



Guidance for Pressure Fall-off Testing in Class I UIC Wells

Purpose

To provide guidance to Class I Underground Injection Control (UIC) operators on methodology to employ in planning, performing, and reporting the results of a pressure fall-off test.

Background

OAC Rule 3745-34-57(J)(1) states, in part, that for all Class I injection wells, "...The director shall require monitoring of the pressure buildup in the injection zone annually including, at a minimum, a shutdown of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve...". This guidance outlines procedures which will aid in performance of a valid pressure fall-off test.

The purpose of the required injection well testing is three-fold:

- Reservoir pressure increases associated with long-term fluid injection can be estimated.
- Estimates of average reservoir pressure obtained through this testing can be compared to modeled predictions of injection interval pressure thereby allowing a post-audit of models used in "no-migration" petitions.
- The testing permits determination of reservoir characteristics including permeability and skin (formation damage or enhancement near the wellbore) as well as identification of fracturing and changes in these characteristics over time.

The minimum and most common means of testing to satisfy the regulatory requirements is the pressure fall-off test. A typical test consists of injection into a well at a constant rate for a period of time followed by shut-in of the well and monitoring of the pressure decline. At the director's discretion, additional testing may be required. In any case, the plan for this test requires Ohio EPA approval. This guidance should be considered in the development of the plan for testing but the plan should not merely reference the guidance. Facility-specific issues should be identified and addressed. Further, this guidance does not cover alternate means of compliance with OAC Rule 3745-34-57(J)(1), such as pressure build-up tests, nor does it imply that a pressure fall-off test will be an appropriate means of compliance with this rule for all wells.

Guidance

Ohio EPA recommends using the guidance produced by U.S. EPA Region 6 (Dallas, Texas Office) for developing a plan and conducting a pressure fall-off test. This guidance can be found at epa.gov/sites/production/files/2015-07/documents/guideline.pdf

Contact

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