From: Gehrig, Greg
To: Goeller, Jon Micah
Cc: Morris, James
Subject: RE: Didion NOV/FOV update
Date: Tuesday, March 26, 2019 8:46:00 AM
Attachments: Handbook of Chem Hazards 1989.pdf

Hi Jon Micah,

Do you want to provide this to Patrick:

As mentioned in paragraph 30 of the NOV/FOV, EPA used the *Handbook of Chemical Hazard Analysis Procedures* (attached), and, in particular, equation B 8 in Appendix B.3, to determine acetaldehyde emissions. I observed 3 types of components venting from the top of the fermenators/beer well: pressure relief/conservation vents (PRCVs), agitators, and manway seals. Typically, we don't provide our actual calculations (i.e. the Excel spreadsheet), but I assumed that 5 PRCVs, 5 agitators and 8 manway seals were venting with the following aperture dimensions:

- PRCVs – 6.5" radius (i.e. 13" diameter CV plate stuck open), 1/8" aperture;
- Agitators – 2.25" radius (i.e. from a 4.5" shaft), 1/8" aperture;
- Manway seals – 12" by 1/8" on average.

Other assumptions include:

- Concentration of acetaldehyde is 125 ppm, which is typical for industry since no sampling data for Didion was available.
- 0.5 psi (or 14 inches of water) pressure above atmospheric in the fermenters.
- The gas released is mostly CO2, which has the same molecular weight as acetaldehyde (44) with the ratio of specific heats (air to CO2) at 1.289.
- The process is in operation 95% of the time.

Thanks,

Greg

From: Goeller, Jon Micah
Sent: Tuesday, March 12, 2019 3:05 PM
To: Gehrig, Greg <gehrig.greg@epa.gov>
Cc: Morris, James <Morris.James@epa.gov>
Subject: FW: Didion NOV/FOV update

Greg:

Patrick is requesting the inputs and calculation information for the case as well.

What can we provide on that front?

Jon Micah Goeller
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From: Patrick K. Stevens <PStevens@axley.com>
Sent: Tuesday, March 12, 2019 3:02 PM
To: Goeller, Jon Micah <goeller.jon@epa.gov>
Subject: RE: Didion NOV/FOV update

Thanks Jon: I will verify the time with our attendees. In addition to the FLIR info, we really need to see all the details regarding EPA's emissions estimate that is included in the NOV, including all inputs and all calculations. The sooner we could get them the better.

Patrick K. Stevens
Phone: (262) 409-2296
Axley Brynelson, LLP

From: Goeller, Jon Micah [mailto:goeller.jon@epa.gov]
Sent: Tuesday, March 12, 2019 2:51 PM
To: Patrick K. Stevens <PStevens@axley.com>
Subject: Didion NOV/FOV update

Patrick:

Thanks for your patience on this. After talking with Greg and Jim, the afternoon of Wednesday, April 24, works best for the NOV/FOV conference. Say 1:00 pm Central Time? We can provide information about parking, transportation, or getting through our security screen here in Region 5. I will also send out a separate calendar invite for the meeting.

As far as the tool used to determine fugitive emissions, Greg directed me to this optical gas imaging (OGI) camera. Please let us know if you have any further questions.

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