Defining exactly what is a “source” is critical for determining which air permits are needed for a particular project. For example, a source that consists of a single hydraulic fracturing well is unlikely to have enough emissions to need a major source construction (PSD) permit that requires best available control technology (BACT). By contrast, if that well is part of a source consisting of several other wells and a gas processing facility, it potentially would trigger those requirements.
Similarly, the major source requirements could be triggered if a pipeline and all of the compressor stations along it were considered a single source.

The U.S. Clean Air Act does not define the term source, leaving the definition and interpretation of it to the U.S. Environmental Protection Agency (EPA). EPA has struggled for decades to define and apply the term in a way that will withstand judicial scrutiny. In 1979, the U.S. Court of Appeals for the D.C. Circuit rejected EPA's attempt to expand the definition to cover any combination of a "building, structure, facility or installation." The court found that this approach impermissibly expanded the statute. Instead, the court directed EPA to "provide for the aggregation, where appropriate, of industrial activities according to considerations such as proximity and ownership."

In response, EPA amended its regulations to focus on whether the "source approximates the common sense notion of a plant." To do this, the agency issued a three-factor test, allowing aggregation of emissions from activities from oil and natural gas units, only if the units:

1. Belong to the same industrial grouping as judged by Standard Industrial Classification (SIC) codes;
2. Are located on one or more contiguous or adjacent properties; and
3. Are under the control of the same person (or persons under common control).

Where a single activity does not meet the major source threshold for a PSD construction permit or a Title V operating permit, EPA uses this test to evaluate if separate activities should be aggregated to be a single stationary "source" that may meet the threshold.

**EPA Guidance on ‘Contiguous or Adjacent’**

To determine if activities are in the same industrial grouping, the EPA rules rely on SIC codes rather than a subjective evaluation of functional interdependence. Despite this rejection of the functional interdependence test to determine if facilities are in the same industrial grouping, EPA’s regional offices began to weave it into their own interpretation of the contiguous or adjacent prong of the test. Functional interdependence is a qualitative concept that evaluates how closely related two activities are. For example, a gas well depends on a processing plant to prepare gas for use, and a processing plant depends on gas wells for its feedstock.

Interpretive letters offering guidance on the contiguous or adjacent prong of the test asked questions on whether different facilities would have integrated operations; on the support relationship between facilities; or on the interdependence of the facilities. Additional interpretive letters underscored that physical distance and proximity are just one factor in evaluating the functional interdependence test that EPA read into the “contiguous or adjacent” prong of the “source” definition.

**Source Definition for Oil and Gas Wells**

The consequences of dispersed oil and gas units being aggregated and found to be a major source are significant. In particular, major sources that are newly constructed or undergo a significant modification are required to employ BACT, which is based on the maximum degree of control that can be achieved considering energy, environmental, and economic impact. This case-by-case determination can include add-ons to control pollution or even modification to the underlying production process. A major source determination also could impose a Title V operating permit requirement.

In January 2007, William Wehrum, Acting Administrator for EPA’s Office of Air and Radiation issued a memorandum (Wehrum Memo) clarifying how source determinations could be made for the oil

**Defining exactly what is a ‘source’ is critical for determining which air permits are needed for a particular project.**
The Wehrum Memo went on to say that these separate sites need not be considered “adjacent” if separated by more than a short distance, such as a highway width or a city block. Finally, the memo highlighted the special consideration of aggregation of emissions from the oil and gas industries under Section 112 of the Clean Air Act:

“We defined the major source under Section 112, for purposes of these industries, in reference to individual surface sites … Unless unique factors (such as proximity or interdependence) indicate otherwise, permitting authorities can consider oil and gas exploration and production activity located on a single surface site to be an individual stationary source.

The Wehrum Memo provided a simple approach that was consistent on the surface with the original three-prong test set out in 1980, but EPA withdrew the memo in September 2009, replacing it with Gina McCarthy’s memo, Withdrawal of Source Determinations for Oil and Gas Industries (McCarthy Memo). The new memo reinstated the more complex interdependence analysis finding that all three criteria identified in the source definition should be examined closely to arrive at a reasoned decision.

The McCarthy Memo read the Wehrum Memo as focusing on the contiguous or adjacent prong to the detriment of the other two prongs: common control and industrial grouping. As a result, the McCarthy Memo directed regulators to both the preamble of the 1980 regulations rejecting the functional interdependence test and to two decades of interpretive decisions interjecting a functional interrelatedness test into the “common sense notion of a plant.”

Application to Fracking Wells that are Geographically Separated
EPA’s varying interpretations of the contiguous or adjacent prong of the source test spawned regulatory and judicial uncertainty until the interpretation became the sole issue in the Summit Petroleum Corp. vs. EPA case decided in 2012. The U.S. Court of Appeals for the Sixth Circuit vacated EPA’s determination that Summit Petroleum’s physically separate natural gas sweetening plant and numerous sour gas production wells were a single, major source for purposes of Title V. Summit’s natural gas sweetening plant was connected through subsurface pipelines to more than 100 production wells located over approximately 43 square miles. Summit’s natural gas sweetening plant itself did not meet the threshold to be considered a single, major source, which would require a Title V permit. EPA’s decision rested on its consideration of the interdependent nature of related facilities.

The Sixth Circuit held that EPA’s interpretation was unreasonable and contrary to the plain meaning of the term “adjacent.” The court stated that “adjacent” is unambiguous and relates only to the geographical relationship between separate activities, rather than to their “functional interrelatedness.” Criticizing EPA, the court stated that “[t]he EPA makes an impermissible and illogical stretch when it states that one must ask the purpose for which two activities exist in order to consider whether they are adjacent to one another.” In short, EPA’s longstanding history of “executive error” permitted no deference by the court, and the court remanded to EPA to determine whether aggregating Summit’s plant and wells would be proper based on the ordinary meaning of “adjacent.”

EPA Guidance Letter on the Summit Decision. On December 21, 2012, in response to the Summit decision, the director of EPA’s Office of Air Quality Planning and Standards issued a memorandum (Summit Directive) directing its regional offices to disregard the Summit decision outside of those states within the Sixth Circuit: Michigan, Ohio, Kentucky and Tennessee. Specifically, the memorandum states that “EPA does not intend to change its longstanding practice of considering interrelatedness in EPA permitting actions in other jurisdictions.”

Subsequent Developments. On May 30, 2014, the D.C. Circuit issued a decision in the Nat’l Envtl. Dev. Ass’ns Clean Air Project vs. EPA (NEDA) case...
that invalidated the Summit Directive.\textsuperscript{15} At issue was EPA’s “regional consistency” policy requiring national uniformity in applying its regulations. Specifically, the policy requires EPA to “assure fair and uniform application” of the Clean Air Act and to identify and correct inconsistencies. The D.C. Circuit found that EPA’s Summit Directive puts facilities outside of the Sixth Circuit at a competitive disadvantage because those facilities are more susceptible to aggregation and heightened regulations under Title V. Moreover, in issuing the Summit Directive, EPA created a standard that violated its own regulations by directing its regional offices to apply Title V inconsistently.

Notably, however, the D.C. Circuit did not hold that EPA must follow the Summit decision in every circuit indefinitely. Rather, the court lays out three options for EPA: (1) revise regulations to explicitly provide for a functional interrelatedness analysis; (2) appeal the Summit case to the U.S. Supreme Court; or (3) revise its uniformity policy to allow for regional variances created by judicial decisions or circuit splits.

In sum, until EPA takes action to revise its regulations, EPA must (1) follow the Sixth Circuit’s Summit decision prohibiting EPA from considering functional interrelatedness, and (2) apply Summit consistently across all circuits.

### Applicable Standards for Wells and Processing Plants

Even after Summit and NEDA, midstream processing plants still warrant careful evaluation for major source permits because they could have enough units and emissions to trigger major source requirements, especially when there is co-located cogeneration. However, Summit and NEDA do make it difficult for EPA to apply major source permit requirements to any individual oil and gas well. In the absence of major source permit requirements, hydraulic fracturing operations need to consider the applicability of several specific control and disclosure requirements under federal and state law.

### New Source Performance Standards (NSPS)

NSPS apply to new sources and to modified or
reconstructed sources that meet specific source criteria usually related to the type and size of operation. For example, there is a specific standard for gas wells that are hydraulically fractured after January 1, 2015. The standard is found in Subpart OOOO, and is often called “Quad O” as a result. It requires a reduced emission completion (REC), commonly referred to as a “green completion” for all wells except for wildcat wells and delineation wells for which the reservoir pressure is insufficient.16

EPA estimates that the green completion requirement will reduce volatile organic compound (VOC) emissions by 95% at each well by requiring operators to capture gas that previously escaped during the flowback period and make it available for use or sale. The same rule includes standards for certain types of other equipment that could be located at or near a well site, such as sweetening units, pneumatic controllers, storage vessels, equipment leaks, and glycol dehydrators.

There are several other NSPS standards that can apply to the oil and gas industry. Specific standards depend on what kinds of facilities exist at a particular site and, in many cases, whether the sources were constructed, modified, or reconstructed after the standard’s applicability date. For NSPS purposes, a modification occurs when there is an increase in a source’s maximum hourly emissions rate, and reconstruction occurs when the cost of a project exceeds 50% of the cost of a new source.

NSPS Subparts commonly applicable to oil and gas production include:

- small industrial-commercial-institutional steam generating units (Subpart Dc);
- volatile organic liquid storage vessels (Subpart Kb);
- equipment leaks of VOC from onshore natural gas processing plants (Subpart KKK);
- SO2 emissions from onshore natural gas processing (Subpart LLL);
- stationary compression ignition internal combustion engines (Subpart IIII); and
- stationary spark ignition internal combustion engines (Subpart JJJJ).17
National Emission Standards for Hazardous Air Pollutants (NESHAP). NESHAP also apply to specific source categories that can include oil and gas production operations. In some cases, NESHAP are limited to sources that exceed specified major source thresholds for hazardous air pollutant emissions. In other cases, NESHAP apply to all sources in a particular category even if they are so-called area sources that do not exceed the major source emission threshold.

NESHAP subparts that frequently apply to the oil and gas industry include:

- hazardous air pollutants from oil and natural gas production facilities (Subpart HH);
- natural gas transmission and storage facilities (Subpart HHH); and
- stationary reciprocating internal combustion engines (Subpart ZZZZ).

Injection Well Standards. Injection wells using diesel are subject to Class II operating requirements set forth in 40 C.F.R. § 146.23(a). These requirements mandate that, at a minimum, injection pressure should be limited so that injection does not cause the propagation of new fractures in confining zones adjacent to underground sources of drinking water (USDWs). Provisions in 40 C.F.R. § 146.23(b) and (3) also require that owners or operators of Class II wells conduct a mechanical integrity test at least once every five years during the life of the well.

Aggregation and Regulation of Emissions from Compressors and Pipelines

The analysis so far has focused on aggregation principles as they apply to upstream production facilities. Although the same rules apply to pipeline facilities, EPA has been more consistent in stating that compressors along a pipeline generally will not be aggregated into a single source. In the preamble to EPA’s regulations setting out the threeprong test for aggregation, EPA wrote that, “EPA has stated in the past and now confirms that it does not intend ‘source’ to encompass activities that would be many miles apart along a long-line operation … EPA would not treat all of the pumping stations along a multistate pipeline as one ‘source.’” EPA also indicated that a distance of 20 miles between two facilities connected along a rail line would not be treated as one “source” as the facilities would be “too far apart.”

Compressor stations may be viewed as part of the production process or the transmission and storage process. In practice, EPA’s determinations of whether compressor stations associated with production activities are a single source or should be aggregated with the production facilities have been inconsistent. Yet, in the 2010 Frederick Compressor Station Ruling, EPA implicitly accepted the state agency’s determination that proximity was a primary factor in determining whether two activities were one source, and that without a showing that the two activities rely exclusively upon one another, and one activity cannot operate without the other, the activities are not a single source.

As previously discussed, NESHAP Subpart HH can apply to oil and natural gas production facilities even when they are not aggregated as part of a single source. These regulations apply to glycol dehydration units, storage vessels with the potential for flash emissions, and the group of ancillary equipment and compressors intended to operate in hazardous air pollutant (HAP) service, which are located at natural gas processing plants. If maximum natural gas throughput is less than 18,400 cubic meters/day, they are exempt from regulation. Additionally, 40 C.F.R. Part 63, Subpart HHH sets out NESHAP for oil and natural gas transmission and storage facilities. It applies to natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user, and that are major sources of HAP emissions. EPA has determined that compressor stations associated with transmission and storage are not to be aggregated with other activities as a single source. In explaining its decision to renew a Title V operating permit for the Hardin Compressor Station, EPA stated that a booster station along a natural gas transmission line is not subject to Subpart HH regulations, but only to Subpart HHH regulations.

Aggregation in Time

The foregoing discussion focused primarily on EPA’s effort to define what equipment will be aggregated as part of a single source. The concept of aggregation also can have a temporal affect on the scope
of a particular project that has to be considered in determining whether it constitutes a major modification that needs a PSD permit. EPA's objective is to prevent companies from splitting larger projects into several small phases to avoid PSD review.

In general terms, projects that occur within 18 months of each other or that are part of a single, coordinated planning process may be aggregated by EPA into a single project to determine PSD applicability. For oil and gas production, this concept can pose particular problems for fast growing processing facilities that are planned in phases with units added less than 18 months apart as the surrounding play develops. If the processing facilities have cogeneration because power from the utility grid is unavailable or too expensive, the issues with aggregation in time can be magnified.

**Conclusion**

After the court decisions in Summit and NEDA, the threat that PSD and Title V permits will be needed for hydraulic fracturing has largely dissipated, although certain midstream processing facilities may still need to consider these issues. However, there are still a variety of federal requirements that may apply to specific activities, including the requirement for green completion of gas wells that are hydraulically fractured after January 1, 2015. Finally, each state may have its own requirements that vary to some extent from federal requirements.

**More Information**


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**References**

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17. See 40 C.F.R. Part 60 for the NSPS Subparts.
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