

January 25, 2007

Nuclear Regulatory Commission  
Washington, D.C. 20555

RE: Comments on Consideration of rulemaking to reduce the likelihood of funding shortfalls for decommissioning under the license termination rule.

Below are my comments on the issues discussed in the January 10, 2007, public roundtable.

### **Comments on Proposed Rulemaking**

Below please find comments on the issues brought forth in the Nuclear Regulatory Commission (NRC) January 9, 2007, public roundtable meeting. My comments will focus on 10 C.F.R. Part 40 uranium recovery facilities, because these are the kinds of facilities that I am familiar with.

#### **I. General Comments:**

1. It is hard to understand why the NRC did not notice the public meeting and opportunity to comment as an Advanced Notice of a Proposed Rulemaking (ANPR), making the process more formal and widening the input on these issues that impact so many types of facilities. There should be additional opportunity for state, tribal, and federal agencies to weigh in on these issues prior to the development on a draft rule.

Therefore, I request that the NRC issue an ANPR for this rulemaking and allow the public to review the related documents, including the transcript of the January 9 roundtable, and submit comments on the proposed rulemaking.

#### *II. Radionuclides of interest to support decommissioning objectives*

##### *Background information:*

- *Decommissioning is the safe removal of a facility from service and reduction of residual radioactivity to a level that permits either unrestricted or restricted release of the property and termination of the license in most cases.*

- *Some decommissioning actions are complex.*

- *“Residual radioactivity” is the term used to define the radioactivity in structures, materials, soils, groundwater, and other media remaining at the site as a result of*

*routine operation or accidental releases of radioactive material at the site.*

• *The residual radioactivity at complex materials facilities generally includes very long lived radionuclides, primarily uranium and thorium, but also K-40, C-14, Am-241 and others.*

*Issues:*

1. *The NRC seeks comments on which radionuclides, related to the operation of a licensed facility, could potentially produce residual radioactivity that may affect decommissioning activities.*

**Comments:**

A. The radionuclides from uranium and thorium recovery facilities would, naturally, include the uranium-238, uranium-234, uranium-235, thorium-232, and the radionuclides produced by the decay of these isotopes.

B. The NRC errs in not also considering the residual chemical contamination that will affect decommissioning activities. These radionuclides associated with uranium recovery are also associated with numerous chemical contaminants from the material that was processed and the processing chemicals. The Part 40 regulations require that these chemical contaminants also need to be monitored and corrective action plans developed and implemented when contamination occurs during operation of the mill and as part of the decommissioning.

At the former Atlas Mill in Moab, Utah, ammonia became a contaminant of concern due to its impact on endangered fish species. Currently, there is a chloroform plume that is being remediated at the International Uranium (USA) Corporation uranium mill near Blanding, Utah. The NRC has a policy guidance that allows any uranium bearing nuclear waste to be considered for processing at uranium recovery facilities. As a result, new chemical contaminants have been introduced into uranium mill tailings impoundments and material that is much more highly concentrated chemically has been processed and disposed of in lined cells that were never designed to hold such material. This has the potential to create a situation where chemical contamination of the site is different from that what was originally contemplated.

2. *The NRC seeks comments on the circumstances when residual radioactivity poses a problem, and the resulting effects on decommissioning planning.*

**Comments:** Residual radioactivity and chemical contamination pose a problem when they have been identified on site and nearby and regulation, common sense, a commitment to public health and safety, and the desires of the community requires a clean up to applicable standards.

The ground and surface water at the site and in the site vicinity has not been properly monitored.

Spills, burials, materials, planned discharges, and other site activities are not properly documented.

### *III. Types of facilities that have a potential to contaminate the subsurface*

#### *Background information:*

- *All of the following types of facilities have a potential to contaminate the subsurface with residual radioactivity:*
  - *nuclear power reactors,*
  - *research and test reactors,*
  - *fuel cycle facilities including uranium mill and solution mining.*
  
- *Some of the following types of facilities have a potential to contaminate the subsurface with residual radioactivity:*
  - *academic broad scope,*
  - *research and development,*
  - *medical broad scope,*
  - *manufacturing and distribution,*
  - *pool irradiators,*
  - *nuclear laundry,*
  - *decontamination services,*
  - *waste disposal services, and*
  - *waste treatment services.*

#### *Issue:*

*The NRC seeks comments on the features of these types of facilities that create a potential to contaminate the subsurface with residual radioactivity.*

**Comments:** For uranium recovery facilities some of the sources of contamination are the tailings cells, wastewater containment cells, ore pads, the mill itself, labs, lab and sanitary waste leach fields, transportation and loading activities, and general site activities.

### *IV. Surveys and monitoring performed during operations to support decommissioning*

#### *Background information:*

- *At certain NRC licensed sites, radiological surveys are done to establish background radiation and groundwater monitoring is done during the license application and construction phase to prepare Environmental Reports. For nuclear power reactors, site characterization is performed for the Early Site Permit and for the Construction License.*

*This characterization effort typically includes the hydrology of the site, as a baseline of site conditions prior to construction and operations. For materials licensees, a range of site characterization is done based on the type of facility and potential for environmental contamination at the facility.*

- *NRC regulations limit gaseous and effluent releases to the environment. Over time, radionuclides from effluent releases can accumulate on the surface, or in the subsurface soil and groundwater at a facility. Generally, there are no NRC requirements to monitor the groundwater onsite for residual radioactivity at the reactor sites or the materials sites.*

- *Based on information from the Nuclear Energy Institute (ADAMS accession number ML061950015), operators of nuclear power reactors participate in an "Industry Groundwater Protection Initiative using equipment and procedures appropriate for their site. According to the Nuclear Energy Institute, the voluntary program will include leak detection and monitoring at plant systems or components that may contain radionuclides and that have a credible pathway to groundwater; the program also will include an update and evaluation of hydro-geological conditions to understand groundwater gradients and potential pathways for groundwater migration.*

*Issue:*

1. *The NRC seeks comments on licensee activities during operations to minimize contamination, including residual radioactivity in the subsurface.*

- A. The NRC and Agreement States should not permit uranium recovery facilities to process feed material other than natural ore (i.e., "ore") because 1) the current licensed facilities were not designed to receive the tailings and wastes from the processing from material other than natural ore, 2) the NRC has never assessed the environmental impacts of processing of feed materials other than natural ore in any generic or site-specific Environmental Impact Statement, 3) the NRC and Environmental Protection Agency regulations in 10 C.F.R. Part 40 were not promulgated contemplating the processing of wastes from other mineral processing activities.

- B. The NRC and Agreement States should monitor all sources of potential groundwater contamination, such as the mill and ore, chemical, and other material storage areas. The NRC failed to monitor and identify a large plume of uranium contamination at the Moab Mill that came from the mill and ore storage areas while the mill was in operation because there was no requirement to monitor the groundwater near these areas.

- C. Once it has been determined that there are serious flaws in the construction of a tailings impoundment and the leak detection system does not meet EPA detection standards and these flaws be corrected, then no more tailings should be permitted to be disposed of in that tailings cell. The cell should be decommissioned and remediated.

Such flaws have been identified by the State of Utah for the operating uranium mill near Blanding.

D. When a licensee must develop and implement a groundwater corrective action plan to remediate groundwater contamination, the NRC and Agreement States must assure that the plan will actually have a significant impact on the level of contamination. In the case of the former Atlas Mill, a corrective action plan did little to affect the continued flow of contaminants from the impoundment to the Colorado River. Come decommissioning time, there was no effective correction plan in operation and the reality of having to implement an effective plan as part of the decommissioning of the site sent Atlas into bankruptcy. The facility is being remediated by the Department of Energy as a Title I site, per Congressional mandate, at taxpayer expense.

The NRC should do a review of the whole history of the regulation of the Atlas Mill and the numerous faulty decisions by the NRC and the licensee.

E. The NRC should require monitoring of surface contamination and require continual cleanup of windblown tailings and other on- and off-site surface contamination, not wait until decommissioning of uranium recovery facilities.

F. In addition to licensee activities, it is NRC activities that contribute significantly to radiological and chemical contamination. The NRC must not continue to make licensing decisions that contribute to such contamination. The NRC must also recognize that contamination of the subsurface and groundwater is an inherent part of uranium recovery activities and not mislead the public (and itself) into thinking otherwise.

G. The NRC should not allow licensees to forgo submitting As Low as Reasonably Achievable (ALARA) Reports to the NRC or Agreement States. Apparently, the NRC gave IUC permission to only have the reports available to inspectors. This means that the public and workers will not have the opportunity to view these reports. Such an action is contrary to the public interest.

H. The NRC and Agreement States must do a complete study and evaluation of the subsurface and groundwater radioactive and chemical contamination at the Title II sites. The study should identify the sources of that contamination, regulatory and licensee failures that caused such contamination to occur, and suggested changes in regulations and regulatory oversight to prevent such contamination in the future.

If the NRC is to correct the mistakes of the past, it must know what those mistakes were. Thus far, I have seen no evidence that the NRC is interested in knowing how contamination occurred due to previous operating history of a facility and to the history of regulatory decisions that affected the operation of uranium mills. Without such a complete and far-reaching evaluation of past licensee and regulatory practices, there will continue to be unregulated contamination at uranium recovery facilities.

I. The NRC must develop a new generic Environmental Impact Statement (EIS) for uranium recovery facilities. This EIS must take into consideration the environmental impacts of uranium milling since the first generic EIS was developed in 1980, over 25 years ago. The EIS must reflect the reality of uranium milling, not the dream of a “model mill.”

J. The NRC must also review and propose changes to Part 40 regulations if they have any true intention of minimizing radiological and chemical contamination from uranium recovery facilities.

K. The NRC should not rely on industry voluntary monitoring programs. Monitoring programs must be required and associated with requirements for corrective action programs and programs to prevent contamination.

*2. The NRC seeks comments on licensee activities during operations to perform surveys, which are reasonable under the circumstances, to evaluate radiation levels in the facility and in the environment.*

Comment: See Comment VI 1. above.

V. *Appropriate equipment and procedures for leak detection and subsurface monitoring.*

*Background information:*

- *Certain NRC licensees are required to perform environmental monitoring to comply with radiation protection regulations. The type and location of sampling are usually selected based on environmental pathways from which radionuclides can reach the public.*

*Issue:*

*The NRC seeks comments on licensee activities during operations, for licensees who have a potential to contaminate the subsurface, to (1) perform routine subsurface monitoring to provide early indication of residual contamination in the soil and groundwater, and (2) have a procedure in place to identify a plan of to respond to early indications of contamination in the subsurface.*

VI. Financial Assurances

**Comment:** The NRC has requested comments on a number of questions related to financial assurances. My comments relate to what happens when a when the corporation files for bankruptcy and some of the problems that arise when a surety is called in for a uranium recovery facility. This information is based on the Moab Uranium Mill (former Altas Mill) where the corporation filed for bankruptcy.

A. Collecting on the surety: In this situation, due to the type of surety arrangement, the NRC was only able to collect 80% of a woefully inadequate surety. This was because the corporation had used the same collateral for two different financial commitments. That type of situation should not be allowed to occur.

B. Spending the Surety on Reclamation: The purpose of having a surety is to have adequate funding available to carry out decommissioning and reclamation in the event the licensee files for bankruptcy. There is a serious flaw in this plan: There is no statute or regulation that requires that all of the surety actually be spent on decommissioning. Therefore, in the case of the Moab Mill, a very large portion of the surety went to the administration of the funds, which went into a trust fund that was controlled by a Trustee that was chosen by the NRC. The Trustee, PricewaterhouseCoopers (PWC), was a very pricey outfit. Other surety funds went to the law firms representing PWC. Less than 50% of the surety amount that was collected actually went towards reclamation. When a trustee is charging in the order of a two to four hundred dollars an hour for their services, it adds up pretty quick.

As the licensee, the trustee can actually use trust funds to challenge NRC decisions regarding the reclamation. Trustees should not be permitted to use trust funds for that purpose.

Therefore, without assurances that the funds will actually be spent on decommissioning and reclamation, along with the high price of the administration of a trust fund and legal expenses, the financial surety can only come up short when it comes to decommission a facility.

C. Estimating Surety Amount: When estimating the surety, the cost of administration of the surety was not included, nor was a percentage for legal expenses.

When estimating the surety, a realistic amount for the administration of a surety and a realistic amount to cover possible legal expenses must also be included.

D. NRC oversight of the work done by a trustee that is using surety funds to carry out work at the site: In the case of the former Atlas Mill, the NRC did not fully exercise their responsibility to oversee the work done by PWC. For example: 1) the trustee did not submit as-built drawings for the work done on site involving the clean up of contaminated and other balance of site soils and placing them on a reconfigured tailings impoundment and 2) the trustee failed to submit the last two 6-month reports on the trust and the work done that they had agreed to submit as the trustee. Additionally, the trustee spent trust money to buy grass seeds and have them spray planted on the sides of the 12-million ton impoundment (now estimated by the Department of Energy to be 16 million tons). For some reason they forgot to keep watering the seeds and they never grew. Maybe the PWC contractors did not understand that Moab is in a desert and that in order to grow grass and other plants, they need to be watered. The only result was that the sides of the impoundment turned from the red of the soil to a bright green.

Without responsible NRC oversight of a trustee or other administrator of a trust, paperwork that should be submitted will not be submitted, required work will not be done, and funds will be wasted.

1. *A comparison of financial assurance requirements for nuclear power reactors and materials licensees (see summary table below).*

*Background information:*

- *All of the operators of nuclear power reactors, research and test reactors, and independent spent fuel storage installations are required to provide decommissioning financial assurance at the time of initial license application. For other types of licensees, the need to have decommissioning financial assurance is based on the possession limit in the specific license; for small possession limits there is no financial assurance required.*

- *All of the operators of nuclear power reactors have a minimum dollar amount for decommissioning financial assurance specified by regulation. This amount is adjusted annually based on a site-specific estimate or based on escalation factors for labor, energy and waste burial. For other types of licensees that are required to have financial assurance, a minimum dollar amount must be held for decommissioning and the dollar amount may or may not adjust annually (e.g., certification amounts do not escalate).*

*Comparison of Financial Assurance Requirements for 10 CFR Parts 30, 40, 50, 70, and 72*

[Comparison of information omitted.]

2. *Proposed regulatory change to require collateral to secure a Parent Company Guarantee or a Self- Guarantee*

*Background information:*

- *The Parent Company Guarantee (PCG) and Self-Guarantee (SG) financial assurance mechanisms are unsecured promises to pay decommissioning costs. The funds promised are vulnerable to attachment by creditors. Providing collateral to secure the promised funds will increase the likelihood that funds will be available when needed for decommissioning.*

*Issue:*

*The NRC seeks comment on the costs and benefits of requiring collateral to secure the funds promised in a PCG and SG.*

3. *Proposed regulatory change to revise the net worth requirement for the PCG and SG to include some or all intangible assets held by the guarantor.*

*Background information:*

- *Some firms have a large proportion of their net worth held in intangible assets, such as intellectual property and goodwill, and licensees have inquired about changing the definition of net worth in the financial tests for the PCG and SG financial assurance mechanisms.*

*Issue:*

*The NRC seeks comment on allowing the inclusion of intangible assets in the net worth requirement for the PCG and SG financial tests, the appropriate methods of valuation for intangible assets, and whether the inclusion of intangible assets increase the risk of default for the PCG and SG.*

4. *Proposed regulatory change to eliminate the escrow account and line of credit as financial assurance mechanisms*

*Background information:*

- *An escrow account may be less preferable than a trust for assurance that funds will be available when needed for decommissioning. The United States Environmental Protection Agency (EPA) concluded that a trust was more protective of funds because, under trust law, the title to property in a trust is transferred to the trustee, while in an escrow account, title to the property remains with the grantor. (46 FR 2802, 2827) Thus, escrow property is more likely to be subject to a creditor's claim than property held in trust. In addition, the law of trusts places obligations on the trustee to act in the interest of the beneficiary. In contrast, an escrow agent is responsible only for what is specified in the escrow agreement. The EPA concluded that it would be extremely difficult to draft an escrow agreement that adequately specifies all the actions that an escrow agent would need to take in all situations to assure the instrument served its intended purpose.*

- *Since no NRC licensee has used a line of credit to provide financial assurance, the NRC is considering removing it from the list of approved mechanisms to simplify the regulatory structure.*

*Issues:*

*The NRC seeks comments on the costs and benefits of the escrow account compared to the trust fund for purposes of financial assurance for decommissioning and whether the*

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*mechanism ought to be retained, and whether the line of credit mechanism out to be retained.*

*5. Proposed regulatory changes to revise the decommissioning funding plan reporting requirements for licensees under parts 30, 40, 70 and 72*

*Background information:*

- The NRC plans to incorporate its experience into the requirements for the Decommissioning Funding Plan to improve the quality of the submittals and reduce the likelihood that the cost of decommissioning will be underestimated. A number of practices currently contained in regulatory guidance will be codified. The NRC plans to: (1) require the basis of the cost estimate to be unrestricted use criteria, unless the licensee can demonstrate its ability to meet the criteria for license termination under restricted conditions; (2) require that the cost estimate include an adequate factor, the volume of contaminated soil and groundwater that must be remediated, and a sufficient margin for an independent contractor to perform the work; and (3) require that when the decommissioning cost estimate is updated every three years, it must consider the impact of operational events as well as changing prices on the cost of decommissioning.*

*Issue:*

*The NRC seeks comments on adding these reporting requirements to the regulations.*

*6. Proposed regulatory changes to revise the reporting requirements for nuclear power reactors for which a permanent cessation of operations has been submitted*

*Background information:*

- The NRC plans to revise the decommissioning fund status reporting requirements for reactors that have submitted a certification of permanent cessation of operations to include the amount spent on decommissioning and the amount needed to complete decommissioning. Currently, all power reactor licensees must submit a report on the status of their decommissioning funds. However, the existing regulation does not require information on the amount spent on decommissioning, nor the amount needed to complete decommissioning, given the progress of the work. This information is needed to assess whether the initial funding will be adequate to complete decommissioning.*
- The NRC plans to require periodic reporting of the status of funding for spent fuel management costs for reactors that have submitted a certification of permanent cessation of operations. Currently, the regulations require a single notification of the program to provide funding for the management of spent fuel. After the reactor permanently ceases*

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*operation, the program must be implemented. The NRC plans to require licensees to periodically report on the status of funding for [document ends here].*

Sincerely,

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