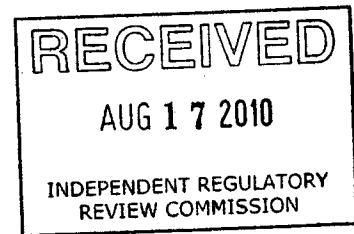


2857

**COALITION for RESPONSIBLE GROWTH & RESOURCE CONSERVATION
(C R G R C)**

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August 9, 2010

Via Electronic Mail

Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477
RegComments@state.pa.us

Re: Comments on Proposed Rulemaking, 25 Pa. Code Ch. 78 (Oil and Gas Wells)

Dear Environmental Quality Board Members:

The Coalition for Responsible Growth & Resources Conservation (CRGRC) submits the following comments on the proposed amendments of 25 Pa. Code ch. 78 - 40 Pa. Bull. 3845 (July 10, 2010).

CRGRC applauds the Environmental Quality Board's (EQB) recognition of the need to update and upgrade requirements for the drilling, casing, cementing, testing, monitoring, and plugging of oil and gas wells in Pennsylvania. Many of the amendments in the Proposed Rulemaking reflect best management practices in the industry; however, we would like to see Pennsylvania's citizens protected by even stricter regulations than those the industry places upon itself. This is particularly important in light of lessons learned from the recent EOG Resources and BP Gulf of Mexico well blowouts. CRGRC would like the EQB to incorporate changes in its new regulations that reflect what has been learned from these environmentally and economically damaging experiences. We believe such incorporation will help the Board meet its stated goals of minimizing gas migration and increasing protection for both public and private water supplies from other adverse aspects of gas drilling activity.

We support the detailed technical comments that Earthjustice submitted to the PA Department of Environmental Protection's, Bureau of Oil and Gas in connection with the Advance Notice of Proposed Rulemaking for Chapter 78, 40 Pa. Bull. 623 (Jan. 30, 2010).

These technical comments referenced a report, "Recommendations for Pennsylvania's Proposed Changes to Oil and Gas Well Construction Regulations" (dated Mar. 1, 2010), prepared by Susan Harvey. As an experienced petroleum engineer and principal of Harvey Consulting, LLC her report is considered an authoritative source of information by many in the industry and the environmental community. Most of the 47 recommendations in the "Harvey Report" remain relevant to this current Proposed Rulemaking. CRGRC supports these relevant comments and Earthjustice's additional recommendations beyond those listed in the Harvey Report.

Because CRGRC supports and has signed onto Earthjustice's letter to the EQB, dated August 9, 2010, re: *Comments on Proposed Rulemaking, 25 Pa. Code Ch. 78 (Oil and Gas Wells)*, we will underscore our support by incorporating portions of the Earthjustice letter into our own. The following contains direct quotes and/or paraphrases the Earthjustice letter.

A. Incorporate American Petroleum Institute (API) Standards into State Regulations:

"API standards sometimes provide the clearest and most specific information regarding state-of-the-art well construction practices, and the standards are updated regularly to reflect emerging technologies and new data. Although these industry recommendations should not be accepted uncritically, some of them identify best management practices for protection of human health and the environment.

We recommend that the EQB follow the practice of other states that have incorporated API standards into their regulations, which is to make copies of the documents publicly available to promote government transparency and accountability without lowering its health and environmental standards."

B. Preparing the Well for Cementing

The proposed amendments do not identify a protocol for preparing a well prior to cementing. Adequate well preparation, including the circulation and conditioning of fluids in the wellbore, is necessary to prevent cement job failures that threaten groundwater isolation. The EQB should add the following provisions:

- (1) Every effort shall be made to limit the time between completion of the hole interval and cementing.
- (2) Prior to any cementing, all gas flows must be killed.
- (3) The hole size and volume of the annular space must be accurately calculated, by running a caliper tool, in order to determine the appropriate volume of cement slurry.
- (4) Any lost circulation shall be eliminated or significantly reduced using sound engineering techniques and the best professional judgment of qualified engineers. Cement volume calculations must include excess cement volume to account for any cement that may be lost during cementing.
- (5) The drilling mud, to be displaced by the cement, must be conditioned in order to ensure good mobility and smooth evacuation according to established guidelines.

C. Cement Volume and Installation Procedures

The quality of a cement job is critical in preventing gas or fluid movement from deeper zones into groundwater. To effectively seal off all production horizons and isolate freshwater aquifers, the cement must be set continuously and evenly throughout the annular space to preclude the formation of any gaps, channels or other malformations. The proposed Chapter 78 amendments do not establish best management practices for cementing and should be revised to add the following provisions:

- (1) Cement Float Equipment must be tested in accordance with API RP 10F Recommended Practice for Performance Testing of Cementing Float Equipment.

(2) Drilling mud must be conditioned before cementing.

(3) A caliper tool must be run to accurately quantify the annular hole size and accurately calculate the cement volume required.

(4) Surface casing must be cemented with a volume sufficient to fill the annular space from the casing shoe to the surface, plus 25 percent.

(5) Casing must be rotated or reciprocated during mud conditioning and cementing, unless the well is very deep or directionally drilled and pipe rotation subjects the casing to unacceptable stresses.

D. Applicability of the Revised Regulations

In adopting its new regulations, the EQB should ensure that the updated standards apply to all new and existing oil and gas operations. Any new oil and gas operation should be required to meet these standards immediately. Existing oil and gas operations—that is, any oil or gas operation in place prior to adoption of the new regulations—should have no more than 24 months to come into compliance.

To enforce this requirement, the EQB should mandate that, within one year of the date of adoption, each operator certify to DEP that all of its new and existing oil and gas operations comply fully with Chapter 78, as amended. For each oil or gas operation that is not in full compliance, the operator should be required to submit a compliance plan for DEP review and approval, showing how the operator plans to reach full compliance within the 24-month deadline. Each non-compliant well must be examined by a qualified engineer, geologist, and hydrologist (certified by DEP and not affiliated with a drilling company) to verify that continued operation of the well does not propose a health, safety, or environmental risk. If the well does propose any such risk, it must be immediately repaired to meet the new standards, or plugged and abandoned.

CRGRC reiterates its support for the recommendations in the Harvey Report to the extent that the EQB's Proposed Rulemaking does not already adopt them, and it supports Earthjustice's citations to regulatory materials that offer additional support for those recommendations and its also offer some recommendations not previously identified in the Harvey Report. The following directly quotes Earthjustice's letter to the EQB dated August 9, 2010.

§ 78.1(b). Definitions

Cement Job Log – The well operator should also record the temperature and pH of the cement water. See N.Y. Guidance at ¶ 7. This requirement governs operators in New York, and there is no reason why Pennsylvania should settle for less.

§ 78.72. Use of Safety Devices—Blow-out Prevention Equipment

In response to the EQB's specific request for comments on establishing requirements for additional safety equipment and procedures, we recommend that the EQB examine recent lessons learned from both the EOG Resources and the BP Gulf of Mexico well blowouts and incorporate additional blowout prevention measures within the Code. Inadequate cement placement, quality, and procedures were causal factors in the BP blowout, and additional cementing recommendations are provided below. The EQB also should re-examine its blowout

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On July 12, 2010, the O&G Bureau explained in a letter to gas well operators the lessons learned from its investigation of the EOG Resources loss of well control at the Punxsutawney Hunting Club 36H well in Clearfield County. We recommended that the six specific instructions included in the letter be codified in Chapter 78.

§ 78.81. General Provisions

The regulations should follow the lead of other jurisdictions and articulate the guiding principles of casing and cement regulation. We recommend adoption of the following language, which is consistent with the proposed rules and would effectively guide well operators and regulators in unanticipated situations:

The casing and cementing programs for any well shall be designed and executed to maintain the integrity of the well throughout its life; to effectively control any hydrocarbons or water encountered; and to prevent blowouts, explosions, fires, and casing failures as well as the pollution of all freshwater resources. In developing an appropriate casing and cementing program, a well operator shall consider successful local practices for similar wells, maximum anticipated surface pressure, the chemical environment, the potential for mechanical damage, and any site-specific geological factors, including the presence of water or hydrocarbons. At all times, the well operator shall use the best available technologies to protect groundwater and employ the best professional judgment as to sound engineering practices.

§ 78.82. Use of Conductor Pipe

Conductor pipe is essential to prevent harmful fluids at the surface from infiltrating groundwater. This section should include the following requirements:

(1) Conductor casing shall be cemented from top to bottom and firmly affixed in the wellbore with a continuous, equally thick layer of cement around the pipe. See Alaska Admin. Code tit. 20 § 25.030(d)(2); The Newfoundland and Labrador Petroleum and Natural Gas Act O.C. 96-225, Petroleum Drilling Regulations § 47.1.

(2) A mechanical or cement seal of at least three square feet shall be installed at the surface to prevent the downward migration of surface pollutants. See NY Guidance 1757 at ¶ 11.

§ 78.83. Surface and Coal Protective Casing and Cementing Procedure

To ensure that the surface casing is set at a depth and secured in a manner that protects freshwater resources from contamination, the EQB should add the following regulations:

(1) New surface casing must be set in all wells.

(2) The surface casing must be set and permanently cemented into an impervious formation or consolidated zone. See Mich. Admin Code r. 299.2359(1); Nev. Admin. Code § 522.265(1).

(3) All surface casing shall be cemented with sufficient cement to fill the annular space from the casing shoe to the surface. See Ala. Admin Code 400-1-4.09(2)(a); Ark. Oil & Gas Comm'n, Gen. Rules B-15(b); 2 Colo. Code Regs. § 401-1:317(h); Ga. Admin. Code 391-3-13.10(12)(d); 312 Ind. Admin. Code 16-5-9(a)(3); Mich. Admin. Code r. 299.2359(2); 16 Tex. Admin. Code 3.13(b)(2)(B); British Columbia Oil & Gas Comm'n, Well and Test Holes Guidance Document

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(4) A valid Formation Integrity Test must be completed to validate the integrity of the casing shoe and must be completed at the equivalent mud weight, leak-off or fracture pressure specified in the permit to drill. See 20 Alaska Admin. Code 25.030(f).

Subsections 78.83(b) and (c) should be clear that the diameter of the drilled hole must be large enough (i) to run centralizers between each casing string, (ii) to allow complete circulation of cement, and (iii) to obtain a uniformly concentric cement bond in the annulus of at least one inch in thickness. See Kan. Admin. Regs. § 82-3-106(d); NY Guidance 1757 at ¶ 1; API RP 65-2. The centralizers must be spaced sufficiently to ensure adequate room for cement to pass evenly throughout the cased interval. See Wy. Rules & Regs. Oil Gen. ch. 3 r. 22(e)(iii). We recommend that casing be centralized in accordance with API RP Spec 10D Specification for Bow-Spring Casing Centralizers and API RP 10D-2 Recommended Practice for Centralizer Placement and Stop Collar Testing, standards that already have been adopted in Texas. 16 Tex. Admin. Code 3.13(a). If the EQB elects not to adopt to API standards, the regulations should require placement of centralizers at least at the top of the casing, at the bottom, and in between at intervals of no more than 120 feet. See NY Guidance 1757 at ¶ 5.

The existing 50-foot buffer in subsection 78.83(c) is insufficient to ensure the complete isolation of vulnerable underground aquifers. In order to properly protect groundwater sources from contamination, the surface casing must be set and permanently cemented into an impervious formation or consolidated zone that is at least 110 feet below the deepest freshwater aquifer. See Mich. Admin. Code r. 299.2359(1); Wy. Rules & Regs. Oil Gen. ch. 3 r. 22(a)(i). If an unanticipated freshwater aquifer is encountered after setting the surface casing, the regulations should require the well operator to isolate the aquifer by stage cementing the intermediate and/or production string with a solid cement plug extending from 50 feet below each fresh water aquifer to 50 feet above said fresh water aquifer. See 2 Colo. Code Regs § 404-1:317(g). The well operator also should notify DEP of the problem within 24 hours, see 165 Okla. Admin. Code 10-3-4(c)(7)(I), and should cease drilling until it receives DEP approval to continue. See Alberta Energy Resource Conservation Board Directive #8 § 5.3, available at http://www.ercb.ca/docs/documents/directives/draft_directive008.pdf.

§ 78.83a. Casing and Cementing Plan

An effective casing and cementing plan requires the well operator to submit a narrative explanation detailing the rationale for the casing and cementing program that is submitted to DEP. See British Columbia Petroleum & Natural Gas Act, B.C. Reg. 362/98, Drilling and Production Regulation 35(1)(e). The regulations should specifically require that the plan, together with all supporting data, be submitted to DEP for approval, maintained for public review in DEP files, and be available on-site for any authorized inspector to review at all times.

§ 78.83c. Intermediate and Production Casing

Intermediate casing provides an additional protective barrier when a well passes through a freshwater aquifer, abnormally pressured zone, or a thief zone. The proposed regulations do not specify when intermediate casing is necessary. They should require the installation of intermediate casing as a transition from surface casing to production casing if freshwater

aquifers, abnormally pressured zones or lost circulation zones are located below the surface casing and above the hydrocarbon zones. Such intermediate casing should be run from the surface of the well to a depth above the hydrocarbon zone intended for production. The integrity of the casing shoe should be validated by a Formation Integrity Test before drilling out the production interval. See 20 Alaska Admin. Code 25.030.

The intermediate casing must be cemented with sufficient cement to fill the annular space from the casing shoe to the surface, unless the operator can demonstrate that the depth of intermediate casing makes it technically infeasible to circulate cement all the way to the surface. In that event, the casing shall be cemented from the shoe to a point at least 600 feet above all significant hydrocarbon and abnormal pressure zones. See 16 Tex. Admin. Code 3.13(b)(3)(A).

Because production casing is used to isolate hydrocarbon zones and contain formation pressures, well operators must ensure that its integrity is maintained against the fracture pressure and stimulation treatments to which it is exposed. Accordingly, the regulations should prohibit the use of surface or intermediate casing as production casing. Further, production casing most effectively protects groundwater when it is cemented to a point at least 600 feet above the uppermost producible hydrocarbon zone. See 16 Tex. Admin. Code 3.13(b)(4)(A). When production casing is not run to the surface, there should be at least 100 feet of overlap between the production string and the next largest casing string. This overlap should be tested with a fluid entry test to assure a competent seal. See Cal. Code Regs. tit. 14 § 1722.3(d).

§ 78.84. Casing Standards

The casing strings in oil and gas wells are subject to elevated temperatures, pressures, erosion, corrosion, and other stresses that reduce the capacity of the casing to protect fresh groundwater from contaminants. Accordingly, the EQB should remove provision § 78.84(c) and replace it with a requirement that all surface and intermediate casing be new pipe. The regulations also should explicitly require that all casing be of sufficient quality to prevent any migration of oil, gas or water from one geological horizon to another throughout installation, cementing, drilling, and production. Specifically, in addition to the proposed revisions of this section, the regulations should provide:

(1) All casing materials shall be designed and tested to ensure that they have tensile strength and other properties sufficient to withstand collapse, bursting, bending, buckling, corrosion, erosion, and all other stresses expected during the entire lifetime of the well. Providing this level of protection may require the use of coated piping or thicker-walled or other higher-grade piping with a sufficient corrosive allowance for local conditions. See API Spec 5CT Specification for Casing and Tubing [hereinafter API Spec 5CT].

(2) All casing and couplers shall be manufactured, labeled, inspected and tested at least to the minimum specifications defined in API Spec 5CT; API Spec 5B Specification for Threading, Gauging and Thread Inspection of Casing, Tubing and Line Pipe Threads; API RP 5C5 Recommended Practice on Procedures for Testing Casing and Tubing Connections.

(3) Casing shall be transported, stored, and handled in accordance with API RP 5C1 Recommended Practice for Care and Use of Casing and Tubing.

(4) The performance properties of all casing used shall meet or exceed the standards in API TR 5C3 Technical Report On Equations And Calculations For Casing, Tubing, And Line Pipe Used As Casing Or Tubing; And Performance Properties Tables For Casing And Tubing.

§ 78.85. Cement Standards

We applaud the adoption of the ASTM International standards for cement quality. In response to the EQB's request for comments on DEP's authority to set more stringent standards if needed for pollution prevention, we recommend that the regulations empower DEP to require a better quality cement when local conditions warrant. Harvey Report at 6 (recommendation 5); see 16 Tex. Admin. Code § 3.13(b)(2)(C)(iv) (2010). Recommendation 5 of the Harvey Report also addresses the EQB's request for comments on the concept of creating a zone of critical cement and on the idea of establishing quantitative temperature limits for water used in cement mixing.

The regulations should require that the cement type selected be appropriate for the well conditions encountered, including temperature, pressure, fluids, and geologic conditions. The cement must be designed to maintain required compressive and bonding strength throughout the life of the well in order to prevent the propagation of fluids through the cement. In designing and testing the slurry, the well operator should follow sound engineering practices as defined in API Spec 10A Specifications for Cements and Materials for Well Cementing, API Spec 10B-2 Recommended Practice for Testing Well Cements, and API 65-2 Recommended Practice for Isolating Potential Flow Zones During Well Construction, § 4.7 and the documents referred to therein.

The cement must be prepared in the way that best minimizes free water content. See N.Y. Guidance 1757 at ¶ 9. Free water separation from the slurry must be no more than 4 millimeters per 250 millimeters of cement. See Wy. Rules & Regs. Oil Gen. ch. 3 r. 22(a)(ii). The water used in the slurry must be of adequate quality so as not to degrade its setting properties. See Ala. Admin. Code 4000-1-4.09(2)(b). Accordingly, the regulations should require testing of the cement water temperature and pH. See N.Y. Guidance 1757 at ¶ 8.

A wait time of eight hours and a compressive strength of 350 psi are insufficient thresholds for permitting the cement to be disturbed. Instead, best management practices require the operator to allow the cement to harden for at least 24 hours and to achieve a compressive strength of at least 500 psi before drilling out the cement. Additionally, a Formation Integrity Test must be completed and a Cement Evaluation Tool and/or Cement Bond Log should also be run to verify the integrity of the bond around the cemented casing before perforating the casing, commencing further drilling or otherwise disturbing the cement. The operator should be required to collect and submit to DEP, in addition to the data identified for collection in the Proposed Rulemaking: caliper log data; cement evaluation tool and cement bond log data; and the results of any casing pressure tests or casing-annulus pressure tests, including date, duration, pressure and percent bleed-off. See Cal. Code Regs. tit. 14 § 1724. The recorded data should be submitted to the DEP electronically with industry appropriate software. See API RP 65-2, § 4.9.7.

§ 78.89. Gas Migration Response

The regulation should affirm generally that a well operator shall not continue drilling into a hydrocarbon-bearing zone or running production casing after receiving any indication that there is a defect in any casing or in the primary cement job until the defect is repaired. See Ala. Admin. Code 400-1-4.09(3); Ut. Admin. Code r. 649-3-9(2); Alberta Energy Resource Conservation Board Directive #9 § 3.1(b), available at http://www.ercb.ca/docs/documents/directives/draft_directive008.pdf

CRGRC thanks the EQB for this opportunity to comment on the Proposed Rulemaking. We wish to underscore the need to institute regulations that are maximally protective of public health, and safety and of the environment. Where industry's best management practices do not meet this quality test, CRGRC feels it is imperative to strengthen the regulations above those set by industry. That is, adopt the recommendations in the Harvey Report and the additional recommendations provided by Earthjustice. To quote Earthjustice, which has put the matter succinctly and powerfully, "By doing so, the Board [EQB] can transform Chapter 78's outdated regulatory scheme—which has resulted in repeated well failures and tragic contamination of drinking water supplies—into a model for the nation."

Sincerely,

Anne Harris Katz

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Member of the Board

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The Manitoba Oil and Gas Act C.C.S.M. c. 034, Drilling and Production Regulations § 41.1(c); The Newfoundland and Labrador Petroleum and Natural Gas Act O.C. 96-225, Petroleum Drilling Regulations § 47.2; Regulation Respecting Petroleum, Natural Gas & Underground Reservoirs, (Quebec) O.C. 1539-88 § 27.

(4) A valid Formation Integrity Test must be completed to validate the integrity of the casing shoe and must be completed at the equivalent mud weight, leak-off or fracture pressure specified in the permit to drill. See 20 Alaska Admin. Code 25.030(f).

Subsections 78.83(b) and (c) should be clear that the diameter of the drilled hole must be large enough (i) to run centralizers between each casing string, (ii) to allow complete circulation of cement, and (iii) to obtain a uniformly concentric cement bond in the annulus of at least one inch in thickness. See Kan. Admin. Regs. § 82-3-106(d); NY Guidance 1757 at ¶ 1; API RP 65-2. The centralizers must be spaced sufficiently to ensure adequate room for cement to pass evenly throughout the cased interval. See Wy. Rules & Regs. Oil Gen. ch. 3 r. 22(e)(iii). We recommend that casing be centralized in accordance with API RP Spec 10D Specification for Bow-Spring Casing Centralizers and API RP 10D-2 Recommended Practice for Centralizer Placement and Stop Collar Testing, standards that already have been adopted in Texas. 16 Tex. Admin. Code 3.13(a). If the EQB elects not to adopt to API standards, the regulations should require placement of centralizers at least at the top of the casing, at the bottom, and in between at intervals of no more than 120 feet. See NY Guidance 1757 at ¶ 5.

The existing 50-foot buffer in subsection 78.83(c) is insufficient to ensure the complete isolation of vulnerable underground aquifers. In order to properly protect groundwater sources from contamination, the surface casing must be set and permanently cemented into an impervious formation or consolidated zone that is at least 110 feet below the deepest freshwater aquifer. See Mich. Admin. Code r. 299.2359 (1); Wy. Rules & Regs. Oil Gen. ch. 3 r. 22(a)(i). If an unanticipated freshwater aquifer is encountered

after setting the surface casing, the regulations should require the well operator to isolate the aquifer by stage cementing the intermediate and/or production string with a solid cement plug extending from 50 feet below each fresh water aquifer to 50 feet above said fresh water aquifer. See 2 Colo. Code Regs § 404-1:317(g). The well operator also should notify DEP of the problem within 24 hours, see 165 Okla. Admin. Code 10-3-4(c)(7)(I), and should cease drilling until it receives DEP approval to continue. See Alberta Energy Resource Conservation Board Directive #8 § 5.3, available at http://www.ercb.ca/docs/documents/directives/draft_directive008.pdf.

§ 78.83a. Casing and Cementing Plan

An effective casing and cementing plan requires the well operator to submit a narrative explanation detailing the rationale for the casing and cementing program that is submitted to DEP. See British Columbia Petroleum & Natural Gas Act, B.C. Reg. 362/98, Drilling and Production Regulation 35(1)(e). The regulations should specifically require that the plan, together with all supporting data, be submitted to DEP for approval, maintained for public review in DEP files, and be available on-site for any authorized inspector to review at all times.

§ 78.83c. Intermediate and Production Casing

Intermediate casing provides an additional protective barrier when a well passes through a freshwater aquifer, abnormally pressured zone, or a thief zone. The proposed regulations do not specify when intermediate casing is necessary. They should require the installation of intermediate casing as a transition from surface casing to production casing if freshwater aquifers, abnormally pressured zones or lost circulation zones are located below the surface casing and above the hydrocarbon zones. Such intermediate casing should be run from the surface of the well to a depth above the hydrocarbon zone intended for production. The integrity of the casing shoe should be validated by a Formation Integrity Test before drilling out the production interval. See 20 Alaska Admin. Code 25.030.

The intermediate casing must be cemented with sufficient cement to fill the annular space from the casing shoe to the surface, unless the operator can demonstrate that the depth of intermediate casing makes it technically infeasible to circulate cement all the way to the surface. In that event, the casing shall be cemented from the shoe to a point at least 600 feet above all significant hydrocarbon and abnormal pressure zones. See 16 Tex. Admin. Code 3.13(b)(3)(A).

Because production casing is used to isolate hydrocarbon zones and contain formation pressures, well operators must ensure that its integrity is maintained against the fracture pressure and stimulation treatments to which it is exposed. Accordingly, the regulations should prohibit the use of surface or intermediate casing as production casing. Further, production casing most effectively protects

groundwater when it is cemented to a point at least 600 feet above the uppermost producible hydrocarbon zone. See 16 Tex. Admin. Code 3.13(b)(4)(A). When production casing is not run to the surface, there should be at least 100 feet of overlap between the production string and the next largest casing string. This overlap should be tested with a fluid entry test to assure a competent seal. See Cal. Code Regs. tit. 14 § 1722.3(d).

§ 78.84. Casing Standards

The casing strings in oil and gas wells are subject to elevated temperatures, pressures, erosion, corrosion, and other stresses that reduce the capacity of the casing to protect fresh groundwater from contaminants. Accordingly, the EQB should remove provision § 78.84(c) and replace it with a requirement that all surface and intermediate casing be new pipe. The regulations also should explicitly require that all casing be of sufficient quality to prevent any migration of oil, gas or water from one geological horizon to another throughout installation, cementing, drilling, and production. Specifically, in addition to the proposed revisions of this section, the regulations should provide:

- (1) All casing materials shall be designed and tested to ensure that they have tensile strength and other properties sufficient to withstand collapse, bursting, bending, buckling, corrosion, erosion, and all other stresses expected during the entire lifetime of the well. Providing this level of protection may require the use of coated piping or thicker-walled or other higher-grade piping with a sufficient corrosive allowance for local conditions. See API Spec 5CT Specification for Casing and Tubing [hereinafter API Spec 5CT].
- (2) All casing and couplers shall be manufactured, labeled, inspected and tested at least to the minimum specifications defined in API Spec 5CT; API Spec 5B Specification for Threading, Gauging and Thread Inspection of Casing, Tubing and Line Pipe Threads; API RP 5C5 Recommended Practice on Procedures for Testing Casing and Tubing Connections.
- (3) Casing shall be transported, stored, and handled in accordance with API RP 5C1 Recommended Practice for Care and Use of Casing and Tubing.
- (4) The performance properties of all casing used shall meet or exceed the standards in API TR 5C3 Technical Report On Equations And Calculations For Casing, Tubing, And Line Pipe Used As Casing Or Tubing; And Performance Properties Tables For Casing And Tubing.

§ 78.85. Cement Standards

We applaud the adoption of the ASTM International standards for cement quality. In response to the EQB's request for comments on DEP's authority to set more stringent standards if needed for pollution prevention, we recommend that the regulations empower DEP to require a better quality cement when local conditions warrant. Harvey Report at 6 (recommendation 5); see 16 Tex. Admin. Code § 3.13(b)(2)(C)(iv) (2010). Recommendation 5 of the Harvey Report also addresses the EQB's request for comments on the concept of creating a zone of critical cement and on the idea of establishing quantitative temperature limits for water used in cement mixing.

The regulations should require that the cement type selected be appropriate for the well conditions encountered, including temperature, pressure, fluids, and geologic conditions. The cement must be designed to maintain required compressive and bonding strength throughout the life of the well in order to prevent the propagation of fluids through the cement. In designing and testing the slurry, the well operator should follow sound engineering practices as defined in API Spec 10A Specifications for Cements and Materials for Well Cementing, API Spec 10B-2 Recommended Practice for Testing Well Cements, and API 65-2 Recommended Practice for Isolating Potential Flow Zones During Well Construction, § 4.7 and the documents referred to therein.

The cement must be prepared in the way that best minimizes free water content. See N.Y. Guidance 1757 at ¶ 9. Free water separation from the slurry must be no more than 4 millimeters per 250 millimeters of cement. See Wy. Rules & Regs. Oil Gen. ch. 3 r. 22(a)(ii). The water used in the slurry must be of adequate quality so as not to degrade its setting properties. See Ala. Admin. Code 4000-1-4.09(2)(b). Accordingly, the regulations should require testing of the cement water temperature and pH. See N.Y. Guidance 1757 at ¶ 8.

A wait time of eight hours and a compressive strength of 350 psi are insufficient thresholds for permitting the cement to be disturbed. Instead, best management practices require the operator to allow the cement to harden for at least 24 hours and to achieve a compressive strength of at least 500 psi before drilling out the cement. Additionally, a Formation Integrity Test must be completed and a Cement Evaluation Tool and/or Cement Bond Log should also be run to verify the integrity of the bond around the cemented casing before perforating the casing, commencing further drilling or otherwise disturbing the cement. The operator should be required to collect and submit to DEP, in addition to the data identified for collection in the Proposed Rulemaking: caliper log data; cement evaluation tool and cement bond log data; and the results of any casing pressure tests or casing-annulus pressure tests, including date, duration, pressure and percent bleed-off. See Cal. Code Regs. tit. 14 § 1724. The recorded data should be submitted to the DEP electronically with industry appropriate software. See API RP 65-2, § 4.9.7.

§ 78.89. Gas Migration Response

The regulation should affirm generally that a well operator shall not continue drilling into a hydrocarbon-bearing zone or running production casing after receiving any indication that there is a defect in any casing or in the primary cement job until the defect is repaired. See Ala. Admin. Code 400-1-4.09(3); Ut. Admin. Code r. 649-3-9(2); Alberta Energy Resource Conservation Board Directive #9 § 3.1(b), available at

http://www.ercb.ca/docs/documents/directives/draft_directive008.pdf

CRGRC thanks the EQB for this opportunity to comment on the Proposed Rulemaking. We wish to underscore the need to institute regulations that are maximally protective of public health, and safety and of the environment. Where industry's best management practices do not meet this quality test, CRGRC feels it is imperative to strengthen the regulations above those set by industry. That is, adopt the recommendations in the Harvey Report and the additional recommendations provided by Earthjustice. To quote Earthjustice, which has put the matter succinctly and powerfully, "By doing so, the Board [EQB] can transform Chapter 78's outdated regulatory scheme—which has resulted in repeated well failures and tragic contamination of drinking water supplies—into a model for the nation."

Sincerely,

Anne Harris Katz

Anne Harris Katz

Member of the Board

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RECEIVED

AUG 17 2010

INDEPENDENT REGULATORY
REVIEW COMMISSION

From: Anne Harris Katz [katzah@verizon.net]
Sent: Monday, August 09, 2010 11:01 PM
To: EP, RegComments
Subject: Comments on Proposed Rulemaking, 25 Pa. Code Ch. 78 (Oil and Gas Wells) - Coalition for Responsible Growth & Resource Conservation (CRGRC) - (amended)
Attachments: Letter CRGRC to DEP (EQB) - Ch 78 proposed rulemaking 8-9-10 (electronic signature).pdf; ATT00002..htm

Copied below and attached as a pdf is an amended letter from the Coalition for Responsible Growth & Resource Conservation (CRGRC) commenting on Proposed Rulemaking, 25 Pa. Code Ch. 78 (Oil and Gas Wells). The letter sent earlier today was mis-addressed to the Environmental Hearing Board; this letter is addressed to the Environmental Quality Board.

Please enter this submission into the official record.

=====
Anne Harris Katz
Member of the Board & Secretary

Coalition for Responsible Growth
& Resource Conservation
(CRGRC)

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