DOCKETED

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Pacific Gas and Electric Company®

Humboldt Bay Generating Station
1000 King Salmon Ave.
Eureka, CA 95503-6859

HBGS-ENV-118

June 28, 2017

Winslow Condon
Permit Engineer
North Coast Unified AQMD
707 L Street
Eureka, CA 9550

RE: Modification to the Humboldt Bay Generating Station Title V Permit No: NCU 059-12

Dear Mr. Condon:

In the preparation of the Pacific Gas & Electric (PG&E) Petition to Amend (Petition) with the California Energy Commission (CEC) to conform the Air Quality Conditions of Certification to the February 17th, 2016 Title V Operating Permit, PG&E has elected to "roll back" the revised annual fuel limits associated with the diesel pilot when the engines are in the natural gas mode of operation. Specifically, PG&E would like to modify Permit Condition 89 in order to "roll back" the diesel pilot fuel limit from 948,562 gallons per year back to the original permitted level of 376,734 gallons per year.

Based on this revision, there will be no annual increase in fuel use or its associated emissions of either criteria pollutants or hazardous air pollutants (HAPs). PG&E will cap the facility emissions at the existing potential to emit levels and with the pilot fuel use limits re-established at 376,735 gallons/year. However, we propose to maintain the short-term increases in the pilot fuel use (hourly and daily) as denoted in the February 2016 PTO but the engine heat inputs in natural gas mode will be kept at 144.7 MMBtu/hr (HHV).

No other changes are proposed at this time and all of the previously modified limits and conditions would remain as indicated in the February 2016 Permit to Operate (PTO).

Proposed Revision Will Not Affect the Previously Established Limits

Using the annual gallon limit value and the annual heat input rate limit results in a value of 136,903 btu/gal. This value will be used in the following analysis for consistency. Furthermore, this analysis uses the higher of 0.79 versus 0.8 MMBtu/hr as the pilot fuel heat input rating for the sake of conservativeness. A heat rate input of 0.8 MMBtu/hr is equivalent to 5.844 gals/hr/engine.

Table 1 shows the pilot fuel use for the period 2011 through 2016 and is based upon the current pilot heat rate of 0.8 MMBtu/hr. The current pilot fuel limit (prior to the February 2016 Permit to Operate being issued) is 376,735 gals/yr (cumulative total pilot fuel use for all engines).

Table 1: Total Annual Diesel Usage (gallons/year) for Pilot Fuel during Operation in Natural Gas Mode

Unit	2011	2012	2013	2014	2015	2016
S-1	26,329	17,415	19,177	15,310	22,177	13,244
S-2	12,322	14,684	12,823	11,728	8,282	6,312
S-3	14,278	11,510	8,730	14,112	14,175	5,573
S-4	5,158	5,472	3,686	4,878	8,925	6,085
S-5	4,261	4,052	3,000	4,009	9,195	8,476
S-6	6,044	3,631	3,435	4,972	10,323	9,360
S-7	6,245	4,933	3,792	5,919	11,683	10,375
S-8	16,580	13,178	13,470	13,166	6,413	6,403
S-9	10,330	13,357	12,270	10,317	8,565	14,107
S-10	25,624	18,459	14,518	15,548	12,687	8,723
Total per year	**127,171**	**106,689**	**94,900**	**99,958**	**112,426**	**88,657**
Permit Limit	**376,734**	**376,734**	**376,734**	**376,734**	**376,734**	**376,734**

Increasing the pilot fuel heat rate to 2.0 MMBtu/hr (3-hour average) and using the same EPA fuel factor as noted above results in an hourly fuel use rate of 14.61 gals/hr/engine. Table 2 presents the Table 1 annual total data converted to the new pilot heat rate, i.e., a ratio of 2.5 and conservatively assumes that every hour of engine operation in natural gas mode would utilize the pilot at 2.0 MMBtu/hr. While this assumption is extremely conservative, it demonstrates that utilizing short term increases up to 2.0 MMBtu/hr on a 3-hour average basis on the engine pilots would not result in any exceedance of the annual diesel pilot fuel limit, based on the actual fuel use over the last six years.

Table 2: Total Predicted Annual Diesel Usage (gallons/year) for Pilot Fuel during Operation in Natural Gas Mode

Unit	2011	2012	2013	2014	2015	2016
Total per year	**317,928**	**266,723**	**237,250**	**249,895**	**281,065**	**221,643**
Permit Limit	**376,734**	**376,734**	**376,734**	**376,734**	**376,734**	**376,734**

Table 2 indicates that with the pilot operating at the new hourly heat rate of 2.0 MMBtu/hr, the current fuel limit of 376,734 gal/yr would not have been exceeded in any of the past operating years.

Table 3 presents the actual annual emissions over the two most recent years and includes all emissions with both natural gas and diesel mode operations, including the diesel pilot. Emission data were obtained from annual emission reports previously submitted to the NCUAQMD and the CEC.

Table 3
HUMBOLDT BAY GENERATING STATION
Wärtsilä Reciprocating Engines
Combined Emissions (Tons) S-1 through S-11

	NOx	CO	ROC	PM10	DPM	SO2
2015 Totals (tpy)	30.16	29.31	45.70	48.94	0.21	1.03
2016 Totals (tpy)	32.21	30.66	42.24	43.79	0.09	0.86
Annual Limit (tpy)	179.10	172.70	190.80	119.80	na	4.30

As Table 3 demonstrates, the actual emissions for the last two years at HBGS have been far less than the annual permitted emission limits. This data also shows that, when compared to the previous years of operation, there was a substantial decrease in the operation of the engines in diesel mode. As such, the facility operated a large majority of the time in 2015 and 2016 in natural gas mode. As discussed below, the ability to avoid having the engines switch into diesel mode would allow the facility to utilize unused emissions capacity to cover the small increase in the pilot heat rate.

Thus, increasing the pilot heat rate to 2.0 MMBtu/hr for short periods of natural gas mode operation while maintaining the 144.7 MMBtu/hr (3-hour rolling average) limit would not require that the annual pilot fuel limit be modified and the previous facility limit of 376,375 gallons per year of diesel fuel could be maintained with an adequate margin of safety.

We have provided a redline/strikeout version of the existing PTO where we have changed the following conditions back to the previously established limit:

- Condition 89: The revised annual limit of 948,562 gallons of diesel fuel is rolled back to 376,734 gallons per year which simply resets the annual limit back to its original value. The revised short term hourly and daily limits of 146 and 3,504 gallons will remain.

If you have any questions, or need further information, please do not hesitate to contact me at (707) 441-2667.

Respectfully,

Chuck Holm
Plant Manager, Humboldt Bay Generating Station
(707) 441-2667
1000 King Salmon Avenue
Eureka, CA 95503

Enclosures