**Section 730.132 Construction Requirements**

a) A new Class III injection well must be cased and cemented to prevent the migration of fluids into or between underground sources of drinking water. The Agency may waive the cementing requirements for a new well in existing projects or portions of existing projects if it has substantial evidence that no contamination of underground sources of drinking water would result. The casing and cement used in the construction of each newly drilled well must be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors must be considered:

1) The depth to the injection zone;

2) The injection pressure, external pressure, internal pressure, axial loading, etc.;

3) The hole size;

4) The size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, and construction material);

5) The corrosiveness of injected fluids and formation fluids;

6) The lithology of injection and confining zones; and

7) The type and grade of cement.

b) Appropriate logs and other tests must be conducted during the drilling and construction of a new Class III injection well. A descriptive report interpreting the results of such logs and tests must be prepared by a knowledgeable log analyst and submitted to the Agency. The logs and tests appropriate to each type of Class III injection well must be determined based on the intended function, depth, construction, and other characteristics of the well; the availability of similar data in the area of the drilling site; and the need for additional information that may arise from time to time as the construction of the well progresses. Deviation checks must be conducted on all holes where pilot holes and reaming are used, unless the hole will be cased and cemented by circulating cement to the surface. If deviation checks are necessary, they must be conducted at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling.

c) If the injection zone is a formation that is naturally water-bearing, the following information concerning the injection zone must be determined or calculated for a new Class III injection well or project:

1) The fluid pressure;

2) The fracture pressure; and

3) The physical and chemical characteristics of the formation fluids.

d) If the injection formation is not a water-bearing formation, the information in subsection (c)(2) must be submitted.

e) If injection is into a formation that contains water with less than 10,000 mg/ℓ TDS, monitoring wells must be completed into the injection zone and into any underground sources of drinking water above the injection zone that could be affected by the mining operation. These wells must be located in such a fashion as to detect any excursion of injection fluids, process by-products, or formation fluids outside the mining area or zone. If the operation may be affected by subsidence or catastrophic collapse, the monitoring wells must be located so that they will not be physically affected.

f) If injection is into a formation that does not contain water with less than 10,000 mg/ℓ TDS, no monitoring wells are necessary in the injection stratum.

g) If the injection well penetrates a USDW in an area subject to subsidence or catastrophic collapse, an adequate number of monitoring wells must be completed into the USDW to detect any movement of injected fluids, process by-products, or formation fluids into the USDW. The monitoring wells must be located outside the physical influence of the subsidence or catastrophic collapse.

h) In determining the number, location, construction, and frequency of monitoring of the monitoring wells the following criteria must be considered:

1) The population relying on the USDW affected or potentially affected by the injection operation;

2) The proximity of the injection operation to points of withdrawal of drinking water;

3) The local geology and hydrology;

4) The operating pressures and whether a negative pressure gradient is being maintained;

5) The nature and volume of the injected fluid, the formation water, and the process by-products; and

6) The injection well density.

(Source: Amended at 42 Ill. Reg. 24145, effective November 19, 2018)