**Section 245.530 Surface Casing Requirements**

Surface casing shall be used in the construction of all wells regulated by this Part and shall be set and cemented pursuant to the requirements of this Section.

a) *Surface casing shall be used and set to a depth of at least 200 feet, or 100 feet below the base of the deepest fresh water, whichever is deeper.* Surface casing must stop before reaching *any hydrocarbon-bearing zones.* (Section 1-70(d)(10) of the Act) If the surface casing does not protect all of the fresh water, intermediate casing shall be required.

b) *Surface casing* must be made of steel and *conform to the industry standards* set forth in the document referenced in Section 245.115(a)(2)*. Additionally, the use of surface casing in the well construction must be in a manner consistent with the industry standards* set forth in the document referenced in Section 245.115(a)(2). (Section 1-70(d)(1) of the Act)

c) *Casing thread compound must conform to* and meet all manufacturing and material requirements of the industry standards set forth in the document referenced in Section 245.115(a)(3) (Section 1-70(d)(2) of the Act). Additionally, the uses of casing thread compound in the well construction must be in a manner consistent with the industry standards set forth in the document referenced in Section 245.115(a)(3).

d) *The borehole must be circulated and conditioned* before surface casing setting and cementing *to ensure an adequate cement bond* (Section 1-70(d)(5) of the Act).

e) The permittee shall notify the Department's District Office by phone and electronic mail *at least 24 hours* (Section 1-70(d)(11) of the Act) before setting and cementing surface casing to enable an inspector to be present.

f) When setting surface casing, centralizers are required to be used as follows to keep the casing in the center of the wellbore before and during cement operations:

1) A centralizer shall be placed at the bottom of the surface casing string or shoe;

2) Centralizers shall be placed*above and below a stage collar or diverting tool, if run*;

3) Centralizers shall be placed *through usable-quality water zones*;

4) Centralizers shall be placed on *every fourth joint from the cement shoe to the ground surface or to the bottom of the cellar*;

5) *The Department may require additional centralization as necessary to ensure the integrity of the well design is adequate*; and

6) *All centralizers* must conform to and *shall meet specifications in, or equivalent to,* the industry standards set forth in the documents referenced in Section 245.115(a)(4) through (a)(6).

g) *A pre-flush or spacer must be pumped ahead of the cement.* (Section 1-70(d)(6) of the Act)

h) Surface casing cement must:

1) be Class A cement or, alternatively, if the applicant requests before the pour in writing with sufficient proof of need as determined by the Department, and the Department approves the use in writing before the pour, Class B Cement. Class A and Class B cement means Class A and Class B cement as described in the document incorporated by reference in Section 245.115(a)(1);

2) meet the cement requirements of Section 245.520(a) and (b), including but not limited to being poured with the ratio of water to cement mix and density desired in the document incorporated by reference in Section 245.115(a)(1); and

3) be applied behind the casing according to the requirements of Section 245.520(c) and (d).

i) *Surface casing must be fully cemented to the surface with excess cements. Cementing must be by the pump and plug method with a minimum of 25% excess cement with appropriate lost circulation material, unless another amount of excess cement is approved by the Department. If cement returns are not observed at the surface, the permittee must perform remedial actions as appropriate.* (Section 1-70(d)(11) of the Act)

j) *After the cement is placed behind the* surface *casing* (Section 1-70(d)(8) of the Act), the cement must be tested (compressive strength test) and cement job logs maintained pursuant to the requirements of Section 245.520(f) through (h).

k) *After the surface casing cement operation is completed to the surface, the permittee shall notify the Department's District Office by phone and electronic mail to enable an inspector to be present for the following:*

1) testing the internal mechanical integrity of the surface casing pursuant to Section 245.540; and

2) installation and testing of the blowout prevention equipment pursuant to Section 245.550.