

From: Mitchell, Julie
Sent: Monday, January 14, 2013 10:29 AM
To: Homero Ramirez (Homero.Ramirez@valleyair.org)
Cc: Will Walters (WWalters@aspenerg.com)
Subject: Hydrogen Energy CA Amended (08-AFC-08A) RE: Update to Permit Unit Descriptions

Homero,

I thought it might be useful if I wrote down the small permit unit changes that we have recently discussed so that we could have a record and Will Walters could also be informed. Below are the updates to permit unit descriptions that we have discussed. Please let me know if you have any questions.

Auxiliary boiler

The burner capacity proposed by the supplier is 230 MMBtu/hr HHV, however HECA intends to keep the maximum allowable heat release at 213 MMBtu/hr HHV and will accept a permit condition to this effect, thus emissions do not increase. Compliance will be monitored with a natural gas fuel flow meter.

Ammonia Synthesis Startup Heater

The ammonia synthesis startup heater will be equipped with four Low-NOx burners each rated at 14 MMBtu/hr for a total rating of 56 MMBtu/hr, a change from 55 MMBtu/hr, due to new information provided by the vendor. This heater transfers heat from combustion gases to the ammonia synthesis gas during startup to provide the required activation energy necessary to start the synthesis reaction. The change in total rating causes a very minor increase in emissions.

Tail Gas Unit

Change the naming of the tail gas treatment unit (TGTU) to the tail gas unit (TGU).

Tail Gas Thermal Oxidizer

The tail gas unit will be equipped with a natural gas-fired thermal oxidizer rated up to 96 MMBtu/hr HHV from the combination of a 16 MMBtu/hr natural gas assist burner and an 80 MMBtu/hr waste gas burner. The natural gas assist burner rating increases from 13 to 16 MMBtu/hr due to new information provided by the supplier, however HECA intends to keep the maximum allowable heat release at 13 MMBtu/hr natural gas assist burner and will accept a permit condition to this effect, thus emissions do not increase. Compliance will be monitored with a natural gas fuel flow meter.

Combined Cycle Generating Unit

The gross power output of the Combined Cycle Power block is now expected to be up to 431 MW of gross power generation.. The additional gross output is the result of optimization and improvement in heat recovery and there is no additional fuel input or emissions.

CO₂ Vent

Emissions of methanol from the CO₂ vent were updated in response to Sierra Club Data Request 109. Methanol is the only VOC in the gas stream sent to the CO₂ vent, thus the methanol emissions equal the total VOC emissions. The annual emission estimate is based on the typical methanol content of 20 ppm and the expected annual quantity of CO₂ that would be vented, which will range from 70-100% of vent flow capacity (85% on average). Short-term methanol emissions could be as high as 40 ppm. HECA proposes an annual methanol/VOC emission limit from the CO₂ vent gas of 2.4 tons/year and a short-term limit of 40 ppm. The CO₂ vent gas stream will be monitored to ensure compliance with these conditions.

Flares

The maximum rating of each flare is higher than the capacity needed for flaring during planned events such as startup and shutdown. Although this additional capacity is not planned to be used, it is needed in the event of an upset or emergency. The maximum rating of the gasification flare is 4,000 MMBtu/hr, the sulfur recovery unit flare is 800 MMBtu/hr and the Rectisol flare is 5,500 MMBtu/hr. Although the capacity

listed above is greater than the capacity needed for planned flaring, HECA intends to keep the maximum allowable heat release of each flare as described in the ATC application for planned flaring and will accept a permit condition to this effect, thus emissions do not increase. Compliance will be monitored with a fuel flow meter.

Thanks,
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