Industry Perspectives on the Application of 40 CFR Part 61, Subpart W to Uranium Recovery Facilities

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INTRODUCTION

- At the 2008 Nuclear Regulatory Commission (NRC)/National Mining Association (NMA) Conference, the Environmental Protection Agency (EPA) Announced a New Scope for 40 CFR Part 61, Subpart W's Application to Uranium Recovery Facilities:
  - Subpart W Applies to:
    - Uranium Mill Tailings Impoundments;
    - Evaporation Ponds;
    - Other Non-Tailings Impoundments (e.g., Settling Ponds)

INTRODUCTION

- **The Domestic Uranium Recovery Industry Was Surprised and Dismayed by This Pronouncement:**
  - **Existing Conventional Mills Have Only Reported Radon Flux Data From Uranium Mill Tailings Impoundments:**
    - **EPA Method 115 Assumes Water Covered Sources in Such Impoundments to Be a Zero Source Term**
  - **In Situ Leach (ISL) Facilities Do Not Have Uranium Mill Tailings Impoundments and Have Not Reported in the Past**

INTRODUCTION

- **NMA Responded to This Pronouncement on Behalf of Industry:**
  - **Met with NRC to Discuss Its Position on This Issue;**
  - **Met with EPA Headquarters Task Force on This Issue;**
  - **Prepared a Detailed Analysis of the:**
    - **Subpart W Administrative Rulemaking Record; and the**
    - **Current Status of Subpart W's Application to Uranium Recovery Facilities**

INTRODUCTION

- **EPA Responded to NMA By Stating:**
  - **EPA is Evaluating the Scope of Subpart W with a Potential Rulemaking in Mind;**
  - **EPA Has Sent Letters to Numerous Uranium Recovery Facility Operators (Both Conventional and ISL):**
    - **Demands for Information on Site Operations**
    - **Demands for Testing on Existing Site Facilities**

CLEAN AIR ACT: STATUTORY AND REGULATORY SUMMARY

- **Congress Enacted the Clean Air Act of 1977 (CAA) in Part to Address Radionuclides as Potentially Hazardous Air Pollutants and To Have EPA Develop National Emissions Standards for Hazardous Air Pollutants (NESHAPs);**

- **March 7, 1989: EPA Proposes Standards at 40 CFR Part 61 as Follows:**

  - **Subpart T: *Inactive* Uranium Mill Tailings Piles/Impoundments;**
  - **Subpart W: *Active* Uranium Mill Tailings Piles/Impoundments;**
  - **Subpart B: Underground Uranium Mines;**
  - **Others**

CLEAN AIR ACT: STATUTORY AND REGULATORY SUMMARY

- December 15, 1989: EPA Promulgates Final Rules for Subparts T, W, and B:
  - All Three Subparts Must Be Considered When Evaluating the Scope of Subpart W:
    - All Three Were Proposed/Promulgated at the Same Time;
    - All Three Address Radon Emissions for Which EPA's Radionuclide Risk Factor Assumptions Would Be Equally Applicable;
    - Subpart T was Eventually Rescinded After Extensive Negotiations Addressing Numerous Mill Tailings and Related Process Issues;
    - EPA Conclusions and Statements in Subparts T and B are Relevant As Their Conclusions Relate Directly to Subpart W as Finally Promulgated

CLEAN AIR ACT: STATUTORY AND REGULATORY SUMMARY

- **The Rescission of Subpart T Plays a Critical Role:**
  - **Settlement Negotiations Explicitly Raised the Evaporation Pond and Non-Tailings Impoundment Issue (Proposed Rule):**
    - **"The regulations contemplated by this notice seek to control the emission of radon-222 by requiring the installation of an earthen cover over the disposal piles as expeditiously as practicable considering technological feasibility. However, there are other aspects to the UMTRCA regulatory scheme, including the long-term maintenance of the piles (once controlled) against erosion, and the reclamation and maintenance of groundwater….*These actions entail the use of evaporation ponds that in some instances….have been placed directly upon the disposal site*.";**
    - **"EPA does not intend that the expeditious radon cover requirement extend to the areas where evaporation ponds are located, *even if on the pile itself*, to the extent that such evaporation pond is deemed by the implementing agency (NRC or an affected Agreement State) to be an appropriate aspect to the overall remedial program for the particular site involved."**

CLEAN AIR ACT: STATUTORY AND REGULATORY SUMMARY

- **The Rescission of Subpart T Plays a Critical Role (CONTINUED):**
  - **Settlement Negotiations Explicitly Raised the Evaporation Pond and Non-Tailings Impoundment Issue (Proposed Rule):**
    - **"*the ponds themselves serve as an effective radon barrier*, thus this decision is bolstered by the absence of any evidence that there is a significant public health risk presented by the radon emissions from these evaporation ponds during the period they are employed as part of the overall remediation of the site.";**
    - **"EPA believes the overall public health interest in comprehensively resolving the problems associated with each site is best served by requiring that the radon cover be expeditiously installed in a manner that does not require interruption of this other aspect of remediation….*Rather, EPA believes that provided all other parts of the pile are covered with the earthen cover, compliance with the 20 pCi/m2 standard will result*…."**

CLEAN AIR ACT: STATUTORY AND REGULATORY SUMMARY

- **EPA Amendments in 1993 Regarding Agreement States and NRC-Licensed Uranium Mill Tailings in the Response to Comments:**
  - "***EPA reiterates that the Agency does not intend the expeditious radon cover requirement to extend to areas where evaporation ponds are located,*** even if on the pile itself, to the extent that such evaporation pond is deemed by the implementing agency…to be an appropriate aspect of the overall remedial program for the particular site.";
  - The same obviously holds true for licensed non-tailings ponds/impoundments necessary for active recovery operations

CLEAN AIR ACT: STATUTORY AND REGULATORY SUMMARY

- **EPA's Response to Comments and Method 115 Guidance Provides Additional Support:**
  - Response to Comments: "Recent technical assessments of radon emission rates from tailings indicate that radon emissions from tailings covered with *less than one meter of water, or merely saturated with water, are about 2% of emissions from dry tailings. Tailings covered with more than one meter of water are estimated to have a zero emissions rate. The Agency believes this calculated difference between 0% and 2% is negligible. The Agency used an emission rate of zero for all tailings covered with water or saturated with water in estimating radon emissions.*";
  - Method 115: "[R]adon flux measurements shall be made within each region on the pile, *except for those areas covered with water.*" *Water covered area*--no measurements required as radon flux assumed to be *zero*."

CLEAN AIR ACT: CONCLUSIONS

- **The Administrative Rulemaking Record States Unequivocally in Subparts T and W Proceedings and in Method 115 That a Water-Covered Mill Tailings Impoundment, Much Less a Water-Covered Non-Tailings Impoundment, is a "Zero Radon Flux Source Term:**
  - **Evaporation and Other Non-Tailings Ponds Contain Water During Operations;**
  - **Lined Ponds Must Be Disposed of In Place if They Do Not Contain 11e.(2) Byproduct Material Unless on Top of a Tailings Pile/Impoundment or They Must Be Removed and Placed in a Tailings Pile/Impoundment When No Longer Active;**
  - **Anything that is Not Active, Including Tailings Piles, are Not Subject to Subpart W**

CLEAN AIR ACT: CONCLUSIONS

- With Respect to Method 115 Testing Procedures and Guidance:
  - Both Subpart T and W Rulemakings Expressly State that the Requirements Do Not Apply to Evaporation Ponds--Even Those on Top of Tailings Piles/Impoundments;
- No Regulations for ISL As Such Facilities Are Never Mentioned in Subpart W or Its Administrative Rulemaking Record;
- Only in Subpart B Rulemaking for Underground Uranium Mines are ISLs Mentioned:
  - EPA States Not Enough Radon Released to Require Regulation

INDUSTRY CONCERNS: OVERSIGHT

- **Another Layer of Regulatory Oversight Will Result in Cost Increases and Inefficiency of Facility Processes:**
  - **Potential EPA Requirements for Concurrent Approval of Construction of New Evaporation or Other Non-Tailings Impoundments;**
  - **Potential Enforcement Action by EPA regarding Changes in Aspects of Ponds (i.e., Water Levels)**

INDUSTRY CONCERNS: STANDARDS

- **EPA May Re-Evaluate the 20 pCi/m2-sec Standard:**
  - All Title I Sites to Be Closed Pursuant to This Standard;
  - All Title II Uranium Mill Tailings Facilities Closed and Licenses Terminated Pursuant to This Standard;
  - Re-Evaluation of This Standard Could Result in Hundreds of Millions of Dollars in Changes to Already-Closed Sites That Have Been Transferred to the Department of Energy (DOE) as Perpetual Custodian

INDUSTRY CONCERNS: JURISDICTION

- **EPA's NESHAPs are "Outside the Fenceline" Standards:**
  - **Occupational Exposures are not Within EPA's Jurisdiction;**
  - **NRC Fence-Line Limits for Members of the Public of 100 Mrem/Year Provide a Safe and Effective Public Dose Standard:**
    - **Conventional Uranium Mills Satisfying the 20 pCi/m2-sec Standard Are Adequately protective of Public Health and Safety and Produce Less than 100 Mrem/Year to Nearest Resident;**
    - **ISL Facilities Produce Only a Tiny Fraction of the 100 Mrem/Year Dose to Members of the Public "At the Fence-Line"**

CONCLUSIONS

- **EPA's Apparent Assumptions that Subpart W Applies to Non-Tailings Ponds/Impoundments at Conventional and ISL Facilities:**
  - **Is in Direct Conflict with the Rulemaking Record:**
    - Subparts T and W Do Not Apply to Evaporation Ponds, Even Those on Tailings Piles/Impoundments;
    - Even Water-Covered Tailings Are a Zero Radon Flux Source Term;
    - ISL Sites Are Never Mentioned Except in Subpart B
  - **Is Faulty if Based on Concept That Wastewater at Uranium Recovery Facilities is 11e.(2) Byproduct Material:**
    - The Water Evaporates and Then Liner is Disposed of as 11e.(2) Byproduct Material ;
    - Materials Other Than Wastewater and Tailings are 11e.(2) Byproduct Material
- **Re-Evaluating the 20 pCi/m2-sec Standard Per Public Lawsuit is Understandable But Changing the Standard Could Only Be Based on Speculation and Not on Identified Adverse Impacts**