



## Ohio Administrative Code Rule 3745-34-13 Class V wells.

Effective: April 23, 2009

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

(A) A statement of the relative expertise of the owner or operator of the proposed class I injection well in the operation of class I injection wells. Within the statement include:

- (1) A listing of all class I injection wells that the owner or operator has operated and is operating;
- (2) The date that each listed class I injection well was first placed in service or if the well was placed in service before the applicant acquired the well, the date that applicant acquired the well; and
- (3) The date of issuance, identification number, and expiration date of the permits issued for each listed class I injection well by the United States or the state in which the listed injection well is located and, for each such permit, the name and address of the federal or state agency that issued the permit.

(B) The owner or operator of any facility containing one or more active class I injection wells must conduct such preliminary site investigations as are necessary to determine whether a release outside the permitted injection zone is occurring, has occurred, or is likely to have occurred.

(C) Owners and operators of facilities with existing class I injection wells or that are re-permitting a currently operating class I injection well shall submit all of the following information:

- (1) For each active class I injection well at a facility seeking a permit, both the following:
  - (a) Dates the well was operated; and



(b) Specification of all wastes that have been injected into the well.

(2) All available information pertaining to any release of hazardous waste or constituents from any active injection well at the facility.

(D) Area of review. The owner shall identify the location of all known wells within the injection wells' area of review that penetrate the injection zone. The owner shall submit all of the following:

(1) A calculation of the area of review of the proposed injection well. This shall include a description of the method of determination of the area of review including all relevant calculations and data used in the calculations. The area of review shall be calculated in accordance with rules 3745-34-32 and 3745-34-52 of the Administrative Code.

(2) A description of the procedures that were used to identify all wells penetrating the confining zone or injection zone within the area of review and that were used to determine if the identified wells are adequately completed or plugged.

(3) A map showing the class I injection wells for which the permit is sought and the applicable area of review. The map must show the number or name, and the location of all of the following within the area of review:

(a) The location of all known wells that penetrate the injection zone within the injection well's area of review;

(b) Actively producing oil and gas wells;

(c) Active, temporarily abandoned, and abandoned injection wells;

(d) Abandoned oil and gas wells including non-producing wells and boreholes;

(e) Surface bodies of water;

(f) Springs;



- (g) Mines (surface and subsurface);
- (h) Quarries;
- (i) Water wells;
- (j) Other pertinent surface features including residences and roads;
- (k) Seismic areas and faults, if known or suspected; and
- (l) Boundaries of the facility.

[Note: Only information of public record is required to be included on the map.]

(4) A tabulation of data on all wells within the area of review that penetrate into the proposed injection zone and are completed within three hundred vertical feet of the permitted injection interval. Such data shall include the following:

- (a) Name of the well;
- (b) Name of the owner and operator;
- (c) Description of each well's type;
- (d) Construction data including casing size, setting depth and cementing data for surface, intermediate and long string casings;
- (e) Date drilled;
- (f) Location in latitude and longitude to the nearest second;
- (g) Depth; and



(h) Record of plugging and/or completion.

(i) Note the wells that were inadequately plugged or abandoned.

(ii) Note the wells for which there are incomplete records and include all available records.

(5) The drilling logs and completion logs for all known wells within the injection well's area of review that penetrate the injection zone that were completed within three hundred vertical feet of the permitted injection interval.

(6) An applicable plan and compliance schedule for corrective action pursuant to rules 3745-34-30 and 3745-34-53 of the Administrative Code for all wells that are improperly sealed, completed, or abandoned and consisting of such steps or modifications as are necessary to prevent movement of fluid into or between USDW. The following information, criteria, and factors shall be included in the plan for corrective action:

(a) Nature and volume of injected fluid;

(b) Nature of native fluids or by-products of injection;

(c) Potentially affected population;

(d) Geology;

(e) Hydrology;

(f) History of the injection operation;

(g) Completion and plugging records;

(h) Abandonment procedures in effect at the time the well was abandoned;



(i) Hydraulic connections with USDW; and

(j) Surface waste handling operations.

(7) A report describing all actions taken to date in implementing the plan of corrective action, including the status of corrective action on defective wells in the area of review and the schedule for completion of all actions described within the plan.

(8) Any additional information the director deems necessary to protect USDW.

(E) Geologic evaluation. The owner shall submit the following:

(1) Maps and cross sections indicating the general vertical and lateral limits of all USDW within the area of review, their position relative to the injection formation and the direction of water movement, where known, in each USDW that may be affected by the proposed injection;

(2) Maps and cross sections detailing the geologic structure of the local area;

(3) Generalized maps and cross sections illustrating the regional geologic setting;

(4) Maps showing the location of, but not limited to, seismic areas, wetlands, flood hazard areas, carbonate formations that result in caverns, and underground mines, both active and abandoned;

(5) A plan for injectivity testing, including provisions to test for pressure/time relationships to determine permeability, transmissivity, and reservoir limits, if any; and

(6) A description of the lithology of the injection and confining intervals.

(F) The owner shall submit an analysis of the geologic suitability of the proposed location of the well. This analysis shall include:

(1) An analysis of the structural and stratigraphic geology, the hydrogeology, and the seismicity of the region;



- (2) An analysis of local geology and hydrogeology of the well site, including, at a minimum, detailed information regarding stratigraphy, structure and rock properties, aquifer hydrodynamics and mineral resources;
- (3) A determination that the geology of the area can be described confidently and that limits of waste fate and transportation can be accurately predicted through the use of models;
- (4) Lithology, permeability, porosity, thickness and areal extent of the injection and confining intervals;
- (5) Maps and cross sections detailing the geologic structure and stratigraphy of the local area. Cross-sections should note the location of faults, major fractures, and carbonate formations that are known to contain or that may contain caverns;
- (6) Generalized maps and cross sections illustrating the regional geologic setting. Cross-sections should note the location of faults, major fractures, and carbonate formations that are known to contain or that may contain caverns; and
- (7) A demonstration that:
  - (a) The confining zone is separated from the base of the lowermost USDW by at least one sequence of permeable and less permeable strata that will provide an added layer of protection for the USDW in the event of fluid movement in an unlocated bore hole or transmissive fault; or
  - (b) Within the area of review, the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost USDW, considering density effects, injection pressures and any significant pumping in the overlying USDW; or
  - (c) There is no USDW present.
- (8) A demonstration for applications for class I hazardous waste injection wells that the well is sited in compliance with paragraph (C) of rule 3745-34-51 of the Administrative Code.



(G) The owner shall submit the information required by rule 3745-34-59 of the Administrative Code for permit applications for class I hazardous waste injection wells.

(H) Financial assurance. The owner shall submit certification and evidence of financial responsibility for operation and closure of the well including surety bond or other adequate assurance, such as a financial statement or other materials acceptable to the director. This demonstration must be consistent with the provisions of rules 3745-34-27, 3745-34-36, and 3745-34-62 of the Administrative Code.