AUGUST 6, 2024

GROUNDWATER QUALITY TESTING REPORT

For

GEORGIA – PACIFIC GYPSUM

Fort Dodge, Iowa

NORTH RECYCLE PILE

PPERMIT #94-SDP-18-09

MER ENGINEERING, INC.
CONSULTING ENGINEERS

- Civil Engineers
- Environmental Engineers
- Land Surveyors
- Agricultural Engineers
- Geotechnical Engineers
- Architectural Engineers

MER #9510

MER ENGINEERING, INC.

109 Regency West Court
Fort Dodge, Iowa 50501
Phone (515)955-3635
Fax (515)955-3788

October 7, 2024

Mr. Brian Rath, P.E.
Iowa Department of Natural Resources
Solid Waste Section
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319-0034

Ms. Olivia Jackson
Georgia-Pacific Gypsum LLC
2374 Mill Road
Fort Dodge, IA 50501

RE: Georgia-Pacific Gypsum North Recycle Pile; April 2023 Groundwater Testing
Permit #94-SDP-18-09; MER #9510

Dear Mr. Rath / Ms. Jackson:

Enclosed is a report detailing the August 6, 2024 groundwater testing completed at the Georgia-Pacific Gypsum North Recycle Pile. There were no detects that exceed GWPS during this August 6, 2024 testing event. Please note that Georgia-Pacific has proposed to complete another round of groundwater testing in November 2024.

Please call if you have any questions or if additional information is needed.

Respectfully submitted on behalf of Georgia-Pacific Gypsum,

Dave Minikis

Dave Minikis, Sr. Eng. Tech.

Cc: IDNR Field Office 2

AUGUST 6, 2024 GROUNDWATER TESTING REPORT

For

GEORGIA – PACIFIC GYPSUM NORTH RECYCLE PILE

Fort Dodge, Iowa

PERMIT #94-SDP-18-09

MER #9510

Georgia-Pacific Gypsum North Recycle Pile

August 6, 2024 Groundwater Testing

Permit #94-SDP-18-09

Per MER Engineering correspondence dated October 12, 2022, Georgia-Pacific Gypsum proposed to make changes to the current groundwater testing at this site. This proposal would eliminate the testing for the indicator parameters listed in Table 3-2 from the HMSP and Closure / Post Closure Authorization. The proposed change in groundwater testing would include testing for the Table 3-1 parameters; total arsenic, total barium, total cadmium, total chromium, total lead, total mercury, and total zinc, as well as field tested parameters temperature, pH, and specific conductance. These metal parameters have US EPA and Iowa Statewide Groundwater Standards to adhere to. The Department approved the proposed changes per DNR correspondence dated October 18, 2022. Georgia-Pacific Gypsum completed a first round of sampling for this new list of parameters in November 2022. Four of five monitoring locations were successfully sampled and tested during the November 2022 event. Monitoring well MW4 could not be sampled as there was insufficient groundwater available at that time. A second round of this testing was proposed to be completed in March 2023. That groundwater testing was dismissed as MW4 did not contain adequate groundwater to complete the sampling. Groundwater was successfully sampled/tested at all monitoring locations in April 2023 and July 2023. The Department then suspended groundwater testing for the remainder of 2023. In December 2023, the Department reinstated groundwater testing for calendar year 2024. A first round of 2024 groundwater testing was completed on May 1, 2024 and a second round completed on August 6, 2024.

In mid-July 2024, groundwater levels were checked to see if groundwater had recovered to a point where sampling / testing could be completed. Georgia-Pacific Gypsum completed another round of groundwater sampling / testing on August 6, 2024 at all monitoring locations at the North Recycle Pile. One monitoring location, MW1, had low levels of Arsenic (4.97 µg/L) detected. All monitoring locations had barium detected at low levels. Two monitoring locations, MW1 (55.4 µg/L) and MW2 (87.3 µg/L) had low levels of zinc detected. There were no other detects for any of the other remaining parameters during this May 2024 testing event. The table below displays the parameter detects for the 1st (November 2022), 2nd (April 2023), 3rd (July 2023), 4th (May 2024), and 5th (August 2024) rounds of testing for the new list of parameters. As can be seen, all detects are low level with none exceeding any known US EPA or Iowa Statewide Groundwater Standards.

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C						
Arsenic - SS (10 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
11/21/2022	(µg/L)	**2.22**	**2.1**	<2.00		<2.00
4/27/2023	(µg/L)	<2.00	<2.00	<2.00	<2.00	<2.00
7/20/2023	(µg/L)	<2.00	**2.5**	<2.00	<2.00	<2.00
5/1/2024	(µg/L)	<2.00	<2.00	<2.00	<2.00	<2.00
8/6/2024	(µg/L)	**4.97**	<2.00	<2.00	<2.00	<2.00
BARIUM - SS (2000 µg/L)						
11/21/2022	(µg/L)	**11.0**	**13.1**	**16.3**		**11.6**
4/27/2023	(µg/L)	**9.1**	**11.4**	**12.9**	**9.6**	**9.22**
7/20/2023	(µg/L)	**9.52**	**11.5**	**15.6**	**9.2**	**10.3**
5/1/2024	(µg/L)	**10.1**	**11.0**	**13.7**	**9.18**	**8.17**
8/6/2024	(µg/L)	**10.5**	**11.7**	**12.1**	**9.32**	**9.94**
CADMIUM - SS (5.0 µg/L)						
11/21/2022	(µg/L)	<0.100	<0.100	**0.255**		<0.100
4/27/2023	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
7/20/2023	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
5/1/2024	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
8/6/2024	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
ZINC - SS (2000 µg/L)						
11/21/2022	(µg/L)	**23.3**	**69.8**	<20.00		<20.00
4/27/2023	(µg/L)	<20.00	**64.2**	<20.00	<20.00	<20.00
7/20/2023	(µg/L)	<20.00	**59.8**	<20.00	<20.00	<20.00
5/1/2024	(µg/L)	<20.00	**85.9**	<20.00	<20.00	<20.00
8/6/2024	(µg/L)	**24.2**	**87.3**	<20.00	<20.00	<20.00

SS is the Iowa Statewide Standard (GWPS) for that parameter

Bold font (**2.22**) with gray back shading indicates a detect.

Monitoring well MW2 has some history with arsenic detects (3) that did exceed GWPS when utilizing dissolved analysis. These arsenic detects were reported to the Department during the first three quarters of calendar year 2013 groundwater testing at this site. The fourth quarter 2013 arsenic result returned from dissolved analysis as no detect.

Lower Confidence (LCL) and Upper Confidence (UCL) Limits were examined for groundwater parameters arsenic, barium, and zinc that have been detected in monitoring wells MW1 and MW2. The LCL and UCL calculations are displayed in the tables below.

Georgia-Pacific North Recycle Pile

MW1	Arsenic (ug/L)	
Nov-22	2.22	
Apr-23	2.0	
Jul-23	2.0	
May-24	2.0	
Aug-24	4.97	
Nov-24	2.64	Guesses for future levels of
Mar-25	2.64	arsenic using the average of
Jun-25	2.64	the previous 5 events
Mean	2.64	
Standard Deviation	0.99	
Confidence Level	0.01	
number of samples	8	
Table 16-1 Unified Guidance	2.998	for 7 degrees of freedom
Lower Confidence Limit	1.59	Which is less than the GWPS of 10 µg/L for Arsenic
Upper Confidence Limit	3.69	Which is less than the GWPS of 10 µg/L for Arsenic

Georgia-Pacific North Recycle Pile

MW1	Barium (ug/L)	
Nov-22	11.0	
Apr-23	9.1	
Jul-23	9.52	
May-24	10.1	
Aug-24	10.5	
Nov-24	10.04	Guesses for future levels of
Mar-25	10.04	barium using the average of
Jun-25	10.04	the previous 5 events
Mean	10.04	
Standard Deviation	0.57	
Confidence Level	0.01	
number of samples	8	
Table 16-1 Unified Guidance	2.998	for 7 degrees of freedom
Lower Confidence Limit	9.44	Which is less than the GWPS of 2000 µg/L for Barium
Upper Confidence Limit	10.65	Which is less than the GWPS of 2000 µg/L for Barium

Georgia-Pacific North Recycle Pile

MW1	Zinc (ug/L)	
Nov-22	23.3	
Apr-23	20.0	
Jul-23	20.0	
May-24	20.0	
Aug-24	24.2	
Nov-24	21.50	Guesses for future levels of
Mar-25	21.50	zinc using the average of the
Jun-25	21.50	previous 5 events
Mean	21.50	
Standard Deviation	1.57	
Confidence Level	0.01	
number of samples	8	
Table 16-1 Unified Guidance	2.998	for 7 degrees of freedom
Lower Confidence Limit	19.83	Which is less than the GWPS of 2000 µg/L for Zinc
Upper Confidence Limit	23.17	Which is less than the GWPS of 2000 µg/L for Zinc

Georgia-Pacific North Recycle Pile

MW2	Arsenic (ug/L)	
Nov-22	2.1	
Apr-23	2.0	
Jul-23	2.5	
May-24	2.0	
Aug-24	2.0	
Nov-24	2.12	Guesses for future levels of
Mar-25	2.12	arsenic using the average of
Jun-25	2.12	the previous 5 events
Mean	2.12	
Standard Deviation	0.16	
Confidence Level	0.01	
number of samples	8	
Table 16-1 Unified Guidance	2.998	for 7 degrees of freedom
Lower Confidence Limit	1.95	Which is less than the GWPS of 10 µg/L for Arsenic
Upper Confidence Limit	2.29	Which is less than the GWPS of 10 µg/L for Arsenic

Georgia-Pacific North Recycle Pile

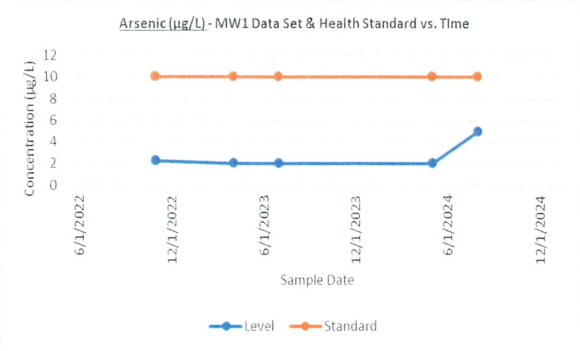
MW2	Barium (ug/L)	
Nov-22	13.1	
Apr-23	11.4	
Jul-23	11.5	
May-24	11.0	
Aug-24	11.7	
Nov-24	11.74	Guesses for future levels of
Mar-25	11.74	barium using the average of
Jun-25	11.74	the previous 5 events
Mean	11.74	
Standard Deviation	0.61	
Confidence Level	0.01	
number of samples	8	
Table 16-1 Unified Guidance	2.998	for 7 degrees of freedom
Lower Confidence Limit	11.10	Which is less than the GWPS of 2000 µg/L for Barium
Upper Confidence Limit	12.38	Which is less than the GWPS of 2000 µg/L for Barium

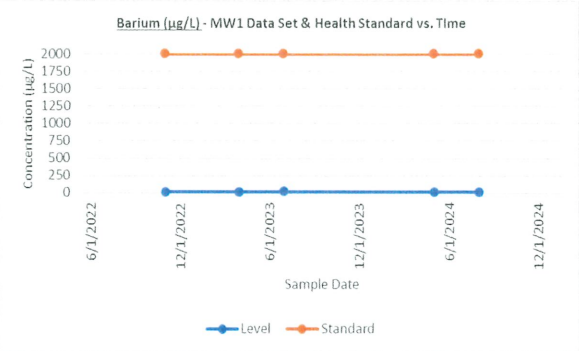
Georgia-Pacific North Recycle Pile

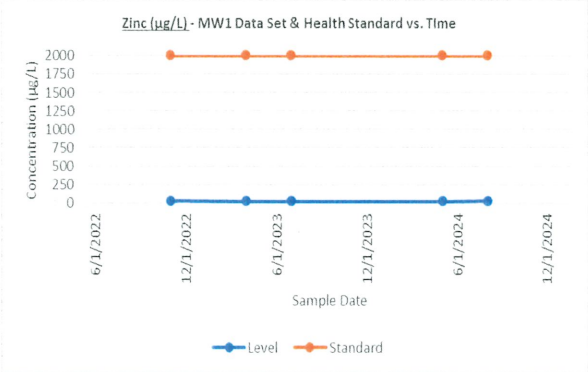
MW2	Zinc (ug/L)	
Nov-22	69.8	
Apr-23	64.2	
Jul-23	59.8	
May-24	85.9	
Aug-24	87.3	
Nov-24	73.40	Guesses for future levels of
Mar-25	73.40	zinc using the average of the
Jun-25	73.40	previous 5 events
Mean	73.40	
Standard Deviation	9.50	
Confidence Level	0.01	
number of samples	8	
Table 16-1 Unified Guidance	2.998	for 7 degrees of freedom
Lower Confidence Limit	63.33	Which is less than the GWPS of 2000 µg/L for Zinc
Upper Confidence Limit	83.47	Which is less than the GWPS of 2000 µg/L for Zinc

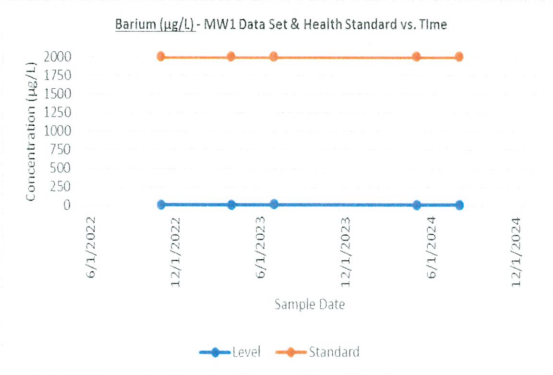
As can be seen, all LCL and UCL calculations are well below the GWPS for arsenic, barium, and zinc in MW1 and MW2. As stated previously, monitoring well MW2 has had some arsenic levels detected by dissolved analysis which did exceed GWPS in calendar year 2013. Since that 2013 testing, there have been 2 - arsenic detects utilizing total analysis, both well below the GWPS of 10.0µg/L. MW2 had no arsenic detected during latest testing event. MW1 did have arsenic detected during this August 2024 testing event. The MW1 arsenic detected during this August 2024 testing event did not exceed GWPS. There have been no other parameter detects that have exceeded a GWPS at any of the other monitoring locations at this closed unit.

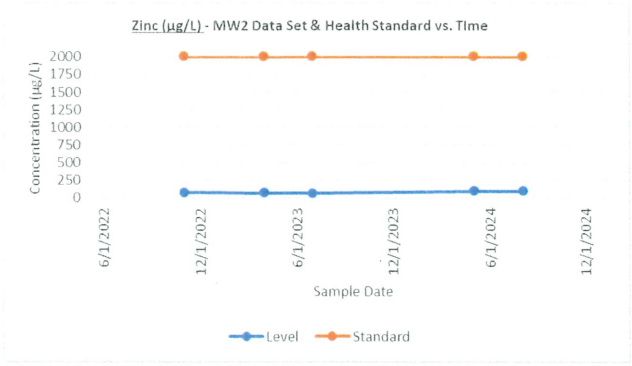
Please note below and on the next page, Health Standards have been plotted using the test data from the last five (5) groundwater testing events utilizing Total Analysis for MW1 and MW2. The Health Standards include the detect levels for arsenic, barium, and zinc compared to their respective Groundwater Protection Standards.











The Health Standards graphs show that none of the groundwater detects for arsenic, barium, or zinc exceed the GWPS at monitoring locations MW1 or MW2. All detects are low level with none exceeding any known US EPA or Iowa Statewide Groundwater Standards.

Olivia Jackson (Georgia-Pacific) and MER Engineering discussed these latest groundwater testing results and when the next sampling / testing event should be completed at the North Recycle Pile. Per this conversation, Georgia-Pacific Gypsum proposes to complete a 6th round of this groundwater testing in November 2024 if groundwater is available. The Department should advise Georgia-Pacific if they have a different schedule in mind for groundwater testing for this site.

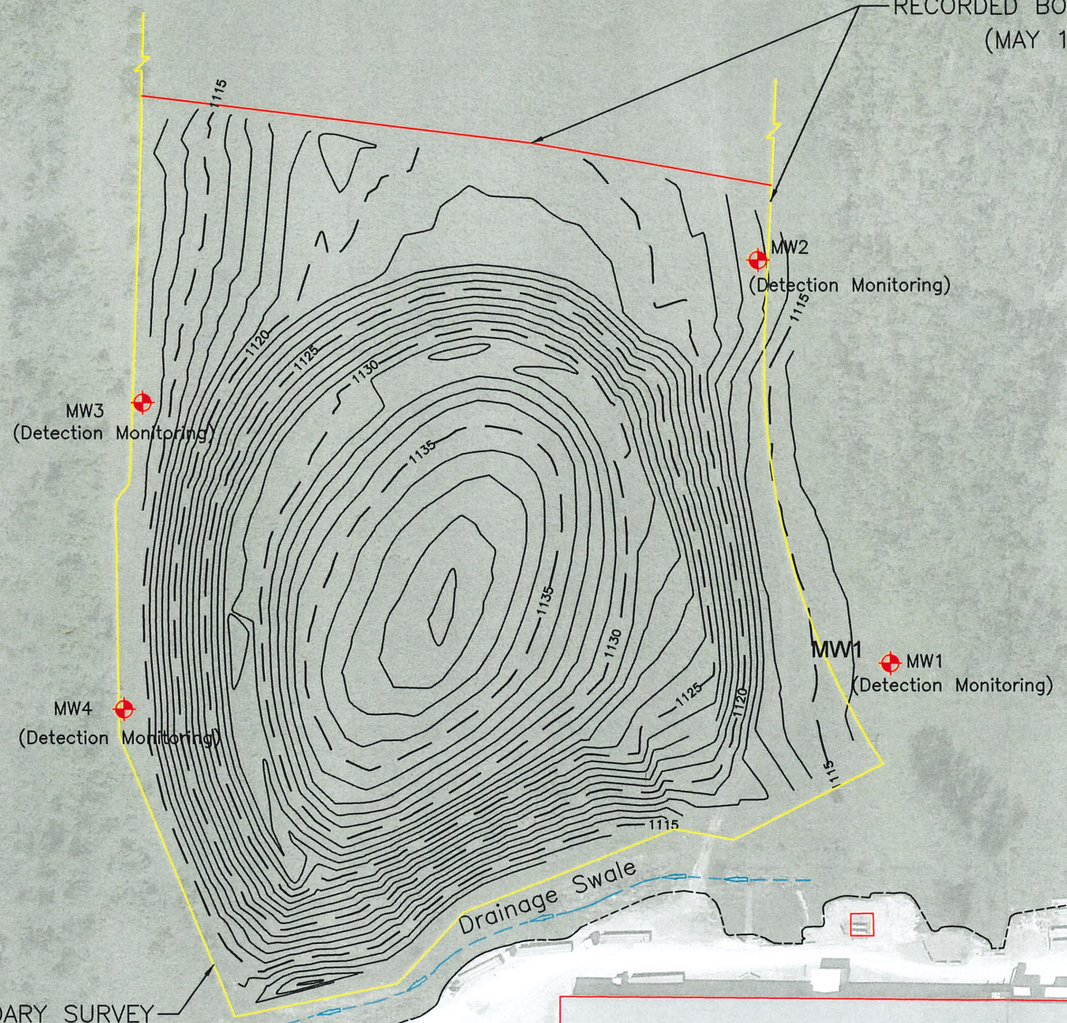
In the spring of calendar year 2024, Georgia-Pacific Gypsum completed a boundary survey for the 2 waste board landfill sites located to the north of their manufacturing facility. These waste board landfills are identified as, the **Georgia-Pacific North Recycle Pile (Permit #94-SDP-18-0)** and the **Georgia-Pacific Waste Disposal Site (Permit #94-SDP-09-91X)**. A recorded copy of this plat of survey has been included for Department records.

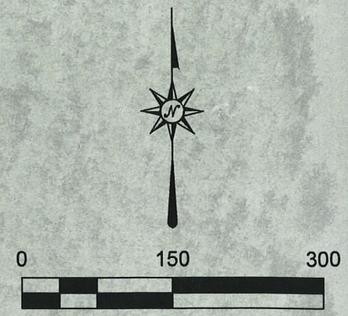
Enclosed are copies of the site plat, data tables summarizing the parameters tested to date for each of the five monitoring locations, analytical results, field data measurement data forms (542-1322), and the recorded plat of survey.

Site Plat

(August 2024)

GEORGIA-PACIFIC GYPSUM NORTH RECYCLE PILE
IDNR PERMIT #94-SDP-18-09





LEGEND

MONITORING WELL LOCATION	MW3
INDEX CONTOUR	1125
INTERMEDIATE CONTOUR	

MW1
NORTHING = 8578915.95
EASTING = 14686466.90
TOP PVC Z = 1115.68
GROUND Z = 1113.11

MW2
NORTHING = 8579313.46
EASTING = 14686336.13
TOP PVC Z = 1120.60
GROUND Z = 1117.44

MW3
NORTHING = 8579173.75
EASTING = 14685723.08
TOP PVC Z = 1115.51
GROUND Z = 1113.04

MW4
NORTHING = 8578870.72
EASTING = 14685704.14
TOP PVC Z = 1116.36
GROUND Z = 1113.72

MW5
NORTHING = 8578526.69
EASTING = 14685890.63
TOP PVC Z = 1117.37
GROUND Z = 1113.79

N 00° 04' 45" W 2642.84'

CENTER SECTION
SEC. 34-83-82
IRON PIN
N = 8581167.22
E = 14687427.22
Z = 1115.37

NORTH WAREHOUSE
BOARD WAREHOUSE
BOARD PLANT
JOINT SYSTEM WAREHOUSE
FORMER JOINT SYSTEM

NORTH RECYCLE PILE TOPOGRAPHIC SURVEY
FINAL CONTOURS SURVEYED FEBRUARY 25, 2022
IOWA REGIONAL COORDINATE SYSTEM: ZONE 4
NORTH AMERICAN DATUM 1983 (NAD 83) (2011) EPOCH 2010.00
CONTOUR INTERVAL = 1 FOOT

S1/4 CORNER
SEC 34-89-28
5/8" REROD
N = 8578524.38
E = 14687431.23
Z = 1112.81

GEORGIA-PACIFIC GYPSUM NORTH RECYCLE PILE - SITE PLAT

DATE 03/01/2022
MER NO. 9510

MER ENGINEERING, INC.
ENGINEERING, ARCHITECTURE AND SURVEYING
109 REGENCY WEST COURT
FORT DODGE, IOWA
(515) 955-3635

Groundwater Data Tables with Detects Noted in Bold Font

(August 2024)

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C ARSENIC - SS (10 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
2/6/2013	(µg/L)	<1.0	**23.6**	<1.0	<1.0	<1.0
5/21/2013	(µg/L)	<2.0	**22.8**	<2.0	<2.0	<2.0
8/14/2013	(µg/L)	<1.0	**19.2**	<1.0	<1.0	<1.0
11/7/2013	(µg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
11/21/2022 (*)	(µg/L)	**2.22**	**2.10**	<2.00		<2.00
4/27/2023	(µg/L)	<2.00	<2.00	<2.00	<2.00	<2.00
7/20/2023	(µg/L)	<2.00	**2.50**	<2.00	<2.00	<2.00
5/1/2024	(µg/L)	<2.00	<2.00	<2.00	<2.00	<2.00
8/6/2024	(µg/L)	**4.97**	<2.00	<2.00	<2.00	<2.00

Value in Bold Font indicates a detect.
MCL = USEPA Maximum Contaminant Level
SDWS = Secondary Drinking Water Standard
SS = Iowa State Standard
11/21/2022 (*) Indicates first time in which Total Metals Analysis was completed.

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C BARIUM - SS (2000 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
2/6/2013	(µg/L)	112	64.5	150	108	106
5/21/2013	(µg/L)	35.8	24.8	17.3	22.7	22.3
8/14/2013	(µg/L)	28.9	31.5	28.5	32.7	36.7
11/7/2013	(µg/L)	18.8	15.1	27.6	19.5	19.3
11/21/2022 (*)	(µg/L)	**11.0**	**13.1**	**16.3**		**11.6**
4/27/2023	(µg/L)	**9.1**	**11.4**	**12.9**	**9.6**	**9.22**
7/20/2023	(µg/L)	**9.52**	**11.5**	**15.6**	**9.2**	**20.9**
5/1/2024	(µg/L)	**10.1**	**11.0**	**13.7**	**9.18**	**8.17**
8/6/2024	(µg/L)	**10.5**	**11.7**	**12.1**	**9.31**	**9.94**

Value in Bold Font indicates a detect.
MCL = USEPA Maximum Contaminant Level
SDWS = Secondary Drinking Water Standard
SS = Iowa State Standard
11/21/2022 (*) Indicates first time in which Total Metals Analysis was completed.

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C CADMIUM - SS (5.0 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
2/6/2013	(µg/L)	<0.5	<0.5	<0.5	<0.5	<0.5
5/21/2013	(µg/L)	<0.5	<0.5	<0.5	<0.5	<0.5
8/14/2013	(µg/L)	<0.5	<0.5	<0.5	<0.5	<0.5
11/7/2013	(µg/L)	<0.5	<0.5	<0.5	<0.5	<0.5
11/21/2022 (*)	(µg/L)	<0.100	<0.100	**0.255**		<0.100
4/27/2023	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
7/20/2023	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
5/1/2024	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
8/6/2024	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200

Value in Bold Font indicates a detect.
MCL = USEPA Maximum Contaminant Level
SDWS = Secondary Drinking Water Standard
SS = Iowa State Standard
11/21/2022 (*) Indicates first time in which Total Metals Analysis was completed.

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C CHROMIUM - SS (100 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
2/6/2013	(µg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
5/21/2013	(µg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
8/14/2013	(µg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
11/7/2013	(µg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
11/21/2022 (*)	(µg/L)	<5.0	<5.0	<5.0		<5.0
4/27/2023	(µg/L)	<5.0	<5.0	<5.0	<5.0	<5.0
7/20/2023	(µg/L)	<5.0	<5.0	<5.0	<5.0	<5.0
5/1/2024	(µg/L)	<5.0	<5.0	<5.0	<5.0	<5.0
8/6/2024	(µg/L)	<5.0	<5.0	<5.0	<5.0	<5.0

Value in Bold Font indicates a detect.
MCL = USEPA Maximum Contaminant Level
SDWS = Secondary Drinking Water Standard
SS = Iowa State Standard
11/21/2022 (*) Indicates first time in which Total Metals Analysis was completed.

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C LEAD - SS (15 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
2/6/2013	(µg/L)	<4.0	<4.0	<4.0	<4.0	<4.0
5/21/2013	(µg/L)	<4.0	<4.0	<4.0	<4.0	<4.0
8/14/2013	(µg/L)	<4.0	<4.0	<4.0	<4.0	<4.0
11/7/2013	(µg/L)	<4.0	<4.0	<4.0	<4.0	<4.0
11/21/2022 (*)	(µg/L)	<0.500	<0.500	<0.500		<0.500
4/27/2023	(µg/L)	<0.500	<0.500	<0.500	<0.500	<0.500
7/20/2023	(µg/L)	<0.500	<0.500	<0.500	<0.500	<0.500
5/1/2024	(µg/L)	<0.500	<0.500	<0.500	<0.500	<0.500
8/6/2024	(µg/L)	<0.500	<0.500	<0.500	<0.500	<0.500

Value in Bold Font indicates a detect.
MCL = USEPA Maximum Contaminant Level
SDWS = Secondary Drinking Water Standard
SS = Iowa State Standard
11/21/2022 (*) Indicates first time in which Total Metals Analysis was completed.

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C MERCURY - SS (2.0 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
2/6/2013	(µg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
5/21/2013	(µg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
8/14/2013	(µg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
11/7/2013	(µg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
11/21/2022 (*)	(µg/L)	<0.200	<0.200	<0.200		<0.200
4/27/2023	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
7/20/2023	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
5/1/2024	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200
8/6/2024	(µg/L)	<0.200	<0.200	<0.200	<0.200	<0.200

Value in Bold Font indicates a detect.
MCL = USEPA Maximum Contaminant Level
SDWS = Secondary Drinking Water Standard
SS = Iowa State Standard
11/21/2022 (*) Indicates first time in which Total Metals Analysis was completed.

GEORGIA-PACIFIC NORTH RECYCLE PILE - PERMIT #94-SDP-18-09C ZINC - SS (2000 µg/L)						
DATE		MW1	MW2	MW3	MW4	MW5
2/6/2013	(µg/L)	**163**	**254**	**194**	**174**	**152**
5/21/2013	(µg/L)	**54.5**	**164**	**56.5**	**63.7**	**55.1**
8/14/2013	(µg/L)	**110**	**172**	**91.9**	**116**	**109**
11/7/2013	(µg/L)	**155**	**231**	**122**	**166**	**175**
11/21/2022 (*)	(µg/L)	**23.3**	**69.8**	<20.00		<20.00
4/27/2023	(µg/L)	<20.00	**64.2**	<20.00	<20.00	<20.00
7/20/2023	(µg/L)	<20.00	**59.8**	<20.00	<20.00	<20.00
5/1/2024	(µg/L)	<20.00	**85.9**	<20.00	<20.00	<20.00
8/6/2024	(µg/L)	**24.2**	**87.3**	<20.00	<20.00	<20.00

Value in Bold Font indicates a detect.
MCL = USEPA Maximum Contaminant Level
SDWS = Secondary Drinking Water Standard
SS = Iowa State Standard
11/21/2022 (*) Indicates first time in which Total Metals Analysis was completed.

Eurofins Test America Laboratory Reports for Groundwater Testing

(August 6, 2024)

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Dave Minikis
MER Engineering Inc
109 Regency West Court
Fort Dodge, Iowa 50501

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JOB DESCRIPTION

Georgia Pacific MW Sampling

JOB NUMBER

310-287566-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

my EOL

Job Notes

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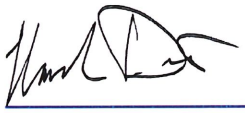

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Job Narrative
310-287566-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 8/7/2024 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.7°C.

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

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

Sample Summary

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-287566-1	MW5	Water	08/06/24 08:55	08/07/24 09:00
310-287566-2	MW3	Water	08/06/24 09:20	08/07/24 09:00
310-287566-3	MW4	Water	08/06/24 09:43	08/07/24 09:00
310-287566-4	MW1	Water	08/06/24 10:09	08/07/24 09:00
310-287566-5	MW2	Water	08/06/24 10:40	08/07/24 09:00

Detection Summary

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW5 — Lab Sample ID: 310-287566-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.00994		0.00200		mg/L	1		6020B	Total/NA
Total Suspended Solids	4.2		1.9		mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW3 — Lab Sample ID: 310-287566-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0121		0.00200		mg/L	1		6020B	Total/NA
Total Suspended Solids	19.8		1.9		mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW4 — Lab Sample ID: 310-287566-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.00931		0.00200		mg/L	1		6020B	Total/NA
Total Suspended Solids	2.5		1.9		mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW1 — Lab Sample ID: 310-287566-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00497		0.00200		mg/L	1		6020B	Total/NA
Barium	0.0105		0.00200		mg/L	1		6020B	Total/NA
Zinc	0.0242		0.0200		mg/L	1		6020B	Total/NA
Total Suspended Solids	55.4		3.0		mg/L	1		I-3765-85	Total/NA

Client Sample ID: MW2 — Lab Sample ID: 310-287566-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0117		0.00200		mg/L	1		6020B	Total/NA
Zinc	0.0873		0.0200		mg/L	1		6020B	Total/NA
Total Suspended Solids	13.9		1.9		mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW5

Date Collected: 08/06/24 08:55
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-1
Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		08/08/24 09:30	08/13/24 17:37	1
Barium	0.00994		0.00200		mg/L		08/08/24 09:30	08/13/24 17:37	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/13/24 17:37	1
Chromium	<0.00500		0.00500		mg/L		08/08/24 09:30	08/14/24 20:45	1
Lead	<0.000500		0.000500		mg/L		08/08/24 09:30	08/13/24 17:37	1
Zinc	<0.0200		0.0200		mg/L		08/08/24 09:30	08/13/24 17:37	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		08/16/24 15:47	08/19/24 14:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	4.2		1.9		mg/L			08/08/24 07:31	1

Client Sample Results

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW3

Date Collected: 08/06/24 09:20
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-2
Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		08/08/24 09:30	08/13/24 17:39	1
Barium	0.0121		0.00200		mg/L		08/08/24 09:30	08/13/24 17:39	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/13/24 17:39	1
Chromium	<0.00500		0.00500		mg/L		08/08/24 09:30	08/14/24 20:48	1
Lead	<0.000500		0.000500		mg/L		08/08/24 09:30	08/13/24 17:39	1
Zinc	<0.0200		0.0200		mg/L		08/08/24 09:30	08/13/24 17:39	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		08/16/24 15:47	08/19/24 14:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	19.8		1.9		mg/L			08/08/24 07:31	1

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW4
Date Collected: 08/06/24 09:43
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-3
Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		08/08/24 09:30	08/13/24 17:41	1
Barium	0.00931		0.00200		mg/L		08/08/24 09:30	08/13/24 17:41	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/13/24 17:41	1
Chromium	<0.00500		0.00500		mg/L		08/08/24 09:30	08/14/24 20:52	1
Lead	<0.000500		0.000500		mg/L		08/08/24 09:30	08/13/24 17:41	1
Zinc	<0.0200		0.0200		mg/L		08/08/24 09:30	08/13/24 17:41	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		08/16/24 15:47	08/19/24 14:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	2.5		1.9		mg/L			08/08/24 07:31	1

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW1
Date Collected: 08/06/24 10:09
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-4
Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00497		0.00200		mg/L		08/08/24 09:30	08/13/24 17:44	1
Barium	0.0105		0.00200		mg/L		08/08/24 09:30	08/13/24 17:44	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/13/24 17:44	1
Chromium	<0.00500		0.00500		mg/L		08/08/24 09:30	08/14/24 21:10	1
Lead	<0.000500		0.000500		mg/L		08/08/24 09:30	08/13/24 17:44	1
Zinc	0.0242		0.0200		mg/L		08/08/24 09:30	08/13/24 17:44	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		08/16/24 15:47	08/19/24 14:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	55.4		3.0		mg/L			08/08/24 07:31	1

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW2
Date Collected: 08/06/24 10:40
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-5
Matrix: Water

Method: SW846 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		08/08/24 09:30	08/13/24 17:46	1
Barium	0.0117		0.00200		mg/L		08/08/24 09:30	08/13/24 17:46	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/13/24 17:46	1
Chromium	<0.00500		0.00500		mg/L		08/08/24 09:30	08/14/24 21:14	1
Lead	<0.000500		0.000500		mg/L		08/08/24 09:30	08/13/24 17:46	1
Zinc	0.0873		0.0200		mg/L		08/08/24 09:30	08/13/24 17:46	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		08/16/24 15:47	08/19/24 14:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (USGS I-3765-85)	13.9		1.9		mg/L			08/08/24 07:31	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-429763/1-A
Matrix: Water
Analysis Batch: 430288

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		08/08/24 09:30	08/13/24 16:38	1
Barium	<0.00200		0.00200		mg/L		08/08/24 09:30	08/13/24 16:38	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/13/24 16:38	1
Lead	<0.000500		0.000500		mg/L		08/08/24 09:30	08/13/24 16:38	1
Zinc	<0.0200		0.0200		mg/L		08/08/24 09:30	08/13/24 16:38	1

Lab Sample ID: MB 310-429763/1-A
Matrix: Water
Analysis Batch: 430431

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	<0.00500		0.00500		mg/L		08/08/24 09:30	08/14/24 19:30	1

Lab Sample ID: LCS 310-429763/2-A
Matrix: Water
Analysis Batch: 430288

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429763

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2087		mg/L		104	80 - 120
Barium	0.100	0.09723		mg/L		97	80 - 120
Cadmium	0.100	0.09578		mg/L		96	80 - 120
Lead	0.200	0.2137		mg/L		107	80 - 120
Zinc	0.200	0.2062		mg/L		103	80 - 120

Lab Sample ID: LCS 310-429763/2-A
Matrix: Water
Analysis Batch: 430431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429763

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	0.100	0.1031		mg/L		103	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-430369/1-A
Matrix: Water
Analysis Batch: 430796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430369

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		08/16/24 15:47	08/19/24 14:06	1

Lab Sample ID: LCS 310-430369/2-A
Matrix: Water
Analysis Batch: 430796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430369

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00167	0.001705		mg/L		102	80 - 120

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Method: I-3765-85 - Residue, Non-filterable (TSS)

Lab Sample ID: MB 310-429742/1
Matrix: Water
Analysis Batch: 429742

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.0		5.0		mg/L			08/08/24 07:31	1

Lab Sample ID: LCS 310-429742/2
Matrix: Water
Analysis Batch: 429742

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	81 - 116

Metals

Prep Batch: 429763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287566-1	MW5	Total/NA	Water	3005A	
310-287566-2	MW3	Total/NA	Water	3005A	
310-287566-3	MW4	Total/NA	Water	3005A	
310-287566-4	MW1	Total/NA	Water	3005A	
310-287566-5	MW2	Total/NA	Water	3005A	
MB 310-429763/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-429763/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 430288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287566-1	MW5	Total/NA	Water	6020B	429763
310-287566-2	MW3	Total/NA	Water	6020B	429763
310-287566-3	MW4	Total/NA	Water	6020B	429763
310-287566-4	MW1	Total/NA	Water	6020B	429763
310-287566-5	MW2	Total/NA	Water	6020B	429763
MB 310-429763/1-A	Method Blank	Total/NA	Water	6020B	429763
LCS 310-429763/2-A	Lab Control Sample	Total/NA	Water	6020B	429763

Prep Batch: 430369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287566-1	MW5	Total/NA	Water	7470A	
310-287566-2	MW3	Total/NA	Water	7470A	
310-287566-3	MW4	Total/NA	Water	7470A	
310-287566-4	MW1	Total/NA	Water	7470A	
310-287566-5	MW2	Total/NA	Water	7470A	
MB 310-430369/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-430369/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 430431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287566-1	MW5	Total/NA	Water	6020B	429763
310-287566-2	MW3	Total/NA	Water	6020B	429763
310-287566-3	MW4	Total/NA	Water	6020B	429763
310-287566-4	MW1	Total/NA	Water	6020B	429763
310-287566-5	MW2	Total/NA	Water	6020B	429763
MB 310-429763/1-A	Method Blank	Total/NA	Water	6020B	429763
LCS 310-429763/2-A	Lab Control Sample	Total/NA	Water	6020B	429763

Analysis Batch: 430796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287566-1	MW5	Total/NA	Water	7470A	430369
310-287566-2	MW3	Total/NA	Water	7470A	430369
310-287566-3	MW4	Total/NA	Water	7470A	430369
310-287566-4	MW1	Total/NA	Water	7470A	430369
310-287566-5	MW2	Total/NA	Water	7470A	430369
MB 310-430369/1-A	Method Blank	Total/NA	Water	7470A	430369
LCS 310-430369/2-A	Lab Control Sample	Total/NA	Water	7470A	430369

General Chemistry

Analysis Batch: 429742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287566-1	MW5	Total/NA	Water	I-3765-85	
310-287566-2	MW3	Total/NA	Water	I-3765-85	
310-287566-3	MW4	Total/NA	Water	I-3765-85	
310-287566-4	MW1	Total/NA	Water	I-3765-85	
310-287566-5	MW2	Total/NA	Water	I-3765-85	
MB 310-429742/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-429742/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Lab Chronicle

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW5

Date Collected: 08/06/24 08:55
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430431	NFT2	EET CF	08/14/24 20:45
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430288	NFT2	EET CF	08/13/24 17:37
Total/NA	Prep	7470A			430369	DHM5	EET CF	08/16/24 15:47
Total/NA	Analysis	7470A		1	430796	DHM5	EET CF	08/19/24 14:23
Total/NA	Analysis	I-3765-85		1	429742	DGU1	EET CF	08/08/24 07:31

Client Sample ID: MW3

Date Collected: 08/06/24 09:20
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430431	NFT2	EET CF	08/14/24 20:48
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430288	NFT2	EET CF	08/13/24 17:39
Total/NA	Prep	7470A			430369	DHM5	EET CF	08/16/24 15:47
Total/NA	Analysis	7470A		1	430796	DHM5	EET CF	08/19/24 14:25
Total/NA	Analysis	I-3765-85		1	429742	DGU1	EET CF	08/08/24 07:31

Client Sample ID: MW4

Date Collected: 08/06/24 09:43
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430431	NFT2	EET CF	08/14/24 20:52
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430288	NFT2	EET CF	08/13/24 17:41
Total/NA	Prep	7470A			430369	DHM5	EET CF	08/16/24 15:47
Total/NA	Analysis	7470A		1	430796	DHM5	EET CF	08/19/24 14:27
Total/NA	Analysis	I-3765-85		1	429742	DGU1	EET CF	08/08/24 07:31

Client Sample ID: MW1

Date Collected: 08/06/24 10:09
Date Received: 08/07/24 09:00

Lab Sample ID: 310-287566-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430431	NFT2	EET CF	08/14/24 21:10
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430288	NFT2	EET CF	08/13/24 17:44
Total/NA	Prep	7470A			430369	DHM5	EET CF	08/16/24 15:47
Total/NA	Analysis	7470A		1	430796	DHM5	EET CF	08/19/24 14:29

Lab Chronicle

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Client Sample ID: MW1

Lab Sample ID: 310-287566-4

Date Collected: 08/06/24 10:09

Matrix: Water

Date Received: 08/07/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	I-3765-85		1	429742	DGU1	EET CF	08/08/24 07:31

Client Sample ID: MW2

Lab Sample ID: 310-287566-5

Date Collected: 08/06/24 10:40

Matrix: Water

Date Received: 08/07/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430431	NFT2	EET CF	08/14/24 21:14
Total/NA	Prep	3005A			429763	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	430288	NFT2	EET CF	08/13/24 17:46
Total/NA	Prep	7470A			430369	DHM5	EET CF	08/16/24 15:47
Total/NA	Analysis	7470A		1	430796	DHM5	EET CF	08/19/24 14:31
Total/NA	Analysis	I-3765-85		1	429742	DGU1	EET CF	08/08/24 07:31

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: MER Engineering Inc
Job ID: 310-287566-1
Project/Site: Georgia Pacific MW Sampling

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Method Summary

Client: MER Engineering Inc
Project/Site: Georgia Pacific MW Sampling

Job ID: 310-287566-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	EET CF
7470A	Mercury (CVAA)	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
7470A	Preparation, Mercury	SW846	EET CF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing America

310-287566 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information				
Client: MER engineering				
City/State: CITY	STATE		Project:	
Receipt Information				
Date/Time Received: DATE 8/7/24	TIME 1700		Received By: KP	
Delivery Type: ☐ UPS	☒ FedEx	☐ FedEx Ground	☐ US Mail	☐ Spee-Dee
☐ Lab Courier	☐ Lab Field Services	☐ Client Drop-off	☐ Other:_____	
Condition of Cooler/Containers				
Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:		
Multiple Coolers?	☐ Yes ☒ No	*If yes:* Cooler # _____ of _____		
Cooler Custody Seals Present? No	☒ Yes ☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No		
Sample Custody Seals Present? No	☐ Yes ☐ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No		
Trip Blank Present?	☐ Yes ☐ No	*If yes:* Which VOA samples are in cooler? ↓		
Temperature Record				
Coolant: ☒ Wet ice	☐ Blue ice	☐ Dry ice	☐ Other:_____	☐ NONE
Thermometer ID: X		Correction Factor (°C): 0		
• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature				
Uncorrected Temp (°C): 1.7		Corrected Temp (°C): 1.7		
• **Sample Container Temperature**				
Container(s) used	CONTAINER 1	CONTAINER 2		
Uncorrected Temp (°C):				
Corrected Temp (°C):				
Exceptions Noted				
1) If temperature exceeds criteria, was sample(s) received same day of sampling?		☐ Yes ☐ No		
a) *If yes:* Is there evidence that the chilling process began?		☐ Yes ☐ No		
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?)		☐ Yes ☐ No		
NOTE If yes, contact PM before proceeding If no, proceed with login				
Additional Comments				

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record

eurofins Environment Testing

IAC 115

Client Information	Sampler: DAVE MINIKIS	Lab PM: Dietz, Hannah E	Carrier Tracking No(s):	COC No: 310-94609-22678 1
Client Contact: Dave Minikis	Phone: 515-955-3635	E-Mail: Hannah.Dietz@et.eurofinsus.com	State of Origin:	Page: Page 1 of 1
Company: MER Engineering Inc	PWSID:			Job #:
Address: 109 Regency West Court	Due Date Requested: n/a			
City: Fort Dodge	TAT Requested (days): STANDARD			
State, Zip: IA, 50501	Compliance Project: Δ Yes Δ No			
Phone:	PO #: Purchase Order not required			
Email: minikis@mereng.com	WO #:			
Project Name: Georgia Pacific MW Sampling	Project #: 31015312			
Site: GEORGIA-PACIFIC GYPSUM NORTH RECYCLE PILE	SSOW#:			

Analysis Requested

Preservation Codes:
D - HNO3
N - None

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B, 7470A	I_3765_86 - Residue, Non-filterable (TSS)	Arsenic (Total)	Barium (Total)	Cadmium (Total)	Chromium (Total)	Lead (Total)	Mercury (Total)	Zinc (Total)	TSS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N										
MW5	8-4-24	8:55	G	Water	N	N	X	X	X	X	X	X	X	X	X	X		PLEASE SEND EDD TO MARK MCDADE WITH SHAW TERRA CORPORATION. MMCDADE@SHAWTERRA.COM
MW3		9:20	G	Water	N	N	X	X	X	X	X	X	X	X	X	X		
MW4		9:43	G	Water	N	N	X	X	X	X	X	X	X	X	X	X		
MW1		10:09	G	Water	N	N	X	X	X	X	X	X	X	X	X	X		
MW2		10:40	G	Water	N	N	X	X	X	X	X	X	X	X	X	X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested. I, II, III, IV, Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Dave Minikis	8-4-24 / 17:00	MER			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: SM	Date/Time: 8-7-24 0900	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No 2407788

Cooler Temperature(s) °C and Other Remarks.

Ver: 04/02/2024

Login Sample Receipt Checklist

Client: MER Engineering Inc

Job Number: 310-287566-1

Login Number: 287566
List Number: 1
Creator: Miller, Samuel

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DNR Field Form 542-1322

(August 6, 2024 Groundwater Testing)

FORM FOR
GROUNDWATER SAMPLING AND/OR
GROUNDWATER ELEVATION MEASUREMENT

Site Name Georgia Pacific North Recycle Pile Permit No. 94-SDP-18-09
Monitoring Well/Piezometer No. MW5 Upgradient X
SEQUENCE NUMBER (1) Downgradient
Name of person sampling MER Engineering, Inc. – Dave Minikis

A. MONITORING WELL/PIEZOMETER CONDITIONS
Well/Piezometer Properly Capped? Yes Standing Water or Litter No
If no, explain If yes, explain

B. GROUNDWATER ELEVATION MEASUREMENT (±0.01 foot, MSL)
Elevation: Top of inner well casing 1117.37 Ground Elevation 1113.79
** Depth of Well 26.20 Inside Casing Diameter (in inches) 2.0
Equipment Used Electronic water depth indicator

Groundwater Level (±0.01 foot below top of inner casing, MSL):

	Date/Time	Depth to Groundwater	Groundwater Elevation
* Before Purging			
* After Purging			
* Before Sampling	08-06-24/ 8:55	11.04	1106.33

*C. WELL PURGING

Quantity of Water Removed from Well (gallons) gal.
No. of Well Volumes (based on current water level) (0.5 gal./ft. of liquid)
Was well pumped/bailed dry? n/a

Equipment used:
Bailer type PVC-Disposable Dedicated Bailer? X
Pump type Dedicated Pump?
If not dedicated, method of cleaning

*D. FIELD MEASUREMENT

Weather Conditions Cloudy-Windy/ ± 62° F
Field Measurements (after stabilization):
Temperature 11.4 Units C°
Equipment Used Oakton Multi-Parameter Tester 35
pH 6.89
Equipment Used Oakton Multi-Parameter Tester 35
Specific Cond. 2.66 Units µS/cm
Equipment Used Oakton Multi-Parameter Tester 35

Comments Total Depth Measured - 25.95
NOTE: Attach Laboratory Report and 8-1/2" x 11" site plan showing locations of all surface and groundwater monitoring points. One map per sampling round.

* Omit if only measuring groundwater elevations.
** Secure this data before beginning field work.

(June - 1989) 542-1322

FORM FOR
GROUNDWATER SAMPLING AND/OR
GROUNDWATER ELEVATION MEASUREMENT

Site Name Georgia Pacific North Recycle Pile Permit No. 94-SDP-18-09
Monitoring Well/Piezometer No. MW3 Upgradient X
SEQUENCE NUMBER (2) Downgradient
Name of person sampling MER Engineering, Inc. – Dave Minikis

A. MONITORING WELL/PIEZOMETER CONDITIONS
Well/Piezometer Properly Capped? Yes Standing Water or Litter No
If no, explain If yes, explain

B. GROUNDWATER ELEVATION MEASUREMENT (±0.01 foot, MSL)
Elevation: Top of inner well casing 1115.51 Ground Elevation 1113.04
** Depth of Well 20.02 Inside Casing Diameter (in inches) 2.0
Equipment Used Electronic water depth indicator

Groundwater Level (±0.01 foot below top of inner casing, MSL):

	Date/Time	Depth to Groundwater	Groundwater Elevation
* Before Purging			
* After Purging			
* Before Sampling	08-06-24/ 9:20	10.48	1105.03

*C. WELL PURGING

Quantity of Water Removed from Well (gallons) gal.
No. of Well Volumes (based on current water level) (0.5 gal./ft. of liquid)
Was well pumped/bailed dry? n/a

Equipment used:
Bailer type PVC-Disposable Dedicated Bailer? X
Pump type Dedicated Pump?
If not dedicated, method of cleaning

*D. FIELD MEASUREMENT

Weather Conditions Cloudy-Windy / ± 62° F
Field Measurements (after stabilization):
Temperature 11.1 Units C°
Equipment Used Oakton Multi-Parameter Tester 35
pH 6.68
Equipment Used Oakton Multi-Parameter Tester 35
Specific Cond. 2.71 Units µS/cm
Equipment Used Oakton Multi-Parameter Tester 35

Comments Total Depth Measured - 20.02'

NOTE: Attach Laboratory Report and 8-1/2" x 11" site plan showing locations of all surface and groundwater monitoring points. One map per sampling round.

* Omit if only measuring groundwater elevations.
** Secure this data before beginning field work.

(June - 1989) 542-1322

FORM FOR
GROUNDWATER SAMPLING AND/OR
GROUNDWATER ELEVATION MEASUREMENT

Site Name Georgia Pacific North Recycle Pile Permit No. 94-SDP-18-09
Monitoring Well/Piezometer No. MW4 Upgradient
SEQUENCE NUMBER (3) Downgradient X
Name of person sampling MER Engineering, Inc. – Dave Minikis

A. MONITORING WELL/PIEZOMETER CONDITIONS
Well/Piezometer Properly Capped? Yes Standing Water or Litter No
If no, explain If yes, explain

B. GROUNDWATER ELEVATION MEASUREMENT (±0.01 foot, MSL)
Elevation: Top of inner well casing 1116.36 Ground Elevation 1113.72
** Depth of Well 32.30 Inside Casing Diameter (in inches) 2.0
Equipment Used Electronic water depth indicator

Groundwater Level (±0.01 foot below top of inner casing, MSL):

		Date/Time	Depth to Groundwater	Groundwater Elevation
*	Before Purging			
*	After Purging			
*	Before Sampling	08-06-24/ 9:43	23.28	1093.08

*C. WELL PURGING

Quantity of Water Removed from Well (gallons) gal.
No. of Well Volumes (based on current water level) (0.5 gal./ft. of liquid)
Was well pumped/bailed dry? n/a

Equipment used:
Bailer type PVC-Disposable Dedicated Bailer? X
Pump type Dedicated Pump?
If not dedicated, method of cleaning

*D. FIELD MEASUREMENT

Weather Conditions Cloudy-Windy / ± 63° F
Field Measurements (after stabilization):
Temperature 10.4 Units C°
Equipment Used Oakton Multi-Parameter Tester 35
pH 6.83
Equipment Used Oakton Multi-Parameter Tester 35
Specific Cond. 2.91 Units µS/cm
Equipment Used Oakton Multi-Parameter Tester 35

Comments Total Depth Measured – 32.35'

NOTE: Attach Laboratory Report and 8-1/2" x 11" site plan showing locations of all surface and groundwater monitoring points. One map per sampling round.

* Omit if only measuring groundwater elevations.
** Secure this data before beginning field work.
(June - 1989)

542-1322

FORM FOR
GROUNDWATER SAMPLING AND/OR
GROUNDWATER ELEVATION MEASUREMENT

Site Name Georgia Pacific North Recycle Pile Permit No. 94-SDP-18-09
Monitoring Well/Piezometer No. MW1 Ugradient
SEQUENCE NUMBER (4) Downgradient X
Name of person sampling MER Engineering, Inc. – Dave Minikis

A. MONITORING WELL/PIEZOMETER CONDITIONS
Well/Piezometer Properly Capped? Yes Standing Water or Litter No
If no, explain If yes, explain

B. GROUNDWATER ELEVATION MEASUREMENT (±0.01 foot, MSL)
Elevation: Top of inner well casing 1115.68 Ground Elevation 1113.11
** Depth of Well 65.95 Inside Casing Diameter (in inches) 2.0
Equipment Used Electronic water depth indicator

Groundwater Level (±0.01 foot below top of inner casing, MSL):

	Date/Time	Depth to Groundwater	Groundwater Elevation
* Before Purging			
* After Purging			
* Before Sampling	08-06-24/10:09	57.29	1058.39

*C. WELL PURGING

Quantity of Water Removed from Well (gallons) gal.
No. of Well Volumes (based on current water level) (0.5 gal./ft. of liquid)
Was well pumped/bailed dry? n/a

Equipment used:
Bailer type PVC-Disposable Dedicated Bailer? X
Pump type Dedicated Pump?
If not dedicated, method of cleaning

*D. FIELD MEASUREMENT

Weather Conditions Cloudy-Windy / ± 64° F
Field Measurements (after stabilization):
Temperature 12.8 Units C°
Equipment Used Oakton Multi-Parameter Tester 35
pH 6.83
Equipment Used Oakton Multi-Parameter Tester 35
Specific Cond. 2.71 Units µS/cm
Equipment Used Oakton Multi-Parameter Tester 35

Comments Total Depth Measured – 65.72'

NOTE: Attach Laboratory Report and 8-1/2" x 11" site plan showing locations of all surface and groundwater monitoring points. One map per sampling round.

* Omit if only measuring groundwater elevations.
** Secure this data before beginning field work.

FORM FOR
GROUNDWATER SAMPLING AND/OR
GROUNDWATER ELEVATION MEASUREMENT

Site Name Georgia Pacific North Recycle Pile Permit No. 94-SDP-18-09
Monitoring Well/Piezometer No. MW2 Ugradient
SEQUENCE NUMBER (5) Downgradient X
Name of person sampling MER Engineering, Inc. – Dave Minikis

A. MONITORING WELL/PIEZOMETER CONDITIONS
Well/Piezometer Properly Capped? Yes Standing Water or Litter No
If no, explain If yes, explain

B. GROUNDWATER ELEVATION MEASUREMENT (±0.01 foot, MSL)
Elevation: Top of inner well casing 1120.06 Ground Elevation 1116.90
** Depth of Well 73.83 Inside Casing Diameter (in inches) 2.0
Equipment Used Electronic water depth indicator

Groundwater Level (±0.01 foot below top of inner casing, MSL):

	Date/Time	Depth to Groundwater	Groundwater Elevation
* Before Purging			
* After Purging			
* Before Sampling	08-06-24/10:40	62.35	1058.25

*C. WELL PURGING

Quantity of Water Removed from Well (gallons) gal.
No. of Well Volumes (based on current water level) (0.5 gal./ft. of liquid)
Was well pumped/bailed dry? n/a

Equipment used:
Bailer type PVC-Disposable Dedicated Bailer? X
Pump type Dedicated Pump?
If not dedicated, method of cleaning

*D. FIELD MEASUREMENT

Weather Conditions Cloudy-Windy / ± 65° F
Field Measurements (after stabilization):
Temperature 11.4 Units C°
Equipment Used Oakton Multi-Parameter Tester 35
pH 6.67
Equipment Used Oakton Multi-Parameter Tester 35
Specific Cond. 3.23 Units µS/cm
Equipment Used Oakton Multi-Parameter Tester 35

Comments Total Depth Measured – 73.80'

NOTE: Attach Laboratory Report and 8-1/2" x 11" site plan showing locations of all surface and groundwater monitoring points. One map per sampling round.

* Omit if only measuring groundwater elevations.
** Secure this data before beginning field work.

(June - 1989) 542-1322

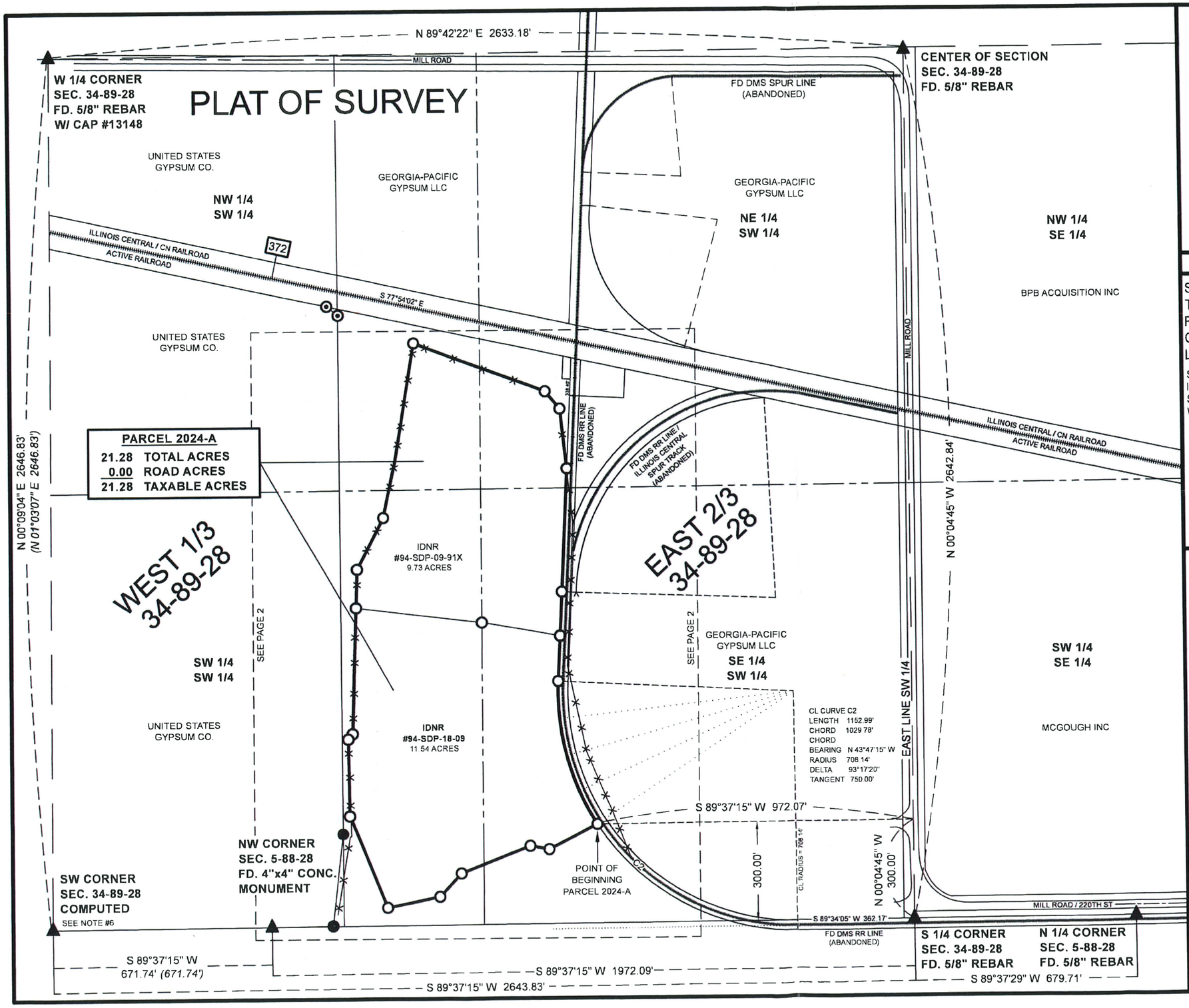
Recorded Plat of Survey

For

The North Recycle Pile (Permit #94-SDP-18-09) and the Georgia-Pacific Waste Disposal Site (Permit #94-SDP-09-91X)

(Certified - April 17, 2024)
&
(Recorded - May 10, 2024)

PLAT OF SURVEY



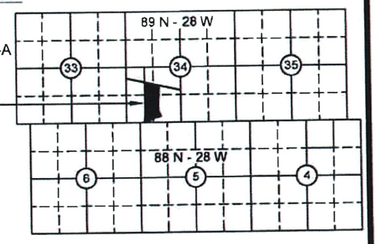
Instrument #: 2024-01849
05/10/2024 12:11:19 PM Total Pages: 3
P PLATS
Recording Fee: $ 17.00
Lindsay S. Laufersweiler, Recorder, Webster County IA

SPACE RESERVED FOR RECORDING INFORMATION

INDEX LEGEND

SECTION: 34
TOWNSHIP: 89 N
RANGE: 28 W
COUNTY: WEBSTER
LOCATION:

SURVEY FOR PARCEL #2024-A
IN THE EAST 2/3 OF THE
SW 1/4 OF 34-89-28
WEBSTER COUNTY, IOWA



MER ENGINEERING INC.
109 REGENCY WEST COURT
FORT DODGE, IOWA 50501
RETURN TO: 515-955-3635 - OFFICE
JON MYERS - SURVEYOR 515-955-3788 - FAX

REQUESTED BY: GEORGIA-PACIFIC GYPSUM LLC
PROPRIETOR: GEORGIA-PACIFIC GYPSUM LLC

LEGEND

SECTION CORNER FOUND	▲
PROPERTY CORNERS SET	
5/8"x24" REBAR W/ YLLW CAP #22875	○
MAGNAIL	⊙
PROPERTY CORNERS FOUND	
5/8" REBAR W/ NO CAP	●
1" PIPE	⊙
2" PIPE	●
LATH SET	⊠
RECORD DIMENSIONS	(100.00')
MEASURED DIMENSIONS	100.00'
FENCE IN PLACE	—x—

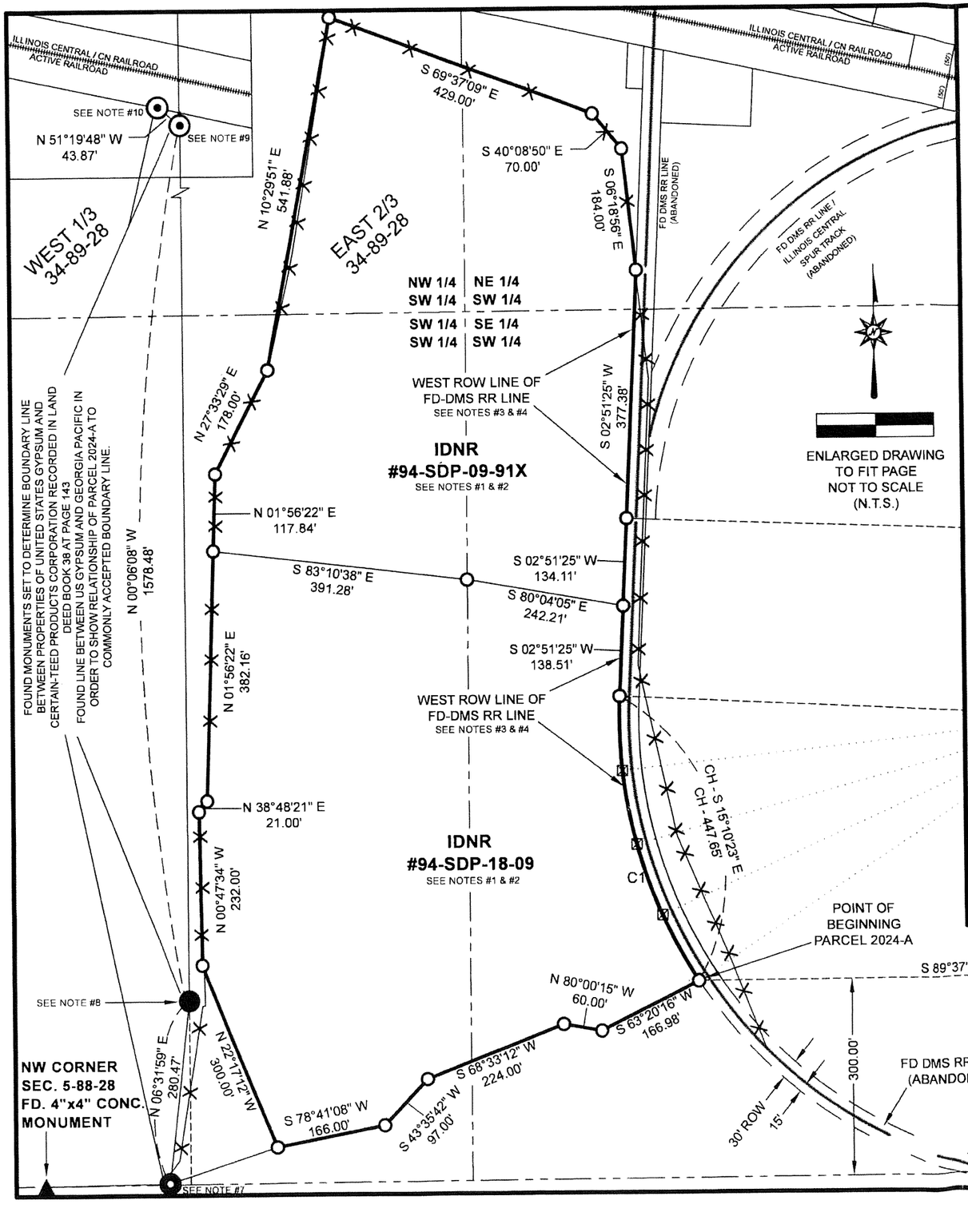
0' 300'
150'
SCALE 1" = 300'
MER # 13020

I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF IOWA

LICENSED LAND SURVEYOR
JON MYERS
22875
IOWA

JON MYERS April 17, 2024 (DATE)
LICENSE NUMBER 22875
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2024
PAGES COVERED BY THIS SEAL 3

DATE OF FIELD WORK
DECEMBER 2023 - APRIL 2024



NOTES:

1. THE PURPOSE OF THIS SURVEY IS TO CREATE A PARCEL THAT BEST ENCAPSULATES THE PORTION OF GEORGIA PACIFIC PROPERTY THAT WAS DEDICATED TO LANDFILL ACTIVITIES OF THE PAST 40 YEARS AND TO UPDATE THE LEGAL DESCRIPTION FOR THE SITE CLOSURE FILED WITH THE IOWA DEPARTMENT OF NATURAL RESOURCES.

2. THE AREA FOR IDNR #94-SDP-09-91X AND IDNR #94-SDP-18-09 ARE WHOLLY CONTAINED WITHIN THE NEW PARCEL 2024-A CREATED WITH THIS PLAT OF SURVEY. THE BOUNDARY LINE BETWEEN THE TWO DESIGNATIONS IS THIS SURVEYOR'S BEST ATTEMPT TO DETERMINE THE LINE BASED ON INTERNAL MER ENGINEERING LANDFILL MAPS AND SURVEYS DONE WITHIN THE PAST 30 YEARS.

3. ACCORDING TO THE RAIL TRANSPORTATION BUREAU OF THE IOWA DEPARTMENT OF TRANSPORTATION - THIS STRETCH OF THE FORT DODGE DES MOINES AND SOUTHERN RAILROAD BETWEEN THE MAINLINE OF THE CANADIAN NATIONAL RAILROAD AND 220TH STREET HAS BEEN ABANDONED SINCE 1982.

4. RE-CREATED THE CENTERLINE OF THE FORT DODGE DES MOINES AND SOUTHERN RAILROAD LINE BETWEEN THE MAIN LINE OF THE CANADIAN NATIONAL LINE AND THE GEORGIA PACIFIC PLANT BY USING MAPS AND INFORMATION FROM THE ARCHIVES OF GEORGIA PACIFIC LOCAL PLANT. WAS ALSO ABLE TO FIND AND MEASURE TO THE EXISTING RAISED RAILROAD BED AND REMAINING RAILROAD TIES STILL IN PLACE ALONG PORTIONS OF THE LINE. I ESTABLISHED THE RIGHT OF WAY LINE BY OFFSETTING THE CENTERLINE 15' ON EACH SIDE TO CREATE A 30' CORRIDOR WHICH IS CONSISTENT WITH WHAT WAS SHOWN ON SAID MAPS AND OTHER LEGAL DOCUMENTS PROVIDED BY GEORGIA PACIFIC.

5. DURING THE INITIAL FIELD SEARCH FOR SURVEY MONUMENTS, USING THE AGREEMENT PLAT OF SURVEY FOUND IN DEED BOOK 38 AT PAGE 143 IN THE WEBSTER COUNTY RECORDER'S OFFICE, I WAS ABLE TO FIND A NUMBER OF THE ORIGINAL MONUMENTS SET AT THAT TIME MARKING THE AGREED BOUNDARY LINE BETWEEN UNITED STATES GYPSUM COMPANY AND CERTAIN-TEED PRODUCTS CORPORATION CIRCA 1928.

6. THE SOUTHWEST CORNER OF 34-89-28 FALLS IN THE LANDS OWNED AND OPERATED BY UNITED STATES GYPSUM COMPANY. I CONTACTED LOCAL US GYPSUM PLANT ABOUT ACCESS TO THIS SECTION CORNER FOR THIS SURVEY, BUT WAS NOT ALLOWED ACCESS TO MEASURE IN SECTION CORNER. FOR THE PURPOSE OF THIS SURVEY, I COMPUTED THE SECTION CORNER POSITION BASED ON A PREVIOUS PLAT OF SURVEY DONE BY MURRAY BERTING FROM SHIVE-HATTERY RECORDED IN THE WEBSTER COUNTY RECORDER'S OFFICE AS INSTRUMENT #2010-00359.

7. MONUMENT = FOUND 2" IRON PIPE, APPROXIMATELY 15" DEEP. FOUND IRON PIPE MEASURES 1.43' NORTH OF A LINE FROM COMPUTED SW CORNER OF 34-89-28 TO FOUND S 1/4 CORNER 1/2" REBAR.

8. MONUMENT = FOUND 5/8" REBAR, 1" DEEP. RECORDS FROM GEORGIA PACIFIC ARCHIVES CALLS FOR AN IRON PIPE SET AT THIS LOCATION. SEARCHED AREA, BUT WAS UNABLE TO FIND IRON PIPE MONUMENT.

9. MONUMENT = FOUND 2 MONUMENTS AT THIS POSITION: #1 - BENT 1" IRON PIPE, APPROXIMATELY 4" DEEP. #2 - 5/8" REBAR WITH WHITE CAP FLUSH WITH GROUND - FOUND 0.68' SOUTH OF BENT IRON PIPE. ACCEPTED THE BENT IRON PIPE BECAUSE IT IS THE ORIGINAL MONUMENT SET.

10. MONUMENT = FOUND 1" IRON PIPE, APPROXIMATELY 4" DEEP. FOUND IRON PIPE MEASURES 49.50' FROM EXISTING CENTERLINE OF THE MAINLINE CANADIAN NATIONAL TRACKS.

	LENGTH	CHORD	CHORD BEARING	RADIUS	DELTA	TANGENT
C1	455.12'	447.65'	S 15°10'23" E	723.14'	36°03'37"	235.38'

DESCRIPTION: PARCEL 2024-A

A PARCEL OF LAND BEING A PORTION OF THE EAST TWO-THIRDS (2/3) OF THE SOUTHWEST QUARTER (SW1/4) OF SECTION THIRTY-FOUR (34), TOWNSHIP EIGHTY-NINE (89) NORTH, RANGE TWENTY-EIGHT (28) WEST OF THE 5TH P.M., WEBSTER COUNTY, IOWA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTH QUARTER CORNER OF SAID SECTION 34; THENCE ON AN ASSUMED BEARING OF NORTH 00°04'45" WEST 300.00 FEET, ALONG THE EAST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 34; THENCE LEAVING SAID EAST LINE, SOUTH 89°37'15" WEST 972.07 FEET, TO THE WEST RIGHT OF WAY LINE OF THE FORT DODGE DES MOINES AND SOUTHERN RAILROAD, POINT BEING ALSO THE POINT OF BEGINNING; THENCE LEAVING SAID WEST RIGHT OF WAY LINE, SOUTH 63°20'16" WEST 166.98 FEET; THENCE NORTH 80°00'15" WEST 60.00 FEET; THENCE SOUTH 68°33'12" WEST 224.00 FEET; THENCE SOUTH 43°35'42" WEST 97.00 FEET; THENCE SOUTH 78°41'08" WEST 166.00 FEET; THENCE NORTH 22°17'12" WEST 300.00 FEET; THENCE NORTH 00°47'34" WEST 232.00 FEET; THENCE NORTH 38°48'21" EAST 21.00 FEET; THENCE NORTH 01°56'22" EAST 382.16 FEET; THENCE NORTH 01°56'22" EAST 117.84 FEET; THENCE NORTH 27°33'29" EAST 178.00 FEET; THENCE NORTH 10°29'51" EAST 541.88 FEET; THENCE SOUTH 69°37'09" EAST 429.00 FEET; THENCE SOUTH 40°08'50" EAST 70.00 FEET; THENCE SOUTH 06°18'56" EAST 184.00 FEET, TO THE WEST RIGHT OF WAY LINE OF THE FORT DODGE DES MOINES AND SOUTHERN RAILROAD; THENCE CONTINUING ALONG SAID WEST RIGHT OF WAY LINE, SOUTH 02°51'25" WEST 377.38 FEET; THENCE CONTINUING ALONG SAID WEST RIGHT OF WAY LINE, SOUTH 02°51'25" WEST 134.11 FEET; THENCE CONTINUING ALONG SAID WEST RIGHT OF WAY LINE, SOUTH 02°51'25" WEST 138.51 FEET; THENCE CONTINUING ALONG SAID WEST RIGHT OF WAY LINE, ALONG THE ARC OF A 723.14 FOOT RADIUS CONCAVE NORTHEASTERLY FOR 455.12 FEET, SAID CURVE HAVING A CHORD WHICH BEARS SOUTH 15°10'23" EAST FOR 447.65 FEET TO THE POINT OF BEGINNING;

PARCE CONTAINS 21.28 ACRES AND IS SUBJECT TO EASEMENTS OF RECORD. NOTE: FOR THE PURPOSE OF THIS SURVEY THE EAST LINE OF THE SOUTHWEST QUARTER OF 34-89-28 IS ASSUMED TO BEAR NORTH 00°04'45" WEST.

AREA BREAKDOWN

PARCEL 2024-A	TOTAL	ROAD	TAXABLE
NW 1/4 SW 1/4	2.33	0.00	2.33
NE 1/4 SW 1/4	1.87	0.00	1.87
SE 1/4 SW 1/4	6.49	0.00	6.49
SW 1/4 SW 1/4	10.59	0.00	10.59
TOTALS	21.28	0.00	21.28