

May 19, 2015

RegComments@pa.gov
Department of Environmental Protection
Policy Office
400 Market Street
P. O. Box 2063
Harrisburg, PA 17105-2063

Re: Environmental Protection Performance Standards at Oil and Gas Well Sites; Advance Notice of Final Rulemaking

The Chesapeake Bay Foundation, Environmental Defense Fund, Pennsylvania Environmental Council, the Pennsylvania Chapter of The Nature Conservancy, and the Western Pennsylvania Conservancy respectfully submit the following comments on the Advance Notice of Final Rulemaking for Environmental Protection Performance Standards at Oil and Gas Well Sites [25 Pa. Code Chapters 78 and 78a] ("Proposed Rulemaking").

General Comments on Revisions in the Proposed Rulemaking

The Proposed Rulemaking is a marked improvement from the prior version published by the Pennsylvania Department of Environmental Protection ("Department") in December 2013, and we commend the Department for bolstering environmental review and protection provisions. **Subject to the specific comments below, we generally support the revisions in the Proposed Rulemaking.** We also offer observations on areas not amended in the Proposed Rulemaking, but identified in our earlier (March 14, 2014) comments to the Department.

We also note the efforts of the Department to take a more comprehensive approach to the review of proposed development activity, as in the description of "Oil and Gas Operations" and the consideration of Public Resources. In a similar vein, we encourage the Department to identify appropriate opportunities for exploring integrated planning of surface development activities at a broader scale, by inter alia, and to the extent possible, working with applicants to facilitate the sharing and discussion of regional siting and infrastructure plans.

We are now three years removed from passage of Act 13 of 2012¹ -- the citizens of Pennsylvania deserve to see these improved protections in practice across the

¹ 58 Pa.C.S. §§ 2301-3504.

Commonwealth. Therefore, collectively, we urge the Department, after consideration of public comment, to promptly finalize and implement this rulemaking, including development of associated guidance.

Specific Comments on Revisions in the Proposed Rulemaking

§78a.1 – Definitions

- “Regulated Substance” and “Residual Waste”. The Department should make it expressly clear in the Proposed Rulemaking that these definitions include brines, drill cuttings, drilling muds, oils, stimulation fluids, well treatment and servicing fluid, and plugging and drilling fluids as provided in §78a.56. The definition of “Residual Waste” in 25 Pa. Code §287.1 is much more limited and should be improved.
- We encourage the Department to work with the Pennsylvania Natural Heritage Program agencies of jurisdiction to establish a complete definition for “Other Critical Communities”, which we believe is an appropriate addition to the Proposed Rulemaking.

§78a.15 – Application Requirements; Public Resources

- §78a.15(b.1). Although it may be the implied intent, we believe the Proposed Rulemaking should expressly state that the Department has the authority to condition or deny a permit application if an operator has failed to demonstrate to the Department’s satisfaction that the well site will not adversely affect the aquatic resources listed in this section.
- §78a.15(f)(1). The Department should further expand the Public Resources list contained in Section 78.15(f)(1) of the Proposed Rulemaking to include additional resources that have been designated through agency review and public processes, including but not limited to High Quality or Exceptional Value Waters, Exceptional Value Wetlands, and Wild and Wilderness Trout Streams. The revised language in §78a.15(g) reinforces this need.
- §78a.15(f)(1)(viii). As was observed at a recent meeting of the Oil & Gas Technical Advisory Board, we believe the Department should define or provide further guidance on what constitutes a “Wellhead Protection Area as part of an approved Wellhead Protection Plan.” so as to avoid misinterpretation of this section. Given our understanding as provided by Department staff at that meeting, we support its addition to the list of Public Resources

§78a.41 – Noise Mitigation

- We believe that noise mitigation is an appropriate and necessary addition to the Proposed Rulemaking. While we support the concept advanced in this new section, we are concerned about the lack of objective criteria and believe compliance will be difficult for the Department to enforce, and for operators to comply with the section as written. We encourage the Department to revise the section to provide predictable and clear noise enforcement standards.
- We also encourage the Department to consider mitigation measures related to permanent noise sources that threaten wildlife habitats; especially birds during the breeding and nesting season.
- In addition, the Department should include a provision requiring the operator to identify in the permit application a responsible point of contact for any landowner complaints. Too often, we have heard that landowner attempts to reasonably deal with noise or other issues at well sites go unaddressed by operators and/or their contractors. There should be a clear point of contact as the identified responsible party in the permit application for landowners and even the Department to contact in the event of a nuisance or pollution issue.
- We recognize that some of the issues raised above need to be addressed in the rule, and others may be best addressed in official guidance. We look forward to working with the Department on any guidance documents that are developed under this section.

§78a.52a and §78a.73 – Area of Review

- We commend the Department for addressing the important issue of discovering and mitigating potential subsurface conduits in proximity to new wells that could transport pollutants to protected waters. When the Department finalizes these sections, Pennsylvania will be in the vanguard of states addressing this issue in regulations. This is critical in Pennsylvania as the Commonwealth has an unusually large number of orphaned or abandoned wells in close proximity to modern oil and gas fields.
- The revisions in this section represent real progress over the initial 2013 proposal. In particular, we support the Department's addition of active and inactive wells to the inventorying requirement; the increased requirement for specificity of well surface and bottom hole locations; the increased radius of review; the enhanced information sourcing requirements; the requirement to submit a monitoring plan for potential

conduits; the requirement to review well integrity records for potential conduits; the requirement that this analysis be completed prior to drilling rather than hydraulic fracturing; the requirement that operators notify the operators of nearby wells prior to hydraulic fracturing occurs to minimize the risk of interference or “frac hits” that could cause pollution to protected waters; the use of electronic reporting in monitoring of potential proximate conduits during hydraulic fracturing; and the requirement to terminate hydraulic fracturing on indications of “abnormal fracture propagation at the well being stimulated,” and not to resume operations without Departmental approval. These enhancements, consistent with our March 2014 comments, will go a long way in protecting Pennsylvania’s groundwater during directional drilling and hydraulic fracturing operations.

- With this said, the Department could further improve its Area Of Review program by adopting certain additional protective requirements. These include an enhanced AOR radius; inclusion of known geological faults and fractures; a more robust statement about protectiveness, a requirement to plug wells; and a requirement to terminate operations if offset wells show signs of interference. We address each below, and provide language-ready revisions in the Appendix to these comments.
- The Department should expand the radius of Area Of Review in §78a.52a(a) to 1,320 feet measured from the vertical well bore and from the entire length of the horizontal well bore, instead of 1,000 feet. A one-quarter mile radius is a standard distance derived from the U.S. Environmental Protection Agency (EPA) Underground Injection Control Program, and interference from hydraulic fracturing operations has been noted at distances well exceeding this radius.² Alaska, which passed an Area Of Review requirement earlier this year, uses a one-half mile radius, which suggested that one-quarter mile is not overly stringent. The Department should further adopt language that it may specify a greater or lesser distance upon determination that regional or local conditions justify a larger or smaller Area of Review. Finally, we recommend that the analysis required in §78a.73(c) include any wells with boreholes located within 1,500 feet measured vertically of the formation intending to be stimulated, whether their surface expressions are within 1,000 feet (or 1,320 feet, as the case may be), or either the vertical or horizontal boreholes of the well in question. That is to say, it is possible that active, inactive, orphaned or abandoned wells could transect a well’s intervening zone without falling into the radius prescribed by §78a.52a(a). To remedy, the Department can require analysis of all such known wells.

² See Gayathri Vaidyanathan, “When 2 wells meet, spills can often follow,” E&E, August 5, 2013 (3,000 foot communication in Alberta); British Columbia Oil and Gas Commission, Safety Advisory, May 20, 2010 (670 meter communication in British Columbia).

- The Department should include known geologic faults and fractures in its list of potential conduits presented in §78a.52a(a). Operators should be required to identify and evaluate risk from these known faults and fractures as part of its Area Of Review analysis described in §78a.52a(b)-(c), using Pennsylvania geologic databases specified by the Department. The Department should further clarify in §78a.73(c) that “pressure changes indicative of abnormal fracture propagation” includes not only potential communication with active, inactive, orphaned, and abandoned wells, but also subsurface or other geologic conditions or hazards that could result in pollution migration or threats to the environment or public safety. Known geologic faults and fractures can act as conduits of contaminants to protected water, and states like Alaska and Nevada require faults and fractures to be included in their Area Of Review analyses.³ Operators should incorporate natural faults and fractures into their hydraulic fracturing program design and risk analysis, which can be accomplished by requiring their inclusion in an Area of Review.
- The Department should require operators to submit a statement to the Department that, based on operator’s analysis of the active, orphaned and abandoned wells, and known natural faults and fracture zones that transect the impacted strata within the Area of Review, no such well or natural phenomenon may be a conduit for movement of fluids into a source of protected water. This goes beyond mere monitoring and requires operators to attest that they expect the mitigation activities they have undertaken with respect to potential conduits of contaminants to protected waters to be sufficient to protect against such pollution. This could be introduced as a §78a.52a(e). Such a requirement would be consistent with a requirement in Alaska that operators provide “information sufficient to support a determination that such wells [or faults or fractures] will not interfere with containment of the hydraulic fracturing fluid within the one-half mile radius of the proposed well bore trajectory.”⁴
- As a related measure, the Department should establish the following requirement: “Improperly constructed wells, improperly abandoned wells, or orphaned wells, must be remedied or properly plugged and abandoned if there is a risk that the hydraulic fracture treatment may communicate with these wells and result in protected water contamination or pose other environmental, health or safety risks.” This requirement could be inserted in between §78a.73(c) and §78a.73(d). While §78a.73(d) requires that offset wells impacted by hydraulic fracturing be properly plugged *after* the incident, this new requirement would help prevent such incidents from happening in the first place.

³ See 20 AAC 25.283(a)(10)-(11); NAC Chapter 522 §10(1)(e).

⁴ See 20 AAC 25.283(a)(10)-(11).

- In addition to the requirement in §78a.73(c) that operators terminate hydraulic fracturing operations if monitoring of orphaned or abandoned wells indicates abnormal fracture propagation, the Department should also require termination if operators of offset active and inactive wells provide indication of abnormal fracture propagation, through annular pressure changes or other indicators.

§78a.56 – Temporary Storage

- The Department should impose a time limit, such as 60 days, for on-site storage of substances and wastes covered by this section.
- The Department should make it expressly clear in this section that Modular Aboveground Storage Structures are subject to the containment, integrity, and inspection requirements in §78a.57, and other special requirements if appropriate.

§78a.57 – Control, storage and disposal of production fluids

- The use of partially buried or underground tanks presents challenges for ongoing inspections of the integrity of the tanks, including monitoring for potential leaks. When partially buried or underground tanks are used, the Department should require specific requirements for inspection and leak detection or the use of double-walled tanks with the ability to monitor for leaks through the inner wall.
- It is critical that secondary containment around tanks be of sufficient capacity to retain the maximum volume that may be released from a single tank or interconnected tanks that act as one tank in addition to a reasonable volume of precipitation that may have accumulated within the secondary containment.
- The secondary containment volume is specified as the volume of the largest tanks plus 10% for precipitation. Later it is mentioned that tanks that are manifolded together shall be designed in a manner to prevent the uncontrolled discharge of multiple tanks. It is important to note that 10% may not be sufficient for potential precipitation. The 10% factor should be a minimum, with good engineering judgment used to determine if additional volume should be included.
- Additionally, the ability to immediately isolate manifolded tanks in the event of a release is critical in determining sufficient secondary containment volume. Without the ability to immediately isolate manifolded tanks, the total volume of the manifolded

tanks or the volume of the largest tank, whichever is greater, should be used as the non-precipitation volume of secondary containment.

- It is good that tanks must be inspected monthly, but the Department should require that inspection records be maintained for longer than one year. The length of time inspection records are maintained and made available to the Department should be sufficient to account for multiple routine inspections (e.g. four years).

§78a.57a – Centralized Tank Storage

- Secondary containment volume should be sufficient to contain a release from the largest tank or the total volume of manifolded tanks that cannot be immediately isolated in the event of a release, plus sufficient volume for precipitation. A 10% factor is used for the additional secondary containment volume to account for precipitation. As mentioned before, this should be a minimum volume. Good engineering judgment should be used to determine if additional volume to account for precipitation is warranted.
- Tank inspections should occur every year as opposed to every five years as specified in the Proposed Rulemaking. Documentation of inspections and any repairs made should be maintained for more than one year. The length of time inspection records are maintained and made available to the Department should be sufficient to account for multiple routine inspections (e.g. four years).

§78.59c – Centralized impoundments

When applied to oil and gas operations, the standards provided in Chapter 289 should include:

- Double lining with leak detection.
- Ongoing inspection with prompt reporting, remediation, and repair requirements.
- Documentation of inspections and repairs maintained for sufficient time to allow for Department review during routine inspections.

§78a.61 – Disposal of Drill Cuttings

§78a.62 – Disposal of Residual Waste (Pits)

§78a.63 – Disposal of Residual Waste (Land Application)

- The Department has revised §78.61 to distinguish between drill cuttings from above and below the surface casing seat. We believe this is an improvement, but again,

suggest regulatory distinctions that accurately reflect the primary issue of concern. For example, water- or air-based mud cuttings versus oil-based mud cuttings may be a more accurate and durable distinction for regulatory purposes. Additionally, if the Department is concerned about cuttings from a particular formation, the regulations should specifically address disposal of cuttings from those formations. Using the surface casing seat as a proxy for either of these issues – drilling mud or formation constituents – may be useful in some situations, but it does not ensure a proper result.

- To the extent the Department continues to allow disposal and land application of any drill cuttings or residual waste at the well site, it is recommended that sampling and testing be expressly required, with results submitted by the operator to the Department for review. Cuttings and waste managed at the surface should also be analyzed for constituents likely to be found in drilling fluids, salts and hydrocarbons. Disposal and application practices should be subject to on-site inspections by the Department.

§78a.68b – Well development Pipelines

- In §78a.68b(d), the Department should provide equal protection for wetlands by requiring secondary containment for joints or couplings.

Other Comments on the Proposed Rulemaking

We offer the following comments on elements of, or omissions from, the Proposed Rulemaking that endure from the prior version published in December 2013. We believe these comments remain valid and are worthy of further consideration by the Department.

§78a.1 – Definitions

- The Department should define and clarify what is meant by terms related to “freshwater”, “substances”, and “waste(s)” in the Proposed Rulemaking. There remain instances where various permutations of these terms are used, possibly in conflict with what is defined as a “Regulated Substance” or “Residual Waste”.
- The Department should define the term “Other Responsible Party” as used in the Proposed Rulemaking. This is particularly important in sections relating to reporting and remediating spills, leaks, or other types of pollution releases.
- The Department should define the term “additive” to mean “any substance or combination of substances found in a hydraulic fracturing fluid, including a proppant,

that is added to a base fluid in the context of hydraulic fracturing treatment, whether or not the function of any such substance or combination of substances is to create fractures in the formation.” This definition is consistent with the definition adopted by the vast majority of states that have addressed the issue.

§78a.15(c) Permit Application Requirements

- In addition to disclosure information on parent and subsidiary entities in the permit application, this requirement should be extended to partnership and joint venture interests.

§78a.15(f) – Public Resources

- The Department should define or clarify the term “discrete area” as used in §78a.15(f)(4) to ensure that the ultimate determination of the “discrete area” rests with the Department or the appropriate resource protection agency.
- The 200 foot setback in §78.15(f)(1) of the Proposed Regulations is a carry-over from dated regulations and does not contemplate the magnitude of unconventional natural gas well operations and activities. This distance should be expanded to appropriately account for current technologies and operations at unconventional natural gas well sites.

§78a.55 Planning and emergency response

- In §78a.55(f), PPC plans should be automatically submitted to the Department. Given its emergency response authority, the Department should have all relevant safety information in hand.

§78a.59b Freshwater Impoundments; Mine Influenced Water

- We maintain that the Proposed Regulations should include more definite pre-treatment criteria and robust containment standards for storage of “mine influenced water” – those identified in this section are insufficient. Careless use of “mine influenced water” could be very damaging to the environment.

§78a.61 Disposal of Drill Cuttings

- §78a.61(a)(7) requires that a pit holding drill cuttings from above the surface casing seat be “backfilled to the ground surface,” and contemplates revegetation of the

backfilled pit. A minimum depth of fill should be expressly required between ground surface and drill cuttings or residual waste. This minimum depth should be greater than the rooting zone for expected groundcover. Minimum depth is particularly critical where agriculture is the expected land use.

§78a.64a – Containment Systems and Practices at Well Sites

- The Department should expressly require in §78a.64a(h) that in the event a “regulated substance” escapes from primary storage, an operator must (1) remove the regulated substance as soon as possible; (2) inspect the containment system; and (3) repair the primary containment system as necessary to prevent future leaks.

§78a.69 Water Management Plans

- We encourage the Department to work with other resource agencies and river basin commissions to develop protocols for preventing the spread of invasive species during water withdrawal and transport.

§78a.122 Well Record and Completion Report

- The Proposed Rulemaking does not address §3222.1(b)(11) of Act 13 (disclosure of trade secret or confidential proprietary information to health professionals). The Department should utilize this rulemaking process to facilitate, to the greatest extent possible, any request made by a health professional for chemical disclosure. This is a critical issue not only for public health, but also for public confidence in the Department and industry.
- The Proposed Rulemaking improperly alters the timelines for chemical disclosure. §78.122a(b) should read:

*Within 30 calendar days after completion of the well, the well operator shall **submit** a completion report to the Department on a form provided by the Department*

We do not believe the Department has the authority to deviate from this 30-day deadline, nor do we believe it would be wise to do so.

- In addition to the required information outlined in §78a.122(a)(1)-(14), a well operator should include the following in standard form well records:

- A casing and cement report that includes the determined depth of the top of cement for each casing string and the top and bottom of cement for each individually isolated zone, hole size, the amount and location of centralizers and the method used to make the determinations; identification of the depth of all corrosive zones and flow zones;
 - Inclination and directional surveys; and
 - Applicable depths and thicknesses of the geologic formations penetrated, complete with the relevant well log, mud log and/or other data known about the intervening zone above the zone(s) that received the hydraulic fracturing treatment.
- The Department should ensure that an operator, or its duly authorized agent having personal knowledge of the facts, and representatives of the cementing company performing the cementing job, sign the form attesting to compliance with the cementing requirements.
 - In order to be consistent with practices in the majority of leading states, operators should disclose, as part of the completion report required in §78a.122(b), the type of base fluid used in the hydraulic fracturing treatment. §78a.122(b)(6)(ii) should be rephrased to require disclosure of “the percent by mass **of total volume of hydraulic fracturing fluid used** of each chemical additive in the stimulation fluid.”
 - In order to be consistent with practices in the majority of leading states, §78.122(b)(6)(vi) should require disclosure of “the total volume **and type** of the base fluid.”

§78a.123 Logs and Additional Data

- The Department should require the following disclosures within 30 days of completion:
 - the estimated fracture height and estimated true vertical depth to the top of the fracture achieved during hydraulic fracturing treatment, as determined by a three dimensional model acceptable to the Department.
 - Initial well test information recording daily gas, oil and water rate, tubing and casing pressure;
 - Initial gas analysis, performed by a lab approved by the Department for such purposes;
 - The results of baseline water testing; and
 - Calculated fracture length and fracture height for the hydraulic fracture treatment.

- Operators should be required to provide the data required under §78a.123(a) - (c) to the Department within 30 days after completion of drilling, without specific request from the Department as is currently contemplated.

Conclusion

Thank you for your consideration. We would welcome the opportunity to discuss these comments further at your convenience.

Harry Campbell
Pennsylvania Executive Director
Chesapeake Bay Foundation

Andrew Williams
Senior State Regulatory and Legislative Affairs Manager
Environmental Defense Fund

John Walliser
Vice President, Legal & Government Affairs
Pennsylvania Environmental Council

William Kunze
Executive Director
The Nature Conservancy, Pennsylvania Chapter

Cynthia Carrow
Vice President, Government and Community Relations
Western Pennsylvania Conservancy

Appendix -- Proposal for Revision to draft PA § 78(a).52a and § 78(a).73

§ 78a.52a. ~~[Abandoned and orphaned well identification]~~ AREA OF REVIEW.

(a) ~~[Prior to hydraulically fracturing the well, the]~~ THE operator ~~[of a gas well or horizontal oil well]~~ shall identify the SURFACE AND BOTTOM HOLE LOCATIONS ~~[location]~~ of ACTIVE, INACTIVE, orphaned ~~[or]~~ AND abandoned wells HAVING WELL BORE PATHS, and the locations of known geologic faults and fractures, within ~~1,000~~1,320 feet measured horizontally from the vertical well bore and ~~1,000~~1,320 feet measured from the surface above the entire length of a horizontal well bore in accordance with subsection. The Department may specify a greater or lesser distance upon determination that regional or local conditions justify a larger or smaller area of investigation. (b). ~~[Prior to hydraulically fracturing the well, the operator of a vertical oil well shall identify the location of orphaned or abandoned wells within 500 feet of the well bore in accordance with subsection (b). For the purposes of this section, a gas well is a well which is producing or capable of producing marketable quantities of gas or of gas and oil with a gas-oil ratio of more than 100 MCF per bbl of oil.]~~

(b) Identification shall be accomplished by ~~[conducting]~~ the following:

(1) CONDUCTING [A] A review OF the Department's ~~[orphaned and abandoned well database]~~ WELL DATABASES AND OTHER AVAILABLE WELL DATABASES.

(2) CONDUCTING [A] A review of HISTORICAL SOURCES OF INFORMATION, SUCH AS applicable farm line maps, where accessible.

(3) Submitting a questionnaire on forms provided by the Department to landowners whose property is within the area identified in subsection (a) regarding the precise location of orphaned and abandoned wells on their property.

(4) Conducting a review of geological databases specified by the Department.

(c) ~~[Prior to hydraulically fracturing a well, the]~~ THE operator shall submit a REPORT SUMMARIZING THE REVIEW, INCLUDING:

(1) A plat ~~[to the Department]~~ showing the location and GPS coordinates of ALL ~~[orphaned and abandoned]~~ wells identified under subsection (b).

(2) ~~[and proof]~~ PROOF ~~[of notification]~~ that the operator[s] submitted questionnaires under subsection (b)(3).

(3) A MONITORING PLAN FOR WELLS REQUIRED TO BE MONITORED UNDER SECTION 78a.73(c) (RELATING TO GENERAL PROVISION FOR WELL CONSTRUCTION AND OPERATION), INCLUDING THE METHODS THE OPERATOR WILL EMPLOY TO MONITOR THESE WELLS.

(4) TO THE EXTENT THAT INFORMATION IS AVAILABLE, THE TRUE VERTICAL DEPTH OF IDENTIFIED WELLS.

(5) THE SOURCES OF THE INFORMATION PROVIDED FOR IDENTIFIED WELLS.

(6) TO THE EXTENT THAT INFORMATION IS AVAILABLE, SURFACE EVIDENCE OF FAILED WELL INTEGRITY FOR ANY IDENTIFIED WELL.

(7) A statement that the operator does not expect the hydraulic fracturing treatment to cause fluid movement through any identified wells or geologic features that would pollute waters of the Commonwealth.

(d) THE OPERATOR SHALL SUBMIT THE REPORT REQUIRED BY SUBSECTION (c) TO THE DEPARTMENT AT LEAST 30 DAYS PRIOR TO COMMENCEMENT OF DRILLING THE WELL OR AT THE TIME THE PERMIT APPLICATION IS SUBMITTED IF THE OPERATOR PLANS TO COMMENCE DRILLING THE WELL LESS THAN 30 DAYS FROM THE DATE OF PERMIT ISSUANCE. THE REPORT SHALL BE PROVIDED TO THE DEPARTMENT ELECTRONICALLY THROUGH THE DEPARTMENT'S WEB SITE.

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

(c) THE OPERATORS OF ACTIVE AND INACTIVE WELLS IDENTIFIED AS PART OF AN AREA OF REVIEW SURVEY CONDUCTED UNDER § 78a.52a (RELATING TO AREA OF REVIEW) THAT LIKELY PENETRATE WITHIN 1500 FEET MEASURED VERTICALLY OF A FORMATION INTENDED TO BE STIMULATED SHALL BE NOTIFIED AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF HYDRAULIC FRACTURING. Orphaned ~~or~~ AND abandoned wells identified AS PART OF AN AREA OF REVIEW SURVEY CONDUCTED under § 78a.52a (relating to AREA OF REVIEW ~~abandoned and orphaned well identification~~) that likely penetrate WITHIN 1500 FEET MEASURED VERTICALLY OF a formation intended to be stimulated shall be visually monitored during stimulation activities. ALL WELLS WITH AN UNKNOWN TRUE VERTICAL DEPTH SHALL BE PRESUMED TO PENETRATE WITHIN 1500 FEET MEASURED VERTICALLY OF THE FORMATION INTENDED TO BE STIMULATED. Other wells outside of the area of review survey conducted under § 78a.52a (related to Area of Review) that are known to penetrate within 1500 feet of the formation intended to be stimulated should receive appropriate notification if active and monitoring or orphaned or abandoned. The operator shall immediately notify the Department ELECTRONICALLY THROUGH THE DEPARTMENT'S WEB SITE of any change to ~~the~~ either AN orphaned or abandoned well being monitored or an active or inactive well notified pursuant to this section, OR OF ANY TREATMENT PRESSURE CHANGES INDICATIVE OF ABNORMAL FRACTURE PROPAGATION AT THE WELL BEING STIMULATED. IN SUCH AN EVENT THE OPERATOR SHALL CEASE STIMULATING THE WELL THAT IS THE SUBJECT OF THE AREA OF REVIEW SURVEY and take action to prevent pollution of waters of the Commonwealth or discharges to the surface. THE OPERATOR MAY NOT RESUME STIMULATION OF THE WELL THAT IS THE SUBJECT OF THE AREA OF REVIEW SURVEY WITHOUT DEPARTMENT APPROVAL.

(x) Improperly constructed wells, improperly abandoned wells, or orphaned wells, must be remedied or properly plugged and abandoned if there is a risk that the hydraulic fracture treatment may communicate with these wells and result in protected water contamination or pose other environmental, health or safety risks.

(d) An operator that alters an orphaned or abandoned well by hydraulic fracturing shall plug the orphaned or abandoned well IN ACCORDANCE WITH THIS CHAPTER, OR THE OPERATOR MAY ADOPT THE ALTERED WELL AND PLACE IT INTO PRODUCTION.