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NEW Water
The brand of the Green Bay Metropolitan Sewerage District

August 3, 2020

Tania Taff
Air Management Engineer
Division of Environmental Management
Wisconsin Department of Natural Resources
2984 Shawano Ave
Green Bay, WI 54313

RE: Correction to Green Bay Metropolitan Sewerage District Deviation Reports, (40 CFR 60, Subpart LLLL) July 1-December 31, 2018 and January 1 – June 30, 2019

Dear Ms. Taff:

The purpose of this letter is to correct two compliance reports that were submitted to the Wisconsin Department of Natural Resources by the Green Bay Metropolitan Sewerage District (GBMSD).

GBMSD is subject to the Standards of Performance for New Sewage Sludge Incineration Units under 40 CFR 60 Subpart LLLL. In 2018, GBMSD began operating a new fluid bed incinerator (FBI) at its facility in Green Bay, Wisconsin. The FBI was installed as part of the Resource Recovery and Electrical Energy (R2E2) project. The FBI was first fired on May 8, 2018 and reached operating capacity on July 23, 2018. Initial emission compliance testing was conducted on October 17 and 18, 2018.

Under Subpart LLLL, facilities must submit deviation reports twice a year to report any periods of deviation from operating limits or emission limits experienced during the reporting period. The reports are due to the Administrator on August 1 and February 1. The deviation report for the reporting period of July 1 – December 31, 2018 was submitted to WDNR on January 31, 2019. The deviation report for the reporting period of January 1 – June 30, 2019 was submitted to WDNR on August 1, 2019.

Operating limits for sewage sludge incinerators are established based on operating conditions during emissions testing. Initial compliance stack testing of the new fluid bed incinerator was conducted on October 17 and 18, 2018.

When the initial operating limits were set, GBMSD's new fluid bed incinerator system was undergoing commissioning and experiencing a variety of startup challenges. At the time of testing, the system vendors and contractors were working with GBMSD to bring the new system online. Normal operation had not yet been established. GBMSD assumed control of the system in late 2018. Since then, GBMSD personnel have gained more operating experience and are more familiar with the equipment and instrumentation related to parametric monitoring.

We have recently discovered an error in the calculation of the limit for one parameter, scrubber liquid flow rate, after the initial compliance emissions test. GBMSD's site specific monitoring plan establishes that the minimum limit for scrubber liquid flow rate is to be calculated by summing flow from five flow meters. The five flow meters measure water flow to the quench section (FIT 0455), the impingement tray section (FIT 0513, FIT 0515) and the two supplies to the venturis (FIT 6455, FIT 6456).

Green Bay Metropolitan Sewerage District
2231 North Quincy Street | Green Bay, WI 54302 | Phone (920) 432-4893 | Fax (920) 432-4302 | www.newwater.us

We have since discovered that when operating limits were calculated after the initial emissions compliance test, only four of the monitoring points were included in the sum. FIT 0455 was erroneously excluded. The calculated operating limit at the time was 317 gallons per minute (gpm). No deviations were reported while we operated under this limit, from October 18, 2018 through June 30, 2018.

Recent review of air pollution control operating data caused us to question the initial 317 gpm limit, as it was considerably lower than typical operating conditions today. While data from only four flow meters were used to calculate the initial operating limit, all five flow meters have been operating and monitored continuously since the system went online. Using data from all five meters during the October 2018 emissions testing, we determined that the minimum limit would have been 418 gpm. Analyzing the monitoring data from October 18, 2018 through June 30, 2018, we've identified deviations that would have been reported at the time.

From October 18 through December 31, 2018, zero deviations were reported. 68 deviations are reported now. The average scrubber flow rate during periods of deviation was 405 gpm. The median scrubber flow rate during periods of deviation was 404 gpm. The lowest scrubber flow rate during periods of deviation was 372 gpm.

From January 1 through June 30, 2019, zero deviations were reported. 17 deviations are reported now. The average scrubber flow rate during periods of deviation was 407 gpm. The median scrubber flow rate during periods of deviation was 406 gpm. The lowest scrubber flow rate during periods of deviation was 402 gpm.

Average and recorded data for the periods of deviation are included in the Appendix.

Please note that flow rate during periods of deviation were well above the minimum limit that had been calculated originally. We did not realize at the time that the calculated limit was lower than it should have been, and we believed operation was in compliance with the calculated operating limit for scrubber flow rate.

Certification Statement
As a responsible official for Green Bay Metropolitan Sewerage District, I certify that this correction to Deviation Reports dated January 31, 2019 and August 1, 2019 is truthful, accurate, and complete.

We'd welcome the chance to discuss this with you. Please contact Julie Maas by phone at (920) 438-1045 or email at jmaas@newwater.us if you have any questions or comments.

Sincerely,

GREEN BAY METROPOLITAN SEWERAGE DISTRICT

Thomas W. Sigmund

Thomas W. Sigmund, P.E.
Executive Director

Appendix: Scrubber liquid flow rate deviations with recorded data

APPENDIX
SCRUBBER LIQUID FLOW RATE
DEVIATIONS WITH RECORDED DATA

SCRUBBER LIQUID FLOW DEVIATIONS OCTOBER 18, 2018 – DECEMBER 31, 2018

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
11/01/18 07:00:00	425	411
11/01/18 08:00:00	419	
11/01/18 09:00:00	408	
11/01/18 10:00:00	408	
11/01/18 11:00:00	407	
11/01/18 12:00:00	409	
11/01/18 13:00:00	408	
11/01/18 14:00:00	407	
NO SLUDGE COMBUSTION		
11/01/18 16:00:00	413	
11/01/18 17:00:00	409	
11/01/18 18:00:00	408	
11/01/18 19:00:00	412	
11/01/18 20:00:00	415	415
11/01/18 21:00:00	414	
11/01/18 22:00:00	414	
11/01/18 23:00:00	415	
11/02/18 00:00:00	414	
11/02/18 01:00:00	415	
11/02/18 02:00:00	415	
11/02/18 03:00:00	415	
11/02/18 04:00:00	414	
11/02/18 05:00:00	414	
11/02/18 06:00:00	415	
11/02/18 07:00:00	414	
11/02/18 08:00:00	413	413
11/02/18 09:00:00	411	
11/02/18 10:00:00	412	
11/02/18 11:00:00	404	
11/02/18 12:00:00	415	
11/02/18 13:00:00	419	
11/02/18 14:00:00	419	
11/02/18 15:00:00	418	
NO SLUDGE COMBUSTION		
11/14/18 14:00:00	413	
11/14/18 15:00:00	412	
11/14/18 16:00:00	411	
11/14/18 17:00:00	407	
11/14/18 18:00:00	408	411
11/14/18 19:00:00	410	
11/14/18 20:00:00	408	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
11/14/18 21:00:00	409	
11/14/18 22:00:00	408	
11/14/18 23:00:00	408	
11/15/18 00:00:00	410	
11/15/18 01:00:00	410	
11/15/18 02:00:00	412	
11/15/18 03:00:00	414	
11/15/18 04:00:00	414	
11/15/18 05:00:00	416	
11/15/18 06:00:00	419	402
11/15/18 07:00:00	417	
11/15/18 08:00:00	418	
	NO SLUDGE COMBUSTION	
11/15/18 10:00:00	407	
11/15/18 11:00:00	382	
11/15/18 12:00:00	376	
11/15/18 13:00:00	390	
11/15/18 14:00:00	391	
11/15/18 15:00:00	391	
11/15/18 16:00:00	392	
11/15/18 17:00:00	419	
11/15/18 18:00:00	418	
11/16/18 07:00:00	420	417
11/16/18 08:00:00	418	
11/16/18 09:00:00	419	
11/16/18 10:00:00	419	
11/16/18 11:00:00	417	
11/16/18 12:00:00	416	
11/16/18 13:00:00	416	
11/16/18 14:00:00	418	
11/16/18 15:00:00	417	
11/16/18 16:00:00	415	
11/16/18 17:00:00	415	
11/16/18 18:00:00	415	
11/16/18 19:00:00	414	416
11/16/18 20:00:00	415	
11/16/18 21:00:00	416	
11/16/18 22:00:00	416	
11/16/18 23:00:00	416	
11/17/18 00:00:00	417	
11/17/18 01:00:00	416	
11/17/18 02:00:00	416	
11/17/18 03:00:00	415	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
11/17/18 04:00:00	417	
11/17/18 05:00:00	416	
11/17/18 06:00:00	416	
11/17/18 07:00:00	416	416
11/17/18 08:00:00	420	
11/17/18 09:00:00	416	
11/17/18 10:00:00	415	
11/17/18 11:00:00	413	
11/17/18 12:00:00	414	
11/17/18 13:00:00	414	
11/17/18 14:00:00	417	
11/17/18 15:00:00	416	
11/17/18 16:00:00	417	
11/17/18 17:00:00	416	
11/17/18 18:00:00	417	
11/18/18 07:00:00	418	407
11/18/18 08:00:00	418	
11/18/18 09:00:00	419	
11/18/18 10:00:00	417	
11/18/18 11:00:00	417	
11/18/18 12:00:00	415	
11/18/18 13:00:00	415	
11/18/18 14:00:00	417	
11/18/18 15:00:00	417	
11/18/18 16:00:00	418	
11/18/18 17:00:00	424	
11/18/18 18:00:00	283	
	NO SLUDGE COMBUSTION	
11/19/18 12:00:00	429	416
11/19/18 13:00:00	420	
11/19/18 14:00:00	412	
11/19/18 15:00:00	408	
11/19/18 16:00:00	406	
11/19/18 17:00:00	413	
11/19/18 18:00:00	425	
11/19/18 19:00:00	423	
11/19/18 20:00:00	418	
11/19/18 21:00:00	410	
11/19/18 22:00:00	413	
11/19/18 23:00:00	414	
11/20/18 12:00:00	408	408
11/20/18 13:00:00	409	
11/20/18 14:00:00	408	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
11/20/18 15:00:00	409	
11/20/18 16:00:00	407	
11/20/18 17:00:00	408	
11/20/18 18:00:00	407	
11/20/18 19:00:00	409	
11/20/18 20:00:00	408	
11/20/18 21:00:00	408	
11/20/18 22:00:00	407	
11/20/18 23:00:00	406	
11/21/18 00:00:00	408	412
11/21/18 01:00:00	410	
11/21/18 02:00:00	414	
11/21/18 03:00:00	418	
11/21/18 04:00:00	419	
11/21/18 05:00:00	414	
11/21/18 06:00:00	414	
11/21/18 07:00:00	410	
11/21/18 08:00:00	412	
11/21/18 09:00:00	406	
11/21/18 10:00:00	412	
11/21/18 11:00:00	401	
11/21/18 12:00:00	402	414
11/21/18 13:00:00	417	
11/21/18 14:00:00	421	
11/21/18 15:00:00	414	
11/21/18 16:00:00	413	
11/21/18 17:00:00	412	
11/21/18 18:00:00	414	
11/21/18 19:00:00	413	
11/21/18 20:00:00	416	
11/21/18 21:00:00	417	
11/21/18 22:00:00	418	
11/21/18 23:00:00	417	
11/22/18 00:00:00	417	417
11/22/18 01:00:00	417	
11/22/18 02:00:00	418	
11/22/18 03:00:00	417	
11/22/18 04:00:00	415	
11/22/18 05:00:00	416	
11/22/18 06:00:00	420	
11/22/18 07:00:00	417	
11/22/18 08:00:00	417	
11/22/18 09:00:00	416	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
11/22/18 10:00:00	415	
11/22/18 11:00:00	424	
11/26/18 11:00:00	412	403
11/26/18 12:00:00	409	
11/26/18 13:00:00	409	
11/26/18 14:00:00	404	
11/26/18 15:00:00	404	
11/26/18 16:00:00	413	
11/26/18 17:00:00	398	
11/26/18 18:00:00	403	
11/26/18 19:00:00	406	
11/26/18 20:00:00	404	
11/26/18 21:00:00	390	
11/26/18 22:00:00	384	
11/26/18 23:00:00	392	402
11/27/18 00:00:00	402	
11/27/18 01:00:00	398	
11/27/18 02:00:00	387	
11/27/18 03:00:00	389	
11/27/18 04:00:00	407	
11/27/18 05:00:00	406	
11/27/18 06:00:00	411	
11/27/18 07:00:00	410	
11/27/18 08:00:00	411	
11/27/18 09:00:00	408	
11/27/18 10:00:00	407	
11/27/18 11:00:00	404	397
11/27/18 12:00:00	401	
11/27/18 13:00:00	397	
11/27/18 14:00:00	382	
11/27/18 15:00:00	388	
11/27/18 16:00:00	391	
11/27/18 17:00:00	386	
11/27/18 18:00:00	387	
11/27/18 19:00:00	402	
11/27/18 20:00:00	409	
NO SLUDGE COMBUSTION		
11/27/18 22:00:00	416	
11/27/18 23:00:00	401	
11/28/18 00:00:00	407	406
11/28/18 01:00:00	403	
11/28/18 02:00:00	407	
11/28/18 03:00:00	405	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
11/28/18 04:00:00	415	
11/28/18 05:00:00	409	
11/28/18 06:00:00	409	
11/28/18 07:00:00	408	
11/28/18 08:00:00	392	
11/28/18 09:00:00	405	
11/28/18 10:00:00	403	
11/28/18 11:00:00	403	
11/28/18 12:00:00	391	398
11/28/18 13:00:00	382	
11/28/18 14:00:00	388	
11/28/18 15:00:00	394	
11/28/18 16:00:00	395	
11/28/18 17:00:00	397	
11/28/18 18:00:00	399	
11/28/18 19:00:00	405	
11/28/18 20:00:00	405	
11/28/18 21:00:00	405	
11/28/18 22:00:00	404	
11/28/18 23:00:00	412	
11/29/18 00:00:00	412	404
11/29/18 01:00:00	409	
11/29/18 02:00:00	410	
11/29/18 03:00:00	409	
11/29/18 04:00:00	410	
11/29/18 05:00:00	405	
11/29/18 06:00:00	403	
11/29/18 07:00:00	385	
11/29/18 08:00:00	392	
11/29/18 09:00:00	401	
11/29/18 10:00:00	405	
11/29/18 11:00:00	404	
11/29/18 12:00:00	403	396
11/29/18 13:00:00	393	
11/29/18 14:00:00	377	
11/29/18 15:00:00	377	
NO SLUDGE COMBUSTION		
11/29/18 20:00:00	408	
11/29/18 21:00:00	406	
11/29/18 22:00:00	409	
11/29/18 23:00:00	413	
11/30/18 00:00:00	402	
11/30/18 01:00:00	404	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
NO SLUDGE COMBUSTION		
11/30/18 10:00:00	388	
11/30/18 11:00:00	406	398
11/30/18 12:00:00	395	
11/30/18 13:00:00	387	
11/30/18 14:00:00	393	
11/30/18 15:00:00	399	
11/30/18 16:00:00	398	
11/30/18 17:00:00	401	
11/30/18 18:00:00	401	
11/30/18 19:00:00	400	
11/30/18 20:00:00	399	
11/30/18 21:00:00	399	
11/30/18 22:00:00	398	
11/30/18 23:00:00	400	400
12/01/18 00:00:00	400	
12/01/18 01:00:00	400	
12/01/18 02:00:00	400	
12/01/18 03:00:00	400	
12/01/18 04:00:00	400	
12/01/18 05:00:00	399	
12/01/18 06:00:00	395	
12/01/18 07:00:00	398	
12/01/18 08:00:00	402	
12/01/18 09:00:00	406	
12/01/18 10:00:00	404	
12/01/18 11:00:00	402	402
12/01/18 12:00:00	401	
12/01/18 13:00:00	401	
12/01/18 14:00:00	400	
12/01/18 15:00:00	399	
12/01/18 16:00:00	400	
12/01/18 17:00:00	401	
12/01/18 18:00:00	405	
12/01/18 19:00:00	402	
12/01/18 20:00:00	403	
12/01/18 21:00:00	402	
12/01/18 22:00:00	402	
12/01/18 23:00:00	402	402
12/02/18 00:00:00	403	
12/02/18 01:00:00	402	
12/02/18 02:00:00	401	
12/02/18 03:00:00	401	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/02/18 04:00:00	400	
12/02/18 05:00:00	400	
12/02/18 06:00:00	404	
12/02/18 07:00:00	406	
12/02/18 08:00:00	404	
12/02/18 09:00:00	401	
12/02/18 10:00:00	398	
12/02/18 11:00:00	397	399
12/02/18 12:00:00	399	
12/02/18 13:00:00	401	
12/02/18 14:00:00	401	
12/02/18 15:00:00	401	
12/02/18 16:00:00	400	
12/02/18 17:00:00	399	
12/02/18 18:00:00	399	
12/02/18 19:00:00	397	
12/02/18 20:00:00	399	
12/02/18 21:00:00	397	
12/02/18 22:00:00	400	
12/02/18 23:00:00	398	400
12/03/18 00:00:00	402	
12/03/18 01:00:00	403	
12/03/18 02:00:00	402	
12/03/18 03:00:00	402	
12/03/18 04:00:00	402	
12/03/18 05:00:00	403	
12/03/18 06:00:00	399	
12/03/18 07:00:00	402	
12/03/18 08:00:00	399	
12/03/18 09:00:00	396	
12/03/18 10:00:00	395	
12/03/18 11:00:00	397	394
12/03/18 12:00:00	396	
12/03/18 13:00:00	395	
12/03/18 14:00:00	395	
12/03/18 15:00:00	393	
12/03/18 16:00:00	396	
12/03/18 17:00:00	395	
12/03/18 18:00:00	394	
12/03/18 19:00:00	389	
12/03/18 20:00:00	387	
12/03/18 21:00:00	393	
12/03/18 22:00:00	400	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/03/18 23:00:00	401	404
12/04/18 00:00:00	397	
12/04/18 01:00:00	406	
12/04/18 02:00:00	406	
12/04/18 03:00:00	408	
12/04/18 04:00:00	407	
12/04/18 05:00:00	408	
12/04/18 06:00:00	407	
12/04/18 07:00:00	407	
12/04/18 08:00:00	403	
12/04/18 09:00:00	399	
12/04/18 10:00:00	402	
12/04/18 11:00:00	406	403
12/04/18 12:00:00	405	
12/04/18 13:00:00	402	
12/04/18 14:00:00	392	
12/04/18 15:00:00	400	
12/04/18 16:00:00	404	
12/04/18 17:00:00	405	
12/04/18 18:00:00	406	
12/04/18 19:00:00	405	
12/04/18 20:00:00	404	
12/04/18 21:00:00	405	
12/04/18 22:00:00	406	
12/04/18 23:00:00	406	404
12/05/18 00:00:00	407	
12/05/18 01:00:00	408	
12/05/18 02:00:00	410	
12/05/18 03:00:00	410	
12/05/18 04:00:00	409	
12/05/18 05:00:00	404	
12/05/18 06:00:00	401	
12/05/18 07:00:00	403	
12/05/18 08:00:00	401	
12/05/18 09:00:00	394	
12/05/18 10:00:00	400	
12/05/18 11:00:00	398	389
12/05/18 12:00:00	396	
12/05/18 13:00:00	398	
12/05/18 14:00:00	397	
12/05/18 15:00:00	392	
12/05/18 16:00:00	392	
12/05/18 17:00:00	395	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/05/18 18:00:00	399	
12/05/18 19:00:00	387	
12/05/18 20:00:00	372	
12/05/18 21:00:00	373	
12/05/18 22:00:00	370	
12/05/18 23:00:00	367	372
12/06/18 00:00:00	376	
12/06/18 01:00:00	377	
12/06/18 02:00:00	378	
12/06/18 03:00:00	382	
12/06/18 04:00:00	380	
12/06/18 05:00:00	378	
12/06/18 06:00:00	374	
12/06/18 07:00:00	361	
12/06/18 08:00:00	378	
12/06/18 09:00:00	364	
12/06/18 10:00:00	348	
12/06/18 11:00:00	379	400
12/06/18 12:00:00	398	
12/06/18 13:00:00	400	
12/06/18 14:00:00	402	
12/06/18 15:00:00	403	
12/06/18 16:00:00	405	
12/06/18 17:00:00	404	
12/06/18 18:00:00	404	
12/06/18 19:00:00	403	
12/06/18 20:00:00	402	
12/06/18 21:00:00	401	
12/06/18 22:00:00	402	
12/06/18 23:00:00	402	404
12/07/18 00:00:00	403	
12/07/18 01:00:00	406	
12/07/18 02:00:00	407	
12/07/18 03:00:00	405	
12/07/18 04:00:00	407	
12/07/18 05:00:00	406	
12/07/18 06:00:00	409	
12/07/18 07:00:00	408	
12/07/18 08:00:00	405	
12/07/18 09:00:00	399	
12/07/18 10:00:00	390	
12/07/18 11:00:00	390	395
12/07/18 12:00:00	387	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/07/18 13:00:00	397	
12/07/18 14:00:00	404	
12/07/18 15:00:00	398	
12/07/18 16:00:00	392	
12/07/18 17:00:00	393	
12/07/18 18:00:00	383	
12/07/18 19:00:00	399	
12/07/18 20:00:00	402	
12/07/18 21:00:00	401	
12/07/18 22:00:00	401	
12/07/18 23:00:00	404	407
12/08/18 00:00:00	415	
12/08/18 01:00:00	404	
12/08/18 02:00:00	404	
12/08/18 03:00:00	408	
12/08/18 04:00:00	411	
12/08/18 05:00:00	410	
12/08/18 06:00:00	413	
12/08/18 07:00:00	411	
12/08/18 08:00:00	411	
12/08/18 09:00:00	394	
12/08/18 10:00:00	400	
12/08/18 11:00:00	403	398
12/08/18 12:00:00	405	
12/08/18 13:00:00	406	
12/08/18 14:00:00	405	
12/08/18 15:00:00	405	
12/08/18 16:00:00	397	
12/08/18 17:00:00	396	
12/08/18 18:00:00	393	
12/08/18 19:00:00	393	
12/08/18 20:00:00	389	
12/08/18 21:00:00	388	
12/08/18 22:00:00	393	
12/08/18 23:00:00	395	405
12/09/18 00:00:00	394	
12/09/18 01:00:00	401	
12/09/18 02:00:00	401	
12/09/18 03:00:00	412	
12/09/18 04:00:00	412	
12/09/18 05:00:00	410	
12/09/18 06:00:00	412	
12/09/18 07:00:00	409	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/09/18 08:00:00	408	
12/09/18 09:00:00	404	
12/09/18 10:00:00	402	
12/09/18 11:00:00	396	393
12/09/18 12:00:00	374	
12/09/18 13:00:00	393	
12/09/18 14:00:00	394	
12/09/18 15:00:00	393	
12/09/18 16:00:00	393	
12/09/18 17:00:00	383	
12/09/18 18:00:00	394	
12/09/18 19:00:00	403	
12/09/18 20:00:00	403	
12/09/18 21:00:00	402	
12/09/18 22:00:00	388	
12/09/18 23:00:00	391	400
12/10/18 00:00:00	400	
12/10/18 01:00:00	401	
12/10/18 02:00:00	401	
12/10/18 03:00:00	402	
12/10/18 04:00:00	401	
12/10/18 05:00:00	402	
12/10/18 06:00:00	388	
	NO SLUDGE COMBUSTION	
12/10/18 14:00:00	399	
12/10/18 15:00:00	402	
12/10/18 16:00:00	401	
12/10/18 17:00:00	405	403
12/10/18 18:00:00	402	
12/10/18 19:00:00	400	
12/10/18 20:00:00	400	
12/10/18 21:00:00	401	
12/10/18 22:00:00	398	
12/10/18 23:00:00	400	
12/11/18 00:00:00	400	
12/11/18 01:00:00	404	
12/11/18 02:00:00	407	
12/11/18 03:00:00	409	
12/11/18 04:00:00	412	
12/11/18 05:00:00	413	405
12/11/18 06:00:00	411	
12/11/18 07:00:00	411	
12/11/18 08:00:00	418	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/11/18 09:00:00	399	
12/11/18 10:00:00	399	
12/11/18 11:00:00	399	
12/11/18 12:00:00	394	
12/11/18 13:00:00	404	
12/11/18 14:00:00	405	
12/11/18 15:00:00	403	
12/11/18 16:00:00	402	
12/11/18 17:00:00	401	398
12/11/18 18:00:00	393	
12/11/18 19:00:00	397	
12/11/18 20:00:00	393	
12/11/18 21:00:00	393	
12/11/18 22:00:00	398	
12/11/18 23:00:00	401	
12/12/18 00:00:00	402	
12/12/18 01:00:00	396	
12/12/18 02:00:00	396	
12/12/18 03:00:00	404	
12/12/18 04:00:00	403	
12/12/18 05:00:00	405	399
12/12/18 06:00:00	408	
12/12/18 07:00:00	406	
12/12/18 08:00:00	405	
12/12/18 09:00:00	399	
12/12/18 10:00:00	396	
12/12/18 11:00:00	382	
12/12/18 12:00:00	396	
12/12/18 13:00:00	398	
12/12/18 14:00:00	399	
12/12/18 15:00:00	399	
12/12/18 16:00:00	396	
12/12/18 17:00:00	397	405
12/12/18 18:00:00	400	
12/12/18 19:00:00	403	
12/12/18 20:00:00	400	
12/12/18 21:00:00	402	
12/12/18 22:00:00	403	
12/12/18 23:00:00	403	
12/13/18 00:00:00	406	
12/13/18 01:00:00	409	
12/13/18 02:00:00	411	
12/13/18 03:00:00	411	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/13/18 04:00:00	411	
12/13/18 05:00:00	391	401
12/13/18 06:00:00	411	
12/13/18 07:00:00	400	
12/13/18 08:00:00	415	
12/13/18 09:00:00	407	
12/13/18 10:00:00	407	
12/13/18 11:00:00	396	
12/13/18 12:00:00	387	
12/13/18 13:00:00	389	
12/13/18 14:00:00	393	
12/13/18 15:00:00	404	
12/13/18 16:00:00	408	
12/13/18 17:00:00	407	407
12/13/18 18:00:00	409	
12/13/18 19:00:00	407	
12/13/18 20:00:00	408	
12/13/18 21:00:00	406	
12/13/18 22:00:00	406	
12/13/18 23:00:00	405	
12/14/18 00:00:00	409	
12/14/18 01:00:00	407	
12/14/18 02:00:00	407	
12/14/18 03:00:00	408	
12/14/18 04:00:00	409	
12/14/18 05:00:00	410	404
12/14/18 06:00:00	410	
12/14/18 07:00:00	409	
12/14/18 08:00:00	410	
12/14/18 09:00:00	406	
12/14/18 10:00:00	403	
12/14/18 11:00:00	400	
12/14/18 12:00:00	407	
12/14/18 13:00:00	393	
12/14/18 14:00:00	396	
12/14/18 15:00:00	405	
12/14/18 16:00:00	403	
12/14/18 17:00:00	403	397
12/14/18 18:00:00	396	
12/14/18 19:00:00	398	
12/14/18 20:00:00	396	
12/14/18 21:00:00	396	
12/14/18 22:00:00	396	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/14/18 23:00:00	397	
12/15/18 00:00:00	397	
12/15/18 01:00:00	396	
12/15/18 02:00:00	398	
12/15/18 03:00:00	397	
12/15/18 04:00:00	399	
12/15/18 05:00:00	399	398
12/15/18 06:00:00	399	
12/15/18 07:00:00	398	
12/15/18 08:00:00	399	
12/15/18 09:00:00	397	
12/15/18 10:00:00	395	
12/15/18 11:00:00	393	
12/15/18 12:00:00	391	
12/15/18 13:00:00	390	
	NO SLUDGE COMBUSTION	
12/16/18 10:00:00	421	
12/16/18 11:00:00	408	
12/16/18 12:00:00	402	400
12/16/18 13:00:00	401	
12/16/18 14:00:00	402	
12/16/18 15:00:00	401	
12/16/18 16:00:00	402	
12/16/18 17:00:00	403	
12/16/18 18:00:00	403	
12/16/18 19:00:00	404	
12/16/18 20:00:00	398	
12/16/18 21:00:00	400	
12/16/18 22:00:00	392	
12/16/18 23:00:00	390	
12/17/18 00:00:00	391	404
12/17/18 01:00:00	392	
12/17/18 02:00:00	392	
12/17/18 03:00:00	378	
12/17/18 04:00:00	410	
12/17/18 05:00:00	413	
12/17/18 06:00:00	414	
12/17/18 07:00:00	413	
12/17/18 08:00:00	413	
12/17/18 09:00:00	404	
12/17/18 10:00:00	410	
12/17/18 11:00:00	421	
12/18/18 00:00:00	420	411

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/18/18 01:00:00	404	
12/18/18 02:00:00	405	
12/18/18 03:00:00	406	
12/18/18 04:00:00	407	
12/18/18 05:00:00	407	
12/18/18 06:00:00	408	
12/18/18 07:00:00	407	
12/18/18 08:00:00	419	
12/18/18 09:00:00	418	
12/18/18 10:00:00	409	
12/18/18 11:00:00	426	
12/18/18 12:00:00	420	412
12/18/18 13:00:00	412	
12/18/18 14:00:00	411	
12/18/18 15:00:00	411	
12/18/18 16:00:00	413	
12/18/18 17:00:00	413	
12/18/18 18:00:00	413	
12/18/18 19:00:00	411	
12/18/18 20:00:00	409	
12/18/18 21:00:00	409	
12/18/18 22:00:00	411	
12/18/18 23:00:00	414	
12/22/18 06:00:00	426	416
12/22/18 07:00:00	409	
12/22/18 08:00:00	394	
12/22/18 09:00:00	411	
12/22/18 10:00:00	426	
12/22/18 11:00:00	421	
12/22/18 12:00:00	420	
12/22/18 13:00:00	420	
12/22/18 14:00:00	420	
12/22/18 15:00:00	418	
12/22/18 16:00:00	415	
12/22/18 17:00:00	417	
12/22/18 18:00:00	418	407
12/22/18 19:00:00	403	
12/22/18 20:00:00	406	
12/22/18 21:00:00	404	
12/22/18 22:00:00	405	
12/22/18 23:00:00	397	
12/23/18 00:00:00	391	
12/23/18 01:00:00	406	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/23/18 02:00:00	411	
12/23/18 03:00:00	418	
12/23/18 04:00:00	417	
12/23/18 05:00:00	404	
12/23/18 06:00:00	424	417
12/23/18 07:00:00	417	
12/23/18 08:00:00	423	
12/23/18 09:00:00	418	
12/23/18 10:00:00	421	
12/23/18 11:00:00	417	
12/23/18 12:00:00	415	
12/23/18 13:00:00	416	
12/23/18 14:00:00	417	
12/23/18 15:00:00	416	
12/23/18 16:00:00	419	
12/23/18 17:00:00	404	
12/23/18 18:00:00	419	415
12/23/18 19:00:00	419	
12/23/18 20:00:00	417	
12/23/18 21:00:00	416	
12/23/18 22:00:00	412	
12/23/18 23:00:00	411	
12/24/18 00:00:00	415	
12/24/18 01:00:00	417	
12/24/18 02:00:00	418	
12/24/18 03:00:00	406	
12/24/18 04:00:00	413	
12/24/18 05:00:00	423	
12/25/18 09:00:00	428	417
12/25/18 10:00:00	416	
12/25/18 11:00:00	419	
12/25/18 12:00:00	416	
12/25/18 13:00:00	416	
12/25/18 14:00:00	416	
12/25/18 15:00:00	416	
12/25/18 16:00:00	414	
12/25/18 17:00:00	416	
12/25/18 18:00:00	408	
12/25/18 19:00:00	419	
12/25/18 20:00:00	417	
12/25/18 21:00:00	417	417
12/25/18 22:00:00	419	
12/25/18 23:00:00	416	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/26/18 00:00:00	416	
12/26/18 01:00:00	416	
12/26/18 02:00:00	413	
12/26/18 03:00:00	418	
12/26/18 04:00:00	406	
12/26/18 05:00:00	417	
NO SLUDGE COMBUSTION		
12/27/18 02:00:00	426	
12/27/18 03:00:00	421	
12/27/18 04:00:00	421	
12/27/18 17:00:00	415	415
12/27/18 18:00:00	416	
12/27/18 19:00:00	415	
12/27/18 20:00:00	415	
12/27/18 21:00:00	417	
12/27/18 22:00:00	416	
12/27/18 23:00:00	416	
12/28/18 00:00:00	414	
12/28/18 01:00:00	415	
12/28/18 02:00:00	414	
12/28/18 03:00:00	414	
12/28/18 04:00:00	411	
12/28/18 05:00:00	412	409
12/28/18 06:00:00	412	
12/28/18 07:00:00	411	
12/28/18 08:00:00	411	
12/28/18 09:00:00	409	
12/28/18 10:00:00	408	
12/28/18 11:00:00	407	
12/28/18 12:00:00	411	
12/28/18 13:00:00	385	
12/28/18 14:00:00	417	
12/28/18 15:00:00	417	
12/28/18 16:00:00	412	
12/28/18 17:00:00	410	412
12/28/18 18:00:00	411	
12/28/18 19:00:00	411	
12/28/18 20:00:00	410	
12/28/18 21:00:00	411	
12/28/18 22:00:00	412	
12/28/18 23:00:00	412	
12/29/18 00:00:00	405	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/29/18 01:00:00	418	
12/29/18 02:00:00	416	
12/29/18 03:00:00	414	
12/29/18 04:00:00	414	
12/29/18 05:00:00	414	411
12/29/18 06:00:00	415	
12/29/18 07:00:00	414	
12/29/18 08:00:00	415	
12/29/18 09:00:00	413	
12/29/18 10:00:00	416	
12/29/18 11:00:00	412	
12/29/18 12:00:00	412	
12/29/18 13:00:00	400	
12/29/18 14:00:00	399	
12/29/18 15:00:00	413	
12/29/18 16:00:00	412	
12/29/18 17:00:00	411	414
12/29/18 18:00:00	412	
NO SLUDGE COMBUSTION		
12/30/18 12:00:00	421	
12/30/18 13:00:00	417	
12/30/18 14:00:00	416	
12/30/18 15:00:00	416	
12/30/18 16:00:00	415	
12/30/18 17:00:00	417	
12/30/18 18:00:00	418	
12/30/18 19:00:00	419	
12/30/18 20:00:00	407	
12/30/18 21:00:00	403	
12/30/18 22:00:00	404	412
12/30/18 23:00:00	405	
12/31/18 00:00:00	405	
12/31/18 01:00:00	404	
12/31/18 02:00:00	404	
12/31/18 03:00:00	417	
12/31/18 04:00:00	418	
12/31/18 05:00:00	423	
12/31/18 06:00:00	423	
12/31/18 07:00:00	399	
12/31/18 08:00:00	419	
12/31/18 09:00:00	423	
12/31/18 10:00:00	418	415
12/31/18 11:00:00	417	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
12/31/18 12:00:00	416	
12/31/18 13:00:00	414	
12/31/18 14:00:00	414	
12/31/18 15:00:00	414	
12/31/18 16:00:00	414	
12/31/18 17:00:00	415	
12/31/18 18:00:00	414	
12/31/18 19:00:00	415	
12/31/18 20:00:00	415	
12/31/18 21:00:00	415	

SCRUBBER LIQUID FLOW RATE JANUARY 1 – JUNE 30, 2019

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
01/22/19 05:00:00	416	412
01/22/19 06:00:00	415	
01/22/19 07:00:00	418	
01/22/19 08:00:00	415	
01/22/19 09:00:00	411	
01/22/19 10:00:00	409	
01/22/19 11:00:00	409	
01/22/19 12:00:00	409	
01/22/19 13:00:00	409	
01/22/19 14:00:00	409	
01/22/19 15:00:00	409	
01/22/19 16:00:00	408	
01/22/19 17:00:00	408	407
01/22/19 18:00:00	406	
01/22/19 19:00:00	406	
01/22/19 20:00:00	406	
01/22/19 21:00:00	408	
01/22/19 22:00:00	406	
01/22/19 23:00:00	406	
01/23/19 00:00:00	406	
01/23/19 01:00:00	406	
01/23/19 02:00:00	408	
01/23/19 03:00:00	407	
01/23/19 04:00:00	409	
01/23/19 05:00:00	409	405
01/23/19 06:00:00	411	
01/23/19 07:00:00	411	
01/23/19 08:00:00	411	
01/23/19 09:00:00	402	
01/23/19 10:00:00	401	
01/23/19 11:00:00	401	
01/23/19 12:00:00	403	
01/23/19 13:00:00	404	
01/23/19 14:00:00	404	
01/23/19 15:00:00	404	
01/23/19 16:00:00	404	
01/23/19 17:00:00	405	405
01/23/19 18:00:00	405	
01/23/19 19:00:00	405	
01/23/19 20:00:00	404	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
01/23/19 21:00:00	404	
01/23/19 22:00:00	404	
01/23/19 23:00:00	404	
01/24/19 00:00:00	405	
01/24/19 01:00:00	405	
01/24/19 02:00:00	406	
01/24/19 03:00:00	409	
01/24/19 04:00:00	405	
01/24/19 05:00:00	407	403
01/24/19 06:00:00	410	
01/24/19 07:00:00	407	
01/24/19 08:00:00	404	
01/24/19 09:00:00	403	
01/24/19 10:00:00	402	
01/24/19 11:00:00	401	
01/24/19 12:00:00	402	
01/24/19 13:00:00	399	
01/24/19 14:00:00	398	
01/24/19 15:00:00	398	
01/24/19 16:00:00	399	
01/24/19 17:00:00	401	403
01/24/19 18:00:00	401	
01/24/19 19:00:00	401	
01/24/19 20:00:00	403	
01/24/19 21:00:00	402	
01/24/19 22:00:00	402	
01/24/19 23:00:00	403	
01/25/19 00:00:00	403	
01/25/19 01:00:00	405	
01/25/19 02:00:00	404	
01/25/19 03:00:00	405	
01/25/19 04:00:00	405	
01/25/19 05:00:00	411	403
01/25/19 06:00:00	406	
01/25/19 07:00:00	411	
01/25/19 08:00:00	406	
01/25/19 09:00:00	404	
01/25/19 10:00:00	401	
01/25/19 11:00:00	400	
01/25/19 12:00:00	399	
01/25/19 13:00:00	399	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
01/25/19 14:00:00	398	
01/25/19 15:00:00	402	
01/25/19 16:00:00	404	
01/25/19 17:00:00	405	406
01/25/19 18:00:00	404	
01/25/19 19:00:00	405	
01/25/19 20:00:00	405	
01/25/19 21:00:00	405	
01/25/19 22:00:00	406	
01/25/19 23:00:00	405	
01/26/19 00:00:00	405	
01/26/19 01:00:00	405	
01/26/19 02:00:00	407	
01/26/19 03:00:00	407	
01/26/19 04:00:00	408	
01/26/19 05:00:00	406	402
01/26/19 06:00:00	406	
01/26/19 07:00:00	408	
01/26/19 08:00:00	408	
01/26/19 09:00:00	403	
01/26/19 10:00:00	399	
01/26/19 11:00:00	396	
01/26/19 12:00:00	400	
01/26/19 13:00:00	401	
01/26/19 14:00:00	400	
01/26/19 15:00:00	400	
01/26/19 16:00:00	401	
01/26/19 17:00:00	400	403
01/26/19 18:00:00	402	
01/26/19 19:00:00	402	
01/26/19 20:00:00	401	
01/26/19 21:00:00	402	
01/26/19 22:00:00	402	
01/26/19 23:00:00	403	
01/27/19 00:00:00	405	
01/27/19 01:00:00	404	
01/27/19 02:00:00	406	
01/27/19 03:00:00	405	
01/27/19 04:00:00	408	
01/27/19 05:00:00	407	405
01/27/19 06:00:00	409	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
01/27/19 07:00:00	411	
01/27/19 08:00:00	410	
01/27/19 09:00:00	408	
01/27/19 10:00:00	404	
01/27/19 11:00:00	403	
01/27/19 12:00:00	403	
01/27/19 13:00:00	403	
01/27/19 14:00:00	403	
01/27/19 15:00:00	403	
01/27/19 16:00:00	402	
01/27/19 17:00:00	404	408
01/27/19 18:00:00	404	
01/27/19 19:00:00	404	
01/27/19 20:00:00	406	
01/27/19 21:00:00	405	
01/27/19 22:00:00	404	
01/27/19 23:00:00	405	
01/28/19 00:00:00	408	
01/28/19 01:00:00	410	
01/28/19 02:00:00	411	
01/28/19 03:00:00	414	
01/28/19 04:00:00	417	
01/28/19 05:00:00	407	408
01/28/19 06:00:00	415	
01/28/19 07:00:00	416	
01/28/19 08:00:00	402	
01/28/19 11:00:00	384	
01/28/19 12:00:00	411	
01/28/19 13:00:00	410	
01/28/19 14:00:00	412	
01/28/19 15:00:00	409	
01/28/19 16:00:00	410	
01/28/19 17:00:00	410	
01/28/19 18:00:00	410	
01/28/19 19:00:00	394	412
01/28/19 20:00:00	414	
01/28/19 21:00:00	408	
01/28/19 22:00:00	389	
01/28/19 23:00:00	416	
01/29/19 00:00:00	417	
01/29/19 01:00:00	417	

Time Stamp	Scrubber Liquid Flow Rate (gpm)	12-Hour Block Average
01/29/19 02:00:00	417	
01/29/19 03:00:00	411	
01/29/19 04:00:00	413	
01/29/19 05:00:00	425	
01/29/19 21:00:00	419	
01/30/19 10:00:00	418	416
01/30/19 11:00:00	421	
01/30/19 12:00:00	419	
01/30/19 13:00:00	415	
01/30/19 14:00:00	414	
01/30/19 15:00:00	414	
01/30/19 16:00:00	416	
01/30/19 17:00:00	415	
01/30/19 18:00:00	416	
01/30/19 19:00:00	415	
01/30/19 20:00:00	413	
01/30/19 21:00:00	413	
03/03/19 09:00:00	469	414
03/03/19 10:00:00	416	
03/03/19 11:00:00	410	
03/03/19 12:00:00	409	
03/03/19 13:00:00	410	
03/03/19 14:00:00	410	
03/03/19 15:00:00	409	
03/03/19 16:00:00	408	
03/03/19 17:00:00	408	
03/03/19 18:00:00	408	
03/03/19 19:00:00	408	
03/03/19 20:00:00	408	
03/03/19 21:00:00	408	411
03/03/19 22:00:00	405	
03/03/19 23:00:00	405	
03/04/19 00:00:00	409	
03/04/19 01:00:00	410	
03/04/19 02:00:00	408	
03/04/19 03:00:00	409	
03/04/19 04:00:00	416	
03/04/19 05:00:00	418	
03/04/19 06:00:00	417	
03/04/19 07:00:00	412	
03/04/19 08:00:00	410	