

**Document:** Final Rule, **Register Page Number:** 27 IR 3881

**Source:** September 1, 2004, Indiana Register, Volume 27, Number 12

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## TITLE 312 NATURAL RESOURCES COMMISSION

LSA Document #03-251(F)

### DIGEST

Amends 312 IAC 16, which governs the drilling, operation, and proper abandonment of wells drilled for oil and gas purposes, by updating the definitions and standards governing the plugging and abandoning to incorporate best management practices and including specifications for the use of oil field cements and other materials, the certification of plugging adequacy, the use of alternate materials and methods in well plugging, and quality control measures to ensure the adequacy of plugs. Amends 312 IAC 16-5-15 governing mechanical integrity standards to provide that an operator use a minimum of 300 pounds of pressure during the running of a mechanical integrity test and cause these standards to harmonize with those in 312 IAC 16-5-20. Makes numerous technical changes. Effective 30 days after filing with the secretary of state.

**312 IAC 16-1-9.5**                      **312 IAC 16-5-15**  
**312 IAC 16-1-39.5**                **312 IAC 16-5-19**  
**312 IAC 16-1-44.6**

SECTION 1. 312 IAC 16-1-9.5 IS ADDED TO READ AS FOLLOWS:

#### **312 IAC 16-1-9.5 “Completed zone” defined**

**Authority:** IC 14-37-3

**Affected:** IC 14-37

**Sec. 9.5. “Completed zone” means a geologic formation in which production, injection, gas storage, gas storage observation, or water supply was established.** (*Natural Resources Commission; 312 IAC 16-1-9.5; filed Aug 6, 2004, 12:00 p.m.: 27 IR 3881*)

SECTION 2. 312 IAC 16-1-39.5 IS ADDED TO READ AS FOLLOWS:

#### **312 IAC 16-1-39.5 “Permanent plugback” defined**

**Authority:** IC 14-37-3

**Affected:** IC 14-37

**Sec. 39.5. “Permanent plugback” means a mechanical or cement plug placed between the completed zones of an active oil or gas related well.** (*Natural Resources Commission; 312 IAC 16-1-39.5; filed Aug 6, 2004, 12:00 p.m.: 27 IR 3881*)

SECTION 3. 312 IAC 16-1-44.6 IS ADDED TO READ AS FOLLOWS:

#### **312 IAC 16-1-44.6 “Static well” defined**

**Authority:** IC 14-37-3

**Affected:** IC 14-37

**Sec. 44.6. “Static well”, for purposes of 312 IAC 16-5-19, means a well in which the liquid level in the well bore, after two (2) tests on the well performed in the presence of a division representative and conducted at least eighteen (18) hours apart using comparable acoustic measuring devices, has changed no more than the lesser of:**

**(1) ten percent (10%) of the distance between the bottom of the hole and the top of the fluid column, taken**

**from the first test; or  
(2) ninety (90) feet.**

*(Natural Resources Commission; 312 IAC 16-1-44.6; filed Aug 6, 2004, 12:00 p.m.: 27 IR 3881)*

SECTION 4. 312 IAC 16-5-15 IS AMENDED TO READ AS FOLLOWS:

**312 IAC 16-5-15 Mechanical integrity**

**Authority: IC 14-37-3**

**Affected: IC 14-37**

Sec. 15. (a) A Class II well has mechanical integrity if there is the following:

- (1) No significant leak in the casing, tubing, or packer.
- (2) No significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.

(b) One (1) of the following methods must be used to evaluate mechanical integrity under subsection (a)(1):

- (1) After an initial pressure test, monthly monitoring of annulus pressure (at a positive value) by the owner or operator to be reported to the division no less frequently than quarterly.
- (2) Pressure testing with liquid.

(c) Where pressure testing is performed under subsection (b)(2), the casing-tubing annulus above the packer must be filled with fluid and tested, with no more than a three percent (3%) pressure differential over a thirty (30) minute period, not less than once every five (5) years under the supervision of a ~~commission~~ **division** representative at a pressure of **no less than** three hundred (300) pounds per square inch.

(d) One (1) of the following methods must be used to evaluate mechanical integrity under subsection (a)(2):

- (1) The results of a temperature or noise log.
- (2) Records demonstrating the presence of cement adequate to prevent the migration of fluids in the well bore.
- (3) A radioactive tracer survey.

(e) The division director may authorize a test to demonstrate mechanical integrity other than those listed in subsections (b) and (d). The division director may authorize an alternative test only where the test reliably demonstrates the mechanical integrity of a well.

(f) In conducting and evaluating a test authorized by this section, the owner or operator and the director shall apply methods and standards generally accepted in the petroleum industry. When reporting the results of a mechanical integrity test to the director, an owner or operator shall include a description of any test and method used. When evaluating a mechanical integrity test, the division director shall review monitoring and other test data submitted since the previous evaluation. *(Natural Resources Commission; 312 IAC 16-5-15; filed Feb 23, 1998, 11:30 a.m.: 21 IR 2342; filed Aug 6, 2004, 12:00 p.m.: 27 IR 3881)*

SECTION 5. 312 IAC 16-5-19 IS AMENDED TO READ AS FOLLOWS:

**312 IAC 16-5-19 Plugging and abandoning wells**

**Authority: IC 14-37-3-6**

**Affected: IC 14-37-8**

Sec. 19. (a) Wells **for oil and gas purposes** shall be plugged in accordance with IC 14-37-8.

(b) With respect to a well for oil and gas purposes, an owner or operator ~~shall~~ **must** place ~~cement bottom~~ **bottom** plugs using ~~the pump and plug or displacement method from the bottom to the surface or must do one (1) of the following procedures:~~

(1) ~~Place~~ A cement plug from **total depth to three (3) feet below ground elevation.**

~~(A) (2) A cement plug from the shallower of total depth of fifty (50) feet below an oil or natural gas formation;~~

(B) an injection zone; or

(C) the bottom of a hole to **no less than** one hundred (100) feet above the top of the formation.

(2) Place a cement plug from fifty (50) feet below to one hundred (100) feet above a commercially mineable coal resource. Where a hole terminates less than fifty (50) feet below a commercially mineable coal resource, the cement plug shall commence at the bottom of the hole. A commission representative may require use of a mechanical plug, packer, or other suitable material where appropriate to securing **each completed zone unless the** placement of the cement plug **would require the removal of a permanent plugback and one (1) of the following:**

(3) Place an appropriate mechanical plug or packer at the top of a producing formation or injection zone and set a fifty (50) foot cement plug above the mechanical plug or packer.

(4) Where insufficient casing was set or where surface casing was not cemented to the surface, the production string of casing shall be removed from fifty (50) feet below the deepest underground source of drinking water. The owner or operator shall place a cement plug from the remaining production string of casing to three (3) feet below the surface.

(5) A dry hole that does not enter a commercially mineable coal resource may be filled with mud-laden fluid, well cuttings, pea gravel, or crushed rock from the bottom of the hole to fifty (50) feet below the deepest underground source of drinking water. The owner or operator shall place a cement plug from fifty (50) feet below the deepest underground source of drinking water to three (3) feet below the surface.

(c) Within six (6) months of abandoning a well, an owner or operator shall do the following:

(1) Clear the area of refuse and equipment.

(2) Dispose of waste fluids.

(3) Drain and fill excavations.

(4) Remove substructures.

(5) Restore the surface as nearly as practicable to its condition prior to drilling.

(d) The owner of surface rights may with consent of the owner or operator apply to the division to retain equipment, fixtures, or pits placed with respect to a well drilled for oil and gas purposes. The application shall be made on a departmental form releasing the owner or operator and its agents from responsibility for restoration of the well site, except as provided in the application.

(e) An owner or operator may apply to the commission to convert a well for oil and gas purposes otherwise to be abandoned to a fresh water well. The application shall be made on a division form and shall include the following information:

(1) The depth to which an owner or operator proposes to plug a well.

(2) Written consent by persons who hold a recorded interest at or above the elevation of the plug.

(3) A statement by the owner or owners of surface rights to release the owner or operator from an obligation to abandon the well; except as provided in the application.

The division shall authorize the conversion to a fresh water well upon a finding that the application has been properly completed and that the conversion will not violate IC 14-37 or this article.

(f) The use of bridges in plugging wells is prohibited. The owner or operator shall drill out and replug the hole if unfilled below the bridge.

(g) If unauthorized material is placed in a hole, the division may require the material to be removed before plugging operations are commenced.

(h) A permanent plugback, other than a plugback in a cased hole, shall be witnessed by a commission representative.

(i) If a hole is obstructed by equipment associated with drilling or operating a well, and if the removal of that equipment is impracticable, the division director may authorize a special method to abandon the well. The owner or operator shall obtain approval of the special method from a commission representative before implementation.

(A) A mechanical plug set inside cemented casing within two hundred (200) feet above the uppermost completed zone with a ten (10) gallon cement plug placed on top of the mechanical plug.

(B) A cement plug from the top of to no less than two hundred fifty (250) feet above the uppermost

completed zone.

(3) A mechanical plug between each completed zone unless the placement of the plug would require the removal of a permanent plugback and one (1) of the following:

(A) A mechanical plug set inside cemented casing within two hundred (200) feet above the uppermost completed zone with a ten (10) gallon cement plug placed on top of the mechanical plug.

(B) A cement plug from the top of to no less than two hundred fifty (250) feet above the uppermost completed zone.

(4) A dry hole that does not enter a commercially mineable coal resource may be filled with mud-laden fluid, well cuttings, pea gravel, or crushed rock from the bottom of the hole to fifty (50) feet below the deepest underground source of drinking water. The owner or operator shall place a cement plug from fifty (50) feet below the deepest underground source of drinking water to three (3) feet below the surface.

(5) If a well is flowing at the surface, however, the operator must place plugs under one (1) of the following:

(A) Subdivision (1).

(B) Subdivision (2) and (2)(A).

(C) Subdivision (3) and (3)(A).

(c) An owner or operator must place any top plug as a cement plug from fifty (50) feet below:

(1) the deeper of the lowest commercially mineable coal seam or underground source of drinking water to three (3) feet below ground elevation; or

(2) to no less than one hundred (100) feet above each commercially mineable coal seam, and a cement plug from fifty (50) feet below the deepest underground source of drinking water to three (3) feet below ground elevation.

Notwithstanding subdivision (1) and subdivision (2) [subdivisions (1) and (2)], fallback of a top plug may be topped off by surface placement of cement slurry.

(d) Uncemented casing from fifty (50) feet below the deeper of the lowest commercially mineable coal seam or underground source of drinking water to three (3) feet below ground elevation must be:

(1) removed;

(2) ripped; or

(3) cemented in place using a method approved by the division.

(e) Uncemented intervals must be filled with pea gravel, crushed rock, drilling mud, gel, or fresh water.

(f) An owner or operator must obtain prior approval from the division for the use of cement. Cement must meet American Petroleum Institute (API) specification 10(A) or American Society for Testing and Materials (ASTM) Specification C150 Standards for Portland cement. If a pozzolan cement mixture is used, the pozzolanic content by volume must not exceed fifty percent (50%).

(g) An owner or operator must obtain prior approval from the division for the use of a mechanical plug. The mechanical plug must meet API specification 11D1.

(h) An owner or operator must place any cement plug using one (1) of the following methods:

(1) Dump bailing on top of a mechanical plug.

(2) Pump and plug or displacement through tubing, coiled tubing, or drill pipe.

(3) For any well with two (2) or fewer completed zones and circulated casing, surface pumping or bullhead plugging from the uppermost completed zone to three (3) feet below ground elevation.

(i) To ensure the proper plugging of wells, the division may require one (1) or more of the following:

(1) Use of mechanical plugs in nonstatic wells (as defined in 312 IAC 16-1-44.6).

(2) Submission of cement and service company tickets.

(3) Removal of any unauthorized material placed in a hole before plugging.

(4) Sampling and testing of cement plugs.

(j) The division director may authorize the use of alternative plugging materials and methods to achieve any

of the following:

- (1) To protect human health or safety.
- (2) To protect the environment.
- (3) To prevent unreasonably detrimental effects upon fish, wildlife, or botanical resources.
- (4) To avoid unreasonable efforts to remove obstructions below the deepest underground source of drinking water.

An owner or operator must obtain prior approval from the division director before using an alternative material or method.

(k) Except as provided in subsection (l) or (m), an owner or operator must not plug a well unless a division representative is present to witness the plugging. If a well is plugged without a division representative present to witness the plugging, the owner or operator may be required by the division director to drill out and plug the well in the presence of a division representative.

(l) If an owner or operator and a division representative have scheduled the plugging of a well, but a division representative is not present at the scheduled time or place, the owner or operator may plug the well in the absence of a division representative only after making a reasonable attempt to have another division representative present to witness the plugging. If a division representative did not witness the plugging, the owner or operator may seek approval for the plugging from the division director under a Special Plugging Affidavit. To qualify for approval of a Special Plugging Affidavit, the owner or operator must do the following:

- (1) Provide a confirmation number to establish that the plugging was scheduled with the division.
- (2) Demonstrate that a reasonable attempt was made to have another division representative present to witness the plugging.
- (3) Submit a cement ticket that identifies the well and shows the amount of cement delivered.
- (4) Submit the completed Special Plugging Affidavit.

(m) If a well was plugged by a former owner or operator before the effective date of this section and a division representative was not present to witness the plugging, the owner or operator shall request the approval of a Special Plugging Affidavit from the division director. To qualify for a Special Plugging Affidavit under this subsection, the owner or operator must submit the following:

- (1) A cement ticket that identifies the well and shows the amount of cement delivered.
- (2) The completed Special Plugging Affidavit.

(n) The owner or operator must submit a report of each permanent plugback on a form approved by the division.

(o) A plugging and abandonment report must be signed by the following persons:

- (1) The owner or operator or an authorized agent for the owner or operator.
- (2) The person who supplied or prepared the cement.
- (3) The division representative who witnessed the plugging.
- (4) The division employee who reviewed the information contained in the report.

(p) Within six (6) months after plugging a well, the owner or operator must perform the following acts:

- (1) Cut off and remove all casing from three (3) feet below ground elevation to the surface.
- (2) Remove substructures.
- (3) Clear the well site of refuse and equipment.
- (4) Remove and properly dispose of waste fluids from the well site.
- (5) Fill all excavations at the well site.
- (6) Restore the well site as nearly as practicable to its condition before drilling.
- (7) If necessary, initiate a cleanup at the well site under sections 24 through 29 of this rule.

(q) In addition to the requirements of subsection (p), the owner or operator must, within six (6) months after the plugging of the last well on the lease, perform the following acts:

- (1) Remove and properly dispose of waste fluids.

- (2) Remove the tank battery from the lease.**
- (3) Clear the lease of refuse and equipment.**
- (4) Fill all excavations.**
- (5) Restore the tank battery and excavation site as nearly as practicable to its condition before operation.**
- (6) If necessary, initiate a cleanup of the tank battery and excavation site under sections 24 through 29 of this rule.**

**(r) The owner of surface rights may, with the consent of the owner or operator, accept responsibility for either or both of the following, by so indicating on the division's well completion form:**

- (1) Equipment, fixtures, or excavations placed with respect to a well drilled for oil and gas purposes.**
- (2) A well plugged up to a zone containing fresh water.**

**If the owner of surface rights accepts responsibility under this subsection, the owner or operator and its agents are released from responsibility for those items for which the owner of surface rights accepts responsibility.**  
*(Natural Resources Commission; 312 IAC 16-5-19; filed Feb 23, 1998, 11:30 a.m.: 21 IR 2344; filed Aug 6, 2004, 12:00 p.m.: 27 IR 3882)*

*LSA Document #03-251(F)*

*Notice of Intent Published: October 1, 2003; 27 IR 209*

*Proposed Rule Published: January 1, 2004; 27 IR 1206*

*Hearing Held: January 29, 2003*

*Approved by Attorney General: July 13, 2004*

*Approved by Governor: July 29, 2004*

*Filed with Secretary of State: August 6, 2004, 12:00 p.m.*

*IC 4-22-7-5(c) notice from Secretary of State regarding documents incorporated by reference:*

*Notice received by Publisher August 10, 2004: American Society for Testing and Materials (ASTM) Specification C150 Standards for Portland Cement.*

*Second notice received by Publisher August 11, 2004: American Petroleum Institute (API) Specifications 10(A) and 11D1.*