

Responses to Comments Submitted by Vickery Environmental, Inc.(VEI) on the Draft Land Ban Exemption. Language quoted from the draft exemption is in italics.

1) Condition #5:

*The average specific gravity of the injected waste stream must be no less than 1.08 over a three month period;*

VEI's proposed language:

The average specific gravity of the injected waste stream must be no less than 1.08 over the no-migration petition modeled period (June 2007 through June 2027).

U.S. EPA revision:

The average specific gravity of the injected waste stream must be no less than 1.08 over a one-year period.

Reasoning: VEI documents that the average specific gravity has been 1.115 over the first 7.5 years of the modeling period (June 2007 through December 2014). VEI calculates the average specific gravity each year for its operations annual report. Therefore, requiring an annual average will not increase the burden on the company but will give adequately frequent demonstration that the average specific gravity complies with the condition in the model.

2) Condition #6:

*The cumulative volume of wastes injected into wells #2, #4, #5, and #6 must not exceed 10,368,000 gallons per month.*

VEI's proposed language:

VEI may inject up to a combined total of 240 gallons per minute into Well Numbers 2, 4, 5, and 6, based on a monthly average.

U.S. EPA agrees and this language is included in the exemption.

Reasoning: The value in the draft assumes a 30-day month and multiplies the average flow rate in the model (240 gpm) by 1440 min/day \* 30 day. VEI's proposal ties the condition more directly to the value used in the no-migration demonstration, which seems more rational. It is also the language used in the original exemption.

3) Condition #8:

*VEI must submit a quarterly report to EPA containing the fluid analyses of the injected waste and indicate the chemical and physical properties, including the concentrations, of all the injected hazardous constituents listed in Table 2;*

VEI's proposed language:

VEI must submit, within 90 days after the exemption is granted, an approvable plan to demonstrate that chemicals listed in Table 2 are not or cannot be injected above the listed limits. Upon U.S. EPA's approval of this plan, VEI shall implement the plan per the schedule in the approved plan.

U.S. EPA agrees and this language is included in the exemption.

Reasoning: VEI proposes to make the Table 2 limits "site acceptable" limits, that is, no load with a concentration of any of the Table 2 chemicals over the Table 2 limit would be accepted for disposal at VEI. VEI requested that U.S. EPA include a schedule to give them time to evaluate each chemical

listed in Table 2 and develop a plan to demonstrate compliance with the model limits. EPA agrees that it is reasonable to provide time to develop and submit such a plan.

4) Condition #9:

*VEI must submit to EPA an annual report containing the results of a bottom hole pressure survey (fall-off test) performed on one well each year. The survey must be performed after shutting down the well for sufficient time to conduct a valid observation of the pressure fall-off curve under 40 CFR § 146.68(e)(1). The annual report must include a comparison of reservoir parameters determined from the fall-off test with parameters used in the approved no-migration petition.*

VEI requested clarification on EPA's intent and also requested that this condition be removed because these reports are submitted to Ohio EPA.

U.S. EPA's revised wording:

VEI must submit copies of the reports on the annual bottom-hole pressure surveys conducted in well #2, #4, #5 or #6 to U.S. EPA when these reports are submitted to Ohio EPA. The reports must include a comparison of reservoir parameters determined from the fall-off test, such as permeability and long-term shut-in pressure, with parameters used in the approved no-migration petition.

Reasoning: VEI requested clarification and consultation with U.S. EPA prior to finalizing this condition. The intent of the condition is to confirm that no newly measured information from pressure fall-off testing is outside the range considered in the model, and therefore, that the pressure modeling remains conservative. VEI is concerned about which modeling parameters were intended for comparison. Typically, the common outputs from a pressure transient test analysis include an estimate of the permeability of the injection interval and long-term shut-in pressure ( $p^*$ ). These estimates can be compared with values used in the no-migration demonstration modeling or calculated by the model. For example, the petition includes a table listing all the permeability values from testing performed between 1990 and 2006: VEI can compare future values to those in the table. The petition states that the pressurization model calculated a maximum pressure within the Mt. Simon and VEI can compare measured pressure in the Mt. Simon to the model prediction.

5) Condition #10:

*VEI must annually submit to EPA the results of radioactive tracer surveys and annulus pressure tests for wells #2, #4, #5, and #6;*

VEI requested that this condition be removed because these reports are submitted to Ohio EPA.

U.S. EPA's revised wording:

VEI must submit copies of the reports on the annual radioactive tracer surveys and annulus pressure tests for wells #2, #4, #5 and #6 to U.S. EPA when these reports are submitted to Ohio EPA.

Reasoning: The mechanical integrity of a well's long string casing, injection tubing, annular seal, and bottom-casing cement are integral to the demonstration of no-migration. The tests confirm that all injected fluids are entering the approved injection interval and that no fluids are migrating upward out of the injection interval around the casing shoe. Therefore, EPA revised the wording but did not remove this condition.

6) Condition #11:

*VEI shall notify EPA in writing if any well loses mechanical integrity, prior to any workover or plugging;*

VEI requested that this condition be removed because these annual reports are submitted to Ohio EPA.

U.S. EPA's revised wording:

VEI shall notify U.S. EPA in writing if any injection well loses mechanical integrity, prior to any workover or plugging when these notifications are submitted to Ohio EPA.

Reasoning: U.S. EPA believes that this information is necessary to determine the on-going validity of the demonstration of no-migration. Therefore, EPA revised the wording but did not remove this condition.

Signed and Dated March 10, 2015



Tinka G. Hyde  
Director, Water Division