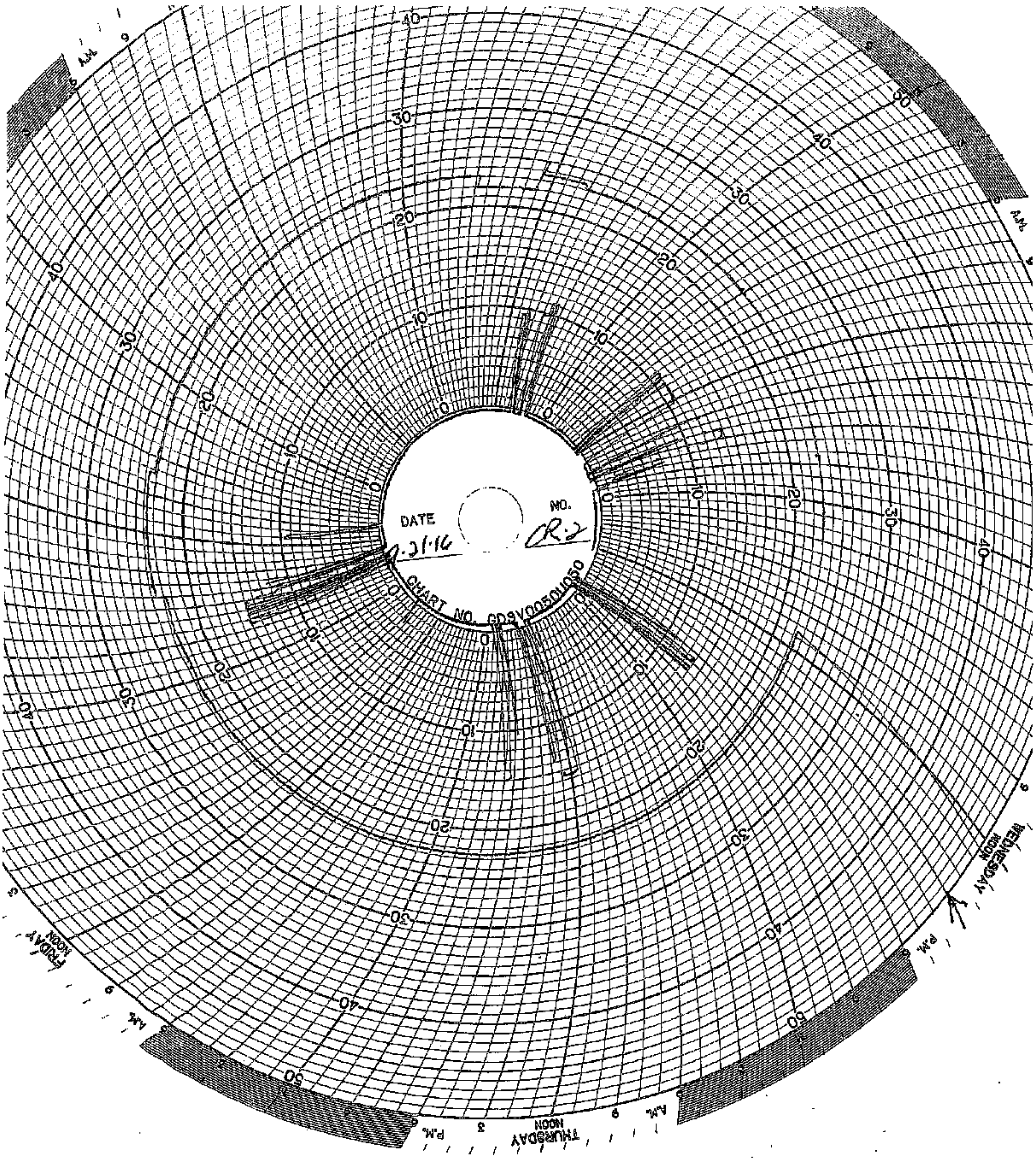
Channel #4

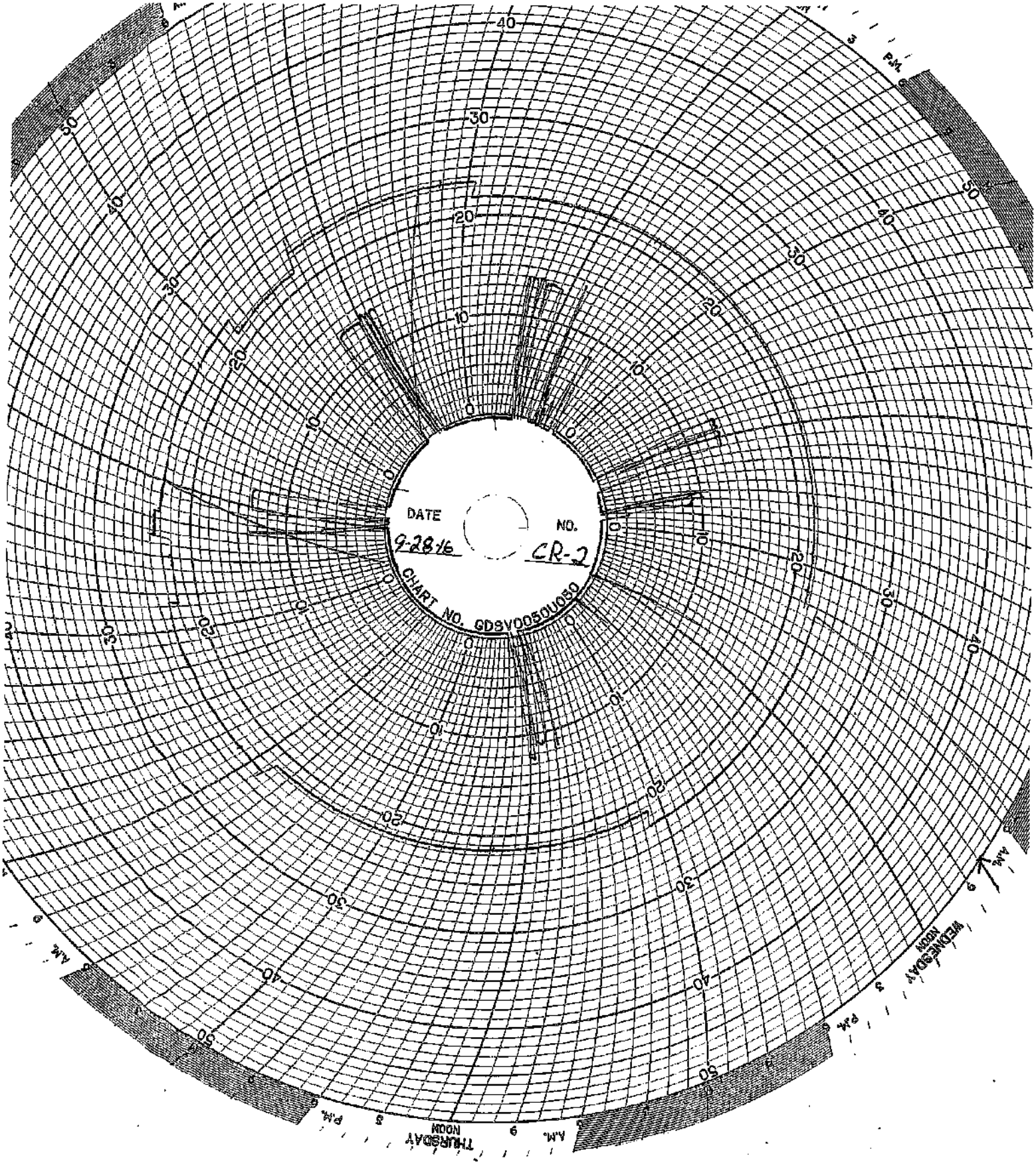
Black Pen – Temperature (chart value x 0)

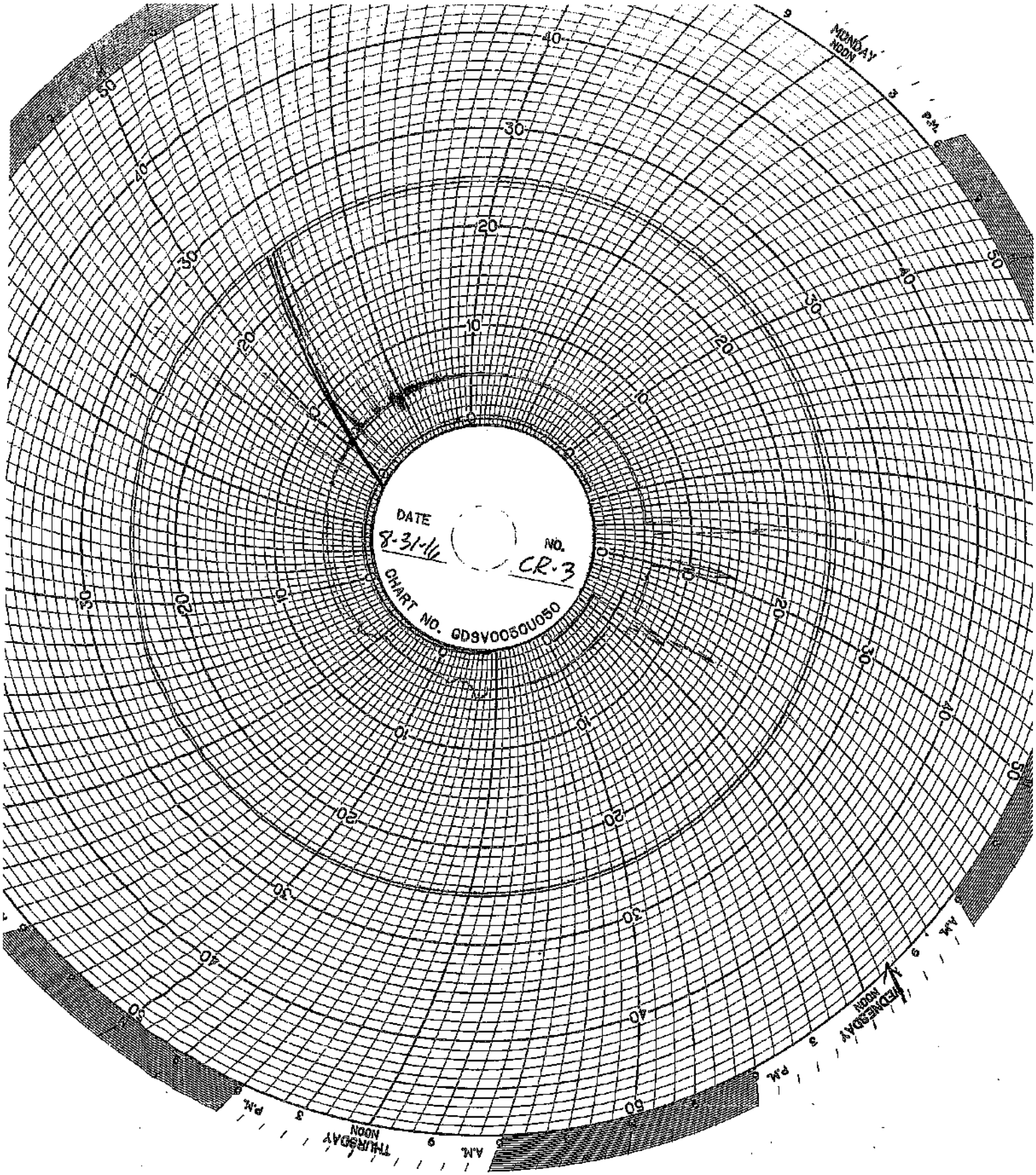

DATE
NO.
CR-2
CHART NO.
TUESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
A.M.
P.M.

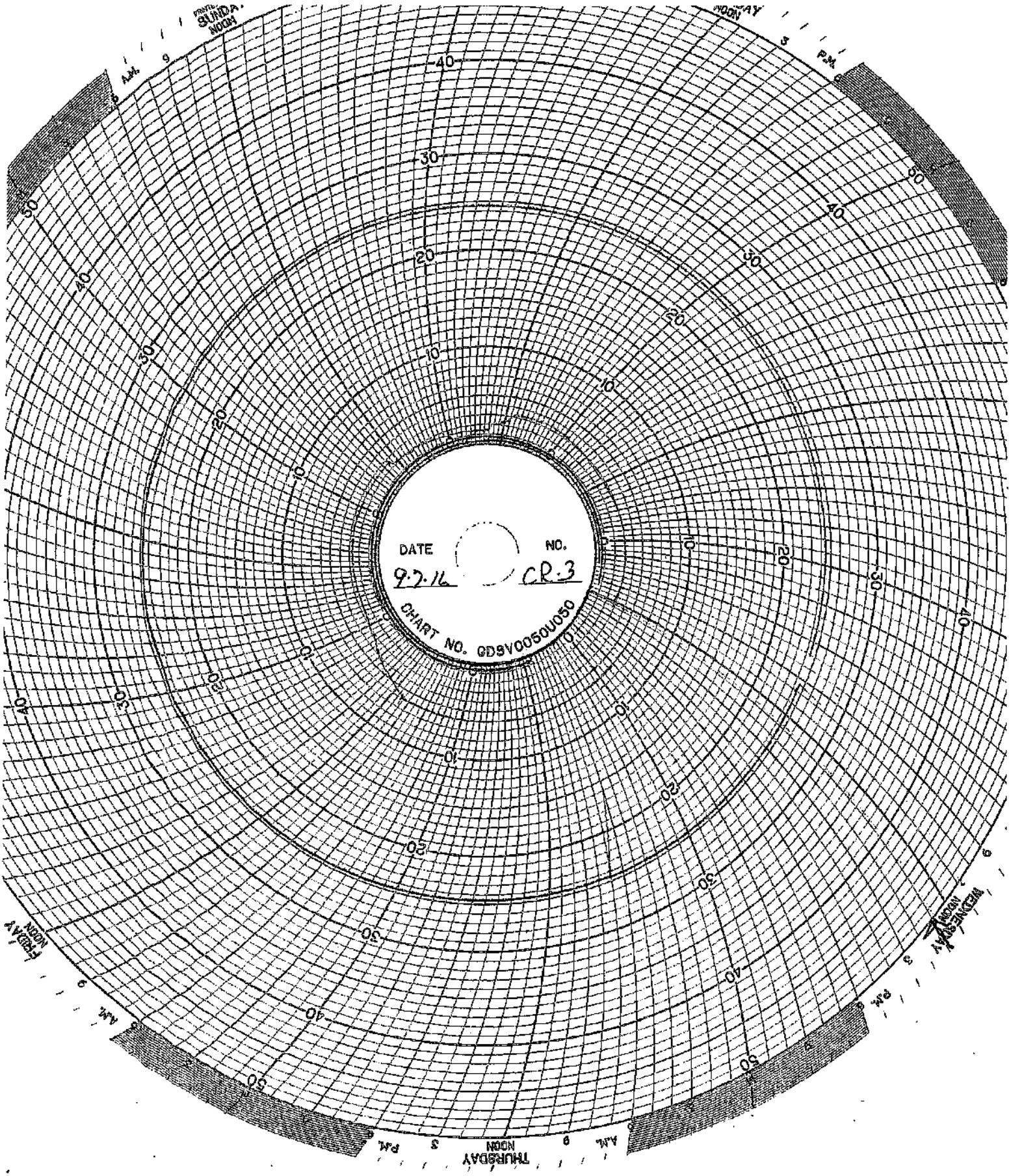

DATE
9.7.16
NO.
C.R.2
CHART NO.
PRINTED IN U.S.A.
SUNDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
A.M.
P.M.

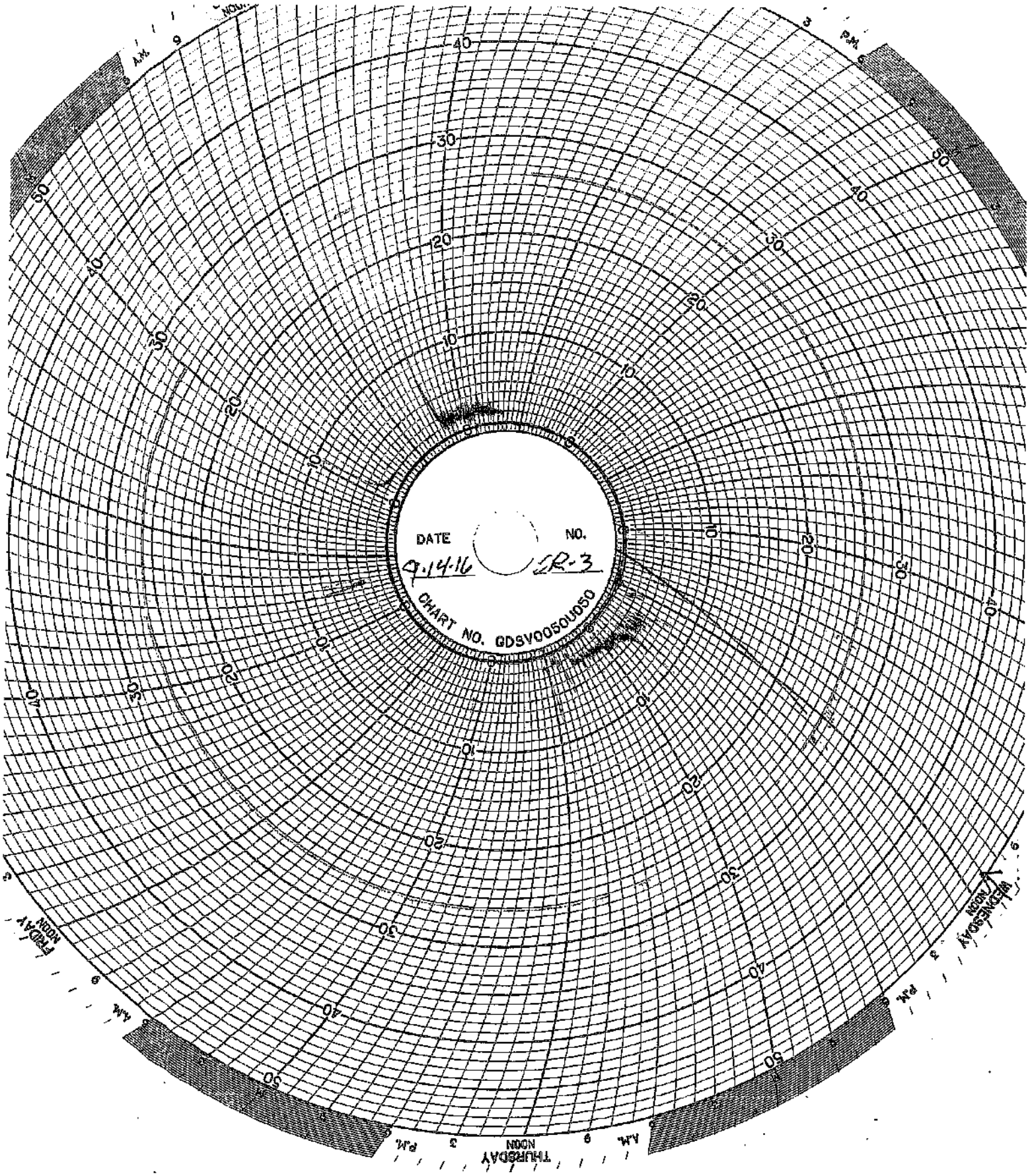

PRINTED IN U.S.A.
SUNDAY
NOON
TUESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
A.M.
P.M.
NO.
CR-2
DATE
9.14.14
CHART NO.

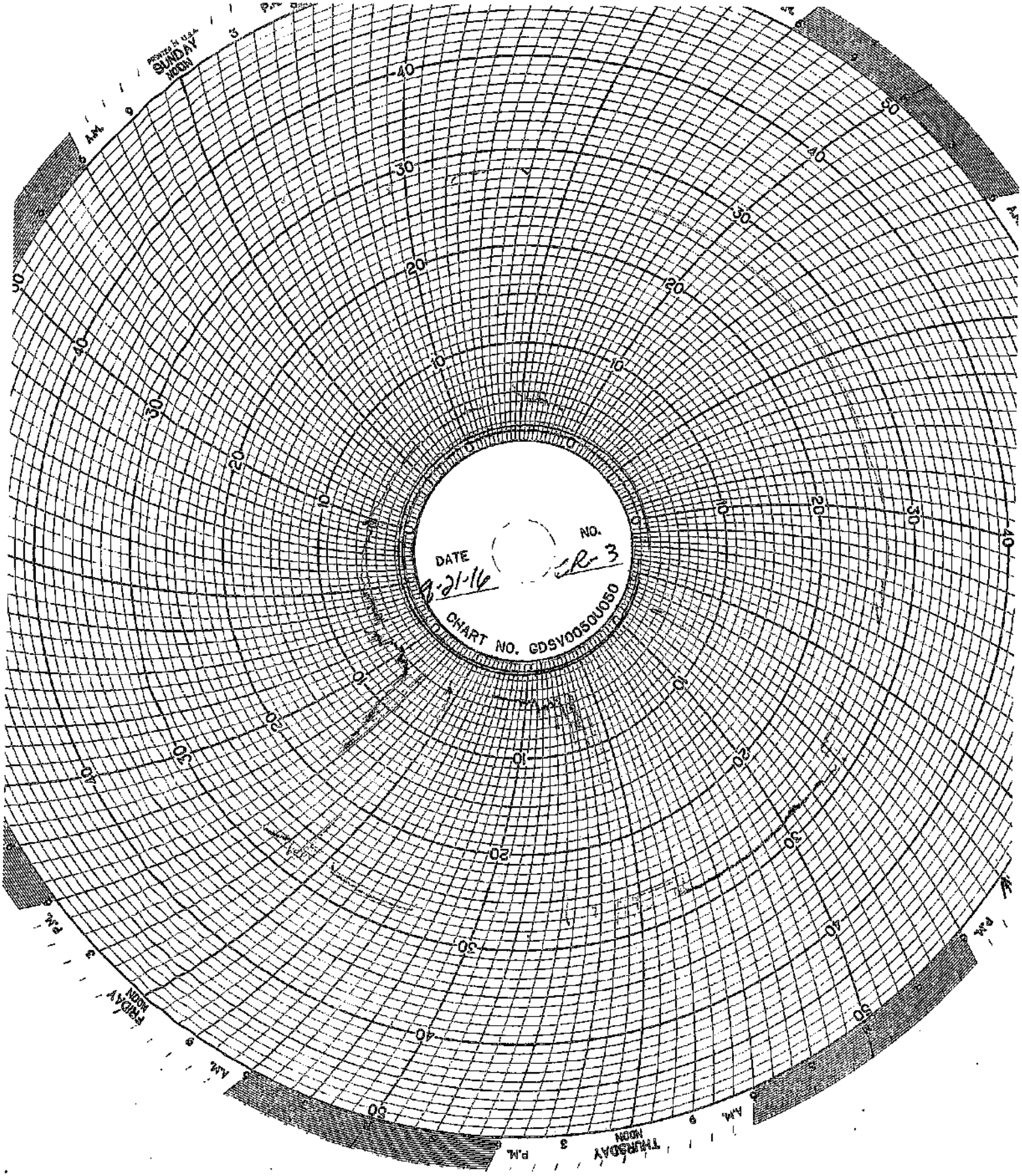

DATE
NO.
CHART NO. GDSV0050U050
WEDNESDAY
THURSDAY
FRIDAY
NOON
A.M.
P.M.

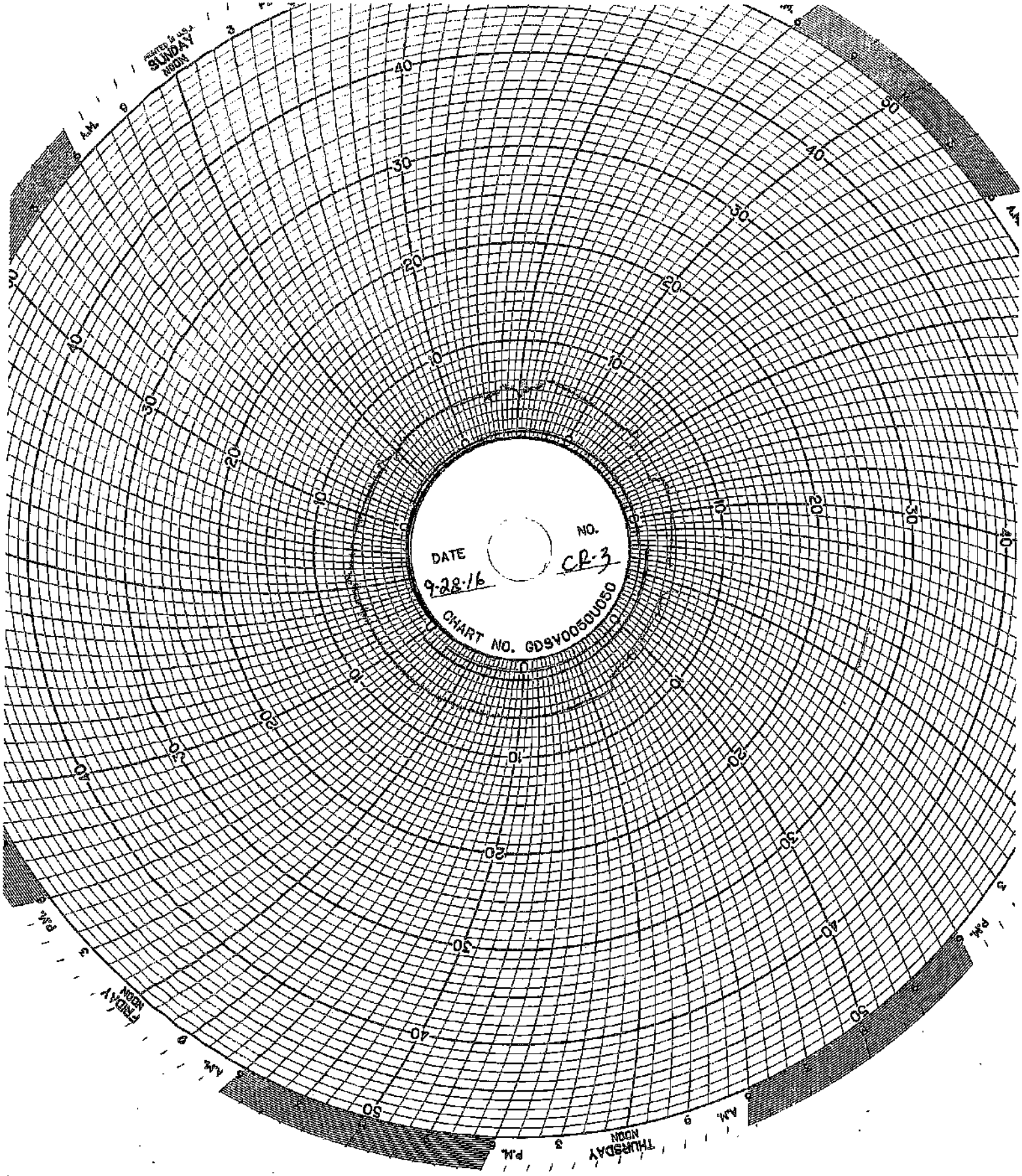

DATE
9-28-16
NO.
CR-2
CHART NO. GDSV0050U050
THURSDAY
NOON
WEDNESDAY
NOON
A.M.
P.M.


DATE
8-31-11
NO.
CR-3
CHART NO. GD9V005QU050
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
A.M.
P.M.


SUNDAY NOON
MONDAY NOON
TUESDAY NOON
WEDNESDAY NOON
THURSDAY NOON
FRIDAY NOON
SATURDAY NOON
AM
PM
DATE
9.7.16
NO.
CR.3
CHART NO. GDSV00600050


DATE
9.14.16
NO.
SR-3
CHART NO. GDSV0050U050
AM
PM
NOON
MIDNIGHT
THURSDAY
FRIDAY
WEDNESDAY


SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
DATE
NO.
8-21-16
ER-3
CHART NO. GDSV005OU050


DATE
9-28-16
NO.
CR-3
CHART NO. GDSV0050U050
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
A.M.
P.M.

MAINTENANCE LOG

UIC Monthly Maintenance Log

9/2/2016	Suction Pump	Replaced P-9 suction pump
9/8/2016	Well 2	Replaced inlet valve on wellhead
9/9/2016	Well 1	Replaced lower well valve
9/11/2016	Well 1	Welding repairs on inlet pipe of well 1
9/20/2016	Well 1	Removed stainless steel inlet pipe

CORROSION MONITORING

CORROSION MONITORING COUPONS BASELINE VISUAL DESCRIPTION

November 4, 2013

Fiberglass

The fiberglass coupon is Red Box 2000 type and is 2-1/2 inches long by 1/2 inch wide and 1/4 inches thick. It is a dark orange (rust) in color with a glossy shine on one side a polished look on the opposite side and the cut edges look sanded.

Hastelloy

The hastelloy coupon is identified as C276 with serial number 1. The dimensions of the coupon are 3 inches long by 1/2 inch wide and 1/4 inch thick. The coupon is silver in color with a lightly sandblasted surface.

Stainless Steel

The stainless steel coupon is identified as 316L with serial number C1562. The dimensions of the coupon are 3 inches long by 1/2 inch wide and 1/4 inch thick. The coupon is silver in color with a lightly sandblasted surface.

CORROSION MONITORING PLAN
COUPON SUMMARY

Date	Hastelloy (C267)	Stainless Steel (316L)	Fiberglass (Redbox)	
12/19/2013	13.330 g	10.848 g	7.309 g	Initial Mass @ start up
2/21/2014	13.329 g	10.846 g	7.306 g	
3/10/2014	13.327 g	10.845 g	7.300 g	
4/18/2014	13.324 g	10.841 g	7.272 g	
5/30/2014	13.328 g	10.818 g	7.226 g	
6/30/2014	13.321 g	10.337 g	7.196 g	
7/11/2014	13.323 g	10.304 g	7.196 g	
8/12/2014	13.328 g	10.045 g	7.182 g	
9/17/2014	13.321 g	9.997 g	7.090 g	
10/30/2014	13.321 g	9.387 g	7.075 g	
11/21/2014	13.320 g	9.386 g	7.069 g	
12/19/2014	13.321 g	9.315 g	7.084 g	
1/12/2015	13.321 g	9.289 g	7.063 g	
2/23/2015	13.339 g	9.286 g	7.005 g	New hastelloy coupon
3/31/2015	13.339 g	9.286 g	7.005 g	
4/27/2015	13.335 g	9.130 g	6.852 g	
5/21/2015	13.336 g	9.124 g	6.809 g	
6/12/2015	13.334 g	9.126 g	6.819 g	
7/27/2015	13.337 g	9.127 g	6.818 g	
8/26/2015	13.337 g	9.022 g	6.780 g	
9/21/2015	13.336 g	8.987 g	6.792 g	
10/19/2015	13.335 g	8.985 g	6.797 g	
11/16/2015	13.334 g	8.982 g	6.788 g	
12/17/2015	13.334 g	8.933 g	6.791 g	
1/29/2016	13.334 g	8.931 g	6.788 g	
2/16/2016	13.332 g	8.799 g	6.757 g	
3/31/2016	13.339 g	9.286 g	7.005 g	
4/22/2016	13.333 g	8.590 g	6.744 g	
5/31/2015	13.334 g	6.084 g	6.784 g	
6/30/2016	13.328 g	10.942 g	6.793 g	New stainless steel coupon
8/3/2016	13.326 g	10.529 g	6.743 g	
8/29/2016	13.325 g	10.020 g	6.723 g	

GHESQUIERE PLASTIC TESTING, INC.

20460 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 885-3535
FAX (313) 885-1771

Report Date: November 15, 2013
Test Date: October 15 - November 14, 2013

Report #1310-77651
Performed for:
Environmental Geo-Technologies
28470 Citrin Drive
Romulus, MI 48174

Attention: Mr. Don Anderson

WORK REQUESTED:

Perform Barcol Hardness test on sample submitted.

DESCRIPTION OF SAMPLE:

Sample submitted was identified as a fiberglass test coupon.

(P. O. #Credit Card).

WORK PERFORMED:

Test specimen was prepared as necessary and conditioned for a minimum of 24 hours at standard laboratory conditions prior to testing.

Barcol Hardness test was performed in accordance with the procedures of ASTM D2583-13. One specimen was tested.

RESULTS:

The following determination was made based upon the above test:

BARCOL HARDNESS

	Hardness
Specimen 1	90

Specimen is being returned with this report for further evaluation.

GHESQUIERE PLASTIC TESTING, INC.

M. W. Ghesquiere
President

MWG/kmi

TOTAL 1 PAGES

GHESQUIERE PLASTIC TESTING, INC.

20460 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 886-8535
FAX (313) 886-1771

Report Date: February 17, 2014
Test Date: February 14 - 17, 2014

Report #1402-78036
Performed for:
Environmental Geo-Technologies
28470 Citrin Drive
Romulus, MI 48174

Attention: Mr. Don Anderson

WORK REQUESTED:

Perform Barcol Hardness test on sample submitted.

DESCRIPTION OF SAMPLE:

Sample submitted was identified as a fiberglass test coupon.

(P. O. #Credit Card).

WORK PERFORMED:

Test specimen was prepared as necessary and conditioned for a minimum of 24 hours at standard laboratory conditions prior to testing.

Barcol Hardness test was performed in accordance with the procedures of ASTM D2583-13. One specimen was tested.

RESULTS:

The following determination was made based upon the above test:

BARCOL HARDNESS

	Hardness
Specimen 1	90

Specimen was returned to the client on February 17, 2014.

GHESQUIERE PLASTIC TESTING, INC.

M. W. Ghesquiere
President

MWG/dm

TOTAL 1 PAGES

GHESQUIERE PLASTIC TESTING, INC.

20450 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 886-3535
FAX (313) 886-1771

Report Date: June 16, 2014
Test Date: June 13 - 16, 2014

Report #1406-78499
Performed for:
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

Attention: Mr. Don Anderson

WORK REQUESTED:

Perform Barcol Hardness test on sample submitted.

DESCRIPTION OF SAMPLE:

Sample submitted was identified as a fiberglass test coupon.

(P. O. #Credit Card).

WORK PERFORMED:

Test specimen was prepared as necessary and conditioned for a minimum of 24 hours at standard laboratory conditions prior to testing.

Barcol Hardness test was performed in accordance with the procedures of ASTM D2583-13. One specimen was tested.

RESULTS:

The following determination was made based upon the above test:

BARCOL HARDNESS

	Hardness
Specimen 1	85

Specimen was returned to the client June 16, 2014.

GHESQUIERE PLASTIC TESTING, INC.

M. W. Ghesquiere
President

MWG/dm

October 2, 2014

- TEST REPORT -

PN 118325
PO Attn:John Frost

PLASTICS TESTING DEPARTMENT

Prepared For:

John Frost
Environmental Geo-Technologies, LLC
26470 Citrin Drive
Romulus, MI 48174

Prepared By: _____
Melissa Martin
Sr. Project Technician

Approved By: _____
Jim Drummond
Physical & Plastics Testing, Manager

October 2, 2014

John Frost
Environmental Geo-Technologies, LLC

SUBJECT: Barcol Hardness on one material.
PO# Attn:John Frost

RECEIVED: One small section identified as; Fiberglass Coupon.

BARCOL HARDNESS ASTM D 2583-13a

	Results
Barcol Hardness, Instant	97

Prepared By: Melissa Martin
Sr. Project Technician

st

Approved By: Scott W. Yates
Plastics Testing Assistant Manager

October 22, 2015

· TEST REPORT ·

PN 125322
PO 00154

PLASTICS TESTING DEPARTMENT

Prepared For:

John Frost
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

Prepared By: _____
Melissa Martin
Sr. Project Technician

Approved By: _____
Jim Drummond, Sr.
Physical & Plastic Testing, Manager

October 22, 2015

John Frost
Environmental Geo-Technologies, LLC

SUBJECT: Barcol Hardness on one material.

RECEIVED: One small section identified as; Fiberglass Coupon.

BARCOL HARDNESS ASTM D 2583-13a
Instant Reading

	Results
Barcol Hardness, Instant	96

Prepared By: _____
Melissa Martin
Sr. Project Technician

tc

Approved By: _____
Scott W. Yates
Plastics Testing Assistant Manager

CORROSION MONITORING COUPONS VISUAL DESCRIPTION

August 29, 2016

Fiberglass Coupon

The coupon is dark orange (rust) in color with similar semi-smooth textures on both sides. Its cut edges appear sanded. The coupon is free of pits, cracks, swelling, wicking and blemishes. There has been little but some affect to this coupon.

Hastelloy Coupon

This coupon is identified as C276 with Serial Number 5. The coupon is silver in color with a lightly sandblasted texture. It is clean and free of pits, cracks, and blemishes. There appears to be no effect on this coupon.

Stainless Steel Coupon

The coupon had experienced substantial corrosion in just a few months. The coupon is seriously pitted and corroded. The coupon has lost approximately 1 gram of weight in 4 months time.

INJECTION
FINGERPRINTS

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/1/16
Receiving ID#	E090116002
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	0.4	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.06	TDS	4.82
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	77°F		
Conductivity	88.05		
% Solids	4.8		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/1/16
Receiving ID#	ID9011601
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	10.6	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.10	TDS	9.32
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	77.5		
Conductivity	186.1 mS		
% Solids	9.3		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC

RECEIVING & APPROVAL FORM

Date	9/2/16
Receiving ID#	I0902160 2
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	S.H
Sampled by	

COPY

Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	< 0.1	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.11	TDS	12.77
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	81°F		
Conductivity	255.2 mS		
% Solids	12.7		
Turbidity	Yes No		
Color (visual)			
TSS (%)	< 0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/2/16
Receiving ID#	I6902160
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	J.K.F.

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	2.7	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.12	TDS	7.07
Physical Description		Resistivity	
Steam Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	79°F		
Conductivity	138.8 mS		
% Solids	7.0		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/6/16
Receiving ID#	I0906161 01
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	S.H
Sampled by	SF

COPY

Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	0.5	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.13	TDS	7.42
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	80°F		
Conductivity	145.0 mS		
% Solids	7.4		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/19/16
Receiving ID#	I 0909160
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	G.H.
Sampled by	G.H.

COPY

Compatible?/(RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	0.5	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.14	TDS	4.3 %
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	81°F		
Conductivity	84.3 mS		
% Solids	4.3		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	< 0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/11/16
Receiving ID#	E091116-05
Manifest# Line:	
Laird Ben Cart Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H.
Sampled by	D.A.

COPY

Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	0.9	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.19	TDS	2.3
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	81°F		
Conductivity	42.8 mS		
% Solids	2.3		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/12/16
Receiving ID#	E091216-01
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H.
Sampled by	GL

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	0.4	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.13	TDS	4.12
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	74°F		
Conductivity	82.3 mS		
% Solids	4.1		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC

RECEIVING & APPROVAL FORM

Date	9/14/16
Receiving ID#	T09141601
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	JH
Sampled by	

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	2.4	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.13	TDS	9.87
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	77°F		
Conductivity	195.9 ms		
% Solids	9.8		
Turbidity	Yes No		
Color (visual)			
TSS (%)	< 0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/15/16
Receiving ID#	ID09151601
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	
Sampled by	

COPY

Compatible? (RT#)	Yes	No	Barium	
PCBs (ppm)(Oily Waste Only)?			Calcium	
TOC (ppm)(CC Waste Only)?			Total Iron	
Flash Point (°F)	> 140		Magnesium	
pH (S.U.)	0.8		Sodium Chloride	
Cyanides? (mg/L)			Bicarbonate	
Sulfides? (ppm)			Carbonate	
Specific Gravity	1.10		TDS	6.67
Physical Description			Resistivity	
Stream Consistency	Yes	No	Sulfate	
Oil in Sample	Yes	No		
Temperature	77°F			
Conductivity	132.0 mS			
% Solids	6.6			
Turbidity	Yes	No		
Color (visual)				
TSS (%)	< 0.1			
Radiation Screen (as needed)				
Lab Signature				

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	09-20-16
Receiving ID#	2016091
Manifest# Line:	
Land Ban Cert included	Yes No
EQT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	GC

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	6.7	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.14	TDS	16.8.7
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	76F		
Conductivity	216.8 mS		
% Solids	10.8		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/21/16
Receiving ID#	EQ921160001
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	S.H.
Sampled by*	DM

COPY

Compatible?/(RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	0.7	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.15	TDS	7.67
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	76°F		
Conductivity	152.0 mS		
% Solids	7.6		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	1.0		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/21/16
Receiving ID#	I092116.02
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	S.A
Sampled by	

COPY

Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	0.2	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.15	TDS	10.47
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	80°F		
Conductivity	208.0 ms		
% Solids	10.4		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9.22.16
Receiving ID#	T09221601
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.A.
Sampled by	

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	0.3	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.17	TDS	10.27
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	79°F		
Conductivity	202.9mS		
% Solids	10.2		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9/23/10
Receiving ID#	10923160)
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.P.
Sampled by	J.P.

COPY

LABORATORY ANALYSIS (To be completed by laboratory)			
Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140 °F	Magnesium	
pH (S.U.)	0.5	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.11	TDS	11.72
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	79°F		
Conductivity	233.3 mS		
% Solids	11.7		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	< 0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9-24-16
Receiving ID#	I09241602
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H
Sampled by	

COPY

Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	0.3	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.14	TDS	11.4
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	71°F		
Conductivity	222.8 mS		
% Solids	11.4		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	< 0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	09-26-16
Receiving ID#	T092616O1
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H
Sampled by	

COPY

Compatible?: (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	8.4	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.15	TDS	10.07
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	76°F		
Conductivity	200.1 mS		
% Solids	10.0		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	< 0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	09-27-16
Receiving ID#	T092716-01
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	

COPY

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	0.4	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.14	TDS	11.37
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	74°F		
Conductivity	226.4 mS		
% Solids	11.3		
Turbidity	Yes No		
Color (visual)			
TSS (%)	< 0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

[illegible]	
Date	9/27/16
Receiving ID#	I092716 02
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	S.H.
Sampled by	S.H.

COPY

[illegible]		[illegible]	
Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	0.4	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.14	TDS	15.72
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	74°F		
Conductivity	314.0 mS		
% Solids	15.7		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature	[signature]		

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9/29/16
Receiving ID#	I6929160I
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	D.A.

COPY

LABORATORY INFORMATION			
Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	0.2	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.17	TDS	10,607
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	71°F		
Conductivity	212.2 m5		
% Solids	10.6		
Turbidity	Yes No		
Color (Visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

PROJECT INFORMATION	
Date	9/30/16
Receiving ID#	T093016-01
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	

COPY

LABORATORY ANALYSIS			
WASTE CHARACTERISTICS		TCLP ANALYSIS	
Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	<0.1	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.16	TDS	27.37
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	69°F		
Conductivity	>400.0 ms		
% Solids	27.3		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

WASTE STREAMS
CHARACTERIZATIONS

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile

Profile # 0102-7

GENERATOR INFORMATION

Name: [redacted]

Facility A[redacted]

City: [redacted]

Conta[redacted]

BILLING INFO

Company [redacted]

Addre[redacted]

City [redacted]

Att[redacted]

WASTE INFORMATION

Name of Waste/Common Chemical Name:

Electroless nickel

Process Generating Waste (Please be specific, incomplete information may delay the approval process):

Electroless nickel Plating operation - no cyanide used in process

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☒ Non Hazardous Liquid ~~Industrial Waste~~ By Analysis ☐ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☒ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: N/A

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear	☒ 0-1 % ☐ 3-5 %	☐ Multi-Layered	☐ <0.8 ☐ 1.0 – 1.2	available
☐ Black/Brown	☐ 1-3 % ☐ > 5%	☐ Bi-Layered	☒ 0.8 – 1.0 ☐ 1.3 – 1.4	09.01.16
☐ Other Clear		☒ Single Phase	Exact / Other _____	

pH: ☐ NA ☐ ≤ 2 ☐ 2 – 4 ☐ 4 – 6 ☒ 6 – 8 ☐ 8 – 10 ☐ 10 – 12.5 ☐ ≥ 12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☒ >200°F ☐ None ☐ Closed Cup ☐ Open Cup

VOC Concentration – 0 PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE – *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN		CONSTITUENT	MAX	MIN	
Water	97	99	%				%
Nickel	1	3	%				%
			%				%
			%				%
			%				%

Metals: Indicate if this waste contains any of the following metals,. If Generator knowledge-provide backup

☐ Lab Analysis ☒ Generator Knowledge ☐ TCLP ☐ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☒	____ ppm	Aromatic Amine	☒	____ ppm
Dioxine	☒	____ ppm	Pesticides	☒	____ ppm
Cyanides Reactive	☒	____ ppm	Rodenticides	☒	____ ppm
Cyanides Total	☒	____ ppm	Fungicides	☒	____ ppm
Sulfides Reactive	☐	____ ppm			
Sulfides Total	☐	____ ppm			

Metal	Code			
Arsenic (As)	D004	☒ < 5 ppm	____ ppm
Barium (Ba)	D005	☒ <100 ppm	____ ppm
Cadmium (Cd)	D006	☒ < 1 ppm	____ ppm
Chromium (Cr)	D007	☒ < 5 ppm	____ ppm
Lead (Pb)	D008	☒ < 5 ppm	____ ppm
Mercury (Hg)	D009	☒ < 0.2 ppm	____ ppm
Selenium (Se)	D010	☒ < 1 ppm	____ ppm
Silver (Ag)	D011	☒ < 5 ppm	____ ppm

TCLP Organics D012 - D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*

☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☐ Yes ☒ No
2. Reportable Quantity (RQ) in pounds ________
3. DOT Shipping Name Non. RCRA/non DOT Regulated Hazard Class NA UN/NA NA

PG ______ ERG ______ Hazardous Constituents for "n.o.s." ________

4. Method of Shipment: ☒ Bulk Tanker ☐ Vac truck ☐ Rail Car ☐ Drums ☐ Totes
5. Number of Units to Ship Now: 5000 6. Anticipated Volume / Units per Year: 24,000 or ☐ One Time
6. Special Handling Requirements including PPE: ________

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample [redacted]

Printed Name: [redacted]

Generator's Sig[redacted]

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS

PLEASE collect a representative 1-quart sample of the waste described in the above referenced GENERATOR'S WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. ________ SAMPLING METHOD 2. ________ COLLECTION POINT

3. ________ SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. ________ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[redacted]					

[redacted]

CHAIN OF CUSTODY RECORD

[redacted]

Client [redacted]

Locati[redacted]

Special Handling Request
☑ ROUTINE
☐ RUSH
☐ OTHER

3859

Sample ID	Date	Time	Grab	Comp	No. Of Containers	Comment	Analysis Requested	Sample No.
Electroless Nickel	[illegible]	10:00 A	✓		1		Approval Only	

Collected By [redacted]

Relinquis[redacted]

Delivere[redacted]

Remarks: [redacted]

FINGERPRINT FORM

01027

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/6/16
Receiving ID#	Electsolegs WT
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time In	
Time out	
Received by	S.P.
Sampled by	Client

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	4.8	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.12	TDS	
Physical Description	Liquid	Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	77°F		
Conductivity	44.8 ms		
% Solids	15.4		
Turbidity	Yes No		
Color (Visual)	Green		
TSS (%)	50.1		
Radiation Screen (as needed)	Negative		
Lab Signature			

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 949 1000. Fax 734 949 1002

Generator Waste Profile

Profile # 01028

GENERATOR INFOR[redacted]

WASTE INFORMATION

Name of Waste/Common Chemical Name:

Nitric + Sulfuric Acids

Process Generating Waste (Please be specific, incomplete information may delay the approval process):

Leftover nitric + sulfuric acids that never made it through waste water treatment. Both acids are from their Anodize line, i.e. the stripping + cleaning of aluminum brakes being manufactured. Used for coating process

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☐ Non Hazardous Liquid Industrial Waste ☒ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☒ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: D002 F019

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear ☒ Black/Brown ☒ Other Yellow	☐ 0-1 % ☐ 3-5 % ☐ 1-3 % ☐ > 5%	☐ Multi-Layered ☐ Bi-Layered ☐ Single Phase	☐ <0.8 ☐ 1.0 – 1.2 ☐ 0.8 – 1.0 ☐ 1.3 – 1.4 Exact / Other ____	acceptable 09.06.16

pH: ☐ NA ☒ ≤ 2 ☐ 2 – 4 ☐ 4 – 6 ☐ 6 – 8 ☐ 8 – 10 ☐ 10 – 12.5 ☐ ≥12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☐ >200°F ☒ None ☐ Closed Cup ☐ Open Cup

VOC CONCENTRATION - ~~NA~~ -0- PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN	CONSTITUENT	MAX	MIN
Nitric Acid 20-70% (see MSDS)	5	10 %			
Sulfuric Acid 90-98% (see MSDS)	70	85 %			
Water	10	20 %			

Metals: Indicate if this waste contains any of the following metals. If Generator knowledge provide backup
☒ Lab Analysis ☐ Generator Knowledge ☐ TCLP ☐ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☐	____ ppm	Aromatic Amine	☐	____ ppm
Dioxins	☐	____ ppm	Pesticides	☐	____ ppm
Cyanides Reactive	☐	____ ppm	Rodenticides	☐	____ ppm
Cyanides Total	☐	____ ppm	Fungicides	☐	____ ppm
Sulfides Reactive	☐	____ ppm			
Sulfides Total	☐	____ ppm			

Arsenic (As)	D004	☐ < 5 ppm	____ ppm
Barium (Ba)	D005	☐ <100 ppm	____ ppm
Cadmium (Cd)	D006	☐ < 1 ppm	____ ppm
Chromium (Cr)	D007	☐ < 5 ppm	____ ppm
Lead (Pb)	D008	☐ < 5 ppm	____ ppm
Mercury (Hg)	D009	☐ < 0.2 ppm	____ ppm
Selenium (Se)	D010	☐ < 1 ppm	____ ppm
Silver (Ag)	D011	☐ < 5 ppm	____ ppm

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*

☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☒ Yes ☐ No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name Waste Corrosive Liquids, acidic, inorganic, n.o.s Hazard Class 8 UNNA UN1760
PG III ERG 154 Hazardous Constituents for "n.o.s." nitric acid, sulfuric acid
4. Method of Shipment: ☐ Bulk Tanker ☐ Vac truck ☐ Rail Car ☐ Drums ☒ Totes
5. Number of Units to Ship Now: 1 6. Anticipated Volume / Units per Year: _____ or ☐ One Time
6. Special Handling Requirements including PPE: _____

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample characterization and/or regulatory requirements.

Print [redacted]

Generator's Sig [redacted]

GENERATOR'S CHAIN OF CUSTODY RECORD [illegible]

the waste described in the above referenced GENERATORS WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. _____ SAMPLING METHOD 2. _____ COLLECTION POINT

3. _____ SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	*Date*	*Time*	Received by: (Signature)	Date	Time

FINGERPRINT FORM

01028

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

[illegible]	
Date	9/7/16
Receiving ID#	Nitric/Sulfuric
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time in	
Time out	
Received by	J.H.
Sampled by	Client

[illegible]		[illegible]	
Compatible?(RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	0.2	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.17	TDS	
Physical Description	liquid	Resistivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	77°F		
Conductivity	268.8 mS		
% Solids	18.7		
Turbidity	Yes (No)		
Color (visual)	Colorless		
TSS (%)	<0.1		
Radiation Screen (as needed)	Negative		
Lab Signature	[signature]		

Material Safety Data Sheet
Nitric acid, 20-70%

ACC# 16550

Section 1 - Chemical Product and Company Identification

MSDS Name: Nitric acid, 20-70%
Catalog Numbers: AC124660010, AC124660025, AC124665000, AC133620010, AC133620025, AC424000025, AC424000250, AC424005000, AC613205000, S71972, S719721, S71972MF, S71972SC, S756232, S76523, S93314, S93315, A198C-212, A198C4X-212, A200-212, A200-500, A200-612GAL, A200212LC, A200C-212, A200C212EA, A200C212LC, A200C4X-212, A200C4X212L, A200S-212, A200S-500, A200SI-212, A206C-212, A206C4X-212, A467-1, A467-2, A467-250, A467-500, A483-212, A509-212, A509-212LC, A509-500, A509SK-212, A509SK-212LC, M-281, MCC-030822
Synonyms: Azotic acid; Engraver's acid; Aqua fortis.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7732-18-5	Water	30-80	231-791-2
7697-37-2	Nitric acid	20-70	231-714-2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear to yellow liquid.
Danger! May be fatal if inhaled. Causes severe eye and skin burns. Causes severe respiratory and digestive tract burns. Strong oxidizer. Contact with other material may cause a fire. Acute pulmonary edema or chronic obstructive lung disease may occur from inhalation of the vapors of nitric acid. Corrosive to metal.
Target Organs: Lungs, eyes, skin, mucous membranes.

Potential Health Effects
Eye: Causes severe eye burns. Direct contact with liquid may cause blindness or permanent eye damage.
Skin: Causes skin burns. May cause deep, penetrating ulcers of the skin. Concentrated nitric acid dyes human skin yellow on contact.
Ingestion: May cause severe and permanent damage to the digestive tract. Causes

gastrointestinal tract burns. May cause perforation of the digestive tract. May cause systemic effects.
Inhalation: Effects may be delayed. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Aspiration may lead to pulmonary edema. May cause systemic effects. May cause acute pulmonary edema, asphyxia, chemical pneumonitis, and upper airway obstruction caused by edema. Depending on the conditions, the vapor or fumes of nitric acid may actually be a mixture of nitric acid and various oxides of nitrogen. The composition may vary with temperature, humidity, and contact with other organic materials.
Chronic: Exposure to high concentrations of nitric acid vapor may cause pneumonitis and pulmonary edema which may be fatal. Symptoms may or may not be delayed. Continued exposure to the vapor & mist of nitric acid may result in a chronic bronchitis, & more severe exposure results in a chemical pneumonitis. The vapor & mists of nitric acid may erode the teeth, particularly affecting the canines & incisors.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. May react with metal surfaces to form flammable and explosive hydrogen gas. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.
Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire.
Flash Point: Not applicable.
Autoignition Temperature: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 4; Flammability: 0; Instability: 0; Special Hazard: OX

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as sawdust. Provide ventilation. Evacuate unnecessary personnel. Approach spill from upwind. Use water spray to cool and disperse vapors and protect personnel.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Discard contaminated shoes. Do not use with metal spatula or other metal items. Use only with adequate ventilation or respiratory protection.
Storage: Do not store near combustible materials. Do not store in direct sunlight. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Store away from alkalies. Separate from organic materials. Inspect periodically for damage or evidence of leaks or corrosion.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use a corrosion-resistant ventilation system.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Water	none listed	none listed	none listed
Nitric acid	2 ppm TWA; 4 ppm STEL	2 ppm TWA; 5 mg/m3 TWA 25 ppm IDLH	2 ppm TWA; 5 mg/m3 TWA

OSHA Vacated PELs: Water: No OSHA Vacated PELs are listed for this chemical. Nitric acid: 2 ppm TWA; 5 mg/m3 TWA
Personal Protective Equipment
Eyes: Wear chemical goggles and face shield.
Skin: Wear appropriate gloves to prevent skin exposure.
Clothing: Wear appropriate clothing to prevent skin exposure.
Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear to yellow
Odor: strong odor - acrid odor - suffocating odor
pH: 1.0 (0.1M soln)
Vapor Pressure: 7.1 mm Hg @ 20 deg C (70% acid)
Vapor Density: 2.17 (air=1)

Evaporation Rate: Not available.
Viscosity: 0.761 cps @ 25 deg C
Boiling Point: 86 deg C
Freezing/Melting Point:-42 deg C
Decomposition Temperature: Not available.
Solubility: Soluble in water.
Specific Gravity/Density:1.4
Molecular Formula:HNO3
Molecular Weight:63.01

Section 10 - Stability and Reactivity

Chemical Stability: Stable. Decomposes when in contact with air, light, or organic matter. The yellow color is due to release of nitrogen dioxide on exposure to light.
Conditions to Avoid: High temperatures, light, confined spaces.
Incompatibilities with Other Materials: Metals, reducing agents, strong bases, acetic acid, alcohols, acetone, aniline, hydrogen sulfide, metal powders, carbides, aldehydes, organic solvents, combustible materials, chromic acid, flammable liquids, cyanides, sulfides, Incompatible with many substances.
Hazardous Decomposition Products: Nitrogen oxides.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 7732-18-5: ZC0110000
CAS# 7697-37-2: QU5775000; QU5900000
LD50/LC50:
CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg;
CAS# 7697-37-2:
Inhalation, rat: LC50 = 260 mg/m3/30M;
Inhalation, rat: LC50 = 130 mg/m3/4H;
Inhalation, rat: LC50 = 67 ppm(NO2)/4H;
Carcinogenicity:
CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 7697-37-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found.
Teratogenicity: No information found.
Reproductive Effects: No information found.
Neurotoxicity: No information found.
Mutagenicity: No information found.
Other Studies: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: Terrestial: During transport through the soil, nitric acid will dissolve some of the soil material, in particular, the carbonate based materials. The acid will be neutralized to some degree with adsorption of the proton also occurring on clay materials. However, significant amounts of acid are expected to remain for transport down toward the ground water table. Upon reaching the ground water table, the acid will continue to move, now in the direction of the ground water flow.
Physical: No information available.
Other: No information available.

Section 13 - Disposal Considerations

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. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	NITRIC ACID	NITRIC ACID
Hazard Class:	8	8(9.2)
UN Number:	UN2031	UN2031
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 7732-18-5 is listed on the TSCA inventory.
CAS# 7697-37-2 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 7697-37-2: 1000 lb final RQ; 454 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 7697-37-2: 1000 lb TPQ
SARA Codes
CAS # 7697-37-2: acute, chronic, flammable.
Section 313
This material contains Nitric acid (CAS# 7697-37-2, 20-70%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 7697-37-2 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
CAS# 7697-37-2 is considered highly hazardous by OSHA.
STATE
CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
CAS# 7697-37-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols:
C
Risk Phrases:
R 35 Causes severe burns.

Safety Phrases:
S 23 Do not inhale gas/fumes/vapour/spray.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36 Wear suitable protective clothing.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)
CAS# 7732-18-5: No information available.
CAS# 7697-37-2: 1
Canada - DSL/NDSL
CAS# 7732-18-5 is listed on Canada's DSL List.
CAS# 7697-37-2 is listed on Canada's DSL List.
Canada - WHMIS
This product has a WHMIS classification of E, C, D1A.
Canadian Ingredient Disclosure List
CAS# 7697-37-2 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/30/1998
Revision #13 Date: 12/14/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the

Material Safety Data Sheet
Sulfuric acid 90-98%

ACC# 22350

Section 1 - Chemical Product and Company Identification

MSDS Name: Sulfuric acid 90-98%
Catalog Numbers: AC124640000, AC124640010, AC124640011, AC124640025, AC124640026, AC124645000, AC124645001, AC133610000, AC133610011, AC133610025, AC133610026, AC133610051, AC302070000, AC302070010, AC302070011, AC302070025, AC302070026, AC388270000, AC424520000, AC424520026, AC424525001, 13361-0010, 42452-0025, 42452-5000, A298-212, A298N119, A300-212, A300-225LB, A300-500, A300-500LC, A300-612GAL, A300-700LB, A300C-212, A300C-212002, A300C-212003, A300C-212LC, A300C212004, A300C212005, A300C212006, A300C212007, A300C212008, A300C212009, A300C212010, A300I-500, A300P-500, A300S-212, A300S-212LC, A300S-500, A300SI-212, A468-1, A468-2, A468-250, A468-500, A484-212, A510-212, A510-500, A510SK-212, NC9008405, NC9825433, S71211SC, S71211SCMF, S79200, SA174-212, SA174-4, SA176-4, SA196-500
Synonyms: Hydrogen sulfate; Oil of vitriol; Vitriol brown oil; Mattling acid; Battery acid; Sulphuric acid; Electrolyte acid; Dihydrogen sulfate; Spirit of sulfur; Chamber acid.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For Information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7664-93-9	Sulfuric acid	90-98	231-639-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear colorless to yellow liquid.
Danger! Causes eye and skin burns. Causes digestive and respiratory tract burns. May be fatal if mist inhaled. Strong inorganic acid mists containing sulfuric acid may cause cancer. Concentrated sulfuric acid reacts violently with water and many other substances under certain conditions. May cause lung damage. Hygroscopic (absorbs moisture from the air). Corrosive to metal.
Target Organs: Lungs, teeth, eyes, skin.

Potential Health Effects

Eye: Causes severe eye burns. May cause irreversible eye injury. May cause blindness. May cause permanent corneal opacification. The severity of injury depends on the concentration of the solution and the duration of exposure.
Skin: Causes skin burns. The severity of injury depends on the concentration of the solution and the duration of exposure.
Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns.
Inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Because its vapor pressure is negligible, it exists in the air only as a mist or spray. Exposure may impair lung function and cause mucostasis (reduced mucous clearance).
Chronic: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated eye contact may cause conjunctivitis. Effects may be delayed. Workers chronically exposed to sulfuric acid mists may show various lesions of the skin, tracheobronchitis, stomatitis, conjunctivitis, or gastritis. Occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid immediately.
Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.
Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.
Inhalation: POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician: Monitor arterial blood gases, chest x-ray, and pulmonary function tests if respiratory tract irritation or respiratory depression is evident. Treat dermal irritation or burns with standard topical therapy. Effects may be delayed. Do NOT use sodium bicarbonate in an attempt to neutralize the acid.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Contact with water can cause violent liberation of heat and spattering of the material. Contact with metals may evolve flammable hydrogen gas. Runoff from fire control or dilution water may cause pollution. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Strong dehydrating agent, which may cause ignition of finely divided materials on contact. Oxides of sulfur may be produced in fire.
Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Do NOT get water inside containers. If water is used, care should be taken, since it can generate heat and cause spattering if applied directly to sulfuric acid.
Flash Point: Not applicable.
Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 3; Flammability: 0; Instability: 2; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Carefully scoop up and place into appropriate disposal container. Provide ventilation. Do not get water inside containers. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not allow water to get into the container because of violent reaction. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Discard contaminated shoes. Use only with adequate ventilation. Do not breathe spray or mist. Do not use with metal spatula or other metal items. Inform laundry personnel of contaminant's hazards.
Storage: Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store near alkaline substances. Store protected from moisture. Ideally, sulfuric acid should be stored in isolation from all other chemicals in an approved acid or corrosives safety cabinet.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use a corrosion-resistant ventilation system.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sulfuric acid	0.2 mg/m3 TWA (thoracic fraction)	1 mg/m3 TWA 15 mg/m3 IDLH	1 mg/m3 TWA

OSHA Vacated PELs: Sulfuric acid: 1 mg/m3 TWA
Personal Protective Equipment
Eyes: Wear chemical splash goggles and face shield.
Skin: Wear neoprene gloves, apron, and/or clothing. Viton gloves are recommended.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: oily - clear colorless to yellow
Odor: odorless
pH: 0.3 (1N solution)
Vapor Pressure: < 0.001 mm Hg @ 20 deg C
Vapor Density: 3.38 (air=1)
Evaporation Rate: Slower than ether.
Viscosity: 21 mPas @ 25 C
Boiling Point: 290 - 338 deg C
Freezing/Melting Point:10 deg C
Decomposition Temperature:340 deg C
Solubility: Soluble with much heat
Specific Gravity/Density:1.84
Molecular Formula:H2SO4
Molecular Weight:98.07

Section 10 - Stability and Reactivity

Chemical Stability: Sulfuric acid reacts vigorously, violently or explosively with many organic and inorganic chemicals and with water.
Conditions to Avoid: Excess heat, exposure to moist air or water, Note: Use great caution in mixing with water due to heat evolution that causes explosive spattering. Always add the acid to water, never the reverse..
Incompatibilities with Other Materials: Metals, oxidizing agents, reducing agents, bases, acrylonitrile, chlorates, finely powdered metals, nitrates, perchlorates, permanganates, epichlorohydrin, aniline, carbides, fulminates, picrates, organic materials, flammable liquids.
Hazardous Decomposition Products: Oxides of sulfur.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 7664-93-9: WS5600000
LD50/LC50:
CAS# 7664-93-9:
Draize test, rabbit, eye: 250 ug Severe;
Inhalation, mouse: LC50 = 320 mg/m3/2H;
Inhalation, mouse: LC50 = 320 mg/m3;
Inhalation, rat: LC50 = 510 mg/m3/2H;
Inhalation, rat: LC50 = 510 mg/m3;
Oral, rat: LD50 = 2140 mg/kg;

Carcinogenicity:
CAS# 7664-93-9:

- **ACGIH:** A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)
- **California:** carcinogen, initial date 3/14/03 (listed as Strong inorganic acid mists containing

sulfuric acid).
- **NTP:** Known carcinogen (listed as Strong inorganic acid mists containing s).
- **IARC:** Group 1 carcinogen

Epidemiology: Workers exposed to industrial sulfuric acid mist showed a statistical increase in laryngeal cancer. This suggests a possible relationship between carcinogenesis and inhalation of sulfuric acid mist.
Teratogenicity: Sulfuric acid was not teratogenic in mice and rabbits, but was slightly embryotoxic in rabbits (a minor, rare skeletal variation). The animals were exposed to 5 and 20 mg/m3 for 7 hr/day throughout pregnancy. Slight maternal toxicity was present at the highest dose in both species.
Reproductive Effects: No information found
Mutagenicity: There are no mutagenicity studies specifically of sulfuric acid. However, there are established effects of reduced pH in mutagenicity testing, as would be caused by sulfuric acid. These effects are an artifact of low pH and are not necessarily due to biological effects of sulfuric acid itself.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Bluegill/Sunfish: 49 mg/L; 48Hr; TLm (tap water @ 20C)
Fish: Bluegill/Sunfish: 24.5 ppm; 48Hr; TLm (fresh water)

Section 13 - Disposal Considerations

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. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	SULFURIC ACID	SULFURIC ACID
Hazard Class:	8	8
UN Number:	UN1830	UN1830
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 7664-93-9 is listed on the TSCA Inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 7664-93-9: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 7664-93-9: 1000 lb TPQ

SARA Codes

CAS # 7664-93-9: immediate, delayed, reactive.

Section 313

This material contains Sulfuric acid (CAS# 7664-93-9, 90-98%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 7664-93-9 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 7664-93-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Sulfuric acid, listed as 'Strong inorganic acid mists contain', a chemical known to the state of California to cause cancer.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labelling in Accordance with EC Directives

Hazard Symbols:

C

Risk Phrases:

R 35 Causes severe burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 30 Never add water to this product.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7664-93-9: 2

Canada - DSL/NDSL

CAS# 7664-93-9 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2A, D1A, E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 7664-93-9 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 4/22/1999
Revision #15 Date: 2/13/2008

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile

Profile # 01029

GENERATOR INFORMATION

[redacted]

BILLING I

Company Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Attention: _____ Phone: ( ) _____ Fax: ( ) _____

WASTE INFORMATION

Name of Waste/Common Chemical Name:

Landfill Leachate

Process Generating Waste (Please *be specific, incomplete information may delay the approval process):*

Landfill Leachate including

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☒ Non Hazardous Liquid Industrial Waste ☐ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☒ No (PCBs, etc.)
3. List ALL Applicable Waste Codes 029L

PHYSICAL CHARACTERISTICS OF WASTE - See attached Lab Analyses

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear	☒ 0-1 % ☐ 3-5 %	☐ Multi-Layered	☐ <0.8 ☒ 1.0 – 1.2	
☒ Black/Brown	☐ 1-3 % ☐ > 5%	☐ Bi-Layered	☐ 0.8 – 1.0 ☐ 1.3 – 1.4	
☐ Other _____		☒ Single Phase	Exact / Other 1.026	090216

pH: ☐ NA ☐ ≤ 2 ☐ 2 – 4 ☒ 4 – 6 ☐ 6 – 8 ☐ 8 – 10 ☐ 10 – 12.5 ☐ ≥12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☒ 141 – 200°F ☐ >200°F ☐ None ☒ Closed Cup ☐ Open Cup

VOC Concentration - ≤ 120.00 PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >= 0.1%)* See attached Lab Analyses

CONSTITUENT	MAX	MIN		CONSTITUENT	MAX	MIN	
			%				%
			%				%
			%				%
			%				%
			%				%

Metals: Indicate if this waste contains any of the following metals. If Generator knowledge provide backup
☐ Lab Analysis ☒ Generator Knowledge ☐ TCLP ☒ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☐	____ppm	Aromatic Amine	☐	____ ppm
Dioxins	☐	____ppm	Pesticides	☐	____ ppm
Cyanides Reactive	☐	____ppm	Rodenticides	☐	____ ppm
Cyanides Total	☐	____ppm	Fungicides	☐	____ ppm
Sulfides Reactive	☐	____ppm			
Sulfides Total	☐	____ppm 0.390 ppm			

Arsenic (As)	D004	☐ < 5 ppm	____ ppm	
Barium (Ba)	D005	☐ <100 ppm	____ ppm	
Cadmium (Cd)	D006	☐ < 1 ppm	____ ppm	
Chromium (Cr)	D007	☐ < 5 ppm	____ ppm	
Lead (Pb)	D008	☐ < 5 ppm	____ ppm	
Mercury (Hg)	D009	☐ < 0.2 ppm	____ ppm	
Selenium (Se)	D010	☐ < 1 ppm	____ ppm	
Silver (Ag)	D011	☐ < 5 ppm	____ ppm	

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*
☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☐ Yes ☒ No
2. Reportable Quantity (RQ) in pounds ____
3. DOT Shipping Name Waste Non-DOT, Non-RCRA material Hazard Class NA UN/NA NA
   PG NA ERG NA Hazardous Constituents for "n.o.s." NA
4. Method of Shipment: ☒ Bulk Tanker ☐ Vac truck ☐ Rail Car ☐ Drums ☐ Totes
5. Number of Units to Ship Now: ____ 6. Anticipated Volume / Units per Year: Varies or ☐ One Time
6. Special Handling Requirements including PPE: ____

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample characterization.

Printed Name: [redacted]

X Generator's Sig[redacted]

GENERATOR CHAIN OF CUSTODY RECORD INSTRUCTIONS: PLEASE collect a representative 1-quart sample o the waste described in the above referenced GENERATORS WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. ____ SAMPLING METHOD 2. ____ COLLECTION POINT

3. ____ SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. ____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[redacted]					

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/2/16
Receiving ID#	Ohio Lead
Manifest# Uns:	
Lead Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time In	
Time out	
Received by	S.H.
Sampled by	Client

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	5.8	Sodium Chloride	
Cyanides? (mg/L)	<36	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.06	TDS	
Physical Description	Liquid	Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	77°F		
Conductivity	15.8 ms		
% Solids	7.8		
Turbidity	Yes No		
Color (visual)	Black		
TSS (%)	0.2		
Radiation Screen (as needed)	Negative		
Lab Signature			

01029

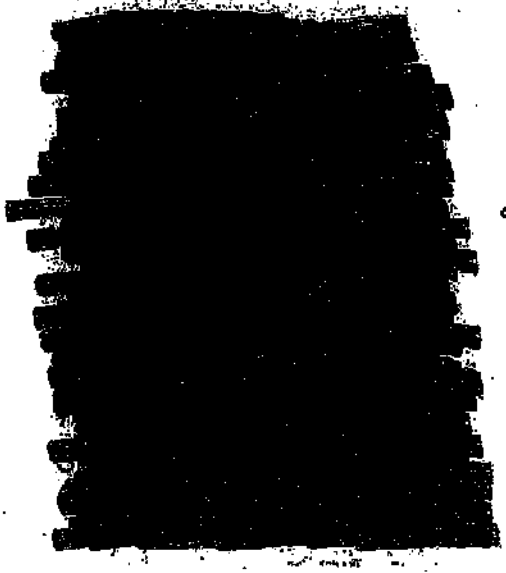
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-106825-1
Client Project/Site: SHL Well Sampling



aka "Leachate"
aka "SHL Well Sampling, FRAC"

Table of Contents

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-106825-1	FRAC	Water	06/29/16 07:00	06/30/16 10:30
490-106825-2	UST	Water	06/29/16 07:30	06/30/16 10:30
490-106825-3	TRIP BLANK1	Water	06/29/16 00:01	06/30/16 10:30

Job ID: 490-106825-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-106825-1

Comments
No additional comments.

Receipt
The samples were received on 6/30/2016 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.1° C, 4.4° C and 5.2° C.

Receipt Exceptions

The following containers were received with insufficient preservation: Sulfuric preserved containers. All bottles marked sulfuric pres had pH of 7

GC/MS VOA
Method(s) 8260B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for 490-352588 recovered outside control limits for the following analytes: 1,1,2,2-Tetrachloroethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260B: The following sample was diluted due to the nature of the sample matrix: UST (490-106825-2). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 490-352588.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method(s) 9056: Due to the high concentration of Bromide, Chloride, Fluoride and Sulfate , the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-352154 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 9056: The following samples was diluted due to the nature of the sample matrix: FRAC (490-106825-1) and UST (490-106825-2). Elevated reporting limits (RLs) are provided.

Method(s) VFA-IC: The following samples were diluted to bring the concentration of target analytes within the calibration range: FRAC (490-106825-1) and UST (490-106825-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method(s) 8011: The %RPD between the primary and confirmation column exceeded 40% for 1,3-Dichlorobenzene for the following samples: (LCS 490-352395/3-A), (LCSD 490-352395/4-A) and (MB 490-352395/2-A). The lower values have been reported and qualified in accordance with the laboratory's SOP.

Method(s) 8011: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 490-352395.

Method(s) 8011: Surrogate recovery for the following samples was outside control limits: FRAC (490-106825-1) and UST (490-106825-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Samples were viscous and dark brown.

Method(s) 8015B: The following samples was diluted due to the nature of the sample matrix: FRAC (490-106825-1) and UST (490-106825-2). Elevated reporting limits (RLs) are provided.

Job ID: 490-106825-1 (Continued)

Laboratory: TestAmerica Nashville (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) 6010C: The following samples was diluted due to strong odor and dark yellow color: FRAC (490-106825-1) and UST (490-106825-2). Elevated reporting limits (RL) are provided.

Method(s) 6020A: The following samples was diluted due to the abundance of non-target analytes: FRAC (490-106825-1) and UST (490-106825-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) SM 4500 P E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 490-352103 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) SM 4500 P E: The following samples was diluted due to color: FRAC (490-106825-1) and UST (490-106825-2). Elevated reporting limits (RL) are provided.

Method(s) 353.2: The reference method requires samples to be preserved with sulfuric acid to a pH less than or equal to 2. The following samples was received with a pH greater than 2: FRAC (490-106825-1) and UST (490-106825-2). The sample(s) was preserved to the appropriate pH in the laboratory.

Method(s) 353.2: Due to the high concentration of Nitrate Nitrite as N, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 490-352468 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 353.2: The following sample was diluted due to color:FRAC (490-106825-1) and (490-106825-2). Elevated reporting limits (RL) are provided.

Method(s) Distill/Ammonia: The following samples was diluted due to the nature of the sample matrix: FRAC (490-106825-1) and UST (490-106825-2). Elevated reporting limits (RLs) are provided.

Method(s) SM5210B: The correction factor for the Seeded Control Blank (SCB) for batch 490-352340 was outside the method range of 0.6 to 1.0 mg/L. Thus, there is added uncertainty for the associated sample results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
F3	Duplicate RPD exceeds the control limit
F1	MS and/or MSD Recovery is outside acceptance limits.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
b	Result Detected in the Unseeded Control blank (USB).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)

[redacted]

Lab Sample ID: 490-106825-1
Matrix: Water

Date Collected: 06/29/16 07:00
Date Received: 06/30/16 10:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<100		100		ug/L	ppb		07/01/16 21:34	100
1,1,1-Trichloroethane	<100		100		ug/L			07/01/16 21:34	100
1,1,2,2-Tetrachloroethane	<100		100		ug/L			07/01/16 21:34	100
1,1,2-Trichloroethane	<100		100		ug/L			07/01/16 21:34	100
1,1-Dichloroethane	<100		100		ug/L			07/01/16 21:34	100
1,1-Dichloroethene	<100		100		ug/L			07/01/16 21:34	100
1,2,3-Trichloropropane	<100		100		ug/L			07/01/16 21:34	100
1,2-Dibromo-3-Chloropropane	<1000		1000		ug/L			07/01/16 21:34	100
1,2-Dibromoethane (EDB)	<100		100		ug/L			07/01/16 21:34	100
1,2-Dichlorobenzene	<100		100		ug/L			07/01/16 21:34	100
1,2-Dichloroethane	<100		100		ug/L			07/01/16 21:34	100
1,2-Dichloropropane	<100		100		ug/L			07/01/16 21:34	100
1,4-Dichlorobenzene	<100		100		ug/L			07/01/16 21:34	100
2-Butanone (MEK)	23200		5000		ug/L			07/01/16 21:34	100
2-Hexanone	<1000		1000		ug/L			07/01/16 21:34	100
4-Methyl-2-pentanone (MIBK)	<1000		1000		ug/L			07/01/16 21:34	100
Acetone	74200		2500		ug/L			07/01/16 21:34	100
Benzene	367		100		ug/L			07/01/16 21:34	100
Bromochloromethane	<100		100		ug/L			07/01/16 21:34	100
Bromodichloromethane	<100		100		ug/L			07/01/16 21:34	100
Bromoform	<100		100		ug/L			07/01/16 21:34	100
Bromomethane	<100		100		ug/L			07/01/16 21:34	100
Carbon disulfide	<100		100		ug/L			07/01/16 21:34	100
Carbon tetrachloride	<100		100		ug/L			07/01/16 21:34	100
Chlorobenzene	<100		100		ug/L			07/01/16 21:34	100
Chlorodibromomethane	<100		100		ug/L			07/01/16 21:34	100
Chloroethane	<100		100		ug/L			07/01/16 21:34	100
Chloroform	<100		100		ug/L			07/01/16 21:34	100
Chloromethane	<100		100		ug/L			07/01/16 21:34	100
cis-1,2-Dichloroethene	<100		100		ug/L			07/01/16 21:34	100
cis-1,3-Dichloropropene	<100		100		ug/L			07/01/16 21:34	100
Ethylbenzene	<100		100		ug/L			07/01/16 21:34	100
Iodomethane	<1000		1000		ug/L			07/01/16 21:34	100
Methylene Chloride	<500		500		ug/L			07/01/16 21:34	100
Styrene	<100		100		ug/L			07/01/16 21:34	100
Tetrachloroethene	<100		100		ug/L			07/01/16 21:34	100
Toluene	<100		100		ug/L			07/01/16 21:34	100
trans-1,2-Dichloroethene	<100		100		ug/L			07/01/16 21:34	100
trans-1,3-Dichloropropene	<100		100		ug/L			07/01/16 21:34	100
trans-1,4-Dichloro-2-butene	<500		500		ug/L			07/01/16 21:34	100
Trichloroethene	<100		100		ug/L			07/01/16 21:34	100
Trichlorofluoromethane	<100		100		ug/L			07/01/16 21:34	100
Vinyl acetate	<1000		1000		ug/L			07/01/16 21:34	100
Vinyl chloride	<100		100		ug/L			07/01/16 21:34	100
Xylenes, Total	<300		300		ug/L			07/01/16 21:34	100
Acrylonitrile	<1000		1000		ug/L			07/01/16 21:34	100
Dibromomethane	<100		100		ug/L			07/01/16 21:34	100

Lab Sample ID: 490-106825-1

Matrix: Water

Date Collected: 06/29/16 07:00

Date Received: 06/30/16 10:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 130		07/01/16 21:34	100
4-Bromofluorobenzene (Surr)	109		70 - 130		07/01/16 21:34	100
Dibromofluoromethane (Surr)	103		70 - 130		07/01/16 21:34	100
Toluene-d8 (Surr)	89		70 - 130		07/01/16 21:34	100

Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Butanol	883		100		mg/L			07/05/16 16:46	10
Ethanol	309		100		mg/L			07/05/16 16:46	10
Isopropanol	<100		100		mg/L			07/05/16 16:46	10
Methanol	1820		100		mg/L			07/05/16 16:46	10
Isobutanol	<100		100		mg/L			07/05/16 16:46	10
t-Butanol	<100		100		mg/L			07/05/16 16:46	10
n-Propanol	<100		100		mg/L			07/05/16 16:46	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Isopropyl acetate (Surr)	56		52 - 128		07/05/16 16:46	10

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	<0.0194		0.0194		ug/L		07/01/16 13:48	07/05/16 19:57	1
1,2-Dibromo-3-Chloropropane	<0.0970		0.0970		ug/L		07/01/16 13:48	07/05/16 19:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	0	X	50 - 150	07/01/16 13:48	07/05/16 19:57	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	166		100		mg/L			06/30/16 22:41	100
Nitrate as N	<10.0		10.0		mg/L			06/30/16 22:41	100
Chloride	9040		500		mg/L			06/30/16 22:56	500
Fluoride	1690		50.0		mg/L			06/30/16 22:56	500
Sulfate	1030		100		mg/L			07/14/16 13:22	100

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1080		1.00		mg/L		07/04/16 11:27	07/05/16 12:31	10
Manganese	66.9		0.150		mg/L		07/04/16 11:27	07/05/16 12:31	10
Calcium	6360		10.0		mg/L		07/04/16 11:27	07/05/16 12:31	10
Potassium	1960		10.0		mg/L		07/04/16 11:27	07/05/16 12:31	10
Magnesium	976		10.0		mg/L		07/04/16 11:27	07/05/16 12:31	10
Sodium	4380		50.0		mg/L		07/04/16 11:27	07/05/16 12:36	50

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	0.118		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Arsenic	0.338		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Barium	5.47		0.200		mg/L		07/04/16 11:31	07/06/16 01:30	100
Beryllium	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Cadmium	<0.0500		0.0500		mg/L		07/04/16 11:31	07/06/16 23:00	50
Chromium	0.794		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Cobalt	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50

[redacted]

Lab Sample ID: 490-106825-1
Matrix: Water

Date Collected: 06/28/16 07:00
Date Received: 06/30/16 10:30

Method: 6020A - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Lead	0.922		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Nickel	0.313		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Selenium	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Silver	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Thallium	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Vanadium	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:00	50
Zinc	17.6		2.50		mg/L		07/04/16 11:31	07/06/16 01:30	100

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00600		0.00600		mg/L		07/06/16 08:48	07/06/16 19:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	<0.0100		0.0100		mg/L		07/01/16 13:11	07/01/16 18:20	1
Ammonia (as N)	737		10.0		mg/L		07/06/16 12:06	07/07/16 12:52	20
Nitrate Nitrite as N	<1.00		1.00		mg/L			07/01/16 16:44	10
Phosphorus, Total	0.837		0.100		mg/L		07/02/16 16:40	07/02/16 21:08	1
Phenols, Total	97.0		0.250		mg/L		07/06/16 12:06	07/06/16 17:48	1
Turbidity	370		10.0		NTU			06/30/16 17:08	10
Alkalinity, Total	10400		5.00		mg/L			07/13/16 15:10	1
Total Suspended Solids	350		20.0		mg/L			07/02/16 14:08	1
Oxidation Reduction Potential	211	HF	3.00		mV vs. NHE			07/01/16 08:00	1
Orthophosphate as P	<1.00	F1	1.00		mg/L			06/30/16 16:49	10
Sulfide	0.390		0.100		mg/L			07/08/16 15:21	1
Acetic acid	19000		500		mg/L			07/08/16 21:02	500
Formic acid	3380		100		mg/L			07/08/16 02:47	100
Lactic acid	3740		100		mg/L			07/08/16 02:47	100
n-Butyric Acid	9910		500		mg/L			07/08/16 21:02	500
Propionic acid	4470		100		mg/L			07/08/16 02:47	100
Pyruvic Acid	<100		100		mg/L			07/08/16 02:47	100

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	39700		10.0		umhos/cm			07/01/16 11:00	1
pH	5.48		0.100		SU			07/01/16 13:35	1
Temperature	22.6		0.100		Degrees C			07/01/16 13:35	1
Oxygen, Dissolved	<1.00	HF	1.00		mg/L			07/01/16 13:00	1
Biochemical Oxygen Demand	<30000		30000		mg/L			06/30/16 16:20	500

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand, Dissolved	107000		20000		mg/L			07/08/16 16:45	1000

[redacted]

Lab Sample ID: 490-106825-2
Matrix: Water

Date Collected: 08/29/16 07:30
Date Received: 08/30/16 10:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<20.0		20.0		ug/L			07/08/16 04:58	20
1,1,1-Trichloroethane	<20.0		20.0		ug/L			07/08/16 04:58	20
1,1,2,2-Tetrachloroethane	<20.0	*	20.0		ug/L			07/08/16 04:58	20
1,1,2-Trichloroethane	<20.0		20.0		ug/L			07/08/16 04:58	20
1,1-Dichloroethane	<20.0		20.0		ug/L			07/08/16 04:58	20
1,1-Dichloroethene	<20.0		20.0		ug/L			07/08/16 04:58	20
1,2,3-Trichloropropane	<20.0		20.0		ug/L			07/08/16 04:58	20
1,2-Dibromo-3-Chloropropane	<200		200		ug/L			07/08/16 04:58	20
1,2-Dibromoethane (EDB)	<20.0		20.0		ug/L			07/08/16 04:58	20
1,2-Dichlorobenzene	<20.0		20.0		ug/L			07/08/16 04:58	20
1,2-Dichloroethane	<20.0		20.0		ug/L			07/08/16 04:58	20
1,2-Dichloropropane	<20.0		20.0		ug/L			07/08/16 04:58	20
1,4-Dichlorobenzene	<20.0		20.0		ug/L			07/08/16 04:58	20
2-Butanone (MEK)	6130		1000		ug/L			07/08/16 04:58	20
2-Hexanone	<200		200		ug/L			07/08/16 04:58	20
4-Methyl-2-pentanone (MIBK)	233		200		ug/L			07/08/16 04:58	20
Acetone	14900		500		ug/L			07/08/16 04:58	20
Benzene	232		20.0		ug/L			07/08/16 04:58	20
Bromochloromethane	<20.0		20.0		ug/L			07/08/16 04:58	20
Bromodichloromethane	<20.0		20.0		ug/L			07/08/16 04:58	20
Bromoform	<20.0		20.0		ug/L			07/08/16 04:58	20
Bromomethane	<20.0		20.0		ug/L			07/08/16 04:58	20
Carbon disulfide	<20.0		20.0		ug/L			07/08/16 04:58	20
Carbon tetrachloride	<20.0		20.0		ug/L			07/08/16 04:58	20
Chlorobenzene	<20.0		20.0		ug/L			07/08/16 04:58	20
Chlorodibromomethane	<20.0		20.0		ug/L			07/08/16 04:58	20
Chloroethane	<20.0		20.0		ug/L			07/08/16 04:58	20
Chloroform	<20.0		20.0		ug/L			07/08/16 04:58	20
Chloromethane	<20.0		20.0		ug/L			07/08/16 04:58	20
cis-1,2-Dichloroethene	<20.0		20.0		ug/L			07/08/16 04:58	20
cis-1,3-Dichloropropene	<20.0		20.0		ug/L			07/08/16 04:58	20
Ethylbenzene	<20.0		20.0		ug/L			07/08/16 04:58	20
Iodomethane	<200		200		ug/L			07/08/16 04:58	20
Methylene Chloride	<100		100		ug/L			07/08/16 04:58	20
Styrene	<20.0		20.0		ug/L			07/08/16 04:58	20
Tetrachloroethene	<20.0		20.0		ug/L			07/08/16 04:58	20
Toluene	46.0		20.0		ug/L			07/08/16 04:58	20
trans-1,2-Dichloroethene	<20.0		20.0		ug/L			07/08/16 04:58	20
trans-1,3-Dichloropropene	<20.0		20.0		ug/L			07/08/16 04:58	20
trans-1,4-Dichloro-2-butene	<100		100		ug/L			07/08/16 04:58	20
Trichloroethene	<20.0		20.0		ug/L			07/08/16 04:58	20
Trichlorofluoromethane	<20.0		20.0		ug/L			07/08/16 04:58	20
Vinyl acetate	<200		200		ug/L			07/08/16 04:58	20
Vinyl chloride	<20.0		20.0		ug/L			07/08/16 04:58	20
Xylenes, Total	<60.0		60.0		ug/L			07/08/16 04:58	20
Acrylonitrile	<200		200		ug/L			07/08/16 04:58	20
Dibromomethane	<20.0		20.0		ug/L			07/08/16 04:58	20

[redacted]

Lab Sample ID: 490-106825-2

Date Collected: 06/29/16 07:30

Matrix: Water

Date Received: 06/30/16 10:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 130		07/03/16 04:58	20
4-Bromofluorobenzene (Surr)	109		70 - 130		07/03/16 04:58	20
Dibromofluoromethane (Surr)	96		70 - 130		07/03/16 04:58	20
Toluene-d8 (Surr)	86		70 - 130		07/03/16 04:58	20

Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Butanol	<100		100		mg/L			07/05/16 16:52	10
Ethanol	318		100		mg/L			07/05/16 16:52	10
Isopropanol	<100		100		mg/L			07/05/16 16:52	10
Methanol	343		100		mg/L			07/05/16 16:52	10
Isobutanol	<100		100		mg/L			07/05/16 16:52	10
t-Butanol	<100		100		mg/L			07/05/16 16:52	10
n-Propanol	<100		100		mg/L			07/05/16 16:52	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Isopropyl acetate (Surr)	56		52 - 128		07/05/16 16:52	10

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	<0.0197		0.0197		ug/L		07/01/16 13:48	07/06/16 20:59	1
1,2-Dibromo-3-Chloropropane	<0.0986		0.0986		ug/L		07/01/16 13:48	07/06/16 20:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	31	X	50 - 150	07/01/16 13:48	07/06/16 20:59	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	<100		100		mg/L			06/30/16 23:26	100
Nitrate as N	<10.0		10.0		mg/L			06/30/16 23:26	100
Chloride	4780		500		mg/L			06/30/16 23:41	500
Fluoride	947		50.0		mg/L			06/30/16 23:41	500
Sulfate	<500		500		mg/L			06/30/16 23:41	500

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	101		1.00		mg/L		07/04/16 11:27	07/05/16 12:40	10
Manganese	11.0		0.150		mg/L		07/04/16 11:27	07/05/16 12:40	10
Calcium	1160		10.0		mg/L		07/04/16 11:27	07/05/16 12:40	10
Potassium	1210		10.0		mg/L		07/04/16 11:27	07/05/16 12:40	10
Magnesium	339		10.0		mg/L		07/04/16 11:27	07/05/16 12:40	10
Sodium	4240		10.0		mg/L		07/04/16 11:27	07/05/16 12:40	10

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Arsenic	0.358		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Barium	2.46		0.200		mg/L		07/04/16 11:31	07/06/16 01:36	100
Beryllium	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Cadmium	<0.0500		0.0500		mg/L		07/04/16 11:31	07/06/16 23:05	50
Chromium	0.428		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Cobalt	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50

Lab Sample ID: 490-106825-2

Matrix: Water

Date Collected: 06/29/16 07:30

Date Received: 06/30/16 10:30

Method: 6020A - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Lead	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Nickel	0.318		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Selenium	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Silver	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Thallium	<0.100		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Vanadium	0.124		0.100		mg/L		07/04/16 11:31	07/06/16 23:05	50
Zinc	<1.25		1.25		mg/L		07/04/16 11:31	07/06/16 23:05	50

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00200		0.00200		mg/L		07/06/16 08:48	07/06/16 19:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0160		0.0100		mg/L		07/01/16 15:11	07/01/16 16:21	1
Ammonia (as N)	851		10.0		mg/L		07/06/16 12:06	07/07/16 12:53	20
Nitrate Nitrite as N	<0.500		0.500		mg/L			07/01/16 17:16	5
Phosphorus, Total	0.597		0.100		mg/L		07/02/16 16:40	07/02/16 21:04	1
Phenols, Total	24.4		0.250		mg/L		07/08/16 12:08	07/08/16 17:46	1
Turbidity	93.6		10.0		NTU			06/30/16 17:03	10
Alkalinity, Total	7900		5.00		mg/L			07/13/16 15:16	1
Total Suspended Solids	270		33.3		mg/L			07/02/16 14:08	1
Oxidation Reduction Potential	289	HF	3.00		mV vs. NHE			07/01/16 08:00	1
Orthophosphate as P	<1.00		1.00		mg/L			06/30/16 16:49	10
Sulfide	<0.100		0.100		mg/L			07/06/16 15:21	1
Acetic acid	4570		100		mg/L			07/06/16 03:17	100
Formic acid	108		50.0		mg/L			07/06/16 21:31	50
Lactic acid	133		100		mg/L			07/06/16 03:17	100
n-Butyric Acid	1800		100		mg/L			07/06/16 03:17	100
Propionic acid	1160		100		mg/L			07/06/16 03:17	100
Pyruvic Acid	<50.0		50.0		mg/L			07/06/16 21:31	50

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	27700		10.0		umhos/cm			07/01/16 11:00	1
pH	7.29		0.100		SU			07/01/16 18:35	1
Temperature	22.6		0.100		Degrees C			07/01/16 18:35	1
Oxygen, Dissolved	<1.00	HF	1.00		mg/L			07/01/16 18:00	1
Biochemical Oxygen Demand	7160	b	3000		mg/L			06/30/16 16:20	600

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand, Dissolved	24700		4000		mg/L			07/08/16 16:45	200

Lab Sample ID: 490-106825-3
Matrix: Water

Date Collected: 06/29/16 00:01
Date Received: 06/30/16 10:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<25.0		25.0		ug/L			07/01/16 14:50	1
Acrylonitrile	<10.0		10.0		ug/L			07/01/16 14:50	1
Benzene	<1.00		1.00		ug/L			07/01/16 14:50	1
Bromochloromethane	<1.00		1.00		ug/L			07/01/16 14:50	1
Bromodichloromethane	<1.00		1.00		ug/L			07/01/16 14:50	1
Bromoform	<1.00		1.00		ug/L			07/01/16 14:50	1
Bromomethane	<1.00		1.00		ug/L			07/01/16 14:50	1
2-Butanone (MEK)	<50.0		50.0		ug/L			07/01/16 14:50	1
Carbon disulfide	<1.00		1.00		ug/L			07/01/16 14:50	1
Carbon tetrachloride	<1.00		1.00		ug/L			07/01/16 14:50	1
Chlorobenzene	<1.00		1.00		ug/L			07/01/16 14:50	1
Chlorodibromomethane	<1.00		1.00		ug/L			07/01/16 14:50	1
Chloroethane	<1.00		1.00		ug/L			07/01/16 14:50	1
Chloroform	<1.00		1.00		ug/L			07/01/16 14:50	1
Chloromethane	<1.00		1.00		ug/L			07/01/16 14:50	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			07/01/16 14:50	1
cis-1,3-Dichloropropene	<1.00		1.00		ug/L			07/01/16 14:50	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			07/01/16 14:50	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			07/01/16 14:50	1
Dibromomethane	<1.00		1.00		ug/L			07/01/16 14:50	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			07/01/16 14:50	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			07/01/16 14:50	1
1,1-Dichloroethane	<1.00		1.00		ug/L			07/01/16 14:50	1
1,2-Dichloroethane	<1.00		1.00		ug/L			07/01/16 14:50	1
1,1-Dichloroethene	<1.00		1.00		ug/L			07/01/16 14:50	1
1,2-Dichloropropane	<1.00		1.00		ug/L			07/01/16 14:50	1
Ethylbenzene	<1.00		1.00		ug/L			07/01/16 14:50	1
2-Hexanone	<10.0		10.0		ug/L			07/01/16 14:50	1
Iodomethane	<10.0		10.0		ug/L			07/01/16 14:50	1
Methylene Chloride	<5.00		5.00		ug/L			07/01/16 14:50	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			07/01/16 14:50	1
Styrene	<1.00		1.00		ug/L			07/01/16 14:50	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			07/01/16 14:50	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			07/01/16 14:50	1
Tetrachloroethene	<1.00		1.00		ug/L			07/01/16 14:50	1
Toluene	<1.00		1.00		ug/L			07/01/16 14:50	1
trans-1,4-Dichloro-2-butene	<5.00		5.00		ug/L			07/01/16 14:50	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			07/01/16 14:50	1
trans-1,3-Dichloropropene	<1.00		1.00		ug/L			07/01/16 14:50	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			07/01/16 14:50	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			07/01/16 14:50	1
Trichloroethene	<1.00		1.00		ug/L			07/01/16 14:50	1
Trichlorofluoromethane	<1.00		1.00		ug/L			07/01/16 14:50	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			07/01/16 14:50	1
Vinyl acetate	<10.0		10.0		ug/L			07/01/16 14:50	1
Vinyl chloride	<1.00		1.00		ug/L			07/01/16 14:50	1
Xylenes, Total	<3.00		3.00		ug/L			07/01/16 14:50	1

Lab Sample ID: 490-106825-3

Matrix: Water

Date Collected: 06/29/16 00:01

Date Received: 06/30/16 10:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	116		70 - 130		07/01/16 14:50	1
Dibromofluoromethane (Surr)	99		70 - 130		07/01/16 14:50	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 130		07/01/16 14:50	1
Toluene-d8 (Surr)	94		70 - 130		07/01/16 14:50	1

Lab Sample ID: MB 490-352288/7
Matrix: Water
Analysis Batch: 352288

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<50.0		50.0		ug/L			07/01/16 13:47	1
1,2-Dibromo-3-Chloropropane	<10.0		10.0		ug/L			07/01/16 13:47	1
Acetone	<25.0		25.0		ug/L			07/01/16 13:47	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			07/01/16 13:47	1
Benzene	<1.00		1.00		ug/L			07/01/16 13:47	1
Bromochloromethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Bromodichloromethane	<1.00		1.00		ug/L			07/01/16 13:47	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			07/01/16 13:47	1
Bromoform	<1.00		1.00		ug/L			07/01/16 13:47	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			07/01/16 13:47	1
Bromomethane	<1.00		1.00		ug/L			07/01/16 13:47	1
1,1-Dichloroethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Carbon disulfide	<1.00		1.00		ug/L			07/01/16 13:47	1
1,2-Dichloroethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Carbon tetrachloride	<1.00		1.00		ug/L			07/01/16 13:47	1
Chlorobenzene	<1.00		1.00		ug/L			07/01/16 13:47	1
1,1-Dichloroethene	<1.00		1.00		ug/L			07/01/16 13:47	1
Chlorodibromomethane	<1.00		1.00		ug/L			07/01/16 13:47	1
1,2-Dichloropropane	<1.00		1.00		ug/L			07/01/16 13:47	1
Chloroethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Chloroform	<1.00		1.00		ug/L			07/01/16 13:47	1
2-Hexanone	<10.0		10.0		ug/L			07/01/16 13:47	1
Chloromethane	<1.00		1.00		ug/L			07/01/16 13:47	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			07/01/16 13:47	1
cis-1,3-Dichloropropene	<1.00		1.00		ug/L			07/01/16 13:47	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			07/01/16 13:47	1
Ethylbenzene	<1.00		1.00		ug/L			07/01/16 13:47	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Iodomethane	<10.0		10.0		ug/L			07/01/16 13:47	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Methylene Chloride	<5.00		5.00		ug/L			07/01/16 13:47	1
Styrene	<1.00		1.00		ug/L			07/01/16 13:47	1
Tetrachloroethene	<1.00		1.00		ug/L			07/01/16 13:47	1
Toluene	<1.00		1.00		ug/L			07/01/16 13:47	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			07/01/16 13:47	1
trans-1,3-Dichloropropene	<1.00		1.00		ug/L			07/01/16 13:47	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			07/01/16 13:47	1
trans-1,4-Dichloro-2-butene	<5.00		5.00		ug/L			07/01/16 13:47	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Trichloroethene	<1.00		1.00		ug/L			07/01/16 13:47	1
Trichlorofluoromethane	<1.00		1.00		ug/L			07/01/16 13:47	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			07/01/16 13:47	1
Vinyl acetate	<10.0		10.0		ug/L			07/01/16 13:47	1
Acrylonitrile	<10.0		10.0		ug/L			07/01/16 13:47	1
Vinyl chloride	<1.00		1.00		ug/L			07/01/16 13:47	1
Dibromomethane	<1.00		1.00		ug/L			07/01/16 13:47	1
Xylenes, Total	<3.00		3.00		ug/L			07/01/16 13:47	1

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile
Profile # 01632

GENERATOR INFORMATION

Name: [redacted]
Facility:
City:
Contact:

BILLING INFORMATION ☒ SAME AS ABOVE

Company Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Attention: _____ Phone: ( ) _____ Fax: ( ) _____

WASTE INFORMATION

Name of Waste/Common Chemical Name:
Spent HCl

Process Generating Waste (Please be specific, incomplete information may delay the approval process):
Electrolytic Plating

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☐ Non Hazardous Liquid Industrial Waste ☒ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☒ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: D002

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear ☐ Black/Brown ☒ Other Yellow	☒ 0-1 % ☐ 3-5 % ☐ 1-3 % ☐ > 5%	☐ Multi-Layered ☐ Bi-Layered ☒ Single Phase	☐ <0.8 ☒ 1.0 – 1.2 ☐ 0.8 – 1.0 ☐ 1.3 – 1.4 Exact / Other 1.12	acceptable 02.08.16

pH: ☐ NA ☒ ≤ 2 ☐ 2 – 4 ☐ 4 – 6 ☐ 6 – 8 ☐ 8 – 10 ☐ 10 – 12.5 ☐ ≥ 12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☐ >200°F ☒ None ☒ Closed Cup ☐ Open Cup

VOC Concentration: — 0 — PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN		CONSTITUENT	MAX	MIN	
Hydrochloric Acid	38	5	%				%
Water	99	30	%				%
Solids	5	0	%				%
			%				%
			%				%

Metals: Indicate if this waste contains any of the following metals,. If Generator knowledge-provide backup
☐ Lab Analysis ☒ Generator Knowledge ☐ TCLP ☒ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☐	____ppm	Aromatic Amine	☐	____ppm
Dioxins	☐	____ppm	Pesticides	☐	____ppm
Cyanides Reactive	☐	____ppm	Rodenticides	☐	____ppm
Cyanides Total	☐	____ppm	Fungicides	☐	____ppm
Sulfides Reactive	☐	____ppm			
Sulfides Total	☐	____ppm			

Arsenic (As)	D004	☐ < 5 ppm	____ ppm		
Barium (Ba)	D005	☐ <100 ppm	____ ppm		
Cadmium (Cd)	D006	☐ < 1 ppm	____ ppm		
Chromium (Cr)	D007	☐ < 5 ppm	____ ppm		
Lead (Pb)	D008	☐ < 5 ppm	____ ppm		
Mercury (Hg)	D009	☐ < 0.2 ppm	____ ppm		
Selenium (Se)	D010	☐ < 1 ppm	____ ppm		
Silver (Ag)	D011	☐ < 5 ppm	____ ppm		

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*

☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☒Yes ☐No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name UN 1789, RQ, Waste Hydrochloric Acid, 8, II Hazard Class 8 UN/NA 1789
PG II ERG 157 Hazardous Constituents for "n.o.s." _____
4. Method of Shipment: ☐Bulk Tanker ☐Vac truck ☐Rail Car ☐Drums ☒Totes 30
5. Number of Units to Ship Now: _____ 6. Anticipated Volume / Units per Year: _____ or ☐ One Time
6. Special Handling Requirements including PPE: _____

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environ[redacted] be consistent with the results

[redacted]

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS:

Please collect a representative 1-quart sample of the waste described in the above referenced Generators Waste Profile Report using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. _____ SAMPLING METHOD 2. _____ COLLECTION POINT

3. _____ SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

[redacted]

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/8/16
Receiving ID#	Spent HCl
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval#	
Generator	[redacted]
Client	
Transporter	
Time In	
Time out	
Received by	S.A.
Sampled by	Client

Compatible w/(RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	<0.1	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.12	TDS	
Physical Description	Liquid	Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	80°F		
Conductivity	>400.0mS		
% Solids	<0.1		
Turbidity	Yes No		
Color (visual)	Yellow		
TSS (%)	<0.1		
Radiation Screen (as needed)	Negative		
Lab Signature			

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile

Profile# 2634

[redacted]

BILLING

Company

Address

City

Attention

WASTE INFORMATION

Name of Waste/Common Chemical Name:

Landfill Leachate / RO Concentrate

Process Generating Waste (Please be specific, incomplete information may delay the approval process):

Landfill Leachate - liquid that enters the landfill and picks up dissolved and suspended matter from the refuse.

RO Concentrate - Landfill leachate that has been treated by an RO system. The concentrate is the byproduct of that process. Constituents tend to be 2-3 times higher.

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☑ Non Hazardous Liquid Industrial Waste ☐ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☑ No (PCBs, etc)
3. List ALL Applicable Waste Codes: 0291

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear ☑ Black/Brown ☐ Other ____	☐ 0-1 % ☐ 1-3 % ☐ 3-5 % ☐ > 5%	☐ Multi-Layered ☐ Bi-Layered ☑ Single Phase	☐ <0.8 ☑ 1.0 – 1.2 ☐ 0.8 – 1.0 ☐ 1.3 – 1.4 Exact / Other ____	accepted 09.2016

pH: ☐ NA ☐ ≤ 2 ☐ 2 – 4 ☐ 4 – 6 ☑ 6 – 8 ☐ 8 – 10 ☐ 10 – 12.5 ☐ ≥ 12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☐ >200°F ☑ None ☐ Closed Cup ☐ Open Cup

VOC CONCENTRATION - See Attached # ____ PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT +/- 0.1%)*

CONSTITUENT	MAX	MIN		CONSTITUENT	MAX	MIN
See Attached #			%			
			%			
			%			
			%			
			%			

Metals: Indicate if this waste contains any of the following metals. If Generator knowledge provide backup
☑ Lab Analysis ☐ Generator Knowledge ☑ TCLP ☐ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☐	____ ppm	Aromatic Amine	☐	____ ppm
Dioxins	☐	____ ppm	Pesticides	☐	____ ppm
Cyanides Reactive	☐	____ ppm	Rodenticides	☐	____ ppm
Cyanides Total	☐	____ ppm	Fungicides	☐	____ ppm
Sulfides Reactive	☐	____ ppm			
Sulfides Total	☐	____ ppm			

Arsenic (As)	D004	☐ < 5 ppm	____ ppm
Barium (Ba)	D005	☐ <100 ppm	____ ppm
Cadmium (Cd)	D006	☐ < 1 ppm	____ ppm
Chromium (Cr)	D007	☐ < 5 ppm	____ ppm
Lead (Pb)	D008	☐ < 5 ppm	____ ppm
Mercury (Hg)	D009	☐ <0.2 ppm	____ ppm
Selenium (Se)	D010	☐ < 1 ppm	____ ppm
Silver (Ag)	D011	☐ < 5 ppm	____ ppm

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☐ *See Attached*

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*

☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☑ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 178 Subpart D)? ☐ Yes ☑ No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name Landfill Leachate (Water, UN) Hazard Class _____ UN/NA _____

PG _____ ERG _____ Hazardous Constituents for "n.o.s." _____

4. Method of Shipment ☐ Bulk Tanker ☐ Vac truck ☑ Rail Car ☐ Drums ☐ Totes
5. Number of Units to Ship Now: TBD 6. Anticipated Volume / Units per Year: TBD or ☐ One Time
6. Special Handling Requirements including PPE: Level D

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warrant in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies, Inc. to contact me regarding the results of the

[redacted]

Ge

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS:

PLEASE collect a representative 1-quart sample the waste described in the above referenced GENERATOR'S WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative. *See Attached*

1. _____ 2. _____
SAMPLING METHOD COLLECTION POINT

3. _____
SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

7.51	=,H
7.48	
7.52	
7.21	
7.61	
7.62	
7.42	
6.81	
7.67	
7.45	
7.56	
7.63	
7.69	
7.49	
47	U
650	
42	
5.06	
4.42	
5.33	=
7.18	
8.88	
6.66	
6.56	
960000	=
840000	=
42	
47	U
10	U
11	=
10	U
10	U
10	U
10	U
2600000	=
2390000	=
8260	=
13500	
106	=
54	
63	
97	
17.2	=,H
23.6	=,H
22.8	=,H
17.6	
17.4	

19.2	
18.2	
21.0	
20.0	
22.2	
20.2	
22	
20.4	
17.6	
20	U
100	U
21	
18	
10	U
10	U
500	U
500	U
50	
95	
108	
0.47	U
20	U
20	U
20	U
100	U
20	U
50	U
50	U
20	U
34	=
279	=
495	
471	

RO Concentrate Data at RO Plant

Table A Parameters RO6 Feed/Concentrate		R1501064	R1501752	R1502359	R1504167	R1505136	R1506222	R1507163	R1509276	R1510127	R1510759	R1600591	R1601660
PARAMETER	UNIT	02/12/15	03/12/15	04/02/15	05/28/15	06/25/15	07/30/15	08/27/15	10/29/15	11/19/15	12/10/15	01/21/16	02/25/16
pH	Units	7.40	7.45	7.30	7.38	7.20	7.45	7.34	7.53	7.41	7.42	7.30	7.14
Nitrogen, Ammonia	mg/L	6790	4250	3890	6560	6160	8280	7020	9440	3860	4470	3330	1930
Nitrogen, Total Kjeldahl	mg/L	5900	4280	3980	6090	4920	7410	6170	6340	4200	4530	3620	2040
Nitrogen, Total	mg/L	5900	4280	3980	6090	4920	7410	6170	6340	4200	4570	3620	2040
BOD	mg/L	8390	6870	3880	13200	4500	9870	9600	5890	5900	8570	11100	3600
TSS	mg/L	193	133	83	170	48	100	128	85	204	193	107	56
Phosphorus, Total	mg/L	19.2	14.7	13.6	18.2	15.3	20.6	17.4	21.5	12.4	16.7	16.1	13.2
Conductivity	µS/cm	72800	57200	51100	66100	65000	80100	85200	85400	50100	69400	55500	34300
COD	mg/L	30200	17600	14100	29900	17900	26600	25200	18700	12900	22100	21300	10200
Sodium , Total	mg/L	10100	8780	9230	11900	6110	13400	13700	9180	6550	8570	7160	3550
Potassium, Total	mg/L	3810	3050	2910	3930	3030	5060	6030	3640	2510	3240	2640	1390
Calcium, Total	mg/L	718	542	595	945	563	756	616	408	320	888	1170	637
Magnesium, Total	mg/L	750	426	395	731	399	797	667	463	377	406	493	237
Iron, Total	mg/L	76.1	49.1	38.8	93.7	42.3	82.8	43.8	35.8	15.3	45.3	89.9	70.1
Manganese, Total	mg/L	6.68	3.75	2.57	6.50	1.61	4.28	2.40	2.05	0.653	3.29	13.9	6.32
Chloride	mg/L	21700	30200	13500	19600	15700	35800	61900	24200	25600	22600	20600	12600
Sulfate	mg/L	7960	7240	6570	12500	9720	33200	16300	12600	15200	11100	5590	3300
Silica	mg/L	124	101	108	152	131	119	169	112	66.8	89.2	111	70.7
TDS	mg/L	47400	35400	27400	48300	40600	51000	59600	45800	26900	41300	28300	17700
Aluminum, Total	mg/L	0.66	0.96	1.04	1.75	2.36	1.60	1.94	1.75	0.37	0.34	0.32	1.00
Bicarbonate	mg/L	17600	14200	10500	14600	11800	15400	17000	19000	13000	14500	13800	7630
Strontium, Total	mg/L	7.18	6.31	7.46	9.40	6.80	8.90	6.59	6.40	8.30	9.40	11.10	8.35
Barium , Total	mg/L	1.00	2.82	2.56	2.16	2.08	1.64	2.95	2.24	0.41	1.97	3.01	2.30
Fluoride	mg/L	40 N/D	40 N/D	40 N/D	40 N/D	40 N/D	0.10 N/D	400 N/D	40 N/D	100 N/D	40 N/D	40 N/D	40 N/D
Borate-B/Boron	mg/L	55.0	51.0	44.6	52.7	50.3	66.3	69.9	61.7	41.0	58.1	41.3	21.0
Temperature	°C	20.1	19.8	15.9	19.9	21.3	23.3	23.4	20.2	20.7	19.9	18.6	19.6
Alkalinity	mg/L	17600	14200	10500	14600	11800	15400	17000	19000	13000	14500	13800	7240
Nitrate-Nitrite as Nitrogen	mg/L	0.82	0.50 N/D	0.74	5.0 N/D	2.5 N/D	0.95	1.1	0.75	0.88	35.8	5.0 N/D	0.5 N/D
Sulfide	mg/L	22.8	23.6	25.8	47.5	41.3	28.9	17.0	22.8	4.0	6.4	9.6	5.0 N/D

July 12, 2016

Service Request No:R1606244

[redacted]

Laboratory Results for: I3 Electronics Quarterly

[redacted]

Enclosed are the results of the sample(s) submitted to our laboratory June 14, 2016
For your reference, these analyses have been assigned our service request number **R1606244.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1606244

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1606244-001	Concentrate	6/14/2016	0815

All samples were received in good condition unless otherwise noted on the cooler receipt and preservation check form located at the end of this report.

All samples were preserved in accordance with approved analytical methods.

All samples have been analyzed by the approved methods cited on the analytical results pages.

All holding times and associated QC were within limits.

No analytical or QC problems were encountered.

All sampling activities performed by ALS personnel have been in accordance with "ALS Field Procedures and Measurements Manual" or by client specifications.

ALS Environmental

SAMPLE DETECTION SUMMARY

CLIENT ID: Concentrate 2 | Lab ID: R1662447-001

Analyte	Results	Flag	MDL	PQL	Units	Method
Ammonia as Nitrogen, undistilled	13000		30	200	mg/L	ASTM
Biochemical Oxygen Demand (BOD)	15000			20	mg/L	SM 5210 B-
Chemical Oxygen Demand, Total	30400		80	100	mg/L	410.4
Chloride	18300		400	800	mg/L	300.0
Nitrogen, Total Kjeldahl (TKN)	5410		80	200	mg/L	351.2
pH	7				pH Units	SM 4500-H+
Phenolics, Total Recoverable	16.8		0.2	1.0	mg/L	420.4
Phosphorus, Total	16.9		0.1	2.5	mg/L	365.1
Solids, Total	64800			2000	mg/L	SM 2540 B-
Solids, Total Dissolved (TDS)	44400		800	2000	mg/L	SM 2540 C-
Solids, Total Suspended (TSS)	181			24	mg/L	SM 2540 D-
Sulfide, Acid-Soluble	34.1		1.9	5.0	mg/L	9034
Temperature of pH Analysis	22.3				deg C	SM 4500-H+
Arsenic, Total	402		5	10	ug/L	6010C
Barium, Total	2480		2	20	ug/L	6010C
Chromium, Total	741		0.3	10	ug/L	6010C
Iron, Total	74500		90	1000	ug/L	6010C
Manganese, Total	6370		1.0	10	ug/L	6010C
Nickel, Total	473		2	40	ug/L	6010C
Selenium, Total	30		5	10	ug/L	6010C
Zinc, Total	406		7	20	ug/L	6010C
Toluene	53		10	50	ug/L	624

ppb

ALS Environmental

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Clie[redacted]
Project:

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1606244-001	Concentrate	6/14/2016	0815

CHAIN OF CUSTODY RECORD

Project Name: i3 Electronics Quarterly	Samplers Name: S Zimmerman - SMI	Analysis Requested															*Seneca Meadows, Inc.* 1786 Salcman Road Waterloo, NY 13165 Phone: (315) 539-5624 Fax: (315) 539-0653
Project Number:	Lab Sent To: CAS																

Location	Date	Time	Matrix	Type	TSS	BOD	Cyanide	Metals, Hg	Phenols	Sulfide	NH3, TKN, PO4, COD	TDS, Cr+6 7196, Cl	Total Solids	VOA	pH	O & G	625 SUVA (2)	Comments
Concentrate	06/14/16	815am	O	G	X	X	X	X	X	X	X	X	X	X	X	X	X	

[redacted]

Soil = SS Sludge = SG Groundwater = GW Other = OT Grab = G Composite = C

S:\Seneca\01\Rich\Leachate COC\i3 COC.xlsx

R1606244 5

Cooler Receipt [redacted]

FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N	5a	Perchlorate samples have required headspace?	(Y) N NA
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as:	Bulk Encore 5035set (NA)

8. Temperature Readings Date: 6/14/16 Time: 2400 ID: (IR#3) IR#5 From: (Temp Blank) Sample Bottle

Observed Temp (°C)	5.7	5.0	5.6	5.9			
Correction Factor (°C)	-0.1	-0.1	-0.1	-0.1			
Corrected Temp (°C)	5.6	4.9	5.5	5.8			
Within 0-6°C?	(Y) N	(Y) N	(Y) N	(Y) N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y (N)	Y (N)	Y (N)	Y (N)	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: ________ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: ________ Standing Approval Client aware at drop-off Client notified by: ________

All samples held in storage location: R-002 by SW on 6/14/16 at 2420
5035 samples placed in storage location: ________ by ________ on ________ at ________

PC Secondary Review: [signature] 6/16/16

Cooler Breakdown: Date: 6/15/16 Time: 1535 by: SW

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH		✓	84112	3/17	-001	3.4 (drops)	WC1491773B	≥12
≤2	HNO_3		✓	BD826152C	↓	↓	2.0	BD5261531F	<2
≤2	H_2SO_4		✓	WC1491458	↓	↓	0.5	WC1491175F	↓
≤4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	Zn Acetate	-	-	WC1491116F	10/16	**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet			
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: ________

Bottle lot numbers: 113015-2ABE, 011116-1BCT, 073115-2AAW, 120715-2AA0, 5-211-001

Other Comments:

PC Secondary Review: [signature] 6/16/16 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Accredited	Nebraska Accredited	
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047	North Carolina #676	Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Client: [redacted]

Project:

Service Request: R1606244

Non-Certified Analytes

Certifying Agency: New York Department of Health

Method	Matrix	Analyte
SM 4500-H+ B	Water	Temperature of pH Analysis
SM 4500-H+ B	Water	pH

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: [redacted]
Project:

Service Request: R1606244

Sample Name: Concentrate
Lab Code: R1606244-001
Sample Matrix: Water

Date Collected: 06/14/16
Date Received: 06/14/16

Analysis Method	Extracted/Digested By	Analyzed By
1664A		GNITAJOUPPI
245.1	CGILDAY	CGILDAY
300.0		CWOODS
351.2	KMENGS	LDOLGOS
365.1	LDOLGOS	GNITAJOUPPI
410.4		NMANSEN
420.4		KABBOTT
6010C	CGILDAY	AMESSUR
624		BALLGEIER
625	DMURPHY	JMISIUREWICZ
7196A		NMANSEN
9034	KMENGS	KMENGS
ASTM D6919-09		NMANSEN
SM 2540 B-1997(2011)		KABBOTT
SM 2540 C-1997(2011)		KWONG
SM 2540 D-1997(2011)		KWONG
SM 4500-CN-E-2001(2011)	GNITAJOUPPI	GNITAJOUPPI
SM 4500-H+ B		MLAMBRECHT
SM 5210 B-2001(2011)		KMENGS

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Environmental

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244
Date Collected: 06/14/16 08:15
Date Received: 06/14/16 14:35

Sample Name: Concentrate
Lab Code: R1606244-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Benzene	50 U	50	50	06/17/16 18:30	
Methylene Chloride	50 U	50	50	06/17/16 18:30	
Ethylbenzene	50 U	50	50	06/17/16 18:30	
Toluene	53	50	50	06/17/16 18:30	
m,p-Xylenes	100 U	100	50	06/17/16 18:30	
o-Xylene	50 U	50	50	06/17/16 18:30	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	101	81 - 127	06/17/16 18:30	
4-Bromofluorobenzene	107	79 - 123	06/17/16 18:30	
Toluene-d8	108	83 - 120	06/17/16 18:30	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: [redacted]
Project:
Sample Ma
Sample Nam
Lab Code:

Service Request: R1606244
Date Collected: 06/14/16 08.
Date Received: 06/14/16 14:35

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	[redacted]	402	ug/L	10	1	06/24/16 19:11	06/22/16	
Barium, Total	6010C	2480	ug/L	20	1	06/24/16 19:11	06/22/16	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	1	06/24/16 19:11	06/22/16	
Chromium, Total	6010C	741	ug/L	10	1	06/24/16 19:11	06/22/16	
Copper, Total	6010C	20 U	ug/L	20	1	06/24/16 19:11	06/22/16	
Iron, Total	6010C	74500	ug/L	1000	10	06/27/16 16:44	06/22/16	
Lead, Total	6010C	50 U	ug/L	50	1	06/24/16 19:11	06/22/16	
Manganese, Total	6010C	6370	ug/L	10	1	06/24/16 19:11	06/22/16	
Mercury, Total	245.1	0.20 U	ug/L	0.20	1	06/22/16 09:40	06/21/16	
Molybdenum, Total	6010C	25 U	ug/L	25	1	06/24/16 19:11	06/22/16	
Nickel, Total	6010C	473	ug/L	40	1	06/24/16 19:11	06/22/16	
Selenium, Total	6010C	30	ug/L	10	1	06/24/16 19:11	06/22/16	
Silver, Total	6010C	10 U	ug/L	10	1	06/24/16 19:11	06/22/16	
Zinc, Total	6010C	406	ug/L	20	1	06/24/16 19:11	06/22/16	

Analytical Report

Client: [redacted]
Project:
Sample Matrix:

Sample Name:
Lab Code:

Service Request: R1606244
Date Collected: 06/14/16 08:15
Date Received: 06/14/16 14:35

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Ammonia as Nitrogen, undistilled	ASTM D6919-09	**13900**		mg/L	200	4000	07/07/16 20:47	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	**15000**		mg/L	20	10	06/15/16 06:49	NA	
Chemical Oxygen Demand, Total	410.4	**30400**		mg/L	100	20	06/25/16 11:00	NA	
Chloride	300.0	**18300**		mg/L	800	4000	06/27/16 22:37	NA	
Chromium, Hexavalent	7196A	1.0	U	mg/L	1.0	100	06/15/16 08:28	NA	*
Cyanide	SM 4500-CN-E-2001(2011)	0.10	U	mg/L	0.10	1	06/21/16 16:52	06/21/16	
Nitrogen, Total Kjeldahl (TKN)	351.2	**5410**		mg/L	200	10	06/29/16 23:54	06/28/16	
Oil and Grease, Total (HEM)	1664A	100	U	mg/L	100	1	06/27/16 09:00	NA	
pH	SM 4500-H+ B	**7.27**		pH Units	-	1	06/22/16 14:18	NA	H
Phenolics, Total Recoverable	420.4	**16.8**		mg/L	1.0	200	06/30/16 10:20	NA	
Phosphorus, Total	365.1	**16.9**		mg/L	2.5	10	06/23/16 19:36	06/22/16	
Solids, Total	SM 2540 B-1997(2011)	**54800**		mg/L	2000	1	06/17/16 12:31	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**44400**		mg/L	2000	1	06/21/16 17:00	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	**181**		mg/L	24	1	06/20/16 11:10	NA	
Sulfide, Acid-Soluble	9034	**34.1**		mg/L	5.0	1	06/21/16 10:00	06/21/16	
Temperature of pH Analysis	SM 4500-H+ B	**22.3**		deg C	-	1	06/22/16 14:18	NA	H

ALS Environmental

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Client: [redacted]
Project:
Sample Mat

Service Request: R1606244

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624
Extraction Method: EPA 5030C

Sample Name	Lab Code	1,2-Dichloroethane-d4 81 - 127	4-Bromofluorobenzene 79 - 123	Toluene-d8 83 - 120
Concentrate	R1606244-001	101	107	108
Lab Control Sample	RQ1607083-02	100	109	108
Method Blank	RQ1607083-03	103	105	108

Analytical Report

Client:	[redacted]	**Service Request:**	R1606244
Project:		**Date Collected:**	NA
Sample Matrix:		**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1607083-03	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Benzene	1.0 U	1.0	1	06/17/16 11:33	
Methylene Chloride	1.0 U	1.0	1	06/17/16 11:33	
Ethylbenzene	1.0 U	1.0	1	06/17/16 11:33	
Toluene	1.0 U	1.0	1	06/17/16 11:33	
m,p-Xylenes	2.0 U	2.0	1	06/17/16 11:33	
o-Xylene	1.0 U	1.0	1	06/17/16 11:33	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	103	81 - 127	06/17/16 11:33	
4-Bromofluorobenzene	105	79 - 123	06/17/16 11:33	
Toluene-d8	108	83 - 120	06/17/16 11:33	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244
Date Analyzed: 06/17/16

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ1607083-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Benzene	624	18.9	20.0	95	37-151
Methylene Chloride	624	16.5	20.0	82	10-221
Ethylbenzene	624	17.2	20.0	86	37-162
Toluene	624	18.4	20.0	92	47-150
m,p-Xylenes	624	36.9	40.0	92	76-131
o-Xylene	624	17.0	20.0	85	78-127

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 625
Extraction Method: EPA 3510C

Sample Name	Lab Code	2-Fluorobiphenyl 39 - 119	Nitrobenzene-d5 37 - 117	p-Terphenyl-d14 40 - 133
Concentrate	R1606244-001	98	112	85
Method Blank	RQ1606987-01	79	76	100
Lab Control Sample	RQ1606987-02	87	79	94
Duplicate Lab Control Sample	RQ1606987-03	83	81	101

[redacted]alytical Report

Client: [redacted]
Project: [redacted]
Sample Mat: [redacted]

Service Request: R1606244
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ1606987-01

Units: ug/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 625
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	5.0 U	5.0	1	06/21/16 09:52	6/16/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	79	39 - 119	06/21/16 09:52	
Nitrobenzene-d5	76	37 - 117	06/21/16 09:52	
p-Terphenyl-d14	100	40 - 133	06/21/16 09:52	

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1606244-MB

Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	1	06/24/16 19:03	06/22/16	
Barium, Total	6010C	20 U	ug/L	20	1	06/24/16 19:03	06/22/16	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	1	06/24/16 19:03	06/22/16	
Chromium, Total	6010C	10 U	ug/L	10	1	06/24/16 19:03	06/22/16	
Copper, Total	6010C	20 U	ug/L	20	1	06/24/16 19:03	06/22/16	
Iron, Total	6010C	100 U	ug/L	100	1	06/24/16 19:03	06/22/16	
Lead, Total	6010C	50 U	ug/L	50	1	06/24/16 19:03	06/22/16	
Manganese, Total	6010C	10 U	ug/L	10	1	06/24/16 19:03	06/22/16	
Mercury, Total	245.1	0.20 U	ug/L	0.20	1	06/22/16 09:31	06/21/16	
Molybdenum, Total	6010C	25 U	ug/L	25	1	06/24/16 19:03	06/22/16	
Nickel, Total	6010C	40 U	ug/L	40	1	06/24/16 19:03	06/22/16	
Selenium, Total	6010C	10 U	ug/L	10	1	06/24/16 19:03	06/22/16	
Silver, Total	6010C	10 U	ug/L	10	1	06/24/16 19:03	06/22/16	
Zinc, Total	6010C	20 U	ug/L	20	1	06/24/16 19:03	06/22/16	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244
Date Analyzed: 06/22/16 - 06/24/16

Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
R1606244-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total	6010C	38.3	40	96	80-120
Barium, Total	6010C	2060	2000	103	80-120
Cadmium, Total	6010C	51.0	50.0	102	80-120
Chromium, Total	6010C	205	200	103	80-120
Copper, Total	6010C	254	250	102	80-120
Iron, Total	6010C	1030	1000	103	80-120
Lead, Total	6010C	514	500	103	80-120
Manganese, Total	6010C	506	500	101	80-120
Mercury, Total	245.1	0.922	1.00	92	85-115
Molybdenum, Total	6010C	499	500	100	80-120
Nickel, Total	6010C	512	500	102	80-120
Selenium, Total	6010C	934	1010	92	80-120
Silver, Total	6010C	48.6	50	97	80-120
Zinc, Total	6010C	491	500	98	80-120

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1606244-MB

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Ammonia as Nitrogen, undistilled	ASTM D6919-09	0.0050 U	mg/L	0.0050	1	07/07/16 15:18	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	1	06/15/16 13:26	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	1	06/25/16 11:00	NA	
Chloride	300.0	0.20 U	mg/L	0.20	1	06/27/16 18:18	NA	
Chromium, Hexavalent	7196A	0.010 U	mg/L	0.010	1	06/15/16 08:25	NA	
Cyanide	SM 4500-CN-E-2001(2011)	0.010 U	mg/L	0.010	1	06/21/16 16:42	06/21/16	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	1	06/29/16 23:01	06/28/16	
Oil and Grease, Total (HEM)	1664A	5.0 U	mg/L	5.0	1	06/27/16 09:00	NA	
Phenolics, Total Recoverable	420.4	0.0050 U	mg/L	0.0050	1	06/30/16 10:20	NA	
Phosphorus, Total	365.1	0.050 U	mg/L	0.050	1	06/23/16 19:24	06/22/16	
Solids, Total	SM 2540 B-1997(2011)	10 U	mg/L	10	1	06/17/16 12:31	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	1	06/21/16 17:00	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.0 U	mg/L	1.0	1	06/20/16 11:10	NA	
Sulfide, Acid-Soluble	9034	1.0 U	mg/L	1.0	1	06/21/16 10:00	06/21/16	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: [redacted]
Project
Sample Matrix

Service Request: R1606244
Date Collected: 06/14/16
Date Received: 06/14/16
Date Analyzed: 06/23/16

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Concentrate
Lab Code: R1606244-001

Units: pH Units
Basis: NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample R1606244-001DUP Result	Average	RPD	RPD Limit
pH	SM 4500-H+ B	-	7.27	7.26	7.27	<1	0.10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: [redacted]
Project
Sample Matrix:

Service Request: R1606244
Date Collected: 06/14/16
Date Received: 06/14/16
Date Analyzed: 06/21/16

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Concentrate
Lab Code: R1606244-001

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample R1606244-001DUP Result	Average	RPD	RPD Limit
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	2000	44400	43400	43900	2	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QC Report

Client: [redacted]
Project
Sample Matrix:

Service Request: R1606244
Date Collected: 06/14/16
Date Received: 06/14/16
Date Analyzed: 06/23/16

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Concentrate
Lab Code: R1606244-001

Units: deg C
Basis: NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample R1606244-001DUP Result	Average	RPD	RPD Limit
Temperature of pH Analysis	SM 4500-H+ B	-	22.3	25	23.7	3	

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244
Date Analyzed: 06/15/16 - 07/07/16

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R1606244-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Ammonia as Nitrogen, undistilled	ASTM D6919-09	0.552	0.500	110	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	188	198	95	85-115
Chemical Oxygen Demand, Total	410.4	486	500	97	90-110
Chloride	300.0	1.98	2.00	99	90-110
Chromium, Hexavalent	7196A	0.0949	0.100	95	80-120
Cyanide	SM 4500-CN-E-2001(2011)	0.101	0.100	101	85-115
Nitrogen, Total Kjeldahl (TKN)	351.2	2.32	2.50	93	90-110
Oil and Grease, Total (HEM)	1664A	38.8	42.7	91	78-114
Phenolics, Total Recoverable	420.4	0.0383	0.0400	96	90-110
Phosphorus, Total	365.1	0.735	0.800	92	90-110
Solids, Total	SM 2540 B-1997(2011)	299	300	100	90-110
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	854	914	93	90-110
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	206	214	96	80-120
Sulfide, Acid-Soluble	9034	5.37	9.1	59	15-124

ALS Group USA, Corp.
dba ALS Environmental

[redacted]/QC Report

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1606244
Date Analyzed: 06/21/16

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R1606244-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide	SM 4500-CN-E-2001(2011)	0.387	0.400	97	85-115

01034

March 14, 2016

Service Request No:R1601771

[redacted]

Laboratory Results for: i3 Electronics Quarterly

[redacted]

Enclosed are the results of the sample(s) submitted to our laboratory March 01, 2016
For your reference, these analyses have been assigned our service request number **R1601771.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1601771

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1601771-001	Concentrate	3/1/2016	0815

All samples were received in good condition unless otherwise noted on the cooler receipt and preservation check form located at the end of this report.

All samples were preserved in accordance with approved analytical methods.

All samples have been analyzed by the approved methods cited on the analytical results pages.

All holding times and associated QC were within limits.

No analytical or QC problems were encountered.

All sampling activities performed by ALS personnel have been in accordance with "ALS Field Procedures and Measurements Manual" or by client specifications.

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

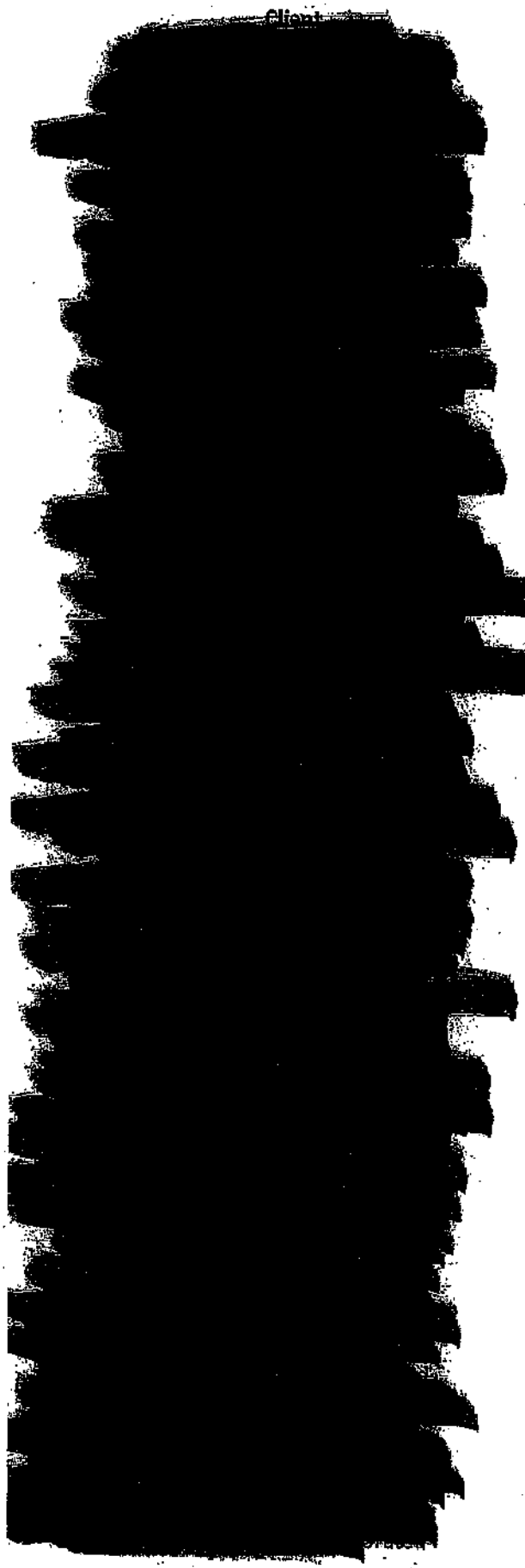
ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

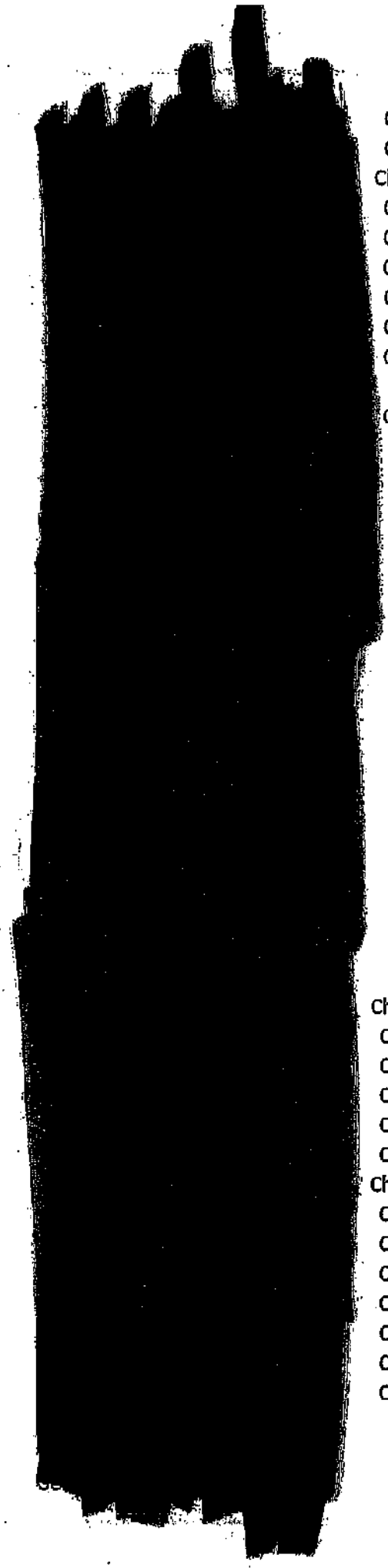
Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Accredited	Nebraska Accredited	
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047	North Carolina #676	Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads



Project
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
ebster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study

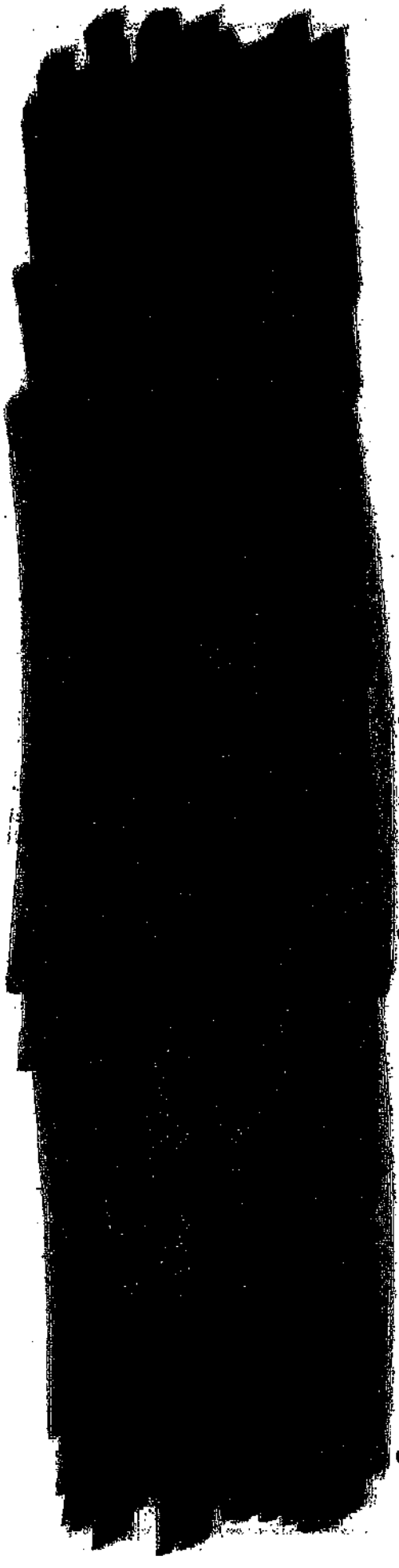
Watertown WWTP Leachate/Semi-annual
Chittenango WWTP - Monthly/Monthly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate



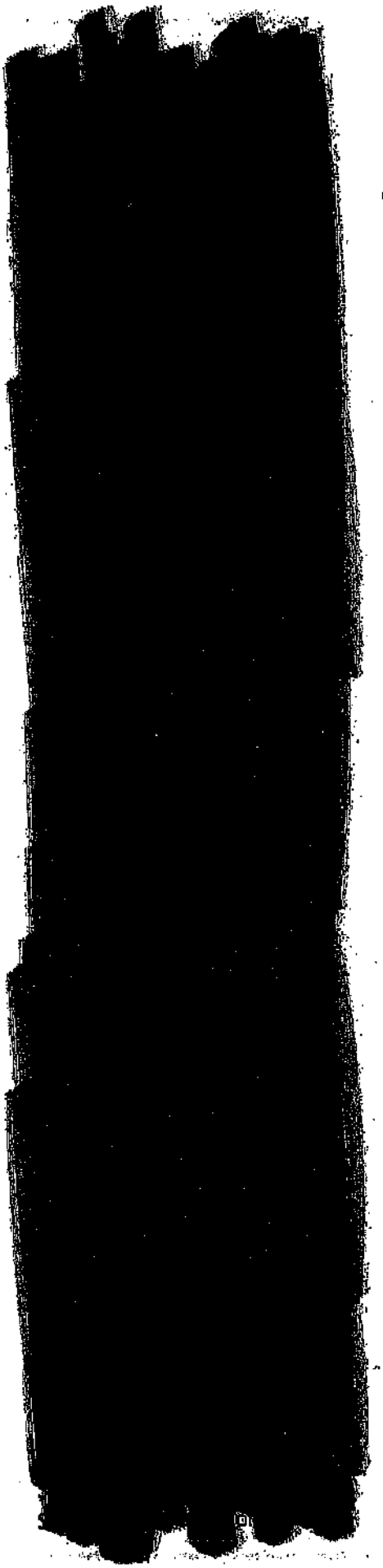
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Watertown WWTP Leachate/Semi-annual
Chittenango WWTP - Weekly/Weekly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate

[redacted]

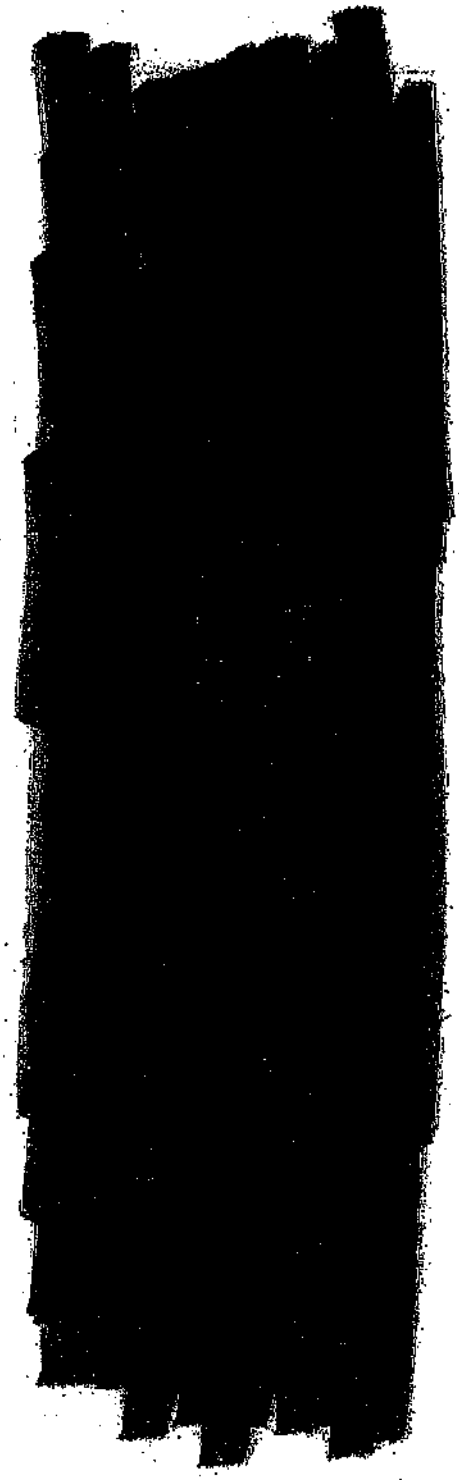
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Leachate Study
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate



Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Leachate Study
Leachate Study
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Watertown WWTP Leachate/Semi-annual
Chittenango WWTP - Weekly/Weekly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate



Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Chittenango WWTP - Monthly/Monthly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Watertown WWTP Leachate/Semi-annual
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Leachate Study
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Leachate Study
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Webster WWTP/Quarterly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Watertown WWTP Leachate/Semi-annual
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate



Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Monthly/Monthly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Chittenango WWTP - Weekly/Weekly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Leachate Study
Leachate Study
Webster WWTP/Quarterly Leachate
Watertown WWTP Leachate/Semi-annual

Service Request	Sample	Lab Code	Date Collected
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016

R1605041	Leachate Composite	R1605041-001	05/17/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605796	SMIPS001	R1605796-001	6/2/2016
R1606139	SMIPS001	R1606139-001	6/9/2016
R1600181	SMIPS001	R1600181-001	01/07/2016
R1600781	SMIPS001	R1600781-001	01/28/2016
R1601046	SMIPS001	R1601046-001	02/04/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1601491	SMIPS001	R1601491-001	02/18/2016
R1601661	SMIPS001	R1601661-001	02/25/2016
R1603009	SMIPS001	R1603009-001	03/31/2016
R1603615	SMIPS001	R1603615-001	04/14/2016
R1604241	SMIPS001	R1604241-001	04/28/2016
R1604647	SMIPS001	R1604647-001	05/05/2016
R1511267	SMIPS001	R1511267-001	12/29/2015
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605796	SMIPS001	R1605796-001	6/2/2016
R1606139	SMIPS001	R1606139-001	6/9/2016
R1600181	SMIPS001	R1600181-001	01/07/2016

R1600781	SMIPS001	R1600781-001	01/28/2016
R1601046	SMIPS001	R1601046-001	02/04/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1601491	SMIPS001	R1601491-001	02/18/2016
R1601661	SMIPS001	R1601661-001	02/25/2016
R1603009	SMIPS001	R1603009-001	03/31/2016
R1603615	SMIPS001	R1603615-001	04/14/2016
R1604241	SMIPS001	R1604241-001	04/28/2016
R1604647	SMIPS001	R1604647-001	05/05/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1511267	SMIPS001	R1511267-001	12/29/2015
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1605796	SMIPS001	R1605796-001	6/2/2016
R1606139	SMIPS001	R1606139-001	6/9/2016
R1600181	SMIPS001	R1600181-001	01/07/2016
R1600781	SMIPS001	R1600781-001	01/28/2016
R1601046	SMIPS001	R1601046-001	02/04/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1601491	SMIPS001	R1601491-001	02/18/2016
R1601661	SMIPS001	R1601661-001	02/25/2016
R1603009	SMIPS001	R1603009-001	03/31/2016
R1603615	SMIPS001	R1603615-001	04/14/2016
R1604241	SMIPS001	R1604241-001	04/28/2016
R1604647	SMIPS001	R1604647-001	05/05/2016
R1511267	SMIPS001	R1511267-001	12/29/2015
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016

R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1604411	Leachate Dissolved	R1604411-003	5/3/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016

R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605796	SMIPS001	R1605796-001	6/2/2016
R1606139	SMIPS001	R1606139-001	6/9/2016
R1600181	SMIPS001	R1600181-001	01/07/2016
R1600781	SMIPS001	R1600781-001	01/28/2016
R1601046	SMIPS001	R1601046-001	02/04/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1601491	SMIPS001	R1601491-001	02/18/2016
R1601661	SMIPS001	R1601661-001	02/25/2016
R1603009	SMIPS001	R1603009-001	03/31/2016
R1603615	SMIPS001	R1603615-001	04/14/2016
R1604241	SMIPS001	R1604241-001	04/28/2016
R1604647	SMIPS001	R1604647-001	05/05/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1511267	SMIPS001	R1511267-001	12/29/2015
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1605796	SMIPS001	R1605796-001	6/2/2016

R1606139	SMIPS001	R1606139-001	6/9/2016
R1600181	SMIPS001	R1600181-001	01/07/2016
R1600781	SMIPS001	R1600781-001	01/28/2016
R1601046	SMIPS001	R1601046-001	02/04/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1601491	SMIPS001	R1601491-001	02/18/2016
R1601661	SMIPS001	R1601661-001	02/25/2016
R1603009	SMIPS001	R1603009-001	03/31/2016
R1603615	SMIPS001	R1603615-001	04/14/2016
R1604241	SMIPS001	R1604241-001	04/28/2016
R1604647	SMIPS001	R1604647-001	05/05/2016
R1511267	SMIPS001	R1511267-001	12/29/2015
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1601661	SMIPS001	R1601661-001	02/25/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1604411	Leachate Dissolved	R1604411-003	5/3/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016
R1600590	SMIPS001	R1600590-001	1/21/2016
R1605796	SMIPS001	R1605796-001	6/2/2016
R1606139	SMIPS001	R1606139-001	6/9/2016
R1600181	SMIPS001	R1600181-001	01/07/2016
R1600781	SMIPS001	R1600781-001	01/28/2016

R1601046	SMIPS001	R1601046-001	02/04/2016
R1601310	SMIPS001	R1601310-001	02/11/2016
R1601491	SMIPS001	R1601491-001	02/18/2016
R1601661	SMIPS001	R1601661-001	02/25/2016
R1603009	SMIPS001	R1603009-001	03/31/2016
R1603615	SMIPS001	R1603615-001	04/14/2016
R1604241	SMIPS001	R1604241-001	04/28/2016
R1604647	SMIPS001	R1604647-001	05/05/2016
R1511267	SMIPS001	R1511267-001	12/29/2015
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1605041	Leachate Grab	R1605041-002	05/17/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Grab	R1604411-002	5/3/2016
R1603888	Leachate Metals Soluble	R1603888-002	4/20/2016
R1603888	Leachate Metals Total	R1603888-001	4/20/2016
R1604411	Leachate Composite	R1604411-001	5/3/2016
R1605041	Leachate Composite	R1605041-001	05/17/2016

Date Received	Date Extracted	Date Analyzed	Extraction Method
5/3/2016	NA	5/9/2016	
05/17/2016	NA	05/19/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
05/17/2016	NA	05/19/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
05/17/2016	NA	05/19/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A

05/17/2016	05/19/2016	05/24/2016	EPA 200.2
1/22/2016	NA	1/27/2016	
5/3/2016	NA	5/24/2016	
6/3/2016	NA	6/21/2016	
6/10/2016	NA	6/29/2016	
01/08/2016	NA	01/11/2016	
01/29/2016	NA	02/01/2016	
02/05/2016	NA	02/08/2016	
02/12/2016	NA	02/16/2016	
02/19/2016	NA	02/22/2016	
02/25/2016	NA	03/01/2016	
04/01/2016	NA	04/15/2016	
04/14/2016	NA	04/21/2016	
04/28/2016	NA	05/17/2016	
05/06/2016	NA	05/18/2016	
12/30/2015	NA	01/06/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
1/22/2016	NA	1/22/2016	
5/3/2016	NA	5/4/2016	
6/3/2016	NA	6/3/2016	
6/10/2016	NA	6/10/2016	
01/08/2016	NA	01/08/2016	

01/29/2016	NA	01/29/2016	
02/05/2016	NA	02/05/2016	
02/12/2016	NA	02/12/2016	
02/19/2016	NA	02/19/2016	
02/25/2016	NA	02/26/2016	
04/01/2016	NA	04/01/2016	
04/14/2016	NA	04/15/2016	
04/28/2016	NA	04/28/2016	
05/06/2016	NA	05/06/2016	
05/17/2016	NA	05/18/2016	
12/30/2015	NA	12/30/2015	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/29/2016	EPA 3005A/3010A
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
05/17/2016	05/19/2016	05/24/2016	EPA 200.2
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/10/2016	
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
1/22/2016	NA	1/27/2016	
6/3/2016	NA	6/11/2016	
6/10/2016	NA	6/23/2016	
01/08/2016	NA	01/15/2016	
01/29/2016	NA	02/01/2016	
02/05/2016	NA	02/11/2016	
02/12/2016	NA	02/12/2016	
02/19/2016	NA	02/22/2016	
02/25/2016	NA	02/26/2016	
04/01/2016	NA	04/12/2016	
04/14/2016	NA	04/19/2016	
04/28/2016	NA	05/04/2016	
05/06/2016	NA	05/17/2016	
12/30/2015	NA	01/06/2016	
5/3/2016	NA	5/18/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	

5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/6/2016	EPA 200.2
05/17/2016	05/19/2016	05/24/2016	EPA 200.2
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
05/17/2016	05/19/2016	05/24/2016	EPA 200.2
5/3/2016	5/9/2016	5/10/2016	METHOD
05/17/2016	05/23/2016	05/24/2016	METHOD
5/3/2016	NA	NA	
5/3/2016	5/9/2016	5/10/2016	SM 4500-CN- G
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2

5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/29/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/6/2016	EPA 200.2
05/17/2016	05/19/2016	05/24/2016	EPA 200.2
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
4/20/2016	4/25/2016	4/26/2016	METHOD
4/20/2016	4/25/2016	4/26/2016	METHOD
5/3/2016	NA	5/10/2016	
05/17/2016	05/27/2016	05/27/2016	METHOD
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/6/2016	EPA 200.2
05/17/2016	05/19/2016	05/24/2016	EPA 200.2
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
1/22/2016	2/8/2016	2/9/2016	METHOD
5/3/2016	5/13/2016	5/16/2016	METHOD
6/3/2016	6/13/2016	6/15/2016	METHOD
6/10/2016	6/22/2016	6/24/2016	METHOD
01/08/2016	01/20/2016	01/21/2016	METHOD
01/29/2016	02/08/2016	02/10/2016	METHOD
02/05/2016	02/09/2016	02/10/2016	METHOD
02/12/2016	02/15/2016	02/17/2016	METHOD
02/19/2016	02/23/2016	02/24/2016	METHOD
02/25/2016	03/01/2016	03/02/2016	METHOD
04/01/2016	04/05/2016	04/06/2016	METHOD
04/14/2016	04/20/2016	04/22/2016	METHOD
04/28/2016	05/09/2016	05/10/2016	METHOD
05/06/2016	05/13/2016	05/16/2016	METHOD
05/17/2016	05/25/2016	05/27/2016	METHOD
12/30/2015	01/04/2016	01/05/2016	METHOD
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/12/2016	
05/17/2016	NA	06/06/2016	
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
1/22/2016	NA	1/22/2016	
6/3/2016	NA	6/11/2016	

6/10/2016	NA	6/22/2016	
01/08/2016	NA	01/12/2016	
01/29/2016	NA	01/30/2016	
02/05/2016	NA	02/08/2016	
02/12/2016	NA	02/19/2016	
02/19/2016	NA	02/23/2016	
02/25/2016	NA	02/26/2016	
04/01/2016	NA	04/07/2016	
04/14/2016	NA	05/04/2016	
04/28/2016	NA	05/04/2016	
05/06/2016	NA	05/10/2016	
12/30/2015	NA	12/30/2016	
5/3/2016	NA	5/3/2016	
05/17/2016	NA	05/17/2016	
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	NA	5/12/2016	
05/17/2016	NA	05/26/2016	
1/22/2016	1/29/2016	2/2/2016	METHOD
5/3/2016	5/4/2016	5/5/2016	METHOD
02/12/2016	02/18/2016	02/19/2016	METHOD
02/25/2016	02/29/2016	03/01/2016	METHOD
05/17/2016	05/21/2016	05/23/2016	METHOD
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
5/3/2016	5/4/2016	5/6/2016	EPA 3510C
4/20/2016	4/27/2016	4/29/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/6/2016	EPA 200.2
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
1/22/2016	NA	1/25/2016	
02/12/2016	NA	02/16/2016	
1/22/2016	NA	1/27/2016	
5/3/2016	NA	5/5/2016	
02/12/2016	NA	02/18/2016	
05/17/2016	NA	05/24/2016	
1/22/2016	NA	1/22/2016	
6/3/2016	NA	6/11/2016	
6/10/2016	NA	6/22/2016	
01/08/2016	NA	01/12/2016	
01/29/2016	NA	01/30/2016	

02/05/2016	NA	02/08/2016	
02/12/2016	NA	02/19/2016	
02/19/2016	NA	02/23/2016	
02/25/2016	NA	02/26/2016	
04/01/2016	NA	04/07/2016	
04/14/2016	NA	05/04/2016	
04/28/2016	NA	05/04/2016	
05/06/2016	NA	05/10/2016	
12/30/2015	NA	12/30/2016	
5/3/2016	NA	5/9/2016	
05/17/2016	NA	05/19/2016	
5/3/2016	5/5/2016	5/10/2016	EPA 3510C
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
05/17/2016	NA	05/19/2016	
5/3/2016	5/5/2016	5/9/2016	EPA 3510C
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
5/3/2016	NA	5/9/2016	
05/17/2016	NA	05/19/2016	
5/3/2016	NA	5/9/2016	
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	NA	5/9/2016	
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
4/20/2016	4/27/2016	4/28/2016	EPA 3005A/3010A
5/3/2016	5/4/2016	5/5/2016	EPA 200.2
05/17/2016	05/19/2016	05/24/2016	EPA 200.2

Method	Matrix	Basis	Units	CAS NO
624	Water	NA	ug/L	71-55-6
624	Water	NA	ug/L	71-55-6
624	Water	NA	ug/L	79-34-5
624	Water	NA	ug/L	79-00-5
624	Water	NA	ug/L	75-34-3
624	Water	NA	ug/L	75-35-4
625	Water	NA	ug/L	120-82-1
624	Water	NA	ug/L	107-06-2
624	Water	NA	%	17060-07-0
624	Water	NA	PERCENT	17060-07-0
624	Water	NA	ug/L	78-87-5
625	Water	NA	ug/L	122-66-7
625	Water	NA	%	118-79-6
625	Water	NA	ug/L	88-06-2
625	Water	NA	ug/L	120-83-2
625	Water	NA	ug/L	105-67-9
625	Water	NA	ug/L	51-28-5
625	Water	NA	ug/L	121-14-2
625	Water	NA	ug/L	606-20-2
624	Water	NA	ug/L	78-93-3
624	Water	NA	ug/L	110-75-8
625	Water	NA	ug/L	91-58-7
625	Water	NA	ug/L	95-57-8
625	Water	NA	%	321-60-8
625	Water	NA	%	367-12-4
625	Water	NA	ug/L	88-75-5
625	Water	NA	ug/L	91-94-1
608 Modified	Water	NA	ug/L	72-54-8
608 Modified	Water	NA	ug/L	72-55-9
608 Modified	Water	NA	ug/L	50-29-3
625	Water	NA	ug/L	534-52-1
624	Water	NA	%	460-00-4
624	Water	NA	PERCENT	460-00-4
625	Water	NA	ug/L	101-55-3
625	Water	NA	ug/L	59-50-7
625	Water	NA	ug/L	7005-72-3
625	Water	NA	ug/L	100-02-7
625	Water	NA	ug/L	83-32-9
625	Water	NA	ug/L	208-96-8
624	Water	NA	ug/L	67-64-1
624	Water	NA	ug/L	107-02-8
624	Water	NA	ug/L	107-13-1
608 Modified	Water	NA	ug/L	309-00-2
608 Modified	Water	NA	ug/L	319-84-6
6010C	Water	NA	ug/L	7429-90-5
6010C	Water	NA	ug/L	7429-90-5

200.7	Water	NA	ug/L	7429-90-5
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
ASTM D6919-09	Water	NA	mg/L	7664-41-7
625	Water	NA	ug/L	120-12-7
6010C	Water	NA	ug/L	7440-36-0
6010C	Water	NA	ug/L	7440-36-0
608 Modified	Water	NA	ug/L	12674-11-2
608 Modified	Water	NA	ug/L	11104-28-2
608 Modified	Water	NA	ug/L	11141-16-5
608 Modified	Water	NA	ug/L	53469-21-9
608 Modified	Water	NA	ug/L	12672-29-6
608 Modified	Water	NA	ug/L	11097-69-1
608 Modified	Water	NA	ug/L	11096-82-5
6010C	Water	NA	ug/L	7440-38-2
6010C	Water	NA	ug/L	7440-38-2
200.7	Water	NA	ug/L	7440-38-2
6010C	Water	NA	ug/L	7440-39-3
6010C	Water	NA	ug/L	7440-39-3
200.7	Water	NA	ug/L	7440-39-3
625	Water	NA	ug/L	56-55-3
624	Water	NA	ug/L	71-43-2
625	Water	NA	ug/L	92-87-5
625	Water	NA	ug/L	50-32-8
625	Water	NA	ug/L	205-99-2
625	Water	NA	ug/L	191-24-2
625	Water	NA	ug/L	207-08-9
6010C	Water	NA	ug/L	7440-41-7
6010C	Water	NA	ug/L	7440-41-7
608 Modified	Water	NA	ug/L	319-85-7
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA

SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
SM 5210 B-2001(2011)	Water	NA	mg/L	NA
625	Water	NA	ug/L	108-60-1
625	Water	NA	ug/L	111-91-1
625	Water	NA	ug/L	111-44-4
625	Water	NA	ug/L	117-81-7
6010C	Water	NA	ug/L	7440-42-8
6010C	Water	NA	ug/L	7440-42-8
624	Water	NA	ug/L	75-27-4
624	Water	NA	ug/L	75-25-2
624	Water	NA	ug/L	74-83-9
625	Water	NA	ug/L	85-68-7
6010C	Water	NA	ug/L	7440-43-9
6010C	Water	NA	ug/L	7440-43-9
200.7	Water	NA	ug/L	7440-43-9
200.7	Water	NA	ug/L	7440-43-9
6010C	Water	NA	ug/L	7440-70-2
6010C	Water	NA	ug/L	7440-70-2
624	Water	NA	ug/L	56-23-5
410.4	Water	NA	mg/L	NA
608 Modified	Water	NA	ug/L	57-74-9
300	Water	NA	mg/L	16887-00-6
300	Water	NA	mg/L	16887-00-6
300	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
300.0	Water	NA	mg/L	16887-00-6
SM16 409 A	Water	NA	mg/L	NA
624	Water	NA	ug/L	108-90-7
624	Water	NA	ug/L	75-00-3

624	Water	NA	ug/L	67-66-3
624	Water	NA	ug/L	74-87-3
6010C	Water	NA	ug/L	7440-47-3
6010C	Water	NA	ug/L	7440-47-3
200.7	Water	NA	ug/L	7440-47-3
200.7	Water	NA	ug/L	7440-47-3
625	Water	NA	ug/L	218-01-9
624	Water	NA	ug/L	10061-01-5
6010C	Water	NA	ug/L	7440-48-4
6010C	Water	NA	ug/L	7440-48-4
6010C	Water	NA	ug/L	7440-50-8
200.7	Water	NA	ug/L	7440-50-8
6010C	Water	NA	ug/L	7440-50-8
200.7	Water	NA	ug/L	7440-50-8
200.7	Water	NA	ug/L	7440-50-8
SM 4500-CN-E-2001(2011	Water	NA	mg/L	57-12-5
SM 4500-CN-E-2001(2011	Water	NA	mg/L	57-12-5
SM 4500-CN- G	Water	NA	mg/L	57-12-5
SM 4500-CN- E	Water	NA	mg/L	57-12-5
608 Modified	Water	NA	ug/L	319-86-8
625	Water	NA	ug/L	53-70-3
624	Water	NA	ug/L	124-48-1
624	Water	NA	ug/L	75-09-2
608 Modified	Water	NA	ug/L	60-57-1
625	Water	NA	ug/L	84-66-2
625	Water	NA	ug/L	131-11-3
625	Water	NA	ug/L	84-74-2
625	Water	NA	ug/L	117-84-0
608 Modified	Water	NA	ug/L	959-98-8
608 Modified	Water	NA	ug/L	33213-65-9
608 Modified	Water	NA	ug/L	1031-07-8
608 Modified	Water	NA	ug/L	72-20-8
608 Modified	Water	NA	ug/L	7421-93-4
624	Water	NA	ug/L	100-41-4
625	Water	NA	ug/L	206-44-0
625	Water	NA	ug/L	86-73-7
608 Modified	Water	NA	ug/L	58-89-9
608 Modified	Water	NA	ug/L	76-44-8
608 Modified	Water	NA	ug/L	1024-57-3
625	Water	NA	ug/L	118-74-1
625	Water	NA	ug/L	87-68-3
625	Water	NA	ug/L	77-47-4
625	Water	NA	ug/L	67-72-1
625	Water	NA	ug/L	193-39-5
6010C	Water	NA	ug/L	7439-89-6
6010C	Water	NA	ug/L	7439-89-6
200.7	Water	NA	ug/L	7439-89-6

625	Water	NA	ug/L	78-59-1
6010C	Water	NA	ug/L	7439-92-1
6010C	Water	NA	ug/L	7439-92-1
200.7	Water	NA	ug/L	7439-92-1
200.7	Water	NA	ug/L	7439-92-1
6010C	Water	NA	ug/L	7439-95-4
6010C	Water	NA	ug/L	7439-95-4
6010C	Water	NA	ug/L	7439-96-5
6010C	Water	NA	ug/L	7439-96-5
200.7	Water	NA	ug/L	7439-96-5
7470A	Water	NA	ug/L	7439-97-6
7470A	Water	NA	ug/L	7439-97-6
1631E	Water	NA	ng/L	7439-97-6
245.1	Water	NA	ug/L	7439-97-6
625	Water	NA	ug/L	91-20-3
6010C	Water	NA	ug/L	7440-02-0
6010C	Water	NA	ug/L	7440-02-0
200.7	Water	NA	ug/L	7440-02-0
200.7	Water	NA	ug/L	7440-02-0
625	Water	NA	ug/L	98-95-3
625	Water	NA	%	4165-60-0
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
351.2	Water	NA	mg/L	7727-37-9
625	Water	NA	ug/L	62-75-9
625	Water	NA	ug/L	621-64-7
625	Water	NA	ug/L	86-30-6
1664A	Water	NA	mg/L	NA
1664A	Water	NA	mg/L	NA
608 Modified	Water	NA	%	2051-24-3
608 Modified	Water	NA	%	2051-24-3
625	Water	NA	ug/L	87-86-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5

SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
SM 4500-H+ B	Water	NA	pH UNITS	12408-02-5
625	Water	NA	ug/L	85-01-8
625	Water	NA	ug/L	108-95-2
625	Water	NA	%	13127-88-3
420.4	Water	NA	mg/L	NA
420.4	Water	NA	mg/L	NA
365.1	Water	NA	mg/L	7723-14-0
365.1	Water	NA	mg/L	7723-14-0
365.1	Water	NA	mg/L	7723-14-0
365.1	Water	NA	mg/L	7723-14-0
365.1	Water	NA	mg/L	7723-14-0
6010C	Water	NA	ug/L	9/7/7440
6010C	Water	NA	ug/L	9/7/7440
625	Water	NA	%	1718-51-0
625	Water	NA	ug/L	129-00-0
6010C	Water	NA	ug/L	7782-49-2
6010C	Water	NA	ug/L	7782-49-2
200.7	Water	NA	ug/L	7782-49-2
6010C	Water	NA	ug/L	7440-22-4
200.7	Water	NA	ug/L	7440-22-4
6010C	Water	NA	ug/L	7440-22-4
6010C	Water	NA	ug/L	7440-23-5
6010C	Water	NA	ug/L	7440-23-5
SM 2540 C-1997(2011)	Water	NA	mg/L	NA
SM 2540 C-1997(2011)	Water	NA	mg/L	NA
SM 2540 D-1997(2011)	Water	NA	mg/L	NA
SM 2540 D-1997(2011)	Water	NA	mg/L	NA
SM 2540 D-1997(2011)	Water	NA	mg/L	NA
SM 2540 D-1997(2011)	Water	NA	mg/L	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA

SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
SM 4500-H+ B	Water	NA	DEG C	NA
624	Water	NA	ug/L	127-18-4
624	Water	NA	ug/L	127-18-4
608 Modified	Water	NA	%	877-09-8
608 Modified	Water	NA	%	877-09-8
6010C	Water	NA	ug/L	7440-28-0
6010C	Water	NA	ug/L	7440-28-0
6010C	Water	NA	ug/L	7440-31-5
6010C	Water	NA	ug/L	7440-31-5
624	Water	NA	ug/L	108-88-3
624	Water	NA	%	2037-26-5
624	Water	NA	PERCENT	2037-26-5
608 Modified	Water	NA	ug/L	8001-35-2
624	Water	NA	ug/L	156-60-5
624	Water	NA	ug/L	10061-02-6
624	Water	NA	ug/L	79-01-6
624	Water	NA	ug/L	79-01-6
624	Water	NA	ug/L	75-69-4
6010C	Water	NA	ug/L	7440-62-2
6010C	Water	NA	ug/L	7440-62-2
624	Water	NA	ug/L	75-01-4
6010C	Water	NA	ug/L	7440-66-6
6010C	Water	NA	ug/L	7440-66-6
200.7	Water	NA	ug/L	7440-66-6
200.7	Water	NA	ug/L	7440-66-6

Component	Dilution Factor	Reporting Limit	Detection Limit
1,1,1-Trichloroethane (TCA)	20	20	4
1,1,1-Trichloroethane (TCA)	100	100	20
1,1,2,2-Tetrachloroethane	20	20	4
1,1,2-Trichloroethane	20	20	4
1,1-Dichloroethane (1,1-DCA)	20	20	4.2
1,1-Dichloroethene (1,1-DCE)	20	20	4
1,2,4-Trichlorobenzene	10	47	10
1,2-Dichloroethane	20	20	4
1,2-Dichloroethane-d4	20		
1,2-Dichloroethane-d4	100		
1,2-Dichloropropane	20	20	4
1,2-Diphenylhydrazine	10	47	10
2,4,6-Tribromophenol	10		
2,4,6-Trichlorophenol	10	47	14
2,4-Dichlorophenol	10	47	13
2,4-Dimethylphenol	10	47	15
2,4-Dinitrophenol	10	470	200
2,4-Dinitrotoluene	10	47	16
2,6-Dinitrotoluene	10	47	18
2-Butanone (MEK)	50	250	110
2-Chloroethyl Vinyl Ether	20	200	12
2-Chloronaphthalene	10	47	10
2-Chlorophenol	10	47	10
2-Fluorobiphenyl	10		
2-Fluorophenol	10		
2-Nitrophenol	10	47	14
3,3'-Dichlorobenzidine	10	47	45
4,4'-DDD	1	0.047	0.025
4,4'-DDE	1	0.047	0.025
4,4'-DDT	1	0.047	0.027
4,6-Dinitro-2-methylphenol	10	470	110
4-Bromofluorobenzene	20		
4-Bromofluorobenzene	100		
4-Bromophenyl Phenyl Ether	10	47	22
4-Chloro-3-methylphenol	10	47	12
4-Chlorophenyl Phenyl Ether	10	47	12
4-Nitrophenol	10	470	59
Acenaphthene	10	47	10
Acenaphthylene	10	47	10
Acetone	50	250	140
Acrolein	20	200	58
Acrylonitrile	20	200	35
Aldrin	1	0.047	0.025
alpha-BHC	1	0.047	0.025
Aluminum, Dissolved	1	100	10
Aluminum, Total	1	100	10

Aluminum, Total	1	100	20
Ammonia as Nitrogen	1000	5	0.6
Ammonia as Nitrogen	4000	20	3
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	1000	5.0	0.6
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	1000	5.0	0.6
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	1000	5.0	0.6
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	2000	10	2
Ammonia as Nitrogen	10000	50	6
Anthracene	10	47	10
Antimony, Dissolved	1	60	5
Antimony, Total	1	60	5
Aroclor 1016	1	0.94	0.5
Aroclor 1221	1	1.9	1
Aroclor 1232	1	0.94	0.5
Aroclor 1242	1	0.94	0.5
Aroclor 1248	1	0.94	0.5
Aroclor 1254	1	0.94	0.5
Aroclor 1260	1	0.94	0.5
Arsenic, Dissolved	1	10	5
Arsenic, Total	1	10	5
Arsenic, Total	1	10	4
Barium, Dissolved	1	20	2
Barium, Total	1	20	2
Barium, Total	1	20	2
Benz(a)anthracene	10	47	10
Benzene	20	20	4
Benzidine	10	940	900
Benzo(a)pyrene	10	47	10
Benzo(b)fluoranthene	10	47	10
Benzo(g,h,i)perylene	10	47	10
Benzo(k)fluoranthene	10	47	10
Beryllium, Dissolved	1	3	0.2
Beryllium, Total	1	3	0.2
beta-BHC	1	0.047	0.028
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	1	2	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	

Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	10	20	
Biochemical Oxygen Demand (BOD)	1	2.0	
Biochemical Oxygen Demand (BOD)	10	20	
Bis(1-chloroisopropyl) Ether	10	47	10
Bis(2-chloroethoxy)methane	10	47	22
Bis(2-chloroethyl) Ether	10	47	13
Bis(2-ethylhexyl) Phthalate	10	47	12
Boron, Dissolved	50	10000	700
Boron, Total	10	2000	200
Bromodichloromethane	20	20	4
Bromoform	20	20	4
Bromomethane	20	20	8.8
Butyl Benzyl Phthalate	10	47	24
Cadmium, Dissolved	1	5	0.2
Cadmium, Total	1	5	0.2
Cadmium, Total	1	5	0.4
Cadmium, Total	1	5.0	0.4
Calcium, Dissolved	50	50000	7000
Calcium, Total	50	50000	7000
Carbon Tetrachloride	20	20	4
Chemical Oxygen Demand, Total	10	50	37
Chlordane	1	0.24	0.13
Chloride	2000	400	200
Chloride	2000	400	200
Chloride	2000	400	200
Chloride	2000	400	200
Chloride	2000	400	200
Chloride	1000	200	100
Chloride	2000	400	200
Chloride	2000	400	200
Chloride	1000	200	100
Chloride	400	80	40
Chloride	2000	400	200
Chloride	2000	400	200
Chloride	2000	400	200
Chloride	2000	400	200
Chlorine, Demand	100	130	
Chlorobenzene	20	20	4
Chloroethane	20	20	4.8

Chloroform	20	20	4
Chloromethane	20	20	4
Chromium, Dissolved	1	10	0.3
Chromium, Total	1	10	0.3
Chromium, Total	1	10	0.9
Chromium, Total	1	10	0.9
Chrysene	10	47	10
cis-1,3-Dichloropropene	20	20	4
Cobalt, Dissolved	1	50	2
Cobalt, Total	1	50	2
Copper, Dissolved	1	20	3
Copper, Dissolved	1	20	4
Copper, Total	1	20	3
Copper, Total	1	20	4
Copper, Total	1	20	4
Cyanide	1	0.1	0.01
Cyanide	1	0.10	0.01
Cyanide, Amenable to Chlorination	1	0.01	
Cyanide, Residual	1	0.01	0.002
delta-BHC	1	0.048	0.048
Dibenz(a,h)anthracene	10	47	13
Dibromochloromethane	20	20	4
Dichloromethane (Methylene Chloride)	20	20	4
Dieldrin	1	0.047	0.025
Diethyl Phthalate	10	47	10
Dimethyl Phthalate	10	47	10
Di-n-butyl Phthalate	10	47	10
Di-n-octyl Phthalate	10	47	12
Endosulfan I	1	0.047	0.025
Endosulfan II	1	0.047	0.025
Endosulfan Sulfate	1	0.047	0.025
Endrin	1	0.047	0.025
Endrin Aldehyde	1	0.047	0.025
Ethylbenzene	20	20	4
Fluoranthene	10	47	10
Fluorene	10	47	10
gamma-BHC (Lindane)	1	0.047	0.025
Heptachlor	1	0.047	0.025
Heptachlor Epoxide	1	0.047	0.025
Hexachlorobenzene	10	47	10
Hexachlorobutadiene	10	47	13
Hexachlorocyclopentadiene	10	47	10
Hexachloroethane	10	47	12
Indeno(1,2,3-cd)pyrene	10	47	12
Iron, Dissolved	1	100	9
Iron, Total	1	100	9
Iron, Total	1	100	20

Isophorone	10	47	10
Lead, Dissolved	1	5	4.2
Lead, Total	1	5	4.2
Lead, Total	1	50	3
Lead, Total	1	50	3
Magnesium, Dissolved	1	1000	10
Magnesium, Total	1	1000	10
Manganese, Dissolved	1	10	1
Manganese, Total	1	10	1
Manganese, Total	1	10	2
Mercury, Dissolved	1	0.2	0.04
Mercury, Total	1	0.2	0.04
Mercury, Total	10	10	5
Mercury, Total	1	0.20	0.03
Naphthalene	10	47	10
Nickel, Dissolved	1	40	2
Nickel, Total	1	40	2
Nickel, Total	1	40	2
Nickel, Total	1	40	2
Nitrobenzene	10	47	16
Nitrobenzene-d5	10		
Nitrogen, Total Kjeldahl (TKN)	10	200	80
Nitrogen, Total Kjeldahl (TKN)	4	80	30
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	1	20	8
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	4	80	30
Nitrogen, Total Kjeldahl (TKN)	4	80	30
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	4	80	30
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	2	40	15
Nitrogen, Total Kjeldahl (TKN)	4	80	30
Nitrogen, Total Kjeldahl (TKN)	2	40	15
N-Nitrosodimethylamine	10	47	10
N-Nitrosodi-n-propylamine	10	47	13
N-Nitrosodiphenylamine	10	47	10
Oil and Grease, Total (HEM)	1	59	14
Oil and Grease, Total (HEM)	1	32	8
PCB 209	1		
PCB 209	1		
Pentachlorophenol (PCP)	10	470	69
pH	1		
pH	1		

pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH	1		
pH, Field	1		
pH, Field	1		
Phenanthrene	10	47	10
Phenol	10	47	10
Phenol-d6	10		
Phenolics, Total Recoverable	100	0.5	0.1
Phenolics, Total Recoverable	100	0.50	0.10
Phosphorus, Total	1	0.25	0.01
Phosphorus, Total	1	0.25	0.01
Phosphorus, Total	1	0.25	0.01
Phosphorus, Total	1	0.25	0.01
Phosphorus, Total	1	0.25	0.01
Potassium, Dissolved	50	100000	3000
Potassium, Total	50	100000	3000
p-Terphenyl-d14	10		
Pyrene	10	47	10
Selenium, Dissolved	1	10	5
Selenium, Total	1	10	5
Selenium, Total	1	10	3
Silver, Dissolved	1	10	0.6
Silver, Dissolved	1	10	0.5
Silver, Total	1	10	0.6
Sodium, Dissolved	50	50000	5000
Sodium, Total	50	50000	5000
Solids, Total Dissolved (TDS)	1	200	80
Solids, Total Dissolved (TDS)	1	200	80
Solids, Total Suspended (TSS)	1	29	
Solids, Total Suspended (TSS)	1	12	
Solids, Total Suspended (TSS)	1	42	
Solids, Total Suspended (TSS)	1	13	
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		

Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Temperature of pH Analysis	1		
Tetrachloroethene (PCE)	20	20	4
Tetrachloroethene (PCE)	100	100	20
Tetrachloro-m-xylene	1		
Tetrachloro-m-xylene	1		
Thallium, Dissolved	1	10	5
Thallium, Total	1	10	5
Tin, Dissolved	1	500	20
Tin, Total	1	500	20
Toluene	20	20	4
Toluene-d8	20		
Toluene-d8	100		
Toxaphene	1	0.47	0.25
trans-1,2-Dichloroethene	20	20	4
trans-1,3-Dichloropropene	20	20	4
Trichloroethene (TCE)	20	20	4
Trichloroethene (TCE)	100	100	20
Trichlorofluoromethane (CFC 11)	20	20	4
Vanadium, Dissolved	1	50	1
Vanadium, Total	1	50	1
Vinyl Chloride	20	20	4
Zinc, Dissolved	1	20	7
Zinc, Total	1	20	7
Zinc, Total	1	20	3
Zinc, Total	1	20	3

Result	Result Notes
20	U
100	U
20	U
20	U
20	U
20	U
47	U
20	U
99	
104	
20	U
47	U
83	
47	U
47	U
47	U
470	U
47	U
47	U
7300	D
200	U
47	U
47	U
60	
34	
47	U
47	U
0.047	U
0.047	U
0.047	U
470	U
96	
102	
47	U
47	U
47	U
470	U
47	U
47	U
5500	D
200	U
200	U
0.047	U
0.047	U
240	=
420	=

510	
1600	=
2150	
1430	=
1580	=
1550	
1780	
715	
1710	
1970	
1400	
406	
1940	
1710	
1900	
3530	
47	U
60	U
60	U
0.94	U
1.9	U
0.94	U
0.94	U
0.94	U
0.94	U
0.94	U
105	=
115	=
230	
993	=
976	=
956	
47	U
20	U
940	U
47	U
47	U
47	U
47	U
3	U
3	U
0.047	U
3510	=,X
4310	
4420	=
6090	=
1760	X

4110	X
2050	X
2510	X
1740	X
1440	
4940	
3220	
5880	
4970	
3930	
3320	X
47	U
47	U
47	U
47	U
15000	=
17200	=
20	U
20	U
20	U
47	U
5	U
5	U
5	U
5.0	U
458000	=
429000	=
20	U
10200	
0.24	U
6070	=
6670	=
9080	=
6080	
7900	
4940	
7240	
7530	
7440	
1570	
6220	
5960	
8120	
8150	
140	
20	U
20	U

20	U
20	U
249	=
244	=
379	
356	
47	U
20	U
50	U
50	U
20	U
20	U
257	=
213	
158	
0.1	U
0.10	U
0.027	
0.013	
0.048	U
47	U
20	U
20	U
0.047	U
47	U
47	U
47	U
47	U
0.76	
0.047	U
0.047	U
0.047	U
0.047	U
20	U
47	U
47	U
0.047	U
0.047	U
0.047	U
47	U
47	U
47	U
47	U
47	U
4530	=
36700	=
26400	

47	U
5	U
7.7	=
50	U
50	U
154000	=
145000	=
3630	=
3610	=
2600	
0.2	U
0.2	U
26	
0.20	U
47	U
151	=
152	=
267	
252	
47	U
69	
1160	=
2080	
1530	=
1900	=
1490	
1800	
787	
1890	
2090	
1390	
448	
2150	
1560	
1910	
1790	
1490	
47	U
47	U
47	U
59	U
32	U
5	*
5	*
470	U
7.25	=,H
7.78	=,H

7.51	=,H
7.48	
7.52	
7.21	
7.61	
7.62	
7.42	
6.81	
7.67	
7.45	
7.56	
7.63	
7.69	
7.49	
47	U
650	
42	
5.06	
4.42	
5.33	=
7.18	
8.88	
6.66	
6.56	
960000	=
840000	=
42	
47	U
10	U
11	=
10	U
10	U
10	U
10	U
2600000	=
2390000	=
8260	=
13500	
106	=
54	
63	
97	
17.2	=,H
23.6	=,H
22.8	=,H
17.6	
17.4	

19.2	
18.2	
21.0	
20.0	
22.2	
20.2	
22	
20.4	
17.6	
20	U
100	U
21	
18	
10	U
10	U
500	U
500	U
50	
95	
108	
0.47	U
20	U
20	U
20	U
100	U
20	U
50	U
50	U
20	U
34	=
279	=
495	
471	

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Analytical Report

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1601771
Date Collected: 03/01/16 08:15
Date Received: 03/01/16 13:40

Sample Name: Concentrate
Lab Code: R1601771-001

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Ammonia as Nitrogen, undistilled	ASTM D6919-09	2140		mg/L	50	1000	03/03/16 11:57	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	5100		mg/L	20	10	03/02/16 07:28	NA	
Chemical Oxygen Demand, Total	410.4	11800		mg/L	100	20	03/03/16 10:00	NA	
Chloride	300.0	27600		mg/L	800	4000	03/07/16 19:55	NA	
Chromium, Hexavalent	7196A	0.50	U	mg/L	0.50	50	03/01/16 16:49	NA	
Cyanide	SM 4500-CN-E-2001(2011)	0.10	U	mg/L	0.10	1	03/04/16 11:09	03/03/16	
Nitrogen, Total Kjeldahl (TKN)	351.2	2220		mg/L	80	40	03/07/16 12:35	03/02/16	
Oil and Grease, Total (HEM)	1664A	38	U	mg/L	38	1	03/10/16 09:45	NA	
pH	SM 4500-H+ B	7.27		pH Units	-	1	03/02/16 13:25	NA	H
Phenolics, Total Recoverable	420.4 Modified	7.2		mg/L	1.0	200	03/03/16 13:15	NA	
Phosphorus, Total	365.1	0.97		mg/L	0.25	1	03/09/16 22:15	03/09/16	
Solids, Total	SM 2540 B-1997(2011)	24800		mg/L	330	1	03/02/16 12:23	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	14900		mg/L	330	1	03/02/16 09:28	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	36		mg/L	18	1	03/02/16 10:56	NA	
Sulfide, Acid-Soluble	9034	5.0	U	mg/L	5.0	1	03/04/16 09:00	03/04/16	
Temperature of pH Analysis	SM 4500-H+ B	18.2		deg C	-	1	03/02/16 13:25	NA	H

[redacted]Analytical Report

Client:	[redacted]	**Service Request:**	R1601771
Project:		**Date Collected:**	03/01/16 08:15
Sample Matrix:		**Date Received:**	03/01/16 13:40
Sample Name:	Concentrate	**Units:**	ug/L
Lab Code:	R1601771-001	**Basis:**	NA

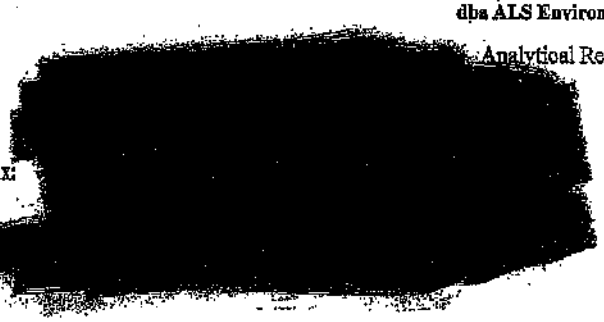
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Benzene	20 U	20	20	03/02/16 13:52	
Methylene Chloride	39	20	20	03/02/16 13:52	
Ethylbenzene	26	20	20	03/02/16 13:52	
Toluene	160	20	20	03/02/16 13:52	
m,p-Xylenes	46	40	20	03/02/16 13:52	
o-Xylene	20 U	20	20	03/02/16 13:52	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	101	81 - 127	03/02/16 13:52	
4-Bromofluorobenzene	100	79 - 123	03/02/16 13:52	
Toluene-d8	100	83 - 120	03/02/16 13:52	

Analytical Report



Client:
Project:
Sample Matrix:
Sample Name:
Lab Code:

Service Request: R1601771
Date Collected: 03/01/16 08:15
Date Received: 03/01/16 13:40
Basis: NA

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	247		ug/L	10	1	03/07/16 15:02	03/03/16	
Barium, Total	6010C	2780		ug/L	20	1	03/07/16 15:02	03/03/16	
Cadmium, Total	6010C	5.0	U	ug/L	5.0	1	03/07/16 15:02	03/03/16	
Chromium, Total	6010C	346		ug/L	10	1	03/07/16 15:02	03/03/16	
Copper, Total	6010C	20	U	ug/L	20	1	03/07/16 15:02	03/03/16	
Iron, Total	6010C	47000		ug/L	100	1	03/07/16 15:02	03/03/16	
Lead, Total	6010C	50	U	ug/L	50	1	03/07/16 15:02	03/03/16	
Manganese, Total	6010C	7380		ug/L	10	1	03/07/16 15:02	03/03/16	
Mercury, Total	245.1	0.20	U	ug/L	0.20	1	03/04/16 13:14	03/03/16	
Molybdenum, Total	6010C	25	U	ug/L	25	1	03/07/16 15:02	03/03/16	
Nickel, Total	6010C	249		ug/L	40	1	03/07/16 15:02	03/03/16	
Selenium, Total	6010C	30		ug/L	10	1	03/11/16 08:26	03/03/16	
Silver, Total	6010C	10	U	ug/L	10	1	03/07/16 15:02	03/03/16	
Zinc, Total	6010C	158		ug/L	20	1	03/07/16 15:02	03/03/16	

Analytical Report

Client:	[redacted]	**Service Request:**	R1601771
Project:		**Date Collected:**	03/01/16 08:15
Sample Matrix:		**Date Received:**	03/01/16 13:40
Sample Name:	Concentrate	**Units:**	ug/L
Lab Code:	R1601771-001	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 625
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	24 U	24	5	03/07/16 12:05	3/2/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	58	39 - 119	03/07/16 12:05	
Nitrobenzene-d5	62	37 - 117	03/07/16 12:05	
p-Terphenyl-d14	44	40 - 133	03/07/16 12:05	

Analytical Report

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1601771
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1601771-MB

Basis: NA

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Ammonia as Nitrogen, undistilled	ASTM D6919-09	0.0050 U	mg/L	0.0050	1	03/03/16 09:49	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0 U	mg/L	2.0	1	03/02/16 16:35	NA	
Chemical Oxygen Demand, Total	410.4	5.0 U	mg/L	5.0	1	03/03/16 10:00	NA	
Chloride	300.0	0.20 U	mg/L	0.20	1	03/07/16 17:52	NA	
Chromium, Hexavalent	7196A	0.010 U	mg/L	0.010	1	03/01/16 16:35	NA	
Cyanide	SM 4500-CN-E-2001(2011)	0.010 U	mg/L	0.010	1	03/04/16 10:49	03/03/16	
Nitrogen, Total Kjeldahl (TKN)	351.2	0.20 U	mg/L	0.20	1	03/07/16 11:45	03/02/16	
Oil and Grease, Total (HEM)	1664A	5.0 U	mg/L	5.0	1	03/10/16 09:45	NA	
Phenolics, Total Recoverable	420.4 Modified	0.0050 U	mg/L	0.0050	1	03/03/16 13:15	NA	
Phosphorus, Total	365.1	0.050 U	mg/L	0.050	1	03/09/16 21:57	03/09/16	
Solids, Total	SM 2540 B-1997(2011)	10 U	mg/L	10	1	03/02/16 12:23	NA	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10 U	mg/L	10	1	03/02/16 09:28	NA	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.0 U	mg/L	1.0	1	03/02/16 10:56	NA	
Sulfide, Acid-Soluble	9034	1.0 U	mg/L	1.0	1	03/04/16 09:00	03/04/16	

Analytical Report

Client:	[redacted]	**Service Request:**	R1601771
Project:		**Date Collected:**	NA
Sample Matrix:		**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R1601771-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	6010C	10 U	ug/L	10	1	03/07/16 14:20	03/03/16	
Barium, Total	6010C	20 U	ug/L	20	1	03/07/16 14:20	03/03/16	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	1	03/07/16 14:20	03/03/16	
Chromium, Total	6010C	10 U	ug/L	10	1	03/07/16 14:20	03/03/16	
Copper, Total	6010C	20 U	ug/L	20	1	03/07/16 14:20	03/03/16	
Iron, Total	6010C	100 U	ug/L	100	1	03/07/16 14:20	03/03/16	
Lead, Total	6010C	50 U	ug/L	50	1	03/07/16 14:20	03/03/16	
Manganese, Total	6010C	21	ug/L	10	1	03/07/16 14:20	03/03/16	
Mercury, Total	245.1	0.20 U	ug/L	0.20	1	03/04/16 12:45	03/03/16	
Molybdenum, Total	6010C	25 U	ug/L	25	1	03/07/16 14:20	03/03/16	
Nickel, Total	6010C	40 U	ug/L	40	1	03/07/16 14:20	03/03/16	
Selenium, Total	6010C	10 U	ug/L	10	1	03/07/16 14:20	03/03/16	
Silver, Total	6010C	10 U	ug/L	10	1	03/07/16 14:20	03/03/16	
Zinc, Total	6010C	20 U	ug/L	20	1	03/07/16 14:20	03/03/16	

Analytical Report

Client:	[redacted]	**Service Request:**	R1601771
Project:		**Date Collected:**	NA
Sample Matrix:		**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1602265-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Benzene	1.0 U	1.0	1	03/02/16 11:17	
Methylene Chloride	1.0 U	1.0	1	03/02/16 11:17	
Ethylbenzene	1.0 U	1.0	1	03/02/16 11:17	
Toluene	1.0 U	1.0	1	03/02/16 11:17	
m,p-Xylenes	2.0 U	2.0	1	03/02/16 11:17	
o-Xylene	1.0 U	1.0	1	03/02/16 11:17	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,2-Dichloroethane-d4	99	81 - 127	03/02/16 11:17	
4-Bromofluorobenzene	100	79 - 123	03/02/16 11:17	
Toluene-d8	99	83 - 120	03/02/16 11:17	

Analytical Report

Client:	[redacted]	**Service Request:**	R1601771
Project:		**Date Collected:**	NA
Sample Matrix:		**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1602204-01	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 625
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Bis(2-ethylhexyl) Phthalate	5.0 U	5.0	1	03/07/16 09:27	3/2/16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	70	39 - 119	03/07/16 09:27	
Nitrobenzene-d5	63	37 - 117	03/07/16 09:27	
p-Terphenyl-d14	71	40 - 133	03/07/16 09:27	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: [redacted]
Project:
Sample Matri

Service Request: R1601771
Date Analyzed: 03/01/16 - 03/10/16

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R1601771-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Ammonia as Nitrogen, undistilled	ASTM D6919-09	0.497	0.500	99	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	209	198	106	85-115
Chemical Oxygen Demand, Total	410.4	491	500	98	90-110
Chloride	300.0	1.90	2.00	95	90-110
Chromium, Hexavalent	7196A	0.0908	0.100	91	80-120
Cyanide	SM 4500-CN-E-2001(2011)	0.101	0.100	101	85-115
Nitrogen, Total Kjeldahl (TKN)	351.2	2.35	2.50	94	90-110
Oil and Grease, Total (HEM)	1664A	38.9	43.3	90	78-114
Phenolics, Total Recoverable	420.4 Modified	0.0394	0.0400	99	90-110
Phosphorus, Total	365.1	0.799	0.800	100	90-110
Solids, Total	SM 2540 B-1997(2011)	304	300	101	90-110
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	872	914	95	90-110
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	213	214	100	80-120
Sulfide, Acid-Soluble	9034	10.0	14.5	69	15-124

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1601771
Date Analyzed: 03/04/16

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R1601771-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide	SM 4500-CN-E-2001(2011)	0.398	0.400	100	85-115

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1601771
Date Analyzed: 03/04/16 - 03/07/16

Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
R1601771-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total	6010C	44.9	40	112	80-120
Barium, Total	6010C	2190	2000	109	80-120
Cadmium, Total	6010C	53.8	50.0	108	80-120
Chromium, Total	6010C	208	200	104	80-120
Copper, Total	6010C	270	250	108	80-120
Iron, Total	6010C	1030	1000	103	80-120
Lead, Total	6010C	546	500	109	80-120
Manganese, Total	6010C	557	500	111	80-120
Mercury, Total	245.1	0.944	1.00	94	85-115
Molybdenum, Total	6010C	524	500	105	80-120
Nickel, Total	6010C	538	500	108	80-120
Selenium, Total	6010C	960	1010	95	80-120
Silver, Total	6010C	51.3	50	103	80-120
Zinc, Total	6010C	534	500	107	80-120

Client: [redacted]
Project:
Sample M

Service Request: R1601771
Date Analyzed: 03/02/16

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ1602265-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Benzene	624	19.2	20.0	96	37-151
Methylene Chloride	624	20.7	20.0	103	10-221
Ethylbenzene	624	19.4	20.0	97	37-162
Toluene	624	19.2	20.0	96	47-150
m,p-Xylenes	624	37.4	40.0	93	76-131
o-Xylene	624	18.4	20.0	92	78-127

Client: [redacted]
Project:
Sample Matrix:

Service Request: R1601771
Date Analyzed: 03/07/16

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

		Lab Control Sample RQ1602204-02			Duplicate Lab Control Sample RQ1602204-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bis(2-ethylhexyl) Phthalate	625	105	100	105	96.6	100	97	10-158	8	30

CHAIN OF CUSTODY RECORD

Project Name:	Samplers Name:
I3 Electronics Quarterly	S Zimmerman - SMI
Project Number:	**Lab Sent To:** CAS

Seneca Meadows, Inc.
1786 Salcman Road
Waterloo, NY 13165
Phone: (315) 539-5624
Fax: (315) 539-0653

Location	Date	Time	Matrix	Type	TSS	BOD	Cyanide	Metals, Hg	Phenols	Sulfide	NH3, TKN, PO4, COD	TDS, Cr+6 7196, Cl	Total Solids	VOA	pH	O & G	625 SUVA (2)	Comments
					Analysis Requested													
Concentrate	03/01/16	815am	O	G	X	X	X	X	X	X	X	X	X	X	X	X	X	

[redacted]

Relinquished By:	Date:	Time:
Received By:	Date:	Time:

Soil = SS Sludge = SG Groundwater = GW Other = OT Grab = G Composite = C

R1601771 5
Seneca Meadows, Incorporated
I3 Electronics Quarterly

S:\Senecant01\Rich\Leachate- COC\I3 COC.xlsx

ALS **Cooler Receipt** [redacted] R1601771 5

Seneca Meadows, Incorporated
Electronics Quarterly

Project/Client [redacted]

Cooler received on [redacted] UPS FEDEX VELOCITY CLIENT

1	Were Custody [redacted]	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 3/1/16 Time: 1353 ID: IR#3 IR#5 From: Temp Blank Sample Bottle

Observed Temp (°C)	15.1	21.9	11.3	21.7			
Correction Factor (°C)	±0.0	±0.0	±0.0	±0.0			
Corrected Temp (°C)	15.1	21.9	11.3	21.7			
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N
If<0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: ______ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: ______ Standing Approval Client aware at drop-off Client notified by: ______

All samples held in storage location: R-002 by DAW on 3/1/16 at 1353
5035 samples placed in storage location: ______ by ______ on ______ at ______

PC Secondary Review: JMJ 3/1/16

Cooler Breakdown: Date: 3/1/16 Time: 1523 by: DAW

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH		✓	83518	12/16	*			
≤2	HNO_3		✓	B0526150E	1/17	↓			
≤2	H_2SO_4		✓	85411	12/16				
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-	WC141116F	10/16				
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: ______

Bottle lot numbers: 101915-1BMC, 010416-2HD, 110915-1BLF, 113015-2AAW

Other Comments:

* OK given by PC to not preserve in-lab.

1800 3/1/16 1000 (C141774G)

1800 1Sulfide (C141774G) 3/1/16 0815

PC Secondary Review: JMJ 3/1/16 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

P:\INTRANET\QAQC\Forms Controlled\Cooler Receipt r9.doc 9/24/15

01034

CHAIN OF CUSTODY RECORD

Project Name:	Samplers Name: S Zimmerman - SMI
Project Number:	Lab Sent To: Environmental Geo-Technologies LLC

Analysis Requested: X Total Solids

Seneca Meadows, Inc.
1786 Salcman Road
Waterloo, NY 13165
Phone: (315) 539-5624
Fax: (315) 539-0653

Location	Date	Time	Matrix	Type	Comments
RAW	09/26/16	10:00	O	G	
CONCENTRATE	09/26/16	10:00	O	G	

[redacted]

Relinquished By:	Date:	Time:
Received By:	Date:	Time:

Soil = SS Sludge = SG Groundwater = GW Other = OT Grab = G Composite = C

FINGERPRINT FORM

01034

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

[illegible]	
Date	9/28/16
Receiving ID#	Raw
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval	[redacted]
Generator	[redacted]
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	Client

[illegible]		[illegible]	
Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	7.9	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.02	TDS	
Physical Description	liquid	Resistivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	69°F		
Conductivity	35.4mS		
% Solids	1.5		
Turbidity	(Yes) No		
Color (Visual)	Black		
TSS (%)	0.3		
Radiation Screen (as needed)	Negative		
Lab Signature			

FINGERPRINT FORM 01034

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/28/16
Receiving ID#	Concentrator
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	Client

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	7.5	Sodium Chloride	
Cyanides? (mg/L)	< 30	Bicarbonate	
Sulfides? (ppm)	< 200	Carbonate	
Specific Gravity	1.06	TDS	
Physical Description	liquid	Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil In Sample	Yes No		
Temperature	69°F		
Conductivity	92.7 mS		
% Solids	5.5		
Turbidity	Yes No		
Color (Visual)	Black		
TSS (%)	0.2		
Radiation Screen (as needed)	Negative		
Lab Signature			

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile
Profile # 21035

GENERATOR
Name [redacted]
Facility
City
Cont
BILLING INFORMATION
Compa
Addre
City:
Attention:

WASTE INFORMATION

Name of Waste/Common Chemical Name:
#7 - High pH Nickel Strip.

Process Generating Waste (Please be specific, incomplete information may delay the approval process):
Stripping of Sulfamate and/or Electroless Nickel

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☐ Non Hazardous Liquid Industrial Waste ☑ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☒ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: D002 D007

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear ☐ Black/Brown ☒ Other DARK Red	☒ 0-1 % ☐ 3-5 % ☐ 1-3 % ☐ > 5%	☐ Multi-Layered ☐ Bi-Layered ☒ Single Phase	☐ <0.8 ☒ 1.0 – 1.2 ☐ 0.8 – 1.0 ☐ 1.3 – 1.4 Exact / Other 1.11	accepted 09/12/16

pH: ☐ NA ☐ ≤ 2 ☐ 2 – 4 ☐ 4 – 6 ☐ 6 – 8 ☐ 8 – 10 ☒ 10 – 12.5 ☒ ≥ 12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☐ >200°F ☒ None ☒ Closed Cup ☐ Open Cup

VOC Concentration - <10 PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN	CONSTITUENT	MAX	MIN
Water	95	60 %			%
Potassium Hydroxide	10	1 %			%
Salts	30	1 %			%
		%			%
		%			%

Metals: Indicate if this waste contains any of the following metals. If Generator knowledge-provide backup
☐ Lab Analysis ☒ Generator Knowledge ☐ TCLP ☒ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☐	____ppm	Aromatic Amine	☐	____ppm
Dioxins	☐	____ppm	Pesticides	☐	____ppm
Cyanides Reactive	☐	____ppm	Rodenticides	☐	____ppm
Cyanides Total	☐	____ppm	Fungicides	☐	____ppm
Sulfides Reactive	☐	____ppm			
Sulfides Total	☐	____ppm			

Arsenic (As)	D004	☐ < 5 ppm	____ ppm		
Barium (Ba)	D005	☐ <100 ppm	____ ppm		
Cadmium (Cd)	D006	☐ < 1 ppm	____ ppm		
Chromium (Cr)	D007	☒ < 5 ppm	X ____ ppm		
Lead (Pb)	D008	☐ < 5 ppm	____ ppm		
Mercury (Hg)	D009	☐ < 0.2 ppm	____ ppm		
Selenium (Se)	D010	☐ < 1 ppm	____ ppm		
Silver (Ag)	D011	☐ < 5 ppm	____ ppm		

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*

☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☒ Yes ☐ No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name UN3266, RQ, Waste Corrosive Liquid, basic, inorganic, n.o.s (potassium hydroxide) Hazard Class 8 UN/NA 3266
PG II ERG 154 Hazardous Constituents for "n.o.s." potassium hydroxide
4. Method of Shipment: ☐ Bulk Tanker ☐ Vac truck ☐ Rail Car ☒ Drums ☒ Totes
5. Number of Units to Ship Now: _____ 6. Anticipated Volume / Units per Year: Varies or ☐ One Time
6. Special Handling Requirements including PPE:

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample characterization and/or regulatory requirements.

Printed Name [redacted]

Generator's Sign [redacted]

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS:

PLEASE collect a representative 1-quart sample of the waste described in the above referenced GENERATORS WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. _____ SAMPLING METHOD 2. _____ COLLECTION POINT

3. _____ SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[redacted]					

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/12/16
Receiving ID#	#7 High pH N.
Manifest# Line:	1.5 ... (7)
Land Ban Cert Included	Yes No
EGT Approval#	
Generator	[redacted]
Client	
Transporter	
Time in	
Time out	
Received by	J.M.
Sampled by#	Client

Compatible?(RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	10.8	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.11	TDS	
Physical Description	liquid	Resistivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	73°F		
Conductivity	44.1mS		
% Solids	25.9		
Turbidity	(Yes) No		
Color (visual)	Dk Red		
TSS (%)	0.1		
Radiation Screen (as needed)	Negative		
Lab Signature			

SAFETY DATA SHEET

1. Identification

Product identifier **Room Temperature Nickel Stripper (Part B)**

Other means of identification

Product code 082-078-160B

Recommended use Nickel stripping

Recommended restrictions Not available.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	BROWNELLS, INC.	
Address	200 South Front Street Montezuma, Iowa 50171 United States	
Telephone	(641) 623-5401	
Website	www.brownells.com	
E-mail	Not available.	
Emergency phone number	INFOTRAC	Registrant #79335
	24 hour Emergency Number,	Domestic: (800) 457-4280
	24 hour Emergency Number,	Foreign: +1(352) 323-3500

2. Hazard(s) identification

Physical hazards	Not available.	
Health hazards	Acute toxicity, oral	Category 3
	Skin corrosion/irritation	Category 1A
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not available.	
OSHA defined hazards	Not available.	

Label elements

Signal word	Danger
Hazard statement	Causes severe skin burns and eye damage. Toxic if swallowed.
Precautionary statement	
Prevention	Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. Get medical attention immediately. Call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment (see this label).
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

Not available.

Hazard(s) not otherwise classified (HNOC) Not available.

Supplemental information Not available.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
POTASSIUM HYDROXIDE		1310-58-3	- < 10
Other components below reportable levels			90 - 100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. For minor skin contact, avoid spreading material on unaffected skin.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Rinse mouth thoroughly. Promptly get affected person to drink large volumes of water to dilute the swallowed chemical. Call a physician or poison control center immediately.

Most important symptoms/effects, acute and delayed Corrosive effects. Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Not available.

Special protective equipment and precautions for firefighters Wear suitable protective equipment.

Fire fighting equipment/instructions Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, and rubber boots. Wear positive pressure self-contained breathing apparatus (SCBA).

Hazardous combustion products Not available.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Wear appropriate personal protective equipment. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Do not contaminate water.

7. Handling and storage

Precautions for safe handling	Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Do not get this material on clothing. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in a cool, dry place out of direct sunlight. Keep container tightly closed. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
POTASSIUM HYDROXIDE (CAS 1310-58-3)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
POTASSIUM HYDROXIDE (CAS 1310-58-3)	TWA	2 mg/m3

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection	Chemical goggles and face shield are recommended.
Skin protection	
Hand protection	Wear protective gloves.
Other	Wear appropriate chemical resistant clothing. The use of nitrile-latex gloves is recommended.
Respiratory protection	Wear NIOSH approved respirator when handling or working with material.
Thermal hazards	Not available.
General hygiene considerations	When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Appearance	Amber. Liquid.
Physical state	Liquid.
Form	Liquid.
Color	Amber.
Odor	Not available.
Odor threshold	Not available.
pH	8 - 11
Melting point/freezing point	Not available.
Initial boiling point and boiling range	2420.6 °F (1327 °C) estimated
Flash point	Not available.

Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Very high
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Specific gravity	1.15

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with zinc or aluminum may release hydrogen gas.
Incompatible materials	Avoid contact with acids and oxidizing substances. Certain metals. Maleic anhydride.
Hazardous decomposition products	Alkaline fumes.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes severe eye burns. Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity	Causes severe skin burns and eye damage. Harmful if swallowed.

Product	Species	Test Results
Room Temperature Nickel Stripper (Part B)		
Acute		
Oral		
LD50	Rat	2730 mg/kg estimated

Components	Species	Test Results
POTASSIUM HYDROXIDE (CAS 1310-58-3)		
Acute		
Oral		
LD50	Rat	273 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes severe eye burns. Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization Due to lack of data the classification is not possible.

Germ cell mutagenicity Due to lack of data the classification is not possible.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity Due to lack of data the classification is not possible.

Specific target organ toxicity - single exposure Causes damage to organs ().

Specific target organ toxicity - repeated exposure Due to lack of data the classification is not possible.

Aspiration hazard Due to lack of data the classification is not possible.

Chronic effects Not available.

12. Ecological information

Ecotoxicity Components of this product are hazardous to aquatic life.

Product		Species	Test Results
Room Temperature Nickel Stripper (Part B)			
Aquatic			
Fish	LC50	Fish	800 mg/l, 96 hours estimated

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose of in accordance with current, applicable local, state, and federal regulations. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Waste from residues / unused products Not available.

Contaminated packaging Not available.

14. Transport information

DOT

UN number UN3266

UN proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (POTASSIUM HYDROXIDE RQ = 1000 LBS)

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group II

Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	154

IATA

UN number	UN3266
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (POTASSIUM HYDROXIDE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
Special precautions for user	Not available.
Other information	
Passenger and cargo aircraft	Forbidden.
Cargo aircraft only	Forbidden.

IMDG

UN number	UN3266
UN proper shipping name	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (POTASSIUM HYDROXIDE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

POTASSIUM HYDROXIDE (CAS 1310-58-3) Listed.

SARA 304 Emergency release notification

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

POTASSIUM HYDROXIDE (CAS 1310-58-3)

US. New Jersey Worker and Community Right-to-Know Act

POTASSIUM HYDROXIDE (CAS 1310-58-3)

US. Pennsylvania Worker and Community Right-to-Know Law

POTASSIUM HYDROXIDE (CAS 1310-58-3)

US. Rhode Island RTK

POTASSIUM HYDROXIDE (CAS 1310-58-3)

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-12-2015

Version # 01

Disclaimer The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision Information
Product and Company Identification: Product and Company Identification
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Transport Information: Proper Shipping Name/Packing Group

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174, Telephone 734 946 1000, Fax 734 946 1002

Generator Waste Profile

Profile # 0036

GENERATOR INFORMATION

[redacted]

WASTE INFORMATION

Name of Waste/Common Chemical Name:
Electroless Nickel - Spent solution

Process Generating Waste (Please be specific, incomplete information may delay the approval process):
Electroless Nickel Plating

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☑ Non Hazardous Liquid Industrial Waste ☐ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☑ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: D29L

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear ☐ Black/Brown ☒ Other Green	☒ 0-1 % ☐ 1-3 % ☐ 3-5 % ☐ > 5%	☐ Multi-Layered ☐ Bi-Layered ☒ Single Phase	☐ <0.8 ☐ 0.8 – 1.0 ☒ 1.0 – 1.2 ☐ 1.3 – 1.4 Exact / Other 1.10	acceptable by 09/2/16

pH: ☐ NA ☐ ≤ 2 ☐ 2 – 4 ☒ 4 – 6 ☐ 6 – 8 ☐ 8 – 10 ☐ 10 – 12.5 ☐ ≥ 12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☐ >200°F ☒ None ☒ Closed Cup ☐ Open Cup

VOC Concentration - 0 PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN	CONSTITUENT	MAX	MIN
Water	99	45 %			%
Boric Acid	30	1 %			%
Solvent	25	1 %			%
		%			%
		%			%
					%

Metals: Indicate if this waste contains any of the following metals,. If Generator knowledge-provide backup
☐ Lab Analysis ☒ Generator Knowledge ☐ TCLP ☒ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☒	____ppm	Aromatic Amine	☒	____ppm
Dioxins	☒	____ppm	Pesticides	☒	____ppm
Cyanides Reactive	☒	____ppm	Rodenticides	☒	____ppm
Cyanides Total	☒	____ppm	Fungicides	☒	____ppm
Sulfides Reactive	☒	____ppm			
Sulfides Total	☒	____ppm			

Arsenic (As)	D004	☒ < 5 ppm	____ ppm
Barium (Ba)	D005	☒ <100 ppm	____ ppm
Cadmium (Cd)	D006	☒ < 1 ppm	____ ppm
Chromium (Cr)	D007	☒ < 5 ppm	____ ppm
Lead (Pb)	D008	☒ < 5 ppm	____ ppm
Mercury (Hg)	D009	☒ <0.2 ppm	____ ppm
Selenium (Se)	D010	☒ < 1 ppm	____ ppm
Silver (Ag)	D011	☒ < 5 ppm	____ ppm

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*

☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☐Yes ☒No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name Waste Non-RCRA/Non-DOT material Hazard Class — UN/NA —
   PG — ERG — Hazardous Constituents for "n.o.s." —
4. Method of Shipment: ☐Bulk Tanker ☐Vac truck ☐Rail Car ☒Drums ☒Totes
5. Number of Units to Ship Now: _____ 6. Anticipated Volume / Units per Year: Varies or ☐ One Time
6. Special Handling Requirements including PPE: _____

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample characterization and/or regulatory results.

Printed Name: [redacted]

Generator's Signature: [redacted]

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS:

PLEASE collect a representative 1-quart sample of the waste described in the above referenced GENERATORS WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. _____ 2. _____
   SAMPLING METHOD COLLECTION POINT

3. _____
   SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[redacted]					

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/12/16
Receiving ID#	Electroless Ni
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time In	
Time out	
Received by	S.H.
Sampled by	Client

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	4.9	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.10	TDS	
Physical Description	Liquid	Reactivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	73°F		
Conductivity	22.5 ms		
% Solids	16.3		
Turbidity	Yes (No)		
Color (Visual)	Green		
TSS (%)	<0.1		
Radiation Screen (as needed)	Negative		
Lab Signature			

Nickel electroplating

From Wikipedia, the free encyclopedia

Nickel electroplating is a technique of electroplating a thin layer of nickel onto a metal object. The nickel layer can be decorative, provide corrosion resistance, wear resistance, or used to build up worn or undersized parts for salvage purposes.[1]

Contents

Overview

Nickel electroplating is a process of depositing nickel on a metal part. Parts to be plated must be clean and free of dirt, corrosion, and defects before plating can begin.[2] To clean and protect the part during the plating process a combination of heat treating, cleaning, masking, pickling, and etching may be used.[1] Once the piece has been prepared it is immersed into an electrolyte solution and is used as the cathode. The nickel anode is dissolved into the electrolyte in form of nickel ions. The ions travel through the solution and deposit on the cathode.[3]

Types and chemistry

Watts

Watts nickel plating baths can deposit both bright and semi-bright nickel. Bright nickel is typically used for decorative purposes and corrosion protection. Semi-bright deposits are used for engineering nickel where a high luster is not desired.[4][5]

Bath Composition

Chemical Name	Formula	Bright[4]		Semi-bright[4]	
		Metric	US	Metric	US
Nickel sulfate	$NiSO_4 \cdot 6H_2O$	150–300 g/L	20–40 oz/gal	225–300 g/L	30–40 oz/gal
Nickel chloride	$NiCl_2 \cdot 6H_2O$	60–150 g/L	8–20 oz/gal	30–45 g/L	4–6 oz/gal
Boric acid	H_3BO_3	37–52 g/L	5–7 oz/gal	37–52 g/L	5–7 oz/gal

Operating conditions [3]

- Temperature: 40-65°C
- Cathode current density: 2-10 A/dm^2
- PH: 4.7-5.1

Brighteners [3]

- Carrier brighteners (e.g. paratoluene sulfonamide, benzene sulphonic acid) in concentration 0.75-23 g/l. Carrier brighteners contain sulfur providing uniform fine Grain structure of the nickel plating.
- Levelers, second class brighteners (e.g. allyl sulfonic acid, formaldehyde chloral hydrate) in concentration 0.0045-0.15 g/l produce (in combination with carrier brighteners) brilliant deposit.
- Auxiliary brighteners (e.g. sodium allyl sulfonate, pyridinum propyl sulfonate)in concentration 0.075-3.8 g/l.
- Inorganic brighteners (e.g. cobalt, zinc) in concentration 0.075-3.8 g/l. Inorganic brighteners impart additional luster to the coating.

Type of the added brighteners and their concentrations determine the deposit appearance: brilliant, bright, semi-bright, satin.

Nickel sulfamate

Sulfamate nickel plating is used for many engineering applications. It is deposited for dimensional corrections, abrasion and wear resistance, and corrosion protection. It is also used as an undercoat for chromium.[6]

Bath composition

Chemical name	Formula	Bath concentration[3]	
		Metric	US
Nickel sulfamate	$Ni(SO_3NH_2)_2$	300-450 g/l	40–60 oz/gal
Nickel chloride	$NiCl_2 \cdot 6H_2O$	0-30 g/l	0–4 oz/gal
Boric acid	H_3BO_3	30-45 g/l	4–6 oz/gal

Operating conditions[3]

- Temperature: 40-60°C
- Cathode current density: 2-25 A/dm^2
- pH: 3.5-4.5

All-chloride

All-Chloride solutions allow for the deposition of thick nickel coatings. They do this because they run at low voltages. However, the deposition has high internal stresses.[3]

Chemical name	Formula	Bath concentration[3]
Nickel chloride	$NiCl_2 \cdot 6H_2O$	30–40 oz/gal
Boric acid	H_3BO_3	4–4.7 oz/gal

Sulfate-chloride

A Sulfate-Chloride bath operates at lower voltages than a Watts bath and provide a higher rate of deposition. Although internal stresses are higher than the Watts bath they are lower than that of an all-chlorine bath.[3]

Chemical name	Formula	Bath concentration[3]
Nickel sulfate	$NiSO_4 \cdot 6H_2O$	20–30 oz/gal
Nickel chloride	$NiCl_2 \cdot 6H_2O$	20–30 oz/gal
Boric acid	H_3BO_3	4–6 oz/gal

All-sulfate

An all-sulfate solution is used for electro-depositing nickel where the anodes are insoluble. For example, plating the insides of steel pipes and fittings may require an anode.[5]

Chemical name	Formula	Bath concentration[3]
Nickel sulfate	$NiSO_4 \cdot 6H_2O$	30–53 oz/gal
Boric acid	H_3BO_3	4–6 oz/gal

Hard nickel

A hard nickel solution is used when a high tensile strength and hardness deposit is required.[3]

Chemical name	Formula	Bath concentration[3]	Metric
Nickel sulfate	$NiSO_4 \cdot 6H_2O$	24 oz/gal	179.7g/L
Ammonium chloride	NH_4Cl	3.3 oz/gal	24.7 g/L
Boric acid	H_3BO_3	4 oz/gal	29.96 g/L

Black nickel

Black nickel plating is typically plated on brass, bronze, or steel in order to produce a non-reflective surface.[7] This type of plating is used for decorative purposes and does not offer much protection.[1]

Chemical name	Formula	Bath concentration[7]
Nickel ammonium sulfate	$NiSO_4 \cdot (NH_4)2SO_4 \cdot 6H_2O$	8 oz/gal
Zinc sulfate	$ZnSO_4$	1.0 oz/gal
Sodium thiocyanate	NaCNS	2 oz/gal

Applications

Decorative coating

Decorative bright nickel is used in a wide range of applications. It offers a high luster finish, corrosion protection, and wear resistance. In the automotive industry bright nickel can be found on bumpers, rims, exhaust pipes and trim. It is also used for bright work on bicycles and motorcycles. Other applications include hand tools and household items such as lighting and plumbing fixtures, wire racks, firearms, and appliances.[4]

Engineering applications

Engineering nickel is used where brightness is not desired. Non decorative applications provide wear and corrosion protection as well as low-stress buildups for dimensional recovery.[4][8] The method can be used for making nanocomposite wear resistance coatings.[9][10]

See also

- Electroless nickel immersion gold
- Electroless nickel plating
- Electroplating
- Chrome plating

References

1. QQ-N-290A (http://www.everyspec.com/FED_SPECS/Q/QQ-N-290A_22425/)
2. MIL-P-27418 (http://www.everyspec.com/MIL-SPECS/MIL-SPECS-MIL-P/MIL-P-27418_8794/)
3. http://www.substech.com/dokuwiki/doku.php?id=nickel_electroplating
4. http://www.pfonline.com/articles/nickel-electroplating
5. NickelElectroplating.pdf (http://www.casf.ca/wp-content/uploads/2014/04/NickelElectroplating.pdf)
6. http://www.balesmold.com/sulfamate.htm
7. MIL-P-18317 (http://www.everyspec.com/MIL-SPECS/MIL-SPECS-MIL-P/MIL-P-18317_18976/)
8. Davis, Joseph R. *Nickel, Cobalt, and Their Alloys*. ASM International. ISBN 9780871706850. Retrieved 9 August 2016.
9. Mosallanejad, M. H.; Shafyei, A.; Akhavan, S. (18 April 2016). "Simultaneous co-deposition of SiC and CNT into the Ni coating". *Canadian Metallurgical Quarterly*. Taylor & Francis. **55** (2): 147–155. doi:10.1080/00084433.2016.1150406. Retrieved 9 August 2016.
10. Zhang, Sam. *Nanostructured Thin Films and Coatings: Mechanical Properties*. Taylor & Francis. ISBN 9781420094022. Retrieved 9 August 2016.

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile
Profile # 010-37

GE[redacted]
Na[redacted]
Fa[redacted]
City:[redacted]
Con[redacted]
BILLING[redacted]
Comp[redacted]
Ad[redacted]
City:[redacted]
Attenti[redacted]

WASTE INFORMATION

Name of Waste/Common Chemical Name:
(34A) Chrome Strip (caustic solution)

Process Generating Waste (Please be specific, incomplete information may delay the approval process):
Stripping of Chrome from parts

USEPA/ STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☐ Non Hazardous Liquid Industrial Waste ☑ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☐ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: D002 D007 D008

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear ☐ Black/Brown ☒ Other Orange	☒ 0-1 % ☐ 3-5 % ☐ 1-3 % ☐ >5%	☐ Multi-Layered ☐ Bi-Layered ☒ Single Phase	☐ <0.8 ☒ 1.0 – 1.2 ☐ 0.8 – 1.0 ☐ 1.3 – 1.4 Exact / Other 1.14	acceptable 09/21/16

pH: ☐ NA ☐ ≤ 2 ☐ 2 – 4 ☐ 4 – 6 ☐ 6 – 8 ☐ 8 – 10 ☒ 10 – 12.5 ☐ ≥12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☐ >200°F ☒ None ☒ Closed Cup ☐ Open Cup

VOC CONCENTRATION - 0 PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN		CONSTITUENT	MAX	MIN	
Water	99	60	%				%
Sodium Hydroxide	15	1	%				%
Solids	25	1	%				%
			%				%
			%				%

Metals: Indicate if this waste contains any of the following metals,. If Generator knowledge provide backup
☐ Lab Analysis ☒ Generator Knowledge ☐ TCLP ☒ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☐	____ppm	Aromatic Amine	☐	____ppm
Dioxins	☐	____ppm	Pesticides	☐	____ppm
Cyanides Reactive	☐	____ppm	Rodenticides	☐	____ppm
Cyanides Total	☐	____ppm	Fungicides	☐	____ppm
Sulfides Reactive	☐	____ppm			
Sulfides Total	☐	____ppm			

Arsenic (As)	D004	☐ < 5 ppm	____	ppm
Barium (Ba)	D005	☒ <100 ppm	____	ppm
Cadmium (Cd)	D006	☒ < 1 ppm	____	ppm
Chromium (Cr)	D007	☐ < 5 ppm	____	ppm
Lead (Pb)	D008	☐ < 5 ppm	____	ppm
Mercury (Hg)	D009	☒ <0.2 ppm	____	ppm
Selenium (Se)	D010	☐ < 1 ppm	____	ppm
Silver (Ag)	D011	☐ < 5 ppm	____	ppm

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*
☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☒Yes ☐No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name UN3266, RQ, Waste Corrosive Liquid, basic, inorganic, N.O.S. (Sodium hydroxide) Hazard Class 8 UN/NA 3266
PG I ERG 154 Hazardous Constituents for "n.o.s." Sodium hydroxide
4. Method of Shipment: ☐Bulk Tanker ☐Vac truck ☐Rail Car ☒Drums ☒Totes
5. Number of Units to Ship Now: _____ 6. Anticipated Volume / Units per Year: varies or ☐ One Time
6. Special Handling Requirements including PPE: _____

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample characterization [redacted]

Printed Na[redacted]

Generator's Signatur[redacted]

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS:

Please collect a representative 1-quart sample of the waste described in the above referenced Generators Waste Profile Report using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. _____ 2. _____
SAMPLING METHOD COLLECTION POINT

3. _____
SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[redacted]					

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	9/12/16
Receiving ID#	#1 Chrome Strip L3YA
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time In	
Time out	
Received by	J.H.
Sampled by	Client

Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140	Magnesium	
pH (S.U.)	12.2	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.14	TDS	
Physical Description	Liquid	Resistivity	
Sludge Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	73°F		
Conductivity	335.4 ms		
% Solids	18.6		
Turbidity	Yes No		
Color (Visual)	Orange		
TSS (%)	0.1		
Radiation Screen (as needed)	Negative		
Lab Signature			

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile

Profile # 01939

GENERATOR INFORMATION

Name: [redacted]

Fax: [redacted]

[redacted]

BILLING INFORMATION

Company Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Attention: _____ Phone: ( ) _____ Fax: ( ) _____

WASTE INFORMATION

Name of Waste/Common Chemical Name:

BRINE FOR DUST CONTROL

Process Generating Waste (Please be specific, incomplete information may delay the approval process):

CLEANING OF INTERIOR OF BRINE STORAGE TANK.

BRINE IS USED FOR DUST CONTROL ON ROADS.

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☒ Non Hazardous Liquid Industrial Waste ☐ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☒ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: Q22L

PHYSICAL CHARACTERISTICS OF WASTE

Color:	Suspended Solids	Layers:	Specific Gravity:	
☐ White/Clear ☒ Black/Brown ☐ Other ____	☐ 0-1 % ☐ 3-5 % ☐ 1-3 % ☐ > 5%	☐ Multi-Layered ☐ Bi-Layered ☐ Single Phase	☐ <0.8 ☒ 1.0 – 1.2 ☐ 0.8 – 1.0 ☐ 1.3 – 1.4 Exact / Other ____	acceptable 09.15.16

pH: ☐ NA ☐ ≤ 2 ☐ 2 – 4 ☒ 4 – 6 ☒ 6 – 8 ☒ 8 – 10 ☐ 10 – 12.5 ☐ ≥12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☒ >200°F ☐ None ☐ Closed Cup ☐ Open Cup

VOC CONCENTRATION - -0- PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN	CONSTITUENT	MAX	MIN
CALCIUM CHLORIDE	35	25 %	HYDROGEN SULFIDE	0.5	0.0 %
WATER	90	70 %	SEDIMENT	10	0 %
HYDROGEN PEROXIDE	0.5	0.0 %			%

Metals: Indicate if this waste contains any of the following metals,. If Generator knowledge-provide backup
☐ Lab Analysis ☑ Generator Knowledge SDS ☐ TCLP ☐ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☑	____ ppm	Aromatic Amine	☑	____ ppm
Dioxins	☑	____ ppm	Pesticides	☑	____ ppm
Cyanides Reactive	☑	____ ppm	Rodenticides	☑	____ ppm
Cyanides Total	☑	____ ppm	Fungicides	☑	____ ppm
Sulfides Reactive	☑	____ ppm			
Sulfides Total	☑	____ ppm			

Arsenic (As)	D004	☑	< 5 ppm	____	ppm
Barium (Ba)	D005	☑	<100 ppm	____	ppm
Cadmium (Cd)	D006	☑	< 1 ppm	____	ppm
Chromium (Cr)	D007	☑	< 5 ppm	____	ppm
Lead (Pb)	D008	☑	< 5 ppm	____	ppm
Mercury (Hg)	D009	☑	< 0.2 ppm	____	ppm
Selenium (Se)	D010	☑	< 1 ppm	____	ppm
Silver (Ag)	D011	☑	< 5 ppm	____	ppm

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*
☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☐ Yes ☒ No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name Waste Non RCRA - Non Hazardous Liquid Hazard Class _____ UN/NA _____

PG _____ ERG _____ Hazardous Constituents for "n.o.s." _____

4. Method of Shipment: ☐ Bulk Tanker ☐ Vac truck ☐ Rail Car ☐ Drums ☒ Totes
5. Number of Units to Ship Now: 8 6. Anticipated Volume / Units per Year: _____ or ☐ One Time
6. Special Handling Requirements including PPE: _____

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample characterization and/or regulatory requirements.

Printed Name [redacted]

Generator's Sig [redacted]

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS:

PLEASE collect a representative 1-quart sample of the waste described in the above referenced GENERATORS WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. _____ SAMPLING METHOD 2. _____ COLLECTION POINT

3. _____ SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[redacted]					

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

[illegible]	
Date	9/14/16
Receiving ID#	Non-Haz Brine
Manifest# Line:	
Land Ban Cert included	Yes No
EGT Approval#	
Generat[redacted]	
Client	[redacted]
Transporter	
Time in	
Time out	
Received by	J.H.
Sampled by*	Client

[illegible]		[illegible]	
Compatible? (RTF)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	> 140	Magnesium	
pH (S.U.)	5.4	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	2200	Carbonate	
Specific Gravity	1.20	TDS	
Physical Description	Tri-layer liquid	Resistivity	
Stream Consistency	Yes (No)	Sulfate	
Oil in Sample	Yes (No)		
Temperature	72°F		
Conductivity	177.8 mS		
% Solids	35.0		
Turbidity	(Yes) No		
Color (visual)	Brown/Colorless/Brown		
TSS (%)	33.3		
Radiation Screen (as needed)	Negative		
Lab Signature	[signature]		

01639

[redacted]

To: EGT
Address:

Attention:

Contact:
Phone #:

Profile Number	Collection Date	Sample Description (Matrix, Grab/Composite)	# Containers/Type	Size	Analysis Requested
537746	9/9/16	Comb	1		

[redacted]

Relinquished by: _____ Date: _____ Accepted by: _____ Date: _____

Relinquished by: _____ Date: _____ Accepted by: _____ Date: _____

Lab Use Only

	Yes	No
Cold Pack		
Headspace		
Intact		

Hazards Associated with Sample

- Flammable
- Corrosive
- Highly Toxic
- Other

Comments:

275
8T + 1 Vac Box → Vac Truck

BRINE

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 08/06/2013 Supersedes: 11/30/2000 Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product Identifier

Product Name: BRINE

1.2. Intended Use of the Product

Use of the substance/mixture: Dust control and ice melting

1.3. Name, Address, and Telephone of the Responsible Party

Company

Road Commission for Oakland County
31001 Lahser Rd
Beverly Hills, MI 48025
248-645-2000
www.rcocweb.org

1.4. Emergency Telephone Number

Emergency Number : 248-645-2000 Ex: 2262 or 1-800-424-9300 (CHEMTREC)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Eye Irrit. 2A H319

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS07

Signal Word (GHS-US) : Warning

Hazard Statements (GHS-US) : H319 - Causes serious eye irritation

Precautionary Statements (GHS-US) : P264 - Wash hands, forearms, and exposed areas thoroughly after handling.
P280 - Wear eye protection, protective gloves.
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other Hazards

Other Hazards Not Contributing to the Classification: Contains a small amount of Hydrogen Sulfide. Symptoms of overexposure include headaches, dizziness, nausea, coughing, respiratory irritation, eye irritation, skin irritation, pain in nasal passages, and loss of consciousness. Heating of the product may release higher amounts of Hydrogen Sulfide (H_2S) gas.

2.4. Unknown Acute Toxicity (GHS-US) No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances Not applicable

3.2. Mixtures

Name	Product Identifier	%	Classification (GHS-US)
Water	(CAS No) 7732-18-5	65 - 75	Not classified
Calcium chloride	(CAS No) 10043-52-4	25 - 35	Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319
Hydrogen sulfide	(CAS No) 7783-06-4	0 - 0.5	Flam. Gas 1, H220 Liquefied gas, H280 Acute Tox. 2 (Inhalation:gas), H330

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Call a POISON CENTER/doctor/physician if you feel unwell.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Gently wash with plenty of soap and water. Obtain medical attention if irritation develops or persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persist.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Eye irritation.

Symptoms/Injuries After Inhalation: If hydrogen sulfide gas is released, it may be toxic if inhaled.

Symptoms/Injuries After Skin Contact: May cause mild skin irritation.

Symptoms/Injuries After Eye Contact: Causes serious eye irritation.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Water, foam, carbon dioxide, dry chemical.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable but will support combustion due to hydrogen peroxide (oxidizer), hydrogen sulfide (flammable).

Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire, increasing risk of burns and injuries.

Reactivity: Brine without hydrogen sulfide is stable. The presence of hydrogen sulfide may create unstable conditions.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all eye and skin contact and do not breathe vapor and mist.

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. If possible, stop flow of product.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Absorb and/or contain spill with inert material, then place in suitable container.

Methods for Cleaning Up: Dilute with water. Clear up spills immediately and dispose of waste safely.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

7.2. Conditions for Safe Storage, including Any Incompatibilities

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep away from heat and direct sunlight. Store in original container.

Incompatible Products: Strong acids, strong bases, strong oxidizers, finely divided metals, nitric acid, chlorine, nitrogen trifluoride, oxygen difluoride or other strong oxidizing agents.

Incompatible Materials: Avoid ignition sources. May cause combustible products to ignite.

Prohibitions on mixed storage: Store away from combustibles.

7.3. Specific End Use(s)

Dust control and ice melting

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Hydrogen sulfide (7783-06-4)		
USA ACGIH	ACGIH TWA (ppm)	1 ppm
USA ACGIH	ACGIH STEL (ppm)	5 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	15 mg/m³
USA NIOSH	NIOSH REL (ceiling) (ppm)	10 ppm
USA IDLH	US IDLH (ppm)	100 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	20 ppm

8.2. Exposure Controls

Appropriate Engineering Controls : Alarm detectors should be used when toxic, flammable, or oxidizing gases may be released. Ensure all national/local regulations are observed. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment : Protective goggles. Gloves.

Hand Protection : Wear chemically resistant protective gloves.

Eye Protection : Chemical goggles or safety glasses.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of vapor or mist are expected to exceed exposure limits.

Other Information : When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Liquid

Appearance : Clear to light brown

Odor : Can be highly irritating if hydrogen sulfide gas is present.

Odor Threshold : No data available

pH : No data available

Relative Evaporation Rate (butylacetate=1) : No data available

Melting Point : No data available

Freezing Point : No data available

Boiling Point : 212 °C (414 °F)

Flash Point : No data available

Auto-ignition Temperature : No data available

Decomposition Temperature : No data available

Flammability (solid, gas) : No data available

Vapor Pressure : No data available

Relative Vapor Density at 20 °C : > 1 (air = 1)

Relative Density	: 1.32 (water = 1)
Specific Gravity	: 1.32
Solubility	: Soluble in water
Log Pow	: No data available
Log Kow	: No data available
Viscosity, Kinematic	: No data available
Viscosity, Dynamic	: No data available
Explosive Properties	: No data available
Oxidizing Properties	: No data available
Explosive Limits	: Not applicable

9.2. Other information No additional information available

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Brine without hydrogen sulfide is stable. The presence of hydrogen sulfide may create unstable conditions.
Chemical Stability: Stable under normal conditions.
Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Heat. Sparks.
Incompatible Materials: Strong acids, strong bases, strong oxidizers, finely divided metals, nitric acid, chlorine, nitrogen trifluoride, oxygen difluoride or other strong oxidizing agents.
Hazardous Decomposition Products: Carbon oxides (CO, CO_2), chlorine, sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity : Not classified

Calcium chloride (10043-52-4)	
LD50 Oral Rat	1000 mg/kg
LD50 Dermal Rat	2630 mg/kg

Hydrogen sulfide (7783-06-4)	
LC50 Inhalation Rat (mg/l)	0.99 mg/l (Exposure time: 1 h)
ATE (Gases)	100.000 ppm/4h

Skin Corrosion/Irritation: Not classified
Serious Eye Damage/Irritation: Causes serious eye irritation.
Respiratory or Skin Sensitization: Not classified
Germ Cell Mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Not classified
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: If hydrogen sulfide gas is released, it may be toxic if inhaled.
Symptoms/Injuries After Skin Contact: May cause mild skin irritation.
Symptoms/Injuries After Eye Contact: Causes serious eye irritation.
Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Calcium chloride (10043-52-4)	
LC50 Fish 1	10650 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 1	52 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Hydrogen sulfide (7783-06-4)	
LC50 Fish 1	0.0448 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 1	0.022 mg/l (Exposure time: 96 h - Species: Gammarus pseudolimnaeus)
LC 50 Fish 2	0.016 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

12.2. Persistence and Degradability

BRINE	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

BRINE	
Bioaccumulative Potential	Not established.

Calcium chloride (10043-52-4)	
BCF fish 1	(no bioaccumulation)

Hydrogen sulfide (7783-06-4)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	0.45 (at 25 °C)

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

SECTION 14: TRANSPORT INFORMATION

In Accordance With ICAO/IATA/DOT/TDG

14.1. UN Number Not regulated for transport.

14.2. UN Proper Shipping Name Not regulated for transport.

14.3. Additional information

Transport by Sea No additional information available.

Air Transport No additional information available.

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Calcium chloride (10043-52-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Hydrogen sulfide (7783-06-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 302 (Specific toxic chemical listings)	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 302 Threshold Planning Quantity (TPQ)	500
SARA Section 313 - Emission Reporting	1.0 %

Water (7732-18-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Calcium chloride (10043-52-4)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term

Hydrogen sulfide (7783-06-4)
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Acute
U.S. - California - SCAQMD - Toxic Air Contaminants - Non-Cancer Chronic
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Hazardous Wastes - Discarded Chemical Products, Off-Specification Species, Container and Spill Residues
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Delaware - Accidental Release Prevention Regulations - Sufficient Quantities
U.S. - Delaware - Accidental Release Prevention Regulations - Threshold Quantities
U.S. - Delaware - Accidental Release Prevention Regulations - Toxic Endpoints
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities

U.S. - Hawaii - Occupational Exposure Limits - STELs
U.S. - Hawaii - Occupational Exposure Limits - TWAs
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - Acceptable Maximum Peak Above the Ceiling Concentration for an 8-Hour Shift
U.S. - Idaho - Occupational Exposure Limits - Ceilings
U.S. - Idaho - Occupational Exposure Limits - TWAs
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Michigan - Occupational Exposure Limits - STELs
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Michigan - Process Safety Management Highly Hazardous Chemicals
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - STELs
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Montana - Ambient Air Quality Standards
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Special Health Hazards Substances List
U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS)
U.S. - New Mexico - Air Quality - Ambient Air Quality Standards
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Carolina - Control of Toxic Air Pollutants
U.S. - North Dakota - Ambient Air Quality Standards - Maximum Permissible Concentrations
U.S. - North Dakota - Hazardous Wastes - Discarded Chemical Products, Off-Specification Species, Container and Spill Residues
U.S. - Ohio - Accidental Release Prevention - Threshold Quantities
U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities
U.S. - Oregon - Permissible Exposure Limits - Ceilings
U.S. - Oregon - Permissible Exposure Limits - STELs
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 1-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - Annual
U.S. - South Carolina - Toxic Air Pollutants - Maximum Allowable Concentrations
U.S. - South Carolina - Toxic Air Pollutants - Pollutant Categories
U.S. - Tennessee - Occupational Exposure Limits - STELs
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Secondary Constituent Levels (SCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Vermont - Hazardous Waste - Hazardous Constituents

U.S. - Vermont - Permissible Exposure Limits - STELs
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Chronic Freshwater Aquatic Life
U.S. - Virginia - Water Quality Standards - Chronic Saltwater Aquatic Life
U.S. - Washington - Dangerous Waste - Dangerous Waste Constituents List
U.S. - Washington - Dangerous Waste - Discarded Chemical Products List
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet
U.S. - Wyoming - Process Safety Management - Highly Hazardous Chemicals
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Fresh Water
U.S. - Alaska - Water Quality Standards - Chronic Aquatic Life Criteria for Marine Water

SECTION 16: OTHER INFORMATION

Indication of changes : 08/06/2013
Other information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 2
Acute Tox. 2 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 2
Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 1	Flammable gases Category 1
Liquefied gas	Gases under pressure Liquefied gas
Ox. Liq. 1	Oxidizing liquids Category 1
Skin Corr. 1A	skin corrosion/irritation Category 1A
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H271	May cause fire or explosion; strong oxidizer
H280	Contains gas under pressure; may explode if heated
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H331	Toxic if inhaled
H336	May cause drowsiness or dizziness

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

SDS US (GHS HazCom)

Material Safety Data Sheet
HYDROGEN PEROXIDE 50%

MSDS #: 7722-84-1--50
Revision Date: 2013-03-19
Version 0.03

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements

1. PRODUCT AND COMPANY IDENTIFICATION

Product name HYDROGEN PEROXIDE 50%
Formula HO - OH

Recommended use

Manufacturer

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
Phone: +1 215/ 299-6000 (General Information)
E-Mail: msdsinfo@fmc.com

FMC of Canada Ltd.
FMC Peroxygens
PO Pulp Mill Road
Prince George, BC V2N2S6
1+ 250/ 561-4200 (General Information)

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
+1 800 / 424 9300 (CHEMTREC - U.S.A.)
+1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
1 613/ 996-6666 (CANUTEC - Canada)
1 303 / 595 9048 (Medical - U.S. - Call Collect)

1 281 / 474-8750 (Bayport, Texas Plant)
1 250 / 561-4221 (Prince George, BC, Canada Plant)

2. Hazards identification

Emergency Overview

Clear, colorless liquid
Oxidizer; Contact with combustible material may cause fire
Decomposes under fire conditions to release oxygen that intensifies the fire
Decomposes yielding oxygen that can cause overpressure if confined

Potential health effects

Principle Routes of Exposure: Eye contact; Skin contact

Eyes Corrosive, Causes serious eye damage.
Skin Corrosive; Causes skin burns.
Inhalation Irritating to respiratory system.
Ingestion Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

3. Composition/information on ingredients

Ingredients

Chemical Name	CAS-No	Weight %
Hydrogen peroxide	7722-84-1	50
Water	7732-18-5	50

4. First aid measures

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Seek immediate medical attention/advice.

Skin contact

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation

Move to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Ingestion

Rinse mouth. Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention. Never give anything by mouth to an unconscious person.

Notes to physician

Hydrogen peroxide at these concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful opthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attemps at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation.

5. Fire-fighting measures

Flammable properties

Contact with combustible material may cause fire.

Flash Point

Not combustible

Suitable extinguishing media

Water. Do not use any other substance.

Uniform Fire Code

Oxidizer: Class 2--Liquid

Hazardous combustion products

On decomposition product releases oxygen which may intensify fire.

Explosion Data

Sensitivity to Mechanical Impact Not sensitive.
Sensitivity to Static Discharge Not sensitive.

Specific hazards arising from the chemical

In closed unventilated containers, risk of rupture due to the increased pressure from decomposition.

Protective equipment and precautions for firefighters

Use water spray to cool fire exposed surfaces and protect personnel. Move containers from fire area if you can do it without risk. As in any fire, wear self-contained breathing apparatus and full protective gear.

NFPA	Health Hazard 3	Flammability 0	Stability 1	Special Hazards OX

6. Accidental release measures

Personal precautions

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Isolate and post spill area. Keep people away from and upwind of spill/leak. Eliminate all sources of ignition and remove combustible materials.

Methods for containment

Dike to collect large liquid spills. Stop leak and contain spill if this can be done safely. Small spillage: Dilute with large quantities of water.

Methods for cleaning up

Flush area with flooding quantities of water. Hydrogen peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to about 5%.

Other

Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in fire.

7. Handling and storage

Handling

Use only in well-ventilated areas. Keep/Store away from clothing/ combustible materials. Wear personal protective equipment. Never return unused hydrogen peroxide to original container. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner (see FMC Technical Bulletins). Empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic. Pipes and equipment should be passivated before first use.

Storage

Keep containers in cool areas out of direct sunlight and away from combustibles. Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment. Containers must be vented. Store in original container only. Store rooms or warehouses should be made of non-combustible materials with impermeable floors. In case of release, spillage should flow to safe area. Containers should be visually inspected on a regular basis to detect any abnormalities (swollen drums, increases in temperature, etc.).

8. Exposure controls/personal protection

Exposure guidelines

Ingredients with workplace control parameters.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³	IDLH: 75 ppm TWA: 1 ppm TWA: 1.4 mg/m³	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m³ Mexico: STEL 2 ppm Mexico: STEL 3 mg/m³
Chemical Name	**British Columbia**	**Quebec**	**Ontario TWAEV**	**Alberta**
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³

Occupational exposure controls

Engineering measures

Showers. Eyewash stations. Ventilation systems.

General Information

Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

Respiratory protection	If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA) or other approved air-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (dust mask), especially those containing oxidizable sorbents such as activated carbon.
Eye/face protection	Use chemical splash-type monogoggles and a full-face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.
Skin and body protection	For body protection wear impervious clothing such as an approved splash protective suit made of SBR rubber, PVC (PVC Outershell w/Polyester Substrate), Gore-Tex (Polyester trilaminate w/Gore-Tex), or a specialized HAZMAT Splash or Protective Suite (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, Polyurethane, or neoprene. Overboots made of Latex or PVC, as well as firefighter boots or specialized HAZMAT boots are also permitted. DO NOT wear any form of boot or overboot made of nylon or nylon blends. DO NOT USE cotton, wool or leather as these materials react rapidly with higher concentrations of hydrogen peroxide. Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles, can cause the material to ignite and result in a fire.
Hand protection	For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather for these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.
Other Protective Equipment	Ensure that eyewash stations and safety showers are close to the workstation location
Hygiene measures	Avoid breathing vapors, mist or gas. Clean water should be available for washing in case of eye or skin contamination.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Clear, colorless liquid
Physical state	Liquid
Odor	odorless
pH	<= 3.0
Melting Point/Range	No data available
Freezing point	-52 °C
Boiling Point/Range	114 °C
Flash Point	Not combustible
Evaporation rate	>1 (BuAc = 1)
Flammable properties	Contact with combustible material may cause fire.
Oxidizing properties	Strong oxidizer
Vapor pressure	18 mm Hg @ 30 °C
Vapor density	No information available.
Specific Gravity	1.20
Water solubility	Completely Soluble
Percent volatile	100%
Partition coefficient:	log Kow = -1.5 @ 20 °C
Viscosity	1.17 cP @ 20 °C

9.2 Other information

Autoignition Temperature	Not combustible

12. Ecological information

Ecotoxicity

Hydrogen peroxide is naturally produced by sunlight (between 0.1 and 4 ppb in air and 0.001 to 0.1 mg/L in water). Not expected to have significant environmental effects.

Active Ingredient(s)
Hydrogen peroxide (7722-84-1)

Active Ingredient(s)	Duration	Species	Value	Units:
Hydrogen Peroxide	96 h LC50	Fish Pimephales promelas	16.4	mg/L
Hydrogen Peroxide	72 h LC50	Fish Leuciscus idus	35	mg/L
Hydrogen Peroxide	48 h EC50	Daphnia pulex	2.4	mg/L
Hydrogen Peroxide	24 h EC50	Daphnia magna	7.7	mg/L
Hydrogen Peroxide	72 h EC50	Algae Skeletoneme costatum	1.38	mg/L

Persistence and degradability Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10 - 20 hours, and in soils from minutes to hours depending upon microbiological activity and metal contamination.

Bioaccumulation Material may have some potential to bioaccumulate but will likely degrade in most environments before accumulation can occur.

Mobility Will likely be mobile in the environment due to its water solubility but will likely degrade over time.

Chemical Name	log Pow
Hydrogen peroxide	-1.57 @ 25°C

Other adverse effects Decomposes into oxygen and water. No adverse effects.

13. Disposal considerations

Waste disposal methods Dispose of in accordance with local regulations. Can be disposed as waste water, when in compliance with local regulations.

RCRA D Waste Code D001 (ignitable), D002 (corrosive)

Contaminated packaging Dispose of in accordance with local regulations.
Drums - Empty as thoroughly as possible. Triple rinse drums before disposal. Avoid contamination; impurities accelerate decomposition. Never return product to original container.

14. Transport information

DOT

UN/ID No	2014
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Hazard Class	5.1
Subsidiary Class	8
Packing group	II
Additional information	DOT Spec: stainless steel/high purity aluminum cargo tanks and rail cars. UN Spec: HDPE drums and IBCs. Contact FMC for specific details.

TDG

UN/ID No	UN 2014
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Hazard Class	5.1
Subsidiary Class	8

Packing group	II

ICAO/IATA

Hydrogen peroxide (>40%) is forbidden on Passenger and Cargo Aircraft.

IMDG/IMO

UN/ID No	UN 2014
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Hazard Class	5.1
Subsidiary hazard class	8
Packing group	II

Other Information

Protect from physical damage. Keep drums in upright position. Drums should not be stacked in transit. Do not store drums on wooden pallets.

15. Regulatory information

International Inventories

TSCA Inventory (United States of America)	Complies
DSL (Canada)	Complies
NDSL (Canada)	Complies
EINECS/ELINCS (Europe)	Complies
ENCS (Japan)	Complies
IECSC (China)	Complies
KECI. (Korea)	Complies
PICCS (Philippines)	Complies
AICS (Australia)	Complies
NZIoC (New Zealand)	Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	yes
Chronic Health Hazard	no
Fire Hazard	yes
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Hydrogen peroxide		1000 lb

SARA 302/CERCLA 355 Extremely Hazardous Substances: Hydrogen Peroxide RQ is for concentrations of > 52% only

International Regulations

Mexico - Grade Slight risk, Grade 1

Chemical Name	Carcinogen Status	Mexico

Hydrogen peroxide	A3	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m³ Mexico: STEL 2 ppm Mexico: STEL 3 mg/m³

Canada

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

WHMIS Hazard Class

C Oxidizing materials
D1B Toxic materials
E Corrosive material
F Dangerously reactive material

16. Other information

HMIS	Health Hazard 3	Flammability 0	Stability 1	Special precautions H

Revision Date: 2013-03-19
Reason for revision: Initial Release.

Disclaimer

FMC Corporation believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specified product designated and may not be applicable where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use are beyond the control of FMC Corporation, FMC corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.

Prepared By

FMC Corporation
FMC Logo - Trademark of FMC Corporation

End of Material Safety Data Sheet