CERTIFIED MAIL 7018 3090 0001 9999 3703

July 29, 2021

Air and Radiation Division
U. S. Environmental Protection Agency, Region V
77 West Jackson Boulevard,
Chicago, IL 60604

Re: Submittal of U. S. Steel – Minntac and Keetac Compliance Reports per the Requirements of 40 CFR Part 52.1235(e)(5) through (7) – Taconite Regional Haze FIP

U. S. Steel – Keetac (Keetac)

Keetac utilizes Ametek Model 920 analyzers to measure NOx and SO_2 (Serial Number AE-920-10086-1).

Keetac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 2nd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO2 is 225 lbs/hr – 30 day rolling average. There were no deviations associated with the emission limit.

The emission limitation for NOx became effective on September 8, 2019 and is 1.5 lbs/MMBtu based on a 30-day rolling average. However, for any 30 or more consecutive days when only natural gas is used, a limit of 1.2 lbs/MMBtu applies. Refer to attachment 1.

The last CEMS CGA was conducted on June 16, 2021 and is included. The last CEMS RATA was conducted on March 23, 2021 and was previously submitted.

U. S. Steel – Minntac (Minntac)

Minntac utilizes Ametek Model 920 analyzers to measure NOx and SO_2. The table below outlines the serial numbers for each of the units:

Line 3	AE-920-10086-1
Line 4	AE-920-10086-2
Line 5	AE-920-10086-3
Line 6	ZA-920-10336-1

Line 7	ZA-920-10336-2

Minntac submits quarterly excess emission reports to the Minnesota Pollution Control Agency. Therefore, to fulfill the requirements of the excess emissions and monitoring system performance reports, a copy of the quarterly excess emissions report for the 2nd quarter is included in this submittal. Where EPA's requirements per the regulation differ from Minnesota's requirements, this information is also being included.

Any periods of startup and shut down are reported in Section 5 of the DRF-1 Form included in this submittal. There were no deviations during this reporting period.

The emission limitation for SO_2 is a 30-day rolling average aggregate limit for indurating lines 3-7 of 498 lbs/hr when all lines are producing flux pellets, 630 lbs/hr when producing acid pellets or using the equation in 40 CFR 52.1235(b)(2)(iii) when the 30 day period includes both acid and flux pellet production. There were no deviations associated with the emission limit.

The emission limitation for NOx on Lines 3-7 is 1.6 lbs/MMBtu averaged across Lines 3-7 and based on a 30-day rolling average. There were no deviations associated with the emission limit.

The latest CEMS RATA was conducted on Lines 3-7 on May 18-27, 2021. The first report was submitted on July 7, 2021. The last CGAs were performed on February 24th and 25th of 2021 and were previously provided.

If you should require any additional information, please contact me at scampbell@uss.com or 218-778-8684.

Sincerely,

Stephani Campbell

Stephani Campbell
Environmental Control

U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 217
Keewatin, MN 55753

CERTIFIED MAIL 7018 3090 0001 9999 3048

July 29, 2021

Air Quality Compliance Tracking Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: U. S. Steel – Keetac Administrative Order by Consent
Quarterly Continuous Monitoring System Deviation Report

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Keetac's (Keetac) Quarterly Continuous Emission Monitoring System Deviation report for the 2nd quarter of 2021. The Continuous Emission Monitoring System (CEMS) was certified on Keetac's Waste Gas Stack on November 6th, 2008. The CEMS was installed as a part of Keetac's Administrative Order by Consent with the State of Minnesota effective September 27th, 2007.

Deviations associated with Emission Limits

There were no deviations associated with emission limits.

Deviations associated with Monitor Downtime

There were eighteen instances of monitor downtime that affected either NO_x or SO_2. The individual downtime duration and cause is listed in the monitor downtime section of this report.

Deviations associated with Monitor Bypass

Keetac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500 °F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed

such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x and SO_2 are emitted. Times when the cap is open but there is no combustion in the kiln are not listed.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,

Travis Kolari
Plant Manager – Minnesota Ore Operations

Enclosure

cc: File

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Excess Emissions Reporting Form - DRF-1

Continuous Monitoring Systems Reporting Form

Please note: This form has been updated. Please print, complete and remit only the forms. Please see the instructions in the Word version of DRF-1 to ensure proper use and understanding of definitions. DO NOT print and return the instructions.

Use this form to record and report excess emissions (EE) that are identified by *Continuous Monitoring Systems*. This includes Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS). DRF-1 is the form you must use to report excess emissions from a stack as recorded by your facility's Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems (COMS).

Address hard copy: Compliance Tracking Coordinator, Fourth Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

1) General Facility Information

Company name: U. S. Steel - Keetac
AQ file no.: 62B
Report covers Quarter: Second
AQ permit no.: 13700063-005
Year: 2021

2) CEMS/COMS Data Summary Table

				Duration of Monitor Downtime		Duration of Excess Emissions (EE)			
2a) Monitor ID Number	2b) Monitor ID Pollutant	2c) EU/SV ID Number	2d) Total Operating Time (TOT) (hr)	3i) Total Duration of Monitor Downtime (hr)	2e) Downtime % Of TOT	4l) Cumulative Duration of Exempt EE	2f) Exempt EE % of TOT	4m) Cumulative Total Duration of All EE	2g) Total EE % of TOT
Line 2	NOx	SV 051	2140	9	0.4%	N/A	N/A	0	0.00%
Line 2	SO2	SV 051	2140	9	0.4%	N/A	N/A	0	0.00%

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Monitor ID Pollutant or Parameter	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (min)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 2	SO2	SV 051	04/21/2021 06:00:00	04/21/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	SO2	SV 051	04/22/2021 06:00:00	04/22/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	SO2	SV 051	05/04/2021 06:00:00	05/04/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	SO2	SV 051	05/20/2021 06:00:00	05/20/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	SO2	SV 051	06/13/2021 06:00:00	06/13/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	SO2	SV 051	06/16/2021 09:00:00	06/16/2021 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	SO2	SV 051	06/29/2021 06:00:00	06/29/2021 06:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 2	SO2	SV 051	06/30/2021 09:00:00	06/30/2021 09:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 2	SO2	SV 051	06/30/2021 10:00:00	06/30/2021 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	04/21/2021 06:00:00	04/21/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	04/22/2021 06:00:00	04/22/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	05/04/2021 06:00:00	05/04/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	05/20/2021 06:00:00	05/20/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	06/13/2021 06:00:00	06/13/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	06/16/2021 09:00:00	06/16/2021 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 2	NOx	SV 051	06/29/2021 06:00:00	06/29/2021 06:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 2	NOx	SV 051	06/30/2021 09:00:00	06/30/2021 09:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 2	NOx	SV 051	06/30/2021 10:00:00	06/30/2021 10:59:00	60	Automatic Calibration	Performed necessary maintenance

3i) Total duration of downtime: 18 hours

*Opacity time listed in minutes

4) Duration of Excess Emissions: Provide the following information regarding each individual excess emission

4a) Emission Unit ID Number	4b) Monitor ID Number	4c) Pollutant or Parameter Monitored	4d) Beginning Date and Time of EE	4e) End Date and Time of EE	4f) Limit and Averaging Period	4g) Highest Reading of EE with Units (example: 5 lb/hr, etc)	4h) Duration of Exempt EE (include these entries as part of 4i)	4i) Total Duration of All EE	4j) Cause of EE (clarifying comments)	4k) Corrective Action Taken (clarifying comments)
SV051	CM001	NOx	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV051	CM005	SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
						4l) Cumulative Duration of Exempt Excess Emissions:	0		4m) Cumulative Total Duration	0 Hrs

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	4/2/2021 21:40	4/2/2021 22:38	57	Yes	57	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/11/2021 1:44	4/11/2021 2:50	66	Yes	66	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/11/2021 9:01	4/11/2021 10:27	86	Yes	86	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/11/2021 10:34	4/11/2021 10:43	9	Yes	9	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/15/2021 15:41	4/15/2021 15:51	10	Yes	10	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/18/2021 22:59	4/19/2021 5:00	361	Yes	361	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/19/2021 5:00	4/19/2021 6:59	119	Yes	119	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/21/2021 2:59	4/21/2021 5:00	181	Yes	181	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/21/2021 5:00	4/21/2021 13:00	480	Yes	480	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/21/2021 13:00	4/21/2021 21:00	480	Yes	480	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/21/2021 21:00	4/22/2021 5:00	480	Yes	480	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/22/2021 5:00	4/22/2021 9:36	276	Yes	276	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/22/2021 9:36	4/22/2021 10:23	47	Yes	47	Bypass necessary to protect plant equipment	N/A

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	4/22/2021 11:11	4/22/2021 11:47	35	Yes	35	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/22/2021 12:32	4/22/2021 13:00	28	Yes	28	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/22/2021 13:00	4/22/2021 13:11	11	Yes	11	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/22/2021 13:11	4/22/2021 13:13	2	Yes	2	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/24/2021 5:01	4/24/2021 7:01	119	Yes	119	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/24/2021 9:46	4/24/2021 12:05	138	Yes	138	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/28/2021 18:07	4/28/2021 18:52	46	Yes	46	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/30/2021 11:08	4/30/2021 11:34	26	Yes	26	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	4/30/2021 11:35	4/30/2021 11:37	3	Yes	3	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/1/2021 23:00	5/2/2021 1:04	124	Yes	124	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/3/2021 3:02	5/3/2021 3:15	13	Yes	13	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/3/2021 4:53	5/3/2021 5:00	7	Yes	7	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/3/2021 5:00	5/3/2021 5:12	12	Yes	12	Bypass necessary to protect plant equipment	N/A

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	5/3/2021 5:13	5/3/2021 5:19	6	Yes	6	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/3/2021 9:41	5/3/2021 9:48	6	Yes	6	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/4/2021 5:45	5/4/2021 8:43	179	Yes	179	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/4/2021 19:05	5/4/2021 19:50	45	Yes	45	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/4/2021 20:06	5/4/2021 20:14	7	Yes	7	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/6/2021 8:24	5/6/2021 13:00	276	Yes	276	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/6/2021 13:00	5/6/2021 14:44	104	Yes	104	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/7/2021 12:20	5/7/2021 13:00	40	Yes	40	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/7/2021 13:00	5/7/2021 16:50	230	Yes	230	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/15/2021 18:06	5/15/2021 18:08	2	Yes	2	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/19/2021 8:38	5/19/2021 9:00	22	Yes	22	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/19/2021 13:02	5/19/2021 13:19	17	Yes	17	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/19/2021 20:19	5/19/2021 20:25	6	Yes	6	Bypass necessary to protect plant equipment	N/A

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	5/19/2021 20:28	5/19/2021 21:00	32	Yes	32	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/19/2021 21:00	5/20/2021 5:00	480	Yes	480	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/20/2021 5:00	5/20/2021 13:00	480	Yes	480	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/20/2021 13:00	5/20/2021 18:59	359	Yes	359	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/30/2021 8:23	5/30/2021 9:02	39	Yes	39	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	5/30/2021 9:44	5/30/2021 10:21	37	Yes	37	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/10/2021 4:20	6/10/2021 4:45	25	Yes	25	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/10/2021 5:12	6/10/2021 5:41	29	Yes	29	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/10/2021 5:57	6/10/2021 6:44	47	Yes	47	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/12/2021 2:58	6/12/2021 3:21	23	Yes	23	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/12/2021 3:24	6/12/2021 3:25	1	Yes	1	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/12/2021 5:52	6/12/2021 6:06	14	Yes	14	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/12/2021 9:06	6/12/2021 12:01	176	Yes	176	Bypass necessary to protect plant equipment	N/A

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (min)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass (min)	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 2	SV 051	NOx and SO2	6/12/2021 14:44	6/12/2021 21:00	376	Yes	376	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/12/2021 21:00	6/12/2021 21:32	32	Yes	32	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/13/2021 1:51	6/13/2021 5:00	189	Yes	189	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/13/2021 5:00	6/13/2021 10:21	321	Yes	321	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/13/2021 10:21	6/13/2021 10:22	1	Yes	1	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/14/2021 10:53	6/14/2021 11:13	20	Yes	20	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/16/2021 7:19	6/16/2021 12:10	291	Yes	291	Bypass necessary to protect plant equipment	N/A
Line 2	SV 051	NOx and SO2	6/21/2021 7:23	6/21/2021 9:00	98	Yes	98	Bypass necessary to protect plant equipment	N/A
				5k) Total duration of allowable monitor bypass:			**120**	**hours**	

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature of Responsible Official

Travis Kolari
Printed Name of Responsible Official

Plant Manager - Minnesota Ore
Title

July 29, 2021
Date

COMS audits

Subject item	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A								

Cylinder gas audit's (CGA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
SV051/EU030	2140	CM001	NOx	6/16/2021	Low 0.16% Mid 8.33%	Pass	9/30/2021	
SV051/EU030	2140	CM005	SO2	6/16/2021	Low 2.87% Mid 0.59%	Pass	9/30/2021	

Linearity

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Cal error results	Pass/fail	Next test due by:	Comments
N/A					Low Mid High			

Relative accuracy test audit (RATA)

Emission unit	Operating hours	Monitor ID	Pollutant	Last audit date	Relative accuracy	Pass/fail	Next test due by:	Comments
SV051		CM001	NOx	3/23/2021	9.3%	Pass	3/31/2022	
SV051		CM005	SO2	3/23/2021	4.6%	Pass	3/31/2022	

www.pca.state.mn.us • 651-296-6300 • 800-657-3864 • Use your preferred relay service • Available in alternative formats

CGA Test Report

Facility Name: US Steel KeeTac

Location: ,

NOX WGS Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AE-920-10086-1

Test Date: 6/16/2021

Tester: KEVIN MAXIE

Analyzer Span: 600.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(120.000 PPMW - 180.000 PPMW)	(300.000 PPMW - 360.000 PPMW)
Concentration	123.800	324.000
Cylinder No	CC257218	CC322615
Expiration Date	10/23/2023	8/30/2024

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	11:24	124.000	11:28	320.000
Run 2	11:37	126.000	11:41	322.000
Run 3	11:50	122.000	11:54	249.000
Avg Monitor Response		124.000		297.000
Calibration Error		0.16		8.33
Absolute Diff		0.200		27.000
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

CGA Test Report

Facility Name: US Steel KeeTac

Location: ,

SO2 WGS Audit Test Results

Mfr. & Model: AMETEK 920 SO2 NOX

Serial Number: AE-920-10086-1

Test Date: 6/16/2021

Tester: KEVIN MAXIE

Analyzer Span: 250.000 PPMW

	Low	Mid
Reference Target	20 - 30% of Span	50 - 60% of Span
Range	(50.000 PPMW - 75.000 PPMW)	(125.000 PPMW - 150.000 PPMW)
Concentration	62.800	134.800
Cylinder No	CC401997	CC137851
Expiration Date	3/6/2025	11/23/2028

	Low		Mid	
	Time	Monitor Value	Time	Monitor Value
Run 1	09:04	61.000	09:08	134.000
Run 2	09:17	61.000	09:21	134.000
Run 3	09:30	61.000	09:34	134.000
Avg Monitor Response		61.000		134.000
Calibration Error		2.87		0.59
Absolute Diff		1.800		0.800
Test Status		PASSED		PASSED

$$\text{Calibration Error} = \frac{\text{Avg. Monitor Response - Cal. Gas Concentration}}{\text{Cal. Gas Concentration}} \times 100$$

Acceptable results for a successful CGA Audit are +/- 15% average audit value or +/- 5 PPM, whichever is greater.

Summary Table by Monitor Downtime Type
U. S. Steel - Keetac
2nd Quarter 2021

NOx

Line	Duration (Hrs)	Description
Line 2	7	Automatic Calibration
	0	Data Handling System Malfunction
	0	Sample Interface Malfunction
	0	Excess Drift Primary Analyzer
	2	Primary Analyzer Malfunction
	0	Preventative Maintenance

SO2

Line	Duration (Hrs)	Description
Line 2	7	Automatic Calibration
	0	Data Handling System Malfunction
	0	Sample Interface Malfunction
	0	Excess Drift Primary Analyzer
	2	Primary Analyzer Malfunction
	0	Preventative Maintenance

U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 417
Mt. Iron, MN 55768

CERTIFIED MAIL 7018 3090 0001 9999 3062

July 29, 2021

Air Quality Compliance Tracking Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: United States Steel Corporation, Minnesota Ore Operations – Minntac
Air Emissions Permit No. 13700005-006
Quarterly Continuous Monitoring System Deviation Report

Dear Supervisor:

Enclosed with this letter is U. S. Steel – Minntac's (Minntac) Quarterly Excess Emissions Reporting Form for the 2nd quarter of 2021. NOx/SO_2 Continuous Emission Monitoring Systems (CEMS) are certified on all Agglomerator Waste Gas Lines.

Deviations associated with Emission Limits

There were no deviations during the 2nd quarter of 2021.

Deviations associated with Monitor Downtime

There were one hundred and twenty-two instances of monitor downtime for either NOx or SO_2. The individual downtime durations and causes are listed in the monitor downtime section of this report.

Deviations associated with Monitor Bypass

Minntac utilizes a grate/kiln system for pelletizing taconite. Although this is an extremely hot process (with temperatures exceed 2500°F in the kiln), the equipment is designed to withstand the high temperatures and will do so during normal operation. However, the grate is very susceptible to heat damage during upset conditions or if stopped for any reason while it is hot. To prevent equipment damage and heat related safety issues during these situations, large amounts of heat must be released from the grate as soon as possible. For that reason the system was designed such that when the grate stops or gets overheated, a stack cap is lifted to release heat through an emergency stack. At this time the monitor is bypassed. These situations are the only times the monitor is bypassed. Because they represent upset conditions or process downtime (production loss), the company has a strong vested interest in minimizing both the number and duration of occurrences.

The times listed in the monitor bypass section are when the grate emergency stack cap is open and there is combustion in the kiln. This is the only time when any NO_x or SO_2 is emitted. Times when the cap is open but there is no combustion in the kiln are not listed.

If you have any questions concerning these forms, please contact Stephani Campbell at (218) 778-8684.

Sincerely,

Lukas Klemke
Plant Manager – Minntac

Enclosure

cc: File

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

DRF-1

Excess Emissions Reporting Form

Air Quality Permit Program

Doc Type: Excess Emission Report

Note: Please complete, and remit **only** the forms. Please see the instructions to ensure proper use and understanding of definitions.
Do not print and return the instructions.

General Information about Deviation and Compliance Reporting

If your permit requires you to submit deviation reports or an annual compliance certification, you should use the Deviation Reporting Forms (DRFs) and Annual Compliance Certification Report (CR-04), unless you get Minnesota Pollution Control Agency (MPCA) approval to use another format or your facility's permit specifies otherwise. There are two separate DRF forms: DRF-1 and DRF-2.

DRF-1 is used to report direct excess stack emissions (EE) recorded by Continuous Emission Monitoring Systems (CEMS) and Continuous Opacity Monitoring Systems

DRF-2 is used to report deviations recorded by periodic monitoring systems, deviations of permitted operating conditions and surrogate parameters whether recorded
Some examples: flow rate, temperature, throughput, control equipment operating parameters, fuel-use records

CR-04: is used to report facility compliance status at the end of each year if required by your permit.

Address hard copy report submittals to: Air Compliance Tracking Coordinator, Minnesota Pollution Control Agency
520 Lafayette Road North, St. Paul, Minnesota 55155-4195

Or e-mail a signed and scanned PDF copy to: AQRoutineReport.PCA@state.mn.us
(see e-mail instructions in "Routine Air Report Instructions Letter" at:
http://www.pca.state.mn.us/nwqh472

1) General Facility Information

Facility name: United States Steel Corporation, Minnesota Ore Operations, Minntac
County: St. Louis
Report covers quarter: First

AQ file no.: 26A
AQ permit #: 13700005
Year: 2021

2) CEMS/COMS Data Summary Table

				Duration of Monitor Downtime		Duration of Excess Emissions (EE)			
2a) Monitor ID Number	2b) Monitor ID Pollutant	2c) EU/SV ID Number	2d) Total Operating Time (TOT)	3i) Total Duration of Monitor Downtime (hr)	2e) **Downtime % Of TOT**	4l) Cumulative Duration of Exempt EE	2f) **Exempt EE % of TOT**	4m) Cumulative Total Duration of All EE	2g) **Total EE % of TOT**
MR 001	NOx	SV-103	2081	9	**0.4%**	0	**0%**	0	**0%**
MR 002	NOx	SV-118	2023	27	**1.3%**	0	**0%**	0	**0%**
MR 003	NOx	SV-127	2002	22	**1.1%**	0	**0%**	0	**0%**
MR 004	NOx	SV-144	2061	19	**0.9%**	0	**0%**	0	**0%**
MR 005	NOx	SV-151	2049	20	**1.0%**	0	**0%**	0	**0%**
MR 001	SO2	SV-103	2081	8	**0.4%**	0	**0%**	0	**0%**
MR 002	SO2	SV-118	2023	60	**3.0%**	0	**0%**	0	**0%**
MR 003	SO2	SV-127	2002	22	**1.1%**	0	**0%**	0	**0%**
MR 004	SO2	SV-144	2061	49	**2.4%**	0	**0%**	0	**0%**
MR 005	SO2	SV-151	2049	33	**1.6%**	0	**0%**	0	**0%**

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 3	NOx	SV103	04/15/2021 09:00:00	04/15/2021 12:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	NOx	SV103	05/12/2021 05:00:00	05/12/2021 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	06/17/2021 05:00:00	06/17/2021 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	06/17/2021 09:00:00	06/17/2021 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	06/18/2021 05:00:00	06/18/2021 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	NOx	SV103	06/25/2021 21:00:00	06/25/2021 21:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 3	SO2	SV103	04/15/2021 09:00:00	04/15/2021 12:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 3	SO2	SV103	05/12/2021 05:00:00	05/12/2021 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	06/17/2021 05:00:00	06/17/2021 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	06/17/2021 09:00:00	06/17/2021 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 3	SO2	SV103	06/18/2021 05:00:00	06/18/2021 05:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	04/15/2021 09:00:00	04/15/2021 12:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	05/20/2021 06:00:00	05/20/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	05/27/2021 06:00:00	05/27/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	05/27/2021 20:00:00	05/27/2021 20:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	05/27/2021 22:00:00	05/27/2021 22:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	06/02/2021 08:00:00	06/02/2021 13:59:00	360	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	NOx	SV118	06/02/2021 14:00:00	06/02/2021 14:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	06/03/2021 06:00:00	06/03/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	06/03/2021 07:00:00	06/03/2021 11:59:00	300	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	06/03/2021 12:00:00	06/03/2021 12:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	06/18/2021 06:00:00	06/18/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	NOx	SV118	06/18/2021 07:00:00	06/18/2021 08:59:00	120	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	NOx	SV118	06/18/2021 09:00:00	06/18/2021 10:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	04/15/2021 09:00:00	04/15/2021 12:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	04/25/2021 16:00:00	04/25/2021 17:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/11/2021 16:00:00	05/11/2021 16:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/11/2021 19:00:00	05/11/2021 21:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/20/2021 06:00:00	05/20/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	05/25/2021 16:00:00	05/26/2021 05:59:00	840	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/26/2021 06:00:00	05/26/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 4	SO2	SV118	05/26/2021 07:00:00	05/26/2021 12:59:00	360	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/27/2021 06:00:00	05/27/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	05/27/2021 20:00:00	05/27/2021 20:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/27/2021 22:00:00	05/27/2021 22:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/30/2021 17:00:00	05/30/2021 18:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	05/30/2021 21:00:00	05/30/2021 23:59:00	180	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	06/02/2021 08:00:00	06/02/2021 13:59:00	360	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	06/02/2021 14:00:00	06/02/2021 14:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	06/08/2021 06:00:00	06/08/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	06/08/2021 07:00:00	06/08/2021 09:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	06/10/2021 16:00:00	06/10/2021 19:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 4	SO2	SV118	06/18/2021 06:00:00	06/18/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 4	SO2	SV118	06/18/2021 07:00:00	06/18/2021 08:59:00	120	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 4	SO2	SV118	06/18/2021 09:00:00	06/18/2021 10:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	04/09/2021 19:00:00	04/09/2021 22:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 5	NOx	SV127	04/15/2021 06:00:00	04/15/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	05/06/2021 06:00:00	05/06/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	05/06/2021 17:00:00	05/06/2021 17:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 5	NOx	SV127	05/17/2021 09:00:00	05/17/2021 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	05/25/2021 21:00:00	05/26/2021 05:59:00	540	Primary Analyzer Malfunction	Performed necessary maintenance
Line 5	NOx	SV127	05/26/2021 06:00:00	05/26/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	06/04/2021 06:00:00	06/04/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	06/08/2021 04:00:00	06/08/2021 04:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 5	NOx	SV127	06/18/2021 06:00:00	06/18/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	NOx	SV127	06/21/2021 09:00:00	06/21/2021 09:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 5	SO2	SV127	04/09/2021 19:00:00	04/09/2021 22:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 5	SO2	SV127	04/15/2021 06:00:00	04/15/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	05/06/2021 06:00:00	05/06/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	05/06/2021 17:00:00	05/06/2021 17:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 5	SO2	SV127	05/17/2021 09:00:00	05/17/2021 09:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	05/25/2021 21:00:00	05/26/2021 05:59:00	540	Primary Analyzer Malfunction	Performed necessary maintenance
Line 5	SO2	SV127	05/26/2021 06:00:00	05/26/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	06/04/2021 06:00:00	06/04/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 5	SO2	SV127	06/08/2021 04:00:00	06/08/2021 04:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 5	SO2	SV127	06/18/2021 06:00:00	06/18/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 5	SO2	SV127	06/21/2021 09:00:00	06/21/2021 09:59:00	60	Sample Interface Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	04/07/2021 11:00:00	04/07/2021 11:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	04/12/2021 10:00:00	04/12/2021 13:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	04/14/2021 08:00:00	04/14/2021 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	04/18/2021 12:00:00	04/18/2021 15:59:00	240	Data Handling System Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	04/18/2021 17:00:00	04/18/2021 17:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	04/23/2021 08:00:00	04/23/2021 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	NOx	SV144	06/03/2021 07:00:00	06/03/2021 10:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	06/15/2021 06:00:00	06/15/2021 07:59:00	120	Data Handling System Malfunction	Performed necessary maintenance
Line 6	NOx	SV144	06/18/2021 06:00:00	06/18/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/07/2021 11:00:00	04/07/2021 11:59:00	60	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	04/08/2021 06:00:00	04/08/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/08/2021 07:00:00	04/08/2021 07:59:00	60	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 6	SO2	SV144	04/09/2021 06:00:00	04/09/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/09/2021 07:00:00	04/09/2021 09:59:00	180	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 6	SO2	SV144	04/09/2021 10:00:00	04/09/2021 10:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/11/2021 06:00:00	04/11/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/11/2021 07:00:00	04/11/2021 08:59:00	120	Excess Drift Primary Analyzer	Performed necessary maintenance
Line 6	SO2	SV144	04/12/2021 10:00:00	04/12/2021 13:59:00	240	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	04/14/2021 08:00:00	04/14/2021 08:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/18/2021 12:00:00	04/18/2021 15:59:00	240	Data Handling System Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	04/18/2021 17:00:00	04/18/2021 17:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/22/2021 07:00:00	04/23/2021 05:59:00	1,380	Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	04/23/2021 06:00:00	04/23/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	04/23/2021 07:00:00	04/23/2021 07:59:00		Excess Drift Primary Analyzer	Performed necessary maintenance
Line 6	SO2	SV144	04/23/2021 08:00:00	04/23/2021 08:59:00		Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	06/02/2021 18:00:00	06/03/2021 05:59:00		Primary Analyzer Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	06/03/2021 06:00:00	06/03/2021 06:59:00		Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	06/03/2021 07:00:00	06/03/2021 10:59:00		Excess Drift Primary Analyzer	Performed necessary maintenance
Line 6	SO2	SV144	06/03/2021 11:00:00	06/03/2021 11:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 6	SO2	SV144	06/15/2021 06:00:00	06/15/2021 07:59:00	120	Data Handling System Malfunction	Performed necessary maintenance
Line 6	SO2	SV144	06/18/2021 06:00:00	06/18/2021 06:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	04/06/2021 07:00:00	04/06/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	04/15/2021 07:00:00	04/15/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	04/16/2021 07:00:00	04/16/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance

3) Duration of Monitor Downtime: Provide the following information regarding each period of monitor downtime. Make a separate table for each monitor, as needed.

3a) Monitor ID Number	3b) Pollutant or parameter monitored	3c) Emission Unit Being Monitored	3d) Beginning Date and Time of Downtime	3e) End Date and Time of Downtime	3f) Duration of Downtime (minutes)	3g) Reason for Monitor Downtime (clarifying comments)	3h) Corrective ActionTaken (clarifying comments)
Line 7	NOx	SV151	04/18/2021 12:00:00	04/18/2021 15:59:00	240	Data Handling System Malfunction	Performed necessary maintenance
Line 7	NOx	SV151	04/26/2021 07:00:00	04/26/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	04/28/2021 23:00:00	04/28/2021 23:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	05/23/2021 06:00:00	05/23/2021 08:59:00	180	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	06/07/2021 06:00:00	06/07/2021 07:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	06/15/2021 06:00:00	06/15/2021 07:59:00	120	Data Handling System Malfunction	Performed necessary maintenance
Line 7	NOx	SV151	06/17/2021 23:00:00	06/17/2021 23:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	06/18/2021 06:00:00	06/18/2021 07:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 7	NOx	SV151	06/18/2021 23:00:00	06/18/2021 23:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	04/06/2021 07:00:00	04/06/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	04/15/2021 07:00:00	04/15/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	04/16/2021 07:00:00	04/16/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	04/18/2021 12:00:00	04/18/2021 15:59:00	240	Data Handling System Malfunction	Performed necessary maintenance
Line 7	SO2	SV151	04/26/2021 07:00:00	04/26/2021 07:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	04/28/2021 23:00:00	04/28/2021 23:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO3	SV151	05/22/2021 21:00:00	05/22/2021 22:59:00	120	Primary Analyzer Malfunction	Performed necessary maintenance
Line 7	SO4	SV151	05/22/2021 23:00:00	05/22/2021 23:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO5	SV151	05/23/2021 00:00:00	05/23/2021 05:59:00	360	Primary Analyzer Malfunction	Performed necessary maintenance
Line 7	SO6	SV151	05/23/2021 06:00:00	05/23/2021 08:59:00	180	Automatic Calibration	Performed necessary maintenance
Line 7	SO7	SV151	05/24/2021 06:00:00	05/24/2021 07:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 7	SO8	SV151	06/07/2021 06:00:00	06/07/2021 07:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	06/09/2021 06:00:00	06/09/2021 07:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	06/15/2021 06:00:00	06/15/2021 07:59:00	120	Data Handling System Malfunction	Performed necessary maintenance
Line 7	SO2	SV151	06/17/2021 23:00:00	06/17/2021 23:59:00	60	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	06/18/2021 06:00:00	06/18/2021 07:59:00	120	Automatic Calibration	Performed necessary maintenance
Line 7	SO2	SV151	06/18/2021 23:00:00	06/18/2021 23:59:00	60	Automatic Calibration	Performed necessary maintenance
				3i) Total duration of downtime:	**269**	**hours**	

4) Duration of Excess Emissions: Provide the following information regarding each individual excess emission identified by a monitor. Make a separate table for each monitor, as needed.

4a) Emission Unit ID Number	4b) Monitor ID Number	4c) Pollutant or Parameter Monitored	4d) Beginning Date and Time of EE	4e) End Date and Time of EE	4f) Limit and Averaging Period	4g) Highest Reading of EE with Units (example: 5 lb/hr, etc)	4h) Duration of Exempt EE (include these entries as part of 4i)	4i) Total Duration of All EE	4j) Cause of EE (clarifying comments)	4k) Corrective Action Taken (clarifying comments)
SV-103	MR 001	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-118	MR 002	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-127	MR 003	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-144	MR 004	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A
SV-151	MR 005	Nox/SO2	N/A	N/A	N/A	N/A	0	0	N/A	N/A

4l) Cumulative Duration of Exempt Excess Emissions: 0 **4m) Cumulative Total** 0

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 3	SV103	NOx/SO2	4/1/21 7:58	4/1/21 11:03	184	YES	184	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	4/2/21 4:58	4/2/21 5:40	42	YES	42	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	4/10/21 15:07	4/10/21 18:23	196	YES	196	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	4/20/21 10:24	4/20/21 10:29	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	4/29/21 10:00	4/29/21 12:33	153	YES	153	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/7/21 9:21	5/7/21 11:14	113	YES	113	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/12/21 2:58	5/12/21 6:30	212	YES	212	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/12/21 6:30	5/12/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/12/21 14:30	5/12/21 16:27	117	YES	117	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/12/21 16:29	5/12/21 16:57	28	YES	28	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/21/21 12:54	5/21/21 13:17	23	YES	23	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/24/21 13:03	5/24/21 13:20	17	YES	17	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	5/28/21 7:56	5/28/21 9:55	119	YES	119	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/1/21 22:59	6/1/21 23:35	35	YES	35	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/4/21 10:00	6/4/21 11:27	87	YES	87	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/13/21 22:10	6/13/21 22:30	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/13/21 22:30	6/13/21 22:59	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/17/21 5:59	6/17/21 6:30	31	YES	31	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/17/21 6:30	6/17/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 3	SV103	NOx/SO2	6/17/21 14:30	6/17/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/17/21 22:30	6/18/21 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/18/21 6:30	6/18/21 8:51	141	YES	141	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/18/21 9:15	6/18/21 9:41	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/18/21 10:28	6/18/21 12:35	126	YES	126	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/24/21 22:21	6/24/21 22:30	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/24/21 22:30	6/24/21 22:35	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 3	SV103	NOx/SO2	6/25/21 22:41	6/25/21 23:01	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/4/21 19:50	4/4/21 20:43	54	YES	54	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/5/21 16:14	4/5/21 16:30	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/6/21 1:40	4/6/21 2:36	56	YES	56	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/6/21 16:02	4/6/21 16:22	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/7/21 3:15	4/7/21 3:22	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/7/21 13:57	4/7/21 14:14	17	YES	17	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/10/21 11:06	4/10/21 12:27	81	YES	81	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/12/21 11:57	4/12/21 12:09	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/12/21 13:25	4/12/21 13:49	23	YES	23	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/12/21 14:12	4/12/21 14:20	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/12/21 19:24	4/12/21 19:41	18	YES	18	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 4	SV118	NOx/SO2	4/13/21 22:32	4/13/21 22:59	27	YES	27	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/14/21 8:59	4/14/21 14:30	31	YES	31	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/14/21 14:30	4/14/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/14/21 22:30	4/15/21 0:09	99	YES	99	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/20/21 10:48	4/20/21 10:54	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/22/21 0:40	4/22/21 0:51	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	4/24/21 10:51	4/24/21 10:54	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/4/21 9:59	5/4/21 10:47	48	YES	48	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/10/21 9:59	5/10/21 11:39	100	YES	100	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/13/21 10:02	5/13/21 11:22	80	YES	80	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/19/21 1:59	5/19/21 2:59	60	YES	60	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/19/21 20:59	5/19/21 22:30	91	YES	91	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/19/21 22:30	5/20/21 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/20/21 6:30	5/20/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/20/21 14:30	5/20/21 16:18	108	YES	108	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/21/21 8:14	5/21/21 9:26	71	YES	71	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/25/21 12:27	5/25/21 12:41	14	YES	14	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/26/21 7:22	5/26/21 7:53	32	YES	32	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/26/21 14:28	5/26/21 14:30	2	YES	2	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 4	SV118	NOx/SO2	5/26/21 14:30	5/26/21 14:37	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/27/21 5:54	5/27/21 6:30	36	YES	36	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/27/21 6:30	5/27/21 9:27	177	YES	177	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/27/21 12:03	5/27/21 13:42	99	YES	99	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/27/21 15:54	5/27/21 16:13	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/27/21 20:58	5/27/21 21:09	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/27/21 23:43	5/27/21 23:50	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/28/21 0:04	5/28/21 0:12	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/28/21 4:31	5/28/21 4:36	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	5/28/21 8:01	5/28/21 8:46	45	YES	45	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/13/21 10:28	6/13/21 10:59	31	YES	31	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/17/21 23:59	6/18/21 6:30	391	YES	391	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/18/21 6:30	6/18/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/18/21 14:30	6/18/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/18/21 22:30	6/18/21 22:57	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/26/21 23:31	6/26/21 23:53	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/30/21 7:59	6/30/21 9:25	86	YES	86	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/30/21 10:24	6/30/21 10:53	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 4	SV118	NOx/SO2	6/30/21 10:24	6/30/21 10:53	29	YES	29	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	4/2/21 10:33	4/2/21 11:53	80	YES	80	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/5/21 12:58	4/5/21 13:35	36	YES	36	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/6/21 10:16	4/6/21 13:47	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/7/21 14:19	4/7/21 14:30	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/7/21 14:30	4/7/21 14:39	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/8/21 10:16	4/8/21 11:52	96	YES	96	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/9/21 9:57	4/9/21 11:37	101	YES	101	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/11/21 8:13	4/11/21 8:54	41	YES	41	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/14/21 1:59	4/14/21 2:10	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/14/21 10:33	4/14/21 14:14	221	YES	221	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/15/21 2:59	4/15/21 6:30	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/15/21 6:30	4/15/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/15/21 14:30	4/15/21 15:32	62	YES	62	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/15/21 16:10	4/15/21 16:45	35	YES	35	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/20/21 14:27	4/20/21 14:30	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/20/21 14:30	4/20/21 15:12	42	YES	42	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/21/21 7:30	4/21/21 9:04	94	YES	94	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/23/21 9:59	4/23/21 10:39	40	YES	40	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/26/21 6:31	4/26/21 7:22	51	YES	51	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/26/21 7:58	4/26/21 12:31	273	YES	273	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	4/26/21 16:30	4/26/21 16:38	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/27/21 10:01	4/27/21 10:54	52	YES	52	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	4/28/21 10:08	4/28/21 10:37	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/3/21 7:59	5/3/21 8:18	19	YES	19	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/4/21 22:28	5/4/21 22:30	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/4/21 22:30	5/4/21 22:59	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/5/21 20:59	5/5/21 22:30	91	YES	91	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/5/21 22:30	5/6/21 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/6/21 6:30	5/6/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/6/21 14:30	5/6/21 16:27	117	YES	117	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/6/21 16:59	5/6/21 18:06	68	YES	68	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/13/21 7:58	5/13/21 8:20	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/14/21 10:00	5/14/21 10:41	41	YES	41	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/17/21 9:58	5/17/21 10:40	43	YES	43	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/21/21 7:15	5/21/21 7:46	31	YES	31	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/27/21 8:01	5/27/21 8:57	56	YES	56	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/30/21 11:08	5/30/21 12:10	62	YES	62	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/30/21 12:12	5/30/21 14:30	138	YES	138	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/30/21 14:30	5/30/21 14:31	1	YES	1	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	5/30/21 15:32	5/30/21 16:00	27	YES	27	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	6/1/21 10:00	6/1/21 12:02	122	YES	122	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/1/21 19:38	6/1/21 19:59	21	YES	21	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/3/21 13:59	6/3/21 14:30	31	YES	31	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/3/21 14:30	6/3/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/3/21 22:30	6/4/21 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/4/21 6:30	6/4/21 8:05	95	YES	95	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/5/21 22:19	6/5/21 22:28	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/7/21 7:24	6/7/21 7:41	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/7/21 9:27	6/7/21 9:33	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/8/21 5:10	6/8/21 5:20	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/8/21 7:28	6/8/21 8:38	69	YES	69	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/9/21 10:33	6/9/21 14:30	237	YES	237	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/9/21 14:30	6/9/21 18:25	235	YES	235	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/11/21 19:21	6/11/21 19:23	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/12/21 15:53	6/12/21 16:01	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/13/21 10:58	6/13/21 11:59	61	YES	61	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/17/21 9:59	6/17/21 14:30	271	YES	271	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/17/21 14:30	6/17/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/17/21 22:30	6/18/21 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/18/21 6:30	6/18/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 5	SV127	NOx/SO2	6/18/21 14:30	6/18/21 15:23	53	YES	53	Bypass necessary to protect plant equipment.	N/A
Line 5	SV127	NOx/SO2	6/18/21 18:45	6/18/21 22:30	225	YES	225	Bypass necessary to protect plant equipment.	N/A
Line 5	SV128	NOx/SO3	6/18/21 22:30	6/19/21 1:18	168	YES	168	Bypass necessary to protect plant equipment.	N/A
Line 5	SV129	NOx/SO4	6/19/21 20:35	6/19/21 20:41	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 5	SV130	NOx/SO5	6/20/21 7:31	6/20/21 7:36	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 5	SV131	NOx/SO6	6/20/21 8:12	6/20/21 8:17	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 5	SV132	NOx/SO7	6/20/21 10:39	6/20/21 10:43	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 5	SV133	NOx/SO8	6/21/21 9:39	6/21/21 9:45	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 5	SV134	NOx/SO9	6/21/21 9:56	6/21/21 10:05	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/1/21 12:50	4/1/21 12:59	9	YES	9	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/1/21 13:06	4/1/21 13:10	4	YES	4	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/1/21 13:16	4/1/21 13:21	5	YES	5	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/1/21 13:27	4/1/21 13:34	7	YES	7	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/2/21 14:18	4/2/21 14:30	11	YES	11	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/2/21 14:30	4/2/21 14:32	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/3/21 16:07	4/3/21 16:34	27	YES	27	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/5/21 15:24	4/5/21 16:01	37	YES	37	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/8/21 18:39	4/8/21 19:03	24	YES	24	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/10/21 15:18	4/10/21 15:23	6	YES	6	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/13/21 10:07	4/13/21 10:11	3	YES	3	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 6	SV144	NOx/SO2	4/14/21 9:03	4/14/21 9:28	24	YES	24	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/16/21 8:23	4/16/21 8:56	33	YES	33	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/16/21 22:32	4/16/21 23:48	76	YES	76	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/17/21 7:52	4/17/21 8:14	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/17/21 11:18	4/17/21 11:39	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/18/21 8:26	4/18/21 8:52	25	YES	25	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/18/21 12:58	4/18/21 12:59	1	YES	1	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/18/21 15:59	4/18/21 20:51	292	YES	292	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/20/21 11:17	4/20/21 13:21	124	YES	124	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/20/21 22:27	4/20/21 22:59	32	YES	32	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/21/21 10:59	4/21/21 14:30	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/21/21 14:30	4/21/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/21/21 22:30	4/22/21 0:08	98	YES	98	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/22/21 1:13	4/22/21 1:17	3	YES	3	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/29/21 16:03	4/29/21 16:13	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	4/30/21 10:31	4/30/21 10:59	28	YES	28	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	5/4/21 9:58	5/4/21 10:18	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	5/10/21 21:36	5/10/21 22:30	54	YES	54	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	5/10/21 22:30	5/10/21 23:18	48	YES	48	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	5/10/21 23:19	5/11/21 0:59	101	YES	101	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a) Monitor ID number	5b) Emission Unit Required to be Monitored	5c) Pollutant and Limit Required to be Monitored	5d) Beginning Date and Time of Bypass Period	5e) End date and time of bypass period	5f) Duration of monitor bypass (minutes)	5g) Was P.C.E. operating during bypass period?	5h) Duration of allowable monitor bypass	5i) Reason for monitor bypass (clarifying comments)	5j) Corrective action taken (clarifying comments)
Line 6	SV144	NOx/SO2	5/25/21 10:36	5/25/21 11:08	32	YES	32	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	5/25/21 12:08	5/25/21 12:58	50	YES	50	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/4/21 22:11	6/4/21 22:28	17	YES	17	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/7/21 20:51	6/7/21 21:14	22	YES	22	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/13/21 22:00	6/13/21 22:30	30	YES	30	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/13/21 22:30	6/13/21 22:59	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/17/21 10:59	6/17/21 14:30	211	YES	211	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/17/21 14:30	6/17/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/17/21 22:30	6/18/21 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/18/21 6:30	6/18/21 11:35	305	YES	305	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/19/21 8:02	6/19/21 10:29	147	YES	147	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/22/21 10:35	6/22/21 10:45	10	YES	10	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/30/21 14:29	6/30/21 14:30	1	YES	1	Bypass necessary to protect plant equipment.	N/A
Line 6	SV144	NOx/SO2	6/30/21 14:30	6/30/21 14:46	16	YES	16	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/2/21 14:18	4/2/21 14:30	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/2/21 14:30	4/2/21 15:02	32	YES	32	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/6/21 7:42	4/6/21 10:57	195	YES	195	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/8/21 10:42	4/8/21 11:36	54	YES	54	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/8/21 13:40	4/8/21 14:06	26	YES	26	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/9/21 10:32	4/9/21 10:59	27	YES	27	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 7	SV151	NOx/SO2	4/12/21 12:59	4/12/21 13:18	19	YES	19	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/13/21 9:03	4/13/21 9:49	47	YES	47	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/14/21 10:39	4/14/21 12:12	93	YES	93	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/15/21 7:50	4/15/21 10:52	182	YES	182	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/16/21 7:59	4/16/21 8:17	18	YES	18	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/18/21 12:55	4/18/21 13:59	64	YES	64	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/18/21 17:59	4/18/21 22:30	271	YES	271	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/18/21 22:30	4/18/21 22:53	23	YES	23	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/22/21 10:16	4/22/21 14:30	254	YES	254	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/22/21 14:30	4/22/21 17:26	176	YES	176	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/26/21 7:54	4/26/21 8:19	25	YES	25	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/27/21 22:28	4/27/21 22:30	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/27/21 22:30	4/27/21 22:59	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/28/21 9:59	4/28/21 14:30	271	YES	271	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/28/21 14:30	4/28/21 21:38	428	YES	428	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/29/21 0:18	4/29/21 0:39	21	YES	21	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	4/30/21 10:32	4/30/21 10:59	27	YES	27	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/4/21 12:52	5/4/21 14:30	98	YES	98	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/4/21 14:30	5/4/21 15:21	51	YES	51	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/4/21 15:56	5/4/21 16:59	63	YES	63	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
Line 7	SV151	NOx/SO2	5/4/21 17:59	5/4/21 19:34	95	YES	95	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/14/21 9:37	5/14/21 14:30	293	YES	293	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/14/21 14:30	5/14/21 15:21	51	YES	51	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/25/21 22:30	5/25/21 22:59	29	YES	29	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/26/21 14:30	5/26/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	5/26/21 22:30	5/26/21 23:13	43	YES	43	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/4/21 21:04	6/4/21 21:06	2	YES	2	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/4/21 21:45	6/4/21 22:05	20	YES	20	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/4/21 22:12	6/4/21 22:30	19	YES	19	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/4/21 22:30	6/4/21 22:43	12	YES	12	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/13/21 23:01	6/13/21 23:59	58	YES	58	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/17/21 7:59	6/17/21 12:59	300	YES	300	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/17/21 15:59	6/17/21 22:30	391	YES	391	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/17/21 22:30	6/18/21 6:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/18/21 6:30	6/18/21 14:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/18/21 14:30	6/18/21 22:30	480	YES	480	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/18/21 22:30	6/19/21 3:47	317	YES	317	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/24/21 10:00	6/24/21 10:44	44	YES	44	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/28/21 17:30	6/28/21 17:37	8	YES	8	Bypass necessary to protect plant equipment.	N/A
Line 7	SV151	NOx/SO2	6/30/21 14:30	6/30/21 14:59	30	YES	30	Bypass necessary to protect plant equipment.	N/A

5) Monitor Bypasses: Provide the following information for each period in which an emission unit is operating but is not being monitored because emissions were either partially or totally diverted around the monitoring system *See Minn. R. 7017.1110 subp. 2c*

5a)	5b)	5c)	5d)	5e)	5f)	5g)	5h)	5i)	5j)
Monitor ID number	Emission Unit Required to be Monitored	Pollutant and Limit Required to be Monitored	Beginning Date and Time of Bypass Period	End date and time of bypass period	Duration of monitor bypass (minutes)	Was P.C.E. operating during bypass period?	Duration of allowable monitor bypass	Reason for monitor bypass (clarifying comments)	Corrective action taken (clarifying comments)
			5k) Total duration of allowable monitor bypass:				433	hours	

6) CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature of Responsible Official

Lukas Klemke
Printed Name of Responsible Official

Plant Manager - Minnesota Ore
Title

July 29, 2021
Date

U.S. Steel Corporation
Minntac
Moutain Iron, Minnesota

Barr Engineering Co.
June 22, 2021

TABLE 1

RATA RESULTS SUMMARY
Line 3 Waste Gas Stack (SV103)
May 27, 2021

Sulfur Dioxide Emission Rate Relative Accuracy		Calculated using the Reference Method				*Relative Accuracy Limit*			*20%*
SO_2, lb/hr	Run 1 0915-0936	Run 2 0936-0957	Run 3 0957-1018	Run 4 1039-1100	Run 5 1100-1121	Run 6 1121-1142	Run 7 1200-1221	Run 9 1242-1303	Run 10 1324-1345
Reference Method lb/hr	96.8	100.6	91.7	85.2	86.9	82.2	84.8	87.4	88.2
CEM lb/hr	92.2	95.9	88.2	79.6	82.3	77.8	77.9	80.8	81.2
Difference	-4.6	-4.7	-3.5	-5.7	-4.6	-4.3	-6.9	-6.6	-7.1
Average Difference	-5.3	Standard Deviation of the Differences			1.3	Relative Accuracy			7.1%
Confidence Coefficient	1.0	Average Reference Method, SO2 lb/hr			89.3	Average CEM, SO_2 lb/hr			84.0

Oxides of Nitrogen Emission Rate Relative Accurac		Calculated using the Reference Method				*Relative Accuracy Limit*			*20%*
NO_X, lb/hr	Run 1 0915-0936	Run 2 0936-0957	Run 4 1039-1100	Run 5 1100-1121	Run 6 1121-1142	Run 7 1200-1221	Run 8 1221-1242	Run 9 1242-1303	Run 10 1324-1345
Reference Method lb/hr	320.6	317.9	320.7	317.9	311.2	318.2	327.0	355.3	344.4
CEM lb/hr	352.8	350.6	348.1	349.8	343.8	349.4	359.9	392.0	377.0
Difference	32.2	32.7	27.4	31.8	32.6	31.2	32.8	36.7	32.6
Average Difference	32.2	Standard Deviation of the Differences			2.4	Relative Accuracy			10.4%
Confidence Coefficient	1.8	Average Reference Method, NOx lb/hr			325.9	Average CEM, lb/hr			358.1

U.S. Steel Corporation
Minntac
Moutain Iron, Minnesota

Barr Engineering Co.
June 22, 2021

TABLE 2

RATA RESULTS SUMMARY
Line 4 Waste Gas Stack (SV118)

May 25-26, 2021

Tested May 26, 2021

Sulfur Dioxide Emission Rate Relative Accuracy	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
SO_2, lb/hr	Run 1 0905-0926	Run 2 0926-0947	Run 3 1008-1029	Run 4 1029-1050	Run 5 1050-1111	Run 6 1139-1200	Run 7 1200-1221	Run 8 1221-1242	Run 9 1300-1321
Reference Method lb/hr	67.2	65.8	53.8	51.4	41.1	49.8	66.3	51.8	57.0
CEM lb/hr	68.9	67.6	59.2	53.8	44.9	55.6	71.4	58.2	67.4
Difference	1.8	1.8	5.4	2.4	3.9	5.8	5.1	6.3	10.4
Average Difference	4.8	Standard Deviation of the Differences			2.7	Relative Accuracy			12.3%
Confidence Coefficient	2.1	Average Reference Method, SO2 lb/hr			56.0	Average CEM, SO_2 lb/hr			60.8

Tested May 25, 2021

Oxides of Nitrogen Emission Rate Relative Accurac	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
NO_X, lb/hr	Run 1 1135-1156	Run 2 1156-1217	Run 3 1415-1436	Run 4 1436-1457	Run 5 1457-1518	Run 6 1545-1606	Run 7 1606-1627	Run 8 1627-1648	Run 9 1707-1728
Reference Method lb/hr	316.4	315.3	508.5	464.0	425.1	434.2	431.1	432.9	433.0
CEM lb/hr	349.3	348.0	537.6	485.9	443.6	439.1	438.3	439.9	435.0
Difference	32.8	32.7	29.0	22.0	18.5	4.9	7.2	7.0	2.0
Average Difference	17.3	Standard Deviation of the Differences			12.4	Relative Accuracy			6.4%
Confidence Coefficient	9.5	Average Reference Method, NOx lb/hr			417.8	Average CEM, lb/hr			435.2

U.S. Steel Corporation
Minntac
Moutain Iron, Minnesota

Barr Engineering Co.
June 18, 2021

TABLE 3

RATA RESULTS SUMMARY
Line 5 Waste Gas Stack (SV127)
May 20, 2021

Sulfur Dioxide Emission Rate Relative Accuracy	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
SO_2, lb/hr	Run 1 1215-1236	Run 2 1236-1257	Run 3 1312-1333	Run 4 1333-1354	Run 6 1554-1615	Run 7 1628-1649	Run 8 1649-1710	Run 9 1726-1747	Run 10 1747-1808
Reference Method lb/hr	50.3	50.3	48.2	45.5	76.1	76.3	73.9	32.7	36.2
CEM lb/hr	55.9	55.8	54.8	54.6	79.8	78.5	76.3	41.6	42.9
Difference	5.6	5.5	6.6	9.1	3.7	2.2	2.4	8.9	6.6
Average Difference	5.6	Standard Deviation of the Differences			2.5	**Relative Accuracy**			**13.9%**
Confidence Coefficient	1.9	Average Reference Method, SO2 lb/hr			54.4	Average CEM, SO_2 lb/hr			60.0

Oxides of Nitrogen Emission Rate Relative Accurac	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
NO_X, lb/hr	Run 1 1215-1236	Run 2 1236-1257	Run 3 1312-1333	Run 5 1354-1415	Run 6 1554-1615	Run 7 1628-1649	Run 8 1649-1710	Run 9 1726-1747	Run 10 1747-1808
Reference Method lb/hr	320.5	347.4	319.7	244.1	424.4	473.3	410.8	221.8	342.4
CEM lb/hr	341.2	367.3	338.2	263.5	434.7	488.8	425.7	236.1	354.2
Difference	20.7	19.9	18.5	19.4	10.3	15.5	15.0	14.3	11.8
Average Difference	16.2	Standard Deviation of the Differences			3.7	**Relative Accuracy**			**5.5%**
Confidence Coefficient	2.8	Average Reference Method, NOx lb/hr			344.9	Average CEM, lb/hr			361.1

U.S. Steel Corporation
Minntac
Moutain Iron, Minnesota

Barr Engineering Co.
June 18, 2021

TABLE 4

RATA RESULTS SUMMARY
Line 6 Waste Gas Stack (SV144)
May 19, 2021

Sulfur Dioxide Emission Rate Relative Accuracy	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
SO_2, lb/hr	Run 1 1022-1043	Run 2 1043-1104	Run 4 1141-1202	Run 5 1217-1238	Run 6 1238-1259	Run 7 1314-1335	Run 8 1335-1356	Run 9 1411-1432	Run 10 1432-1453
Reference Method lb/hr	51.6	49.0	48.2	52.0	49.0	47.2	47.0	49.6	49.1
CEM lb/hr	48.3	44.8	44.9	48.0	45.0	43.8	45.1	46.1	47.9
Difference	-3.3	-4.2	-3.4	-4.1	-4.0	-3.4	-1.9	-3.4	-1.2
Average Difference	-3.2	Standard Deviation of the Differences			1.0	**Relative Accuracy**			**8.1%**
Confidence Coefficient	0.8	Average Reference Method, SO2 lb/hr			49.2	Average CEM, SO_2 lb/hr			45.7

Oxides of Nitrogen Emission Rate Relative Accurac	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
NO_X, lb/hr	Run 1 1022-1043	Run 2 1043-1104	Run 3 1120-1141	Run 4 1141-1202	Run 5 1217-1238	Run 6 1238-1259	Run 7 1314-1335	Run 8 1335-1356	Run 9 1411-1432
Reference Method lb/hr	276.2	271.0	273.6	261.8	273.2	277.8	264.1	264.0	265.7
CEM lb/hr	314.1	312.7	312.2	300.1	309.4	315.2	305.7	305.6	306.3
Difference	37.9	41.6	38.6	38.3	36.2	37.5	41.6	41.6	40.6
Average Difference	39.3	Standard Deviation of the Differences			2.1	**Relative Accuracy**			**15.2%**
Confidence Coefficient	1.6	Average Reference Method, NOx lb/hr			269.7	Average CEM, lb/hr			309.0

U.S. Steel Corporation
Minntac
Moutain Iron, Minnesota

Barr Engineering Co.
June 21, 2021

TABLE 5

RATA RESULTS SUMMARY
Line 7 Waste Gas Stack (SV151)
May 18, 2021

Sulfur Dioxide Emission Rate Relative Accuracy	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
SO_2, lb/hr	Run 1 910-0931	Run 2 0947-1008	Run 3 1008-1029	Run 4 1049-1110	Run 5 1110-1131	Run 6 1213-1234	Run 7 1234-1255	Run 8 1315-1336	Run 9 1336-1357
Reference Method lb/hr	79.3	77.1	76.7	78.2	80.0	93.7	88.2	82.7	80.9
CEM lb/hr	81.1	83.6	82.1	84.8	87.9	101.2	95.9	92.9	90.7
Difference	1.7	6.6	5.4	6.6	7.9	7.5	7.7	10.2	9.8
Average Difference	7.0	Standard Deviation of the Differences			2.5	**Relative Accuracy**			**11.0%**
Confidence Coefficient	1.9	Average Reference Method, SO2 lb/hr			81.9	Average CEM, SO_2 lb/hr			88.9

Oxides of Nitrogen Emission Rate Relative Accurac	Calculated using the Reference Method					*Relative Accuracy Limit*			*20%*
NO_X, lb/hr	Run 1 910-0931	Run 2 0947-1008	Run 3 1008-1029	Run 4 1049-1110	Run 5 1110-1131	Run 6 1213-1234	Run 8 1315-1336	Run 9 1336-1357	Run 10 1416-1437
Reference Method lb/hr	244.6	234.8	237.6	242.3	239.4	240.5	230.1	227.9	231.5
CEM lb/hr	262.8	260.6	260.2	264.7	261.9	259.9	262.8	258.9	266.4
Difference	18.1	25.7	22.6	22.4	22.5	19.4	32.7	31.0	34.8
Average Difference	25.5	Standard Deviation of the Differences			6.0	**Relative Accuracy**			**12.7%**
Confidence Coefficient	4.6	Average Reference Method, NOx lb/hr			236.5	Average CEM, lb/hr			262.0

Summary Table by Monitor Downtime Type
U. S. Steel - Minntac
2nd Quarter 2021

NOx

Line	Duration (Hrs)	Description
Line 3	4	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	4	Primary Analyzer Malfunction
	0	Preventative Maintenance
	1	Sample Interface Malfunction
Line 4	8	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	7	Excess Drift Primary Analyzer
	2	Sample Interface Malfunction
	10	Primary Analyzer Malfunction
Line 5	6	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	3	Sample Interface Malfunction
	13	Primary Analyzer Malfunction
Line 6	4	Automatic Calibration
	6	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	9	Primary Analyzer Malfunction
	0	Sample Interface Malfunction
Line 7	14	Automatic Calibration
	6	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	0	Primary Analyzer Malfunction
	0	Sample Interface Malfunction
	0	Preventative Maintenance

SO2

Line	Duration (Hrs)	Description
Line 3	4	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	0	Excess Drift Primary Analyzer
	0	Sample Interface Malfunction
	0	Preventative Maintenance
	4	Primary Analyzer Malfunction
Line 4	8	Automatic Calibration
	0	Data Handling System Malfunction
	0	Excess Drift Ancillary Analyzer
	5	Excess Drift Primary Analyzer
	45	Primary Analyzer Malfunction
	2	Sample Interface Malfunction
	0	Preventative Maintenance
Line 5	6	Automatic Calibration
	0	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	3	Sample Interface Malfunction
	13	Primary Analyzer Malfunction
	0	Preventative Maintenance
Line 6	11	Automatic Calibration
	6	Data Handling System Malfunction
	0	Sample Interface Malfunction
	0	Secondary Analyzer Malfunction
	11	Excess Drift Primary Analyzer
	40	Primary Analyzer Malfunction
	0	Sample Interface Malfunction
Line 7	19	Automatic Calibration
	6	Data Handling System Malfunction
	0	Secondary Analyzer Malfunction
	0	Excess Drift Primary Analyzer
	8	Primary Analyzer Malfunction