March 12, 2025

VIA E-MAIL (kerry.adkins@dnr.ohio.gov)

Kerry Adkins, Rules Coordinator
Ohio Department of Natural Resources, Division of Oil & Gas Resources Management
2045 Morse Road
Columbus, Ohio 43229

Re: Comments of the Ohio Oil and Gas Association on ODNR-DOGRM's Amended Draft Rules to the Plugging of Wells (OAC 1501:9-11)

Dear Mr. Adkins:

On October 15, 2024, the Ohio Department of Natural Resources, Division of Oil & Gas Resources Management ("DOGRM" or the "Division") notified interested parties of the Division's proposed amendments to the rules governing Plugging of Wells (OAC 1501:9-11) (the "Proposed Rules"). The Ohio Oil & Gas Association ("Association" or "OOGA") provided feedback in response to draft rules on November 26, 2024. DOGRM then released amended draft rules to interested parties on February 24, 2025, and requested additional feedback. The Ohio Oil & Gas Association ("Association" or "OOGA") is pleased to provide the following comments on the Proposed Rules.

The Association is one of the largest and most active state-based oil and natural gas associations in the United States and has been the representative of Ohio's oil and gas industry since 1947. OOGA's members are involved in all aspects of the exploration, development, production and marketing of crude oil and natural gas resources in Ohio. The Association's members often rely on OOGA as their primary source of information on industry trends, activities, tax changes, legislation, and regulatory issues. OOGA frequently participates in federal and state regulatory actions affecting the oil and gas industry.

In response to the Divisions notification received on February 24, 2025 OOGA respectfully submits the following specific comments on the amended draft rules to 1501:9-11:

1501:9-11-01 "Definitions"

- In section (N), OOGA recommends adding "if known" in between "all information" and "set forth" due to potential unforeseen and unexpected challenges that arise during a plugging operation.

- In section (N)(7), OOGA recommends adding “known” between “any” and “wellbore” due to the uncertainty of what wellbore obstructions can be found down hole.

- In section (N)(10), the Association recommends removing “ and proposed volume in barrels” because volume can also be measure by sacks.

1501:9-11-02 “Permit to plug or plug back”

- As this seems separate from a plug-back permit referenced in (A)(1), the intent is unclear. Is this a separate requirement from 9-11-05(A)? Suggest changing “plugback plan” (considering its specific usage) to something not requiring a specific form such as “communicate plugback procedure”. The Association would like the Division to clarify the need for the addition of (A)(4). Options (1), (2), and (3) are appropriate options for plugging and plug backs.

- Section (H) states that a permit to plug or plug back is not transferable. The Association recommends making permits transferable.

1501:9-11-03 “Objective and methods”

- In section (A)(2), OOGA recommends removing this option due to the lack of clarity of the language such as “insufficient cement placement” and the potential unknown costs of the additional testing. This section is also addressed in the plugging plan which makes this addition unnecessary.

- In Section (A)(4)(a), “reached a minimum compressive strength of 500 psi” should be changed to a number lesser than 500 psi to create a more realistic standard for cement strength.

- While we appreciate the Division removing (A)(4)(b), section (A)(5) still needs to be stricken because current regulations have proven adequate for Ohio geology when properly applied rather than an API Recommended Practice, which requirements may have no application to our circumstances.

1501:9-11-04 “Notification and supervision”

- In section (C), OOGA recommends striking “prior to commencing plugging.” We are unaware of any issues with how this is handled currently.

- Regarding section (E) OOGA recommends allowing a producer to plug an orphan well without having to get prior written permission under 9-11-(E) when the inspector cannot be there.

- The Association recommends the following language: “The chief may grant ~~written~~ permission to a person to commence or continue plugging operations when the applicable inspector is unable to be present in accordance with the provisions in sections 1509.13 and 1509.14 of the Revised Code. When the applicable inspector is unable to be present to witness plugging operations at an orphan well, a person plugging the orphan well may plug the well so long as he notifies the inspector that he plans to do so and, following plugging operations, completes the required form prescribed by the chief indicating that the well has been plugged ~~will request permission of the chief, on a form prescribed by the chief, to plug the well~~ in compliance with the plugging plan, Chapter 1509 of the Revised Code, and all applicable rules.

1501:9-11-05 “Plugging a lost or dry hole and plugging mouse or rat holes”

- In section (F), for horizontal wells, is there any concern with a longer timeframe for plugging mouseholes? Maybe 14 days. Generally, there is a lot of activity after a rig moves out and ensuring they are plugged within 7 days could be problematic.

1501:9-11-07 “Materials”

- OOGA recommends deleting both the last sentence of (D) and all of (D)(1). We know of no sufficient justification for including either of these provisions in the current rules.

1501:9-11-08 “Plugging with cement”

- Amend section (B)(2) as follows: “(B)(2) When placing the bottom plug in a vertical or directional wellbore, the person has to place cement from the bottom of the lowest interval tested or produced to a minimum of ~~four~~ two hundred feet above the top of the top perforation. ~~lowest interval tested or produced~~.”

  This provision adds costs with no technical benefits to the well.

- In section (B)(4), the Association would like to know what depth the top of the plug is.

- The Association recommends removing section (H)(1). The concern is in areas where there is H2S, or other corrosive causation, the casing can become scaly, brittle, corroded, etc. (sometimes for a hundred feet or more and have no structural integrity). In these instances, it is best to place plugs through tubing, when it is in the well and has integrity.

- In section (H) OOGA recommends replacing the draft language with the following: “During plugging, the person has to make a good faith effort to follow the plugging plan to achieve do all the following:”

    - Reword (1) to say, “Recover all casing and tubing which is not cemented, excluding conductor and drive pipe.”

        - Considering the time and expense associated with recovering casing, would the division allow for a plugging plan to also include an option for annular plugs (i.e. squeezing).

    - Delete all of (2) because edited (3) encompasses all things considered in (2).

    - Edit (3) with the following: (3) Remove obstructions packers or bridge plugs that inhibit the proper placement of plugging materials unless otherwise approved by the chief.

- In section (I) OOGA recommends deleting “written” when it comes to receiving approval from the chief. Or as an alternative, we suggest providing a strict timeline so any required written approval can be done quickly and efficiently.

1501:9-11-09 “Plugging with prepared clay”

- In (D) there is a repeat of the word “the” twice within the section.

The Association appreciates the opportunity to comment on the Amended Draft Rules. We look forward to continuing to work with the Division in this rulemaking effort and welcome any questions on the Association’s comments.

Sincerely,

Stephanie Kromer

Stephanie Kromer
Director of Legislative & Regulatory Affairs
Ohio Oil and Gas Association

CC: Eric Vendel, Chief of the Division of Oil and Gas Resources Management

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1501:9-11-01 **Definitions.**

As used in Chapter 1501:9-11 of the Administrative Code:

(A) "Big lime" means all geologic formations above the Silurian Rochester Shale and below the Devonian Olentangy Shale.

(B) "Brush and stone bridge" means an obstruction made of timber and stone and placed in a well bore to form an effective base for plugging material.

(C) "Casing" means lengths of steel pipe coupled or connected together to form a continuous conduit in the well bore.

(D) "Cement" means a complex, finely-ground kiln-fired calcium silicate that when mixed with water forms a slurry that will harden in the borehole to form an effective seal between the well bore and casing or tubing, or to effectively seal formations penetrated by the well bore.

(E) "Clay" means, for purposes of paragraph (H) of rule 1501:9-11-07 of the Administrative Code, any material with a particle size of 4.0 microns or less and the sand fraction will be all particles with a grain size exceeding 62.5 microns.

(F) "Drilling Mud" means any mixture of water, bentonite, and/or clay to form a slurry as commonly used in the oil and gas industry.

(G) "Fine grout" means a mix of: Portland type I, II or III cement manufactured to meet ASTM "C150/C150M/C595" standards or API "10 A Specification for Cements and Materials for Well Cementing;" water and sand that meets ASTM "C-33" standards and specifications.

(H) "Fresh water strata" means all unconsolidated rock material or sedimentary rock containing water with less than ten thousand milligrams per liter total of dissolved solids.

(I) "Identification tag" means a brass or steel plate with the initials ODNR and the plug permit number legibly braised, burned, or stamped in the surface that is affixed on top of the casing.

(J) "Long string" means any casing placed in the well bore for the purpose of protecting the producing zones.

(K) "Mechanical bridge plug" means a manufactured device designed to seal the well bore or inside diameter of any diameter of casing that may be used as a base for

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approved plugging material.

(L) "Mineable coal seam" means any underground coal seam of sufficient thickness that may be economically mined by current mining methods.

(M) "Mouse Hole or Rat Hole" means the temporary storage space that is used to store the kelly or drill pipe while adding a new section of pipe to the drill string at some rotary drilling rigs.

~~(M)~~(N) "Plugging plan" means a written plan that includes all information set forth in section 1509.13 of the Revised Code in addition to all of the following:

(1) The diameter of each uncased segment of the wellbore;

(2) The length, weight, and outer diameter of each casing string in the well;

(3) The depth to the base and top of the cemented interval of each casing string;

(4) The base and top of any mineable coal seams;

(5) The name, if known, and depth to the base and top of the deepest underground source of drinking water;

(6) The depth to the base and top of each reservoir rock, thief zone, underground mine zone, karst void, or mineable coal seam that will be plugged or isolated;

(7) Identification and description of any wellbore obstructions;

~~(7)~~(8) The proposed depth to the top and base of each plug;

~~(8)~~(9) The class or type of cement to be used to plug the well;

~~(9)~~(10) The yield, estimated number of sacks, ~~and~~ optimum slurry density, and proposed volume, in barrels, for each cement plug; and

~~(10)~~(11) If the well will be plugged with an approved clay, the total weight of clay in tons that will be emplaced across each interval plugged.

~~(N)~~(O) "Precast concrete plug" means a tapered plug constructed of concrete and precast in various sizes expressly for creating a bridge on a casing seat or ripped casing.

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~~(O)~~(P) "Prepared clay" has the same meaning as in section 1509.01 of the Revised Code.

~~(P)~~(Q) "Reservoir rock" means a rock formation that has or had any of the following:

(1) Production of oil or natural gas;

(2) Injection into it;

(3) Hydrogen sulfide; or

(4) A flow of brine.

~~(Q)~~(R) "Squeeze" means the pumping of a cement slurry under pressure through perforations to seal the back side of casing.

~~(R)~~(S) "Sulfate resistant cement" means a cement-additive blend that resists deterioration in the presence of hydrogen sulfide.

~~(S)~~(T) "Thief zone" means a geologic formation encountered into which fluids can be lost.

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1501:9-11-02 **Permit to plug or plug back.**

(A) Except as provided in rule 1501:9-11-05 of the Administrative Code, a person may plug or plug back a well only pursuant to the ~~three~~four following options:

(1) A valid permit to plug issued under section 1509.13 of the Revised Code, ~~or~~ a valid permit to plug back issued under section 1509.06 of the Revised Code, or valid permit to drill issued under section 1509.06 of the Revised Code;

(2) Division (C) of section 1509.13 of the Revised Code; or

(3) Plugging operations that are otherwise authorized by the chief in writing. The chief may authorize a person in writing to commence plugging or plug back operations without a permit if necessary to protect public health, safety, or the environment, however the person will apply for a permit to plug or plug back within five business days after receiving the chief's written authorization.

(4) A person plugging back under a valid drilling permit or under a valid permit to convert a well issued under section 1509.06 of the Revised Code will submit a plugback plan to the inspector and the inspector approve it prior to commencing plugback operations.

(B) Except as otherwise authorized in paragraph (A)(3) of this rule, a person may commence well plugging operations only if a copy of the permit to plug or the permit to plug back, all terms and conditions of the permit, and the approved plugging plan are maintained at the well site at all times plugging operations are taking place.

(C) With each application for a permit to plug a well, in addition to the information set forth in division (B) of section 1509.13 of the Revised Code, the person needs to include an affidavit attesting that the person will attempt to notify, by certified mail, regarding the person's intention to plug the well and of the issuance date and expiration date of the permit all of the following persons:

(1) The owner of the land upon which the wellhead is located;

(2) Any person that receives gas from the well pursuant to an agreement with the well owner; and

(3) The owner or lessee of any active mine that has excavations and workings as defined in section 1561.01 of the Revised Code within one hundred linear feet of any section of the well.

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(D) A person may only file an application for a permit to plug or a permit to plug back a well on a form approved by the chief. In addition to the application information prescribed in division (B) of section 1509.13 of the Revised Code, an application is not complete and will not be reviewed by the chief unless the application contains all of the following: name, title, twenty-four hour phone number, and electronic mail address of the person's emergency coordinator for the plugging operation and the name of the person's authorized representatives on location during plugging operations. If any of the information changes prior to plugging, an update ~~detailing~~detailing the changes is to be provided at the time of the twenty-four hour notification that is prescribed pursuant to paragraph (B) of rule 1501:9-11-04 of the Administrative Code.

(E) Plugging plan provisions.

(1) With each application for a permit to plug a well, a person will include a written plugging plan as defined in rule 1501:9-11-01 of the Administrative Code on a form prescribed and provided by the chief.

(2) In addition to the information set forth in paragraph (E)(1) of this rule and if the well was drilled to produce oil and gas or is associated with underground gas storage, the person also shall provide the following information:

(a) The pressure measured on the production casing and tubing;

(b) The pressure measured on the annular spaces outside the production casing; and

(c) Whether the production or annular gas contains hydrogen sulfide.

(3) With each application for a permit to plug back a well submitted under section 1509.06 of the Revised Code, a person will include a written plugging plan on a form prescribed and provided by the chief. The chief may waive some or all of the provisions of this rule.

(4) When no well construction records are available for a well and to assist the division in evaluating and approving a written plugging plan that complies with this rule, a person will do at least one of the following:

(a) ~~Log the well in a manner of the person's choosing that allows the division to evaluate the plugging plan~~Provide casing data on the well and depth to the base and top of each reservoir rock based on records for off-set

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wellbores adjusted for surface elevation or other reliable sources of formation depth information. Sources of formation depth information may include core records or published structural contour maps; or

(b) Log the well in a manner of the person's choosing that allows the division to evaluate the plugging plan.~~Provide casing data on the well and depth to the base and top of each reservoir rock based on records for off-set wellbores adjusted for surface elevation or other reliable sources of formation depth information. Sources of formation depth information may include core records or published structural contour maps.~~

(5) If production or annular gas contains hydrogen sulfide, the plan must address hydrogen sulfide control and monitoring.

(F) The division will issue the permit subject to the approved written plugging plan and in compliance with this rule. The division may issue a permit to plug or a permit to plug back a well subject to terms and conditions.

(G) The division will provide electronic notice to all underground mine owners and to the division of mineral resources management by posting applications for a permit to plug a well or to plug back a well that have been filed with the division and permits to plug or plug back that have been issued by the division on the division’s website.

(H) A permit to plug or a permit to plug back issued pursuant to sections 1509.06 and 1509.13 of the Revised Code is not transferable. A permit to plug or a permit to plug back may be reissued as a new permit to a successor person.

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1501:9-11-03 **Objective and methods.**

(A) Any proposed plugging plan or plugging activity will be designed to accomplish all of the following: isolate oil, natural gas, hydrogen sulfide, brine, water, or other fluids to the reservoir rock in which it occurs or originates; isolate mineable coal seams; and prevent movement of fluids into or between underground sources of drinking water.

(1) ~~The~~ A person plugging a well will take precautions to maintain well control, and to ensure protection of public health and safety, the environment or natural resources, and underground miner safety from the hazards that may be encountered during plugging operations.

(2) If well completion records indicate insufficient cement placement, the well has sustained annular pressure, loss of integrity, or the top of the cement of any tubulars or casing string has not been determined, the inspector may determine that additional tests are necessary prior to the placement of plugging material.

~~(2)~~(3) ~~The~~ Except as provided in this rule, a person plugging a well may use any method of emplacing cement or plugging materials that are approved by the chief including but not limited to a bullhead squeeze, bullhead, pumping through tubing, casing, or drill pipe and the following apply:. ~~No person shall emplace cement through tubulars that lack mechanical integrity.~~

(a) No person may emplace cement through tubulars that lack mechanical integrity.

~~Prior to the use of the bullhead squeeze method, integrity of the casing has been verified by testing witnessed by a division inspector;~~

(b) Prior to the use of the bullhead squeeze method, integrity of the casing has been verified by testing witnessed by an inspector.

~~(b)~~(c) ~~If such testing shows that annular isolation between casings is inadequate, the bullhead squeeze method cannot be used for bottom plug emplacement. If the test shows that annular isolation between casings is adequate, the~~The surface casing annular port valve will be open during all bullhead squeezing operations, and, if circulation occurs through the annular port, the well is to be circulated until all recoverable cement is circulated to surface; and

~~(c)~~(d) If a cement plug fails, the plug may only be placed using another method approved by the chief.

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~~(3)~~(4) ~~If casing is cut, the~~ The wellbore is to be conditioned to kill gas flow and ensure ~~an adequate~~ a bond between the plugging material and the wellbore to achieve isolation.

(a) If cement placement indicators, including well pressure, fluid density, or volumes, indicate inadequate plug placement or if a plug is set without establishing circulation, the inspector may require plug placement verification after the cement has reached a minimum compressive strength of 500 psi.

(5) All plugs are to comply with API Recommended Practice (RP) 65-3 "Wellbore Plugging and Abandonment."

(B) The chief may authorize alternate methods of plugging not specified in Chapter 1501:9-11 of the Administrative Code so long as the plugging method complies with Chapter 1509. of the Revised Code and rules adopted under it. The chief also may direct a person to install casing or a vault and a vent pipe to provide additional safety.

(C) If in production or drilling operations a wellbore becomes obstructed because of lost tools or equipment that cannot be recovered by reasonable attempts, a person will have to submit a written plugging plan that accomplishes the objectives of this rule. The plugging report will include documentation of the exact method of plugging and the equipment lost.

(D) The chief may order the immediate suspension of plugging activities if a person may cause or is causing, may engage in or is engaging in, may maintain or is maintaining a condition or activity that presents an imminent danger to underground miner safety, public health or safety, or results in or is likely to result in damage to the environment or natural resources.

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1501:9-11-04 **Notification and supervision.**

(A) A person ~~to whom a permit to plug or a permit to~~ plugging back or plugging a dry or lost hole ~~has been issued~~ may conduct plugging or plugback operations only: ~~if the person notifies the applicable division inspector to enable the inspector to be present when operations will commence.~~

(1) If plugging a dry or lost hole, the person has a valid permit to drill pursuant to section 1509.06 of the Revised Code and the person notifies the applicable inspector to enable the inspector to be present when operations commence; or

(2) If plugging back, the person has a valid plug back permit pursuant to section 1509.06 of the Revised Code and the person notifies the applicable inspector to enable the inspector to be present when operations will commence.

(B) Except as provided in paragraph (A) of this rule, a person may commence plugging only if the person notifies the applicable ~~division~~ inspector a minimum of twenty-four hours prior to commencement of plugging.

(C) If a well is located in a coal bearing township, the person will also notify the appropriate division of mineral resources management deputy mine inspector prior to commencing plugging.

(D) Except as provided in paragraph (E) of this rule, each plugging operation is to be witnessed by an ~~division~~ inspector and supervised by a representative of the person authorized to plug a well.

(E) The chief may grant ~~written~~ permission to a person to commence or continue plugging operations when the applicable inspector is unable to be present in accordance with the provisions in sections 1509.13 and 1509.14 of the Revised Code. When the applicable inspector is unable to be present to witness plugging operations at an orphan well, a person plugging the orphan well will request permission of the chief, on a form prescribed by the chief, to plug the well in compliance with the plugging plan, Chapter 1509 of the Revised Code, and all applicable rules.

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1501:9-11-05 **Plugging a lost or dry hole and plugging mouse or rat holes.**

(A) A person will commence plugging operations immediately on a dry hole or lost hole upon abandonment of the well if the permit to drill has not expired and after the chief approves a written plugging plan that complies with paragraph (E) of rule 1501:9-11-02 of the Administrative Code. However, the chief may approve an alternative written plugging plan on a dry or lost hole that complies with paragraph (E) of rule 1501:9-11-02 of the Administrative Code and that allows the well to be plugged not later than fourteen days after the day the drilling rig is moved from the well if the permit to drill the well has not expired.

(1) A lost hole is considered abandoned when the person makes the decision that completion of drilling operations for the well is not feasible.

(2) A dry hole is considered abandoned when the person makes the decision not to complete the well and the well does not satisfy the criteria for temporary inactive status designation as listed in section 1509.062 of the Revised Code or the person has not applied for or received approval of temporary inactive status.

(B) Prior to commencement of plugging operations for a dry hole or lost hole, a person has to furnish to the chief a record of the depth of the top and the base of formations penetrated during the drilling of the well; the depths where oil, gas or water were encountered; the depth of the base of the deepest underground source of drinking water; the cemented intervals; and a record of any casing present in the well. If reasonably available, the information furnished needs to include a copy of the geophysical, electrical, or mechanical log and/or the drilling contractors report. The chief will review the written plugging plan in conjunction with the information furnished. The chief will approve the plan if the plan complies with rule 1501:9-11 of the Administrative Code and the proposed plug emplacement methods and plugging materials are approved by the chief. When no records are available, the person has to make every reasonable effort to obtain sufficient formation and casing data on the well, to assist the chief or chief's representative in determining the proper plugging procedure to be incorporated. Exceptions may be granted at the discretion of the chief. This provision does not apply to paragraph (C) of rule 1501:9-11-03 of the Administrative Code.

(C) If plugging operations are commenced, a person authorized to plug a well has to proceed until plugging operations are completed, unless the chief issues an order suspending operations.

(D) A mouse hole or a rat hole will be plugged with cement or other approved plugging material from the bottom of the hole to a minimum of thirty inches below surface of the grade.

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(E) A mouse hole or a rat hole employed during drilling of a dry or lost hole will be plugged immediately after plugging the wellbore.

(F) A mouse hole or a rat hole employed during the drilling of a well for the purpose of production, extraction, or injection of fluids will be covered when not in use and will be plugged within seven calendar days after removal of drilling equipment from the well site for a horizontal well and immediately after the production casing has been cemented in the wellbore for any other well.

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1501:9-11-06 **Top-hole considerations.**

(A) No person may pull conductor casing or drive pipe from the wellbore during plugging of the well.

(B) A person has to attempt to pull un-cemented surface casing from a well prior to emplacing approved plugging material to protect underground sources of drinking water or a mineable coal seam. Prior to pulling un-cemented surface casing from a well, the person has to bail or circulate the wellbore using fresh water in a manner that removes all free crude oil and brine from inside the wellbore.

(C) When a well does not have drive pipe, conductor casing, or surface casing, the plugging plan set forth in paragraph (E) of rule 1501:9-11-02 of the Administrative Code has to protect all USDWs and provide a means of well control for completion of plugging operations. Any casing installed in the well has to be installed in accordance with the standards established in rule 1501:9-1-08 of the Administrative Code.

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1501:9-11-07 **Materials.**

(A) Wells to be plugged or plugged back with cement include all of the following:

(1) A well drilled with rotary tools;

(2) A Class II brine injection well regulated under Chapter 1509. of the Revised Code and Chapter 1501:9-3 of the Administrative Code;

(3) An enhanced recovery well regulated under Chapter 1509. of the Revised Code and Chapter 1501:9-5 of the Administrative Code;

(4) A Class III solution mining well regulated under Chapter 1501:9-7 of the Administrative Code;

(5) A well associated with underground storage of natural gas; and

(6) A well drilled to extract natural or artificial brine, or oil field waters.

(B) A person, with the approval of the chief, may plug a cable tool drilled well with either cement or approved prepared clay.

(C) Except as provided in paragraph (C) of this rule, ~~Cement~~cement used to plug a well or plug back a well may ~~only~~ be cement either:~~manufactured to meet the standards of API "10A Specification for Cements and Materials for Well Cementing" - or ASTM "C150/C150M/C595 Standard Specification for Portland Cement" or is otherwise approved by the chief in writing. The chief may disapprove or suspend use of a cement that is found not to meet the objectives of this rule.~~

(1) Manufactured to meet the standards of API "10A Specification for Cements and Materials for Well Cementing" or ASTM "C150/C150M/C595 Standard Specification for Portland Cement" and is otherwise approved by the chief in writing on the division’s website; or

(2) Approved by the chief in writing.

The chief may disapprove or suspend use of a cement that is found not to meet the objectives of this rule.

(D) A cement slurry has to attain a minimum compressive strength of five hundred pounds per square inch after twenty-four hours when tested in accordance with API standards established in "R.P. 10 B-2 Recommended Practice for Testing Well Cements." If a ~~pozzolan~~ blended cement mixture is used, pozzolanic, limestone,

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and extender materials cannot exceed fifty per cent by volume of a cement blend.

(1) The test temperature of the cement slurry has to be within ten degrees Fahrenheit of the formation equilibrium temperature of the cemented interval.

(E) A cement slurry has to be mixed in a manner that ensures consistent and optimum slurry density. Cement slurry systems are to be mixed to standards contained in commonly accepted oil and gas industry engineering handbooks that are based on tests conducted in accordance with standards found in API Specification 10A as referenced in paragraph (C) of this rule. A person may only propose to use a cement slurry system not found in a commonly accepted oil and gas industry engineering handbook, if the person provides laboratory data that defines optimum properties based upon tests conducted in accordance with API Specification 10A as referenced in paragraph (C) of this rule. The density of a cement slurry may only be based upon a laboratory free fluid separation test demonstrating an average fluid loss of no more than three milliliters per two hundred fifty milliliters of cement tested in accordance with API "RP 10 B-2 Recommended Practice for Testing Well Cement."

(F) The chief may approve the use of a fine grout that is able to attain a minimum compressive strength of five hundred pounds per square inch after twenty-four hours when tested in accordance with API standards established in "R.P. 10 B-2 Recommended Practice for Testing Well Cements" at a test temperature within ten degrees Fahrenheit of the formation equilibrium temperature of the cemented interval.

(G) A person has to ensure that the cement mix water quality and chemistry is compatible for the cement slurry design.

(H) The chief will evaluate sources of prepared clay to determine whether the clay satisfies the standards of this rule. The chief will approve prepared clay sources based upon tests demonstrating that the material has a clay content of not less than forty per cent and sand or greater size content not exceeding thirty per cent. For purposes of the evaluation, clay means the same as in rule 1501:9-11-01 of the Administrative Code. The division will collect a composite sample of material from the clay seam, stockpile, or bagged product that is deemed representative of the source material. The division will seal, label, and deliver the sample to a qualified laboratory for testing. Upon receipt of the analysis, the division will inform the person that owns the clay mining or processing operation whether the sample meets applicable standards and provide a copy of the analysis. In addition to meeting the grain size standards, the person that owns an approved clay mining or processing operation shall process the material and store the material in a dry condition for delivery. The division will maintain an updated list of approved prepared clay sources and post the list on the division's website.

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(I) A person may only place materials or substances in a wellbore that have been approved by the chief.

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1501:9-11-08 **Plugging with cement.**

(A) Unless otherwise provided in the terms or conditions of the plugging permit, this rule applies to all of the following wells:

(1) A well drilled with rotary tools;

(2) A Class II brine injection well regulated under Chapter 1509. of the Revised Code and Chapter 1501:9-3 of the Administrative Code;

(3) An enhanced recovery well regulated under Chapter 1509. of the Revised Code and Chapter 1501:9-5 of the Administrative Code;

(4) A Class III solution mining well regulated under Chapter 1501:9-7 of the Administrative Code;

(5) A well associated with underground storage of natural gas; and

(6) A well drilled to extract natural or artificial brine, or oil field waters.

(B) Plug placement intervals for a well listed under paragraph (A) of this rule are as follow:

(1) When placing the bottom plug in a well drilled horizontally, the person needs to place a mechanical bridge plug rated at a pressure greater than the determined reservoir pressure at the time of plugging. The mechanical bridge plug needs to be set above the last perforation and below the last known producing zone with competent cement behind the production casing as determined by a cement evaluation tool if the annular space behind the production casing has a sustained pressure that is below the maximum allowable annular pressure as provided in rule 1501:9-01-08 of the Administrative Code, unless otherwise approved in writing by the chief. Prior to emplacing cement on top of the mechanical bridge plug, the hole has to be loaded and the bridge plug hydrostatically tested at a surface pressure of at least five hundred psi for a period of fifteen minutes with no more than a ten-per cent deviation in pressure. If the hydrostatic test on the mechanical bridge plug fails, the person has to set a new mechanical bridge plug, unless otherwise approved in writing by the chief. After the mechanical bridge plug has been set and passed testing, the appropriate amount of cement for the interval to be plugged, as specified in the approved plugging plan, is to be placed on top of the mechanical bridge plug.

(2) When placing the bottom plug in a vertical or directional wellbore, the person

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has to place cement from the bottom of the lowest interval tested or produced to a minimum of four hundred feet above the top of the lowest interval tested or produced;

(3) Unless exceptions have been granted by the chief in writing, from a minimum of fifty feet below the base to a minimum of one hundred feet above the top of each reservoir rock to within one hundred fifty feet of the bottom of the surface casing;

(4) From a minimum of two hundred feet above the location where uncemented casing was removed;

~~(4)~~(5) From a minimum of two hundred feet below the top of the Big Lime to the top of the Big Lime~~, when plugging a well east of the updip pinch-out of the Silurian Clinton sandstone~~;

~~(5)~~(6) From a minimum of one hundred fifty feet below to a minimum of one hundred feet above the base of the surface casing;

~~(6)~~(7) If the surface casing of a cable tool well has been removed and results in a USDW being unprotected, a cement plug has to be placed from a minimum of fifty feet below the base of the underground source of drinking water to thirty inches below grade level;

~~(7)~~(8) Within the permitted area of an underground mine, a mechanical bridge plug is to be placed in the wellbore a minimum of two hundred feet below the mineable coal seam and the wellbore is to be filled with cement from the top of the mechanical bridge plug to within a minimum of thirty inches of the grade level. The person authorized to plug a well and the coal owner will make reasonable efforts to coordinate plugging to minimize any potential adverse effect to the mining operation and/or future re-plugging of the well;

~~(8)~~(9) From a minimum of one hundred feet below the grade level to thirty inches below grade level. The hole is to be left open for the chief or chief's representatives to inspect for at least three business days.

(C) For a Class III solution mining well regulated under Chapter 1509. of the Revised Code and under Chapter 1501:9-7 of the Administrative Code, a person has to: ~~place a mechanical bridge plug inside the cemented production casing as close to the base of the casing as possible. Prior to placing cement on top of the mechanical bridge plug, the person will hydrostatically test the mechanical bridge plug at five hundred psi for at least fifteen minutes with no more than a five per cent decline.~~

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~~After a successful test, the person has to place at least two hundred feet of Class A cement on top of the mechanical bridge plug. After the cement reaches a minimum compressive strength of five hundred psi, the person has to fill the production casing to surface with Class A cement~~.

(1) Submit to the chief for review shut-in salt cavern pressures and cavern fluid volumes for no less than five years or another time period specified by the chief to demonstrate that plugging the well will not result in any pressure buildup within the cavern that could adversely affect the integrity of the cavern or a plug placed in the well. The pressures and volumes are to be collected weekly at a minimum;

(2) After demonstrating that integrity of the cavern and the integrity of a plug placed in the well would not be adversely affected, place a mechanical bridge plug inside the cemented production casing as close to the base of the casing as possible. Prior to placing cement on top of the mechanical bridge plug, the person will hydrostatically test the mechanical bridge plug at five hundred psi for at least fifteen minutes with no more than a five per cent decline. After a successful test, the person has to place at least two hundred feet of Class A cement on top of the mechanical bridge plug. After the cement reaches a minimum compressive strength of five hundred psi, the person has to fill the production casing to surface with Class A cement.

(D) If a thief zone is anticipated, the person has to develop a plan to ensure proper placement of plugs and obtain approval in writing from the chief.

(E) A person will establish and sustain static conditions at the surface prior to emplacing a cement plug. The chief may grant an exception to the requirement of circulation when plugging wells with hydrogen sulfide if circulation of the well could jeopardize worker and/or public safety.

(F) Unless approved by the chief in writing, ~~No~~no person may pump cement into a well if static conditions do not exist. Unless approved by the chief in writing, ~~No~~no person may pump cement into a well that is flowing oil, gas, brine, or freshwater to the surface.

(G) If during the plugging operation a thief zone is present, a person may:

(1) Place a mechanical bridge plug in the well above the thief zone to provide a base on which to place a cement plug not less than two hundred feet in length above such a zone.

(2) Pump or place any material, including lost circulation materials, approved by

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the chief to plug off the thief zone. A person will place a cement plug, not less than two hundred feet in length above or across the thief zone and may mix additional lost circulation materials into the cement slurry, if necessary.

(H) During plugging, the person has to make a good faith effort to do all of the following: ~~recover all casing, other than conductor casing and drive pipe, which is not cemented.~~

(1) Recover all casing and tubing, other than conductor casing and drive pipe, which is not cemented;

(2) Remove obstructions in the wellbore that prevent placement and verification of plugging materials; and

(3) Remove packers or bridge plugs that inhibit the proper placement of plugging materials unless otherwise approved by the chief.

(I) If it is determined by the chief that wellbore conditions render compliance with the approved plugging plan that complies with paragraph (E) of rule 1501:9-11-02 of the Administrative Code impossible or impractical or render any provisions set forth in paragraphs (A) to (~~G~~H) of this rule impossible or impractical, the person will develop a new plan and obtain written approval from the chief.

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1501:9-11-09 **Plugging with prepared clay.**

(A) For all wells drilled with cable tools that are plugged with prepared clay, a clay slurry will be placed in the following intervals in the well bore:

(1) From total depth to a minimum of five hundred feet above the top of the lowest reservoir rock penetrated or perforated.

(2) From a minimum of fifty feet below the base of each succeeding reservoir rock formation to a minimum of two hundred feet above the top of such formation, until the plugging operation has been completed to within a minimum of one hundred feet of the bottom of the surface casing.

(3) From approximately fifty feet below the base of the fresh water strata to a minimum of thirty inches below the grade level.

(4) Within the permitted area of an underground mine, a mechanical bridge plug is to be placed in the wellbore a minimum of two hundred feet below the mineable coal seam, and the wellbore filled with cement from the top of the mechanical bridge plug to within a minimum of thirty inches below the grade level. The person authorized to plug a well and the coal owner will make reasonable efforts to coordinate plugging to minimize any potential adverse effect to the mining operation and/or future re-plugging of the well.

(B) During the plugging operation, the person is to make a good faith effort to recover all casing, other than conductor pipe, which is not cemented. When a string of casing has been withdrawn by either removing the casing above the casing seat, or by parting the casing string, an approved precast concrete plug may be lowered in place either on the casing seat or on the parted casing point to serve as a base for a prepared clay plug. If the surface casing is parted during the pulling operation, and cannot be recovered or removed, the well will be filled from the previous set plug to thirty inches below grade level with prepared clay.

(C) The chief may also direct the person to place brush and stone bridges, and/or mechanical bridges in the well bore or casings, when in the chief's judgment such bridges will be necessary to ensure that the prepared clay placed in the well remains at the point in the well where such prepared clay had been placed.

(D) If it is determined by the inspector that borehole conditions render compliance with the the plugging provisions of this rule impossible or impractical or if it is determined by the inspector that the the provisions established under this rule will not fulfill the requirements set forth under paragraph (A) of rule 1501:9-11-03 of the Administrative Code, the inspector may designate an alternate thickness and method of emplacement of the plugs to ensure compliance with paragraph (A) of

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rule 1501:9-11-03 of the Administrative Code.

(E) In order to promote enhanced recovery, including but not limited to secondary and tertiary operations, the chief or his authorized representative may direct a person to use special plugging conditions.

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1501:9-11-10 **Cutting off conductor pipe or surface casing below grade; identification tag.**

(A) When the plugging operations have been completed, a person has to cut off the remaining casing in the well to a minimum of thirty inches below the surface of the grade. The chief may grant exceptions to this rule including allowing the person to delay cutoff until all wells on a horizontal well site have been plugged.

(B) No sooner than three business days after emplacing the uppermost plug, a plate with an identification tag has to be tack-welded or attached on the top of the remaining casing. If the landowner signs a waiver, casing may be left in place, not less than thirty inches above grade, with an identification tag.

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1501:9-11-12 **Plugging report.**

(A) Any person that plugs a well has to file a plugging report with the division within thirty days on a form prescribed and provided by the chief and signed by the person or the person's authorized representative. The chief may direct a person to submit the report before thirty days. In addition to the information set forth in divisions (A) to (I) of section 1509.14 of the Revised Code for all wells plugged with cement, the owner also has to attach to the plugging report a cementing ticket prepared by the person cementing the well. In addition to the information set forth in divisions (A) to (I) of section 1509.14 of the Revised Code for all wells plugged with prepared clay, a copy of the prepared clay purchase record has to be attached to the plugging report.

(B) The plugging report described in paragraph (A) of this rule has to be signed by the person authorized to plug the well and has to include an affidavit attesting that all information included in the report and the attached tickets are true and accurate.