

3745-34-14 **Class I permit to drill applications.**

In addition to the information required in accordance with rules 3745-34-12 and 3745-34-13 of the Administrative Code, the owner shall include the following in a permit application for a permit to drill a class I injection well:

(A) The final report on the seismic reflection data survey in compliance with rule 3745-34-40 of the Administrative Code.

(B) Well construction. The owner shall submit the following information for a permit to drill application:

(1) A plan for the testing, drilling and construction of the proposed new class I injection well. Whenever required by the director to protect the public welfare or to safeguard life, health, or property, or whenever the contemplated expenditure by the state, any of its political subdivisions, or any municipal corporation for the completed project exceeds five thousand dollars, plans for the design of new class I wells shall be prepared by a professional engineer registered under Chapter 4733. of the Revised Code. In addition, for projects containing a high degree of complexity, non-standard technology, unusual features, or deviations from standards or guidelines used by the agency, the director may require that the owner or operator demonstrate the knowledge and experience of the project designer.

(2) A schematic or other appropriate drawings of the proposed well with proper setting depths, including wellhead and gauges and a written description of the proposed surface and subsurface construction details of the well including all of the following:

(a) Hole size;

(b) Surface casing, intermediate, long string casing, and injection tubing packer information, including all of the following:

(i) Size;

(ii) Weight;

(iii) Grade;

(iv) Depth-GL;

(v) Thickness;

- (vi) Diameter;
 - (vii) Nominal weight;
 - (viii) Length;
 - (ix) Joint specification;
 - (x) Construction material; and
 - (xi) Tubing tensile, burst, and collapse strength.
- (3) A written demonstration that for the design life of the well the casings, including any casing connections, are rated to have sufficient structural strength to withstand:
- (a) The maximum burst and collapse pressures which may be experienced during the construction, operation, and closure of the well; and
 - (b) The maximum tensile strength which may be experienced at any point along the length of the casing during the construction, operation, and closure of the well.
- (4) Cement data, including the proposed type and class, additives, amount, and circulate for the surface casing, long string, and other casings;
- (5) A description of the packer including all of the following:
- (a) Proposed type;
 - (b) Name and model number;
 - (c) Setting depth; and
 - (d) Compatibility with proposed annular fluid and proposed injection fluid.
- (6) A description of the proposed bottom hole completion.
- (7) A plan for the proposed stimulation program.
- (8) Construction procedures including a cementing and casing program, logging procedures, deviation checks, and a drilling, testing, and coring program. These procedures should address the applicable factors and requirements in rules 3745-34-37, 3745-34-54, and 3745-34-55 of the Administrative Code.

- (9) A written analysis demonstrating that the various parts of the casing, tubing, and cement will be compatible with or resistant to corrosion from the formation fluid and injection fluids to which they will respectively be exposed.
- (10) Procedures for core analysis, if performed, including analysis for at least:
 - (a) Permeability;
 - (b) Porosity;
 - (c) Percent saturation;
 - (d) Sample description;
 - (e) Sieve analysis of sand; and
 - (f) Compatibility testing of cores with waste stream for permeability reduction.
- (C) Proposed formation testing program to obtain analysis of the chemical, physical and radiological characteristics of the receiving formation including, but not limited to:
 - (1) Fluid pressure;
 - (2) Temperature;
 - (3) Fracture pressure;
 - (4) Physical and chemical characteristics of the injection matrix;
 - (5) Compatibility of the injected fluids with the formation fluids;
 - (6) Corrosiveness; and
 - (7) Other applicable information.
- (D) Procedures for performing deviation checks in compliance with paragraph (D)(1) of rule 3745-34-37 of the Administrative Code.
- (E) Procedures for performing the logging and testing requirements of paragraph (D) of rule 3745-34-37 of the Administrative Code.

(F) Procedures, forms, and methods for collecting all of the following information:

(1) Drilling and completion records including:

- (a) Daily reports;
- (b) Driller's log or record of strata;
- (c) Casing and tubing records;
- (d) Pipetallys;
- (e) Detailed screen and liner setting;
- (f) Details of centralizers, scratchers, and other such equipment; and
- (g) Engineering drawings of:
 - (i) Well completion;
 - (ii) Packer assembly and setting; and
 - (iii) Well head parts list.

(2) Testing records including the following:

- (a) Well testing:
 - (i) Static fluid level;
 - (ii) Bottom hole temperature and pressure;
 - (iii) Injectivity test result; permeability determination; reservoir limits and storage;
 - (iv) Spinner or tracer surveys; and
 - (v) Casing testing results including those to demonstrate mechanical integrity pursuant to the requirements of rule 3745-34-34 of the Administrative Code.
- (b) Laboratory testing results:
 - (i) Cores for permeability;
 - (ii) Cores for compatibility;

- (iii) Cores for porosity;
- (iv) Analysis of formation water; and
- (v) Descriptive core analysis and sieve analysis.

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