



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 16, 2016

Mr. Charles Maguire, Division Director
Radioactive Materials Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Dear Mr. Maguire:

The U.S. Nuclear Regulatory Commission (NRC) uses the Integrated Materials Performance Evaluation Program (IMPEP) in the evaluation of Agreement State programs. On April 4 and 5, 2016, the NRC staff met with you and your staff. The purpose of the meeting was a "Special Review" under the auspices of IMPEP and focused on Low-Level Radioactive Waste disposal licensing documentation and the related the performance assessment modeling associated with the Texas Commission on Environmental Quality's Depleted Uranium Performance Assessment. The NRC was represented by David Esh and Stephen Poy.

In accordance with procedures for implementation of IMPEP, we are providing you with a copy of the draft report for your review and comment prior to submitting the report to the MRB. Comments are requested within 4 weeks from your receipt of this letter. This schedule will permit the issuance of the final report in a timely manner that will be responsive to your needs. A Management Review Board (MRB) meeting to discuss the outcome of the review has been scheduled for June 23, 2016, at 1:00 pm (EDT). Call in information for the MRB will be provided in a separate transmission.

If you have any questions regarding the enclosed report, please contact me at (301) 415-5804 or via e-mail at Paul.Michalak@nrc.gov to discuss your concerns.

Sincerely,

/RA/

Paul Michalak, Branch Chief
Agreement State Programs Branch
Division of Material Safety, State, Tribal
and Rulemaking Programs
Office Nuclear Material Safety
and Safeguards

Enclosure:
Special Review Draft Report

Mr. Charles Maguire, Division Director

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SPECIAL REVIEW OF THE
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
LOW LEVEL RADIOACTIVE WASTE DISPOSAL PROGRAM

APRIL 4 –5, 2016

DRAFT REPORT

Enclosure

EXECUTIVE SUMMARY

This report presents the results of the Special Review conducted with the Texas Commission on Environmental Quality (TCEQ) to discuss performance assessment modeling and related TCEQ licensing documentation associated with the disposal of depleted uranium as part of the Technical Quality of Licensing Actions sub-indicator under the Low Level Radioactive Waste Disposal Program. The U.S. Nuclear Regulatory Commission (NRC) staff developed two suggestions for improvement with regard to TCEQ's documentation process of licensing actions and communications with its licensee. Further, the NRC staff provided a suggestion for improvement associated with the tracking and resolving of errors or changes in the performance assessment modeling. These items will be reviewed at the next Integrated Materials Performance Evaluation Program review of the Texas Agreement State Program in 2018.

1.0 INTRODUCTION

This report presents the results of the Special Review of the Texas Agreement State Program. The review was conducted April 4-5, 2016, by technical staff members from the U.S. Nuclear Regulatory Commission (NRC). The NRC staff visited the Office of Waste in the Texas Commission on Environmental Quality (TCEQ) in Austin, Texas to review performance assessment modeling and related TCEQ licensing documentation associated with the disposal of depleted uranium. The review was conducted in accordance with the "Implementation of the Integrated Materials Performance Evaluation Program and Rescission of Final General Statement of Policy," published in the *Federal Register* on October 16, 1997, and the NRC Management Directive 5.6 (MD 5.6), "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004. Specifically, the Special Review was conducted under the auspices of IMPEP and focused on the Low-Level Radioactive Waste (LLRW) Disposal Program indicator.

On September 10, 2014, TCEQ received a petition by Waste Control Specialists (WCS) requesting a change in TCEQ rules to remove prohibitions against the disposal of Greater-than-Class-C (GTCC), GTCC-like, and transuranic waste at WCS's TCEQ-licensed facilities. On January 30, 2015, the TCEQ submitted a letter to the NRC requesting clarification on TCEQ's jurisdiction to license the disposal of such low-level waste. TCEQ's request led NRC staff to develop a Commission Paper to get direction on the jurisdictional question. During the development of the Commission Paper, TCEQ requested that the NRC review the performance assessment model submitted by WCS as part of its low-level waste disposal request to TCEQ. The NRC staff completed a peer review of the preliminary performance assessment model in mid-2015. By letter dated August 5, 2015, the NRC provided its peer review comments to TCEQ, which addressed process and technical concerns related to the performance assessment.

During the peer review, the NRC staff learned that the WCS performance assessment model (with changes to inventory) was currently being used by TCEQ to license the disposal of depleted uranium. Subsequently, and in coordination with TCEQ, the NRC staff conducted the April 4–5, 2016 Special Review. The NRC staff evaluated a sample of the performance assessment models and associated documents for TCEQ licensing and license amendment actions related to depleted uranium. In addition to reviewing documents related to the depleted uranium performance assessments, the NRC staff also interviewed members of the TCEQ staff in order to resolve some of the concerns raised during the peer review of the GTCC performance assessment.

Staff reviewed the following documents:

- Major amendment files.
- Amendment 26 Performance Assessment Review (email communications).
- October 22, 2012, Paper – discussion of inventory and NRC limits guidance.
- Administrative completeness document dated August 20, 2013.
- Internal email documentation on questions associated with rebar and concrete pH dated October 30, 2013.
- WCS response to comments in materials dated January 28, 2014.
- TCEQ intra-agency memo determining application was technically complete dated April 16, 2014.

- Response to public comments document dated May 16, 2014.
- Neptune (Contractor that developed the performance assessment model for WCS) presentation dated February 24, 2016 (discussion of WCS site model work).
- WCS Performance Assessment Meeting Agenda and presentation dated May 8, 2015.
- E-mail document dated July 15, 2015, from Hans Weger, TCEQ to WCS – included questions and concerns from TCEQ to WCS regarding performance assessment related documents
- June 30, 2015, updated PA documentation.

2.0 LLRW Disposal Program

The objective of this Special Review is to access TCEQ's documentation and other related material under the Integrated Materials Performance Evaluation Program LLRW Disposal Program, Technical Quality of Licensing Actions sub-element.

a. Scope

The review team used the guidance in State Agreements procedure SA-109, "Reviewing the Non-Common Performance Indicator: Low Level Radioactive Waste Disposal Program," and evaluated the Texas performance with respect to the following performance indicator objectives:

Technical Quality of Licensing Actions

- Licensing action reviews are thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed.
- Applicable LLRW guidance documents are available to reviewers and are followed (e.g., pre-licensing guidance, regulatory guides, etc.).
- Essential elements of license applications have been submitted and that these elements meet current NRC or Agreement State regulatory guidance for describing the isotopes and quantities used, qualifications of authorized users, facilities, equipment, locations of use, operating and emergency procedures and any other requirements necessary to ensure an adequate basis for the licensing action (e.g., financial assurance, increased controls/Part 37).
- Deficiency letters clearly state regulatory positions and are used at the proper time.

b. Discussion

Technical Quality of LLRW Licensing Actions

NRC staff's Special Review of the Texas Agreement State program consisted of pre-office visit discussions with TCEQ staff and a visit to the TCEQ office in Austin, Texas on April 4-5, 2016. Prior to the April 2016 office visit, the NRC review team held discussions with TCEQ staff on WCS's performance assessment model used in the depleted uranium disposal evaluation. During the April 2016 office visit, TCEQ staff provided NRC staff with WCS's performance assessment model and associated

documents related to communications between TCEQ and WCS on the performance assessment model. As a result, the Special Review focused on three areas: TCEQ's process (e.g, procedures and guidance) for reviewing WCS's depleted uranium disposal license amendment and the associated performance assessment model for such disposal, the input parameters used in the performance assessment, and the resulting licensing decision.

In response to NRC staff inquiries, TCEQ staff indicated that there is no Texas guidance for the review of performance assessments and associated documentation. However, the NRC review team did determine, through available documentation of interactions between the TCEQ and the licensee, that a review of the performance assessment for the disposal of depleted uranium was performed. TCEQ staff indicated that questions concerning WCS's performance assessment model were being resolved primarily through email exchanges and meetings. The NRC staff observed that the volume of documentation capturing the review was considerably less than would typically be expected for review of a complex performance assessment. In addition, TCEQ staff indicated that WCS did not provide an adequate response to all of TCEQ's comments. TCEQ did not believe the unresolved comments were significant enough to result in a public health and safety issue. However, the lack of records indicating a resolution of their comments is an apparent documentation deficiency in TCEQ's regulatory process. TCEQ acknowledged this deficiency and indicated that the performance assessment model would be updated as additional data and information became available (i.e., was provided or collected from the licensee).

During the April 2016 office visit, the NRC review team asked TCEQ staff if individual TCEQ staff members have the ability to exercise the performance assessment model and conduct studies to assess model sensitivities to input parameters. TCEQ management indicated that their staff has the ability to study the sensitivity of the performance assessment model and when a model file is received from WCS it is distributed to the relevant technical staff for further sensitivity analysis. As part of TCEQ's evaluation, staff will run the performance assessment model to verify the licensee's results and may perform additional calculations to verify the ranges of parameters. TCEQ also indicated these independent evaluations of the performance assessment model are the technical basis for questions and issues that are provided to WCS for resolution. However, based on NRC staff's review, these independent evaluations of the performance assessment model do not appear to be documented by TCEQ.

As part of the April 2016 office visit, NRC staff examined the topic of input parameters for the performance assessment model. As indicated in the August 5, 2015, peer review letter, NRC staff noted an earlier version of the performance assessment model (v 0.205) had a number of input parameters that were clearly identified within the model input file as "placeholder" inputs. TCEQ staff indicated that the licensee provides annual updates to their performance assessment modeling, and that the licensee was working to resolve the placeholder inputs as the model was being revised. However, this version of the performance assessment model appeared to be the one used in TCEQ's depleted uranium disposal licensing decision. At the April 2016 office visit, the NRC review team observed that there were two performance assessment models with the v 0.205 designation, one had the word "draft" in bold red text on the main menu as well as bold

red text for the designating placeholders while the other version did not have the red text but still identified the model as preliminary and many of the inputs as placeholders. In addition, during the April 2016 office visit, TCEQ provided several newer versions of the performance assessment model (v. 0.3, 0.4, and 0.51) which contained some new input values, with none of the values designated as placeholders. Based on NRC staff review, it appears that the TCEQ regulatory process for making the license amendment decision concerning the disposal of depleted uranium was potentially based, in part, on performance assessment model inputs that were not sufficiently documented (i.e., ambiguity in terms of the inputs designated as placeholders). TCEQ indicated that the issues surrounding the model inputs and their placeholder status were being resolved over time as additional information and documentation is included in the model by the licensee.

In terms of TCEQ's licensing decision for the disposal of depleted uranium at the WCS facility, NRC staff did not find sufficient documentation of TCEQ's decision making process. However, during the April 2016 office visit, NRC staff determined that two factors went into TCEQ's licensing decision. First, the WCS disposal site appears to have significant disposal margin, which is related to the quantities of depleted uranium that are expected to be disposed at the site, the site's physical features that are conducive to such disposal volumes, and the projected performance of the disposal site to meet regulatory objectives. Second, the performance assessment model for the disposal site is expected to be revised before significant quantities of depleted uranium will be disposed. The NRC review team noted that these factors should have been explicitly documented in TCEQ's licensing records and appropriate license conditions generated.

During the April 2016 office visit, TCEQ indicated that the WCS disposal license has a condition that requires the licensee to perform specific sensitivity analyses when requested by TCEQ. However, TCEQ staff does not appear to have a system or process in place to track the results of the sensitivity analyses including assessing the impact of input parameter errors or changes to the model. For example, with respect to placeholder values, TCEQ does not have a system in place to verify the basis for the removal of placeholder designations on the performance assessment model inputs.

c. Evaluation

During the office visit, the review team identified several items associated with TCEQ's performance assessment and related licensing decisions for the disposal of depleted uranium that warrant some improvement. As a result, NRC staff makes the following suggestions:

1. TCEQ should improve the documentation of its communications with the licensee. Specifically,
 - a) Questions about a licensee's submittal should be developed and provided to the licensee in a formal Request for Additional Information format. Upon resolution of the questions, the outcomes can be documented. Issues raised by TCEQ, issues self-identified by WCS, and how the issues are resolved can be documented effectively.

- b) TCEQ should improve the documentation of the assessment process when reviewing new versions of the performance assessment models that are provided annually by the licensee.
 - c) TCEQ should improve the documentation of the safety technical bases for the disposition of a licensing action. This can be completed in a Safety Evaluation Report (SER) or similar document. The SER would allow TCEQ to document how the licensee is addressing compliance with regulatory requirements and why TCEQ has determined that the information provided by the licensee is acceptable. If the licensing action is subject to a hearing or an allegation, the regulatory process could be followed and supported by the contents of the SER.
- 2. TCEQ should improve the documentation of its process related to the resolution of the placeholder inputs in the performance assessment models. TCEQ should document how placeholder inputs have been removed along with suitable justification.
 - 3. TCEQ should have a documented process to track and identify both the technical analyses upon which a regulatory decision has been made and the significance of errors or changes that may be identified in the supporting performance assessment model. Resolution of significant errors or changes should be documented and in the case of errors, appropriate corrective actions taken.

3.0 SUMMARY

The NRC staff conducted a Special Review of TCEQ's performance assessments and associated licensing decisions related to the disposal of depleted uranium under the sub-element of Technical Quality of LLRW Licensing Actions of the Non-Common Performance Indicator Low Level Radioactive Waste Disposal Program. The review team concluded that TCEQ is effectively managing its licensing activities. However, NRC staff developed two suggestions with regard to its documentation process in interacting with its licensee. The NRC staff also developed a suggestion associated with tracking and resolving errors or changes. These items should be reviewed at the next IMPEP review of the Texas Agreement State Program in 2018.