15A NCAC 05H .XX17 PERMANENT WELL CLOSURE REQUIREMENTS

(a) The permittee shall plug and abandon all lost or dry holes, any wells incapable of production, and any wells identified by the Department as an environmental impact on air, water, soil or biological resources or impacting health and safety. In addition to the requirements detailed within paragraph (a)(1) through (a)(4) and paragraphs (b) through (j) ~~all of which apply to plugging and abandonment activities~~, the permittee shall ensure that plugging and abandonment activities meet the standards delineated in API Recommended Practice 51-R "Environmental Protection for Onshore Oil and Gas Production Operations and Leases," which is incorporated by reference, including subsequent amendments and editions. This document, published by API, may be viewed online at no charge at http://publications.api.org/default.aspx ~~-~~or may be purchased at a cost of fifty two dollars ($52.00) at http://www.techstreet.com/api/products/1633286 or by mail at Techstreet, 3916 Ranchero Drive, Ann Arbor, MI 48108.

(1) The permittee shall complete and submit Form 001, Notice of Intent to Plug, to the Department for approval prior to commencement of all plugging and abandonment operations, replugging, or to plug-back a formation. The permittee shall include with its filed Form 001:

(i) A fee in accordance with §113-395(c);

(ii) Wellbore diagrams depicting the current well configuration; and

(iii) Diagrams depicting the proposed well configuration with cement plugs.

(2) The permittee shall provide notice of plugging and abandonment operations to any surface owner(s) of the property on which the well has been constructed 30 days prior to commencement of operations pursuant to §113-420(b);

(3) The permittee shall notify the Department 72 hours prior to commencement of plugging operations for all existing wells and eight hours for lost and dry holes; and

(4) The permittee shall plug and abandon lost and dry holes prior to releasing the drilling rig from the well pad.

(b) ~~The permittee shall not place in any wellbore any non~~Non-drillable material that would prevent re-entry of a well shall not be placed in any wellbore.

(c) ~~The permittee shall not place in any wellbore any trash~~ Trash or refuse shall not be placed in any wellbore during plugging and abandonment operations.

(d) ~~The permittee shall not remove conductor~~ Conductor casing or surface casing shall not be removed from any wellbore during plugging and abandonment operations.

(e) If intermediate casing has been installed in accordance with Section .XXX8 (well installation) paragraph (k)(1), ~~then during the plugging and abandonment operations the permittee shall either remove the~~ the non-cemented section shall be removed ~~of the intermediate casing~~ from the wellbore or perforated ~~the intermediate casing~~ at a depth required by the Department and cement placed ~~cement~~ into the annulus. Cement placed into the annulus shall be returned to the surface.

Comment [AP1]: Define? Is this different than "any wells incapable of production?"

Ryan: "Dry hole" means any well that does not produce oil or gas in commercial quantities
"Lost hole" no definition available from API or OSHA.
Ohio uses "lost hole" to identify a well containing an unrecoverable radioactive source or a well that could not be completed.

Comment [AP2]: Question: should this be revised to be "this Rule?"

Comment [RC3]: [JLR3]: We should specify what this notice should look like – E.g., Said notice shall include the operator's name, the well number, the mailing address for the affected property, the proposed date on which the plugging operations will commence, etc.

Ryan: The details for the notice are outlined in the statute. Should we insert the statutory language?

The notice, at a minimum, shall include all of the following:
(1) A description of the exploration or development plan, including, but not limited to (i) the proposed locations of any roads, drill pads, pipeline routes, and other alterations to the surface estate and (ii) the proposed date on or after which the proposed alterations will begin.
(2) An offer of the oil and gas developer or operator to consult with the surface owner to review and discuss the location of the proposed alterations.
(3) The name, address, telephone number, and title of a contact person employed by or representing the oil or gas developer or operator who the surface owner may contact following the receipt of notice concerning the location of the proposed alterations.

Comment [AP4]: Define?

Comment [AP5]: I think this is the same language from other well construction rules. Double-check.

Ryan: If intermediate casing is installed to isolate a freshwater zone, the casing string shall be cemented from bottom to top, ensuring the one-inch annular space is filled by the return of cement to the surface (copied from well construction rule).

(f) ~~The permittee shall either remove the non~~Non-cemented sections of the production casing shall be removed from the wellbore or perforated ~~the production casing~~ at a depth(s) required by the Department and ~~place~~ cement placed into the annulus.

(g) All pits or tanks utilized during well plugging and abandonment operations shall conform to 15A NCAC 05H .XXX4 (construction requirements for waste management infrastructure).

(h) ~~The permittee shall place cement~~ Cement or mechanical bridge plugs shall be placed within the wellbore to isolate hydrocarbon bearing zones, prevent migration of fluids in the wellbore, protect freshwater aquifers, and prevent surface water from entering the wellbore.

(1) All cement used to plug a well shall conform to Section .XXX7 (cement standards – well construction rule);

(2) Cement plugs shall be placed using a circulation method through tubing, casing, or drill pipe;

(3) All intervals between the cement and mechanical bridge plugs shall be filled with a bentonite-based mud that has a minimum weight of nine and one half pounds per gallon;

(4) Vertical wellbores shall have cement plugs placed in the following intervals:

(i) From either the total depth, or a minimum of 50 feet below the base of the lowest hydrocarbon bearing zone penetrated, to a minimum of 100 feet above the top of the lowest hydrocarbon bearing zone;

(ii) From a minimum of 50 feet below to a minimum of 100 feet above each succeeding hydrocarbon bearing or freshwater zone, not isolated by intermediate or surface casing;

(iii) From a minimum of 100 feet below to a minimum of 100 feet above the base of intermediate and surface casing strings;

(iv) From a minimum of 200 feet below ground elevation to three feet below ground elevation;

(v) All casing remaining in the wellbore shall be cut off three feet below ground elevation; and

(vi) The top of the wellbore shall be sealed with a steel plate welded in place and the API number for the well shall be identifiable on the steel plate.

(5) Horizontal wellbores shall have cement plugs placed in accordance with paragraph (h)(4)(i) to (h)(4)(vi) with the exception that the bottom plug, as outlined in paragraph (h)(4)(i), shall be placed at the depth of the well curve kick-off point and extend above that point a minimum of 200 feet; and

(6) If mechanical bridge plugs are used, the plug shall be set immediately above each zone identified in paragraph (h)(4)(i) to (h)(4)(vi) and covered with a minimum of 50 feet of cement.

(h) ~~The permittee shall fill all~~ All openings on or around the rig or drilling operation~~s~~ shall be filled ~~that have been created by the permittee~~ with bentonite or cement to a depth of three feet below ground surface, and then filled to the surface with soil.

Comment [AP6]: Do we need a sentence: "Cement placed in to the annulus shall be returned to the surface."

Comment [AP7]: Needs a hyphen

(i) ~~The permittee shall disconnect all~~ All gathering lines shall be disconnected from the wellhead.

(j) The permittee shall complete and submit Form 002, Well Plugging Report, to the Department within 90 days of cessation of activities indicating the well has been plugged and abandoned. The permittee shall attach to Form 002 a wellbore diagram depicting the cement plugs that were set, the casing remaining in the wellbore, wireline logs, cementing tickets, any other job summaries from plugging contractors, and any site or facility maps as required in paragraph (i)(5) of this section.

History Note: *Authority*
Eff.

15A NCAC 05H .XX18 TEMPORARY WELL CLOSURE REQUIREMENTS

(a) Wells that are completed according to Section 0XX8 (well installation), are equipped with a wellhead according to Section XX11 (wellhead standards), and are capable of production may be temporarily closed and assigned a well status of shut-in. The permittee shall ensure that a shut-in well ~~be~~ is isolated from the atmosphere by closing the master valve.

(1) The permittee shall complete and submit Form 003, Temporary Abandoned Well Status, to the Department for approval;

(2) Shut-in status is valid for a period of one year, with an annual renewal required if the permittee desires to maintain shut-in status beyond one year. A maximum of three renewal periods may be authorized before the well shall be placed into production or temporarily abandoned;

(3) A variance may be granted by the Department to extend the shut-in status beyond three renewal periods for reasons such as:

(i) Inadequate infrastructure development; or

(ii) Sub-economic producing conditions.

(4) The Department shall approve a well shut-in if:

(i) The permittee provides a plan to the Department outlining the future utilization of the well;

(ii) The wellhead and well pad meet the requirements of Section .XX11 (Wellhead Requirements) and Section .XX12 (Well Maintenance and Site Security);

(iii) The permittee commits to monitor the integrity of the well on an annual basis and report the inspection results to the Department by submitting Form 004, Notice of Continued Temporary Abandonment Status; and

(iv) The permittee maintains bonding requirements until the well is permanently plugged and abandoned.

Comment [AP8]: Define?

Ryan: "Wireline log" means the recording of information about subsurface geologic formations.

Comment [AP9]: (h)(5) of this rule?

Ryan: I forgot to strike "and any site or facility maps as required in paragraph (i)(5) of this section" after updating paragraph (i) from the September 5th AOG meeting.

Comment [RC10]: [JLR6]: Existing form or are we needing to create them? Shouldn't we indicate what should be on the form?
Ryan Channell: This is not an existing form. I'm just identify the needed forms. Other states reference various forms throughout the rules but the permittee doesn't know the detail of required information being requested by the regulatory agency until reviewing the form.

Comment [AP11]: Different than shut-in? See title of Form

Comment [AP12]: Review all variance paragraphs once authority and language identified.

Comment [RC13]: Paragraph 3 added to address variance request.

(5) If the permittee fails to maintain all of the criteria outlined in paragraphs (~~3~~4)(i) through (~~3~~4)(iv), the Department may require the permittee, at the permittee's discretion to either put the well into production or plug and abandon the well.

(b) Wells that are completed according to Section XXX8 (well installation) but are not equipped with a wellhead according to Section XX11 (wellhead standards) and are capable of production may be temporarily abandoned.

(1) Wells shall be temporarily abandoned according to section .XX17 paragraph (h)(4)(i) to paragraph (h)(4)(vi) for vertical wellbores and paragraph (h)(5) for horizontal wellbores;

(2) The permittee shall complete and submit Form 003, Temporary Abandoned Well Status, to the Department for approval;

(3) Temporary abandonment is valid for a period of five years, with a maximum of one renewal period authorized before the well shall be placed into production or permanently plugged and abandoned; and

(4) The Department shall approve the temporary abandonment of a well if:

(i) The permittee provides a plan to the Department outlining the future utilization of the well;

(ii) The permittee provides data showing that significant reserves remain in place and a commitment from the permittee that it plans to produce the well;

(iii) The well pad meets the requirements of Section .XX12 (Well Maintenance and Site Security);

(iv) The permittee commits to monitoring the integrity of the well on an annual basis and report the inspection results to the Department by submitting Form 004, Notice of Continued Temporary Abandonment Status;

(v) The permittee maintains bonding requirements until the well is permanently plugged and abandoned.

(f) The permittee shall complete and submit Form 005, Request to Commence Production, to the Department for approval prior to producing from a well that has been shut-in or temporarily abandoned.

Comment [RC14]: **[JLR10]**: Again, forms – do we need to somewhere state what is on them. And for this one do we need to add requirement that the Department shall approve the request if certain criteria are met? Or is this "Request to Commence Production" captured elsewhere in our regulations?

History Note: *Authority*
Eff.