Sandy, Alexander

From: Mary.Gerschefski@shell.com
Sent: Monday, October 22, 2018 5:06 PM
To: Sandy, Alexander
Cc: Gorog, Mark; Doug.Scott@shell.com
Subject: RE: Falcon Ethane Pipeline Project RFDs

Alex,

Wanted to follow-up on Question 2 below, input from the project is as follows:

Question 2: Will there be any ongoing or maintenance flaring associated with the pipeline? If so, what are the potential emissions?
Answer: **There will be no ongoing or planned maintenance flaring associated with the pipeline.**

With this, I believe we have responded to all the questions from the PA DEP on the Falcon RFD. Appreciate the opportunity to provide the clarifications.

Best regards,
Mary

Mary Gerschefski, P.E.
Project HSSE Manager – Falcon Ethane Pipeline Project

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From: Gerschefski, Mary G SIEP-PTS/CS
Sent: Monday, October 15, 2018 5:25 PM
To: Sandy, Alexander <asandy@pa.gov>
Cc: Scott, Doug D SPLC-DPE <Doug.Scott@shell.com>; Gorog, Mark <mgorog@pa.gov>
Subject: RE: Falcon Ethane Pipeline Project RFDs

Alex,

Please find the responses to the Falcon Ethane Pipeline RFD questions, provided below. Note that there is one outstanding item, we are targeting to have an answer back to you as soon as possible – hopefully within the next week.

SPLC would also like to take the opportunity to share its views about Sierra Club's September 10, 2018 letter to the Pennsylvania Department of Environmental Protection in which it and several other organizations expressed concerns

about SPLC's request for air permit exemptions for the Falcon Pipeline Project. SPLC respectfully requests that PADEP consider the attached letter as part of the agency's review of SPLC's air permit exemption request.

Question 1: Are there any other meter stations or sources associated with the pipeline?
Answer: **There are no other meter stations associated with the Falcon Project within PA DEP jurisdictional authority.**

Question 2: Will there be any ongoing or maintenance flaring associated with the pipeline? If so, what are the potential emissions?
Answer: **This question is in discussion with the Operations team, will revert as soon as possible.**

Question 3: Has the location of the 1-time temporary flaring been determined? If not, please notify the Department when the location has been determined.
Answer: **Based on discussions with suppliers, ethane is expected to be available for commissioning. The project is intending to locate flaring for commissioning at the Junction Meter Site and at the Monaca Meter Site.**

Question 4: Will the temporary flare be an enclosed flare?
Answer: **The Project is intending to use an enclosed flare for commissioning. If for some reason this becomes problematic, the project will discuss with the PA DEP.**

Question 5: Is there any additional compression required for the proposed pipeline, and if so, what are the potential emissions from the compressors?
Answer: **The Falcon design does not include compression.**

Question 6: Will leak detection and repair (LDAR) be performed at the metering stations, and if so, what will be the method and frequency of LDAR?
Answer: **Continuous remote pressure monitoring of the meter stations is provided. The pressure is continuously monitored 24 hours a day, 7 days a week remotely from the control room in Houston, TX. The Project has pressure sensors at each of the meter stations that are continuously monitoring for pressure excursions outside of normal operating range. There are two levels of detection. For small variations from the normal operating pressure, the control room operators will be automatically alerted to the issue and will initiate an investigation and may shutdown from the control room. For larger variations from the normal operating pressure, the meter station is automatically isolated from the gas plant and/or pipeline to ensure protection from a possible leak. In addition, there are gas detection devices at each meter station to alert the control room for a possible leak, and operators will be able to isolate the meter site to limit the size of the potential leak. Routine station checks will also be conducted to identify smaller leaks that may not be detected through pressure measurement or gas detection.**

Question 7: Provide the calculations to get the emissions factors from EPA-453/R-95-017 on page 2-12 from kg/hr/source to lb/hr/source based on the site specific TOC concentration.
Answer: **Fugitive emissions are calculated using the SOCMI factors from EPA document EPA-453/R-95-017; November, 1995; pp. 2-12, and are converted from kg TOC/hr/component to lb TOC/hr/component (1 kg = 2.20462 lbs).**
For CO2, the CO2 moisture analyzer and automatic sampler, we used manufacturer supplied bleed rates that were given in scf/min. We converted to lb/hr, by dividing the scf/min rate by the standard molar volume (379.3 scf/mol) to convert scf to mol, and then multiplied by the molecular weight of ethane to

convert from mol to lb. We then multiply by 60 to convert from min to hour. We then sum the total emissions from all components to get a total TOC lb/hr and TPY (TPY is calculated by multiplying lb/hr rate by 8760 hours per year and dividing by 2000 lbs per ton). We then multiply this mass rate by the simulated mass fraction of each species in the liquid ethane stream (see physical properties, mass fraction, liquid ethane). Because the composition of the ethane in the pipeline is not 100% TOC (there is a small amount of CO2), we will then divide each species mass rate by the mass % of TOC in the liquid ethane stream to properly account for the non-TOC components. A summary of this formula is listed below:

$$\dot{m}_i = \frac{\dot{F} * x_i}{z}$$

$$\dot{m}_i = \frac{lb}{hr}\ flowrate\ of\ each\ species$$

$$F = Total\ TOC\ Emissions$$

$$x_i = Mass\ fraction\ of\ indiviual\ species\ in\ liquid\ ethane$$

$$z = Total\ TOC\ mass\ fraction\ in\ liquid\ ethane$$

Best regards,

Mary

Mary Gerschefski, P.E.
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From: Sandy, Alexander <asandy@pa.gov>
Sent: Thursday, September 20, 2018 2:01 PM
To: Gerschefski, Mary G SIEP-PTS/CS <Mary.Gerschefski@shell.com>
Subject: Falcon Ethane Pipeline Project RFDs

Mary,

In regards to the requests for determination for the proposed Shell Pipeline Company, LP Falcon Ethane Pipeline, please provide the following information:

1. Are there any other meter stations or sources associated with the pipeline?
2. Will there be any ongoing or maintenance flaring associated with the pipeline? If so, what are the potential emissions?
3. Has the location of the 1-time temporary flaring been determined? If not, please notify the Department when the location has been determined.
4. Will the temporary flare be an enclosed flare?
5. Is there any additional compression required for the proposed pipeline, and if so, what are the potential emissions from the compressors?
6. Will leak detection and repair (LDAR) be performed at the metering stations, and if so, what will be the method and frequency of LDAR?
7. Provide the calculations to get the emissions factors from EPA-453/R-95-017 on page 2-12 from kg/hr/source to lb/hr/source based on the site specific TOC concentration.

If you have any questions about the above items, please let me know. Thanks,

Alex

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