

January 10, 2007

Summary Notes

Public Meeting on Consideration of Rulemaking to Reduce the Likelihood of Funding Shortfalls  
for Decommissioning Under the License Termination Rule

Residence Inn Bethesda Downtown

## Morning Sessions

The first topic was stakeholders' views about radionuclides that can affect decommissioning. Stakeholders identified radionuclides that have contaminated soil and groundwater, and mentioned that these and other nuclides would be a concern to a licensee who plans near-term facility shut down and is considering Derived Concentration Guideline Levels (DCGLs) for license termination. Stakeholders mentioned the importance of nuclide half-life, concentration and solubility in the consideration of potential decommissioning issues.

The second topic was stakeholders' views about circumstances that can pose a problem for decommissioning, specifically, significant unidentified soil or groundwater contamination not included in the licensee's decommissioning cost estimate. Some stakeholders challenged soil and groundwater contamination as a significant element in decommissioning costs, pointing to most of the experience to date that unknown subsurface contamination increases total decommissioning cost by only a few percent, which is not significant to stakeholders. In the few cases where there have been problems with the early decommissioning efforts, lessons learned from these will be instructive to properly scope the remediation based on the most restrictive standard among State, Environmental Protection Agency (EPA) and Nuclear Regulatory Commission (NRC) regulations. Stakeholders considered the uncertainty in disposal cost more significant than the volume of contaminated soil or groundwater.

A common theme carried throughout the day and first raised in this session was that stakeholders believe undetected or unmonitored soil and groundwater contamination is not a rulemaking issue but should be corrected by license condition and enforcement at certain culpable facilities. Stakeholders representing the following types of licensed facilities said that their facilities do not, in general, pose a risk to soil or groundwater contamination: research and test reactors (RTRs), universities and hospitals, radiopharmaceuticals and biomedical radionuclide manufactures. These facilities may make effluent releases to municipal sewer systems, but these releases are closely monitored and are generally short-lived radionuclides. Several stakeholders representing power reactor licensees said that their operators take "as low as is reasonably achievable" (ALARA) actions for spills and leaks when applicable.

Stakeholders provided additional discussion about why their facilities will not cause soil or groundwater contamination that will affect decommissioning efforts. For example, coolant water is below the EPA drinking water standard so this low activity source term should not be a concern with respect to decommissioning. Another stakeholder mentioned their use of radionuclides with half lives less than 120 days, and very small quantities (10 mCi) of expensive C-14. Another licensee mentioned that they do such a thorough job with cleanup of contaminated areas that the reported Cs-137 and Cs-134 quantities were from fallout, not licensed operations. Separately licensed facilities in close proximity will make it difficult to discriminate the source of a subsurface problem.

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There have been a few problems at universities that dealt primarily with radioactive material burials. There have been other small scale problems at facilities caused by leaking drains.

A stakeholder representing nuclear power reactors said that residual radioactivity is an anticipated outcome of routine operations. The potential for leakage of contaminated liquids during routine operations is addressed during the licensing process, and dose modeling shows that a small fraction of the dose limit is reached under different system failure modes. During operations, there is much surveillance and testing done for leak detection to identify leaks before they pose a significant contamination concern. Nuclear plant operators perform this work during operations as part of an ALARA initiative more than for any other reason. There have been small leaks from spent fuel pools. But the stakeholder maintains that these have been seen at concentration levels that are not going to pose significant challenges to the license termination criteria. The costs of cleanup at the affected power reactors are not significant considering the funds that have been set aside for decommissioning.

Stakeholders said licensees are conscientious about effluent monitoring, and perform some surface water and storm water monitoring but not groundwater monitoring because it is not considered necessary, and if it is necessary it should be done as a license condition rather than by rulemaking. Facilities are conscientious about ALARA, and if groundwater monitoring were to be implemented now it would do more harm than good and would imply the presence of a problem.

A stakeholder said the experience has been different for some materials licensees where there was significant low activity leakage resulting in cleanup that far exceeded the resources of the licensee with a shut down plant. In another comment, the stakeholder said that States had to impose license conditions to require some facilities to install groundwater monitoring wells. Another stakeholder said there are sites that have complied with annual effluent limits, but have soil contamination that exceeds the unconditional release criteria.

Several stakeholders from fuel cycle facilities said that they perform monitoring within and outside the site boundary, and that the monitoring locations and sample design are written in license application documents. These licensees also submit to the NRC environmental reports with information about spills and modeling technique. One of the stakeholders mentioned that regulations should be performance based, or risk based, using units of measure appropriate for soil contamination not drinking water standards. A different stakeholder said that nuclear power reactors are required to perform groundwater monitoring if there is a drinking water pathway at the site. However, this is not aimed at characterization, nor is it aimed at leak detection.

A stakeholder identified the development of a consensus based standard on radionuclide transport in the subsurface that will be available in about two years. The standard uses a performance assessment approach, laying out objectives, receptors, risks, and relevant water quality indicators; emphasizes leak detection; and is written for nuclear power reactors.

A stakeholder commented on requirements for licensee recordkeeping of spills and leaks to support decommissioning, and timely cleanup of contamination. The suggestion was made that NRC may want to use this structure, with a threshold level for spills and leaks into the environment, to require groundwater monitoring. A stakeholder representing power reactors supported this position. An assessment could be made over time to infer the extra cost for decommissioning due to the extent of spills and leaks. This is more effective than an attempt to

perform site characterization during operations, which would be intrusive to operations, disruptive to the subsurface, and limited with respect to application.

A stakeholder said that existing surveys done within the site boundary of facilities are typically oriented toward worker protection, airborne monitoring, dose rate monitoring, and removable activity monitoring, and none of these are going to be useful in developing data to support decommissioning cost estimates. This position was supported by two stakeholders who thought it beneficial to focus on design review, during license application, and for licensees who are in operations, review of existing reports to provide inspectors a means to require groundwater monitoring by license condition.

### **Afternoon Sessions**

The first topic for discussion was stakeholders' views about a proposed requirement of collateral to secure a Parent Company Guarantee (PCG) or a Self Guarantee (SG) financial assurance mechanism. A stakeholder provided a historical account of the Atlas Corporation bankruptcy and the difficulty in applying funds seized from collateral for site reclamation. This legacy site was turned over to the Department of Energy for site remediation. Another stakeholder mentioned that it might be difficult for a State to seize collateral in real property because the State may not obtain full and complete control. NRC said the collateral requirement would be defined in terms of revenue stream assets rather than real property or depreciable assets.

A stakeholder said that collateral values change over time and in the same direction as the credit-worthiness of the licensee. For credit-worthy licensees, the stakeholder considers collateral in the form of a lien ahead of other creditors to be a considerable operating constraint. This requirement would raise the cost of borrowing and displace capital investment. This stakeholder's company is a single A rated company that already has inventory and accounts receivable used for a great deal of working capital. The requirement would make it difficult for the company to retain the nuclear regulated facility within its corporate umbrella. Another stakeholder said that securing the accounts receivable stream as collateral is very expensive, and requires legal work on a regular basis to update contracts with the trust agreement. A stakeholder said that for his type of facilities a collateral requirement would cost about 8-10 percent of the amount secured for decommissioning which is in the \$20-\$50 million range for these facilities. This extra expense would displace ALARA related expense and investment. A stakeholder from a State said that the 8-10 percent cost figure for collateral may be too low for some of the smaller materials facilities.

A stakeholder said that NRC was attempting to solve a problem that has not yet occurred. An alternative would be to apply a graded approach for the requirement of collateral to secure the PCG or SG, with the lower end of bond ratings requiring the collateral.

Another stakeholder has seen power reactor licensees that also have materials licenses, and it is not reasonable that the licensee would need to provide collateral if a PCG or SG were used to assure decommissioning of the material in the materials license. A similar comment was made by another stakeholder who noted that the radioactive portion of decommissioning for the site is a very small part of the overall decommissioning, and there is no need to require collateral for this smaller amount of decommissioning effort. A stakeholder representing RTRs said that these facilities operated by the Federal government, state universities or large industrial companies with high bond ratings should not be required to provide collateral. For the few

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private universities that still have a RTR, these often secure decommissioning through some part of the university endowment fund.

The second topic in the afternoon was stakeholders' views on the inclusion of intangible assets in the financial tests calculation of Net Worth. A stakeholder said that the current definition of Net Worth to include only tangible assets is an anachronistic way of evaluating corporate financial strength. Financial objectives are now often met through merger or acquisition financed by cash and other equity, resulting in a short-term reduction in tangible assets that may impair the licensee's ability to pass the PCG or SG financial test. Intangible assets, per Financial Accounting Standard 142, must be evaluated on an annual basis as part of the financial audit, and companies need to report if intangible assets have been written down. In some cases, a firm's tangible assets (valued at cost less depreciation) may be less secure than its intangible assets. The stakeholder believes that NRC regulations should recognize FAS 142 as a method to allow intangible assets in the definition of Net Worth for the PCG and SG financial tests. This stakeholder said that including intangible asset in the net worth definition will not increase the risk of default since the licensee using the PCG or SG must still pass the bond rating test. A different stakeholder said that for many drug companies, intellectual property is very valuable and is a commodity that is bought and sold among companies. This stakeholder said that intangible assets should be included in the Net Worth definition.

The third topic in the afternoon was stakeholders' views on the elimination of two currently approved decommissioning financial assurance mechanisms: the Line of Credit and the Escrow Account. A stakeholder said that the Escrow Account is economical to maintain and is used by quite a few of the companies he represents. He was not sure about the costs to rollover the Escrow to a Trust Agreement, or the acceptance of this by the companies. Another stakeholder has one Escrow and several Letters of Credit used for state licensed material. NRC said that no changes are proposed for the Letter of Credit. Elimination of the Line of Credit is proposed for regulatory efficiency since no licensees use this mechanism. A stakeholder thought there would be relatively small costs to change from an Escrow Account to a Letter of Credit, but was not sure of the costs to change to a Trust. Another stakeholder suggested keeping the Line of Credit unless there is a problem with it as financial assurance. A stakeholder had the same comment, noting that work was done some twenty years ago to establish these mechanisms and they should not be eliminated unless there is a major problem with them.

Another topic was additional reporting requirements for the Decommissioning Funding Plan (DFP). A stakeholder from a university said that they use current staff positions to perform some of the decontamination and decommissioning activities, and that the requirement to assume an independent contractor to perform the activities (for a cost estimate) did not make sense for their facility. A stakeholder mentioned that the requirement to estimate decommissioning costs in the DFP based on unrestricted release of the site was a good change to the regulations, and that the release criteria for decommissioning should be established by the licensee during facility operations rather than waiting for decommissioning activities when the facility is shut down and there is no revenue stream. Another stakeholder mentioned that for his company, license termination at some sites is not necessarily unrestricted release since these sites may be retained under restricted release and used for industrial purposes. A stakeholder from a State said he had a relatively large number of legacy sites and there was a large difference, for these facilities, between what was required to be reported for the decommissioning cost estimate and the final cost to remediate.

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The final topic was additional reporting requirements for power reactor decommissioning. One stakeholder representing power reactors suggested that the proposed spent fuel management plan updates may become an exercise in speculation due to uncertainty for a geologic repository. A stakeholder with decommissioning experience at two power reactors (CT Yankee and Yankee Rowe) said that he believed the decommissioning reports were meaningless when a reactor actually starts decommissioning. He said the information NRC is seeking, including the Spent Fuel Management Plan, is contained in the License Termination Plan, which must be maintained and updated by the licensee. The stakeholder suggested that NRC also require reporting of the estimated non-radiological decommissioning costs.