

Environmental Protection Agency

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certified as accurate by the owner or operator and by the person who performed the closure operation (if other than the owner or operator). Such report shall consist of either:

(1) A statement that the well was closed in accordance with the closure plan previously submitted and approved by the Director; or

(2) Where actual closure differed from the plan previously submitted, a written statement specifying the differences between the previous plan and the actual closure.

(d) *Standards for well closure.* (1) Prior to closing the well, the owner or operator shall observe and record the pressure decay for a time specified by the Director. The Director shall analyze the pressure decay and the transient pressure observations conducted pursuant to §146.68(e)(1)(i) and determine whether the injection activity has conformed with predicted values.

(2) Prior to well closure, appropriate mechanical integrity testing shall be conducted to ensure the integrity of that portion of the long string casing and cement that will be left in the ground after closure. Testing methods may include:

- (i) Pressure tests with liquid or gas;
- (ii) Radioactive tracer surveys;
- (iii) Noise, temperature, pipe evaluation, or cement bond logs; and
- (iv) Any other test required by the Director.

(3) Prior to well closure, the well shall be flushed with a buffer fluid.

(4) Upon closure, a Class I hazardous waste well shall be plugged with cement in a manner that will not allow the movement of fluids into or between USDWs.

(5) Placement of the cement plugs shall be accomplished by one of the following:

- (i) The Balance Method;
- (ii) The Dump Bailer Method;
- (iii) The Two-Plug Method; or
- (iv) An alternate method, approved by the Director, that will reliably provide a comparable level of protection.

(6) Each plug used shall be appropriately tagged and tested for seal and stability before closure is completed.

(7) The well to be closed shall be in a state of static equilibrium with the mud weight equalized top to bottom,

either by circulating the mud in the well at least once or by a comparable method prescribed by the Director, prior to the placement of the cement plug(s).

§ 146.72 Post-closure care.

(a) The owner or operator of a Class I hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care that meets the requirements of paragraph (b) of this section and is acceptable to the Director. The obligation to implement the post-closure plan survives the termination of a permit or the cessation of injection activities. The requirement to maintain an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.

(1) The owner or operator shall submit the plan as a part of the permit application and, upon approval by the Director, such plan shall be a condition of any permit issued.

(2) The owner or operator shall submit any proposed significant revision to the plan as appropriate over the life of the well, but no later than the date of the closure report required under §146.71(c).

(3) The plan shall assure financial responsibility as required in §146.73.

(4) The plan shall include the following information:

(i) The pressure in the injection zone before injection began;

(ii) The anticipated pressure in the injection zone at the time of closure;

(iii) The predicted time until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost USDW;

(iv) Predicted position of the waste front at closure;

(v) The status of any cleanups required under §146.64; and

(vi) The estimated cost of proposed post-closure care.

(5) At the request of the owner or operator, or on his own initiative, the Director may modify the post-closure plan after submission of the closure report following the procedures in §124.5.

(b) The owner or operator shall:

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(1) Continue and complete any clean-up action required under §146.64, if applicable;

(2) Continue to conduct any groundwater monitoring required under the permit until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost USDW. The Director may extend the period of post-closure monitoring if he determines that the well may endanger a USDW.

(3) Submit a survey plat to the local zoning authority designated by the Director. The plat shall indicate the location of the well relative to permanently surveyed benchmarks. A copy of the plat shall be submitted to the Regional Administrator of the appropriate EPA Regional Office.

(4) Provide appropriate notification and information to such State and local authorities as have cognizance over drilling activities to enable such State and local authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the well's confining or injection zone.

(5) Retain, for a period of three years following well closure, records reflecting the nature, composition and volume of all injected fluids. The Director shall require the owner or operator to deliver the records to the Director at the conclusion of the retention period, and the records shall thereafter be retained at a location designated by the Director for that purpose.

(c) Each owner of a Class I hazardous waste injection well, and the owner of the surface or subsurface property on or in which a Class I hazardous waste injection well is located, must record a notation on the deed to the facility property or on some other instrument which is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:

(1) The fact that land has been used to manage hazardous waste;

(2) The name of the State agency or local authority with which the plat was filed, as well as the address of the Regional Environmental Protection Agency Office to which it was submitted;

(3) The type and volume of waste injected, the injection interval or inter-

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vals into which it was injected, and the period over which injection occurred.

§ 146.73 Financial responsibility for post-closure care.

The owner or operator shall demonstrate and maintain financial responsibility for post-closure by using a trust fund, surety bond, letter of credit, financial test, insurance or corporate guarantee that meets the specifications for the mechanisms and instruments revised as appropriate to cover closure and post-closure care in 40 CFR part 144, subpart F. The amount of the funds available shall be no less than the amount identified in §146.72(a)(4)(vi). The obligation to maintain financial responsibility for post-closure care survives the termination of a permit or the cessation of injection. The requirement to maintain financial responsibility is enforceable regardless of whether the requirement is a condition of the permit.

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