



November 2, 2022

Julie Brunner
EGLE/AQD, Lansing District
525 W Allegan
PO Box 30242
Lansing, MI 48909

RE: Response to Violation dated September 13, 2022, Delta Energy Park, PTI 74-18C, Lansing Board of Water & Light

Dear Ms. Brunner:

This letter serves as the response to the Violation Notice dated September 13, 2022, regarding Delta Energy Park (DEP) NOx emissions from EUCTGHRSG2 and EUCTGHRSG3. As described in this letter, the BWL believes that nearly all the reported exceedances were within the plant commissioning timeframe of 180 days and thus should not be considered violations of Permit to Install (PTI) No. 74-18C. Further, the remaining reported exceedances resulted from an error that was detected in our reporting mechanism, which caused several instances where startup emissions were not excluded when determining compliance with the emission limit per Special Condition I.1. "Time Period/Operating Scenario" of the PTI, which expressly does not apply during start-up.

Background Regarding Construction and Startup of DEP

DEP began construction in March of 2019 under PTI 74-18 with the intention of sustained commercial operations in June of 2021. The electricity produced from this plant was the replacement for coal-fired operations at Eckert Station (set to retire in December of 2020), supplying electricity for the greater Lansing area, which is located within the Midcontinent Independent System Operator (MISO) footprint.

Construction of DEP was delayed by the COVID-19 pandemic. On March 23, 2020, upon the issuance of Executive Order 2020-21, the construction of DEP was stopped, and crews were sent home. Even when construction crews were allowed to return to the site, safety precautions then in place required a significant reduction in the number of staff allowed to be onsite at one time. Throughout the construction, there continued to be significant delays due to various COVID protocols in place regarding social distancing, illnesses, and quarantines. Not only were these delays evident in the physical construction of the plant, but also in the supply chain for parts and components for the plant.





The construction delays resulted in a 46.3mW shortfall within the BWL service territory and thus a shortage for the MISO footprint for the 2021 season. As a result, BWL filed a Force Majeure Notice with the Sierra Club, pursuant to the August 2, 2017 Settlement Agreement, to delay retirement of one Eckert Unit (EUBOILER4) to allow operational capability from January 1, 2021 to May 31, 2021. This delay and any possible operations were only for emergency use of the boiler in the event of a MISO critical shortage emergency. During this period, MISO did not issue any emergencies, and the BWL did not operate EUBOILER4.

Brief Simple Cycle Operation of CTGs to Demonstrate Capacity

To properly allow for the complete retirement of Eckert (EUBOILER 4) by May 31, 2021, BWL accelerated the start-up of certain portions of the DEP by running two CTGs in simple cycle mode without the HRSG units, which had not yet been constructed. These CTGs, which are identified in the permit as EUCTGHRSG2 and EUCTGHRSG3, were started and briefly operated on May 27, 2021. During this period of limited operation, the CTGs sent power to the grid in simple cycle mode only and emissions were exhausted through the simple cycle / bypass stack. This limited operation in single cycle mode was necessary to demonstrate generation capacity for the MISO footprint and thus allow for the retirement of Eckert EUBOILER4. The simple cycle operation demonstrated to MISO that generation capacity from these units was available. It did not signal the initiation of continuous operation of DEP.

Start-up and Initiation of Continuous Operations of DEP

Construction then continued on the HRSG portions of the emission units. The turbines would not be started again until November 23, 2021 for EUCTGHRSG2 and November 29, 2021 for EUCTGHRSG3. The November 2021 start-ups were the first operation in combined cycle mode for the purpose of HRSG commissioning (steam blows, water, and steam tuning). Although the steam turbine generator was not producing power at this time, it was the first date(s) on which emissions were exhausted through the HRSGs' respective combined cycle stacks, and thus the beginning of the "trial operation" in combined cycle mode. Please note that the PTI identifies the combined cycle installation dates of November 1, 2021 for EUCTGHRSG2 and October 31, 2021 for EUCTGHRSG3 as these are the dates that construction was completed.

40 CFR Part 72 indicates the Commercial Operation date as the first time a unit sells power. Construction of EUCTGHRSG2 and EUCTGHRSG3 for combined cycle operations was not completed until November 1, 2021 and October 31, 2021, respectively. The combined cycle first fire, starting trial operations, did not occur until November 23, 2021 and November 29, 2021, respectively, and power from the steam turbine generator was not commercially available until January 20, 2022. This is a critical distinction because the permit requires operation of the air pollution control system (selective catalytic reduction, SCR) for NOx only during combined cycle operation. Thus, the BWL believes that the dates of November 23, 2021 and





November 29, 2021 should be used for the start of the 180-day trial operation for the HRSG, i.e., combined cycle stack emissions.

Should the November dates be applied to the 180-day requirement, this would put our compliance dates to May 22, 2022 for EUCTGHRSG2 and May 28, 2022 for EUCTGHRSG3. Applying these compliance dates, all but 1 marked exceedance (26 out of 27) for EUCTGHRSG2 and 3 marked exceedances (22 out of 25) for EUCTGHRSG3 can be categorized as commissioning for the plant, as detailed in Appendix A.

Start-Up Emissions

The remaining reported exceedances are a result of unit startup. Upon review of the emissions data, it was discovered that the system was not properly accounting for startup emissions in the reports that are compiled by the CEMS data acquisition and handling system (StackVision). Currently, StackVision compares the measured NO_x emissions against the permit limit on a 24-hour basis, including emissions during start-ups. However, the 24-hr permit limit expressly excludes periods of start-up and shut-down as detailed in the emission limit table "Time Period / Operating Scenario." As a result, BWL overreports its NO_x emissions when determining compliance with the 3ppm @ 15% O₂ 24-hour limit. BWL intends to correct this reporting as described below.

Combined Cycle Start-up Duration

When either EUCTGHRSG2 or EUCTGHRSG3 are started in combined cycle / HRSG mode, the catalyst, which is part of the SCR (NO_x control), requires time to heat up to the operational control temperature of 565°F. This temperature allows permissive starting of the ammonia injection, which is required for NO_x control as recommended by the manufacturer (see Appendix B). By tracking the operational parameters of unit start-ups and catalyst temperature, it has been documented that the amount of time to reach the permissive temperature of 565°F is up to 35 minutes, which occurred during a July 16, 2022 start-up, as detailed in Appendix C. Winter weather start-ups may take longer to reach the permissive temperature of 565°F.

Proposed Correction to Monitoring, Recordkeeping, Reporting Protocol

If EGLE concurs, the BWL will program StackVision to apply NO_x emissions against the 3 ppm@ 15% O₂ permit limit once the SCR permissive catalyst reaches a temperature of 565°F. This is consistent with how the 3-ppm permit limit was established (i.e., with SCR control). StackVision will continue to record NO_x emissions during start-up (i.e., before the SCR catalyst reaches the designated temperature) for the purpose of mass emission calculations and to determine compliance with the 40CFR60 KKKK limit of 25 ppm @ 15% O₂.

In summary, the BWL believes that the previously reported exceedances were within the plant commissioning timeframe of 180 days or were the result of instances where startup emissions were not excluded when determining compliance with the emission limit per Special Condition I.1. "Time





Period/Operating Scenario" of the PTI. Based on this information, we believe that there were no instances of excess emissions thus no violations of Permit to Install (PTI) No. 74-18C. We look forward to discussing this matter further for concurrence and future reporting.

If you have any questions, please contact Nathan Hude of the Lansing Board of Water & Light at (517) 702-6170.

Sincerely,

A handwritten signature in blue ink, appearing to read "Lori Myott", with a long horizontal line extending to the right.

Lori Myott
Manager, Environmental Services Department
Lansing Board of Water & Light
1232 Haco Drive
Lansing, MI 48901

cc: Julie Brunner, EGLE/AQD (electronic and hard copy submittal)
Mary Ann Delahanty, EGLE/AQD (electronic submittal)
Annette Switzer, EGLE/AQD (electronic submittal)
Christopher Ethridge, EGLE/AQD (electronic submittal)
Jenine Camilleri, EGLE/AQD (electronic submittal)
Heidi Hollenbach, EGLE/AQD (electronic submittal)
Robert Byrnes, EGLE/AQD (electronic submittal)
Paul Collins, Miller Canfield (electronic submittal)
Mark Matus, BWL (electronic submittal)
Rob Hodge, BWL (electronic submittal)



Appendix A

Exceedance Events - Duration

Plant: LBWL Delta
 Report Period: 01/01/2022 00:00 Through 06/30/2022 23:59
 Time Online Criteria: 1 minute(s)

Source: CTGHRSG2

Standard Limit: 3.449

Parameter: H_NXC

Interval: 024H

Incident ID	Start Date/Time	End Date/Time	Duration (dd:hh:mm)	Max Value	Reason Code - Description Action Code - Description
1	01/12/2022 13:00:00	01/12/2022 14:59:59	0d - 2h - 0m	45.8	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
2	01/13/2022 12:00:00	01/14/2022 11:59:59	1d - 0h - 0m	46.9	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
3	01/14/2022 14:00:00	01/14/2022 18:59:59	0d - 5h - 0m	23.2	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
4	01/15/2022 12:00:00	01/15/2022 13:59:59	0d - 2h - 0m	23.5	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
5	01/30/2022 15:00:00	02/01/2022 04:59:59	1d - 14h - 0m	23.7	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
6	02/06/2022 09:00:00	02/08/2022 11:59:59	2d - 3h - 0m	27.2	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
7	02/08/2022 18:00:00	02/09/2022 09:59:59	0d - 16h - 0m	20.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
8	02/09/2022 11:00:00	02/10/2022 09:59:59	0d - 23h - 0m	20.9	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
9	02/10/2022 11:00:00	02/10/2022 13:59:59	0d - 3h - 0m	20.6	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					

* Indicates duration incident could have additional data prior to the start date or following the end date.

Appendix A

Exceedance Events - Duration

Plant: LBWL Delta
 Report Period: 01/01/2022 00:00 Through 06/30/2022 23:59
 Time Online Criteria: 1 minute(s)

Source: CTGHRSG2

Standard Limit: 3.449

Parameter: H_NXC

Interval: 024H

Incident ID	Start Date/Time	End Date/Time	Duration (dd:hh:mm)	Max Value	Reason Code - Description Action Code - Description
10	02/10/2022 16:00:00	02/11/2022 12:59:59	0d - 21h - 0m	20.7	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
11	02/11/2022 14:00:00	02/12/2022 13:59:59	1d - 0h - 0m	19.5	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
12	02/14/2022 16:00:00	02/14/2022 16:59:59	0d - 1h - 0m	19.5	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
13	02/14/2022 18:00:00	02/14/2022 19:59:59	0d - 2h - 0m	20.2	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
14	02/14/2022 21:00:00	02/16/2022 17:59:59	1d - 21h - 0m	22.0	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
15	02/16/2022 20:00:00	02/17/2022 07:59:59	0d - 12h - 0m	22.4	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
16	02/17/2022 09:00:00	02/17/2022 16:59:59	0d - 8h - 0m	24.0	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
17	02/22/2022 00:00:00	02/28/2022 10:59:59	6d - 11h - 0m	20.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					
18	02/28/2022 12:00:00	03/02/2022 03:59:59	1d - 16h - 0m	18.7	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21).					

* Indicates duration incident could have additional data prior to the start date or following the end date.

Appendix A

Exceedance Events - Duration

Plant: LBWL Delta

Report Period: 01/01/2022 00:00 Through 06/30/2022 23:59

Time Online Criteria: 1 minute(s)

Source: CTGHRSG2

Standard Limit: 3.449

Parameter: H_NXC

Interval: 024H

Incident ID	Start Date/Time	End Date/Time	Duration (dd:hh:mm)	Max Value	Reason Code - Description Action Code - Description
19	03/08/2022 20:00:00	03/09/2022 18:59:59	0d - 23h - 0m	3.9	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					
20	03/21/2022 09:00:00	03/21/2022 09:59:59	0d - 1h - 0m	4.0	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					
21	03/21/2022 11:00:00	03/22/2022 11:59:59	1d - 1h - 0m	6.7	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					
22	03/23/2022 08:00:00	03/24/2022 07:59:59	1d - 0h - 0m	4.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					
23	03/24/2022 16:00:00	03/25/2022 10:59:59	0d - 19h - 0m	4.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					
24	03/25/2022 12:00:00	03/26/2022 15:59:59	1d - 4h - 0m	5.9	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					
25	04/05/2022 10:00:00	04/06/2022 07:59:59	0d - 22h - 0m	4.1	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					
26	04/15/2022 02:00:00	04/15/2022 15:59:59	0d - 14h - 0m	3.7	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/23/21). SCR commissioning and tuning operations.					

* Indicates duration incident could have additional data prior to the start date or following the end date.

Appendix A

Exceedance Events - Duration

Plant: LBWL Delta
Report Period: 01/01/2022 00:00 Through 06/30/2022 23:59
Time Online Criteria: 1 minute(s)

Source: CTGHRSG2

Standard Limit: 3.449

Parameter: H_NXC

Interval: 024H

Incident ID	Start Date/Time	End Date/Time	Duration (dd:hh:mm)	Max Value	Reason Code - Description Action Code - Description
27	06/29/2022 10:00:00	06/30/2022 10:59:59	1d - 1h - 0m	5.8	70 - EE - Startup/Shutdown 21 - Other Mechanical Corrective Action (Needs a MEMO)

Comments: The exceedances listed are a result of CTGHRSG2 start-up events effecting the 24-hr rolling average limit. These start-up events should be excluded as stated in the permit time period / operating scenerio. Emissions after the CTGHRSG2 SCR control equipment reached permissive temperature and ammonia injection began remained below the 3 ppm @ 15% O2 limit.

Number of Events: 27

Total Duration: 27d - 5h - 0m

* Indicates duration incident could have additional data prior to the start date or following the end date.

Appendix A

Exceedance Events - Duration

Plant: LBWL Delta
 Report Period: 01/01/2022 00:00 Through 06/30/2022 23:59
 Time Online Criteria: 1 minute(s)

Source: CTGHRSG3

Standard Limit: 3

Parameter: H_NXC

Interval: 024H

Incident ID	Start Date/Time	End Date/Time	Duration (dd:hh:mm)	Max Value	Reason Code - Description Action Code - Description
1	01/11/2022 13:00:00	01/11/2022 15:59:59	0d - 3h - 0m	46.6	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
2	01/19/2022 11:00:00	01/19/2022 13:59:59	0d - 3h - 0m	45.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
3	01/19/2022 16:00:00	01/19/2022 18:59:59	0d - 3h - 0m	43.9	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
4	01/24/2022 23:00:00	01/25/2022 11:59:59	0d - 13h - 0m	19.8	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
5	01/25/2022 16:00:00	01/25/2022 23:59:59	0d - 8h - 0m	21.9	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
6	02/03/2022 23:00:00	02/04/2022 10:59:59	0d - 12h - 0m	20.7	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
7	02/05/2022 23:00:00	02/06/2022 11:59:59	0d - 13h - 0m	22.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
8	02/12/2022 14:00:00	02/12/2022 21:59:59	0d - 8h - 0m	23.9	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
9	02/14/2022 00:00:00	02/14/2022 17:59:59	0d - 18h - 0m	20.2	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
10	02/14/2022 20:00:00	02/15/2022 00:59:59	0d - 5h - 0m	21.0	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
11	02/16/2022 11:00:00	02/16/2022 14:59:59	0d - 4h - 0m	21.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					

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Appendix A

Exceedance Events - Duration

Plant: LBWL Delta
 Report Period: 01/01/2022 00:00 Through 06/30/2022 23:59
 Time Online Criteria: 1 minute(s)

Source: CTGHRSG3

Standard Limit: 3

Parameter: H_NXC

Interval: 024H

Incident ID	Start Date/Time	End Date/Time	Duration (dd:hh:mm)	Max Value	Reason Code - Description Action Code - Description
12	02/17/2022 23:00:00	02/18/2022 07:59:59	0d - 9h - 0m	19.4	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
13	02/18/2022 09:00:00	02/21/2022 22:59:59	3d - 14h - 0m	20.4	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
14	02/22/2022 08:00:00	02/22/2022 15:59:59	0d - 8h - 0m	22.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
15	02/23/2022 23:00:00	02/24/2022 16:59:59	0d - 18h - 0m	17.5	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
16	02/24/2022 18:00:00	02/25/2022 05:59:59	0d - 12h - 0m	18.5	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
17	02/25/2022 11:00:00	02/25/2022 18:59:59	0d - 8h - 0m	20.3	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 23 - Other Corrective Action (Needs a MEMO)
Comments: Unit HRSG commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21).					
18	03/08/2022 13:00:00	03/08/2022 13:59:59	0d - 1h - 0m	3.5	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21). SCR commissioning and tuning operations.					
19	03/14/2022 09:00:00	03/15/2022 07:59:59	0d - 23h - 0m	3.5	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21). SCR commissioning and tuning operations.					
20	03/15/2022 10:00:00	03/16/2022 09:59:59	1d - 0h - 0m	5.0	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21). SCR commissioning and tuning operations.					

* Indicates duration incident could have additional data prior to the start date or following the end date.

Appendix A

Exceedance Events - Duration

Plant: LBWL Delta
 Report Period: 01/01/2022 00:00 Through 06/30/2022 23:59
 Time Online Criteria: 1 minute(s)

Source: CTGHRSG3

Standard Limit: 3

Parameter: H_NXC

Interval: 024H

Incident ID	Start Date/Time	End Date/Time	Duration (dd:hh:mm)	Max Value	Reason Code - Description Action Code - Description
21	04/01/2022 15:00:00	04/02/2022 14:59:59	1d - 0h - 0m	4.8	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21). SCR commissioning and tuning operations.					
22	04/16/2022 13:00:00	04/17/2022 13:59:59	1d - 1h - 0m	5.6	03 - EE - Air Pollution Control Equipment Problems (Requires MEMO) 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: Unit HRSG and SCR commissioning operations. Operations within 180 days of initial HRSG operations (11/29/21). SCR commissioning and tuning operations.					
23	06/20/2022 13:00:00	06/20/2022 14:59:59	0d - 2h - 0m	3.5	70 - EE - Startup/Shutdown 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: The exceedances listed are a result of CTGHRSG3 start-up events effecting the 24-hr rolling average limit. These start-up events should be excluded as stated in the permit time period / operating scenerio. Emissions after the CTGHRSG3 SCR control equipment reached permissive temperature and ammonia injection began remained below the 3 ppm @ 15% O2 limit.					
24	06/21/2022 09:00:00	06/21/2022 12:59:59	0d - 4h - 0m	3.9	70 - EE - Startup/Shutdown 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: The exceedances listed are a result of CTGHRSG3 start-up events effecting the 24-hr rolling average limit. These start-up events should be excluded as stated in the permit time period / operating scenerio. Emissions after the CTGHRSG3 SCR control equipment reached permissive temperature and ammonia injection began remained below the 3 ppm @ 15% O2 limit.					
25	06/23/2022 23:00:00	06/24/2022 06:59:59	0d - 8h - 0m	5.6	70 - EE - Startup/Shutdown 21 - Other Mechanical Corrective Action (Needs a MEMO)
Comments: The exceedances listed are a result of CTGHRSG3 start-up events effecting the 24-hr rolling average limit. These start-up events should be excluded as stated in the permit time period / operating scenerio. Emissions after the CTGHRSG3 SCR control equipment reached permissive temperature and ammonia injection began remained below the 3 ppm @ 15% O2 limit.					
Number of Events:			25		
Total Duration:			14d - 6h - 0m		

* Indicates duration incident could have additional data prior to the start date or following the end date.

- Check local instrument readings.

MINIMUM OPERATING TEMPERATURE	565 °F (NG)	The minimum SCR inlet operating temperature on a continuous basis (Alarm and Interlock), firing NG in the CT.
MAXIMUM CONTINUOUS OPERATING TEMPERATURE	800 °F	For continuous operation, the gas temperature at SCR should be lower than indicated. Catalyst performance will decline.
GAS TEMPERATURE UNBALANCE	±25 °F	Localized hot spots in the catalyst may cause permanent damage in affected areas.
GAS FLOW UNBALANCE	±15%	Catalyst performance will decline if this limit is exceeded.
SCR & CO PRESSURE DROP PER OPERATING CASES	**	See Volume 1, Tab 6
CO MINIMUM CONTINUOUS OPERATING TEMPERATURE	650	The minimum CO inlet operating temperature on a continuous basis

**TABLE 3-1
 OPERATING LIMITS FOR SCR & CO SYSTEM**

Appendix C

Cursor 1- Unit Start-up <---Total Time, 35 Min---> Cursor 2- Inlet Temp Achieved



SIGNAL TAG	DESIGNATION	RANGE LOW	RANGE HI	CURSOR 1	CURSOR 2	Y DIFF	UNIT	LAST
IN2HRF3176TE3001B XQ01	HRSG2 IN DUCT TEMP	0.0000	1300	398.1000	1104	-705.5001	°F	1078
IN2HRF3176TE3001A XQ01	HRSG2 IN DUCT TEMP	0.0000	1300	438.1000	1098	-659.4001	°F	1074
IN2HRF3176TE3003C XQ01	HRSG2 CO DUCT TEMP	0.0000	1800	339.1001	568.4000	-229.2999	°F	596.8000
IN2HRF3176TE3003B XQ01	HRSG2 CO DUCT TEMP	0.0000	1800	333.1001	577.7000	-244.5999	°F	609.9000
IN2SHP3103FCV3504 ZQ02	HRSG2 HP DRUM SAT TEMP RATE OF CHANGE	-50.0000	50.0000	-4.3806	-0.0333	-4.3473	°F / MIN	-0.0241
IN2SHP3103TE3009 ZQ01	HP MN STM TEMP	0.0000	1200	363.3334	996.7000	-633.3666	°F	1009
GT12CYG60EE025XQ01 XQ01	CT-2 MW LOAD (0-62 MW)	-26.1900	130.9400	1.5726	35.0809	-33.5083	MW	49.5163
IN2AST3201FCV3310 ZQ05	H2 N-B FCU NH3 FLOW	0.0000	801.0000	-9.5415	147.5165	-157.0579	SCFH	161.7067
CLOCEM0001CP0001AID XQ01	HRSG2 STACK NOX	0.0000	100.0000	21.5676	19.7519	1.8157	PPMVD	2.7886

Date	19/03/28	HRSG#2 EXHAUST GAS	= 2 HRF OV				
Drawn By							
Checked By							
State	Change	Date	Editor	Standard	Trend Display IN2HRF3176TE3001B XQ01	en	Page 1
							Pg. 1

