GUIDANCE DOCUMENT

Division of Air Pollution Control
April 2015

Supplemental Information Request for Mid-stream Dehydration Facility[1] Air Pollution Permit Applications

The purpose of this guidance document is to describe additional information that should be submitted with an air pollution permit application for mid-stream dehydration facilities[1].

This information will assist Ohio EPA staff determine compliance with all applicable air pollution regulations and result in more efficient processing of permit applications. The information below should be submitted in addition to the information required in the air permit-to-install or permit-to-install and operate application either via hard-copy or via the eBusiness Center: Air Services system.

Emissions Basis Information

Ohio EPA air permit applications must include calculations for the expected emissions from the facility. In some cases in the past, Ohio EPA has received basic information concerning the emissions calculations without sufficient details for Ohio EPA permit writers to verify the calculations. In order to verify the accuracy of emissions calculations for dehydration facilities, permit applications must include the following:

- Calculations for each process and each emission point where periodic emissions are expected to occur. This includes emissions for start-up, shut-down operations, maintenance operations and emissions from various vents that are expected to release emissions on a periodic basis that would exceed de minimis source levels. Emissions from process safety valves (PSVs) do not need to be provided as long as the PSV is not used for periodic venting during normal source operations.
- The input data used for each emissions calculation;
- Supporting information that describes the basis for the input data used. For instance, the applicant should describe the basis of and provide supporting information for the expected maximum incoming gas flow rate;
- a description of and basis for any assumptions and/or safety factors incorporated into the calculations;
- the basis for any control levels used for control equipment;
- the calculation method used for the emissions calculation (GRI-GLYCalc, ProMax, E&P Tanks, AP-42, mass balance, etc.); and
- the resulting emissions from the above calculations;

If there is any question about what should be included, applicants should talk to the permit writer who will be assigned to their permit.

[1] Note that these facilities include gas compressor facilities if the facility includes gas dehydration processes.

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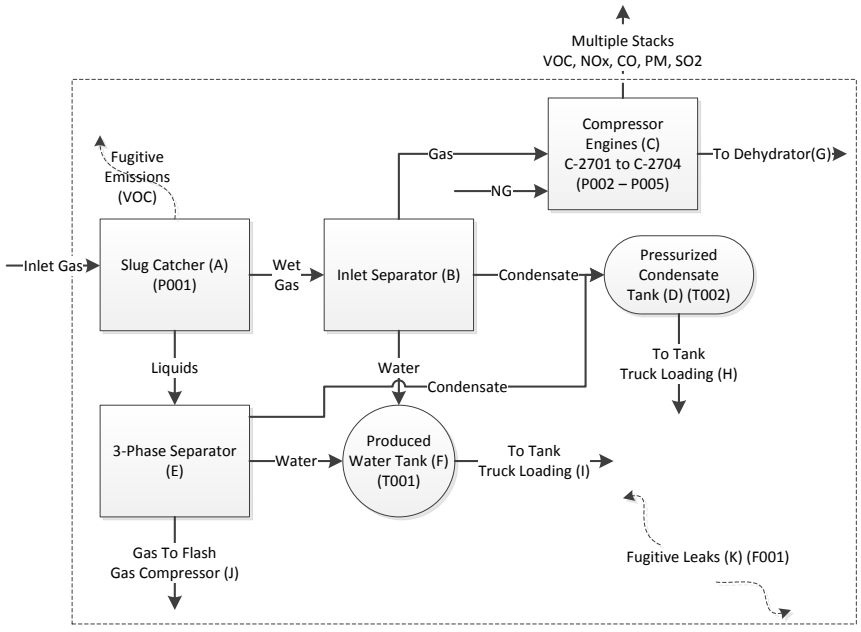
Uncontrolled Vent Releases

The applicant should provide a description of each exhaust point (dehydrator flash tank vent, pressure relief valve, manual release valve, etc.) installed at the site that is expected to experience periodic releases as part of the normal operation of the facility and is not already described as an emissions source in the permit application. Pressure Safety Valves (PSVs) that are only used to prevent catastrophic failures do not need to be included in this information. For each of these exhaust points, the applicant should provide the company identification of the vent/valve/etc., the name of the equipment serviced by the vent/valve/etc., the expected frequency of release, the expected duration of the release, and the expected emissions released during each release. If all of the exhaust points are already included in the application materials, then no additional information needs to be submitted.

Process Flow Diagram and Description

On page 7 of the Permit-to-Install and Operate application instructions[2], question 6 requires applicants to submit a process flow diagram of the processes covered by the application. The purpose of the flow diagram is so Ohio EPA's permit writer can understand the flow of materials, the chemical/physical processes, and the emissions occurring during each part of the process. Ohio EPA has received applications with process flow diagrams that are too basic for the permit writers to understand the processes. As such, we are asking applicants to ensure they are providing the information requested within question 6. In addition, we are asking applicants to provide a written explanation of the inlet and outlet materials, the chemical/physical processes, and the resulting emissions that occur within each item on the diagram. To assist in this request, we have developed the following example:

Sample Process Flow Diagram and Explanation:



Process Flow Diagram Discussion

Slug Catcher (A) – Pipeline wet gas enters the slug catcher process (A). Normally, wet gas travels straight through the slug catcher to be delivered to the inlet separator. However, whenever a pig arrives, the slug of liquids pushed ahead of the pig is routed to the 3-phase separator (E). Once the liquids are routed and the pig is captured in the receiver, the slug catcher is sealed off and opened in order to remove the pig. Whenever the slug catcher is opened a small amount of gas is released as fugitive emissions. Except for when opened, the slug catcher is not expected to vent any emissions.

Inlet Separator (B) – The inlet separator (B) receives wet gas from the slug catcher (A) and separates out liquid droplets from the gas stream through mechanical sieves and gravity. The liquid droplets collect at the bottom of the separator and then separate further into water and condensate liquids. The water is then routed to the water storage tank (F). The condensate

[2] See: http://epa.ohio.gov/portals/27/permittest/PTIPTIOinstructions.pdf .

is routed to the pressurized condensate storage tank (D). The gas is routed to the compressor engines (C). Under normal conditions, no venting of emissions occurs from the inlet separator.

Compressor Engines (C) – The gas from the inlet separator (B) is routed to one of four compressors. The compressors are driven by natural gas-fired diesel engines. The engines produce combustion emissions including VOC, NOx, CO, PM and SO2. These emissions are routed to one of four exhaust stacks. The compressed gas is next routed to the dehydration system (G).

Pressurized Condensate Tank (D) – The pressurized condensate tank receives condensate from the inlet separator (B) and stores it. Condensate is removed from the pressurized condensate tank (D) periodically through the loading of a pressurized tank truck in the tank unloading area (H). The pressurized condensate tank does not normally vent any emissions.

3-Phase Separator (E) – The 3-phase separator (E) receives liquids from the slug catcher. The pressure of the liquids is reduced in the separator causing various gas components to flash off from the liquids into the gaseous phase. The liquids also separate into water and condensate due to specific gravity differences. The flash gas is routed to the flash gas compressor (J). The water is routed to the produced water tank (F) and the condensate is routed to the pressurized condensate tank (D). During normal operation, no emissions are expected from the 3-phase separator.

Etc. …

Plot Plan and Surrounding Area

The applicant should submit an accurately scaled and detailed Plot Plan showing, at a minimum, the location of all process equipment, emission units, vent points (only those that vent periodically during periods of normal operation of the source), air pollution control devices, and delineation of the property line. If final designs have not been completed when the application is submitted, then a plot plan of the initial design shall be submitted with the application followed by a revised plot plan once final designs have been completed. Separately, the applicant should provide a scaled map, satellite imagery or equivalent that identifies the location of the closest occupied structure located within one-half mile of the facility property line in each of the four compass quadrants (northeast, southeast, southwest, and northwest quadrants).

De Minimis Calculations/Support

For any piece of equipment that will be installed or modifed as part of the project, and where the applicant has determined that the piece of equipment qualifies as a de minimis source exempt from permitting, the applicant should include the information the applicant relied on to determine the equipment qualifies as a de minimis source. This information should include, but not be limited to, any emissions calculations or regulatory analysis done to make the determination. The de minimis exemption can be found in Ohio Administrative Code (OAC) rule 3745-15-05. See: ***http://epa.ohio.gov/dapc/regs/3745_15.aspx***. If no de minimis determinations have been made, then the applicant shall state in their application that no de minimis determinations were made. Note that the Ohio EPA does not expect the applicant to conduct a de minimis determination for activities that result in trivial levels of emissions. Engineering Guide #62 (http://epa.ohio.gov/Portals/27/engineer/eguides/guide62.pdf) provides a good discussion of the types of activites Ohio EPA considers trivial.

Start-up/Shut-down Uncontrolled Emission Events

If uncontrolled emissions are expected during either start-up or shutdown of any source, the applicant should provide an explanation of the expected emissions event, the expected emission rate, and the expected duration of the emissions event.

Contact

For more information, contact the permit writer who is assigned to your facility. You can determine the permit writer by calling the District Office or Local Air Agency (DO/LAA) that is responsible for your site. DO/LAAs can be determined by reviewing the map found at: ***http://epa.ohio.gov/dapc/general/dolaa.aspx***, or by selecting your facility's county from the following document: ***http://epa.ohio.gov/districts.aspx#115772917-county-contacts***.

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