Interstate Natural Gas Association of America

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December 8, 2017

U.S. Environmental Protection Agency
Office of Regulatory Policy and Management
Office of Policy
1200 Pennsylvania Ave. N.W.
Mail Code 1803A
Washington, D.C. 20460

Re: Docket ID Nos. EPA-HQ-OAR-2010-0505; EPA-HQ-OAR-2017-0346
Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources: Stay of Certain Requirements, 82 Fed. Reg. 51,788 (Nov. 8, 2017);
Emission Standards for New, Reconstructed and Modified Sources: Three Month Stay of Certain Requirements, 82 Fed. Reg. 51,794 (Nov. 8, 2017)

The Interstate Natural Gas Association of America (INGAA), a trade association that represents members of the interstate natural gas pipeline industry, respectfully submits these comments in response to the United States Environmental Protection Agency's (EPA) request for input on granting a 2-year stay and a three month stay of certain aspects of the new source performance standard (NSPS) OOOOa.

INGAA member companies transport more than 85 percent of the nation's natural gas, through approximately 200,000 miles of interstate natural gas pipelines. Across the United States, INGAA member companies operate over 6,000 stationary natural gas-fired spark ignition reciprocating internal combustion engines (RICE) and over 1,000 stationary natural gas-fired combustion turbines installed at compressor stations along the pipelines to transport natural gas to local gas distribution companies, industrials, gas marketers, and gas-fired electric generators.

These comments summarize INGAA's support for EPA staying certain aspects of NSPS OOOOa for 2 years, in particular, staying the fugitive emission requirements at compressor stations, the delay of repair requirements associated with repairing leaks at compressor stations, and obligations related to third-party equipment and altering the phase-in periods for these requirements. INGAA also supports EPA's proposed three-month stay of these requirements.

Background

In June 2016, EPA issued an NSPS regulating methane and volatile organic compound emissions from new and modified sources in the oil and gas industry (known as NSPS OOOOa). INGAA filed a petition for review in the D.C. Circuit challenging one aspect of this rule – the delay of repair provision in 40 C.F.R. § 60.5397a(h)(2). This provision is part of the fugitive emission requirements and it addresses when a company must repair a leak that is discovered during a mandatory quarterly compressor station leak survey.[1]

Legal Authority for the Stays

In April 2017, EPA issued a notice announcing that it is reviewing the NSPS OOOOa rule, "and, if appropriate, will initiate reconsideration proceedings to suspend, revise or rescind this rule." 82 Fed. Reg. 16,331 (Apr. 4, 2017). In this notice, EPA clarified its legal authority to do so. *Id.* at 16,332. The courts have consistently acknowledged that EPA has inherent authority to revise its regulations. *See Clean Air Council v. Pruitt*, No. 17-1145, slip op. at 23 (D.C. Cir. July 3, 2017); *Landis v. N. Am. Co*., 299 U.S. 248, 254 (1936); *Dietz v. Bouldin*, 136 S. Ct. 1885 (2016).

EPA has already requested feedback regarding the agency's legal authority to issue a stay of portions of NSPS OOOOa. 82 Fed. Reg. 27,645 (June 16, 2017). Various commenters provided their views on this question. Upon review of these comments, INGAA supports the comments submitted by American Petroleum Institute (API) regarding EPA's legal authority to issue the stay. *See* EPA Docket ID No. EPA-HQ-OAR-2010-0505-10577. In particular, INGAA agrees that a stay is warranted under Section 705 of the Administrative Procedure Act and that EPA has adequate general rulemaking authority to issue the stay under Section 301 of the Clean Air Act. *See id*.

EPA has stated that it is broadly reviewing the "entire" NSPS OOOOa rule. 82 Fed. Reg. 27,645 (June 16, 2017). INGAA supports a broad review of the rule because considering any requirements in the rule in a piecemeal fashion would only cause further uncertainty for the regulated community and would be an inefficient use of EPA's and industry's resources. Similarly, a broad stay of certain aspects of the rule is appropriate while EPA is considering how to make amendments.

Industry has already faced significant uncertainty regarding the fugitive emission requirements in this rule. On April 18, 2017, EPA granted reconsideration of various aspects of the NSPS OOOOa, including the fugitive emissions requirements, and simultaneously indicated its intent to stay the requirements for 90 days. EPA then issued a notice in the Federal Register regarding the reconsideration and 90-day stay. 82 Fed. Reg. 25,730 (June 5, 2017). However, several interested parties filed a petition in the D.C. Circuit to review EPA's 90-day stay, along with an emergency motion to vacate the stay. The D.C. Circuit granted the motion to vacate the stay and simultaneously issued the mandate on July 3, 2017. In response, EPA filed a motion to pull back the mandate. Days later, on July 13, the D.C. Circuit granted EPA's motion to pull back the mandate for 14 days.

[1] 40 C.F.R. § 60.5397a requires that a methane leak discovered during a survey must be fixed within 30 days after discovery; however, during certain circumstances, such as where making the repair is infeasible because it requires a shutdown, that repair may be delayed for up to two years. But, if an unplanned or emergency shutdown occurs during that two-year period, the leaking equipment or component must be repaired before the compressor can be restarted.

Sudden and unanticipated reversals of obligations are not consistent with the goal of achieving compliance and conformance with regulations. Industry needs time and certainty in order to make business decisions regarding issues such as staffing, procurement, capital investments, procedures, training, and contracts in order to comply with regulations. It would be an inefficient use of resources to require industry to implement processes and take measures to comply with requirements in NSPS OOOOa that EPA intends to revise.

INGAA supports EPA imposing a stay of certain requirements in NSPS OOOOa for a set period of time to allow the agency to propose amendments to the rule, take comment on those proposed amendments and publish a final rule in the Federal Register. INGAA believes that two years should be adequate to complete these steps, but that a three-month stay is necessary in the interim.

Delay of Repair

INGAA has previously raised its concerns about the delay of repair (DOR) provision in 40 C.F.R. § 60.5397a. Specifically, this portion of the rule states:

> If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next compressor station shutdown, well shutdown, well shut-in, after an unscheduled, planned or emergency vent blowdown or within two years, whichever is earlier.

40 C.F.R. § 60.5397a(h)(2) (emphasis added).

Unduly restrictive DOR provisions can threaten the natural gas transmission system and create compliance risks for operators. The language emphasized in § 60.5397a, as quoted above, highlights INGAA's concerns. These issues include:

Unscheduled and emergency shutdowns. The DOR provision does not take into consideration that unscheduled and emergency shutdowns occur from time to time and service can often be returned shortly after the interruption. EPA has requested specific feedback about the types of scenarios where this may occur. As INGAA noted in its prior comments, unplanned or emergency compressor station shutdowns can be caused by various circumstances, including but not limited to horsepower demand, station and/or compressor unit upset, a lightning strike, power loss, floods, a release upstream or downstream on a natural gas pipeline, unplanned maintenance or repairs on a pipeline, fire, third-party damage, or an instrumentation outage.

Under some circumstances, compressor stations can be restarted remotely after an unscheduled or emergency vent blowdown with limited downtime. In other cases, personnel may be dispatched to the compressor station with the goal of resuming operations as quickly as possible. It is imperative that the compressor station downtime be limited to the greatest extent possible to minimize any disruption to natural gas end users, particularly during peak demand.

Seasonal. Other disruptions could be seasonal. Specifically, during the winter, equipment could malfunction due to the unexpected presence of ice, but could easily be de-iced and the equipment back up and running within minutes. Water from a severe rain event may, in rare instances, get into the electrical controls of the emergency shutdown system causing a short circuit that triggers the system to shut down. The rule should not require that the equipment be kept offline because of such a temporary disruption. The weather and seasonal demands are not predictable enough for the operator to know when demand will drop and when the compressor will be shut down for a period of time. Therefore, the operator will not have a reliable opportunity to make the necessary arrangements to repair a leak on the DOR list because the new part might be on order or need to be hydrotested before it can be installed; a crew of workers might be required, but unavailable; or excavation might be required and cannot be conducted immediately. As further explained below, many steps often need to be carefully planned in advance before repairs can be made safely while avoiding service disruptions.

Reliability. INGAA's concerns about the DOR provision potentially causing disruptions to natural gas supply are not limited to certain seasons such as winter or summer when demand may be higher. Many natural gas transmission pipelines operate at or near capacity year-round and there is little redundancy in the supply chain. For example, some compressor stations are bottleneck stations that are important for reliability and difficult to take out of service. Additionally, some regions have a lack of alternative supply, as documented by DOE studies.[2] As more power plants are fueled by natural gas, it may become more challenging to have compressor stations out of service and meet demand during an outage.

During unplanned outages, operators are focused on getting the equipment back online safely and quickly to avoid a service disruption. Regulations should not be written in a manner that creates a tension between complying with an environmental regulatory requirement and meeting contractual commitments governed by Federal Energy Regulatory Commission (FERC) tariffs. While it is imperative to comply with environmental regulations intended to minimize the impact of operations to the environment, failing to meet contractual obligations could also create health and safety risks (e.g., loss of home heating during the winter time, loss of natural gas supplied to power plants during hot summer months when there is an increased demand for electricity to run air conditioning, etc.). Based on these limited examples alone, NSPS OOOOa should not require that leaks be repaired during unplanned shutdowns.

Blowdowns. A transmission pipeline is a dynamic system where equipment is constantly reacting to meet the current demands placed on the system. Equipment at compressor stations routinely cycles on and offline based on system-wide pipeline demand and flow conditions. When equipment is taken offline, it may be depressurized (i.e., blown down).

The occurrence of a blowdown should not be tied to when repairs must be made. Blowdowns occur as part of standard compressor station operations for regular maintenance activities, to prevent safety concerns, avoid damage to equipment, and manage equipment as demand for

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[2] *See* U.S. DOE, Assessment of the Adequacy of Natural Gas Pipeline Capacity in the Northeast United States (Nov. 2013), *available at* http://energy.gov/oe/articles/assessment-adequacy-natural-gas-pipeline-capacity-northeast-united-states-report-now; United States Fuel Resiliency, vol. III, prepared for U.S. DOE (Sept. 2014), *available at* http://energy.gov/sites/prod/files/2015/04/f22/QER%20Analysis%20-%20United%20States%20Fuel%20Resiliency%20Volume%20III.pdf.

natural gas changes. Blowdowns are periodically unplanned and not always scheduled activities during which planned maintenance occurs.

Just because equipment is blown down does not mean it is operationally unavailable; it may be remotely returned to service in response to pipeline demand. Compressor station equipment routinely cycles on and offline without operating technicians being onsite. The reasons mentioned in the section above regarding unscheduled or emergency shutdowns can also require piping or compressors to be blown down. Unplanned blowdowns can be caused by fail-safe measures built into a compressor station's automation system; for example, vibrations can loosen necessary connections and/or tubing and, once detected, trigger the compressor to shut down. But, as written, NSPS OOOOa prevents an operator from blowing down equipment and then bringing the compressor back online unless any previously identified leaks on the DOR list were repaired. Thus, if an operator needed to repair a meter along a pipeline going into a compressor station and a blowdown is required, the operator could not make that one repair and restart the compressor unless all the repairs at that compressor station on the DOR list were made at the same time. Alternatively, the rule might prevent an operator from trying to repair some leaks at the earliest opportunity. For example, an operator might have identified two leaks and both are on the DOR list. One leak can be repaired quickly after conducting a blowdown (e.g., a leaky valve), but another leak will require a new part that has not yet been fabricated or delivered.[3] The rule should not discourage operators from making one repair just because both leaks cannot be repaired at the same time.

Lack of parts is an appropriate reason to delay repairs. The parts necessary to repair a leak at a compressor station are not always readily available or in stock. NSPS OOOOa does not just apply to new sources; it also applies to modified sources. Not only do parts come in various sizes, but parts are not interchangeable between different manufacturers or vintages. Some compressors that have been modified, and that are subject to this rule, may be more than 50 years old. Compressors have changed over time. If a part breaks on an older piece of equipment, the comparable part that is used for new compressors might not be the right size or configuration for older equipment. For example, the specifications of an older compressor valve (i.e., the stem) might not be standard, the system associated with an older unit might have additional connections for recirculation piping, or there might be additional changes that the company needs to make to that system to address other regulatory requirements (i.e., PHMSA regulations). In such cases, parts will need to be custom ordered and/or manufactured and it may take several months to fabricate such parts. Also, some parts are manufactured overseas, which can significantly impact delivery time.

It would be too costly and impractical for an individual operator to stockpile every type and size valve or part that might be needed to repair a leak.[4] An operator has no reasonable way to predict which parts will need to be replaced and when, particularly considering that the operator's initial attempts to stop the leak using other repair methods may be successful.

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[3] It may take approximately 30-40 weeks for a large diameter valve (e.g., 30"-36") to be delivered. A smaller diameter valve (e.g., 16") can typically be delivered in about 3 months.
[4] A large diameter valve might cost approximately $150,000. A smaller diameter valve might cost approximately $20,000. See Appendix A for more information about the potentially affected equipment.

It is also unreasonable to expect compressor *manufacturers* to maintain a stockpile of custom parts. Manufacturers are unlikely to keep a lot of inventory on the shelf because of tax implications and concerns about cash flow. In INGAA's experience, manufacturers prefer to limit their inventory to items that move quickly, which means there is not a ready inventory of expensive, unique or obsolete parts. An operator is not likely to buy equipment if it has been sitting on the shelf for a long time because the operator may question whether the part is past its shelf-life or if it still good for use.

If an unscheduled shutdown occurs after the operator has placed the order, the compressor should not need to stay shutdown because it could be an extended period of time until the new part arrives and is ready to be installed. As discussed above, doing so could significantly disrupt the supply of natural gas to end-use consumers and might cause consequences for failure to meet contractual obligations.

New parts cannot be immediately installed. As indicated above, operators must have flexibility to delay repairs when warranted. The rule does not take into account situations where a leak is discovered shortly before a planned shutdown and there is not enough time to fabricate, deliver, test, and install the new part or to make other logistical arrangements for the repair to occur during the upcoming planned downtime. Operators need adequate time to develop a safe plan and make the types of repairs that will be delayed – such as those that require replacement parts, logistical prearrangements, or skilled labor.

When companies need to put equipment on the DOR list because a replacement part is unavailable, they need at least 30 business days after receipt or until the next scheduled shutdown to make the repair. At least 30 business days are necessary after receipt because there may be steps that must be taken before the part can be installed. For example:

- Pre-job safety analyses must be conducted to ensure that the repairs can be completed without harm to personnel, equipment, or the environment.
- The operator may need to weld pieces of pipe in or hydrotest before the valve can be replaced.
- The operator may need to x-ray or test the welds.
- The operator may need to ensure that specific heavy equipment is available to hold the pipe up during replacement.
- The operator may need to schedule an entire crew of welders to make the repair (not just the station welder) if all the welds need to be made at one time to close the line up quickly.
- Special tooling or equipment may be required because piping components can move as a result of being cut, which can lead to difficulties getting alignment before a new part can be installed.
- The leaking valve may be buried and need to be excavated before the repair can be made.
- The unit/station may need to remain in operation during a specific timeframe to fulfill air emissions testing requirements.
- Repairs must be coordinated in advance based on supply and demand to avoid causing disruptions to natural gas supply.

Repairs of leaks on the DOR list should be deferred to the next scheduled shutdown for maintenance, following EPA's precedent when regulating natural gas processing plants. As noted above, it is critical that operators be allowed to defer repairing leaks on the DOR list until the next scheduled shutdown for maintenance. When EPA regulated natural gas processing plants, EPA acknowledged the importance of making repairs during planned shutdowns and when parts are available. *See* 48 Fed. Reg. 279 (Jan. 4, 1983) (explaining the basis for allowing delay of repair in Subpart VVa); 40 C.F.R. § 60.481a. Subpart VVa also provides additional clarification that shutdowns, or partial unit shutdowns, that are less than 24 hours in length are *not* considered a process unit shutdown for natural gas processing plants and thus, do not trigger repair obligations for natural gas processing plants under Subpart OOOO. *See* 40 C.F.R. § 60.5400(a).

EPA has not provided a rational basis to treat natural gas compressor stations (which are typically unmanned and smaller sources than natural gas processing plants and do not have on-site warehouses with spare parts) more stringently. In other words, EPA should not require that natural gas compressor stations make repairs immediately upon the occurrence of an unscheduled or emergency vent blowdown, regardless of its length if natural gas processing plants are allowed to defer making such repairs until the next scheduled shutdown or when parts are available. The inconsistency between these requirements also creates compliance difficulties and challenges for operators who have assets across multiple sectors.

Recommendations to address problems with the DOR. While INGAA's members are concerned about the compliance risks associated with DOR, the extent of this potential problem should be kept in context – compressor station repairs will be infrequently delayed because most leaks will be repaired expeditiously and during the 30-day period after discovery. For example, instrument leaks or leaks from fittings or valve packing can typically be repaired right away. The need to delay repairs will be the exception – not the rule. Furthermore, these repairs will not be indefinitely delayed because compressor stations have periodic scheduled shutdowns required to comply with PHMSA pipeline safety regulations. Moreover, recordkeeping requirements can provide documentation that shows the delay was justified and amendments could be made to 40 C.F.R. § 60.5420a(c)(15)(ii)(I)(10) to accommodate any additional recordkeeping obligations.

EPA should revise its DOR provisions to require that all equipment and component leak repairs be completed at the next scheduled maintenance shutdown at the compressor station, not to exceed two years from leak discovery. INGAA suggests EPA make the following amendments:

> *If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next scheduled compressor station shutdown for maintenance, well shutdown, well shut-in, ~~after an unscheduled, planned or emergency vent blowdown~~ or within 2 years, whichever is earlier.*
>
> *Delay of repair will be allowed beyond the next scheduled compressor station shutdown for maintenance but within the 2 year period if (a) replacement parts cannot be acquired before the next scheduled shutdown for maintenance or (b) the delay is attributable to other good cause. The operator must document: the location and nature of the leak, the date the leak was added to the delay of repair list, the basis for delaying the repair, the*

> *date replacement parts were ordered, the vendor providing the parts, and the anticipated delivery date. Replacement parts must be promptly ordered after determining it is necessary to delay the repair and replacement parts are required to make the repair. The repair must be completed within 30 business days of receipt of the replacement parts, during the next scheduled maintenance shutdown after the parts are received (if the repair requires a shutdown), or within 30 business days after the cause of delay ceases to exist. The Administrator may approve further extensions on a case-by-case basis.*

Need for "other good cause" exception. EPA should expand the DOR provision to allow an operator to delay a repair for "other good cause." Unforeseen circumstances can occur and the regulatory language should not be so narrow as to prevent delaying repairs where they make sense. In rare instances, an extreme outage could potentially cause a compressor station to be shut down and/or depressurized for longer than 30 days. For example, a hurricane might hit an area where a compressor station is located, causing extensive damage. That compressor station might have flooded or lost power, causing the equipment to shut down. But if a leak was placed on the DOR list before the hurricane, that station might need to stay shut down until the repair is made. In such an emergency situation, when hundreds of thousands of people might have lost the natural gas to operate their stoves, hot water heaters or to power to their homes, there is good cause to start up the compressor station as soon as possible and make the repair during the next scheduled shutdown for maintenance. Alternatively, it might not be possible to make certain repairs requiring excavation in the winter due to ice or snow. Additionally, during the winter, there may be an immediate need to restore service to generating facilities, homes, and other critical infrastructure, creating good cause to allow such repairs to be delayed until the next scheduled shutdown.

Precedent for these changes. The foregoing edits are modeled after regulations adopted by the State of Colorado (which allows a repair to be delayed if parts are unavailable or for other good cause). As discussed above, INGAA recommends that EPA allow companies at least 30 business days to make such repairs after parts have arrived or the cause of the delay ceases to exist.

Leaks will not be neglected during the stay. INGAA anticipates that EPA may receive some comments opposing a stay of the DOR requirement based on an erroneous assumption that operators will not address leaks during the stay. This argument is based purely on conjecture and should not be given any weight.

Historically, operators were identifying and repairing leaks as they deemed appropriate and per any applicable state permit requirements or conditions. Moreover, several INGAA member companies implement voluntary methane reduction programs that include obligations to find and repair methane leaks. When making these determinations, companies do not view the benefits of detecting and making repairs in isolation. Rather, such decisions are informed by operational, supply, manpower, and other considerations. For example, delaying a repair might make sense if the emissions from the leak will be less than the emissions from blowing down the compressor station and making the repair immediately. Delaying repairs in those circumstances can reduce the net emissions, while allowing operators the flexibility to make repairs in a safe manner. Companies would continue to make these determinations during the stay and repair leaks as they deem appropriate.

Third-Party Equipment

In the transmission sector, certain equipment, such as ancillary metering, might not be owned by the natural gas pipeline operator. Such equipment is sometimes owned by a third-party. Meanwhile, one operator might have tie-in equipment or takeaway metering that is associated with another party's compressor or compressor station. EPA has requested feedback on the logistical and legal issues preventing compliance related to third-party equipment and suggestions to address these problems.

Despite the fact that these companies have contractual agreements, communications are not always seamless. Therefore, problems can arise if the third-party does not inform the right personnel at the pipeline company about a modification to the compressor or compressor station that might trigger compliance obligations under NSPS OOOOa. Given that the rule only provides 60 days to begin fugitive emissions monitoring after a modification occurs, this can cause difficulties ensuring compliance.

In situations where a third-party owns and operates the equipment, the pipeline operator cannot touch or conduct repairs on the equipment. Therefore, the pipeline company must trust that the third-party will make repairs within the stipulated regulatory timeframe.

The issues in NSPS OOOOa relating to third-party equipment are complex and the solutions to remedy these complications are not inherently obvious. Given that changing or reopening contractual agreements and communications can be a challenge, INGAA's members do not support making pipeline companies that do not own the equipment liable for a third-party's compliance. INGAA supports staying the obligations for third-party equipment to allow further consideration of the legal and logistical issues associated with compliance.

Phase-In Period for Fugitive Emissions, Delay of Repair and Third-Party Equipment Requirements

One of the challenges operators have faced with respect to compliance with NSPS OOOOa is the lack of certainty. Due to litigation, the deadlines for compliance have not been clear and consistent. This creates issues for operators who need to train their personnel regarding the regulatory requirements and enter into contracts with third-party service providers to conduct monitoring. Given that EPA plans to review the fugitive emissions, third-party equipment and delay of repair portions of the rules, INGAA supports modifying the compliance deadlines and providing a new phase-in period after final amendments are effective. Doing so would help provide operators more certainty and sufficient time to take preparatory steps. The comments previously filed by API accurately reflect EPA's legal authority to extend the compliance deadlines and phase-in periods in this rule. *See* EPA Docket ID No. EPA-HQ-OAR-2010-0505-10577.

As to the fugitive emissions requirements, INGAA recommends that EPA modify the phase-in period from 60 days to 180 days from modification or installation of a new source. This change would provide industry with sufficient time to engage third-party contractors who might be conducting fugitive emissions surveying, negotiate those contracts, and conduct training. Such preparatory steps would be particularly essential to those operators who do not have any (or have few) new or modified sources, but would later become subject to the rule. This change would also be consistent with the phase-in period provided in the monitoring requirements for Subpart KKKK and Subpart JJJJ. *See* 40 C.F.R. § 60.4400 (referencing 40 C.F.R. § 60.8, which requires that initial performance tests be performed within 180 days after initial startup) and 40 C.F.R. § 60.4244 (same).

INGAA also recommends that EPA provide operators with a phase-in period of 180 days from the effective date of any amendments before compliance with the stayed portions of the rule is required. Companies will need this additional time to renegotiate contracts for third-party contractors to perform quarterly monitoring, conduct training for their personnel on the new requirements (or refresher training for any requirements that are retained), and coordinate site access if a compressor station is owned by third-party.

If EPA opts to modify the phase-in periods in the rule, staying the fugitive emissions, DOR, and third-party equipment requirements will still be necessary. Merely altering the phase-in periods will not be adequate because the current obligations create ongoing compliance risks for industry and EPA needs to amend these substantive requirements in the rule. To do so, EPA will need to engage in notice and comment rulemaking and that will take time. INGAA believes it is reasonable to expect that EPA can complete this process within two years. These technical problems with the rule need to be resolved and a final rule in place before these compliance obligations take effect again. Thus, INGAA supports both staying the fugitive emissions, DOR, and third-party equipment portions of the rule and altering the phase-in periods for these requirements.

INGAA appreciates your consideration of these comments and welcomes additional dialogue. Please contact me at 202-216-5955 or ssnyder@ingaa.org if you have any questions. Thank you.

Sincerely,

Sandra Y. Snyder

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Appendix A: Examples of Affected Equipment and Related Parts

INGAA anticipates that some parties may express opposition to modifying the delay of repair provisions in NSPS OOOOa on the basis that an inventory of parts should be maintained to avoid delaying repairs. However, this position should not be given significant weight because it fails to recognize that each of the many pieces of equipment at a compressor station is a complex assembly of unique parts and components. An operator would need to store thousands of parts and components for each facility in a massive inventory in order to be immediately prepared to complete any possible repair or replacement.

Compressor stations often include multiple compressors of varying size (or horsepower). Stations utilize multiple compressors to support incremental increases in compression capacity in response to pipeline demand. Large compressor stations may include 20 or more reciprocating compressors, and stations with multiple units generally include different size units to match demand. *See* Figure 1 (showing a compressor house with multiple compressors located within the building. A compressor station may have one or more compressor houses, and one or many compressors within each building). Over time, many stations have expanded, so unit "vintage" will differ within a facility. For example, a station with more than 10 units may include 4 or 5 different sizes makes, or models of compressors. As a result, if this station created a parts warehouse, it would need a broad array of potential replacement parts that would *rarely* be needed because other methods to repair emissions leaks would likely be attempted first and may be successful. There are also many different types and sizes of valves at compressor stations (and on the piping within the station yard) to address operational requirements. Those valves and valve parts may be unit-specific.

Figure 1. Example of a compressor house (showing multiple integral reciprocating compressors).

The figures below illustrate examples of compressor station equipment, including compressor and component-level examples (e.g., valves). Figure 1 also shows integral reciprocating compressors, which are common in gas transmission and are illustrated further below. Integral units are common in natural gas transmission and have a single, integral crank shaft for the power side (reciprocating engine) and compressor side. Each compressor and its associated piping may require unique parts. Figure 2 shows a closer view of the compressors.

Figure 2. Closer view of compressors at facility shown in Figure 1.

Figure 3 shows another example of an integral reciprocating unit. In this case, the power side drives three compressors shown in the figure. Although leaks are not common, each flange / cover plate / bolted surface that encases natural gas is a potential leak source.

Parts for existing integral reciprocating compressors are mostly provided by aftermarket service providers. Because compressor stations often include multiple compression units of different size and/or vintage, maintaining a parts inventory would be impractical. Depending on the part, its size, and vintage, if a primary component must be replaced, obtaining that part may require placing a special order, meaning that the part must be fabricated or machined specifically for that customer. Special ordering a part may require considerable lead time to account for ordering, fabrication, delivery and after-delivery testing or preparatory steps. Fabricating other unique parts such as large valves (illustrated below) may take several months.

Figure 3. Integral reciprocating compressors.

Figure 4 further illustrates an integral reciprocating compressor by providing a cutaway view of a unit from Cooper Bessemer, a prevalent manufacturer of compressors used in interstate natural gas transmission. The power cylinders (see #4, as marked on the right side of the figure), drive compressors (#13), and the engine fuel system and compressors are potential natural gas leak sources. Flanges and cover plates associated with the compressor variable valve pockets (#14) and distance piece (#16) are also potential leak sources. The compressor also includes other types of systems that are not natural gas leak sources, such as the exhaust and turbocharger (#9 and #12), water cooling (#15) and lubrication oil system (#11).

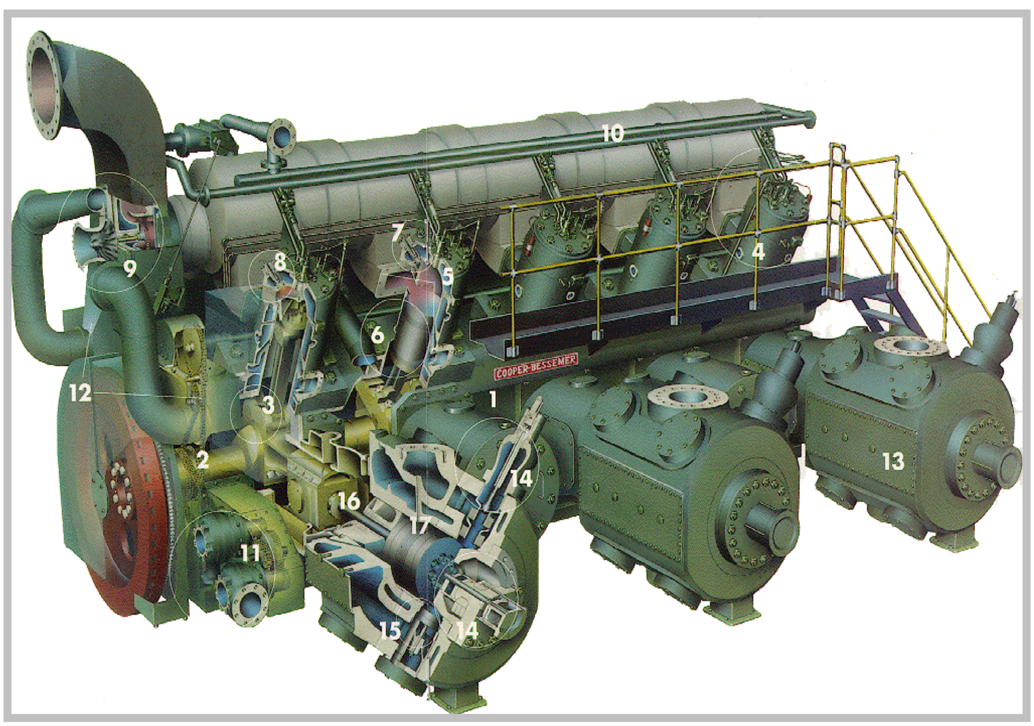


Figure 4. Cutaway view of a Cooper Bessemer integral reciprocating compressor.

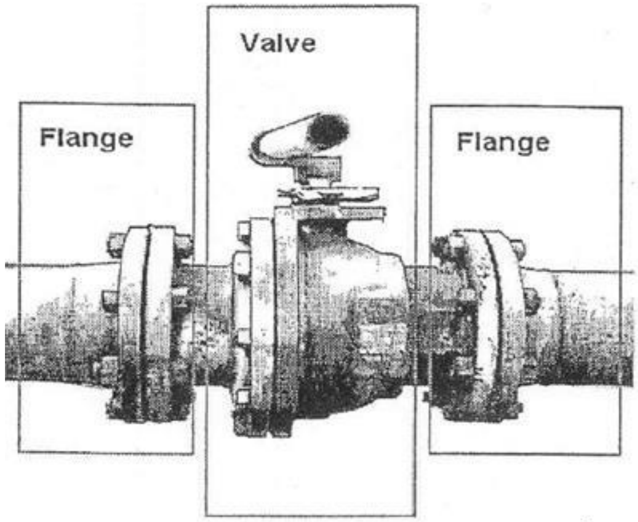


Figure 5. Example valve and flange components.

Valves are used to control facility natural gas flow. A simple valve and flanges are shown in Figure 5. This is just one example of a type of valve that may be found at a compressor station; however, a compressor station will include *many* different sizes and types of valves associated with the array of compressor units at the site. Ball, gate, check, and control valves are all commonly used at compressor stations, and each is composed of dozens of components.

These valves can be very large, ranging in size from about 4 inches (e.g., bypass valve on a small compressor) to over 30" for a yard valve to isolate the facility. *See* Figure 6 (illustrating valve size).

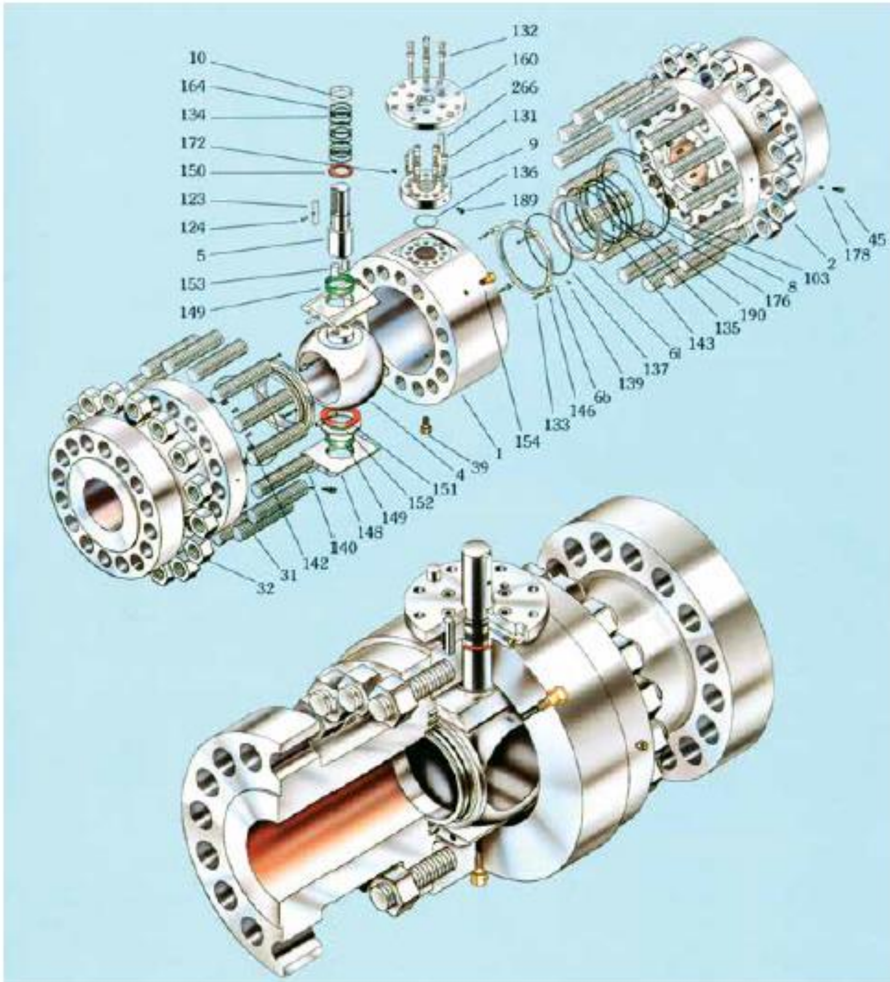
Figure 6. Example unit isolation valve.

Compressor stations include a variety of valves of various makes, models, and sizes, produced by various valve manufacturers. Furthermore, each valve includes sub-components that could be the source of a leak, including: the valve stem packing, grease nipples, bleed ports, valve body seals (e.g., where the bonnet bolts to the valve body, retainer connections), packing guide, and any monitoring ports on the stem packing system. Figure 7 displays the components associated with just one common ball valve (Cameron Grove valve) used at compressor stations. Many of these components could present a possible leak pathway. Furthermore, the specific replacement part needed could differ based on the valve size.

Some repairs are easier than others. More complicated repairs may require replacing a valve sub-component (or multiple components) or even the entire valve to stop the leak. Even if an operator tried to maintain an inventory of the most common sizes, makes or models, having a part that is the wrong size, make or model will not help the operator make a repair when an obscure piece of equipment needs to be replaced. Given that there is no accurate way to predict when or if a specific part might ever need to be replaced, and that replacement of a costly primary component (e.g., large valve replacement) will be very rare, maintaining an inventory of every potential part in every potential size would be a massively wasteful exercise.

Piping and valves associated with a single compression unit are shown in Figure 8, where the equipment is used to isolate the unit from the pipeline when compression is not required. The figure shows suction line and discharge line valves and a smaller bypass valve. Other components are also shown, including electric valve actuators. In other scenarios, the valve actuator could be a natural gas pneumatic controller, and that device would include additional potential leak sources. Although each compressor utilizes a similar configuration, different valves and other subcomponents may be present depending on unit size, make/model, vintage, etc. There is a considerable amount of piping along the length of a compressor house, as shown in Figure 9, and many different unique valves and other parts would be required to maintain a parts inventory.

GROVE B7.B
VALVE ASSEMBLY AND CROSS SECTION



Item	Description	Item	Description	Item	Description
1	Body	123	Stem Key	149	Bearing
2	Closure	124	Stem Key Capscrew	150	Upper Thrust Washer
4	Ball	131	Gland Plate Capscrew	151	Lower Thrust Washer
5	Stem	132	Adapter Plate Capscrew	152	Spacer
6b	Outer Seat Ring	133	Puller Bushing Capscrew	153	Drive Pin
6I	Inner Seat Ring	134	Stem O-ring	154	Relief Valve
8	Body O-ring	135	Seat O-ring	160	Adapter Plate
9	Gland Plate	136	Gland Plate O-ring	164	Stem Backup Ring
10	Gland Bushing	137	Seal O-ring	172	Vent Plug
31	Body Stud	139	Seat Spring Pin	176	U-cup Packing
32	Body Stud Nut	140	Bearing Retainer Pin	178	Check Valve
39	Drain Valve	142	Spring	189	Gland Vent
45	Grease Fitting	143	Seat Lock Ring	190	Seat Backup Ring
103	Closure Backup Ring	146	Puller Bushing	299	Stop Spring Pin
		148	Bearing Retainer		

Figure 7. Valve Assembly and Cross Section for Cameron Grove B7.B Ball Valve[5]

[5] *Grove B4, B5, and B7 Side-Entry Ball Valve Brochure*, http://cameron.slb.com/products-and-services/valves-index/grove/grove-b5-side-entry-ball-valve.

Figure 8. Example compressor unit isolation valve system for suction, discharge and bypass.

Figure 9. Piping and related components outside a compressor house.

In addition to compressor and valve related parts, there are other examples of station parts or components that would be impractical to maintain in an inventory, such as metering. Meter runs can help illustrate the array of equipment installed at a compressor station, as shown in Figure 10. The type and number of parts can be significant, depending on the number and type of meters at a facility. Like valves, meters can include multiple sub-components that might be the source of a leak. Typically, the sub-components, rather than the entire meter, would need repair.

Figure 10. Example Meter Runs.