



The Honorable Secretary Patrick McDonnell
Chairperson, Environmental Quality Board
Rachel Carson State Office Building, 16th Floor
400 Market Street
Harrisburg, PA 17101

September 28, 2020

RE: Draft Technical Guidance: Guidelines for Development of Operator Pressure Barrier Policy for Unconventional Wells (800-0810-003).

Submitted electronically to: <https://www.ahs.dep.pa.gov/eComment/>

Dear Secretary McDonnell:

API Pennsylvania (API PA) would like to offer the following comments on the Draft Technical Guidance: Guidelines for Development of Operator Pressure Barrier Policy for Unconventional Wells (800-0810-003). We appreciate the willingness of the department to work with our industry to improve regulatory processes as well as our natural environment. As an organization, API is committed to advancing safe and responsible natural gas production while continually reducing environmental impacts and improving the health and safety of our employees, operations, and communities. Accordingly, please find our comments attached with this correspondence.

API PA is a division of the American Petroleum Institute (API), the only national trade association representing all facets of the natural gas and oil industry, which supports 10.3 million U.S. jobs and nearly 8 percent of the U.S. economy. API's more than 600 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 45 million Americans.

API is also a standard setting organization. For over 90 years, API has led the development of petroleum and petrochemical equipment and operating standards. These standards represent the industry's collective wisdom on everything from drill bits to environmental protection, and embrace proven, sound, engineering and operating practices and safe, interchangeable equipment and materials for delivery of this important resource to our nation. API maintains more than 700 standards and recommended practices. Many of these are incorporated into state and federal regulations. API encourages and participates in the development of state regulations and other regulatory documents that are protective of public health and safety, the environment, and the industry workforce. In this context, API PA offers the following comments and looks forward to continuing to work with the Department.

Sincerely,

Stephanie Catarino Wissman
Executive Director
API Pennsylvania

API PA Comments on Draft TGD: Guidelines for Development of Operator Pressure Barrier Policy for Unconventional Wells

• Title Page – Purpose Section

- In the 2nd sentence of the “Purpose” section, the reference to API “Recommended Practices” should be modified to also refer to API “Standards” since both are referenced in the relevant regulations, as shown below:
 - *“Recommendations relevant to maintaining compliance with the requirements of Chapter 78a, including associated American Petroleum Institute (API) Standards or Recommended Practices incorporated therein, and any additional requirements set forth in The Clean Streams Law, Solid Waste Management Act, the 2012 Oil and Gas Act and other applicable laws and regulations are summarized.”*

• Section II – Definitions

- In the 1st paragraph of this section, the 2nd sentence says that “the terms defined in this section are italicized throughout the document,” but there are a number of places in the document where the defined terms are not italicized. DEP should either review the document to ensure the defined terms are italicized throughout, as stated, or eliminate the italicized formatting and this sentence.
- Mechanical Pressure Barriers definition – For purposes of § 78a.72(i) which requires two mechanical pressure barriers during drilling and completions, it’s unclear how the number of mechanical barriers are counted. For example, if a BOP has two rams and one annular preventer, is that counted as three mechanical barriers total (as we believe it should be)? If not, we would suggest that cement or fluid columns should also be allowable as “mechanical barriers” since they too can be tested.
- “Well Control Emergency” definition – Though we recognize that DEP is citing the statutory Oil & Gas Act definition of “well control emergency” here, the term “well control emergency” is used nowhere in the Chapter 78a regulations, and in the Oil & Gas Act it is used primarily in the context of DEP contracting with well control response specialists and recovering response costs. We have concerns with the use of that term, as defined here, for purposes of this guidance document since it requires that DEP be the entity that determines the emergency (and it’s not clear how or when DEP would make that determination), and the inclusion of kicks and loss of circulation fluids, which do not necessarily result in emergencies, causes some unnecessary confusion. We suggest that the “well control emergency” term and definition be removed, and the document should simply use the “well control incident/loss of well control” terminology (or in the alternative, “well control emergency” could be redefined to better fit the purpose of this guidance document).

- **Section III – Operations Addressed in Pressure Barrier Policy**

- At the beginning of Section III identifying operations to be addressed in a PBP, operations (1) to (3) match those listed in § 78a.72(a)(1) to (3), but it's unclear why the additional circumstances listed in § 78a.72(a)(4) to (6) are not also included in this list in Section III, since those circumstances are also required by regulation to use blow-out prevention equipment. For consistency with the regulatory language, suggest that the situations in § 78a.72(a)(4) to (6) be added to the list in Section III (and in Figure 1) as well.
- In the 2nd sentence of the paragraph that follows “(4)” in this section, the wording “e.g. casing and cement” should be in parentheses, as shown below:
 - *“The operator should also consider how to address situations when primary pressure barriers or other barrier elements in a well (e.g., casing or cement) fail unexpectedly.”*
- In the 3rd sentence of the last paragraph of Section III, the word “gob” is not a commonly used term, nor is it defined in Section II. Either a definition of “gob” should be included in Section II, or that term should be removed from this sentence as unnecessary, as shown below, or further clarified.
 - *“For example, an operator drilling shallower hole sections of an unconventional well that penetrate ~~gob or other~~ zones capable of flow may specify what measures are in place to effectively mitigate an unanticipated well control emergency or well control incident/loss of well control through use of a contingency plan in lieu of the use of mechanical pressure barriers during the operation.”*
- The last sentence of Section III includes the statement that “DEP may determine, on a case-by-case basis, that other items are necessary during operations to safely drill, complete, alter, or plug a well.” DEP should clarify whether there is a statutory or regulatory basis to support that statement (i.e. that DEP is authorized to determine items necessary to safely drill, complete, alter, or plug a well) and if so, reference that citation in association with that statement, and if not, either delete that statement or modify it to say that DEP may recommend other items that they believe may be appropriate.

- **Section IV – Process Chart for Identifying Operations**

- In the Title of this section, the misspelling of “Identifying” should be corrected to “Identifying”
- In Figure 1, the Process Chart for Identifying Operations, the wording “in PBP” is unnecessary in Footnote 1, and is somewhat confusing since the chart also refers to the possibility of addressing certain activities in a Contingency Plan rather than in a PBP, so suggest deleting the “in PBP” wording in the footnote, as shown below:

- *“¹Other activities or operations, as identified by the operator ~~in~~ ~~PBP~~.”*

- **Section VI – Worksheet Questions**

- Formatting – Capitalized Roman Numerals (i.e. I. – IV.) should not be used for the subsections in Section VI since that becomes confusing with the Section numbering in other parts of the document. Suggest using capital letters A. – D. for the subsections of Section VI rather than I. – IV.
- Question I.1. – This question asks if a BOP is required per certain regulations and includes both §§ 78a.87(a)(1) and (a)(2) in the regulatory references. However, there is no BOP requirement specified in § 78a.87(a)(1), only in § 78a.87(a)(2), which is correctly noted in the Worksheet citations for Question I.1. Recommend that the reference to § 78a.87(a)(1) be removed from this question, as shown below:
 - *“I.1. Is a BOP required under §§ 78a.72 or 78a.87(a)(~~1~~)(~~2~~), or has the operator identified other operations requiring a pressure barrier?”*
- Question I.1. – Also related to § 78a.87(a), that regulatory language refers to a “gas storage reservoir protective area” but that is not a defined term in the regulations, and it isn’t clear what constitutes the “protective area.” Though not specific to this Pressure Barrier Policy guidance document, DEP should consider clarifying the “protective area” terminology related to gas storage reservoirs either here or in a separate FAQ.
- Question II.2a. – It is very unclear what level of detail DEP would be expecting here, given the broadly worded language of “where a casing string may malfunction or become defective.”
- Question II.5. – In the second sentence of this question, it is unclear specifically which “BOP inspection sheets” are being referenced here.
- Question II.6. – The term “maximum anticipated pressure (MAP)” as used here and elsewhere in the worksheet questions, should be changed to “maximum anticipated surface pressure (MASP),” as stated in § 78a.71(b)(2) and in API Std. 53, as shown below:
 - *“II.6. What is the maximum anticipated surface pressure (MASP) in pounds per square inch (psi) for the relevant operations that the BOP and ancillary equipment, casing and well head could be subjected to?”*
- Questions II.10. and II.11. – The reference to “API Recommended Practice 53” should be changed to “API Standard 53,” which is the correct current title of that document, as further explained in the related comment to Appendix A below.

- Question II.12a – The request for the FIT/LOT test “pressure (psi)” should be changed to “equivalent pounds per gallon” as shown below. The test pressure by itself means very little without the associated total vertical depth and fluid density during the test.
 - *“If yes, what was the FIT/LOT test equivalent pounds per gallon ~~pressure (psi)~~?”*
- Question II.14 – “Casing” is included in Question II.14, which is not consistent with the associated reference to § 78a.72(d) which does not include “casing.” The requirements associated with casing, for purposes of this Pressure Barrier Policy document, are adequately covered by other Questions in this section, such as II.2, II.5, II.6, II.21, and II.22, so it is unnecessary to also include “casing” in this Question II.14. For consistency with the cited § 78a.72(d) it should be removed as shown below:
 - *“II.14. Do the ~~casing~~, pipe fittings, valves and unions placed on or connected to the BOP system have working pressure ratings in excess of the MAP, per § 78a.72(d)?”*
- Question II.16. II.17. and II.18. – The references to “API RP 53” and “API Recommended Practice 53” should be changed to “API Standard 53,” which is the correct current title of that document, as further explained in the related comment to Appendix A below.
- Questions II.25 and II.25a. – These questions address issues associated with wells covered by the Chapter 78a Area of Review requirements (not the well subject to the pressure barrier policies addressed in this document), and which are being addressed in a separate Area of Review Technical Guidance Document. Suggest that these questions be removed from this Pressure Barrier Policy document.

However, if retained, in II.25a:

- In the 2nd sentence, the broad reference to “§ 78a.52a” should be narrowed to just the monitoring related requirements in § 78a.52a(c)(3) and the broad wording “regulatory requirements” should be narrowed to “monitoring requirements” for purposes of this document, as shown below:
 - *“At a minimum, the relevant ~~regulatory~~ monitoring requirements of § 78a.52a(c)(3) and § 78a.73(c) must be satisfied when the operation is hydraulic fracturing.”*
- Question III.1. – To read grammatically correct, this question should be slightly modified as shown below:
 - *“III.1. Is there/Will there be an International Association of Drilling Contractors (IADC) certified individual or other individual certified by a DEP-approved organization present on site during operations requiring a BOP, per § 78a.72(h)?”*

- Question IV.4b. – As currently drafted, the language in Question IV.4b. only addresses the requirements in § 78a.87(a)(2), but the regulatory reference at the end of the question (and in the associated Worksheet line item) includes both § 78a.87(a)(1) and § 78a.87(a)(2). Either the reference to § 78a.87(a)(1) should be removed both here and in the associated Worksheet item, or if the requirements of § 78a.87(a)(1) are intended to be part of this same question, then the question should be modified to also address the procedure for controlling anticipated gas flows and pressures when drilling from the surface to 200 feet above the gas storage reservoir horizon.
- **Section VII – Special Considerations for Sensitive Offset Environments During Drilling and Completions Activities**
 - **“Well Design” subsection**
 - In the 1st sentence of this subsection, and in other parts of Section VII, it is not clear what is meant by “other sensitive offset environments” or how that term will be interpreted by DEP. Either that term should be removed from the document, or its meaning should be made clearer for purposes of this Pressure Barrier Policy document.
 - The 3rd sentence of this subsection refers to “any requirements or guidance developed by DEP’s Bureau of Mine Safety relating to drilling plans,” but offers no further information on whether any such requirements or guidance actually exist, or if so, where to find it. Given that the purpose of this document is to provide guidance to assist unconventional operators, DEP should not simply assume that unconventional operators are aware of all potentially relevant requirements and guidance developed under DEP’s mining program, but rather should provide specific references and/or links to those requirements and guidance documents that may exist.
 - The last sentence of this subsection simply states that the regulatory requirements of § 78a.71 and § 78a.72 must be complied with, and as such is unnecessary given that those relevant requirements of § 78a.71 and § 78a.72 are already addressed in the Sections of this document preceding this Section, and it isn’t necessary to state again here that operators must comply with those regulations. Recommend that the last sentence of this subsection, which reads *“To ensure safety regarding material selection, the operator must utilize equipment and safety devices in compliance with § 78a.71 and § 78a.72 in order to equip the well in a manner which will withstand the more severe environmental conditions expected in association with unconventional development, including higher formation pressures and the presence of larger quantities of free hydrogen”* be deleted as unnecessary and to avoid confusion that its somehow referring to requirements related to pressure barriers that are not already addressed elsewhere in this document.

In addition, regarding that same sentence, it is also unclear what DEP’s basis is for saying that “larger quantities of free hydrogen” are expected in association with unconventional development. If retained, DEP’s rationale for referring to the potential for larger quantities of free hydrogen in

association with unconventional development should be further explained.

○ **“Pre-Frac and Post-Frac Well Operations” subsection**

- The 1st sentence of this subsection says that a “shallow geology review assessing fracture propagation directions and formations should be undertaken to understand zones susceptible to flow and confining zones,” and though that may seem reasonable as “guidance,” it goes beyond any regulatory requirement to do so. To the extent it may be a recommendation worth considering, it would be more appropriately addressed in Area of Review guidance than in this Pressure Barrier Policy for individual wells. Also, unconventional hydraulic fracturing in PA occurs at relatively deep formations, so it is not clear what exactly is meant by a “shallow geology review assessing fracture propagation directions and formations.” Given that recommendations like this which are contained in DEP Technical Guidance Documents over time often become interpreted by DEP personnel essentially as “requirements,” we recommend that the “shallow geology review” be removed from this document.

Also in the 1st paragraph, in the 2nd sentence it would be appropriate to include nearby known active underground mining operations in the pertinent data to be captured, and to specify that the known wells to be included are those that were identified by the Area of Review investigation under § 78a.52a.

Suggested edits in the 1st paragraph of this section are shown below:

- *“Prior to hydraulic fracturing operations, ~~a shallow geology review assessing fracture propagation directions and formations should be undertaken to understand zones susceptible to flow and confining zones.~~ All pertinent data, including all known operator wells identified within the area of review required by § 78a.52a, nearby known active underground mining operations, and essential emergency contacts, should be captured in a mapping/data system that allows for quick retrieval in the event of an emergency situation associated with well control. Such information should include:*

.....

(3) ~~Details and findings of shallow geology review.~~”

- Similar to the comment above on the 1st sentence of the “Well Design” subsection of Section VII, item (7) in the list of information to be included in the “Pre-Frac” review refers to “other offset sensitive environments,” the meaning of which is unclear. Either item (7) should be removed from this list of information, or the meaning of “other offset sensitive environments” should be made clearer for purposes of this Pressure Barrier Policy document.

- In the 2nd sentence of item (8), the statement that “the operator may need to relinquish full control of the unconventional asset” should be modified to something more like “the operator may need to relinquish, to the extent necessary, control of certain aspects of the unconventional asset,” as shown below:
 - *“Note that during the response to a well control incident or well control emergency, the operator may need to relinquish, to the extent necessary, ~~full~~ control of certain aspects of the unconventional asset to the well control contractor and that the well control contractor may find it necessary to implement actions in accordance with national standards and best management practices.”*
 - Similar to comments above, in the 2nd paragraph of this subsection, the 2nd sentence refers to “other sensitive environments,” the meaning of which is unclear. Either that reference to “other sensitive environments” should be removed from that sentence or the meaning of “other sensitive environments” should be made clearer for purposes of this Pressure Barrier Policy document.
 - The parentheticals in the 2nd, 3rd, and 4th paragraphs of this subsection say to “see predetermined distance in Well Design subsection,” however there’s little in the Well Design subsection related to how the “predetermined distance” is to be established, other than for mines which is appropriately stated as a “technically justified” predetermined distance. For example, there is nothing in the Well Design subsection about how to establish that predetermined distance for underground gas storage operations, though the “technically justified” language would be appropriate for those as well. As for offset oil and gas wells, that predetermined proximal distance and the associated wells should be consistent with the notification provisions in § 78a.73(c).
 - In the 4th paragraph of this subsection, the recommendation for daily progress updates should be limited to proximal mine operators. If daily progress updates are desired by operators of other proximal activities, they can request and coordinate that with the operator of the well to be hydraulically fractured when they are notified under the 3rd paragraph. The suggested revision to the 4th paragraph is shown below:
 - *“During completions activity, an unconventional operator should provide a daily progress update to ~~the any proximal mine operator, other oil and gas or gas storage operators, or the point of contact for other offset sensitive environments when proximal~~ (see predetermined distance in Well Design section).”*
- **“Well Control During Stimulation” subsection**
- Similar to comments above, the 2nd paragraph of this subsection refers to “sensitive environments,” the meaning of which is unclear. Either this paragraph should be removed or the meaning of “sensitive environments” should be made clearer for purposes of this Pressure Barrier Policy

document.

Also as noted in a comment above, the parenthetical in this paragraph says to “see predetermined distance in Well Design subsection,” however there’s nothing in the Well Design subsection related to how the “predetermined distance” is to be established for “sensitive environments.”

It’s also unclear in this paragraph what the specific word “should utilize plugs at a distance sufficient to ensure safety and well control of every stage” is intended to mean. Is this referring to specific types of plugs, and if so what types. If this paragraph is retained, more clarity is needed.

- The 3rd paragraph of this subsection calls for “immediately” notifying proximal mine operators and regulatory agencies of a well control incident/loss of well control and a well control emergency, however “immediate” notification is not required by regulation, nor is it consistent with Section VIII which calls for reporting such incidents within 2 hours of discovery. We recognize that certain incidents that pose potential risk to nearby miners should be reported quickly, but would recommend that the word “immediately” in this paragraph be changed to “as soon as practicable, but no later than 2 hours after discovery,” for consistency with Section VIII and the wording used in § 78a.66(b)(2), as shown below:
 - *“In the event of a well control incident/loss of well control or a well control emergency during completions activity, simultaneous response plans should be implemented for non-essential well site personnel and for miners at an underground mine when operations are proximal (see predetermined distance in Well Design section). The operator conducting hydraulic fracturing should ~~immediately~~ notify as soon as practicable, but no later than 2 hours after discovery, maintain regular contact, and provide timely updates to proximal mine operators and regulatory agencies until the incident is resolved.”*

- **Section VIII – Incident Reporting**

- In the 1st sentence of the 2nd paragraph of this section, though the intent of including “well control emergencies” as incidents that should be reported to DEP seems fairly apparent, there’s a conflict since by definition (in Section II), “well control emergencies” are incidents “as determined by DEP” to pose a threat; meaning DEP would already be aware of those incidents since they were the entity to determine it posed a threat. To resolve that conflict, DEP should either re-define “well control emergencies” in Section II for purposes of this document or remove that term from this document as unnecessary, as discussed in the related comment above in the Definitions section.

Also, that same sentence says that “operations not covered with specificity in Section VII should be reported to DEP within 2 hours of discovery.” That wording, which refers to “operations not covered with specificity in Section VII” should be removed since it is entirely unclear and could be interpreted very broadly, and DEP provides no rationale as to why such operations should require reporting within 2

hours of discovery. The recommended revisions to that sentence (including removing the term “well control emergencies” unless re-defined for purposes of this document) are shown below:

- *“Well control incidents/losses of well control, ~~well control emergencies, and operations not covered with specificity in Section VII~~ should be reported to DEP within 2 hours of discovery.”*
- Also in the 2nd paragraph of this section, the 2nd sentence that addresses notification of various operators within 2,500 feet if “an incident” occurs should be modified to clarify that for purposes of this PBP guidance document, this applies only to well control incidents that may affect those operations, and the wording “coal operators” should be changed to “underground mine operators,” as shown below:
 - *“The operator should also have a readily available list of responsible personnel for well operators, underground gas storage facility operators, and ~~not~~ underground mine operators within 2,500 feet, and notify these personnel as soon as practicable if ~~an~~ a well control incident occurs that the operator believes could affect those operations.”*
- **Section IX – Worksheet**
 - The Section number of this section should be changed from “VIII” to “IX” since, as drafted, there are two Section VIII’s.
- **Appendix A**

In both the **Question & Response** subsections, DEP should clarify that “API Recommended Practice 53” (API RP 53) was reclassified by API to “API Standard 53” (API Std. 53) with the 4th Edition in 2012, and then with the 5th Edition in 2018 (which is the current edition) was re-titled “Well Control Equipment Systems for Drilling Wells.” As such “API Recommended Practice 53” (API RP 53) no longer officially exists, and DEP should now refer to it as “API Standard 53” (API Std. 53) in this document and Appendix A when discussing what the current API standard contains regarding testing.

At the next rulemaking opportunity for Chapters 78 and 78a, DEP should also change the reference in § 78.72(f) and § 78a.72(f) from “API RP53, ‘API Recommended Practice for Blowout Prevention Equipment Systems for Drilling Wells,’” to “API Std. 53, ‘Well Control Equipment Systems for Drilling Wells,’”