Texas Commission on Environmental Quality
Interoffice Memorandum

To: Commissioners **Date:** May 30, 2013

Thru: Bridget C. Bohac, Chief Clerk
Zak Covar, Executive Director

From: Brent Wade, Deputy Director
Office of Waste

Docket No.: 2013-0711-RUL

Subject: Commission Approval for Proposed Rulemaking
Chapter 336, Radioactive Substance Rules
Uranium Soil Concentration Standard
Rule Project No. 2013-029-336-WS

Background and reason(s) for the rulemaking:

In response to a petition for rulemaking, the executive director recommends rulemaking to amend the decommissioning standards applicable to radioactive source material (i.e., uranium mining) sites and by-product disposal sites so that the standards will conform to federal requirements.

On February 12, 2013, Barrett & Associates, PLLC submitted a petition for Rulemaking on behalf of Uranium Energy Corp. (UEC). In their petition, Barrett & Associates requested that the commission amend 30 TAC §336.1115 to remove subsection (e)(3), which would remove the redundancy in uranium in soil concentration limits and conform the rule to the federal requirements. At the TCEQ's agenda on April 10, 2013, the commission approved the petition for rulemaking (Project No. 2013-021-PET-NR) and directed staff to initiate rulemaking.

As requested in the petition, the commission proposes to remove §336.1115(e)(3), the limits for the uranium concentration in soil. The commission also proposes, in response to the removal of subsection (e)(3) to amend subsection (e)(4) to compensate for the removal of subsection (e)(3) by effectively limiting uranium concentration limits to limits specified in 10 Code of Federal Regulations (CFR) Part 40 Appendix A, Criterion 6(6).

In considering the petition, staff reviewed the current rule language in §336.1115(e) and determined that inclusion of a specific soil standard for the concentration of uranium in soil is not consistent with the federal requirements of the United States Nuclear Regulatory Commission (NRC). The federal regulations set a standard for the concentration of radium in soil and require a risk-based dose assessment, but do not establish a specific concentration limit for uranium. A decommissioning standard for the concentration of uranium in soil is not necessary because the required risk-based radium benchmark dose assessment approach accounts for the radioactivity of the radionuclides in soil, including uranium.

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The licensing program for uranium mining has transferred several times from the TCEQ and the Texas Department of State Health Services (DSHS). When the program was previously at TCEQ, the commission proposed rules and invited comments on including a standard for the concentration of uranium in soils in a 1997 rulemaking. In response to comments from the NRC, however, the commission did not adopt a standard for uranium. (*See* May 27, 1997, issue of the *Texas Register* (22 TexReg 4593)). After the program was transferred to DSHS in 1997, it appears the standard for uranium was picked up as a requirement in DSHS rules without any specific explanation. The current TCEQ rule language was carried back over from the rules of DSHS when the licensing program was transferred by Senate Bill 1604 in 2007. The dose-based approach was added in the rules in response to a comment from the NRC, but the limit for the uranium concentration was not removed from the rule. Accordingly, the commission now proposes this rulemaking to remove the uranium concentration requirement to be consistent with the applicable federal requirements.

Scope of the rulemaking:

A.) Summary of what the rulemaking will do:
This rulemaking will amend §336.1115(e) uranium limits for outdoor areas to be considered suitable for release to unrestricted use. Specifically, it will amend the uranium in soil concentration limit so that uranium and all related radioactive concentrations in soil will be limited by the Radium Benchmark Dose Approach as specified in NUREG-1620 Appendix H. Use of the benchmark method will limit uranium soil concentrations in relation to each site's radium soil concentrations and will serve to limit public dose to levels no greater than that calculated by the radium benchmark method for that site.

B.) Scope required by federal regulations or state statutes:
The proposed rulemaking will make the TCEQ's decommissioning standards compatible with the applicable federal requirements in 10 CFR Part 40, Appendix A, Criterion 6(6).

C.) Additional staff recommendations that are not required by federal rule or state statute:
There are no additional staff recommendations.

Statutory authority:

The amendment is proposed under the Texas Radiation Control Act, Texas Health and Safety Code (THSC), Chapter 401; THSC, §401.011,which provides the commission authority to regulate and license the disposal of radioactive substances, the commercial processing and storage of radioactive substances, and the recovery and processing of source material; THSC, §401.051, which authorizes the commission to adopt rules and guidelines relating to control of sources of radiation; THSC, §401.103, which authorizes the commission to adopt rules and guidelines that provide for licensing and registration for the control of sources of radiation; THSC, §401.104, which requires the commission to provide rules for licensing for the disposal of radioactive substances; THSC, §401.262, which

authorizes the commission to assure that by-product disposal sites are closed and that by-product material is managed and disposed in compliance with applicable federal standards; and THSC, §401.412, which provides the commission authority to adopt rules for the recovery and processing of source material and the disposal of by-product material. The proposed amendment is also authorized by Texas Water Code, §5.103, which provides the commission with the authority to adopt rules necessary to carry out its powers and duties under the Texas Water Code and other laws of the state.

The proposed amendment implements THSC, Chapter 401, relating to Radioactive Materials and Other Sources of Radiation, including THSC, §401.011, relating to Radiation Control Agency; THSC, §401.051, relating to Adoption of Rules and Guidelines; THSC, §401.103, relating to Rules and Guidelines for Licensing and Registration; THSC, §401.104, relating to Licensing and Registration Rules; and THSC, §401.262, relating to Management of Certain By-Product Material.

Effect on the:

A.) Regulated community: The proposed rulemaking will clear up conflicting language in the current rule about the uranium concentration in soil and amend the standards for release of site to unrestricted use to meet federal standards. The Texas uranium mining industry will now have to adhere to site release standards and meet the same clean-up criteria as sites regulated by the NRC.

B.) Public: The proposed rulemaking will limit the effective dose equivalent potentially received by the general public at a decommissioned site to a level no greater than that calculated using the radium benchmark method for that site.

C.) Agency programs: The proposed rulemaking will have no impact on agency programs.

Stakeholder meetings:
No stakeholder meetings were held for this rulemaking project.

Potential controversial concerns and legislative interest:

The proposed rulemaking would remove the uranium concentration limits currently in place and replace it with a dose based approach for limiting uranium and other radionuclides relative to the radium concentration in soil. In certain circumstances this has the potential to allow uranium soil concentrations greater than the current 30 picocuries per gram (pCi/g) limit. Since the rulemaking would change the uranium concentration limit relative to the radium concentration, a low radium concentration in soil could allow uranium concentration to exceed 30 pCi/g. Alternatively, if there is already a high radium concentration in soil, final uranium soil concentration allowed could be less than 30 pCi/g. While it may leave an increased uranium concentration in soil, the

rule change will serve to limit the effective dose equivalent the public may receive to a dose no greater than that calculated by the radium benchmark dose method for that site.

Will this rulemaking affect any current policies or require development of new policies?

This rulemaking will not affect any current policies or require development of new policies.

What are the consequences if this rulemaking does not go forward? Are there alternatives to rulemaking?

The current standard in §336.1115(e) specifies a uranium concentration in soil limit of 30 pCi/g up to six inches below the surface. It also specifies a reference to using the Radium Benchmark Dose approach with an allowable effective dose equivalent of up to 100 mRem per year under certain conditions (Rem is the special unit of absorbed dose expressed as a dose equivalent). The 100 mRem dose equivalent as currently expressed in the regulations is related to the NRC guidance on the radium benchmark method in which doses that exceed 100 mRem/yr would require approval after consideration of the recommendation of staff, and is not a dose limit in the ordinary sense.

The proposed rulemaking removes the conflict of specifying an absolute uranium soil limit by deriving a uranium soil limit dependent on the Radium Benchmark dose approach calculation. The Radium Benchmark dose approach results in a dose that is limited by the concentration of radium (and other radionuclides) in the soil and the physical and chemical characteristics of the site being examined.

If the rulemaking does not go forward there would remain a conflict in the rule for uranium concentration in soil different from the uranium soil concentration derived from the NRC prescribed Radium Benchmark Dose method, which potentially puts Texas in violation of the requirements for agreement state regulation of by-product material as per 10 CFR §150.31(2): "Compliance with standards which shall be adopted by the Agreement State for the protection of the public health, safety, and the environment from hazards associated with such material which are equivalent, to the extent practicable, or more stringent than, standards in 10 CFR Part 40, Appendix A adopted and enforced by the Commission for the same purposes, including requirements and standards subsequently promulgated by the Commission and the Administrator of the Environmental Protection Agency pursuant to the Uranium Mill Tailing Radiation Control Act of 1978."

Key points in the proposal rulemaking schedule:

Anticipated proposal date: June 18, 2013
Anticipated *Texas Register* publication date: July 5, 2013
Public hearing date (if any): None.
Public comment period: July 5 - August 5, 2013
Anticipated adoption date: November 6, 2013

Agency contacts:
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Attachments
Petition
Order Adopting Petition

cc: Chief Clerk, 2 copies
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