

# Oil and Gas Workgroup Updates

## Background

**Oil and Gas Emissions:** The oil and gas sector emit volatile organic compounds (VOC) through many of their processes. Most of the VOCs emitted by this sector are in the form of methane (CH<sub>4</sub>). The USEPA does not currently consider CH<sub>4</sub> a VOC, however the Air Quality Division (AQD) is investigating its role in both ozone nonattainment and climate change.

**RACT:** Implementation of Reasonably Available Control Technology (RACT) for sources of volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>) may be required in the event of a bump-up to moderate nonattainment. The AQD is considering effectiveness of RACT controls on Michigan's oil and gas sector.

## Completed Work

**Pipeline Emissions Estimates:** The AQD calculated emissions reductions and increases, on a township-level basis, for most natural gas distribution utilities throughout the state based on distribution mains installed and removed from 2017 through 2019. Calculations were made based on the USEPA Greenhouse Gas Reporting Emission Factors in Subpart W and alternative emissions factors generated by Colorado State University. Information about natural gas distribution mains was obtained directly from the utilities. Information to ascertain the VOC component was based on a VOC to CH<sub>4</sub> ratio. This ratio was created by averaging utility-specific and area-specific gas chromatograph data. While there is still room for improvement, the alternative emission factor results better represent the township-level emissions resulting from a utilities replacement of distribution mains throughout Michigan.

## Current Work

**Use of Advanced Leak Detection to Identify Leaks in Distribution Systems:** The AQD is working with natural gas utilities in the Southeast Michigan area, Colorado State University, the University of Michigan, and the USEPA to use advanced leak detection to help identify and quantify leaks in the distribution mains. Identifying these leaks will help utilities prioritize main replacement and repairs, which will help reduce ozone precursors in the Southeast Michigan area. Information gathered from some of these surveys will also help build a more accurate small-scale model. This model will be used to help quantify the impacts of CH<sub>4</sub> reductions on ozone levels in Southeast Michigan.

**Oil and Gas RACT Subgroup:** The AQD has been actively working with stakeholders to assess requirements of the oil and gas CTG. The CTG has recommended controls to lower the emission of fugitive emissions from certain oil and gas equipment. The fugitive emissions are usually hard to quantify and are not required to usually reported to Michigan in annual emission reports. The CTG has multiple subcategories that can be summed up in the following six categories:

1. Reciprocating Compressors
2. Centrifugal Compressors
3. Storage Vessels

4. Pneumatic Devices
5. Well Site Fugitives
6. Equipment Leaks at Natural Gas Processing Plants

To-date, the Oil and Gas RACT Subgroup has focused on the first four subcategories.

| Subcategory  | Nonattainment Area Possible Recommendations                                    | Outside Nonattainment Area Possible Recommendations  | Analysis Overview   | Status  |
|--|--|--|---|---|
| <b>Reciprocating Compressors</b>   | Replacing rod packing, etc, at recommended CTG frequency                       | Replacing rod packing, etc, at recommended CTG frequency or longer   | Compared emissions reduced to annual and capital expenses     | Sketching out rule language; verifying expense and emission estimates |
| <b>Centrifugal Compressors</b>   | Change wet seal to dry seal or other CTG control                               | No additional controls   | Compared emissions reduced to annual and capital expenses     | Sketching out rule language; verifying expense and emission estimates |
| <b>All Compressors Monitoring and Leak Repairs</b>                         | CTG monitoring and leak repair recommendations                                 | CTG monitoring and leak repair recommendations but possible flexibility in repair timeframe; possible exemption based on compressor size | Compared emissions reduced to annual and capital expenses     | Sketching out rule language; verifying expense and emission estimates |
| <b>Storage Vessels with Potential to Emit at Least 6 tons per year VOC</b> | NA   | NA   | Confirming potential sources                                  | Possible negative declaration   |
| <b>Pneumatic Devices</b>   | Possible requirement to switch to low- or zero-bleed over a certain timeframe. | Possible negative declaration  | Confirming potential sources; confirming flexibility with EPA | Possible negative declaration or timeframe related rule.              |
| <b>Well Site Fugitives</b>   | NA   | NA   | NA  | TBD   |
| <b>Equipment Leaks at Natural Gas Processing Plants</b>                    | Na   | NA   | NA  | TBD   |

## Upcoming Meetings:

The Oil and Gas RACT Workgroup meets bi-weekly. The next meeting is Monday, August 30<sup>th</sup>, 11:00-12:00 EDT.

The Oil and Gas Workgroup meets bi-monthly. The next meeting is Tuesday, September 7<sup>th</sup>, 10:30-11:30 EDT.

## Contact:

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