

COMPLIANCE GUIDE

STANDARDS OF PERFORMANCE FOR
CRUDE OIL AND NATURAL GAS PRODUCTION,
TRANSMISSION AND DISTRIBUTION
(40 CFR 60, SUBPART 0000)

AND

CRUDE OIL AND NATURAL GAS FACILITIES FOR WHICH
CONSTRUCTION, MODIFICATION, OR RECONSTRUCTION
COMMENCED AFTER SEPTEMBER 18, 2015
(40 CFR 60, SUBPART 0000a)

August 2016



DIVISION OF COMPLIANCE ASSISTANCE

DCA.KY.GOV

502-564-0323

ENVHELP@KY.GOV



Environmental regulations can be confusing, and complying with those regulations takes time and resources. The Division of Compliance Assistance's (DCA) Environmental Compliance Assistance Program (ECAP) works with individuals, businesses and organizations to provide a broad range of services that increase environmental knowledge, improve regulatory compliance and enhance the quality of Kentucky's environment and communities.

INTRODUCTION

The oil and natural gas industry includes a wide range of operations and equipment, from wells to natural gas gathering lines and processing facilities, to storage vessels, and transmission and distribution pipelines. The New Source Performance Standards (NSPS) for Crude Oil and Natural Gas Production, Transmission, and Distribution (40 CFR 60, Subpart 0000) and for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015 (40 CFR 60, Subpart 0000a) cover activities, equipment, and facilities within this industry sector related to [hydraulically fractured wells](#) and surface equipment associated with oil, condensate and natural gas production, transmission and distribution.

While the NSPS is equipment/activity-specific, air permitting by the Kentucky Division for Air Quality (DAQ) is based on facility-wide emissions. This means that emissions from all equipment, facilities and activities at a source must be evaluated. The following document focuses on requirements for **well completions of hydraulically fractured wells** and **storage vessels at crude oil and natural gas sites** as defined in the subparts and how applicability of the subparts relate to DAQ permitting. Please review 40 CFR 60, Subpart 0000 and Subpart 0000a for other affected facilities at your site not discussed here, including centrifugal compressors, reciprocating compressors, pneumatic controllers, and sweetening units at onshore natural gas processing plants.

The initial rule, 40 CFR 60, Subpart 0000, applies to wells that are hydraulically fractured principally for the production of natural gas and surface equipment at crude oil and natural gas facilities constructed, modified or reconstructed after August 23, 2011. The rule classifies storage vessels as Group 1 or Group 2, which allows for phased compliance dates.

Amendments to 40 CFR 60, Subpart 0000, made on December 31, 2014, are the following:

- Provides details on requirements of gas and liquids handling during completion operations, including clarifying the flowback period of well completion into two distinct stages.
- For storage vessels, there was clarification that Volatile Organic Compound (VOC) emissions captured as a result of permit requirements do not count toward determining whether a tank is subject to emission control requirements under this regulation.
- The definition of low pressure wells, unchanged from the 2012 definition, was finalized.
- There was the addition and use of the term “certifying official” instead of “responsible official.”
 - The term “certifying official” allows for officials responsible for facilities employing up to 250 employees and that have less than \$25 million gross annual sales or expenditures to delegate the authority after notifying the agency rather than after approval.
 - Additional updates provide clarifications on certain requirements for leak detection at natural gas processing plants and updates requirements for reciprocating compressors, which are not addressed in this document.

On June 3, 2016, U.S. EPA published 40 CFR 60, Subpart 0000a – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015. Well-affected facilities under this rule include **hydraulically fractured wells for the production of crude oil or natural gas**. Other affected facilities under this rule include centrifugal compressors, reciprocating compressors, pneumatic controllers, storage vessels, dehydration units, sweetening units, field gas gathering systems, liquefied natural gas systems, and process units and equipment associated with fugitive emissions. Facilities are to be in compliance with the new standards no later than **August 2, 2016**, or upon startup, whichever is later.

The new rule, 40 CFR 60, Subpart 0000a, includes actions that focus on the following:

- Reducing methane and VOC emissions from new and modified sources
 - The new rule builds on 2012 requirements to reduce VOC emissions by adding requirements to reduce greenhouse gases and cover additional equipment and activities in oil and gas production chains.
 - This is done by reducing methane emissions from new, reconstructed, and modified processes and equipment, along with adding affected facilities to the 2012 VOC reduction requirements.
 - Owner/operators will be required to find, monitor, and repair methane and VOC leaks according to a set schedule, depending on the type of facility and equipment used.

Accompanying the publication of 40 CFR 60, Subpart 0000a, other air permitting rules were clarified and implemented.

- The final Source Determination Rule clarifies when oil and gas equipment must be deemed as a single source when determining permitting status of onshore oil and natural gas production.
 - Adjacent has been defined as equipment and activities that are under common control and are within 0.25 miles of each other.
 - Sources within the same industrial grouping (defined by SIC code), under the control of the same person/people, and located on contiguous or adjacent properties are considered the same source.
- The final Federal Implementation Plan for Indian County for oil and natural gas production and natural gas processing implements the Minor New Source Review Program, limits emissions of harmful air pollution and makes the preconstruction permitting process more streamlined and efficient.

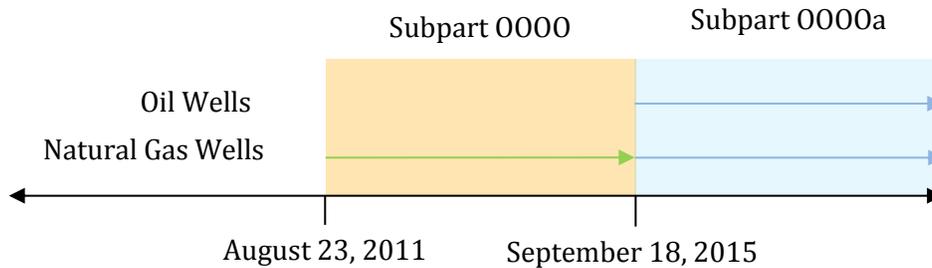
This document highlights 40 CFR 60, Subparts 0000 and 0000a, along with potential requirements under KY Division for Air Quality regulations. It does not cover every permit or authorization within the Department for Environmental Protection, such as water quality concerns and waste management. The information contained in this document is offered only to inform and assist the public and the regulated community.

The information may not apply to every situation. Nothing contained is intended to constitute legal advice or to replace or alter any requirement of statute or regulation or other legally binding requirement. If there exists a discrepancy or conflict between the information contained in this document and applicable statutes, regulations or other legally binding requirement, then such statute, regulation or other legally binding requirement supersedes. For the full disclaimer, visit

<http://eec.ky.gov/Pages/disclaimer.aspx>.

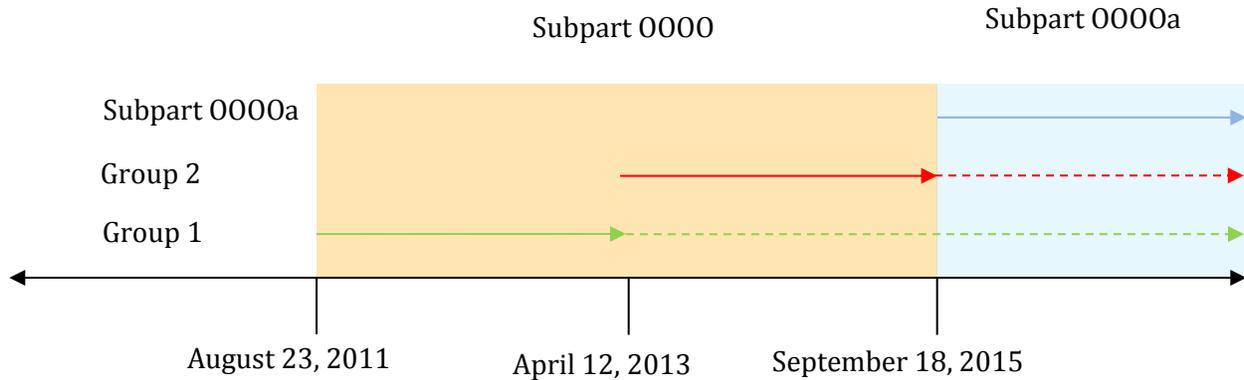
Hydraulically Fractured Well Applicability Dates

A timeline of applicability dates for hydraulically fractured wells is given below. Hydraulically fractured natural gas wells constructed, modified, or reconstructed after August 23, 2011, are subject to 40 CFR 60, Subpart 0000. Any hydraulically fractured natural gas or oil well constructed, modified or reconstructed after September 18, 2015 is subject to 40 CFR 60, Subpart 0000a.



Storage Vessel Applicability Dates

A timeline of applicability dates for storage vessels is given below. A storage vessel that is constructed, modified or reconstructed during the time frame would obtain the respective classification and applicable rule. The vessel continues to be applicable to the identified rule as long as the vessel is not modified or reconstructed.



SECTION 1: DRILLING OPERATIONS

Hydraulically fractured natural gas wells that commenced construction, modification, or reconstruction after August 23, 2011, and are subject to 40 CFR 60, Subpart 00000 **or** any hydraulically fractured crude oil or natural gas production well in Kentucky, that has commenced construction, modification or reconstruction after September 18, 2015, and are subject to 40 CFR 60, Subpart 0000a, must comply with notification, recordkeeping, reporting, and control requirements. These requirements do not apply to wells in which hydraulic fracturing is not involved.

1. Are you hydraulically fracturing a well for the production of natural gas or oil?
- Yes
You must meet the requirements below and proceed to [Section 2](#).
- No
You do not have any well completion requirements under this rule pertaining to the respective well, but proceed to [Section 2](#).

1(A) NOTIFICATIONS

- Submit the Flowback Notification at least two days prior to the commencement of well completion. The Flowback Notifications shall include:
- Contact information for the owner or operator,
 - Anticipated date of the well completion operation,
 - United States well number,
 - Latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983, and
 - Planned date of the beginning of flowback.

Submit the Flowback Notification to Kentucky and EPA Region IV.

KENTUCKY DIVISION FOR AIR QUALITY

Submit a Flowback Notification on form [DEP5034](#). This form can be found at dep.ky.gov/formslibrary/pages/default.aspx under 'Division: Air Quality' > Program: Compliance Assistance.' Completed notifications are to be mailed to

Kentucky Division for Air Quality
Emissions Inventory Section
Program Planning and Administration Branch
300 Sower Blvd, 2nd Floor
Frankfort, KY 40601



U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION IV

Submit a complete Flowback Notification, with the contents indicated above, to the following e-mail address: r4wellcompletion@epa.gov.

1(B) CONTROL MEASURES

Hydraulically fractured wells have a general duty to maximize resource recovery and minimize releases to the atmosphere during flowback and subsequent recovery.

The **Flowback Period** begins when material introduced returns to the surface following hydraulic fracturing or refracturing and ends when the well is shut in and equipment is disconnected or at the startup of production. The flowback period is classified into two distinct stages.

- **Initial Flowback Stage**
 - Begins when the material introduced into the well during the treatment returns to the surface following hydraulic fracturing or refracturing.
 - Ends when it is technically feasible for reduced emission completion equipment to function (e.g. a separator).
- **Separation Flowback Stage**
 - Begins when it is technically feasible for separator to function, i.e. reduced emission completion equipment to separate gas, liquid hydrocarbons and water that come from the well as it is being prepared for production.
 - Ends when the well is shut in and flowback equipment is permanently disconnected or at the startup of production.

Owners or operators of...

- Natural gas well-affected facilities after August 23, 2011, and prior to January 1, 2015

...must reduce emissions from each well completion operation by using a [completion combustion device](#) equipped with a continuous ignition source during flowback, unless combustion is a safety hazard¹ or is prohibited by state or local regulations.

Owners or operators of...

- [wildcat](#), [delineation](#) or [low-pressure](#) well-affected facilities on or after January 1, 2015, and
- Crude oil well-affected facilities prior to November 30, 2016

...must route all flowback into a [completion combustion device](#) equipped with a continuous ignition source, unless combustion is a safety hazard¹ or is prohibited by state or local regulations.

OR

...must route all flowback into well completion vessels or storage vessels until it is technically feasible for a separator to function. Capture and direct recovered gas to a [completion combustion device](#) equipped with a continuous ignition source during flowback, unless there is a safety hazard¹ or it is prohibited by other state or local regulations.

Owners or operators of...

- Natural gas well-affected facilities occurring between January 1, 2015, and before November 30, 2016,

...must capture the gas from well completion operations and make it available for use or sale, which can be done through the use of [reduced emissions completions](#), also known as green completions. Reduced emissions completions may include:

- During initial flowback, route flowback to into well completion vessels or storage vessels until it is technically feasible for a separator to function.

¹ Situations in which combustion is a safety hazard include those that may result in a fire hazard or explosion, or where high heat emissions from a completion combustion device may negatively impact tundra, permafrost or waterways.

- During separation flowback stage, route the recovered gas from the separator into a gas flow line or collection system, re-inject the recovered gas into the well or another well, use the recovered gas as an on-site fuel source, or use the recovered gas for another useful purpose that a purchased fuel or raw material would serve.
 - If it is infeasible to route the recovered gas as required above, route to a completion combustion device with a continuous ignition source, unless there is a safety hazard¹ or it is prohibited by other state or local regulations.
 - If it is not technically feasible for the separator to function, return to the initial flowback stage and route flowback to a well completion vessel or storage vessel.
- All salable-quality gas must be routed to the gas flow line **as soon as practicable**.

☐ Owners or operators of...

➤ Natural gas and crude oil wells occurring on or after November 30, 2016, ...must capture the gas from well completion operations through [reduced emissions completions](#), also known as green completions.

- During initial flowback, route flowback to well completion vessels or storage vessels until it is technically feasible for a separator to function.
- During separation flowback stage, route the recovered liquids to one or more well completion vessels or storage vessels, re-inject the recovered gas into the well or another well, use the recovered gas as an on-site fuel source, or use the recovered gas for another useful purpose that a purchased fuel or raw material would serve.
 - If it is infeasible to route the recovered gas as required above, route to a completion combustion device with a continuous ignition source, unless there is a safety hazard¹ or it is prohibited by other state or local regulations.
 - If it is not technically feasible for the separator to function, return to the initial flowback stage and route flowback to a well completion vessel or storage vessel.
- Required to have a separator on-site during the entirety of the flowback period unless,
 - the well is not hydraulically fractured or refractured with liquids, or and the well does not generate condensate, intermediate hydrocarbon liquids, or produced water such that there is no liquid collection system at the well site, and it is not required to have a separator on-site.
 - If conditions allow for liquid collection, then the operator must immediately stop the well completion operation, install a separator, restart the well completion operation, and return to the initial flowback stage.

1(C) RECORDKEEPING



Maintain a **daily log** of records for each affected facility **well completion operation** conducted during the initial compliance period. The initial compliance period begins upon initial startup of well completion and ends no later than one year after the initial startup date. The initial compliance period may be less than one full year. All records required by this subpart must be maintained either on-site or at the nearest company field office for at least five (5) years. Any records required to be maintained that are submitted electronically via the EPA's CDX may be maintained in electronic format. Records for well completion operations should include:

- A copy of each Flowback Notification submission (see Section 1(A)).
- Records identifying the **well completion operation** for each natural gas well-affected facility. **Daily logs** and records shall include:
 - Latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983;
 - US Well Number;
 - Date and time of:
 - the onset of flowback;
 - each attempt to direct flowback to a separator (if applicable);
 - each occurrence returning to initial flowback stage (if applicable);
 - startup of production or well shut in and removal of flowback equipment.
 - Duration (in hours) of:
 - flowback;
 - recovery to the flow line (if applicable);
 - combustion (if applicable);
 - venting (if applicable);
 - Reasons for venting in lieu of capture or combustion (if applicable) and
 - Records of deviations in cases where well completion operations with hydraulic fracturing were not performed in compliance (if applicable).
- Records for each natural gas well facility for which you **claim an exception** to using a completion combustion device. Records should include:
 - Latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983,
 - US Well Number,
 - Specific exception claimed,
 - Starting date and ending date for the period the well operated under the exception and
 - Explanation of why the well meets the claimed exception.
- Maintain a copy of each annual report submitted, as described in [Section 3: Annual Reporting](#).

Digital photographs may be provided in lieu of the records described for the daily log. Retain the records of the digital photograph as specified in 40 CFR 60.5410(a)(4) and 40 CFR 60.5410a(a)(4).

SECTION 2: POST-DRILLING OPERATIONS

Post-drilling operations include the establishment and operation of storage vessels and additional processing equipment. Additional processing equipment may have regulatory requirements within 40 CFR 60, Subpart 0000 and 0000a, not addressed in this guidance.

- | | | |
|---|---|--|
| <p>1. Does your site have any of the following?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reciprocating compressors <input type="checkbox"/> Centrifugal compressors <input type="checkbox"/> Pneumatic controllers <input type="checkbox"/> Dehydration units <input type="checkbox"/> Sweetening units <input type="checkbox"/> Reciprocating Internal Combustion Engines (RICE) <input type="checkbox"/> Fugitive emission components | <p><input type="checkbox"/> Yes
Submit a Minor Source Registration or air permit application. Continue reading and go to question #2 for storage vessels.²</p> | <p><input type="checkbox"/> No
Continue reading and go to question #2 for storage vessels.</p> |
|---|---|--|

A storage vessel that contains an accumulation of crude oil, condensate, intermediate hydrocarbon liquids, or produced water has the potential-to-emit 6 ton_{VOC}/year or more and has been constructed, modified or reconstructed after the applicability date is subject to the rule. Under 40 CFR 60, Subpart 0000, there are two classification dates, or groups, for storage vessels.

Group 1 storage vessel means a storage vessel for which construction, modification or reconstruction has commenced after August 23, 2011, and on or before April 12, 2013.

Group 2 storage vessel means a storage vessel for which construction, modification or reconstruction has commenced after April 12, 2013, and on or before September 18, 2015.

A storage vessel that commences construction, modification, or reconstruction after Sept. 18, 2015 is subject to 40 CFR 60, Subpart 0000a.

- | | | | |
|--|--|------------------------------------|--|
| <p>2. Does your well site have any storage vessels (tanks) on-site that have the potential-to-emit VOCs? See Assessing My Storage Vessel Emissions.</p> | <p><input type="checkbox"/> Yes
Go to question #3.</p> | <p><input type="checkbox"/> No</p> | <p>If you answered NO, assess if activities at your site would require submittal of a Minor Source Registration or air permit application.² Total sourcewide potential emissions may trigger air permitting requirements even if 40 CFR 60, Subparts 0000 and 0000a do not apply.</p> |
| <p>3. Do you have a storage vessel-affected facility that contains an accumulation of crude oil, condensate, intermediate hydrocarbon liquids or produced water?</p> | <p><input type="checkbox"/> Yes
Go to question #4.</p> | <p><input type="checkbox"/> No</p> | |
| <p>4. Does your affected storage vessel have the potential-to-emit 6 ton_{VOC}/year or more? See Assessing My Storage Vessel Emissions.</p> | <p><input type="checkbox"/> Yes
Comply with the requirements in Section 2(A) through 2(C) and Section 3.</p> | <p><input type="checkbox"/> No</p> | |

²The Division of Compliance Assistance (DCA) is available to provide recommendations and assistance with Minor Source Registrations and air permit applications. If you are a business with 100 or fewer employees, independently owned and a small business as defined by the Small Business Administration and NOT a major source of air emissions, DCA can assist you in completing air permit applications at no cost to your facility. Call 502-564-0323 or e-mail envhelp@ky.gov.

2(A) NOTIFICATION

□ Within the initial annual report, identified in [Section 3](#) of this guidance, submit notification identifying each **storage vessel**-affected facility. Each subsequent annual report shall include all **storage vessels**. Include the location of the storage vessel, in latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983. (Example: Lat 38.21595; Long -84.86706)



- Include the date(s) that a storage vessel is removed from or returns to service.

2(B) CONTROL MEASURES

All storage vessels that commenced construction, modification or reconstruction after August 23, 2011, and have the potential-to-emit 6 ton_{VOC}/year or more are subject to 40 CFR 60, Subpart 0000.

All storage vessels that commence construction, modification, or reconstruction after September 18, 2015, and have the potential-to-emit 6 ton_{VOC}/year or more are subject to 40 CFR 60, Subpart 0000a.

Storage vessels subject to both 40 CFR 60 Subparts 0000 and 0000a must control VOC emissions by 95.0 percent or meet the alternative emissions limits that allow the owner/operator to demonstrate that actual uncontrolled emissions from a storage vessel have dropped to less than 4 ton_{VOC}/year. **Compliance must be re-evaluated on a monthly basis.**

Group 1 storage vessel affected facilities must demonstrate initial compliance by April 15, 2015, except as otherwise provided in the rule.

Group 2 storage vessel affected facilities must demonstrate initial compliance by April 15, 2014, or within 60 days after startup, whichever is later.

Subpart 0000a storage vessel affected facilities must demonstrate initial compliance within 60 days after startup.

CONTROL VOC EMISSIONS BY 95.0 PERCENT

- Use a control device to reduce emissions from the storage vessel-affected facility.
 - List of manufacturer-tested combustion control devices
<http://www.epa.gov/airquality/oilandgas/implement.html>
- Requirements:
 - Review the regulation for additional requirements in determining initial compliance with covers and closed vent systems (40 CFR 60.5411 or 40 CFR 60.5411a), control devices (40 CFR 60.5412 of 40 CFR 60.5412a), and performance testing (40 CFR 60.5413 of 40 CFR 60.5413a) used to comply with the emission standards for storage vessels. Meet continuous compliance requirements (40 CFR 60.5415(e) or 40 CFR 60.5415a(e)) for storage vessels for which you are using a control device or routing emission to a process to meet the emissions reduction requirement.
- Conditions:
 - Control equipment may be removed after 12 consecutive months in which the *uncontrolled actual* emissions have remained less than 4 ton_{VOC}/year. Once control equipment is removed, continue keeping monthly records to verify actual uncontrolled VOC emissions. If VOC emissions increase at or above 4 tons per year, the 95.0 percent reduction requirement must be achieved.

ALTERNATIVE EMISSION LIMIT

- Demonstrate that *uncontrolled actual* emissions are less than 4 ton_{VOC}/year. The demonstration must be made **monthly**.
 - Monthly demonstration is suggested to be in the form of a 12-month rolling total in which the current month is summed with the preceding 11 months to identify actual emissions for a 12-month period.
 - See Assessing My Storage Vessel Emissions ([Appendix B](#)).
- Conditions:
 - If emissions increase (at or above the 4 ton_{VOC}/year limit), owners/operators have 30 days to meet the 95.0 percent reduction requirement.
 - If emissions increase (at or above the 4 ton_{VOC}/year limit), and are associated with the fracture or re-fracture of a well supplying the storage vessel, owners/operators must meet the 95.0 percent control limit as soon as liquids from the fractured or re-fractured well are routed to the storage vessel.

Storage vessels that are removed from service and then return to service at a different location must be re-evaluated, including potential emissions estimation at the new location, for rule applicability and requirements.

2(C) RECORDKEEPING

You must maintain a log of records for each affected storage vessel. All records required by this subpart must be maintained either on-site or at the nearest local field office for at least 5 years. The location data shall be given in latitude and longitude coordinates in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.

- Maintain records identifying each affected storage vessel. Records should include
 - Documentation identifying each storage vessel potential emissions of 6 ton_{VOC}/year or more, including location, for which construction, modification or reconstruction commenced during the reporting period and the date of occurrence;
 - Documentation of the VOC emission rate determination;
See [Appendix B: Assessing My Storage Vessel Emissions](#).
 - Records of deviations that occurred during the reporting period;
 - Notification identifying each Group 1 and Group 2 storage vessel or storage vessel-affected facility in the annual reports;
 - Statement that you have met the control requirements outlined for your storage vessels;
 - Documentation of any storage vessel that is removed from service during the reporting period;
 - Documentation of any storage vessels for which operation resumes during the reporting period and
 - Copies of any performance tests conducted in accordance with 40 CFR 60.5413 or 40 CFR 60.5413a.
- Maintain a copy of each annual report submitted, as described in [Section 3: Annual Reporting](#).



SECTION 3: ANNUAL REPORTING

Contents of each annual report shall include the records described for each affected facility. These affected facilities may include *well completion operations* (including claims of exception) and *storage vessels* with 6 ton_{VOC}/year or more potential emissions (as applicable), in addition to those items below.

- Company name and address of the affected facility
- An identification of each affected facility being included in the annual report
- Beginning and ending dates of the reporting period
- Certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- Records described for each affected facility.

If you own or operate more than one affected facility **at the same source location**, you may submit one annual report for multiple affected facilities, provided all information is included for each affected facility. (The same source location is identified by an Agency Interest number issued to the location by the KY Department for Environmental Protection after submission of the Flowback Notification or registration/permit application.)

SECTION 3(A) INITIAL ANNUAL REPORT

The initial annual report is due no later than **90 days** after the end of the **initial compliance period**.

- If the affected facility compliance period begins August 2, 2016, then the annual report is due no later than October 31, 2017.
- If the affected facility compliance period begins upon startup, the annual report is still due October 31, 2017. The initial compliance period may be less than one full year.

SECTION 3(B) SUBSEQUENT ANNUAL REPORTS

Subsequent annual reports are due no later than the same date each year as the initial annual report for all sources and affected facilities.

- For Kentucky permitted sources, the NSPS annual reports may coincide with Title V reporting requirements or indicated under emission point reporting requirements on the source's issued permit.

SECTION 3(C) SUBMISSION OF ANNUAL REPORTS

The initial annual report and subsequent annual reports shall be submitted to the Kentucky Division for Air Quality electronically or through mail. For subsequent annual reports at permitted sources, view the source's permit conditions for submission instruction. Registered sources may continue to submit to the locations below.

Submit Annual Reports to Kentucky and the EPA Region IV.

KENTUCKY DIVISION FOR AIR QUALITY

Annual Reports shall be submitted to Kentucky electronically or by mail.

1. Submit electronically (preferred) at:
<https://dep.gateway.ky.gov/eForms/Default.aspx?FormID=34>.
 - Complete the agency/site information, who is submitting the report and upload the annual report under Type of Document Submitted: Other and entitle it '40 CFR 60, Subpart 0000 Annual Report.'

OR

2. Submit via mail to:
 - Kentucky Division for Air Quality
Program Planning and Administration Branch
Emissions Inventory Section
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

AND

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION IV

Annual Reports shall be submitted to the U.S. EPA, Region IV by mail.

1. Submit via mail to:
 - Air, Pesticides and Toxics Management Division
Attn: Beverly Banister, Director
US EPA Region 4, Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

APPENDIX A: DEFINITIONS

The following are frequently referenced definitions within this guidance. For additional definitions that apply to the subpart, see [40 CFR 60.5430](#) and [40 CFR 60.5430a](#).

Completion combustion device means any ignition device, installed horizontally or vertically, used in exploration and production operations to combust otherwise vented emissions from completions.

Delineation well means a well drilled in order to determine the boundary of a field or producing reservoir.

Flare means a thermal oxidation system using an open (without enclosure) flame. Completion combustion devices as defined in this section are not considered flares.

Flowback means the process of allowing fluids and entrained solids to flow from a well following a treatment, either in preparation for a subsequent phase of treatment or in preparation for cleanup and returning the well to production.

- The term flowback also means the fluids and entrained solids that emerge from a well during the flowback process.
- The flowback period begins when material introduced into the well during the treatment returns to the surface immediately following hydraulic fracturing or refracturing. The flowback period ends with either well shut in or when the well is producing continuously to the flow line or to a storage vessel for collection, whichever occurs first. The flowback period includes the initial flowback stage and the separation flowback stage.

Hydraulic fracturing means the process of directing pressurized fluids containing any combination of water, proppant, and any added chemicals to penetrate tight formations, such as shale or coal formations, that subsequently require high rate, extended flowback to expel fracture fluids and solids during completions.

Hydraulic refracturing means conducting a subsequent hydraulic fracturing operation at a well that has previously undergone a hydraulic fracturing operation.

Low-pressure gas well

- 40 CFR 60, Subpart 0000 – means a well with reservoir pressure and vertical well depth such that 0.445 times the reservoir pressure (in psia) minus 0.038 times the vertical well depth (in feet) minus 67.578 psia is less than the flow line pressure at the sales meter.
- 40 CFR 60, Subpart 0000a – means a well that satisfies at least one of the following conditions: (1) The static pressure at the wellhead following fracturing, but prior to the onset of flowback is less than the flow line pressure at the sales meter; (2) The pressure of flowback fluid immediately before it enters the flow line, as determined under §60.5432a, is less than the flow line pressure at the sales meter; or (3) Flowback of the fracture fluids will not occur without the use of artificial lift equipment.

Reduced emissions completion (green completions) means a well completion following fracturing or refracturing where gas flowback that is otherwise vented is captured, cleaned and routed to the gas flow line or collection system, re-injected into the well or another well, used as an on-site fuel source or used for other useful purpose that a purchased fuel or raw material would serve, with no direct release to the atmosphere.

Storage vessel means a tank or other vessel that contains an accumulation of crude oil, condensate, intermediate hydrocarbon liquids or produced water and that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass or plastic) which that provide

structural support.

A well completion vessel that receives recovered liquids from a well after startup of production following flowback for a period that exceeds 60 days is considered a storage vessel.

Well completion means the process that allows for the flowback of petroleum or natural gas from newly drilled wells to expel drilling and reservoir fluids and tests the reservoir flow characteristics, which may vent produced hydrocarbons to the atmosphere via an open pit or tank.

Well completion operation means any well completion with hydraulic fracturing or refracturing occurring at a well affected-facility.

Well site means one or more areas that are directly disturbed during the drilling and subsequent operation of, or affected by, production facilities directly associated with any oil well, gas well or injection well and its associated well pad.

- For purposes of the fugitive emissions standards at 40 CFR 60.5397a, well site also means a separate tank battery surface site collecting crude oil, condensate, intermediate hydrocarbon liquids, or produced water from wells not located at the well site (e.g., centralized tank batteries).

Wildcat well means a well outside known fields or the first well drilled in an oil or gas field where no other oil and gas production exists.

APPENDIX B: ASSESSING MY STORAGE VESSEL EMISSIONS

Production rate and corresponding storage vessel throughputs are based on the maximum average daily throughput determined for a 30-day period of production prior to the applicable emission determination deadline of October 15, 2013, for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels.

A storage vessel with a maximum average daily throughput of less than 20 barrels of oil or less than 1 barrel of condensate per day will likely be less than 6 ton_{VOC}/year and not trigger applicability of this subpart. In addition to throughput, emissions are impacted by temperature and pressure of the separator prior to the storage vessel, storage vessel size and characteristics, and the vapor pressure of liquids entering the storage vessel. These variables may cause a storage vessel with less than 20 barrels of oil or less than 1 barrel of condensate per day to have potential emissions of 6 ton_{VOC}/year or more. Utilize an accepted model or calculation methodology, such as [EPA TANKS 4.09D](#) (for working and breathing losses) and a [Vasquez-Beggs calculator](#) (for flash losses), to identify potential emissions from a storage vessel. Submit calculations with the Minor Source Registration or permit application for review by DAQ staff.

Answer the following to help identify *individual storage vessel* applicability to the NSPS and DAQ registration/permitting implications. Does the *individual storage vessel* have a **daily** throughput capacity of less than...

- | | | |
|--------------------------------|------------------------------|-----------------------------|
| A. ...20 barrels of crude oil? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| B. ...1 barrel of condensate? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
- Assess the individual storage vessel emissions for applicability *and* submit a Minor Source Registration to DAQ.
- The storage vessel likely does not trigger applicability of the NSPS, but you must keep appropriate records on throughput analysis and emission calculations.

If the site has more than one storage vessel or crude oil and condensate storage vessels, you must assess your combined storage vessel emissions and applicability. Submit a Minor Source Registration to DAQ if your combined storage vessel emissions are 10 tons or greater.

You must also determine if there are additional sources of emissions that would trigger applicability of the subpart or submittal of a Minor Source Registration or air permit application ([See Section 2, Question 1](#)).

Instances in which multiple storage vessels or additional air emission sources exist at the same site, a source-wide analysis of potential air emissions will need to be assessed to determine applicability of Minor Source Registration or air permitting requirements with DAQ. The facility may be required to submit a registration/permit application even if the NSPS does not apply.