**Section 730.195 Alternative Class VI Injection Well Depth Requirements**

This Section specifies the requirements for application of alternative injection well depth requirements for Class VI injection wells that meet certain criteria. This Section sets forth information that an owner or operator seeking application of alternative Class VI injection well depth requirements must submit to the Agency; the information that the Agency must consider when determining whether any well is suitable for application of alternative injection well depth requirements; the procedure for Agency-USEPA Region 5 communication and Agency determination whether a well is suitable for application of alternative injection well depth requirements; and the additional requirements that apply to an owner or operator of a Class VI injection well that has been granted a permit that includes alternative injection well depth requirements.

a) When seeking a permit that includes alternative injection well depth requirements to the requirement to inject below the lowermost USDW, the owner or operator must submit a supplemental report concurrent with the permit application. The supplemental report must include the following information:

1) The following demonstrations with regard to the injection zones:

A) Each is laterally continuous;

B) None is a USDW;

C) None is hydraulically connected to a USDW;

D) None outcrops;

E) Each has adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluids; and

F) Each has appropriate geochemistry.

2) A demonstration that each injection zone is bounded by laterally continuous impermeable confining units above and below the injection zone that are adequate to prevent fluid movement and pressure buildup outside of the injection zone and that the confining units are free of transmissive faults and fractures. The report must further characterize the regional fracture properties and contain a demonstration that these fractures will not interfere with injection, serve as conduits, or endanger USDWs.

3) A demonstration, using computational modeling, that no fluid movement will endanger any USDW above or below the injection zone. This modeling should be conducted in conjunction with the area of review determination required by Section 730.184, and the modeling is subject to the area of review delineation and well identification requirements set forth in Section 730.184(c) and the periodic reevaluation requirements set forth in Section 730.184(e).

4) The following demonstrations with regard to well design and construction, in conjunction with the alternative injection well depth requirements:

A) Well design and construction will ensure isolation of the injectate in lieu of the prohibition against movement of fluids set forth in 730.186(a)(1); and

B) Well design and construction will meet the well construction requirements set forth in subsection (f).

5) A description of how the owner or operator will tailor the monitoring and testing and any additional plans to the geologic sequestration project to ensure protection of USDWs above and below each injection zone if the Agency issues a permit that includes alternative injection well depth requirements.

6) Information on the location of all the public water supplies that will be affected, or which are reasonably likely to be affected, by the carbon sequestration project, and all public water supplies that distribute water drawn from any USDW in the area of review.

7) Any other information that the Agency determines is necessary to inform the USEPA Region 5's decision to issue a waiver, as required by subsection (b).

b) To inform the USEPA Region 5's decision on whether to grant a waiver of the injection depth requirements pursuant to 40 CFR 146.95, which would allow the Agency to issue a permit that includes alternative injection well depth requirements, the Agency must submit the following documentation to USEPA Region 5:

1) An evaluation of the following information as it relates to siting, construction, and operation of a geologic sequestration project under a permit that includes alternative injection well depth requirements:

A) The integrity of the upper and lower confining units;

B) The suitability of the injection zones (e.g., lateral continuity, lack of transmissive faults and fractures, known current or planned artificial penetrations into the injection zones or formations below the injection zone, etc.);

C) The potential capacity of the geologic formations to sequester carbon dioxide, accounting for the availability of alternative injection sites;

D) All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility;

E) An assessment of community needs, demands, and supply from drinking water resources;

F) An assessment of planned needs and potential or future use of USDWs and non-USDWs in the area of review;

G) An assessment of planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formations and other formations both above and below the injection zone to determine if there are any plans to drill through the formation to access resources in or beneath the proposed injection zones or formations;

H) The proposed plan for securing alternative water resources or treating USDW formation waters in the event of contamination related to the Class VI injection well activity; and

I) Any other applicable considerations or information that the Agency determines is necessary to aid a determination by USEPA Region 5 to grant a waiver that would allow the Agency to issue a permit that includes alternative injection well depth requirements.

2) Consultation with the Agency's Division of Public Water Supply and all agencies of a sister state that have public water system supervision authority over lands within the area of review of a well for which a waiver that would allow the Agency to issue a permit that includes alternative injection well depth requirements is sought.

3) Any written waiver-related information submitted by the Agency's Division of Public Water Supply and all agencies of a sister state that have public water system supervision authority to the Agency.

c) Pursuant to 35 Ill. Adm. Code 705.163 and concurrent with the Class VI injection well permit application notice process, the Agency must give public notice that the owner or operator has sought a permit that includes alternative injection well depth requirements. The notice must clearly state the following information:

1) The depth of the proposed injection zones;

2) The location of the injection wells;

3) The name and depth of each USDW within the area of review;

4) A map of the area of review;

5) The names of any public water supplies that will be affected, or which are reasonably likely to be affected, by the carbon sequestration project, and all public water supplies that distribute water drawn from any USDW in the area of review; and

6) The results of consultation with the Agency's Division of Public Water Supply and all agencies of a sister state that have public water system supervision authority, as required by subsection (b)(2).

d) Following the public notice required by subsection (c), the Agency must provide all information received through the waiver application process to USEPA Region 5. USEPA has stated in corresponding 40 CFR 146.95(d) that, based on this information, the USEPA Region 5 must provide written concurrence or non-concurrence regarding the Agency issuing a permit that includes alternative injection well depth requirements.

1) If USEPA Region 5 determines that additional information is required to support a decision, the Agency must provide that information. At its discretion, USEPA Region 5 may require that public notice of the new information be initiated.

2) The Agency must not issue a permit that includes alternative injection well depth requirements without having first received the written concurrence of USEPA Region 5.

e) USEPA has stated in corresponding 40 CFR 146.95(e) that if the Agency issues a permit that includes alternative injection well depth requirements, USEPA will post the following information on its Office of Water website within 30 days after permit issuance:

1) The depth of the proposed injection zones;

2) The location of the injection wells;

3) The name and depth of all USDWs within the area of review;

4) A map of the area of review;

5) The names of any public water supplies that will be affected, or which are reasonably likely to be affected, by the carbon sequestration project, and all public water supplies that distribute water drawn from any USDW in the area of review; and

6) The date of permit issuance.

f) Upon receipt of a permit that includes alternative injection well depth requirements for geologic sequestration, the owner or operator of the covered Class VI injection well must comply with the following requirements:

1) All requirements of Sections 730.184, 730.185, 730.187, 730.188, 730.189, 730.191, 730.192, and 730.194.

2) All requirements of Section 730.186, with the following modified requirements:

A) The owner or operator must ensure that each Class VI injection well operating under the alternative injection well depth requirements is constructed and completed to prevent movement of fluids into any unauthorized zone that includes a USDW, in lieu of the requirements of Section 730.186(a)(1).

B) The casing and cementing program must be designed to prevent the movement of fluids into any unauthorized zone that includes a USDW in lieu of the requirements of Section 730.186(b)(1).

C) The surface casing must extend through the base of the nearest USDW directly above the injection zone. The surface casing must be cemented to the surface. Alternatively, the Agency must require that the casing extend through another formation above the injection zone and below the nearest USDW above the injection zone if the Agency determines that doing so is necessary to prevent movement of fluids into a USDW.

3) All requirements of Section 730.190, with the following modified requirements:

A) The owner or operator must monitor the groundwater quality, geochemical changes, and pressure in the first USDWs immediately above and below each injection zone; and in any other formation that the Agency determines is necessary to detect potential movement of fluids into a USDW.

B) The owner or operator must conduct testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (i.e., the pressure front) by using direct methods to monitor for pressure changes in the injection zones. The owner or operator must use indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys or down-hole carbon dioxide detection tools) that the Agency determines are necessary based on site-specific geology.

4) All requirements of Section 730.193, with the following, modified post-injection site care monitoring requirements:

A) The owner or operator must monitor the groundwater quality, geochemical changes, and pressure in the first USDWs immediately above and below each injection zone; and in any other formation that the Agency determines is necessary to detect potential movement of fluids into a USDW.

B) The owner or operator must conduct testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (i.e., the pressure front) by using direct methods in the injection zones. The owner or operator must use indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys or down-hole carbon dioxide detection tools) that the Agency determines are necessary to detect potential movement of fluids into a USDW.

5) Any additional requirements that the Agency determines are necessary to ensure protection of USDWs above and below the injection zones.

BOARD NOTE: This Section corresponds with 40 CFR 146.95 (2017). The corresponding federal rule calls the administrative permission to allow a well to inject at an alternative depth (i.e., above the lowermost USDW) a "waiver". While the Board has retained the use of "waiver" with regard to USEPA review of alternative depth requirements, the Board has changed this to some variant of "permit that includes alternative injection well depth requirements". While the Agency cannot "waive" standards embodied in Board regulations, the Agency can issue a permit that applies alternative standards that are contained in the regulations. The Board believes that this rule includes standards sufficient to guide an Agency permit determination.

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