# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

May 6, 2013

Secretary, U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Rulemakings and Adjudications Staff

Re: Docket ID NRC-2011-0012

Dear Sir or Madam:

The Texas Commission on Environmental Quality (TCEQ) appreciates the opportunity to the United States Nuclear Regulatory Commission's (NRC) proposed revisions to 10 CFR Part 61 provided in Request For Comments on The Draft Proposed Rule: Low-Level Radioactive Waste Disposal (10 CFR PART 61) (RIN 3150-AI92) (RCPD-13-005) dated March 14, 2013. TCEQ previously advised NRC staff that comments would be submitted.

Enclosed please find the TCEQ's detailed comments relating to the NRC's proposed revisions referenced above. If you have any questions concerning the enclosed comments, please contact Mr. Brad Broussard of the Radioactive Materials Division, at (512) 239-6380, or at brad.broussard@tceq.texas.gov.

Sincerely,

Zak Covar
Executive Director

Enclosure

# Comments on Proposed Revisions to 10 CFR Part 61

**05/6/13**

**Request for Comments on Proposed Draft (RCPD)-13-005, dated March14, 2013 - (RIN 3150-AI92); (NRC-2011-0012)**

## I. Proposed §61.2 Definitions

"Performance period" is the time after the compliance period.

**Comment:** The RCPD discusses how the performance period analyses may demonstrate the time when peak impacts occur but this information is not included in the proposed rule. The Texas Commission on Environmental Quality (TCEQ) recommends that the definition be expanded to include some type of demonstration period such as the time at which peak dose occurs or another metric such as cost-benefit analysis.

Example definition: Performance period is the time after the compliance period in which technical analyses is conducted for long-lived radionuclides. This period may last until the time: 1) when peak impacts occur; 2) at which uncertainty in modeled outcomes render the results less than meaningful; 3) at which cost-benefit analysis shows no further benefit; or 4) determined through another approved approach.

## II. Proposed § 61.13 Technical analyses

(a) A performance assessment that demonstrates that there is reasonable assurance that the exposure to humans from the release of radioactivity will meet the performance objective set forth in § 61.41(a).
(b) Analyses of the protection of inadvertent intruders that demonstrate there is reasonable assurance the waste acceptance criteria developed in accordance with § 61.58 will be met, adequate barriers to inadvertent intrusion will be provided, and any inadvertent intruder will not be exposed to doses that exceed the limits set forth in § 61.42(a) as demonstrated in an intruder assessment. An intruder assessment shall:

> (1) Assume that an inadvertent intruder occupies the disposal site at any time during the compliance period after the period of institutional controls ends, and engages in normal activities including agriculture, dwelling construction, resource exploration or exploitation (e.g., well drilling), or other reasonably foreseeable pursuits that unknowingly expose the intruder to radiation from the waste.

**Comment:** The proposed revisions for conducting a performance assessment (PA) for meeting the requirements in § 61.41(a) and the inadvertent intruder analysis for meeting the requirements in § 61.42(a), specifically the different dose limits, may be unclear regarding the applicable dose limits. The 25 mrem/yr dose limit in § 61.41(a) applies to members of the public and the proposed 500 mrem/yr dose limit in § 61.42(a)

applies to the inadvertent intruder. Without clarification either in rule or guidance these two receptors may be one in the same. As an example:

> A disposal facility has a system failure somtime after closure that releases radioactive contaminants into groundwater and an intruder resides on or near the site and completes a well withdrawing contaminated groundwater as a drinking water source and for other uses. As a result, the resident intruder is unknowingly exposed to radiation. Would this receptor be considered a member of the public or an inadvertent intruder?

While there may be understandable differences in the PA analysis and the inadvertent intruder analysis, such as evaluation of intruder barriers, an applicant or licensee may be performing nearly the same evaluation to meet two different requirements.

The Part 61 Draft Environmental Impact Statement (DEIS) based the existing requirements in § 61.42(a) on multiple intruder scenarios but only recommended the 500 mrem/yr dose limit for the intruder-driller. Previously, licensees and regulators have only evaluated the intruder-driller scenario as it was considered to be the bounding scenario for the purposes of inadvertent intrusion. The 500 mrem/yr dose limit applied only to those workers completing the well installation that were subjected to short-term exposures.

The current proposed language for conducting the performance assessment in § 61.13(a)(2) requires consideration of the likelihood of disruptive or other unlikely features, events, or processes for comparison with the limits set forth in § 61.41(a). The inadvertent intruder scenarios could also be considered disruptive events. The TCEQ recommends that the NRC define which dose limits apply to which receptors. One approach would be to specify that the short-term dose limit of 500 mrem/yr only applies to individuals who engage in intrusion activities, i.e. water well completion or natural resource exploration. The 25 mrem/yr limit would apply to individuals taking up residence on or near the site. This could include the intruder-agriculture scenario.

**III.** The NRC is also requesting public comment on the following questions:

a) Is the proposed two-tiered approach (a quantitative compliance period analysis, followed by a qualitative performance period analysis) appropriate?

**Comment:** The State of Texas agrees that this approach is appropriate.

b) Should a dose limit other than 0.25 mSv (25 mrem) be applied to a performance assessment?

**Comment:** The dose limit of 25 mrem is appropriate. Also, please see comments above relating to distinctions between members of the public and inadvertent intruders and the proposed dose limits.

c) Is the compliance period of 10,000 years appropriate for long-lived LLRW?

**Comment:** Certain elements may behave chemically different in the environment. Depending on the chemical form, the more mobile radionuclides such as C-14, Tc-99, and Cl-36 will produce doses much sooner than doses from other long-lived radionuclides. The doses from C-14, Tc-99, and Cl-36 in the PA simulations conducted by Texas were occurring at or around 10,000 years. So this timeframe would be appropriate for capturing doses from the more mobile radionuclides. Under the proposed definition of long-lived waste, depleted uranium (DU) would be considered long-lived LLRW. In most cases the 10,000 year period of compliance would not capture doses from DU. However, analyses even at 10,000 years and longer into the future is speculative and has a high degree of uncertainty. The discussion provided in the RCPD on analyses during the performance period is appropriate for making risk-informed decisions based on the results of those analyses.

d) Should there be a dose limit associated with the performance period analysis, and if so, what should that dose limit be?

**Comment:** See comment above on the definition of performance period. If a dose limit were to be proposed for the performance period, potential factors for consideration are: 1) the timeframe at which the peak dose occurs; 2) the uncertainty in the results; and 3) the type of waste disposed. One compelling reason to have a dose limit during the performance period is that ingrowth of progeny from certain radionuclides could result in the waste becoming Greater than class C (GTCC) at some point in time during the performance period. Conducting a site-specific analysis with a dose limit during the performance period could provide results that indicate the necessity for imposing concentration or volume limits thereby giving the regulator greater authority to restrict the amount of long-lived radionuclides disposed. For example, if the dose limit were set to 500 mrem/year for the performance period, it would be possible to impose a limit on the amount of long-lived radionuclides. Without associating a dose limit with the performance period, there is nothing to base concentration or volume limits on for long-lived radionuclides due to ingrowth of progeny during the performance period.