



Air Quality Permitting Response to Public Comments

December 19, 2019

**Tier I Operating Permit No. T1-2019.0036
And
Permit To Construct No. P-2014.0014**

Project No. 62266 and 62317

**Rathdrum Power, LLC
Rathdrum, Idaho**

Facility ID No. 055-00045

**Prepared by:
Christina Boulay, Permit Writer
AIR QUALITY DIVISION**

Final

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BACKGROUND

The Idaho Department of Environmental Quality (DEQ) provided for public comment on the draft Tier I operating permit to Rathdrum Power, LLC from November 18, 2019, through December 18, 2019, in accordance with IDAPA 58.01.01.364. During this period, comments were submitted in response to DEQ's proposed action. Each applicable comment and DEQ's response is provided in the following section.

PUBLIC COMMENTS AND RESPONSES

Public comments regarding the technical and regulatory analyses and the air quality aspects of the draft permit are summarized below. Questions, comments, and/or suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department's technical analysis, or the draft permit are not addressed. For reference purposes, a copy of the Rules for the Control of Air Pollution in Idaho can be found at: <http://adminrules.idaho.gov/rules/current/58/0101.pdf>.

Comment 1: PTC Draft ad Tier I Draft: Due to the rounding performed, the calculated PM10/2.5 Ton/Year limit should be changed from 0.16 Ton/Year to 0.18 Ton/Year to be consistent with the hourly limit and 8760 hours of operation.

PTC draft, Section 2.3 Page 5 and Tier I, Section 7.1 Page 47

Evaporative Tower the limits are listed as 0.04 pound/hour and 0.16 Ton/Year.

We had requested 8760 hours of operation for the Tower.

In the calculations we submitted, we retained six (6) significant figures: calculated limits of 0.03554 pound/hour and 0.155664 Ton/Year.

Rounding the 0.03554 pound/hour to 0.04 pound/hour results in the following calculations:

$8760 \text{ hours} * 0.04 \text{ pound/hour} = 350.4 \text{ pounds/Year}$

$350.4/2000 = 0.1752 \text{ Ton/Year}$

Rounding 0.1752 to the nearest even digit becomes 0.18 Ton/Year

Therefore we request a change of the Tons/Year limit to 0.18 Ton/Year to account for the rounding convention used. (see attached page with markup).

Response 1: A review of the rounding has been completed and it has been determined that to be consistent with the hours requested per year and the significant figures used in the calculations, the tons per year shall be changed to 0.18 T/yr.

Comment 2: Tier I Draft: Correct references to Tables
Tier I Draft, Section 7.1 Page 47
References appear to Tables 7.3 and 7.4. We believe the correct references are 7.2 and 7.3. (See attached page with markup).

Response 2: A review of the listed references has been completed and it has been determined the Table references should be Tables 7.2 and 7.3. This section has been revised to reflect the correct referenced tables in the permit.

Comment 3: Please provide the emissions factors and calculations DEQ used to determine the potential to emit for each of the emission sources at Rathdrum to emit NOx and CO.
Rathdrum's application includes emissions factors for the duct burner and auxiliary boiler but not for the gas turbine.

Response 3: This question pertains to the Tier I operating permit renewal application, as the application for the PTC only contains calculations for PM_{2.5} and PM₁₀ Specific to the Evaporative and Cooling Tower project scope.

The gas turbine was originally permitted October 7, 1994. The current permitted emissions limits were established in Permit To Construct No. P-2014.0014 issued October 22, 2014, using the manufacturer emission factors listed in response number 4, below. As there were no

modifications made to the gas turbine and the gas turbine was not part of the project scope, the emission factors were not required to complete the PTC modification.

The Tier I renewal used the following emission factors for NO_x and CO:

NO_x 0.029 lb/MMBtu Source CEMS
 CO 1.53 lb/hr Source 2019 Stack Test

Comment 4: Please provide a citation to the sources on which the emissions factors for NO_x and CO are based.

Response 4: The gas turbine was originally permitted October 7, 1994. The current permitted emissions limits were established in Permit To Construct P-2014.0014 issued October 22, 2014, using the manufacturer emission factors listed below in the October 29, 1999, PTC, along with facility hours listed in the permit for the emission unit, and cold weather software to account for a variation in emissions during cold weather.

The current NO_x and CO emissions factors from the Tier I renewal are from the following:

NO_x 0.029 lb/MMBtu Source CEMS
 CO 1.53 lb/hr Source 2019 Stack Test

Hourly Emission Rates - Controlled

Load Condition	Uncontrolled Pollutant Emission Rate (lbs/hr)				
	NO _x	CO	PM	VOC	SO ₂ ^a
<u>Base Load</u>					
0°F	22.8	21.2	9.0	1.04	2.57
30°F	22.0	20.4	9.0	1.04	2.47
49°F	21.3	19.7	9.0	0.96	2.40
95°F	18.6	17.5	9.0	0.89	2.12
<u>85% Load</u>					
0°F	19.8	18.3	9.0	0.89	2.23
30°F	19.0	18.3	9.0	0.89	2.17
49°F	18.6	17.5	9.0	0.89	2.12
95°F	16.7	16.1	9.0	0.81	1.89
<u>70% Load</u>					
0°F	17.1	16.1	9.0	0.81	1.97
30°F	16.7	16.1	9.0	0.74	1.91
49°F	16.3	15.3	9.0	0.74	1.86
95°F	14.8	14.6	9.0	0.74	1.68
Duct Burner ^{b,c}	7.0	13.4	1.7	0.46	0.14
Auxiliary Boiler ^b	1.6	1.6	0.15	0.04	0.012
Fuel Pre-Heater ^b	0.4	0.4	0.04	0.01	0.003
Emergency Generator ^b	3.7	0.81	0.26	0.31	0.25
Diesel Fire Pump ^b	1.2	0.73	0.087	0.10	0.081

NOTE:

^a The highest SO₂ emission rate will occur at base load operation, since this is when the maximum fuel input is needed and the amount of SO₂ formed is directly related to fuel flow because the sulfur content of the fuel is constant.

^b Not affected by turbine load or ambient temperature.

^c Operated only with turbine at base load.

Comment 5: Please discuss whether or not the Emission Inventory – Potential to Emit (at Table 5.5 of the Statement of Basis) for NOx and CO include excess emissions associated with the start up or shut down operational modes of Rathdrum’s gas turbine. We note that Appendix A in the Statement of Basis indicates there were 17 “cold starts” of the gas turbine in 2018.

Response 5: The potential to emit listed in Table 5.5 is the facilities potential to emit based on operating hours and emission unit capacities. The facility uses a non-certified CO analyzer (process monitor) to report the actual CO emissions which include startup and shutdown emissions. Performance testing is also completed to demonstrate compliance with the CO emission limits within the permit.

Comment 6: Please provide the emission factors for NOx and CO for the startup and shutdown operational modes of Rathdrum’s gas turbine and identify the sources on which these emission factors are based.

Response 6: Please see Response Number 4 pertaining to the operating temperature and response number 5 pertaining to the non-certified CO analyzer.

Comment 7: Please explain why the actual emissions for CO were not included for the gas turbine in Emissions Inventory at Appendix A of the Statement of Basis. Please provide the actual emissions data for CO from the Rathdrum’s gas turbine.

Response 7: This question pertains to the Tier I operating permit renewal application, as the application scope for the PTC only contains calculations for PM_{2.5} and PM₁₀ specific to the Evaporative and Cooling Tower project scope.

The actual emissions for CO and other criteria pollutants are reported during the Title V fee registration process. The facility uses a non-certified CO analyzer (process monitor) to report the actual CO emissions which include startup and shutdown emissions. The permitting process only uses the potential to emit emissions inventory not the actuals.

In regards to the Tier I Operating Permit renewal, the potential to emit for the CO was analyzed, and it was determined there were no facility changes and/or modifications to this emission unit. Therefore the potential to emit for this emission unit remained unchanged from the PTC and the previous Tier I Operating permit. Please find the actual CO emission of 11.84 tons per year, for the year 2018 listed below. Please note this is the actual CO emission not the potential to emit. The potential to emit permit limit is 95.50 tons per year.

Jan 1, 2018 - Dec 31, 2018							
Aux Boiler		Gas Turbine		Diesels			
Hours	124	Hours	6799	DFP Hours	13.98		
Fuel kscf	579.065	Fuel kscf	10896664	DG Hours	2.89		
Populated by internal CEMS		Fuel MMBtu	11254609	Gas Turbine			
		CEMs NOx	72	Cold Start			
		CEMs CO	11	17			
Submitted State EI Data Entry		Gas BTU's					
Required Data for Calculations		1046					
		Gas Htr Hrs					
		6795					
	GH	Aux	GT	FRD	DFP	EDG	
SO2	0.01	0.00	3.40	0.00	0.00	0.00	3.41
NOx	0.42	0.01	72.00	0.00	0.04	0.02	72.49
PM10	0.10	0.00	7.85	0.02	0.00	0.00	7.97
VOC	0.07	0.00	0.00	0.00	0.00	0.00	0.08
CO	1.09	0.02	10.72	0.00	0.00	0.00	11.84
							95.79
Gas Turbine + Duct Burner CEMs Data							
51063.6	Jan	1175761					
27354	Feb	628114					
53678.4	Mar	1233839					
32896	Apr	757258					
14927	May	342357					
10337.4	Jun	238299					
53546.9	Jul	1232291					
52244.8	Aug	1201444					
51021.6	Sep	1172684					
39974.9	Oct	920360					
46439.6	Nov	1067908					
55776	Dec	1284294					
489260.2	11/24/2018	11254609					
10896664		kscf					
Aux boiler CEMs Data		Diesel Fire Hours					
2	Jan	0.81	Jan	0.25			
5	Feb	0.97	Feb	0.25			
0	Mar	1.19	Mar	0.2			
4	Apr	0.87	Apr	0.25			
7	May	1.06	May	0.23			
4	Jun	2.94	Jun	0.27			
1	Jul	0.89	Jul	0.23			
0	Aug	1.25	Aug	0.29			
0	Sep	0.92	Sep	0.23			
2	Oct	0.96	Oct	0.22			
1	Nov	1.17	Nov	0.27			
0	Dec	0.95	Dec	0.2			
26		kibs	13.98		hours	2.89	
579.06		kscf					
Gas Turbine							
Hr. to Rata		3828.7					
Hr. from Rata		2976.83					
New PM10		4.1					