REPUBLIC SERVICES
28470 Citrin Drive Romulus, MI 48174
o 734.946.1000 republicservices.com

November 11th, 2022

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

Re: RIES Monthly Report

Dear Mr. Batka:

Republic Industrial and Energy Solutions, LLC (RIES) hereby submits the Hundred and Fourth Monthly Report ("MR") in conformance with the requirements of its two EPA UIC permits (#s MI-163-1W-C010 & MI-163-1W-C011). RIES is providing all 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.

RIES accepted F039 waste in September of 2022 so as stated on page A-3 of RIES's two EPA UIC permits an analysis is required and is included in this report. Samples were received by the third-party laboratory on October 6th, 2022. Analyses were not received by RIES until November 8th, 2022. This report is submitted as timely as possible upon the receipt of the F039 analyses by RIES.

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 supervision and interaction with the persons who manage and operate the system, and those persons responsible for the collection of 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,

John Frost

cc: Rick Sauve (Republic Services)

Jkf083021/RIESEPAMonthlyRpt-August,2022

AVERAGE INJECTION RATE

Calculation of Average Injection Rate

CURRENT REPORTING YEAR 2022

CURRENT REPORTING MONTH September

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

November 2013

CURRENT MONTH (all volumes in gallons)

	Injected Waste	Injected Non-Waste	Total injected
MI-163-1W-C010 , Well #1-12			
Current Month	137,830	0	137,830
Since facility first injected			49,526,833
MI-163-1W-C011, Well #2-12			
Current Month	129,729	0	129,729
Since facility first injected			29,266,005
		Lifetime Combined	78,792,838

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 105

105 lifetime number of months of injection × 43,830 minutes/month
= 4,602,150 minutes of injection

Lifetime combined injected volume 78,792,838 ÷ 4,602,150 minutes of injection
= 17.12 gpm average injection rate

WELL 1 DATA

REPUBLIC SERVICES

Injection Well 1, September 2022

	Injection Pressure (psig)		Annulus Tank Level (inch)		Annulus Pressure (psig)		Injection pH		Flow Rate (gpm)		Differential Pressure (psig)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
9/1/2022	131.1	944.8	25.0	25.1	1120.3	1623.0	3.9	7.4	0.0	50.4	562.2	1013.2
9/2/2022	76.4	940.2	24.9	25.0	1089.3	1556.9	0.6	6.6	0.0	43.6	556.4	1013.5
9/3/2022	119.1	231.3	25.0	25.1	1052.7	1,152.2	1.9	2.3	0.0	0.0	920.8	958.8
9/4/2022	114.3	119.4	24.9	25.1	1037.2	1,053.3	2.3	2.4	0.0	0.0	922.6	934.2
9/5/2022	112.2	114.7	24.9	25.0	1,028.0	1,037.9	2.3	2.4	0.0	0.0	915.7	923.3
9/6/2022	-6.9	940.1	24.9	25.0	1024.1	1,515.6	2.3	7.2	0.0	51.7	571.1	1,127.4
9/7/2022	107.4	310.8	24.9	25.0	1,027.4	1,177.4	3.6	5.0	0.0	0.0	866.4	937.0
9/8/2022	101.5	107.7	24.9	25.0	1,015.4	1,028.2	2.6	3.6	0.0	0.0	913.7	920.9
9/9/2022	99.0	101.9	24.9	25.0	1008.9	1,016.1	2.6	7.4	0.0	0.0	909.6	914.5
9/10/2022	97.5	99.3	24.9	25.0	1,004.1	1,009.6	6.9	7.5	0.0	0.0	906.2	910.4
9/11/2022	96.4	97.9	24.9	25.0	999.6	1,004.8	7.3	7.6	0.0	0.0	903.0	907.2
9/12/2022	91.7	97.1	24.9	25.0	993.7	1,000.2	5.4	7.5	0.0	0.0	901.1	904.5
9/13/2022	64.3	923.3	24.8	24.9	992.5	1,458.6	2.4	9.3	0.0	60.3	441.5	945.8
9/14/2022	60.0	64.7	24.8	25.0	980.1	996.5	8.7	8.9	0.0	0.0	919.6	932.2
9/15/2022	58.6	61.2	24.9	24.9	974.2	980.8	8.4	13.2	0.0	0.0	915.4	920.6
9/16/2022	57.9	62.9	24.8	24.9	970.6	977.8	9.2	13.2	0.0	0.0	912.4	916.4
9/17/2022	57.5	58.3	24.9	25.0	967.4	971.5	10.0	10.1	0.0	0.0	909.6	913.3
9/18/2022	57.2	58.1	24.9	25.0	964.6	968.2	9.8	10.0	0.0	0.0	907.1	910.4
9/19/2022	56.8	57.6	24.9	25.0	961.6	965.4	9.7	9.8	0.0	0.0	904.4	908.0
9/20/2022	56.5	923.1	24.9	25.0	959.9	1,589.4	2.2	10.4	0.0	54.9	468.4	946.2
9/21/2022	52.7	940.1	24.9	25.0	994.9	1,526.3	2.8	8.2	0.0	43.3	480.9	967.0
9/22/2022	100.9	940.7	24.8	25.0	1,008.4	1,428.8	5.4	8.2	0.0	34.8	468.1	915.7
9/23/2022	104.0	132.5	24.8	24.9	977.8	1,025.0	7.0	7.5	0.0	0.0	873.6	896.7
9/24/2022	103.1	104.6	24.8	24.8	969.1	978.7	7.0	7.1	0.0	0.0	865.5	874.4
9/25/2022	102.6	103.7	24.8	24.8	963.3	969.8	7.0	7.0	0.0	0.0	860.6	866.5
9/26/2022	9.2	917.6	24.7	24.8	961.0	1378.5	3.3	7.8	0.0	58.2	395.6	964.2
9/27/2022	49.6	940.1	24.7	24.8	950.7	1308.5	6.0	7.5	0.0	38.7	356.7	910.3
9/28/2022	121.2	940.1	24.7	24.8	958.2	1353.2	3.1	9.4	0.0	49.1	327.6	837.4
9/29/2022	96.1	939.1	24.7	24.8	947.5	1311.8	3.1	8.5	0.0	48.1	311.9	859.3
9/30/2022	117.8	938.8	24.7	24.8	945.5	1286.9	5.0	8.2	0.0	39.4	347.8	827.6

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 ÷ 3.3)

Channel #2

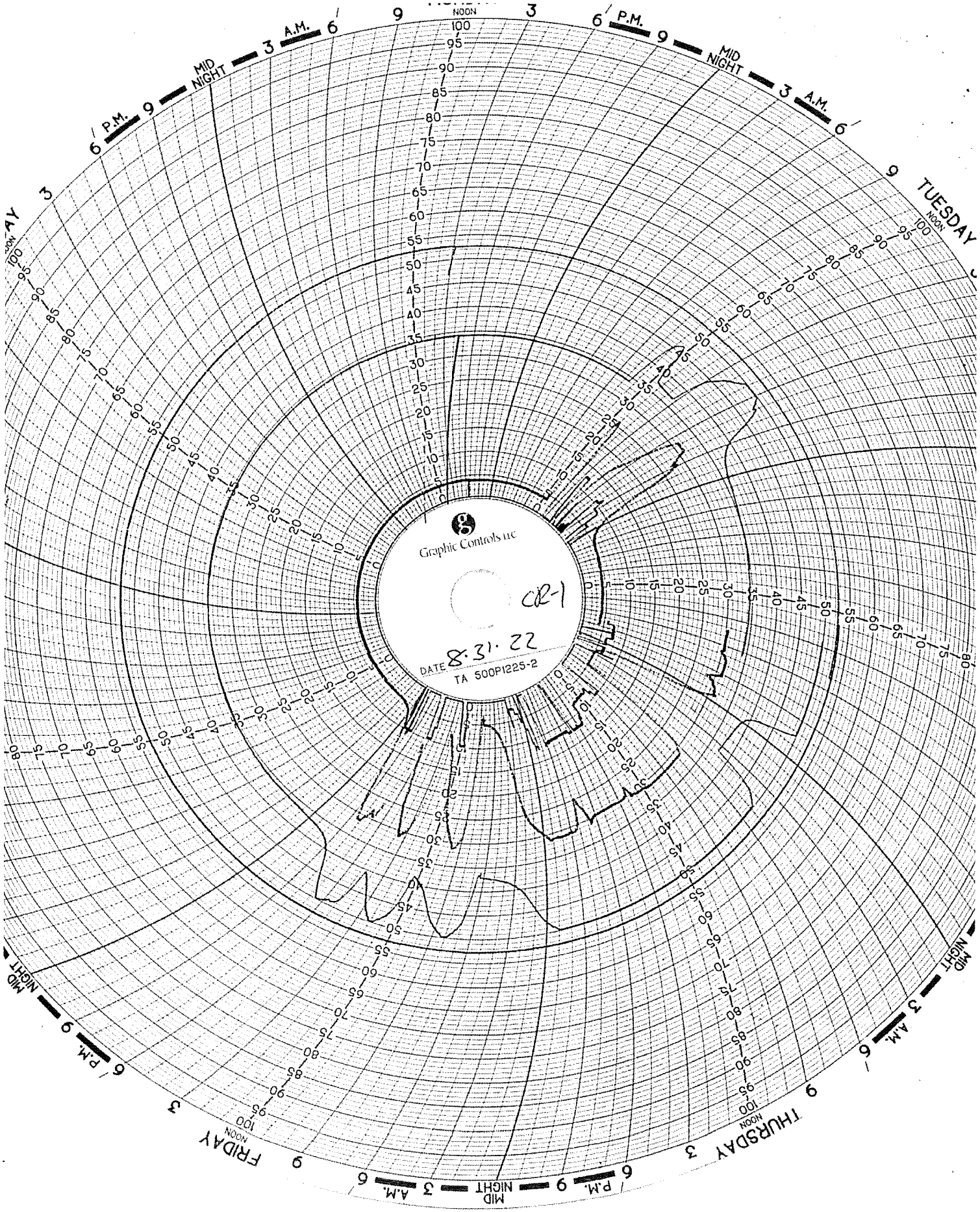
Red Pen – Well 1 Monthly Volume (chart value x 100,000)

Channel #3

Green Pen – Well 2 Monthly Volume (chart value x 100,000)

Channel #4

Black Pen – Temperature (chart value x 0)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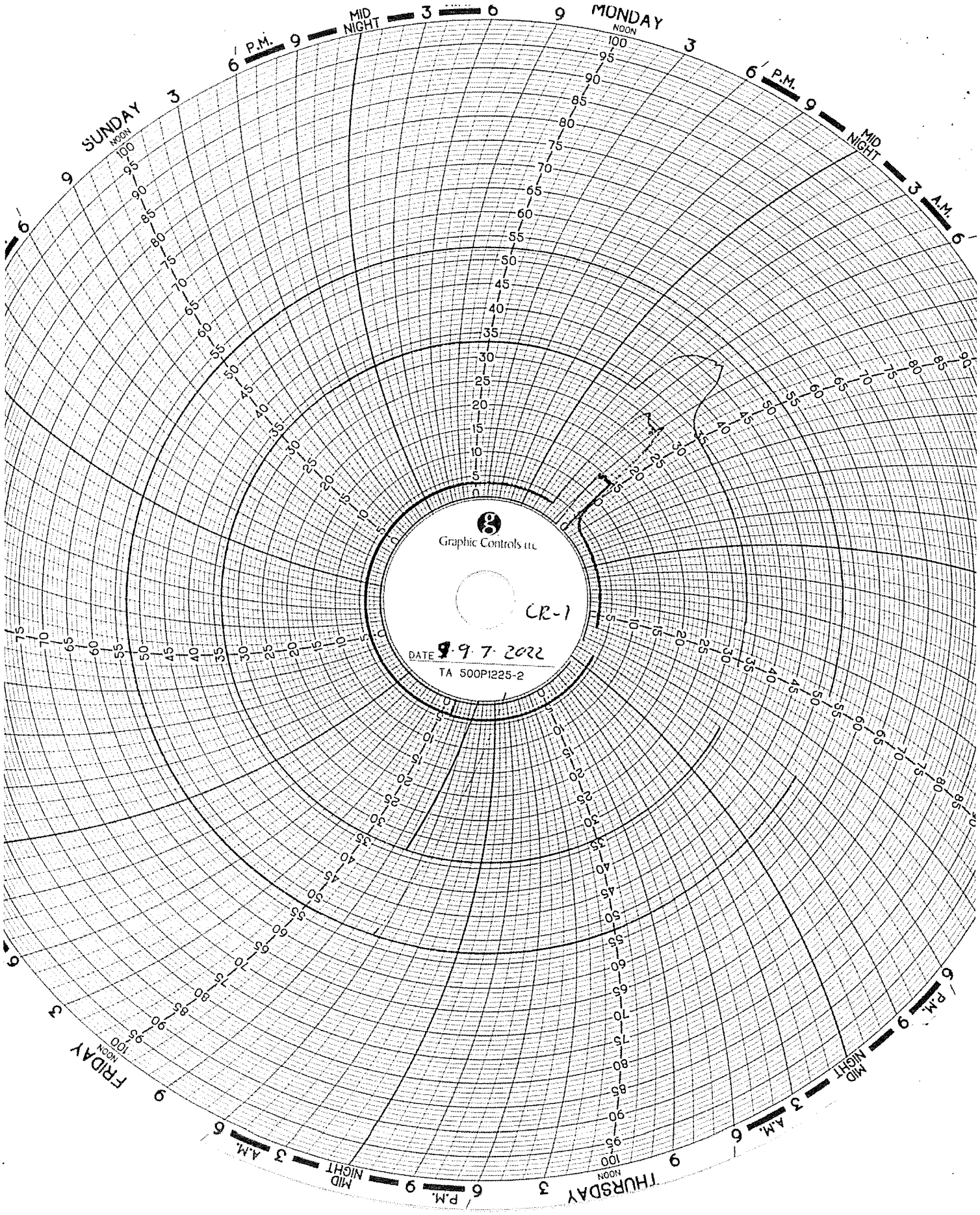
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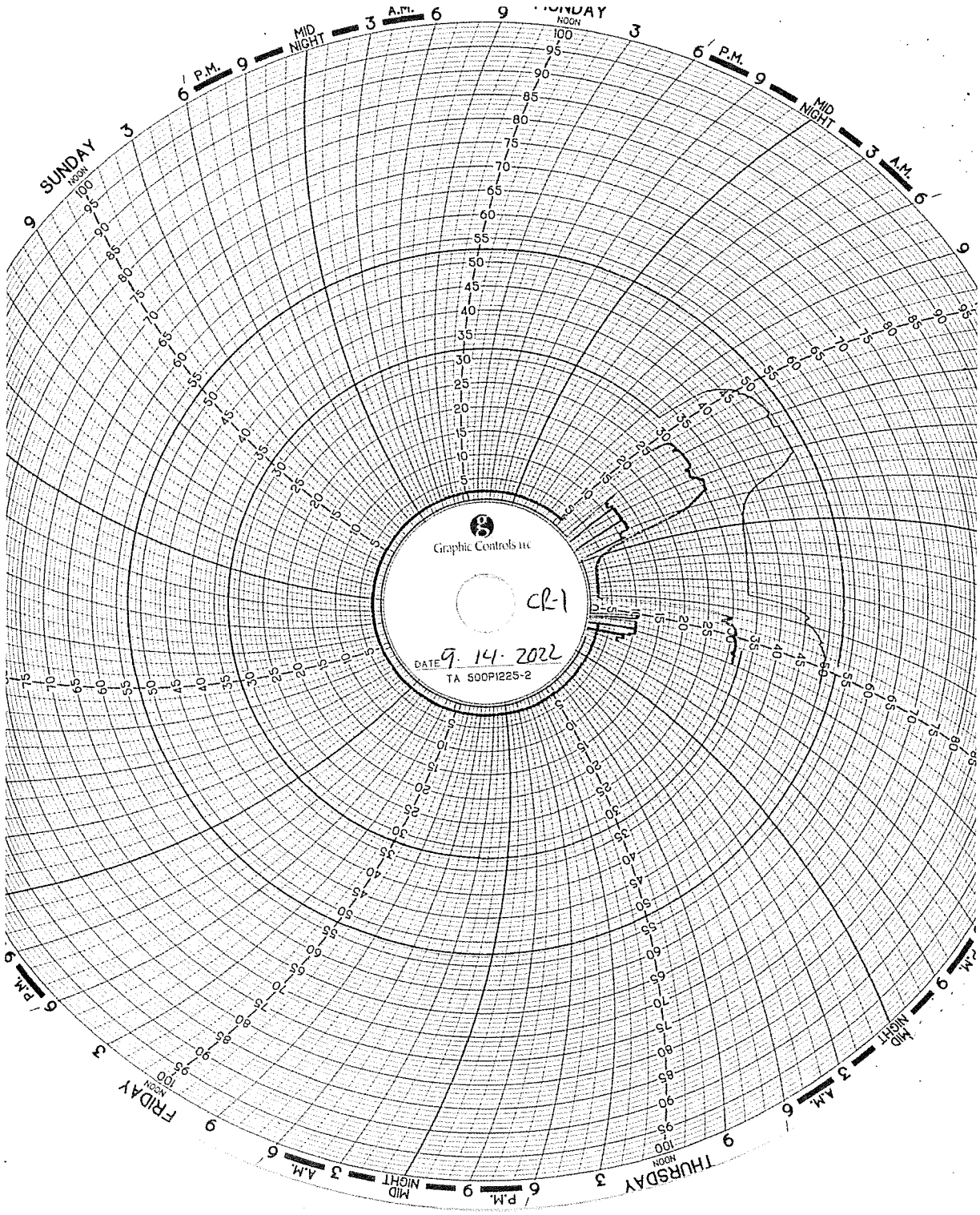
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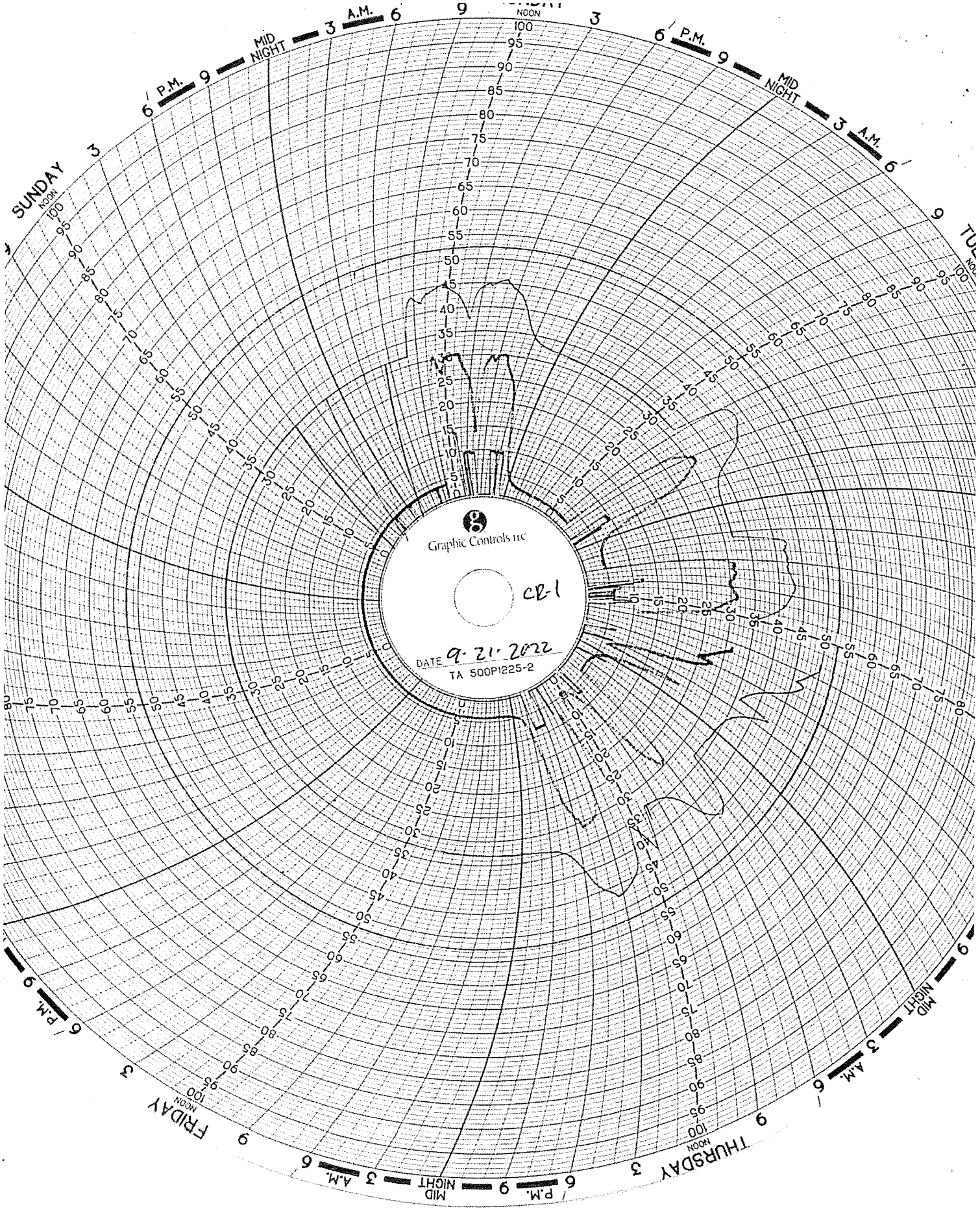
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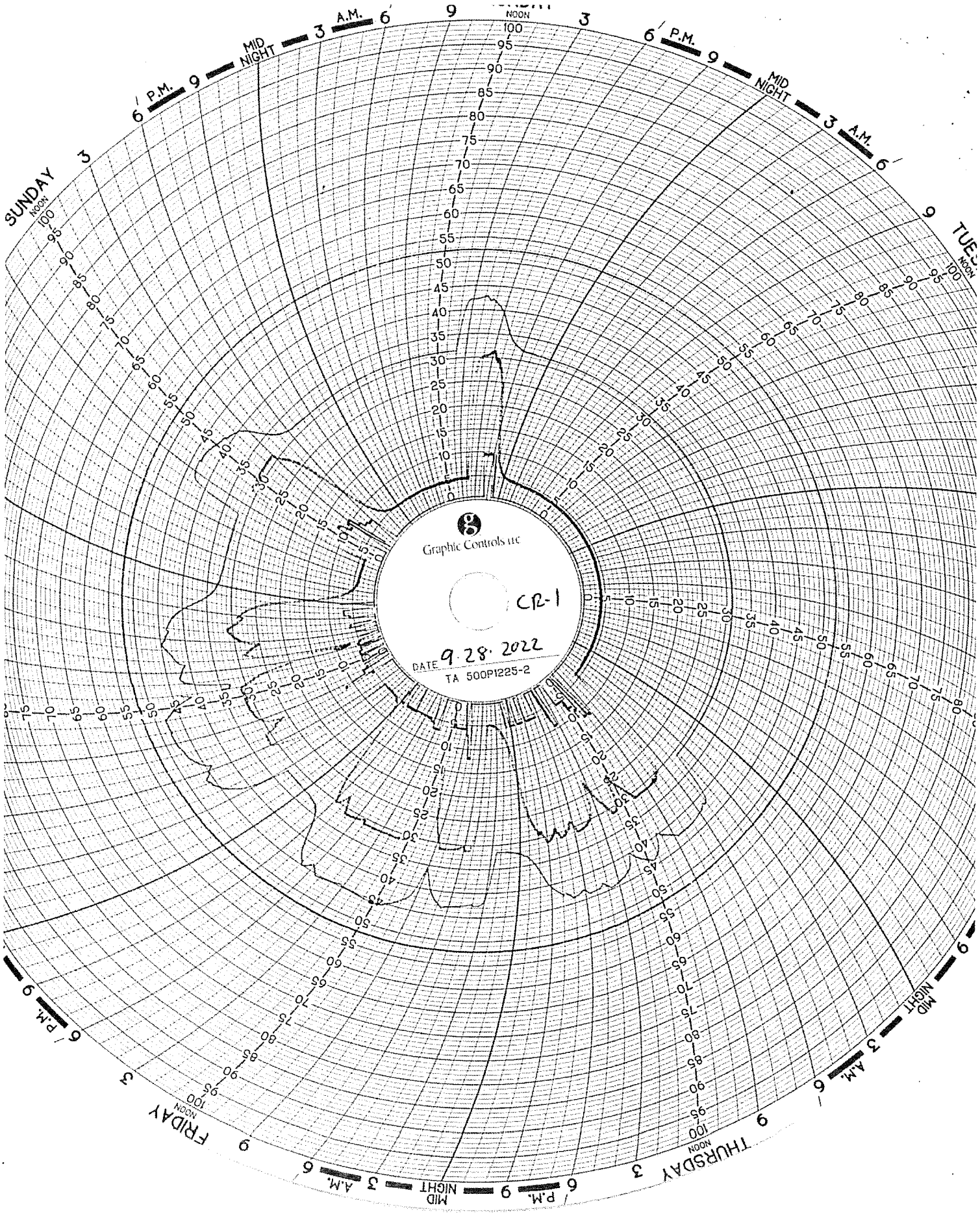
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WELL 2 DATA

REPUBLIC SERVICES

Injection Well 2, September 2022

	Injection Pressure (psig)		Annulus Tank Level (inch)		Annulus Pressure (psig)		Injection pH		Flow Rate (gpm)		Differential Pressure (psig)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
9/1/2022	-5.5	-2.1	31.7	31.8	1099.9	1224.0	6.7	7.3	0.0	0.0	1103.4	1227.6
9/2/2022	-4.7	939.1	31.7	31.8	1029.0	1575.9	0.6	7.2	0.0	48.5	588.6	1104.1
9/3/2022	126.6	147.4	31.7	31.8	1077.1	1,124.8	1.9	2.3	0.0	0.0	949.5	978.0
9/4/2022	120.2	127.5	31.7	31.8	1065.0	1,077.5	2.3	2.4	0.0	0.0	943.8	950.7
9/5/2022	117.4	121.2	31.7	31.7	1,058.5	1,065.6	2.3	2.4	0.0	0.0	940.3	945.1
9/6/2022	-9.9	939.3	31.7	31.7	1055.4	1,567.6	2.3	7.2	0.0	54.6	627.9	1,152.3
9/7/2022	115.4	189.2	31.7	31.7	1,061.6	1,173.4	3.6	5.0	0.0	0.0	945.6	995.8
9/8/2022	111.2	116.0	31.6	31.7	1,051.0	1,062.1	2.6	3.6	0.0	0.0	939.3	946.5
9/9/2022	109.2	111.8	31.6	31.7	1046.5	1,051.5	2.6	7.4	0.0	0.0	936.6	940.3
9/10/2022	108.1	109.9	31.7	31.8	1,043.4	1,047.1	6.9	7.5	0.0	0.0	934.5	937.7
9/11/2022	107.1	108.9	31.7	31.7	1,040.3	1,043.8	7.3	7.6	0.0	0.0	932.6	935.6
9/12/2022	104.4	108.0	31.6	31.7	1,037.1	1,040.9	5.4	7.5	0.0	0.0	931.5	934.0
9/13/2022	62.9	905.6	31.6	31.7	1,035.1	1,495.8	2.4	9.3	0.0	63.6	535.1	996.2
9/14/2022	57.4	63.7	31.6	31.7	1,021.2	1,035.5	8.7	8.9	0.0	0.0	963.0	972.8
9/15/2022	55.9	58.2	31.6	31.7	1,017.3	1,021.6	8.4	13.2	0.0	0.0	960.9	964.2
9/16/2022	55.2	61.2	31.6	31.7	1,015.3	1,019.7	9.2	13.2	0.0	0.0	959.3	961.7
9/17/2022	54.5	55.9	31.6	31.7	1,013.3	1,015.6	10.0	10.1	0.0	0.0	957.9	960.2
9/18/2022	54.5	55.4	31.7	31.8	1,012.0	1,013.7	9.8	10.0	0.0	0.0	956.9	958.9
9/19/2022	54.0	55.1	31.7	31.8	1,010.5	1,012.3	9.7	9.8	0.0	0.0	955.7	957.8
9/20/2022	53.3	910.8	31.7	31.8	1009.2	1,652.0	2.2	10.8	0.0	52.0	547.5	1046.8
9/21/2022	50.0	940.1	31.7	31.8	1046.7	1,608.5	2.7	8.2	0.0	47.9	570.0	1045.7
9/22/2022	109.2	937.4	31.6	31.8	1,080.7	1,508.0	5.4	8.2	0.0	38.6	559.8	1002.5
9/23/2022	104.3	121.8	31.5	31.6	1,037.3	1,080.9	7.0	7.5	0.0	0.0	932.6	959.3
9/24/2022	100.9	104.8	31.5	31.6	1028.4	1,037.6	7.0	7.1	0.0	0.0	927.0	933.2
9/25/2022	97.9	101.5	31.5	31.6	1023.6	1028.7	7.0	7.0	0.0	0.0	924.0	927.7
9/26/2022	98.1	918.9	31.5	31.5	1021.5	1456.5	3.3	7.8	0.0	63.1	478.4	957.8
9/27/2022	49.3	948.2	31.5	31.5	1014.2	1373.7	6.0	7.5	0.0	43.1	396.4	974.6
9/28/2022	125.2	952.0	31.5	31.5	1016.3	1466.3	3.6	9.4	0.0	53.4	392.9	900.4
9/29/2022	100.2	943.4	31.5	31.6	1005.7	1389.2	3.1	8.5	0.0	62.8	374.5	929.4
9/30/2022	-4.7	960.7	31.4	31.5	1011.3	1363.5	5.0	8.2	0.0	42.6	420.7	944.6

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 ÷ 3.3)

Channel #2

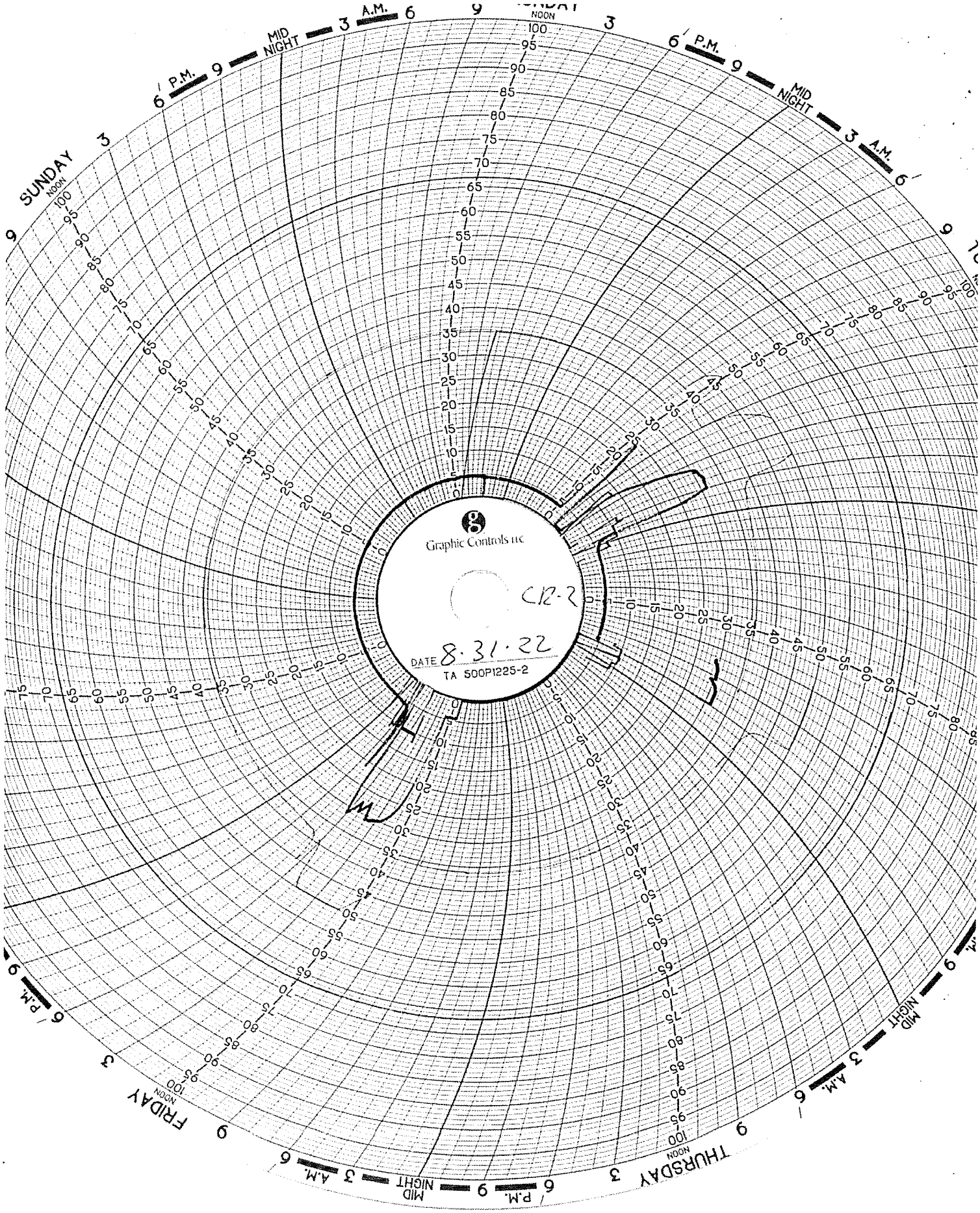
Red Pen – Well 1 Monthly Volume (chart value x 100,000)

Channel #3

Green Pen – Well 2 Monthly Volume (chart value x 100,000)

Channel #4

Black Pen – Temperature (chart value x 0)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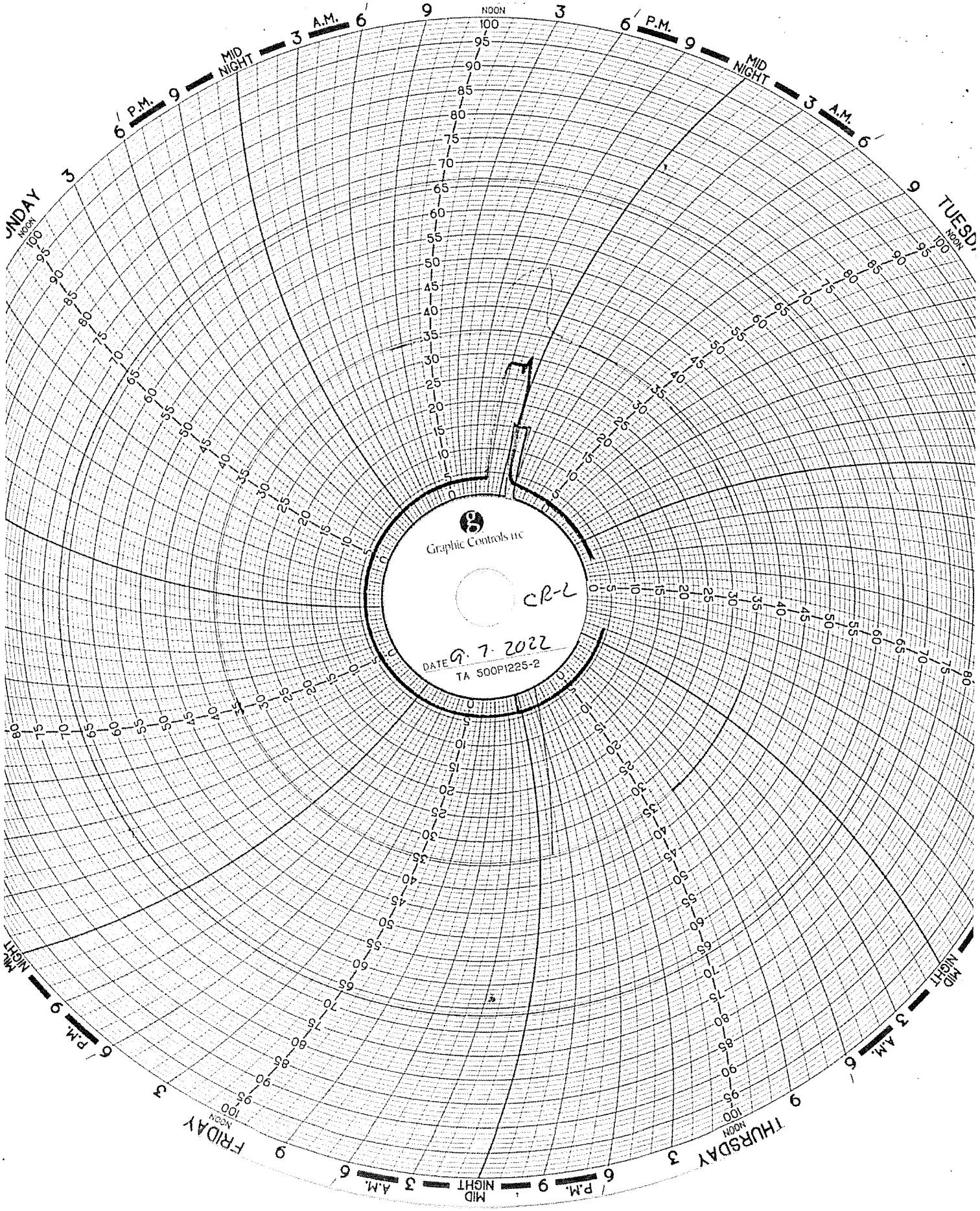
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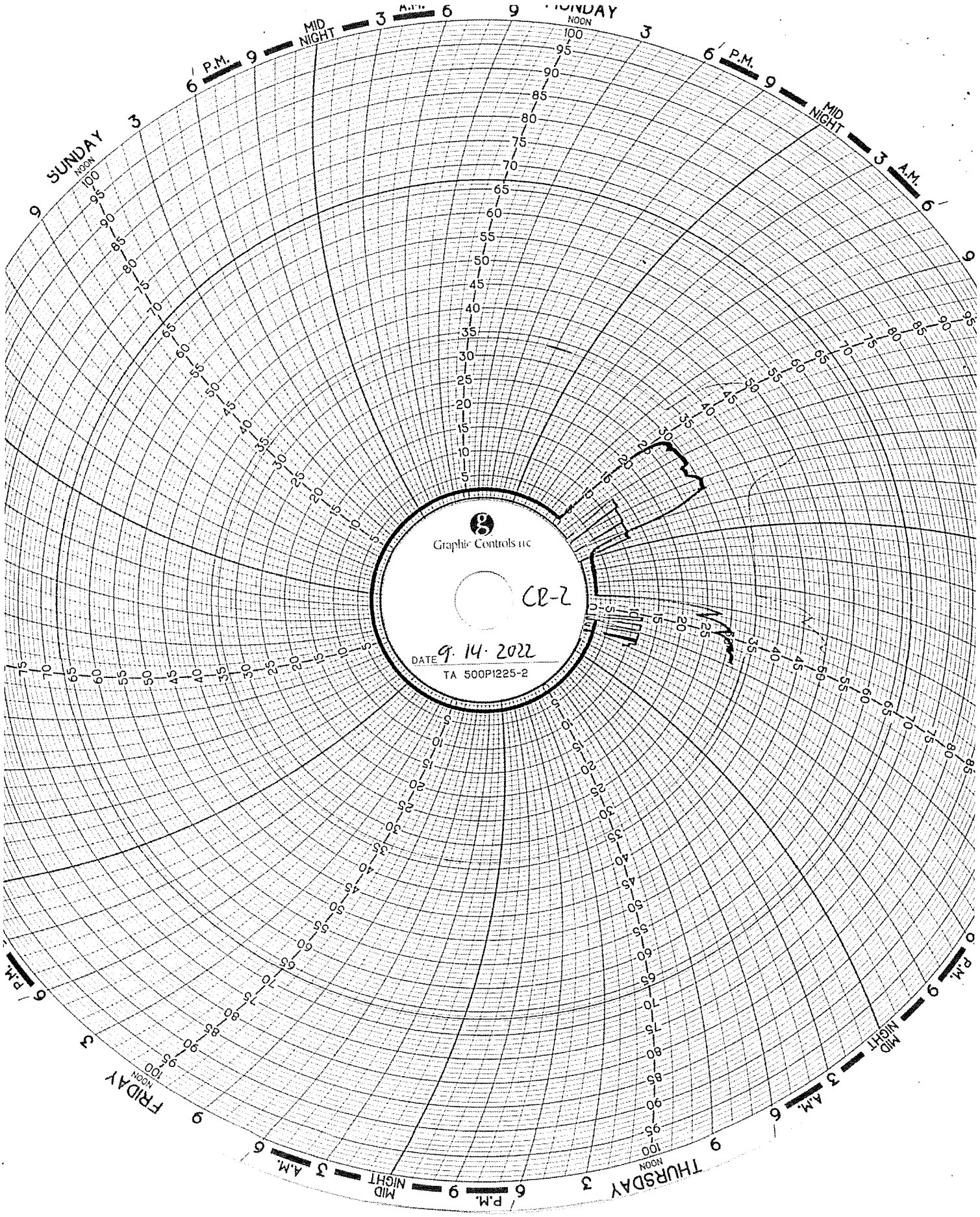
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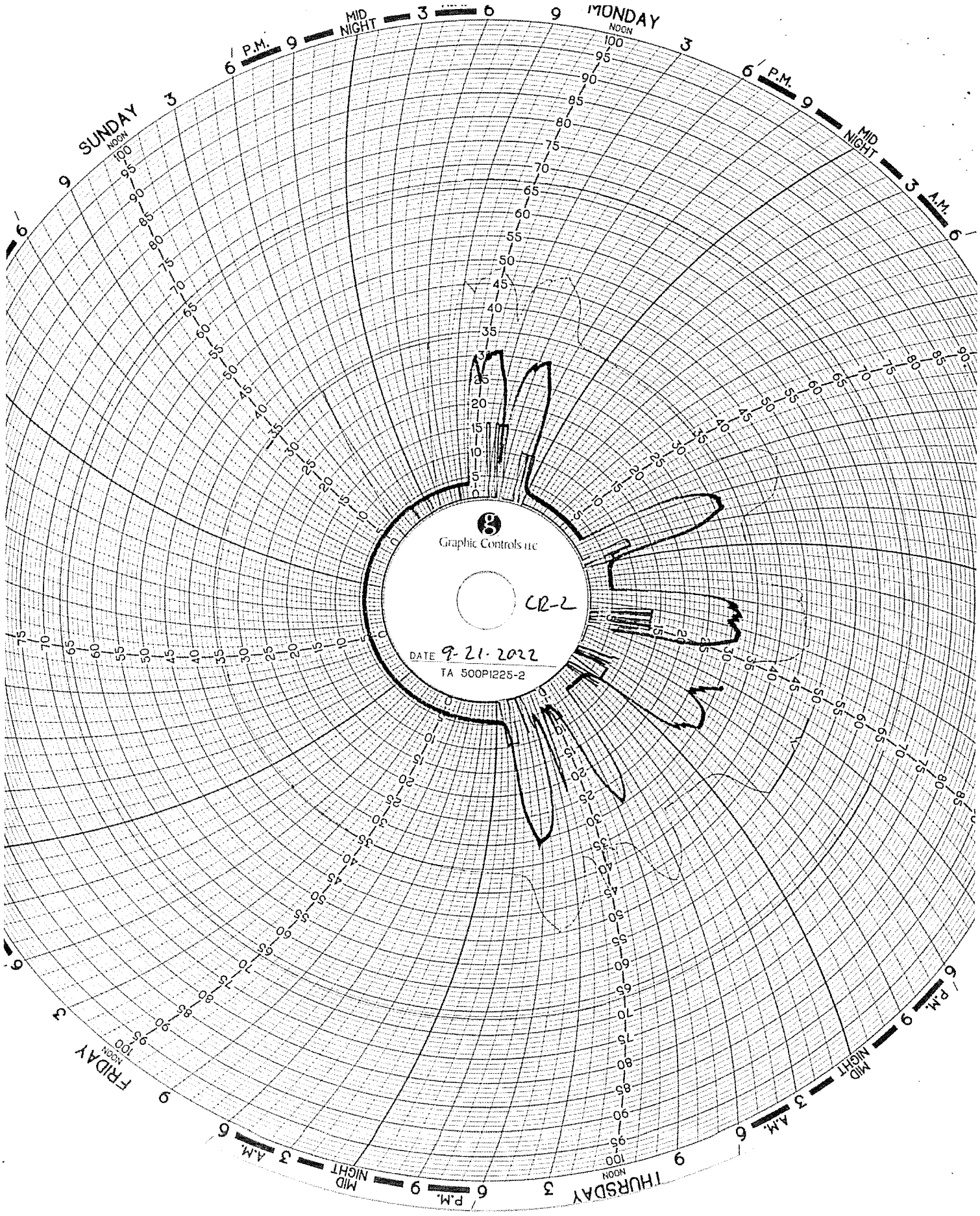
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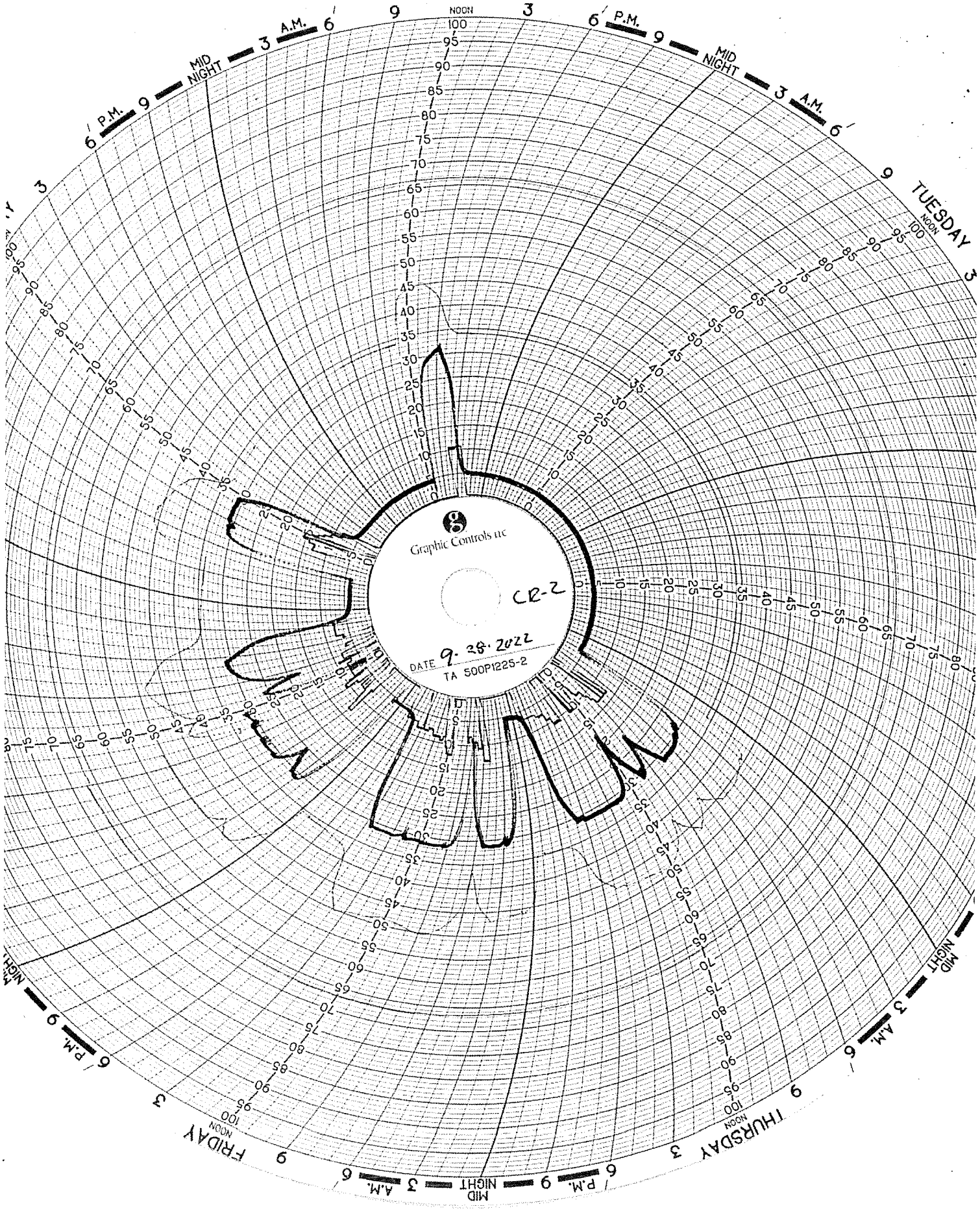
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Circle Chart Index

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 ÷ 3.3)

Channel #2

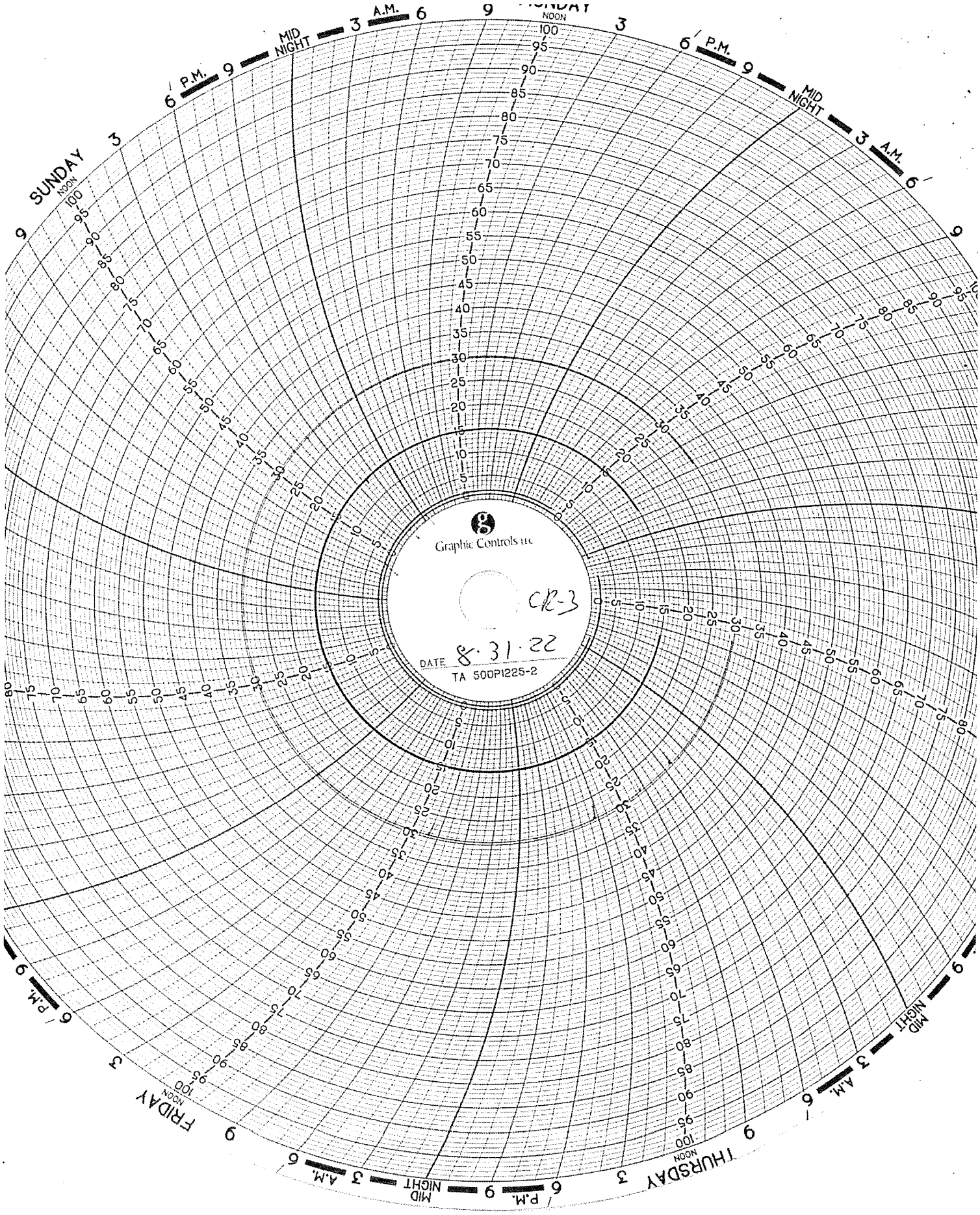
Red Pen – Well 1 Monthly Volume (chart value x 100,000)

Channel #3

Green Pen – Well 2 Monthly Volume (chart value x 100,000)

Channel #4

Black Pen – Temperature (chart value x 0)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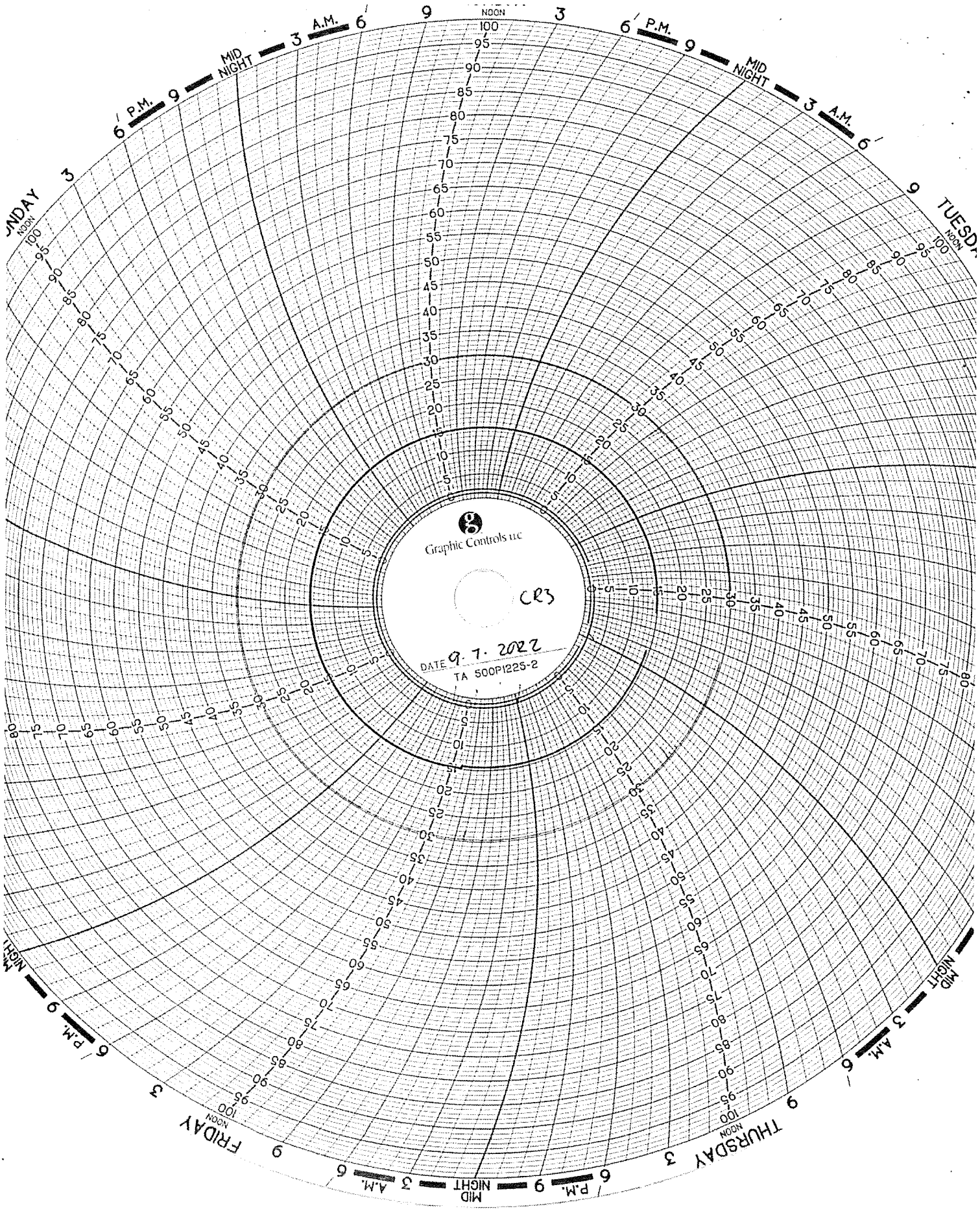
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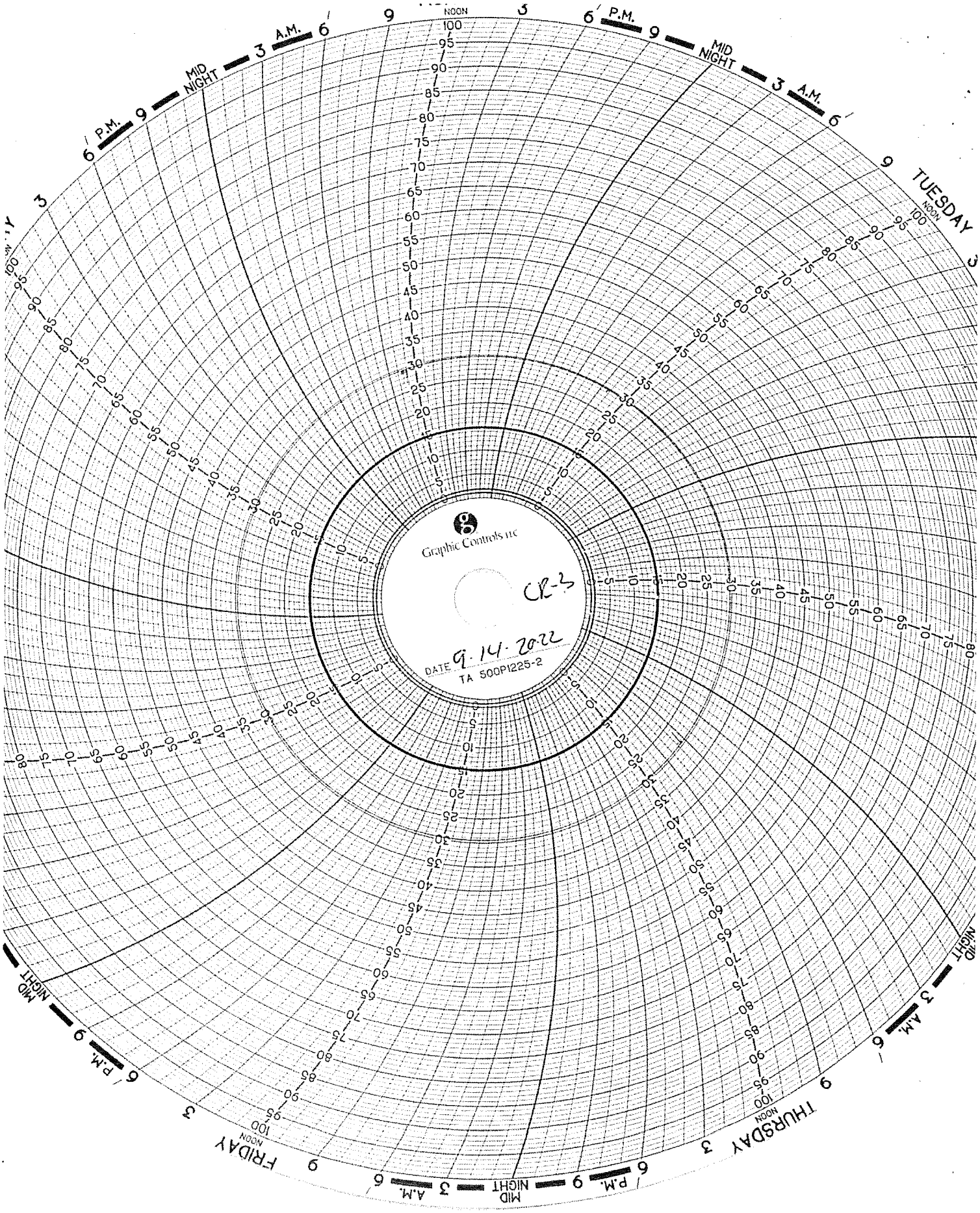
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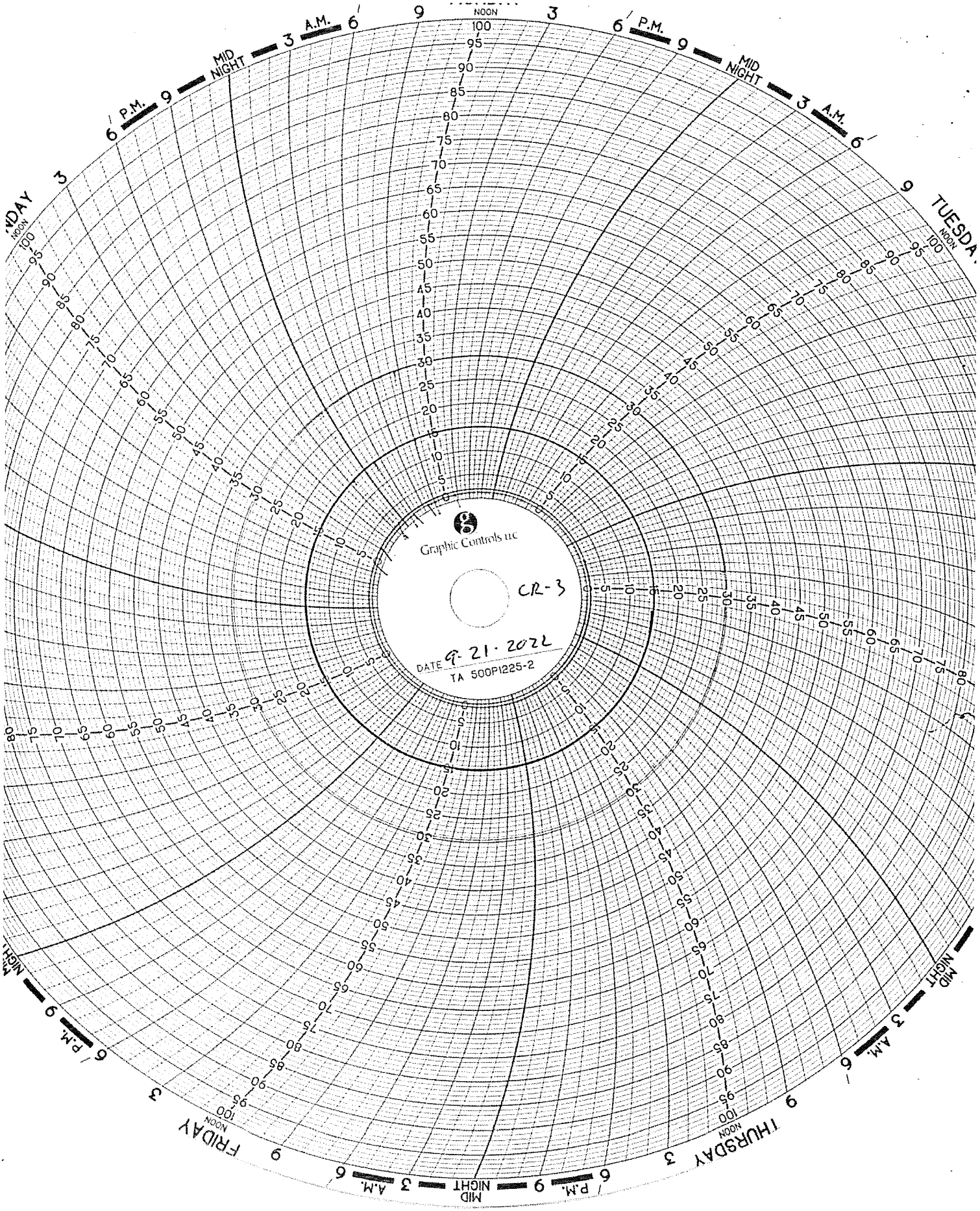
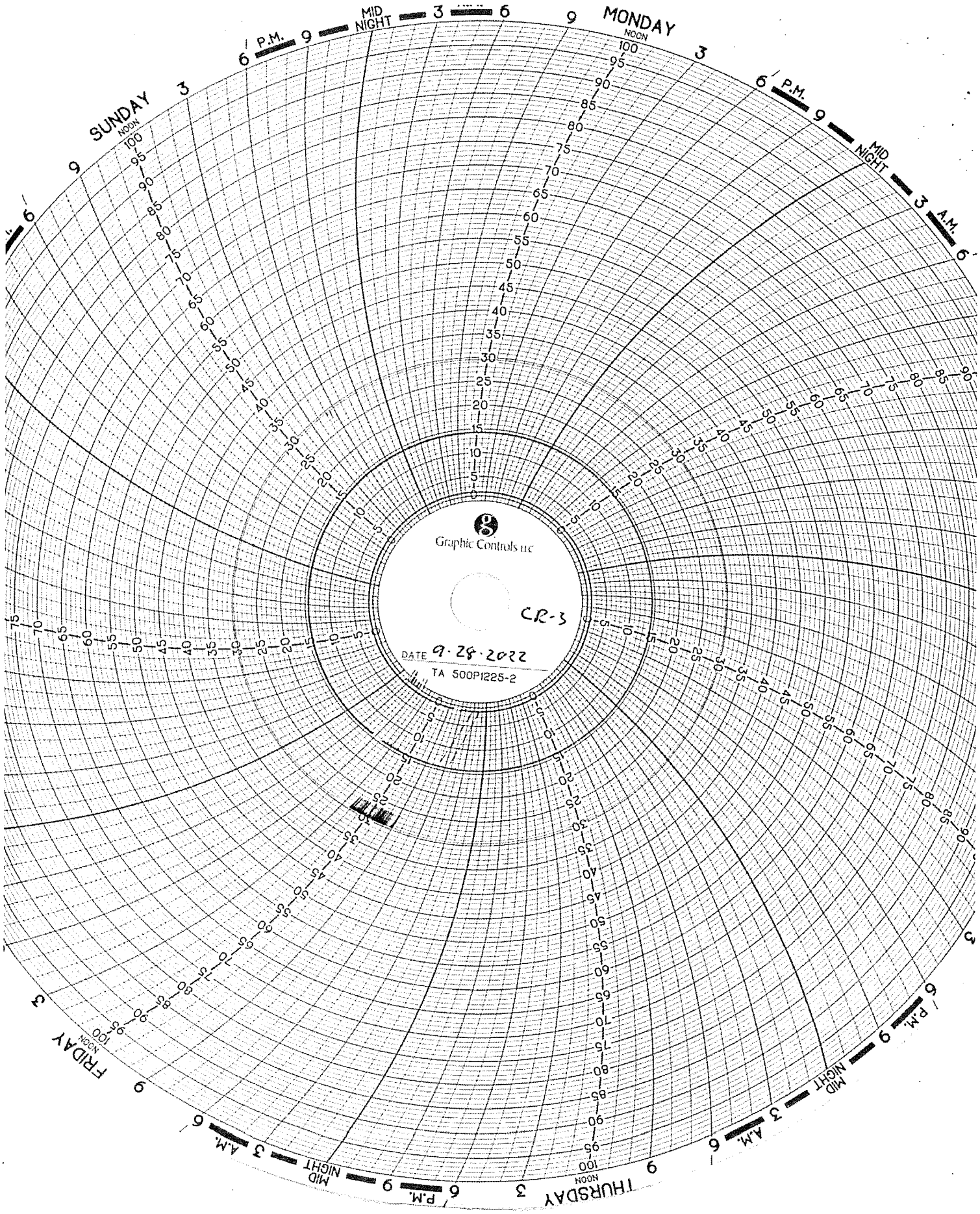
FRIDAY
MID NIGHT
A.M.
P.M.
NOON


Graphic Controls LLC
CR-3
DATE 9-21-2022
TA 500P1225-2
MID NIGHT
A.M.
P.M.
NOON
TUESDAY
THURSDAY
FRIDAY


SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
NOON
MID NIGHT
A.M.
P.M.
Graphic Controls LLC
CR-3
DATE 9-28-2022
TA 500P1225-2

CORROSION MONITORING

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	
10/27/2016	13.325 g	8.765 g	6.708 g	
11/29/2016	13.327 g	8.571 g	6.740 g	
12/12/2016	13.323 g	8.223 g	6.717 g	
1/3/2017	13.325 g	8.059 g	6.712 g	
2/28/2017	13.324 g	7.634 g	6.727 g	
3/24/2017	13.325 g	7.370 g	6.732 g	
4/28/2017	13.325 g	6.736 g	6.736 g	
5/11/2017	13.323 g	7.352 g	6.689 g	
6/12/2017	13.323 g	7.357 g	6.689 g	
7/5/2017	13.323 g	7.355 g	6.689 g	
8/30/2017	13.324 g	7.353 g	18.105 g	New Fiberglass coupon
9/28/2017	13.325 g	7.352 g	18.060 g	
10/11/2017	13.324 g	7.350 g	18.038 g	
11/16/2017	13.325 g	7.363 g	18.047 g	
12/12/2017	13.326 g	7.308 g	18.307 g	

CORROSION MONITORING PLAN
COUPON SUMMARY

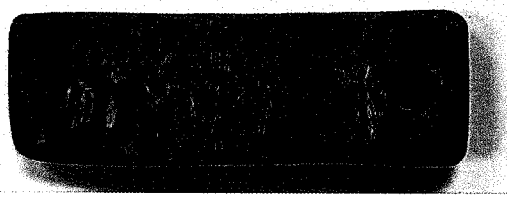
Date	Hastelloy	Stainless Steel	Fiberglass	
1/29/2018	13.326 g	10.930 g	18.027 g	New stainless steel coupon
2/9/2018	13.325 g	10.932 g	18.044 g	
3/19/2018	13.325 g	10.926 g	18.030 g	
4/16/2018	13.336 g	10.863 g	18.068 g	
5/17/2018	13.325 g	10.858 g	18.037 g	
6/20/2018	13.325 g	10.855 g	18.029 g	
7/12/2018	13.326 g	10.852 g	18.032 g	
8/21/2018	13.326 g	10.854 g	18.031 g	
9/14/2018	13.326 g	10.852 g	18.036 g	
10/10/2018	13.326 g	10.851 g	18.031 g	
11/20/2018	13.326 g	10.853 g	18.032 g	
12/11/2018	13.326 g	10.852 g	18.033 g	
1/14/2019	13.326 g	10.852 g	18.033 g	
2/20/2019	13.326 g	10.850 g	18.033 g	
3/15/2019	13.326 g	10.850 g	18.033 g	
4/10/2019	13.326 g	10.848 g	18.031 g	
5/17/2019	13.326 g	10.849 g	18.036 g	
6/5/2019	13.326 g	10.848 g	18.031 g	
7/8/2019	13.326 g	10.845 g	18.032 g	
8/12/2019	13.326 g	10.845 g	18.032 g	
9/8/2019	13.326 g	10.842 g	18.029 g	
10/17/2019	13.326 g	10.842 g	18.030 g	
11/20/2019	13.326 g	10.842 g	18.030 g	
12/11/2019	13.326 g	10.842 g	18.030 g	
1/16/2020	13.326 g	10.840 g	18.033 g	
2/6/2020	13.326 g	10.836 g	18.034 g	
3/3/9/20	13.326 g	10.842 g	18.034 g	Well 1 workover new well
4/9/2020	13.328 g	10.839 g	18.037 g	
5/12/2020	13.322 g	10.830 g	18.035 g	
6/16/2020	13.316 g	10.771 g	18.009 g	
7/16/2020	13.308 g	10.560 g	17.843 g	
8/25/2020	13.310 g	10.214 g	17.773 g	
9/24/2020	13.289 g	9.796 g	17.656 g	
10/19/2020	13.282g	9.737g	17.621g	
11/5/2020	13.280g	9.728g	17.600g	
12/3/2020	13.281g	9.730g	17.689g	
2/10/2021	13.284g	9.728g	17.683g	
3/9/2021	13.290g	9.733g	17.585g	
4/13/2021	13.288g	9.730g	17.649g	
5/18/2021	13.282g	9.691g	17.543g	
6/17/2021	13.279g	9.639g	17.546g	
7/19/2021	13.278g	9.480g	17.507g	
8/3/2021	13.278g	9.437g	17.467g	
9/14/2021	13.277g	9.392g	17.467g	
10/11/2021	13.277g	9.359g	17.465g	
11/3/2021	13.277g	9.350g	17.273g	
12/15/2021	13.276g	9.351g	17.256g	
1/17/2022	13.276g	9.351g	17.256g	
2/15/2022	13.276g	9.347g	16.965g	
3/18/2022	13.281g	9.368g	17.246g	

CORROSION MONITORING PLAN
COUPON SUMMARY

4/18/2022	13.275	9.339	16.656	
5/16/2022	13.298	9.328	16.600	
6/15/2022	13.276	9.300	16.219	
7/20/2022	13.303	9.324	16.393	
8/17/2022	13.277	9.195	15.841	
9/9/2022	13.276	9.171	15.757	

316L / C1563
Weight: 9.171
Date: 9/9/2022

C276 / 5
Weight: 13.276
Date: 9/9/2022



Fiberglass
Weight: 15.757
Date: 9/9/2022

COOROSION MONITORING COUPONS VISUAL DESCRIPTION

September 2022

Fiberglass Coupon

The coupon has developed a purple tint and is smooth. Its cut edges appear sanded. The coupon is free of cracks and swelling. There is some shallow pitting and look has changed from polished to dull. No significant visual change from previous month.

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. No significant visual change from previous month.

Stainless Steel Coupon

The coupon has corrosion surrounding the hole where it's bolted in the pipe, and some pitting is visible throughout the coupon. No significant visual change from previous month.

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.

AKRON RUBBER DEVELOPMENT LABORATORY, INC.

Progress Through Innovation, Technology and Customer Satisfaction

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

ACCREDITED
A Testing Lab
*Certificate Numbers 255.01 & 255.02

An A2LA ISO 17025 Accredited Testing Laboratory — Certificate Numbers 255.01 & 255.02
ISO 9001:2008 Registered

ISO 9001:2008
Registered

www.ardl.com | 2887 Gilchrist Rd. | Akron, Ohio 44305 | answers@ardl.com | Toll Free (800) 830-ARDL
Fax (330) 794-6610 | Worldwide (330) 794-6600

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

Approved By: Scott W. Yates
Plastics Testing Assistant Manager

tc

December 12, 2016

▪TEST REPORT▪

PN 132662

PO

PLASTICS TESTING DEPARTMENT

Prepared For:

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

Prepared By: Melissa Martin
Senior Project Technician

Approved By: Jim Drummond
Physical Testing, Manager

Rev 041916

December 12, 2016

John Frost
Environmental Geo-Technologies, LLC

SUBJECT: Barcol Hardness on one (1) material.

RECEIVED: One (1) small section identified as; Fiberglass Coupon.

BARCOL HARDNESS ASTM D 2583-13a
Instant Reading

	RESULTS
Barcol Hardness, Instant	96

Prepared By: Melissa Martin
Senior Project Technician

Approved By: Scott Yates
Plastics Testing, Assistant Manager

wk

ARDL is ISO 17025 accredited by A2LA for the test methods listed on the certificates referenced on page one.* ***NOTE: Non-ISO 17025 accredited test methods are designated with the ^ symbol to differentiate from ISO 17025 accredited methods in the body of the test report.**

December 13, 2017

▪TEST REPORT▪

PN 139140

PO#

PLASTIC 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
Rubber & Plastic Testing, Manager

Rev 041916

December 13, 2017

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

Approved By: _____
Scott Yates
Plastics Testing, Assistant Manager

SC

ARDL is ISO 17025 accredited by A2LA for the test methods listed on the certificates referenced on page one.* ***NOTE: Non-ISO 17025 accredited test methods are designated with the ^ symbol to differentiate from ISO 17025 accredited methods in the body of the test report.**

GHESQUIERE PLASTIC TESTING, INC.

20450 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/kni

GHESQUIERE PLASTIC TESTING, INC.

20450 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 885-3535
FAX (313) 885-1771

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

GHESQUIERE PLASTIC TESTING, INC.

20450 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 885-3535
FAX (313) 885-1771

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
28470 Citrin Drive
Romulus, MI 48174

Prepared By: _____
Melissa Martin
Sr. Project Technician

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

www.ardl.com

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Toll Free (800) 830-ARDL | Worldwide (330) 794-6600 | Fax (330) 794-6610

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

BARCOL HARDNESS REPORT

Customer: Republic Industrial and Energy Solutions, LLC

Component Tested: Test Coupon

PO Number: 9575553 **Job Number:** 3415

Calibration: **Disc:** 43 - 48 **Actual Reading:** 45

Barcol Readings	**1**	**2**	**3**	**Average**
Side One:	62	63	58	61
Side Two:	58	60	57	58
			Overall Average:	60

Tested By: _____
(signature)

Gary Nicholson **Date:** 01/12/2021
(print or type name)

BARCOL HARDNESS REPORT

Customer: Republic Industrial and Energy Solutions, LLC

Component Tested: Test Coupon

PO Number: 10159792 **Job Number:** 3556

Calibration: **Disc:** 43 - 48 **Actual Reading:** 45

Barcol Readings	**1**	**2**	**3**	**Average**
Side One:	56	60	60	59
Side Two:	60	62	62	61
			Overall Average:	60

Tested By: (signature)

Gary Nicholson **Date:** 10/11/2021
(print or type name)

BARCOL HARDNESS REPORT

Customer: Republic Industrial and Energy Solutions

Component Tested: Fiberglass Coupon

PO Number: Credit Card **Job Number:** 3734

Calibration: **Disc:** 43 - 48 **Actual Reading:** 45

Barcol Readings	**1**	**2**	**3**	**Average**
Side One:	55	50	58	54
Side Two:	53	56	59	56
			Overall Average:	55

Tested By: (signature)

Gary Nicholson **Date:** 08/23/2022
(print or type name)

MAINTENANCE

UIC Monthly Maintenance Log

No Maintainance this month

INJECTION FINGERPRINTS

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 1 / 22
Receiving ID#	I09012202
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H
Sampled by	

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	5.95
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.05
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	72
Conductivity	
% Solids	6.78
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.H

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 1 / 22
Receiving ID#	I09012203
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	AW J.H.
Sampled by	

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	5.23
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.03
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	72
Conductivity	
% Solids	2.55
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.H.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 2 / 22
Receiving ID#	I09022201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.T.
Sampled by	

LAB INFORMATION	
Compatible? (RT#)	Y
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	5.89
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.01
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	72
Conductivity	
% Solids	0.65
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.T.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 27 22
Receiving ID#	10902 22 01
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.T
Sampled by	

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	6.42
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.02
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	72
Conductivity	
% Solids	1.96
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.T

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 6 / 22
Receiving ID#	I0906.2201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.T
Sampled by	DM

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	4.59
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.20
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	72
Conductivity	
% Solids	30.92
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.T

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 6 / 22
Receiving ID#	T090622 02
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.A.
Sampled by	AV

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	5.45
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.03
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	72
Conductivity	
% Solids	5.09
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.H.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 13 / 22
Receiving ID#	I0913220
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H
Sampled by	DB

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	5.92
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.02
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	67
Conductivity	
% Solids	9.43
Turbidity	Yes No
Color	
TSS (%)	8.0
Radiation Screen (as needed)	
Lab Signature/Initials	J.H

RECEIVING & APPROVAL FORM

ST-1

RECEIVING INFORMATION	
Date	9/20/22
Receiving ID#	I09202201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	[illegible]
Sampled by	TC

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	<140
pH (S.U.)	5.48
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.01
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	77
Conductivity	
% Solids	.60
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	TC/[illegible]

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 27 / 22
Receiving ID#	R09212201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.A.
Sampled by	DM

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	7.03
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.02
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	74.7
Conductivity	29.4 mS
% Solids	2.83
Turbidity	Yes No
Color	
TSS (%)	0.5%
Radiation Screen (as needed)	
Lab Signature/Initials	J.A.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 21 / 22
Receiving ID#	I09212203
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H
Sampled by	DM

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	
pH (S.U.)	6.48
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.03
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	71.0
Conductivity	33.7 mS
% Solids	1.42
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.H.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9/22/22
Receiving ID#	I09220201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	G.F.
Sampled by	TG / G.F.

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	5.82
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.01
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	76
Conductivity	31.5
% Solids	<.1
Turbidity	Yes No
Color	
TSS (%)	1.81
Radiation Screen (as needed)	
Lab Signature/Initials	TG / G.F.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 20 / 22
Receiving ID#	I09 20 22 02
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H
Sampled by	AW

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	6.87
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.03
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	72.0
Conductivity	21.8 mS
% Solids	3.37
Turbidity	Yes No
Color	
TSS (%)	2.0
Radiation Screen (as needed)	
Lab Signature/Initials	J.H

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 26 / 22
Receiving ID#	T092672201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.T)
Sampled by	[illegible]

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	7.54
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.02
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	68.5
Conductivity	23.2 mS
% Solids	7.98
Turbidity	Yes No
Color	
TSS (%)	7.0
Radiation Screen (as needed)	
Lab Signature/Initials	J.T)

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 26 / 22
Receiving ID#	I092622 02
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	JTM
Sampled by	AW

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	5.19
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.05
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	67.7
Conductivity	43.8 mS
% Solids	1.37
Turbidity	Yes No
Color	
TSS (%)	0.25
Radiation Screen (as needed)	
Lab Signature/Initials	J.H

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 27 / 22
Receiving ID#	I092722201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H
Sampled by	DW

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	
pH (S.U.)	6.34
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.03
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	67.4
Conductivity	16.88
% Solids	4.61
Turbidity	Yes No
Color	
TSS (%)	4.0
Radiation Screen (as needed)	
Lab Signature/Initials	J.H

RECEIVING & APPROVAL FORM

ST-1

RECEIVING INFORMATION	
Date	9/28/22
Receiving ID#	I092822201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.T.
Sampled by	TG

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	7.12
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.07
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	61.5
Conductivity	4.44 mS
% Solids	4.17
Turbidity	Yes No
Color	
TSS (%)	~~2.0~~ 4.0
Radiation Screen (as needed)	
Lab Signature/Initials	TG / J.T.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 28 / 22
Receiving ID#	I09282202
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.H
Sampled by	TG

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	8.98
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.00
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	68
Conductivity	27.3
% Solids	5.85
Turbidity	Yes No
Color	
TSS (%)	5.0
Radiation Screen (as needed)	
Lab Signature/Initials	J.H

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 28 / 22
Receiving ID#	I09 2822 02
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.T
Sampled by	AW

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	8.96
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.07
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	69.4
Conductivity J.T	~~2.13~~ 24.1 NS
% Solids	1.36
Turbidity	Yes No
Color	
TSS (%)	0.5
Radiation Screen (as needed)	
Lab Signature/Initials	J.T.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	09 /30 /22
Receiving ID#	I09302201
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	J.M.
Sampled by	BB

LAB INFORMATION	
Compatible? (RT#)	Y
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	
pH (S.U.)	7.41
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.00
Physical Description	
Stream Consistency	Yes No
Oil in Sample?	Yes No
Temperature (F)	69.2
Conductivity	9.49 mS
% Solids	0.35
Turbidity	Yes No
Color	
TSS (%)	<0.1
Radiation Screen (as needed)	
Lab Signature/Initials	J.Z.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 30 / 22
Receiving ID#	I09 30 22 02
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	G.T.
Sampled by	AW

LAB INFORMATION	
Compatible? (RT#)	
PCBs (ppm) (Oily Waste Only)?	
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	3.71
Cyanides? (mg/L)	
Sulfides? (ppm)?	
Specific Gravity	1.02
Physical Description	Liquid
Stream Consistency	(Yes) No
Oil in Sample?	Yes (No)
Temperature (F)	62°
Conductivity	10.56
% Solids	0.48
Turbidity	Yes No
Color	Clear
TSS (%)	<0.1
Radiation Screen (as needed)	Nes
Lab Signature/Initials	AW

WASTE PROFILES

Republic Services

18500 N. Allied Way, Phoenix, AZ 85054

SPECIAL WASTE DEPARTMENT DECISION

	Waste Profile # 64402212777	**Expiration Date** 8/11/2023	
I. Decision Request:	☑ **Initial** ☐ **Recertification** ☐ **Change**		
Disposal Facility: 6440 - Detroit Ind Well			
Generator Name: AXALTA COATING SYSTEMS LLC			
Generator Site Address: 400 GROESBECK HWY			
City: MT CLEMENS	**County:**	**State:** MI	**Zip:**
Name of Waste: NH FIRE SUPPRESION SYSTEM WATER			
Estimated Annual Volume: 25000 Gallons			

II. Special Waste Department Decision: ◉ **Approved** ○ **Rejected**

Management Method(s): ☐ Landfill ☐ Solidification ☐ Bioremediation ☑ Deep Well ☐ Transfer Facility

Problematic Special Waste according to Republic? ○ Yes ◉ No

If yes, which one?

Approved by Special Waste Review Committee? ○ Yes ○ No ◉ Not Applicable

Precautions, Conditions or Limitations on Approval

The site must ensure that all pre-acceptance and verification analytical is performed in accordance with the site's permit requirements prior to acceptance and disposal of the profiled waste.

Special Waste Analyst Signature: **Name (Printed):** Stephen Brown

Date: 9/15/2022

III. Facility Decision: ○ **Approved** ○ **Rejected**

Precautions, Conditions or Limitations on Approval

By signing below, the General Manager or Designee agrees that a fully executed Special Waste Service Agreement is on file for this profile and that the special waste file is complete.

General Manager or Designee: _____ **Name (Printed):** _____

Date: 9/15/2022

Republic Industrial and Energy Solutions, LLC
28470 Citrin Dr. Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

GENERATOR WASTE PROFILE

Profile # 64402212777

GENERATOR INFORMATION

Name: AXALTA COATING SYSTEMS LLC USEPA ID # MID005358825

Facility Address: 400 GROESBECK HWY SIC/NAICS Code: State Code: 2851/325510

City: MT CLEMENS State: MI Zip Code: 48043

Contact: Anthony Kashat Title: EHS Specialist Phone: (248) 615-1368 Fax: ( )

BILLING INFORMATION ☐ SAME AS ABOVE

Company Name: AXALTA COATING SYSTEMS, LLC

Address: PO BOX 69

City: GLEN MILLS State: PA Zip Code: 19342

Attention: EMAIL-AXALTA@AXALTACS.COM Title: ACCOUNTS PAYABLE Phone: (877) 567-5431 Fax: (302) 861-3922

WASTE INFORMATION

Name of Waste/Common Chemical Name:
NH Fire Suppresion System Water

Process Generating Waste (Please *be specific, incomplete information may delay the approval process*):
Fire hydrant and foam suppression water generated from fire suppression system testing. Both sets of analytical apply (Waterborne Frac Tank and Shipping Frac Tank).

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

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	

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 <>1= 0.1%)*

CONSTITUENT	MAX	MIN	CONSTITUENT	MAX	MIN
Fire and Foam Suppression Water	100	100 %			%
		%			%
		%			%

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	x <5	ppm	ppm
Barium (Ba)	D005	x <100	ppm	ppm
Cadmium (Cd)	D006	x <1	ppm	ppm
Chromium (Cr)	D007	x <5	ppm	ppm
Lead (Pb)	D008	x <5	ppm	ppm
Mercury (Hg)	D009	x <0.2	ppm	ppm
Selenium (Se)	D010	x <1	ppm	ppm
Silver (Ag)	D011	x <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-REGULATED 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 25,000 gallons 6. Anticipated Volume / Units per Year: 25,000 gallons or ☐ One Time
6. Special Handling Requirements including PPE: RQ 1 pound (proposed by EPA)

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 Republic Industrial & Energy Solutions not to correct any inconsistencies. Any corrections Republic Industrial & Energy Solutions makes will be consistent with the results of the sample characterization and/or regulatory requirements.

Printed Name: Antyhony Kashat Title: EHS Specialist

Generator's Signature: Anthony J. Kashat Date: 9/12/2022

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS: PLEASE collect a representative 1-quartsample 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 Republic Industrial & Energy Solutions representative.

1. Grab
SAMPLING METHOD

2. Frac Tanks
COLLECTION POINT

See COC & Lab Data

3. Anthony Kashat, EHS Specialist, Axalta
SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. 22080542-01 & -02 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

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	9 / 6 / 22
Receiving ID#	NH Fire Suppression Sys. Water
Manifest # Line	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	AXALTA Coating Sys., LLC
Client	
Transporter	
Time in	
Time out	
Received by	J.H.
Sampled by	Client

LAB INFORMATION	
Compatible? (RT#)	Y
PCBs (ppm) (Oily Waste Only)?	NA
TOC ppm (CC Waste Only)?	
Flash Point (F)	>140
pH (S.U.)	6.00
Cyanides? (mg/L)	<30
Sulfides? (ppm)?	<200
Specific Gravity	1.00
Physical Description	liquid
Stream Consistency	Yes (No)
Oil in Sample?	Yes (No)
Temperature (F)	72
Conductivity	
% Solids	<0.1
Turbidity	Yes (No)
Color	Amber
TSS (%)	<0.1
Radiation Screen (as needed)	Neg.
Lab Signature/Initials	JHL

(See attached lab Notes)

REPUBLIC SERVICES	**Republic Services** 18500 N. Allied Way, Phoenix, AZ 85054	

SPECIAL WASTE DEPARTMENT DECISION

	Waste Profile # 64402213458	**Expiration Date** 9/28/2023	
I. Decision Request:	☑ **Initial** ☐ **Recertification** ☐ **Change**		

Disposal Facility: 6440 - Detroit Ind Well

Generator Name: TRIBAR MANUFACTURING PLANT 4

Generator Site Address: 30540 BECK ROAD

City: WIXOM	**County:**	**State:** MI	**Zip:**

Name of Waste: ELECTROLESS NICKEL SOLUTION

Estimated Annual Volume: 5000 Gallons

II. Special Waste Department Decision: ◉ **Approved** ○ **Rejected**

Management Method(s): ☐ Landfill ☐ Solidification ☐ Bioremediation ☑ Deep Well ☐ Transfer Facility

Problematic Special Waste according to Republic? ○ Yes ◉ No

If yes, which one?

Approved by Special Waste Review Committee? ○ Yes ○ No ◉ Not Applicable

Precautions, Conditions or Limitations on Approval

The site must ensure that all pre-acceptance and verification analytical is performed in accordance with the site's permit requirements prior to acceptance and disposal of the profiled waste.

Special Waste Analyst Signature: _____ **Name (Printed):** KEITH DIAMANTI

Date: 9/29/2022

III. Facility Decision: ● **Approved** ○ **Rejected**

Precautions, Conditions or Limitations on Approval

By signing below, the General Manager or Designee agrees that a fully executed Special Waste Service Agreement is on file for this profile and that the special waste file is complete.

General Manager or Designee: _____ **Name (Printed):** JOHN FROST

Date: 9/29/2022

Republic Industrial and Energy Solutions, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

GENERATOR WASTE PROFILE

Profile # 64402213458

GENERATOR INFORMATION

Name: Tribar Manufacturing Plant 4 USEPA ID # MIK114737711

Facility Address: 30540 Beck Road SIC/NAICS Code: State Code: 332813

City: Wixom State: MI Zip Code: 48393

Contact: _____ Title: _____ Phone: ( ) _____ Fax: ( ) _____

BILLING INFORMATION ☐ SAME AS ABOVE

Company Name: ERG Environmental Services

Address: 13040 Merriman Road

City: Livonia State: MI Zip Code: 48150

Attention: Accounts Payable Title: _____ Phone: ( ) 437-9650 Fax: ( ) _____

WASTE INFORMATION

Name of Waste/Common Chemical Name:
Electroless Nickel Solution

Process Generating Waste (Please *be specific, incomplete information may delay the approval process):*
~~Electroless nickel solution used in the electroplating 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: _____

PHYSICAL CHARACTERISTICS OF WASTE

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	

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 - <50 PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO* OR *GREATER THAN 100% (LIST EACH CONSTITUENT <>1= 0.1%)*

CONSTITUENT	MAX	MIN		CONSTITUENT	MAX	MIN	
Plating Solution	100	100	%				%
			%				%
			%				%

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					
						Arsenic (As)	D004	☑ <5	ppm	ppm
						Barium (Ba)	D005	☑ <100	ppm	ppm
PCB	☑	ppm	Aromatic Amine	☑	__ppm	Cadmium (Cd)	D006	☑ <1	ppm	ppm
Dioxins	☑	ppm	Pesticides	☑	__ppm	Chromium (Cr)	D007	☑ <5	ppm	ppm
Cyanides Reactive	☑	ppm	Rodenticides	☑	__ppm	Lead (Pb)	D008	☑ <5	ppm	ppm
Cyanides Total	☑	ppm	Fungicides	☑	__ppm	Mercury (Hg)	D009	☑ <0.2	ppm	ppm
Sulfides Reactive	☑	ppm				Selenium (Se)	D010	☑ <1	ppm	ppm
Sulfides Total	☑	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 NA
3. DOT Shipping Name Non-RCRA, Non-DOT Regulated 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 5,000 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: Donald Johnson Title: Waste treatment WASTE TREATMENT

Generator's Signature: _____ Date: 9-28-22 9-28-22

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

Donald Johnson

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

F039 Analysis

10-Nov-2022

Rick Sauve
Republic Industrial and Energy Solutions, LLC
28470 Cintrin Dr.
Romulus, MI 48174

Re: **(REIS) F039 Leachate analysis 10.05.2022** Work Order: **22100626**

Dear Rick,

ALS Environmental received 1 sample on 06-Oct-2022 08:30 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Les Arnold

Electronically approved by: Les Arnold

Les Arnold
General Manager

ALS Group, USA

Date: 10-Nov-22

Client: Republic Industrial and Energy Solutions, LLC
Project: (REIS) F039 Leachate analysis 10.05.2022
Work Order: **22100626**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22100626-01	September 2022 F039 Analytical	Liquid		10/5/2022	10/6/2022 20:30	☐

Client: Republic Industrial and Energy Solutions, LLC
Project: (REIS) F039 Leachate analysis 10.05.2022
Work Order: 22100626

Case Narrative

Dioxin/Furans were analyzed at ALS Houston, TX. The report is appended in its entirety.

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

ALS Group, USA

Date: *10-Nov-2022*

Client: Republic Industrial and Energy Solutions, LLC
Project: (REIS) F039 Leachate analysis 10.05.2022
Work Order: 22100626
Sample ID: September 2022 F039 Analytical
Lab ID: 22100626-01
Collection Date: 10/5/2022
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PESTICIDES			**SW8081B**		Prep: SW3511 10/10/22 16:50	Analyst: **MMO**
Aldrin	ND		0.12	µg/L	1	10/12/2022 12:23 AM
Surr: Decachlorobiphenyl	*67.0*		*42-148*	*%REC*	1	10/12/2022 12:23 AM
Surr: Tetrachloro-m-xylene	*101*		*57-141*	*%REC*	1	10/12/2022 12:23 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 10/12/22 15:36	Analyst: **EE**
N-Nitrosodimethylamine	ND		480	µg/L	20	10/14/2022 12:27 AM
Surr: 2,4,6-Tribromophenol	*56.4*		*47-103*	*%REC*	20	10/14/2022 12:27 AM
Surr: 2-Fluorobiphenyl	*49.6*		*41-96*	*%REC*	20	10/14/2022 12:27 AM
Surr: 2-Fluorophenol	*30.8*		*28-66*	*%REC*	20	10/14/2022 12:27 AM
Surr: 4-Terphenyl-d14	*53.2*		*49-107*	*%REC*	20	10/14/2022 12:27 AM
Surr: Nitrobenzene-d5	*56.8*		*41-95*	*%REC*	20	10/14/2022 12:27 AM
Surr: Phenol-d6	*28.4*		*18-44*	*%REC*	20	10/14/2022 12:27 AM
SUBCONTRACTED ANALYSES			**SUBCONTRACT**			Analyst: **ALS**
Subcontracted Analyses	**See attached**			**as noted**	1	10/24/2022

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:	Republic Industrial and Energy Solutions, LLC
Project:	(REIS) F039 Leachate analysis 10.05.2022
WorkOrder:	**22100626**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
as noted	

ALS Group, USA

Date: 10-Nov-22

Client: Republic Industrial and Energy Solutions, LLC
Work Order: 22100626
Project: (REIS) F039 Leachate analysis 10.05.2022

QC BATCH REPORT

Batch ID: **204532** Instrument ID **GC12** Method: **SW8081B**

MBLK Sample ID: **PBLKW1-204532-204532** Units: **µg/L** Analysis Date: **10/11/2022 06:51 PM**
Client ID: Run ID: **GC12_221011B** SeqNo: **8895235** Prep Date: **10/10/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aldrin	ND	0.010								
Surr: Decachlorobiphenyl	*0.1882*	0	*0.208*	0	*90.5*	*42-148*	0			
Surr: Tetrachloro-m-xylene	*0.2048*	0	*0.208*	0	*98.5*	*57-141*	0			

LCS Sample ID: **PLCSW1-204532-204532** Units: **µg/L** Analysis Date: **10/11/2022 07:18 PM**
Client ID: Run ID: **GC12_221011B** SeqNo: **8895237** Prep Date: **10/10/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aldrin	0.1277	0.010	0.167	0	76.4	51-164	0			
Surr: Decachlorobiphenyl	*0.1687*	0	*0.208*	0	*81.1*	*42-148*	0			
Surr: Tetrachloro-m-xylene	*0.202*	0	*0.208*	0	*97.1*	*57-141*	0			

MS Sample ID: **22100318-01C MS** Units: **µg/L** Analysis Date: **10/11/2022 10:05 PM**
Client ID: Run ID: **GC12_221011B** SeqNo: **8895248** Prep Date: **10/10/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aldrin	0.1565	0.010	0.167	0	93.7	51-164	0			
Surr: Decachlorobiphenyl	*0.2703*	0	*0.208*	0	*130*	*42-148*	0			
Surr: Tetrachloro-m-xylene	*0.2172*	0	*0.208*	0	*104*	*57-141*	0			

MSD Sample ID: **22100318-01C MSD** Units: **µg/L** Analysis Date: **10/11/2022 10:19 PM**
Client ID: Run ID: **GC12_221011B** SeqNo: **8895249** Prep Date: **10/10/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aldrin	0.1483	0.010	0.167	0	88.8	51-164	0.1565	5.36	20	
Surr: Decachlorobiphenyl	*0.2625*	0	*0.208*	0	*126*	*42-148*	0.2703	*2.94*	*20*	
Surr: Tetrachloro-m-xylene	*0.213*	0	*0.208*	0	*102*	*57-141*	0.2172	*1.94*	*20*	

The following samples were analyzed in this batch: 22100626-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Republic Industrial and Energy Solutions, LLC
Work Order: 22100626
Project: (REIS) F039 Leachate analysis 10.05.2022

QC BATCH REPORT

Batch ID: **204674** Instrument ID **SVMS8** Method: **SW846 8270D**

MBLK Sample ID: **SBLKW1-204674-204674** Units: **µg/L** Analysis Date: **10/12/2022 05:39 PM**
Client ID: Run ID: **SVMS8_221012A** SeqNo: **8894392** Prep Date: **10/12/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
N-Nitrosodimethylamine	ND	5.0								
Surr: 2,4,6-Tribromophenol	*30.28*	0	*50*	0	*60.6*	*47-103*	0			
Surr: 2-Fluorobiphenyl	*31.53*	0	*50*	0	*63.1*	*41-96*	0			
Surr: 2-Fluorophenol	*21.85*	0	*50*	0	*43.7*	*28-66*	0			
Surr: 4-Terphenyl-d14	*35.48*	0	*50*	0	*71*	*49-107*	0			
Surr: Nitrobenzene-d5	*32.1*	0	*50*	0	*64.2*	*41-95*	0			
Surr: Phenol-d6	*14.07*	0	*50*	0	*28.1*	*18-44*	0			

LCS Sample ID: **SLCSW1-204674-204674** Units: **µg/L** Analysis Date: **10/12/2022 06:00 PM**
Client ID: Run ID: **SVMS8_221012A** SeqNo: **8894393** Prep Date: **10/12/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
N-Nitrosodimethylamine	11.28	5.0	20	0	56.4	26-74	0			
Surr: 2,4,6-Tribromophenol	*39.33*	0	*50*	0	*78.7*	*47-103*	0			
Surr: 2-Fluorobiphenyl	*35.34*	0	*50*	0	*70.7*	*41-96*	0			
Surr: 2-Fluorophenol	*24.04*	0	*50*	0	*48.1*	*28-66*	0			
Surr: 4-Terphenyl-d14	*43.12*	0	*50*	0	*86.2*	*49-107*	0			
Surr: Nitrobenzene-d5	*39.2*	0	*50*	0	*78.4*	*41-95*	0			
Surr: Phenol-d6	*15.89*	0	*50*	0	*31.8*	*18-44*	0			

MS Sample ID: **22100620-01A MS** Units: **µg/L** Analysis Date: **10/12/2022 06:20 PM**
Client ID: Run ID: **SVMS8_221012A** SeqNo: **8894394** Prep Date: **10/12/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
N-Nitrosodimethylamine	187.8	100	400	0	47	26-74	0			
Surr: 2,4,6-Tribromophenol	*656.2*	0	*1000*	0	*65.6*	*47-103*	0			
Surr: 2-Fluorobiphenyl	*588.8*	0	*1000*	0	*58.9*	*41-96*	0			
Surr: 2-Fluorophenol	*351.2*	0	*1000*	0	*35.1*	*28-66*	0			
Surr: 4-Terphenyl-d14	*749*	0	*1000*	0	*74.9*	*49-107*	0			
Surr: Nitrobenzene-d5	*649.4*	0	*1000*	0	*64.9*	*41-95*	0			
Surr: Phenol-d6	*168*	0	*1000*	0	*16.8*	*18-44*	0			*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Republic Industrial and Energy Solutions, LLC
Work Order: 22100626
Project: (REIS) F039 Leachate analysis 10.05.2022

QC BATCH REPORT

Batch ID: **204674** Instrument ID **SVMS8** Method: **SW846 8270D**

MSD Sample ID: **22100620-01A MSD** Units: **µg/L** Analysis Date: **10/12/2022 06:41 PM**
Client ID: Run ID: **SVMS8_221012A** SeqNo: **8894396** Prep Date: **10/12/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
N-Nitrosodimethylamine	180.2	100	400	0	45	26-74	187.8	4.13	30	
Surr: 2,4,6-Tribromophenol	*581.2*	0	*1000*	0	*58.1*	*47-103*	656.2	*12.1*	*40*	
Surr: 2-Fluorobiphenyl	*567.8*	0	*1000*	0	*56.8*	*41-96*	588.8	*3.63*	*40*	
Surr: 2-Fluorophenol	*324.6*	0	*1000*	0	*32.5*	*28-66*	351.2	*7.87*	*40*	
Surr: 4-Terphenyl-d14	*646*	0	*1000*	0	*64.6*	*49-107*	749	*14.8*	*40*	
Surr: Nitrobenzene-d5	*605.8*	0	*1000*	0	*60.6*	*41-95*	649.4	*6.95*	*40*	
Surr: Phenol-d6	*165.6*	0	*1000*	0	*16.6*	*18-44*	168	*1.44*	*40*	*S*

The following samples were analyzed in this batch: 22100626-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

22100626

REPUBLIC INDUSTRIAL ROMULUS Republic Industrial and Energy Solutions, LLC

Project: (REIS) F039 Leachate analysis 10.05.2022

Chain of Custody Form

Page 1 of 1

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	RIES10052022 F039 Leachate	A	Aldrin
Work Order		Project Number		B	Hexachlorodibenzo-p-dioxins
Company Name	Republic Industrial and Energy	Bill To Company	Republic Industrial and Energy	C	Nitrosodimethlyamine
Send Report To	Rick Sauve	Invoice Attn.		D	1,2,3,4,6,7,8,9-Octachlor-dibenzofuran
Address	28470 Cintrin Dr.	Address	28470 Cintrin Dr.	E	1,2,3,4,6,7,8,9-Octachloro-dibenzo-p-dioxin
				F	Tetrachlorodibenzo-p-dioxins
City/State/Zip	Romulus, MI 48174	City/State/Zip	Romulus, MI 48174	G	
Phone	734-784-2708	Phone		H	
Fax		Fax		I	
e-Mail Address	RSauve@republicservices.com			J	

No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	September 2022 F039 Analytical	10/5/2022		L		10	X	X	X	X	X	X					

Sampler(s): Please Print & Sign
Rick Sauve

Shipment Method:

Turnaround Time: (Business Days) ☐ 10 BD ☑ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other _____

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
Rick Sauve	10/5/2022	10:45am		10/6/22	10:45am	Rec'd 10/6/22 2030
Relinquished by:	Date: 10/5/22	Time: 5:00	Received by (Laboratory):	Date: 10/6/22	Time: 5:20	
Logged by (Laboratory): DES	Date: 10/7/22	Time: 1130	Checked by (Laboratory):			

ALS Cooler ID	Cooler Temp	QC Package: (Check Box Below)	
123	4.5c	☑ Level II: Standard QC	☐ Level III: Raw Data
		☐ TRRP LRC	☐ TRRP Level IV
		☐ Level IV: SW846 Methods/CLP like	
		☐ Other:	

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

Revision 2 - Effective 11/9/2016

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **REPULICINDUSTRIAL - ROMULU** Date/Time Received: **06-Oct-22 20:30**

Work Order: **22100626** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 07-Oct-22 (Date) Reviewed by: Les Arnold (eSignature) 10-Nov-22 (Date)

Matrices: Liquid
Carrier name: Courier

	Yes	No	Not Present
Shipping container/cooler in good condition?	☑	☐	☐
Custody seals intact on shipping container/cooler?	☐	☐	☑
Custody seals intact on sample bottles?	☐	☐	☑
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Samples in proper container/bottle?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	
All samples received within holding time?	☑	☐	
Container/Temp Blank temperature in compliance?	☑	☐	
Sample(s) received on ice?	☑	☐	

Temperature(s)/Thermometer(s): 4.0/5.0 c IR3
Cooler(s)/Kit(s):
Date/Time sample(s) sent to storage: 10/7/2022 11:29:25 AM

	Yes	No	N/A
Water - VOA vials have zero headspace?	☐	☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	☐	☐	☑
pH adjusted?	☐	☐	☑

pH adjusted by: -

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

November 09, 2022

Service Request No:E2200985

Les Arnold
ALS - Holland
3352 128th Avenue
Holland, MI 49424

Laboratory Results for: 22100626

Dear Les,

Enclosed are the results of the sample(s) submitted to our laboratory October 11, 2022
For your reference, these analyses have been assigned our service request number **E2200985.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2188. You may also contact me via email at James.Guin@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

James Guin

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS Environmental – Holland (MI)	**Service Request No.:**	E2200985
Project:	22100626	**Date Received:**	10/11/22
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One sample was received for analysis at ALS Environmental in Houston on 10/11/22.

The sample was received in good condition and is consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2200500-02/03: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch.

B flags – Method Blanks

The Method Blank EQ2200500-01 contained low levels of target compounds below the Method Reporting Limit (MRL). The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

Y flags – Labeled Standards

Quantification of the native 2,3,7,8-substituted congeners is based on isotopic dilution, which automatically corrects for variation in extraction efficiency and provides accurate values even with poor recovery. Samples that had recoveries of labeled standards outside the acceptance limits are qualified with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1 and detection limits were below the Method Reporting Limits.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by ALS/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2200985-001	September 2022 F039 Analytical	10/5/2022	0000

Service Request Summary

Folder #: **E2200985**
Client Name: ALS Environmental - Holland (MI)
Project Name: 22100626
Project Number:

Report To: Les Arnold
ALS - Holland
3352 128th Avenue
Holland, MI 49424
USA
Phone Number: 616-738-7307
Cell Number: 616-836-2964
Fax Number: 616-399-6185
E-mail: les.arnold@alsglobal.com

Project Chemist: James Guin
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 10/11/22
Internal Due Date: 11/8/2022
QAP: LAB QAP
Qualifier Set: HRMS Qualifier Set
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: 22100626
EDD: BASIC_WQC_CASNo

1 500 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON Dioxins Furans/1613B
E2200985-001	September 2022 F039 Analytical	Water	10/05/22 0000	II

Printed 11/9/2022 1:21:33 PM

Service Request Summary

Folder #:	**E2200985**
Client Name:	ALS Environmental - Holland (MI)
Project Name:	22100626
Project Number:	

Report To: Les Arnold
ALS - Holland
3352 128th Avenue
Holland, MI 49424
USA

Phone Number:	616-738-7307
Cell Number:	616-836-2964
Fax Number:	616-399-6185
E-mail:	les.arnold@alsglobal.com

Project Chemist:	James Guin
Originating Lab:	HOUSTON
Logged By:	CGRANDITS
Date Received:	10/11/22
Internal Due Date:	11/8/2022
QAP:	LAB QAP
Qualifier Set:	HRMS Qualifier Set
Formset:	Lab Standard
Merged?:	Y
Report to MDL?:	Y
P.O. Number:	22100626
EDD:	BASIC_WQC_CASNo

1 500 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

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Data Qualifiers

HRMS Qualifier Set

B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
E Estimated value. The reported concentration is above the calibration range of the instrument.
H Sample extracted and/or analyzed out of suggested holding time.
J Estimated value. The reported concentration is below the MRL.
K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.
P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
S Signal saturated detector. Result reported from dilution.
U Compound was analyzed for, but was not detected (ND).
X See Case Narrative.
Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arizona Department of Health Services	AZ0793	5/27/2023
Arkansas Department of Environmental Quality	22-041-0	3/27/2023
California Department of Health Services	2919-2023	4/30/2023
Department of Defense	L22-90	3/31/2024
Florida Department of Health	E87611-36	6/30/2023
Florida Department of Health	E87611-36	6/30/2023
Florida Department of Health	E87611-36	6/30/2023
Florida Department of Health	E87611-36	6/30/2023
Hawaii Department of Health	2022	4/30/2023
Illinois Environmental Protection Agency	2000322022-9	5/9/2023
Kansas Department of Health and Environment	E-10352 2022-2023	7/31/2023
Louisiana Department of Environmental Quality	03087-2022	6/30/2023
Louisiana Department of Health and Hospitals	LA028	12/31/2022
Maine Department of Health and Human Services	2022017	6/5/2024
Maryland Department of the Environment	343	6/30/2023
Michigan Depratment of Environmental Quality	9971-2022	4/30/2023
Minnesota Department of Health	2228443	12/31/2022
Nebraska Department of Health and Human Services	NE-OS-25-13	4/30/2023
Nevada Department of Conservation and Natural Resources	TX026932023-1	7/31/2023
New Hampshire Environmental Laboratory Accreditation Program	209422	4/24/2023
New Jersey Department of Environmental Protection	TX008-2023	6/30/2023
New York Department of Health	11707	3/31/2023
Oklahoma Department of Environmental Quality	2022-141	8/31/2023
Oregon Environmental Laboratory Accreditation Program	TX200002	5/15/2023
Pennsylvania Department of Environmental Protection	68-03441-016	6/30/2023
Perry Johnson Laboratory Accreditation	L22-91	3/31/2024
Tennessee Department of Environment and Concervation	04016-2022	4/30/2023
Texas Commision on Environmental Quality	T104704231-22-29	4/30/2023
Utah Department of Health Environmental Laboratory Certification	TX026932022-13	7/31/2023
Washington Department of Health	C819-2022	11/14/2022

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E22009 85 DB-5MSUI SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
11/09/22	Yc	001

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
11/09/22	SL	001

ALS Environmental

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Laboratory Group

Subcontractor:
ALS Environmental - Houston HR
10450 Stancliff Rd
Suite 210
Houston, TX 77099

TEL: (713) 266-1599
FAX:
Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 07-Oct-22
COC ID: 21169
Due Date: 12-Oct-22

Salesperson: ALSHN Account

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	22100626	A	Dioxin Client List
Work Order		Project Number		B	
Company Name	ALS Group USA, Corp	Bill To Company	ALS Group USA, Corp	C	
Send Report To	Les Arnold	Inv Attn	Accounts Payable	D	
Address	3352 128th Ave	Address	3352 128th Ave	E	
				F	
City/State/Zip	Holland, Michigan 49424	City/State/Zip	Holland, Michigan 49424	G	
Phone	(616) 399-6070	Phone	(616) 399-6070	H	
Fax	(616) 399-6185	Fax	(616) 399-6185	I	
eMail Address	les.arnold@alsglobal.com	eMail CC		J	

ALS Sample ID	Client Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
22100626-01B	September 2022 F039 Analytical	Liquid	5/Oct/2022	(1) 250AMGNEAT	X									

Comments:

RcD 0/C.
3.2 U
4.31
C/F -0.2 U

10-07-22 1450

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
		10/11/22	4:12		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

Cooler Receipt Form

ALS Environmental

Project Chemist: DG

Client/Project: ALS - M

Thermometer ID: IR41

Date/Time Received: 10/11/22 Initials: DG

Date/Time Logged in: 10/11/22 Initials: CG

1. Method of delivery: ○ US Mail ☒ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ☒ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ○ Yes ☒ No
   Were they intact? ○ Yes ○ No ☒ N/A
   Were they signed and dated? ○ Yes ○ No ☒ N/A
   If yes, how many and where?
4. Packing Material: ○ Inserts ☒ Baggies ☒ Bubble Wrap ○ Gel Packs ☒ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
5551 4988 3770		10/11/22	1442	DG	3.6	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ☒ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ☒ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ☒ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ☒ Yes ○ No
10. Did sample labels and tags agree with custody documents? ☒ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

HS-HRMSCoolerReceipt R1.0

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental - Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples are shipped and stored cold, at 0 to 6°C
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

ALS Environmental

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 409253
Team: Semivoa GCMS/NBIDJONGO

Prep WorkFlow: OrgExtAq(365)
Prep Method: Method Sep Funnel/Jar

Status: Prepped
Prep Date/Time: 11/1/22 15:36

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2200957-001	F032631-01	.01	1613B/Dioxins Furans			Water	457mL	lightly Orange
2	E2200967-001	VT-680	.01	1613B/Dioxin Furans Unadjusted			Water	1005.0	brown cloudy
3	E2200967-002	EDC Process	.01	1613B/Dioxin Furans Unadjusted			Water	1028.0	Gold
4	E2200967-003	T2T-07	.01	1613B/Dioxin Furans Unadjusted			Water	1001.0	yellow clear
5	E2200967-004	Biological	.01	1613B/Dioxin Furans Unadjusted			Water	1011.0	yellow clear
6	E2200967-005	Physical	.01	1613B/Dioxin Furans Unadjusted			Water	1011.0	yelow Clear
7	E2200972-001	3267177-001 Effluent	.01	1613B/Dioxins Furans			Water	1012mL	Liquid and solid phase / dark Green
8	E2200976-001	Outfall 001	.01	1613B/Dioxins Furans			Water	1045mL	Sightly yellow
9	E2200979-001	OUTFALL 004	.01	1613B/Dioxins Furans			Wastewater	965mL	Dark yellow
10	E2200979-002	OUTFALL 005	.01	1613B/Dioxins Furans			Wastewater	1011mL	Gold Yellow
11	E2200981-001	1FJ0690-01	.01	1613B/Dioxins Furans			Water	978mL	Clear
12	E2200985-001	September 2022 F039 Analytical	.01	1613B/Dioxins Furans			Water	239mL	Brownish greeb
13	E2200987-001	FEFF101022+1D	.01	1613B/Dioxin Furans Unadjusted			Wastewater	962.00	Gold
14	E2200997-001	3268044003	.01	1613B/Dioxins Furans			Drinking Water	1042mL	Clear
15	E2200998-001	3268079003	.01	1613B/Dioxins Furans			Drinking Water	1057mL	Clear
16	E2200999-001	3267061001	.01	1613B/Dioxins Furans			Drinking Water	1050mL	Sightly yellow
17	E2201008-001	SP1-1 Composite	.01	1613B/Dioxins Furans			Water	115mL	Cloudy yellow
18	E2201008-002	SP2-1 Composite	.01	1613B/Dioxins Furans			Water	108mL	Cloudy yellow
19	E2201017-001	3268601-001	.01	1613B/Dioxins Furans			Drinking Water	1065mL	Clear
20	EQ2200500-01	MB		1613B/Dioxins Furans			Liquid	1000.0	
21	EQ2200500-02	LCS		1613B/Dioxins Furans			Liquid	1000.0	
22	EQ2200500-03	DLCS		1613B/Dioxins Furans			Liquid	1000.0	
23	K2211844-004	B1A-EB-MS-101022-01	.01	1613B/Dioxins Furans			Water	980mL	Clear

Spiking Solutions

Name: 8290/1613B Cleanup Working Standard Inventory ID 225486 Logbook Ref: tw 10/14/22 225486 Expires On: 02/28/2023

E2200957-001	100.00µL	E2200967-001	100.00µL	E2200967-002	100.00µL	E2200967-003	100.00µL	E2200967-004	100.00µL	E2200967-005	100.00µL
E2200972-001	100.00µL	E2200976-001	100.00µL	E2200979-001	100.00µL	E2200979-002	100.00µL	E2200981-001	100.00µL	E2200985-001	100.00µL
E2200987-001	100.00µL	E2200997-001	100.00µL	E2200998-001	100.00µL	E2200999-001	100.00µL	E2201008-001	100.00µL	E2201008-002	100.00µL
E2201017-001	100.00µL	EQ2200500-01	100.00µL	EQ2200500-01	100.00µL	EQ2200500-02	100.00µL	EQ2200500-02	100.00µL	EQ2200500-03	100.00µL
EQ2200500-03	100.00µL	K2211844-004	100.00µL								

Name: 1613B Labeled Working Standard Inventory ID 225860 Logbook Ref: NB 10/03/022 225860 2-4 ng/mL Expires On: 04/10/2023

E2200957-001	1,000.00µL	E2200967-001	1,000.00µL	E2200967-002	1,000.00µL	E2200967-003	1,000.00µL	E2200967-004	1,000.00µL	E2200967-005	1,000.00µL

Preparation Information Benchsheet

Prep Run#: 409253 **Prep WorkFlow:** OrgExtAq(365) **Status:** Prepped

Team: Semivoa GCMS/NBIDJONGO **Prep Method:** Method Sep Funnel/Jar **Prep Date/Time:** 11/1/22 15:36

E2200972-001	1,000.00µL	E2200976-001	1,000.00µL	E2200979-001	1,000.00µL	E2200979-002	1,000.00µL	E2200981-001	1,000.00µL	E2200985-001	1,000.00µL
E2200987-001	1,000.00µL	E2200997-001	1,000.00µL	E2200998-001	1,000.00µL	E2200999-001	1,000.00µL	E2201008-001	1,000.00µL	E2201008-002	1,000.00µL
E2201017-001	1,000.00µL	EQ2200500-01	1,000.00µL	EQ2200500-01	1,000.00µL	EQ2200500-02	1,000.00µL	EQ2200500-02	1,000.00µL	EQ2200500-03	1,000.00µL
EQ2200500-03	1,000.00µL	K2211844-004	1,000.00µL								

Name: 1613B Matrix Working Standard Inventory ID 225864 Logbook Ref: NB 11/03/2022 Expires On: 05/02/2023

EQ2200500-02	100.00µL	EQ2200500-02	100.00µL	EQ2200500-03	100.00µL	EQ2200500-03	100.00µL

Preparation Materials

Carbon, High Purity	tw 08/15/22 (224550)	Ethyl Acetate 99.9% Minimum EtOAc	Ethyl Acetate 6/30/22 (223782)	Glass Wool	TW 5/20/22 (225628)
Hexanes 95%	NB 11/03/2022 Hexane #10299537 (225859)	Chlorine Test Strips	chlorine test strips (206954)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	tw 10/04/22 (225325)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	SN 5/18/22 (223143)	Tridecane (n-Tridecane)	tw 08/15/22 (224552)	pH Paper 0-14	(1008)
Silica Gel	tw 10/17/22 (225501)	Toluene 99.9% Minimum	tw 10/03/22 (225319)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	11/1/22 15:36	Started:	11/1/22 15:36	Started:	11/3/22 09:00	Started:	11/4/22 09:00
Finished:	11/1/22 20:00	Finished:	11/1/22 20:00	Finished:	11/3/22 13:08	Finished:	11/4/22 15:00
By:	NBIDJONGO	By:	NBIDJONGO	By:	NBIDJONGO	By:	NBIDJONGO
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: TW Date: 11/01/22

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

ALS Environmental

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	10/05/22 00:00
Sample Matrix:	Water	**Date Received:**	10/11/22 14:12
Sample Name:	September 2022 F039 Analytical	**Units:**	pg/L
Lab Code:	E2200985-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 14:22
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	239mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539857	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	16.8	20.9			1
1,2,3,7,8-PeCDD	ND	U	7.59	105			1
1,2,3,4,7,8-HxCDD	23.7**JK**		1.31	105	0.53	1.001	1
1,2,3,6,7,8-HxCDD	13.1**BJK**		1.13	105	1.98	1.000	1
1,2,3,7,8,9-HxCDD	9.57**J**		1.22	105	1.41	1.006	1
1,2,3,4,6,7,8-HpCDD	79.2**JK**		16.3	105	0.78	1.000	1
OCDD	583		34.7	209	0.90	1.000	1
2,3,7,8-TCDF	ND	U	13.2	20.9			1
1,2,3,7,8-PeCDF	236		30.0	105	1.37	1.000	1
2,3,4,7,8-PeCDF	179		29.0	105	1.37	1.001	1
1,2,3,4,7,8-HxCDF	1450		7.47	105	1.14	1.000	1
1,2,3,6,7,8-HxCDF	597		8.23	105	1.13	1.000	1
1,2,3,7,8,9-HxCDF	53.4**JK**		9.92	105	1.48	1.001	1
2,3,4,6,7,8-HxCDF	165		6.77	105	1.28	1.000	1
1,2,3,4,6,7,8-HpCDF	9010		19.5	105	0.97	1.000	1
1,2,3,4,7,8,9-HpCDF	156**K**		22.4	105	0.68	1.000	1
OCDF	10400		10.8	209	0.81	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	10/05/22 00:00
Sample Matrix:	Water	**Date Received:**	10/11/22 14:12
Sample Name:	September 2022 F039 Analytical	**Units:**	pg/L
Lab Code:	E2200985-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 14:22
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	239mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539857	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	16.8	20.9			1
Total Penta-Dioxins	9.13J		7.59	105	1.34		1
Total Hexa-Dioxins	69.9J		1.21	105	1.06		1
Total Hepta-Dioxins	ND	U	16.3	105			1
Total Tetra-Furans	989		13.2	20.9	0.85		1
Total Penta-Furans	2450		2.62	105	1.43		1
Total Hexa-Furans	4660		7.98	105	1.10		1
Total Hepta-Furans	9940		20.9	105	0.97		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	10/05/22 00:00
Sample Matrix:	Water	**Date Received:**	10/11/22 14:12
Sample Name:	September 2022 F039 Analytical	**Units:**	Percent
Lab Code:	E2200985-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 14:22
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	239mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539857	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	360.472	18	Y	25-164	0.78	1.023
13C-1,2,3,7,8-PeCDD	2000	480.813	24	Y	25-181	1.62	1.204
13C-1,2,3,4,7,8-HxCDD	2000	413.562	21	Y	32-141	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	481.877	24	Y	28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	429.573	21	Y	23-140	1.09	1.067
13C-OCDD	4000	617.178	15	Y	17-157	0.89	1.139
13C-2,3,7,8-TCDF	2000	272.825	14	Y	24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	425.549	21	Y	24-185	1.59	1.158
13C-2,3,4,7,8-PeCDF	2000	429.981	21		21-178	1.61	1.193
13C-1,2,3,4,7,8-HxCDF	2000	443.444	22	Y	26-152	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	408.278	20	Y	26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	426.089	21	Y	29-147	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	506.225	25	Y	28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	361.770	18	Y	28-143	0.42	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	406.823	20	Y	26-138	0.41	1.080
37Cl-2,3,7,8-TCDD	800	353.725	44		35-197	NA	1.025

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	10/05/22 00:00
Sample Matrix:	Water	**Date Received:**	10/11/22 14:12
Sample Name:	September 2022 F039 Analytical	**Units:**	pg/L
Lab Code:	E2200985-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 1613B
Prep Method: Method Sep Funnel/Jar

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD F	ND	16.8	20.9	1	1	
1,2,3,7,8-PeCDD	ND	7.59	105	1	1	
1,2,3,4,7,8-HxCDD **B**	**23.7**	1.31	105	1	0.1	2.37
1,2,3,6,7,8-HxCDD **B**	**13.1**	1.13	105	1	0.1	1.31
1,2,3,7,8,9-HxCDD **B**	**9.57**	1.22	105	1	0.1	0.957
1,2,3,4,6,7,8-HpCDD	**79.2**	16.3	105	1	0.01	0.792
OCDD **E**	**583**	34.7	209	1	0.0003	0.175
2,3,7,8-TCDF	ND	13.2	20.9	1	0.1	
1,2,3,7,8-PeCDF	**236**	30.0	105	1	0.03	7.08
2,3,4,7,8-PeCDF	**179**	29.0	105	1	0.3	53.7
1,2,3,4,7,8-HxCDF	**1450**	7.47	105	1	0.1	145
1,2,3,6,7,8-HxCDF	**597**	8.23	105	1	0.1	59.7
1,2,3,7,8,9-HxCDF	**53.4**	9.92	105	1	0.1	5.34
2,3,4,6,7,8-HxCDF	**165**	6.77	105	1	0.1	16.5
1,2,3,4,6,7,8-HpCDF	**9010**	19.5	105	1	0.01	90.1
1,2,3,4,7,8,9-HpCDF	**156**	22.4	105	1	0.01	1.56
OCDF **D**	**10400**	10.8	209	1	0.0003	3.12
		Total TEQ				388

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ2200500-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 12:45
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539855	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.74	5.00			1
1,2,3,7,8-PeCDD	1.68**JK**		1.07	25.0	2.21	1.000	1
1,2,3,4,7,8-HxCDD	1.40**JK**		0.0570	25.0	0.82	1.000	1
1,2,3,6,7,8-HxCDD	1.50**J**		0.0530	25.0	1.10	1.000	1
1,2,3,7,8,9-HxCDD	0.834**JK**		0.0550	25.0	1.92	1.007	1
1,2,3,4,6,7,8-HpCDD	3.61**JK**		0.205	25.0	1.44	1.001	1
OCDD	8.48**JK**		3.05	50.0	0.58	1.000	1
2,3,7,8-TCDF	ND	U	1.98	5.00			1
1,2,3,7,8-PeCDF	1.80**JK**		0.669	25.0	0.90	1.000	1
2,3,4,7,8-PeCDF	1.08**JK**		0.689	25.0	0.86	1.001	1
1,2,3,4,7,8-HxCDF	0.850**JK**		0.0710	25.0	1.65	1.000	1
1,2,3,6,7,8-HxCDF	1.33**J**		0.0750	25.0	1.06	1.001	1
1,2,3,7,8,9-HxCDF	1.13**JK**		0.101	25.0	3.93	1.001	1
2,3,4,6,7,8-HxCDF	0.535**JK**		0.0640	25.0	4.53	1.000	1
1,2,3,4,6,7,8-HpCDF	2.07**J**		0.592	25.0	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	1.97**J**		0.765	25.0	0.97	1.000	1
OCDF	4.27**J**		2.55	50.0	0.93	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ2200500-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 12:45
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539855	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.74	5.00			1
Total Penta-Dioxins	2.74**J**		1.07	25.0	1.78		1
Total Hexa-Dioxins	2.73**J**		0.0550	25.0	1.36		1
Total Hepta-Dioxins	ND	U	0.205	25.0			1
Total Tetra-Furans	ND	U	1.98	5.00			1
Total Penta-Furans	ND	U	0.678	25.0			1
Total Hexa-Furans	1.33**J**		0.0760	25.0	1.06		1
Total Hepta-Furans	4.05**J**		0.671	25.0	1.09		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ2200500-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 12:45
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539855	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1251.509	63		25-164	0.80	1.024
13C-1,2,3,7,8-PeCDD	2000	1143.093	57		25-181	1.62	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1097.616	55		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1236.598	62		28-130	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1070.748	54		23-140	1.07	1.067
13C-OCDD	4000	1749.035	44		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	1047.623	52		24-169	0.78	0.992
13C-1,2,3,7,8-PeCDF	2000	1143.049	57		24-185	1.61	1.158
13C-2,3,4,7,8-PeCDF	2000	1075.202	54		21-178	1.63	1.193
13C-1,2,3,4,7,8-HxCDF	2000	1153.660	58		26-152	0.50	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1064.585	53		26-123	0.50	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1055.833	53		29-147	0.48	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1368.860	68		28-136	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	967.366	48		28-143	0.43	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	954.232	48		26-138	0.41	1.080
37Cl-2,3,7,8-TCDD	800	607.471	76		35-197	NA	1.025

Accuracy & Precision

ALS Environmental - Houston HRMS
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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Analyzed:**	11/08/22
Sample Matrix:	Water	**Date Extracted:**	11/01/22

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Units:**	pg/L
Prep Method:	Method Sep Funnel/Jar	**Basis:**	NA
		Analysis Lot:	784530

	Lab Control Sample EQ2200500-02			Duplicate Lab Control Sample EQ2200500-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,3,4,6,7,8-HpCDD	943	1000	94	923	1000	92	70-140	2	50
1,2,3,4,7,8-HxCDD	1030	1000	103	1050	1000	105	70-164	2	50
1,2,3,6,7,8-HxCDD	918	1000	92	898	1000	90	76-134	2	50
1,2,3,7,8,9-HxCDD	940	1000	94	969	1000	97	64-162	3	50
1,2,3,7,8-PeCDD	929	1000	93	955	1000	95	70-142	3	50
2,3,7,8-TCDD	163	200	82	157	200	78	67-158	4	50
OCDD	2030	2000	101	1990	2000	99	78-144	2	50
1,2,3,4,6,7,8-HpCDF	999	1000	100	980	1000	98	82-122	2	50
1,2,3,4,7,8,9-HpCDF	909	1000	91	895	1000	90	78-138	2	50
1,2,3,4,7,8-HxCDF	903	1000	90	905	1000	91	72-134	<1	50
1,2,3,6,7,8-HxCDF	1010	1000	101	985	1000	98	84-130	2	50
1,2,3,7,8,9-HxCDF	922	1000	92	958	1000	96	78-130	4	50
1,2,3,7,8-PeCDF	922	1000	92	935	1000	93	80-134	1	50
2,3,4,6,7,8-HxCDF	819	1000	82	816	1000	82	70-156	<1	50
2,3,4,7,8-PeCDF	998	1000	100	1010	1000	101	68-160	2	50
2,3,7,8-TCDF	194	200	97	190	200	95	75-158	2	50
OCDF	2100	2000	105	2030	2000	101	63-170	3	50

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ2200500-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 19:12
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539863	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	163		1.33	5.00	0.77	1.001	1
1,2,3,7,8-PeCDD	929		2.26	25.0	1.58	1.000	1
1,2,3,4,7,8-HxCDD	1030		0.944	25.0	1.28	1.000	1
1,2,3,6,7,8-HxCDD	918		0.853	25.0	1.26	1.000	1
1,2,3,7,8,9-HxCDD	940		0.897	25.0	1.20	1.007	1
1,2,3,4,6,7,8-HpCDD	943		0.750	25.0	1.06	1.000	1
OCDD	2030		7.73	50.0	0.86	1.000	1
2,3,7,8-TCDF	194		1.48	5.00	0.75	1.001	1
1,2,3,7,8-PeCDF	922		1.29	25.0	1.53	1.001	1
2,3,4,7,8-PeCDF	998		1.33	25.0	1.49	1.001	1
1,2,3,4,7,8-HxCDF	903		0.697	25.0	1.17	1.000	1
1,2,3,6,7,8-HxCDF	1010		0.761	25.0	1.19	1.000	1
1,2,3,7,8,9-HxCDF	922		0.966	25.0	1.18	1.000	1
2,3,4,6,7,8-HxCDF	819		0.669	25.0	1.18	1.000	1
1,2,3,4,6,7,8-HpCDF	999		1.92	25.0	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	909		2.35	25.0	0.98	1.000	1
OCDF	2100		6.84	50.0	0.87	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ2200500-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 19:12
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539863	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	165		1.33	5.00	0.77		1
Total Penta-Dioxins	929		2.26	25.0	1.58		1
Total Hexa-Dioxins	2890		0.896	25.0	1.28		1
Total Hepta-Dioxins	949		0.750	25.0	1.06		1
Total Tetra-Furans	194		1.48	5.00	0.75		1
Total Penta-Furans	1920		1.31	25.0	1.52		1
Total Hexa-Furans	3650		0.760	25.0	1.17		1
Total Hepta-Furans	1920		2.12	25.0	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ2200500-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 19:12
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539863	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1227.783	61		25-164	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	1197.186	60		25-181	1.60	1.204
13C-1,2,3,4,7,8-HxCDD	2000	1190.752	60		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1305.759	65		28-130	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1203.925	60		23-140	1.06	1.067
13C-OCDD	4000	1960.869	49		17-157	0.90	1.139
13C-2,3,7,8-TCDF	2000	1005.422	50		24-169	0.80	0.992
13C-1,2,3,7,8-PeCDF	2000	1149.531	57		24-185	1.58	1.158
13C-2,3,4,7,8-PeCDF	2000	1082.380	54		21-178	1.61	1.193
13C-1,2,3,4,7,8-HxCDF	2000	1221.911	61		26-152	0.49	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1078.327	54		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1114.608	56		29-147	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1375.414	69		28-136	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1049.427	52		28-143	0.43	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	1075.853	54		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	573.054	72		35-197	NA	1.025

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ2200500-03	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 20:00
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539864	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	157		1.14	5.00	0.76	1.001	1
1,2,3,7,8-PeCDD	955		1.56	25.0	1.60	1.001	1
1,2,3,4,7,8-HxCDD	1050		0.394	25.0	1.29	1.000	1
1,2,3,6,7,8-HxCDD	898		0.345	25.0	1.22	1.000	1
1,2,3,7,8,9-HxCDD	969		0.368	25.0	1.26	1.007	1
1,2,3,4,6,7,8-HpCDD	923		0.897	25.0	1.04	1.000	1
OCDD	1990		7.08	50.0	0.87	1.000	1
2,3,7,8-TCDF	190		0.993	5.00	0.74	1.001	1
1,2,3,7,8-PeCDF	935		1.22	25.0	1.48	1.000	1
2,3,4,7,8-PeCDF	1010		1.28	25.0	1.55	1.001	1
1,2,3,4,7,8-HxCDF	905		0.326	25.0	1.17	1.000	1
1,2,3,6,7,8-HxCDF	985		0.351	25.0	1.16	1.000	1
1,2,3,7,8,9-HxCDF	958		0.430	25.0	1.18	1.000	1
2,3,4,6,7,8-HxCDF	816		0.293	25.0	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	980		2.37	25.0	0.98	1.000	1
1,2,3,4,7,8,9-HpCDF	895		2.98	25.0	1.03	1.000	1
OCDF	2030		2.19	50.0	0.90	1.005	1

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Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ2200500-03	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	1613B	**Date Analyzed:**	11/08/22 20:00
Prep Method:	Method Sep Funnel/Jar	**Date Extracted:**	11/1/22
Sample Amount:	1000.0mL	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P539864	**Blank File Name:**	P539855
ICAL Date:	01/18/22	**Cal Ver. File Name:**	P539851

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	157		1.14	5.00	0.76		1
Total Penta-Dioxins	955		1.56	25.0	1.60		1
Total Hexa-Dioxins	2920		0.368	25.0	1.29		1
Total Hepta-Dioxins	923		0.897	25.0	1.04		1
Total Tetra-Furans	191		0.993	5.00	0.85		1
Total Penta-Furans	1950		1.25	25.0	1.51		1
Total Hexa-Furans	3660		0.345	25.0	1.17		1
Total Hepta-Furans	1880		2.66	25.0	0.98		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - Holland (MI)	**Service Request:**	E2200985
Project:	22100626	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ2200500-03	**Basis:**	NA

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Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1107.436	55		25-164	0.79	1.024
13C-1,2,3,7,8-PeCDD	2000	1039.181	52		25-181	1.63	1.204
13C-1,2,3,4,7,8-HxCDD	2000	942.462	47		32-141	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1100.387	55		28-130	1.23	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1013.521	51		23-140	1.05	1.068
13C-OCDD	4000	1663.216	42		17-157	0.88	1.139
13C-2,3,7,8-TCDF	2000	906.288	45		24-169	0.77	0.992
13C-1,2,3,7,8-PeCDF	2000	1013.134	51		24-185	1.59	1.158
13C-2,3,4,7,8-PeCDF	2000	946.105	47		21-178	1.57	1.193
13C-1,2,3,4,7,8-HxCDF	2000	1011.915	51		26-152	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	890.154	45		26-123	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	950.821	48		29-147	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1134.650	57		28-136	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	877.950	44		28-143	0.42	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	904.489	45		26-138	0.43	1.080
37Cl-2,3,7,8-TCDD	800	486.232	61		35-197	NA	1.025