	Alaska Gasline Development Corporation Alaska Department of Environmental Conservation Information Request for AGDC Liquefaction Plant Permit No. AQ1539CPT01	Date: June 6, 2022
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## DATA REQUEST REFERENCE INFORMATION

Agency	Data Request Date	Letter Request No.
ADEC	May 27, 2022 (via e-mail)	RFI-691

## REQUEST:


E-mail *Re: Ex Parte'*: Information Request to Assist in Response to Comments from Dave Jones (ADEC) to Lisa Haas (AGDC) on May 27, 2022, and June 1, 2022, clarification indicated:

The Department is requesting assistance in responding to public comments for AGDC's Liquefaction Plant construction permit. Please provide the following information that will assist the Department in responding to comments received during public notice:

1. Provide a fugitive dust control plan for the construction phase of the project that will be included in the permit with a Condition that sunsets once construction activities have completed. The fugitive dust control plan should offer a level of detail that is sufficient to ensure that the construction activities associated with the Liquefaction Plant will not cause or contribute to an exceedance of the NAAQS.
2. Provide a discussion related to how the mercury removal bed will operate including: any potential mercury emissions and whether they are activated carbon beds.
3. How will leakage from the LNG storage tanks and piping throughout the facility be monitored. Is the facility subject to leak detection requirements under any NSPS or NESHAP Subparts?
4. Provide updated CO and VOC best available control emission rates that take into account the addition of oxidation catalysts on the turbines, since the preliminary permit used an AP-42 emission factor of 0.0022 lb/MMBtu for VOC and a 5 ppmv emission factor for CO. The VOC emission rate is an uncontrolled emission factor from AP-42. The majority of combined cycle turbines in the RBLC achieve 2 ppmv for CO with oxidation catalysts. There are 10 findings in the RBLC for simple cycle turbines with oxidation catalysts, three of which achieve 2 ppmv or lower.

## ALASKA LNG RESPONSE:

1. Fugitive Dust Control Plan – See separate AGDC response dated June 3, 2022.
2. Mercury Removal Bed – See separate AGDC response dated June 3, 2022.
3. Leak Detection - See separate AGDC response dated June 3, 2022.
4. Updated CO and VOC BACT emission rates

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#### Simple Cycle Turbine CO BACT

AGDC reviewed the RBLC entries noted by ADEC and found that most of the simple cycle turbines equipped with CO catalyst had a BACT limit of 6 ppmvd CO @ 15% O<sub>2</sub>. One had a limit as high as 10 ppmvd CO @ 15% O<sub>2</sub>, and one had the most stringent limit of 1.5 ppmvd CO @ 15% O<sub>2</sub>. For the BACT determination where a 1.5 ppmvd CO limit was imposed, the oxidation catalyst was also being used to comply with a Lowest Achievable Emission Rate (LAER) requirement for VOC. LAER is more stringent than BACT.

AGDC's proposed BACT limit of 5 ppmvd CO @ 3% O<sub>2</sub> for simple cycle turbines is reasonable given that the proposed limit is consistent with all but two of the BACT limits imposed for simple cycle turbine installations. AGDC does not propose the more stringent 1.5 CO limit given that the CO limit was imposed as part of a LAER determination for VOC. Additionally, the harsher and colder environmental conditions where the Alaska LNG simple cycle turbines will operate warrant a slightly higher limitation. Finally, because these turbines will drive refrigeration compressors, they will operate over a wider range of operating conditions than the steady-state power generation turbines in the RBLC. Slightly higher CO limits are justified given the cyclical nature of operating conditions at the liquefaction facility.

#### Combined Cycle Turbine CO BACT

AGDC reviewed the RBLC entries noted by ADEC for combined cycle turbines and found that most of these entries were for power plant applications located in the Lower 48 States. None were for installations located in Alaska. Of the 80 entries reviewed, only two of the BACT determinations were for LNG Plants. One BACT determination for an LNG Plant where a combined cycle turbine equipped with a CO catalyst had a proposed limit of 9 ppmvd CO @ 15% O<sub>2</sub>. The other had a BACT limit of 4 ppmvd CO. The proposed BACT limit of 5 ppmvd CO @ 15% O<sub>2</sub> for the Alaska LNG Project combined cycle turbines is reasonable, given the limits imposed at other comparable LNG facilities. While 2 ppmvd CO may be achievable based on the entries in the RBLC query, they are all for power plant installations, and do not consider the harsher and colder environment of Alaska.

#### VOC BACT for Gas Turbines

As noted by the Department, the VOC BACT limit for the combustion turbines should not be based on the uncontrolled VOC emission factor from AP-42. It would be appropriate to set the limit at the level achieved in practice by other combustion turbine installations where oxidation catalyst controls have been installed. AGDC proposes a limit of 2 ppmvd @ 15% O<sub>2</sub>. This proposed limitation is consistent with other BACT determinations where CO controls have been installed at both simple cycle and combine cycle applications.