

FREQUENTLY ASKED QUESTIONS

Environmental Protection Performance Standards at Oil and Gas Well Sites

General provision for well construction and operation
(§ 78a.73)

The purpose of this Frequently Asked Questions (FAQ) document is to highlight changes in and address questions about the new regulations. This FAQ should not be used in lieu of reference to the 2012 Oil and Gas Act, 25 Pa.Code Chapter 78a and other applicable laws and regulations. The answers outlined in this FAQ are intended to supplement existing requirements. Nothing in this document shall affect statutory or regulatory requirements.

This document is not an adjudication or a regulation. There is no intent on the part of the Department to give this document that weight or deference. The Department may supplement or amend this document at any time as necessary without notice.

- 1) Is a notice for an adjacent operator's active well only required if mechanical integrity failure is suspected both for the adjacent operator notifying the hydraulic fracturing company and for the hydraulic fracturing company notifying DEP?

An adjacent operator may choose to notify DEP or the operator completing hydraulic fracturing anytime they suspect one of their wells has been communicated with, but the regulation does not require that they do so. If they notify the operator completing hydraulic fracturing, follow-up actions by the operator conducting hydraulic fracturing are dependent upon the nature of the hydraulic fracturing communication incident. (posted 10/13/16)

- 2) Please clarify when hydraulic fracturing must be stopped and notification needs to be made if an adjacent operator's active well has been communicated with. Page 37 of the AOR TGD indicates it is any communication event, but Page 64 in the Appendix says to only report significant downhole pressure changes or volume changes when it could indicate a loss of mechanical integrity.

After the September 29, 2016 webinar, the AOR TGD language was updated with regard to this particular scenario. If the communication incident with the offset well results in any environmental, well control, or safety issue, hydraulic fracturing must be stopped immediately and DEP notification must take place within 2 hours. In all other instances that an adjacent operator notifies the operator conducting hydraulic fracturing that a communication incident has taken place, the response is dictated by the character of the incident:

Communication incidents that must be reported to DEP within 24 hours and followed up with a standard incident report within 30 days include:

- i. Any communication incident with any active or inactive well that the operator conducting the stimulation has become aware of that does not result in an environmental, safety, or well control incident, but does result in a breach/loss of containment that is not coupled to a release, e.g., release to a tank. A breach/loss of containment includes the observation of any flowing fluids in

sections of the well where they were previously not noted, provided these observations are not in association with the outer annular spaces of surface or coal casing. The reporting threshold is characterized by a significant increase in the volume of such fluids or annular pressures respective of baseline conditions, as judged by the operator completing hydraulic fracturing and/or responsible for the offset well.

- ii. Any communication incident that results in significant production pressure deviations at any active or inactive well that the operator conducting the stimulation has become aware of. For wells that produce gas inside of surface or coal casing strings, reportable conditions include any surface-measured production pressures in excess of 80% but less than 100% of the hydrostatic pressure at the casing seat depth (assume 0.433 psi/ft. gradient). For all wells, any pressure increases that are within 10% of the containment rating for the lowest rated barrier element subjected to production pressure must be reported. For example, if a wellhead valve is rated for 5,000 psi and production pressures increase to 4,500 psi as a result of a communication incident, this constitutes a reportable incident.

There is no expectation that adjacent operators notify an operator conducting hydraulic fracturing when communication incidents below the thresholds for completing a 30-day follow-up incident report described in the AOR TGD are noted at an offset well that is the responsibility of the adjacent operator. However, in cases when the adjacent operator does make the operator conducting hydraulic fracturing aware of a communication incident below these thresholds, the operator conducting hydraulic fracturing is not required to cease hydraulic fracturing if: (1) the adjacent operator documents in writing that none of the applicable thresholds for reporting in subsections A and B of this section have been exceeded, (2) DEP is notified within 24 hours of when the operator first became aware of the incident via the electronic reporting notification service on the DEP website, and (3) an incident report is filed with DEP within 30 days of when the operator first becomes aware of the incident. In this case, the follow-up incident report is the aforementioned written documentation provided by the adjacent operator in (1) above. Notification and follow-up reporting is required one time only if subsequent communication incidents occur at the offset well during later hydraulic fracturing stages provided the incidents remain below the thresholds requiring a 30-day follow-up incident report. (posted 10/13/16)

- 3) The definition of a communication incident is any measurable pressure of fluid flow. Does DEP only want notification of communication incidents if there is a question of mechanical integrity?

The current definition of communication incident has been updated to read as follows, "A transfer of measurable pressure or fluid flow from a well undergoing hydraulic fracturing to an offset well that is reportable in accordance with this policy (AOR TGD)." In certain cases, the referenced transfer of pressure or fluid may be evidenced at the well undergoing hydraulic fracturing.

DEP has detailed what constitutes reportable incidents in the AOR TGD. A summary of those incidents follows.

The operator must immediately stop hydraulic fracturing, notify DEP within 2 hours, and follow up with a standard incident report within 3 days of when they first become aware of the incident in the following circumstances:

- i. Any communication incident evidenced by downhole pressure or volume changes during hydraulic fracturing in the well being completed when the specific event observed indicates a loss of mechanical integrity, i.e., containment, and that could pose a specific risk to the environment (surface or subsurface fluid release), safety or is indicative of loss of well control. This would amount to a sudden loss of pressure or a volume change that is clearly, statistically beyond the normal variability that a job has.
- ii. Any communication incident with an abandoned, orphan, or plugged well; as the ability for containment and pressure control at such wells is significantly limited. Immediate reporting applies even in the case where an operator has established temporary containment measures at the surface that appear to have been implemented with success. A plan for permanently plugging the affected well must be developed and executed by the operator as soon as practicable, unless the operator plans to adopt the well and place it into production. The plan may be implemented without filing a notice of intent to plug the well, provided DEP approval is received.
- iii. Any communication incident with any other well that the operator completing the stimulation has been made aware of and that threatens or jeopardizes the integrity of the surface or near surface environment as a result of a breach/loss of containment, a release of pollution-causing substances to the environment, or some other occurrence that has the potential to impact the waters of the Commonwealth.
- iv. Any communication incident that results in a well control incident/loss of well control as defined in this guidance.
- v. Any communication incident that results in site safety risks as a result of equipment malfunction or other events within the AOR.

The operator may continue hydraulic fracturing, but must notify DEP within 24 hours, and follow up with a standard incident report within 30 days of when they first become aware of the incident in the following circumstances:

- i. Any communication incident with any active or inactive well that the operator conducting the stimulation has become aware of that does not result in an environmental, safety, or well control incident, but does result in a breach/loss of containment that is not coupled to a release, e.g., release to a tank. A breach/loss of containment includes the observation of any flowing fluids in sections of the well where they were previously not noted, provided these observations are not in association with the outer annular spaces of surface or coal casing. The reporting threshold is characterized by a significant increase in the volume of such fluids or annular pressures respective of

baseline conditions, as judged by the operator completing hydraulic fracturing and/or responsible for the offset well.

- ii. Any communication incident that results in significant production pressure deviations at any active or inactive well that the operator conducting the stimulation has become aware of. For wells that produce gas inside of surface or coal casing strings, reportable conditions include any surface-measured production pressures in excess of 80% but less than 100% of the hydrostatic pressure at the casing seat depth (assume 0.433 psi/ft. gradient). For all wells, any pressure increases that are within 10% of the containment rating for the lowest rated barrier element subjected to production pressure must be reported. For example, if a wellhead valve is rated for 5,000 psi and production pressures increase to 4,500 psi as a result of a communication incident, this constitutes a reportable incident.

There is no expectation that adjacent operators notify an operator conducting hydraulic fracturing when communication incidents below the thresholds for completing a 30-day follow-up incident report described in the AOR TGD are noted at an offset well that is the responsibility of the adjacent operator. However, in cases when the adjacent operator does make the operator conducting hydraulic fracturing aware of a communication incident below these thresholds, the operator conducting hydraulic fracturing is not required to cease hydraulic fracturing if: (1) the adjacent operator documents in writing that none of the applicable thresholds for reporting in subsections A and B of this section have been exceeded, (2) DEP is notified within 24 hours of when the operator first became aware of the incident via the electronic reporting notification service on the DEP website, and (3) an incident report is filed with DEP within 30 days of when the operator first becomes aware of the incident. In this case, the follow-up incident report is the aforementioned written documentation provided by the adjacent operator in (1) above. Notification and follow-up reporting is required one time only if subsequent communication incidents occur at the offset well during later hydraulic fracturing stages provided the incidents remain below the thresholds requiring a 30-day follow-up incident report. (posted 10/13/16)

- 4) If a company notifies DEP of an adjacent, active operator communication event, but that operator indicates that they are not concerned about the integrity of the well (minor communication), how long will it take DEP to allow hydraulic fracturing to recommence? Who will give that approval?

There is no expectation that adjacent operators notify an operator conducting hydraulic fracturing when communication incidents below the thresholds for completing a 30-day follow-up incident report described in the AOR TGD are noted at an offset well that is the responsibility of the adjacent operator. However, in cases when the adjacent operator does make the operator conducting hydraulic fracturing aware of a communication incident below these thresholds, the operator conducting hydraulic fracturing is not required to cease hydraulic fracturing if: (1) the adjacent operator documents in writing that none of the applicable thresholds for reporting in subsections A and B of this section have been exceeded, (2) DEP is notified within 24 hours of when the operator first became aware of the incident via the electronic reporting notification service on the DEP website, and (3) an incident report is filed with DEP within 30 days of when the operator

first becomes aware of the incident. In this case, the follow-up incident report is the aforementioned written documentation provided by the adjacent operator in (1) above. Notification and follow-up reporting is required one time only if subsequent communication incidents occur at the offset well during later hydraulic fracturing stages provided the incidents remain below the thresholds requiring a 30-day follow-up incident report. (posted 10/13/16)

- 5) How is the company that is hydraulic fracturing supposed to know that an adjacent operator's active well has been communicated with?

The adjacent operator may choose to report this to the company completing hydraulic fracturing operations, or notice may come from some other entity observing a potential problem at the offset well location. (posted 10/13/16)

- 6) Is any small change of pressure in an active adjacent well considered a hydraulic fracturing communication incident, or only those that threaten mechanical integrity of that well; that is, when should the operator of a well let a hydraulic fracturing company know there was a possible communication?

Guidelines specific to this matter are described in detail in question 3 above. (posted 10/13/16)

- 7) What happens when an adjacent operator receives notification and has issues with the well development proposed?

DEP has offered suggestions for coordination between adjacent operators – changing trajectory of the well bore or skipping hydraulic fracturing stages are two such suggestions. Coordinating with the operator to complete an activity that may change the risk profile at the offset well is another option. None of these are requirements.

In certain instances, it may not be possible for the two operators to resolve their differences. Under the 2012 Oil and Gas Act, a "3251 conference" may be requested by the offset operator and DEP would serve as an intermediary in such instances. (posted 10/13/16)

- 8) What defines monitoring for Plugged and Abandoned/Orphan/Abandoned wells? Field monitoring? Desktop monitoring on location only?

The level of monitoring necessary at an offset well requiring monitoring is based on the perceived risk level associated with that well and, further, "visual monitoring" is defined in the AOR TGD. For offset wells requiring a "high" level of monitoring, instrumentation can be used or an operator representative can be stationed at the well location to meet the continuous monitoring obligation. For offset wells requiring a "medium" level of monitoring, pre- and post-hydraulic fracturing inspections are required. Finally, for offset wells requiring a "low" level of monitoring, at a minimum an operator must check the well at the conclusion of hydraulic fracturing. (posted 10/13/16)

- 9) DEP said a workover summary is needed for any well involved in a communication incident. That should be ones that require notification, not all communication incidents.

The workover summary only applies in instances where an operator communicates with an orphan or abandoned well during hydraulic fracturing and intends to adopt that well and produce it. In this scenario, the workover report provides DEP assurance that any integrity compromises will be addressed prior to bringing the well back into production. The operator must also complete due diligence to ensure that the well has no responsible party and the necessary lease agreements are in place. For other communication incidents, DEP may decide some workover activities are necessary to safely operate a well that has been communicated with, but such decisions would be made on a case-by-case basis. (posted 10/13/16)

- 10) What happens when multiple horizontal wells are drilled in the same location/well (multiple laterals in same well bore)?

The AOR TGD defines the monitoring and adjacent operator notification requirements for all wells located in the AOR. Offset wells that are within the AOR and penetrate the zone of hydraulic fracturing influence are inclusive of partially completed wells. (posted 10/13/16)

- 11) How are operators expected to coordinate with adjacent operators? Will email suffice?

The regulation is not prescriptive with regard to this particular matter. Adjacent operators with wells that penetrate the zone of hydraulic fracturing influence must be notified 30 days prior to spud or at the time the permit package is submitted if the operator whose well is the subject of the area for review plans to spud the well within 30 days of permit issuance.

DEP's Well Inventory Report serves as the resource for identifying the most up-to-date contact information for operators in the state and can be accessed from the agency's reporting page. It is recommended that attempts to contact adjacent operators be documented and retained for up to 5 years after hydraulic fracturing is completed. (posted 10/13/16)

- 12) Scenario: There is an existing well on EDWIN within the AOR and within the zone of hydraulic fracturing Influence of our proposed well. The well is listed as Active on the DEP website, but it can't be located in the field. What type of monitoring is required?

There is no monitoring expectation for wells that cannot be located in the field or for active wells. Notification of the adjacent operator is all that is required for active wells. (posted 10/13/16)

- 13) Does the operator performing hydraulic fracturing monitor third party active wells, or is the third party required monitor their own active wells when an operator is conducting nearby hydraulic fracturing?

Active and inactive wells do not require monitoring, only notification prior to spud or at the time the permit package is submitted if the well that is the subject of the AOR will be spud within 30 days of permit issuance. In certain cases, it may still be prudent to conduct such monitoring. The notification requirements extend to both adjacent operators and other business units responsible for managing active and inactive wells associated with the company that intends to complete hydraulic fracturing.

14) What constitutes monitoring at a high risk well?

The following table included and reviewed during the September 29, 2016 AOR webinar summarizes the perceived risk levels at offset wells. (posted 10/13/16)

Description	General Risk Level
Wells within AOR which do not penetrate the zone of hydraulic fracturing influence	NEGLIGIBLE
Wells inside AOR which penetrate the zone of hydraulic fracturing influence	
Active wells being drilled	LOWER
Active wells in production/inactive wells	
Zone of hydraulic fracturing influence/pressure isolation is verified	LOWER
Lack of zone of hydraulic fracturing influence/pressure isolation	HIGHER
Plugged and/or abandoned wells	
Well plugged in accordance with current regulations and laws	LOWER
Well plugged prior to passage of Act 223 (1984 Oil and Gas Act)	MODERATE
Well plugged prior to permitting era (1956)	HIGHER
Well on DEP's orphan and abandoned list	HIGHER
Abandoned well for which plugging status is unknown	HIGHER

15) What form of monitoring is required? A person at the wellhead or electronic monitoring equipment per wellhead? In other words, if there are 5 wells in an area of review, would there be 5 persons monitoring non-stop?

Visual monitoring is required at certain offset wells in the AOR. Visual monitoring is defined in the AOR TGD and the webinar as:

Verification at the location on the ground that is the identified site of a well bore requiring monitoring or some other feature that would require such monitoring. Eye contact or instrumentation are both suitable mechanisms for completing visual monitoring and "visual" inspections may be completed at a time interval that is respective of how well the site requiring monitoring is secured and the risk the monitored site poses. (posted 10/13/16)

16) If a communication incident occurs with another operator's active or inactive well that does not result in an environmental or well control, does that require 2-hour or 24-hour notification?

Guidelines specific to this matter are described in detail in 3) above. (posted 10/13/16)

17) How were the hydraulic fracturing communication risk maps in DEP's September 29, 2016 webinar presentation generated?

The communication risk maps were generated by downloading the Geographic Information Systems (GIS) files associated with Department of Conservation and Natural Resources (DCNR) OFOG 15-01.2 (also known as Map 10) and comparing the well

depths summarized in that database to a layer representing the top of the Marcellus Shale with a 1,500-foot vertical buffer added to it. (posted 10/13/16) (also78a.52a)

- 18) When will the Area of Review (AOR) technical guidance document (TGD) be finalized? Where can the most up-to-date version be found?

The AOR TGD was released as “Interim Final” on October 8, 2016. A 60-day public comment period commenced at that time, after which a formal comment-response document will be prepared and necessary modifications to the AOR TGD made. Any modifications made will be reviewed with DEP’s Technical Advisory Board (TAB). (posted 10/13/16) (also78a.52a)

[The most recent version of the AOR TGD can be accessed at DEP’s eLibrary.](#)

- 19) What are the levels of risk for well monitoring in the table based on (Low, Moderate, and High)?

Two tables were presented during the September 29, 2016 webinar: the first characterizing risk and the second characterizing the required level of monitoring at abandoned, orphan, and plugged wells. The risk terms (low, moderate, and high) correspond to the requisite level of monitoring (low, medium, and high).

A specific example of applying the information in the AOR TGD would be to consider an offset abandoned well likely to penetrate the zone of hydraulic fracturing influence with no information available related to the well’s plugging status. The well represents a high-risk location and would require a high level of monitoring or containment during hydraulic fracturing of the closest approach segment of the lateral. (posted 10/13/16) (also78a.52a)

- 20) When will the DEP Standard Monitoring Plan be released?

DEP’s Standard Monitoring Plan has been formally released in association with the September 29, 2016 AOR webinar materials. The Standard Monitoring Plan was also reviewed during the September 29, 2016 webinar. It consists of a summary table that references what an operator must do in terms of monitoring at an offset well dependent upon the requisite level of monitoring (high, medium, or low) associated with that offset well. The Standard Monitoring Plan is also included in the interim final AOR TGD. (posted 10/13/16) (also78a.52a)

- 21) An operator has a multi-well pad with two different producing zones in the horizontal (Upper Devonian and Marcellus). These zones are within 1500 feet. What monitoring is expected in these offset wells?

In this situation, the expected level of monitoring is most likely dependent upon a well’s status: only abandoned, orphan, and plugged wells require monitoring. Notification requirements apply for active and inactive wells, or for abandoned and plugged wells that are the responsibility of an adjacent operator.

If the well is either active or inactive, and is the responsibility of the operator completing hydraulic fracturing, the operations team for the offset well must be notified 30 days prior

to spud or at the time the permit is submitted if the new well will be spud within 30 days or permit issuance. The operations team could determine if some level of monitoring is appropriate, as only notification is required in these circumstances. If the offset well is plugged, the monitoring requirements do apply and would be based on the standards under which the well was plugged. (posted 10/13/16) (also78a.52a)

- 22) What is the state's recommended approach for an operator that has a proposed unconventional well bore located in a historic abandoned well field? For the purpose of this question, there are 150 abandoned wells within the 1000-foot radius for the AOR and some of the wells have depth records, but most of the wells are of unknown depth. The known well depths are shallow oil wells less than 1,500 feet deep and it would be safe to assume the remaining unknown wells are at the same depth.

This scenario requires a site-specific assessment of the historic well field and the application of discretion by the operator. If there is uncertainty associated with the depths of offset wells, the operator should assume a worst-case scenario, that is, that the offset wells penetrate the zone of hydraulic fracturing influence, and complete the appropriate level of monitoring. If a site-specific analysis concludes that the well depths can be estimated with a low degree of uncertainty and they don't penetrate the zone of hydraulic fracturing influence based on this analysis, there is no monitoring requirement. The wells must still be plotted on the plat and recorded in the AOR Summary Report.

Some information related to this matter was provided during the September 29, 2016 webinar and it was indicated that in portions of the state, it is highly likely that a recently discovered abandoned well penetrates the zone of hydraulic fracturing influence. In other parts of the state, it is very unlikely that this is the case. This example represents a scenario where it would seemingly be appropriate for the operator to submit a site-specific narrative report detailing the assumptions of their offset well analysis. (posted 10/13/16) (also78a.52a)

- 23) Operators of wells within the area of review shall be notified 30 days prior to spud. Is there a formal method for this notification to other operators?

There is no formal method for notifying adjacent operators. The AOR TGD establishes DEP's Well Inventory Report, found on the DEP Oil and Gas Reports web page, as an acceptable reference for identifying operators with permitted/registered assets within the area of review. A recommendation to document and archive attempts to contact adjacent operators is also provided in the AOR TGD. The suggested retention period is five (5) years. (posted 12/23/16)

- 24) What defines a "confirmed well communication?" Is it just increased water production or pressure communication as well? The guidance document states "any treatment pressure or volume changes indicative of abnormal fracture propagation," but still could be subjective.

The AOR TGD highlights specific scenarios that are deemed incidents requiring DEP notification. Those details are related in question number 3 of this FAQ. If a potential communication incident is reported to an operator, it is the responsibility of the operator to conduct a preliminary assessment of the alleged incident promptly and make a determination considerate of the criteria in the AOR TGD and other operational details.

DEP should be notified in all cases and along established timelines when an emergency has been identified, or other regulatory or statutory reporting notification requirements are triggered, even if an operator has not completed the investigation intended to confirm or refute a connection with hydraulic fracturing activities.

“Treatment pressure or volume changes indicative of abnormal fracture propagation” are observations intended to apply at the well that is being hydraulically fractured. The appendix of the AOR TGD describes some limitations associated with this monitoring provision, but the operator must evaluate how to most effectively monitor the well that is being hydraulically fractured to maintain compliance. This method is particularly critical in circumstances when an operator may not be able to access an offset well requiring monitoring. (posted 12/23/16)