

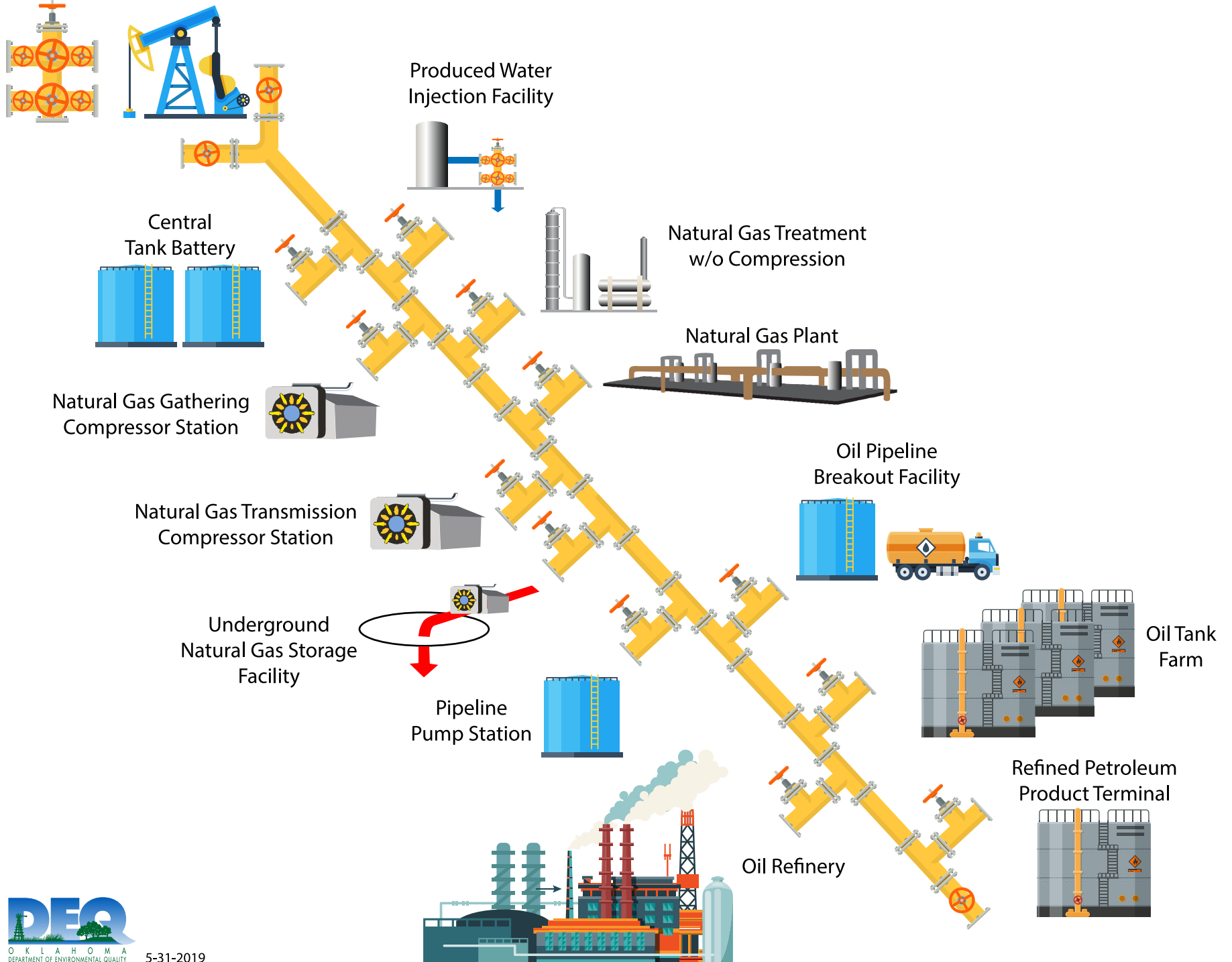
Types of Oil and Gas Facilities

Below is a list of the oil and gas facility categories. Please classify each permitted facility using the classification that best represents operations at that facility. Definitions and guidance about how to appropriately choose a facility category are provided later in the document. Figure 1 is included as a reference showing the locations of different oil and gas facility types within the network of industry operations.

1. Oil/NG – Well Site
2. Central Tank Battery
3. Produced Water Injection Facility
4. NG – Gathering Compressor Station
5. NG – Treatment Without Compression
6. NG Plant – NGL Extraction and/or Fractionation
7. NG – Transmission Compressor Station
8. NG – Underground Storage Facility
9. Oil – Pipeline Breakout Facility/Truck Station
10. Oil – Tank Farm
11. Oil/NGL/Refined Petroleum – Pipeline Pump Station
12. Oil Refinery
13. Refined Petroleum – Product Terminal
14. Oil/NG/NGL – Other

Oil and Gas Facility Categories

Oil and Natural Gas Well Site



Definitions of Oil and Gas Facility Types

Introduction

Definitions of each facility category are provided below. The definitions focus on the equipment located at each facility and the location of the facility within the network of oil and gas sector operations. Guidance is provided in the definitions for instances where a facility may fit the definition of two facility categories. Overall, if it is unclear which facility category to choose for a facility, decide based upon the primary purpose of the facility. For example, consider a facility that includes a wellhead, heater treater, produced water and condensate storage tanks, a flare, compressors, and engines. If the primary purpose of the facility is to gather and boost natural gas from surrounding wells, choose *NG-Gathering Compressor Station*. If the compressors at the site only boost the pressure of the natural gas from the wellhead on site, choose *Oil/NG-Well Site* as the primary purpose of the site. Another example is provided by underground natural gas storage at a gas plant. The primary purpose of the facility is NGL (natural gas liquids) extraction and/or fractionation and the natural gas storage happens to occur on site. *NG-Plant* is the correct facility category.

1. Oil/NG – Well Site

(Crude Oil & Natural Gas – Well Site)

A well site or well pad is the physical location on which one or more oil and/or gas well(s) are drilled and oil and/or natural gas is produced. Several well sites that are owned by the same company and are within a quarter mile of each other can be permitted as a single facility. A facility must have at least one wellhead within the facility boundary to receive this classification. Common emission sources located at well sites include: crude oil, condensate, or produced water storage tanks; process heaters; heater treaters; dehydrators; other two or three phase separators; crude oil, condensate, and/or produced water tanker truck loading sites; engines used to power compressors or pump jacks; fugitive sources; and pneumatic controllers. Pneumatic pumps and dehydration units may also be located at well sites.

If a facility could be classified as a production well site and another type of facility (e.g., a compressor station), choose the facility classification based upon the primary purpose of the site. If the primary purpose of the site is production of oil and/or natural gas, choose *O&NG-Well Site* as the classification. If a wellhead is located on site and the primary purpose of the site is

gathering and compression of natural gas from surrounding wells choose *NG-Gathering Compressor Station* as the classification. The 10 digit API/US well number should be provided for all wells on site no matter which facility classification is chosen.

2. Central Tank Battery

Central tank batteries also known as central distribution points, receive crude oil, condensate, and/or produced water from surrounding well sites via a pipeline system. The crude oil, condensate, and/or produced water is typically separated and then stored in atmospheric storage tanks and routinely loaded into trucks for transportation from the site. The crude oil or condensate may also leave the facility by pipeline. The primary function of a central tank battery is storage. If the facility includes a well on site, provide the API/US well number of the well and choose *Central Tank Battery* as the classification if the primary purpose of the site is storage from surrounding well sites and not production from the single well on site. Please provide the API/US well number for each well feeding into the tank battery. If a compressor is present on site and the primary purpose of the site is compression instead of storage, classify the site as a *NG-Gathering Compressor Station*.

3. Produced Water Injection Facility

At produced water injection sites, produced water/salt water is transported to the site by truck or pipeline and pumped into injection wells for disposal. If the produced water injection occurs at a well site as part of an enhanced oil recovery system (waterflooding), classify the facility as a *Produced Water Injection Facility*.

4. NG – Gathering Compressor Station

(Natural Gas – Gathering Compressor Station)

A gathering compressor station receives natural gas from area well sites via pipeline or another compressor station. The received gas is compressed and sent down the pipeline for

processing at a natural gas plant or another compressor station. For classification purposes, gathering compressor stations occur prior to the natural gas plant. If there is no natural gas plant (used to remove natural gas liquids) between the well field and the distribution point or end user, classify the facility as a *NG-Gathering Compressor Station*, unless it is located on a natural gas pipeline regulated by the Federal Energy Regulatory Commission (FERC). In that case, classify it as a *NG-Transmission Compressor Station*. In addition to compression, dehydration and sweetening (amine treatment) may occur at gathering compressor stations. A compressor station may have a fuel treatment skid, such a Joule Thomson (JT) skid that performs some natural gas liquid (NGL) removal from the gas that is used to fuel engines or other equipment at the site. The presence of a small NGL removal skid is not enough to classify a facility as a *NG-Plant*.

5. NG—Treatment Without Compression

(Natural Gas – Treatment Without Compression)

There are a small number of treatment facilities that perform dehydration and/or sweetening without compression. If a facility has compression and treatment, classify it as a *NG-Compressor Station* if the primary purpose of the site is compression.

6. NG Plant – NGL Extraction and/or Fractionation

(Natural Gas Plant – Natural Gas Liquids Extraction and/or Fractionation)

Natural gas plants extract natural gas liquids (NGLs) from the gas stream. Most natural gas plants use cryogenic processes, where high pressure gas is expanded in a turbo-expander or across a Joule-Thompson valve to drop the temperature and to condense NGLs, which are then separated from the residue gas in a demethanizer tower. A few plants may use other processes (e.g., lean-oil contactors). Natural gas plants typically have compression on site (upstream of the NGL removal or downstream or both), but that is not a requirement. A very small number of Oklahoma natural gas plants fractionate the NGLs into individual components (propane, isobutene, n-butane, etc.). In addition to NGL removal and compression, dehydration by molecular sieves and/or contactor towers almost always occurs at a natural gas plant. Sweetening, typically through amine treatment, may also occur on site. Residue gas (natural gas, mainly methane, with a substantial quantity of the NGLs removed) and NGLs leave the facility in separate pipelines.

7. NG – Transmission Compressor Station

(Natural Gas – Transmission Compressor Station)

Transmission compressor stations are located after the natural gas plant and prior to the city gate or large industrial user. If the NGL content of the natural gas is low, the natural gas may not be processed in a natural gas plant between the well field and end user. Under these circumstances, classify the facility as a *NG-Transmission Compressor Station* if it is located on a natural gas pipeline regulated by FERC.

8. NG – Underground Storage Facility

(Natural Gas – Underground Storage Facility)

Natural gas is often stored underground under pressure in depleted oil and gas fields, an aquifer, or salt cavern formation. Natural gas can also be stored in above-ground storage tanks as LNG, but that is very rare in the Central U.S. Storage may occur at facilities that perform NGL extraction and/or fractionation. If NGL extraction or fractionation occurs on site, classify the facility as a *NG-Gas Plant*. If storage occurs at a facility with compression and/or dehydration or sweetening, classify the facility as a *NG-Underground Storage Facility* if storage is the primary purpose of the site.

9. Oil – Pipeline Breakout Facility/Truck Station

(Crude Oil – Pipeline Breakout Facility/Truck Station)

Pipeline breakout stations are facilities along a pipeline containing storage vessels used to relieve surges or receive and store crude oil from the pipeline for later re-injection and continued transportation along the pipeline. Often the pipeline breakout facility will include a Lease Automatic Custody Transfer (LACT) unit to allow crude oil or condensate to be transferred from tanker trucks into storage vessels at the facility. Some pipeline breakout facilities store large quantities of crude oil or condensate and it may be difficult to distinguish a large pipeline breakout facility from a tank farm. If the storage capacity is less than or equal to 300,000 barrels of crude oil or condensate, classify the facility as a *Pipeline Breakout Facility*. Pipeline pumps may be located at these facilities. If the facility has pipeline pumps and storage vessels with less than or equal to 10,000 barrels of total storage capacity, classify the facility as a *Pipeline Pump Station*.

10. Oil – Tank Farm

(Crude Oil – Tank Farm)

A tank farm is a collection of large storage tanks of crude oil and/or condensate. To be considered a tank farm, the facility should have a storage capacity greater than 300,000 barrels.

11. Oil/NGL/Refined Petroleum – Pipeline Pump Station

(Crude Oil/Natural Gas Liquids/Refined Petroleum – Pipeline Pump Station)

Pipeline pump stations are facilities along a pipeline that contain pumps to maintain the desired pressure and flow of liquid product through the pipeline. Often pipeline pump stations have storage vessels used to relieve surges or receive and store product similar to pipeline breakout/truck station facilities. If the facility has pipeline pumps and storage vessels with greater than 10,000 barrels of total storage capacity, classify it as a *Pipeline Breakout Facility*. If the storage capacity is greater than 300,000 barrels, classify the facility as an *Oil Tank Farm*.

12. Oil Refinery

Refineries are large facilities that process crude oil into refined petroleum products.

13. Refined Petroleum – Product Terminal

A refined petroleum product terminal is located downstream of an oil refinery. It may be located immediately adjacent to the refinery or it may be distant from the refinery but connected by a pipeline. It is a collection of tanks that store refined petroleum products. These sites typically include tanker truck loading facilities for distribution of the refined product (gasoline, diesel fuel, etc.). Refined petroleum product terminals are also commonly referred to as bulk terminals.

14. Oil/NG/NGL – Other

(Crude Oil/Natural Gas/Natural Gas Liquids – Other)

If an oil and gas facility does not belong to any of the current categories, classify it as *Oil/NG/NGL—Other*. In addition to this classification, give a brief description of the facility in the facility comment field.