

**PS Memo 14-02**

**To:** Stationary Sources Program, Local Agencies, and Regulated Community  
**From:** Michael Cleary and Carissa Money  
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**Subject:** Oil & Gas Industry Hydrocarbon Liquid Loadout General Permit GP-07  
Regulatory Definitions and Permitting Guidance

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This guidance document is intended to answer frequently asked questions concerning the oil and gas industry hydrocarbon liquid loadout operation general permit (GP-07). This document does not address any other equipment types that may be part of a common facility with loadout equipment.

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## 1. DEFINITIONS

This section contains definitions of some terms that are used in this document and/or Colorado Air Quality Control Commission Regulation Number 3 (Reg. 3) and/or Regulation Number 7 (Reg. 7). Additional definitions are available in Reg. 3, Part A, II.B; Reg. 3, Part C, I.A; Reg. 7, II.A; Reg. 7, XII.B; Reg. 7, XVII.A, and Common Provisions Reg. 2, 1.G.

### 1.1. *Alternate Operating Scenario (AOS)*

An AOS is a provision in a General Permit (GP) that allows operational flexibility. It allows loadout operations to be modified without providing notice to the Colorado Air Pollution Control Division (Division) prior to the modification. See the definition of modifications (1.12 below) for clarification.

### 1.2. *Control Efficiency*

For the purpose of this guidance document, the term control efficiency refers to the overall control efficiency (i.e., the overall percentage by which emissions will be reduced.) This control efficiency should take into consideration the collection efficiency as well as destruction and/or emission reduction efficiency. The control efficiency accepted by the Division for flares and vapor recovery units (VRUs) is 95 percent. A higher efficiency may be used if appropriate and if supporting data is provided to and approved by the Division. (see Reg. 7, II.A.8)

### 1.3. *Denver 1-hour Ozone Attainment/Maintenance Area*

Jefferson and Douglas counties, the Cities and Counties of Denver and Broomfield, Boulder County (excluding Rocky Mountain National Park), Adams County west of Kiowa Creek, and Arapahoe County west of Kiowa Creek.

### 1.4. *Drip Pot*

A container used to separate condensed liquids from gas streams. The Division considers a drip pot to be a non-exploration and production (E&P) condensate tank.

### 1.5. *Dual Product Storage Tank*

Contains commingled hydrocarbon liquid (condensate or crude oil) and produced water generated via a 2-phase separator.

### 1.6. *Exploration and Production (E&P) Equipment*

All equipment from the wellhead through custody transfer. The first physical separation of the multi-phase mixture of gas, hydrocarbon liquids, and water from oil and gas wells occurs in E&P equipment. Typical E&P equipment includes the wellhead assembly, pump jack, separators, tank batteries, glycol dehydrator still vent, engines, miscellaneous natural gas combustion sources, truck loading, and control devices. For the purposes of this document, custody transfer occurs at the E&P site.

1.7. ***Eight-Hour Ozone Control Area***

Adams, Arapahoe, Boulder (includes part of Rocky Mountain National Park), Douglas, and Jefferson counties; the Cities and Counties of Denver and Broomfield; and portions of Larimer and Weld counties (see Reg. 7, II.A.1.a and II.A.1.b)

1.8. ***General Permit (GP)***

A GP is a single permit issued to cover numerous single source-types with similar operations, processes, and emissions and that are subject to similar requirements. The GP provides an additional, voluntary permitting option for these sources. (Reg. 3, Part A, Section I.B.22. and Part B, Section III.I).

In this guidance document, GP refers to GP07 for oil and gas industry hydrocarbon liquid loadout operations. GP07 only covers sources located at minor or synthetic minor facilities.

1.9. ***Hydrocarbon Liquid***

- a. **Condensate** - A hydrocarbon liquid that has an American Petroleum Institute (API) gravity greater than or equal to 40° API at 60° F, based on an annual average of all samples.
- b. **Crude Oil** - A hydrocarbon liquid that has an API gravity less than 40° API at 60° F, based on an annual average of all samples.

When determining API gravity, the annual average is based on the most recent 12 contiguous months. If the site did not operate at all times during the most recent 12 months, samples from previous months shall be included in the average such that 12 complete months of data is included. If the site has been in operation for less than 12 months, all available samples shall be used; the annual average shall be determined upon reaching 12 months of operation.

1.10. ***Hydrocarbon Liquid Loadout***

Hydrocarbon liquids loaded from storage tanks into a transport trucks for shipment offsite. Generally, especially at E&P sites, loadings occur using a basic hose connecting the tank and truck. In this case, volatile organic compounds (VOCs) emissions occur from the truck thief hatch directly into the atmosphere. Sometimes loading occurs through a loading rack that operates in vapor balance between the storage tank and transport truck. In this scenario, emissions may be captured and routed to a control device. Some loadout operations are exempt per Regulation No. 3, Part A, Section II.D.1.ee

1.11. ***Individual Permit (IP)***

A permit that is issued through the traditional construction permit mechanism as defined in Reg. 3, Part B. IPs are either CPs or T5OPs. A GP is an alternative to an IP.

1.12. ***Modification to hydrocarbon liquid loadout equipment***

The definition of a modification can be found in Reg. 3, Part A, I.B.28:

For sources registered under the GP, these changes may be deemed modifications per the provisions of the AOS:

- a. Increase in throughput resulting in a facility classification change from true minor to synthetic minor.
- b. Addition or replacement of control equipment by different type of control equipment
- c. Relocation of the loading operation within the same quarter-quarter section, township, and range.

A source may invoke an AOS without modifying the general permit registration provided all of the AOS procedures are followed.

1.13. ***Non-E&P, Midstream, or Downstream Equipment***

Midstream and downstream equipment is located between the E&P site custody transfer up to and including transmission and storage. Non-E&P equipment may be midstream or downstream. E&P equipment may be co-located with non-E&P equipment.

1.14. ***Oil and Gas Industry***

Includes E&P, non-E&P, midstream, and downstream equipment

1.15. ***Site or facility***

Any stationary source or group of stationary sources that have the same two digit standard industrial code, are located on one or more contiguous or adjacent properties, and are under common control of the same person (or persons under common control). (Reg. 3, Part A, I.B.43)

This definition will be used in determining both minor and major New Source Review (NSR) applicability determinations. In interpreting this definition, the Division will rely on available Environmental Protection Agency (EPA) guidance and past EPA and Division determinations. Based on Division experience, many of these decisions will be made on a case-by-case basis.

1.16. ***Slop Tank***

A tank located at a non-E&P facility that is used to store condensate, intercooler condensates, or miscellaneous lubricant oil drainage products. In general, it is used to store drainage materials from various tanks. The Division considers a slop tank to be a non-E&P condensate tank.

1.17. ***Well Pad***

The area that is directly disturbed during the drilling and subsequent operation of a well or areas affected by production facilities directly associated with a well. Well sites from which multiple wells may be drilled to various bottomhole locations shall be considered a single well pad.

## **2. APPLICABILITY (Q&A)**

### **2.1. *What sources qualify for coverage under the oil and gas industry hydrocarbon liquid loadout GP-07?***

Sources that comply with all terms and conditions in the GP qualify to be covered by the GP-07. Applicability also requires:

- The facility is an oil & gas industry facility
- The facility is a true minor or synthetic minor source (T5OP or NSR)
- Actual controlled VOC emissions are equal to or less than 10 tpy, on a rolling 12 month basis for synthetic minor facilities or a calendar year basis for true minor facilities.

Sources located at a major facility are not qualified to operate under the GP.

### **2.2 *Can sources currently covered by an individual construction permit be converted to a general permit?***

Yes. If the loadout is currently permitted and the source requests to change from an individual permit to GP coverage, the Division will cancel the existing individual permit upon GP registration approval.

## **3. AIR POLLUTANT EMISSION NOTICES (APEN) Q&A**

### **3.1. *When must APENs be submitted or revised for hydrocarbon liquid loadout operations?***

APENs should be submitted for sources that have volatile organic compound (VOC) emissions that are greater than threshold levels (1 tons per year [tpy] in nonattainment areas; 2 tpy in attainment areas). APENs should be revised for circumstances as described in Reg. 3, Part A, II.C or as described in the GP. The following are some circumstances under which APENs should be submitted or revised:

- a. For new E&P sources, within 30 days after the report of first production is filed, but no later than ninety days following the first day of production. (see Reg. 3, Part A, Section II.D.1.III.)
- b. When a significant change in annual actual emission occurs, as defined in Reg. 3, Part A, Section II.C.2. APENs filed for this reason should be submitted by April 30<sup>th</sup> of the year following the change.
- c. When there is a change in the owner or operator.
- d. Prior to any modification not covered by the AOS. (See part 1.12 of this document and Reg. 3, Part A, I.B.28 for clarification)
- e. If exercising the AOS, a revised APEN should be submitted by April 30<sup>th</sup> of the year following the modification(s). The revised APEN shall be accompanied by the appropriate APEN filing fee and a cover letter detailing all such AOS modifications that occurred within the previous calendar year.
- f. No later than thirty days before the five-year term of the current APEN expires.

3.2. ***What time period should be used to calculate actual emissions for an APEN?***

APENs are used to report actual emissions for the previous calendar year. Therefore, actual reporting levels should represent the best estimate of prior calendar year throughput and emissions. For APENs submitted during the first year of operation, projected annual hydrocarbon liquid production and associated emissions are acceptable. In subsequent years, actual data from the previous calendar year shall be used.

3.3. ***What time period should be used to calculate requested emissions for an APEN?***

Requested hydrocarbon liquid production and associated emission values are used to determine source permit limits. Therefore, these values should represent the best estimate of projected future maximum throughput and emissions. Requested values are not applicable for loadout sources registering under the GP because permit limits are set by GP conditions.

**4. HYDROCARBON LIQUID LOADOUT GENERAL PERMIT APPLICATION (Q&A)**

4.1. ***What is the process for permitting an oil and gas industry hydrocarbon liquid loadout under the GP?***

- a. Submit a completed Hydrocarbon Liquid Loadout APEN (Form APDC-208), along with the appropriate fees for each source to be covered under the GP. The APEN must indicate that it is a registration for coverage under the General Permit.
  - Only one loadout operation may be reported per APEN
- b. The Division will review the APEN and determine if the source qualifies for GP registration.
- c. If the source qualifies for the GP, an approval letter authorizing GP coverage will be sent to the applicant. If all applicable fees were not paid at the time of submittal, an invoice will be sent.

4.2. ***What should I submit with my application?***

- a. A complete APEN Form APCD-208; and
- b. A complete Form APCD-102 "Facility Wide Inventory Form"
- c. The associated filing fees:
  - \$152.90 for each APEN
  - \$250.00 for each loadout being registered under a GP.

4.3. ***What emissions information should be provided on the Form APCD-102***

In addition to all currently operating “existing” emission sources, please include the inventories for all unconstructed permitted emissions sources and those emissions sources proposed and waiting for approval by the Division.

- Note: For permitted sources, the “controlled potential to emit” emissions should reflect the respective permit limit. For sources covered by a general permit, this should reflect the permit limit established in the respective GP document. (e.g. GP01 = 39 tpy VOC, GP07 = 10 tpy VOC)

4.4. ***What if I desire to convert a previously submitted individual construction permit application for a loadout to a general permit registration request?***

- a. In order to do this, a new application for a general permit, including the forms and fees listed under Section 4.2 of this document, must be submitted.
- b. Include a cover letter with your new general permit application explaining your request and providing identifying information for the original individual construction permit application, such as: date the application was submitted, facility name, the AIRS ID (if known) and any other pertinent identifying information.
- c. You will be billed for any chargeable time already spent processing the original individual construction permit application and the original APEN filing fee will not be credited to the new general permit application.
- d. If the loadout is currently permitted and the source is requesting to change from an individual permit to GP coverage, the Division will cancel the existing individual permit upon GP registration approval.

4.5. ***May facilities continue to utilize IPs rather than the GP for loadout operations?***

Yes, the GP is a voluntary permitting option for qualified sources. The same APEN form is used for both situations. The permittee must check the correct box on the APEN indicating which permit type they are requesting.

4.6. *What is the difference between a GP and an IP for loadout operations?*

General Permit	Individual permit
<b>Flexibility</b>	
Streamlined approval. Permit coverage will begin upon the Division's receipt of the complete application and fees.	Permit coverage does not commence until the application has been fully reviewed and the permit has been issued.
Contains AOS provision to allow some modifications without prior notice.	Must be modified prior to making changes.
<b>Conditions</b>	
Submerged filling must be used.	Unique filling options may be considered.
Equipment descriptions and conditions are standard for every loadout operation registered.	Contains unique conditions and descriptions of the specific equipment to be covered.
Only the established, State default emission factors may be used.	State Emission Factors may be used or site specific emission factors may be developed.
The GP does not contain a production limit, only an emissions limit.	Contains an annual throughput limit (set at the level requested on the APEN).
<b>Permit fees</b>	
The GP registration fee is a one-time fee that does not require repayment each time a source is modified.	Permit fees based on actual processing time must be paid every time a permit is modified and may vary widely.

5. **EMISSION FACTORS (Q&A)**

5.1. *What are the State approved emission factors for the hydrocarbon liquid loadout General Permit?*

Liquid Type	State Emission Factors* (lb/bbl)		
	VOC	Benzene	n-Hexane
Crude Oil	0.104	1.81e-4	1.60e-3
Condensate	0.236	4.16e-4	3.61e-3
Liquid Type	State Emission Factors* (lb/1000gal)		
	VOC	Benzene	n-Hexane
Crude Oil	2.47	0.0043	0.038
Condensate	5.63	0.0099	0.086

\* These state emission factors may be revised in the future, pending new data and analysis results.

**5.2. *Are there limits as to when these state emission factors may be used?***

The State default emission factors noted above may be used at any oil and gas hydrocarbon liquid loading operation that utilizes submerged fill. Should an operator wish to use site-specific emission factors, application for an individual construction permit would be required.

**5.3. *How were the state emission factors developed?***

VOC emission factors were derived using data from more than 700 existing sources in the Division's inventory and the Loading Loss Equation described in AP-42, Chapter 5.2-4 for submerged fill. The state emission factors are only relevant for hydrocarbon loading operations that utilize submerge fill.

Emission factors for benzene and n-hexane, the two most commonly reportable HAPs were derived according to the current method of HAP estimation – using the condensate emission factors found in PS-Memo 05-01. The ratio of each HAP emission factor with respect to the VOC emission factor was then multiplied by the VOC emission factors for crude oil and condensate.

**5.4. *When are site-specific emission factors required for hydrocarbon liquid loadout?***

The Division reserves the authority to require site-specific emission factors at any time. However, site-specific emission factors may be developed and used on a voluntary basis for any loadout. Site-specific emission factors may only be applied at loadout operations for which they were developed and must be approved by the Division. The Division may require an extended liquids analysis of sales oil for the site as well as the RVP of the sales oil to develop site-specific emission factors. Should an operator wish to use site-specific emission factors, application for an individual construction permit would be necessary.

**6. EMISSION CALCULATIONS (Q&A)**

**6.1. *How are actual uncontrolled and controlled emissions calculated?***

- a. Actual uncontrolled emissions are calculated by multiplying the appropriate emission factor (Sec.5.1.) by the actual loading throughput volume (BBLs).
  - Note: Actual emissions are used for inventory purposes.
- b. Controlled emissions are calculated by applying the control efficiency, approved by the Division, to the uncontrolled emissions total. For the GP-07, the approved control percentage for flares and VRUs shall be 95%.

**6.2. *How is potential to emit (PTE) calculated?***

Calculate PTE as described above for uncontrolled actual emissions, except use a hydrocarbon loading throughput value (T) based on the maximum annual throughput as follows in Equation 1:

(Equation 1) 
$$\text{PTE Emissions} = \text{T}_{\text{PTE}} \times 1.2 \times \text{Emission Factor}$$

Where:

$\text{T}_{\text{PTE}}$  = The maximum throughput is the greater of the highest rolling 12-month production total during the last five years or the projected throughput for the following 12-month period. Production forecasts may use a default decline factor of 60% for the first 12 months of operation to estimate maximum annual throughput. That is, the production after a year can be estimated to be 40% of the original production, using a standard decline curve. Higher decline factors may be used if supporting documentation is provided to the Division.