

November 25, 1996

MEMORANDUM TO: Chairman Jackson
Commissioner Rogers
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan

FROM: James M. Taylor
Executive Director for Operations

Original signed by
James M. Taylor

SUBJECT: ADDITIONAL URANIUM RECOVERY INFORMATION FROM JULY 29, 1996,
BRIEFING

On July 29, 1996, the staff briefed the Commission on the uranium recovery program. As a result of that briefing, a staff requirements memorandum (SRM) dated August 27, 1996, was issued. The SRM identified four items requiring additional information.

Information addressing SRM Items 1 and 3 is provided in the attachment. Item 1 provides information on lessons learned in reviewing supplemental standards for groundwater, and Item 3 provides details related to concurrent jurisdiction with the State of Utah. Items 2 and 4, lessons learned from using the Center for Nuclear Waste Regulatory Analyses for uranium recovery support, and from experience in using a cost control system for tracking uranium recovery casework, are to be addressed in October 1997, after a year of experience.

Attachment:
As stated

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STAFF REQUIREMENTS FROM
JULY 29, 1996, COMMISSION BRIEFING ON URANIUM RECOVERY PROGRAM

Item 1: The staff should report on the lessons learned in reviewing the supplemental standards for groundwater that could be applicable to sites other than uranium mills.

The U.S. Environmental Protection Agency's (EPA's) standards for residual radioactive materials from inactive uranium processing sites include supplemental standards (40 CFR 192.22). The supplemental standards allow for alternative remedial actions for soil, and ground-water cleanup and protection at uranium mill tailings sites covered by Title I of the Uranium Mill Tailings Radiation Control Act, if site-specific conditions still provide for protection of public health and the environment. Although this item deals with the use of supplemental standards for groundwater, this response also provides information on the supplemental standards for soil cleanup.

Supplemental standards for soil cleanup were established by EPA to cover: 1) Ra-226 left in place at levels in excess of the primary standards given certain environmental, cost-benefit, or risk of injury based site circumstances; and 2) other radionuclides found in quantities constituting a significant radiation hazard. The staff has reviewed and concluded that the U.S. Department of Energy (DOE) has appropriately applied supplemental soil cleanup standards at many Title I sites and vicinity properties. Application of these supplemental standards has shown that the potential health impact is acceptable given the cost necessary to meet the primary standard. Overall, the use of supplemental standards has been a benefit in the surface remediation program for two reasons. First, the supplemental standards allow for alternatives to the mandated cleanup requirements as long as the potential health impact is acceptable. Second, supplemental standards provide a mechanism to achieve cleanup of radionuclides other than radium. At present, 10 CFR Part 40, Appendix A allows for the use of alternatives to the established cleanup standard for radium. However, there are no provisions in the regulations to address other radionuclides. The staff is looking into ways to address the lack of standards for other radionuclides as part of its work on the modifications to 10 CFR Part 20 for radiological criteria for site cleanup. In addition, the staff believes that the use of supplemental standards for soil cleanup can be applied to other program areas.

For groundwater, supplemental standards can be appropriately applied at Title I sites, if the ambient (pre-milling) ground-water conditions meet the EPA's limited use classification. Limited use means ground water that is not a current or potential source of drinking water, because it meets one or more of three specific criteria (total dissolved solids exceed 10,000 mg/l, widespread contamination unrelated to the milling operations exists, or aquifer yield is less than 150 gal/day). The supplemental standards for groundwater can be applied in two ways. They can be used in relation to the surface remedial action's future long-term protection of groundwater quality, and they can be applied in the groundwater remedial action's cleanup of existing

contamination. Because the ground-water cleanup of Title I sites was delayed when surface reclamation began, the staff review of the use of supplemental standards to date has been limited. The only evaluations of the use of supplemental standards for Title I ground-water activities have been associated with the ground-water protection aspects of tailings surface remediation. DOE has applied and the staff has approved ground-water supplemental standards in the tailings remedial action plans at six Title I sites (Ambrosia Lake, NM; Spook, WY; Falls City, TX; and Slick Rock, Grand Junction, and Maybell, CO). The Title I ground-water cleanup program is now in its initial implementation stages, and the staff is currently reviewing the first proposed use of supplemental standards for the cleanup of existing ground-water contamination. Other supplemental standard proposals for cleanup are expected shortly.

The EPA requirements authorizing the use of supplemental standards require that an evaluation of potential hazard (chemical and radiological) from the contaminated groundwater and the potential exposure pathways (human and environmental) be provided when supplemental standards are requested. From the staff's experience to date, the potential hazards presented by mill tailings contamination in the groundwater are generally consistent from site to site. However, the exposure potential depends heavily on site conditions, and can vary widely from site to site. Therefore, the staff reviews the site-specific information provided, as part of a proposal to apply supplemental standards at a Title I site, with the staff emphasis on evaluating the exposure potential, and based on that, whether there has been an appropriate use of supplemental standards. In addition, the staff has learned that monitoring, and inspection after surface remediation, through the Long-Term Surveillance Plan, provides an important means of verifying that protection of public health and the environment remains consistent with the original determination regarding supplemental standards. Additional lessons learned may be identified after DOE has submitted and the staff has reviewed, more proposals for the use of supplemental standards for ground-water cleanup.

The use of supplemental standards for the Title I uranium mill tailings sites, and the experience gained from their use would be directly applicable to other similar programs such as the Title II uranium recovery program or the Site Decommissioning Management Plan (SDMP) sites, if allowed by the program-specific regulatory framework. However, for the Title II sites, the EPA standards and the U.S. Nuclear Regulatory Commission's conforming regulations in 10 CFR Part 40, Appendix A, do not directly provide for use of supplemental standards. A provision for use of alternatives provided in 10 CFR Part 40 may indirectly allow Title II licensees to apply for supplemental standards. Based on experience in the Title I uranium recovery program, the staff proposed the use of supplemental standards during interagency discussions related to the development of EPA's cleanup standards as an appropriate means of considering cost for the remediation of the few highly contaminated sites which are included in the SDMP.

Item 3: *The staff should report on the details related to concurrent jurisdiction with the State of Utah.*

The State of Utah had expressed an interest in avoiding dual regulation of those aspects of uranium mill regulation in which it had concurrent jurisdiction (i.e., regulation related to non-radiological constituent contamination of groundwater and surface water). The State, however, was concerned that NRC's regulation of ground and surface water might not address all the State's requirements. A meeting to discuss the subject was held in Salt Lake City on June 12, 1995. The meeting focused on the situation at the Atlas Corporation's facility near Moab, Utah, but clearly had generic implications with respect to other NRC licensed mills in Utah. In the meeting summary, Utah wrote that:

...if State regulatory requirements and concerns regarding ground water quality and corrective action at uranium mills can be met or resolved by NRC action, then the State has no need to intervene by requiring the facility to secure a Ground Water Quality Discharge Permit or by issuing a Corrective Action Order.

At that meeting the technical aspects of both programs were discussed and compared in detail. Several areas of differences in the two regulatory programs and their application to the Atlas reclamation were identified. In all cases, Utah and NRC staffs anticipated that a mechanism or approach could be worked out to allow Utah to rely on groundwater remediation required under NRC's program, rather than to impose separate requirements. Over the following year, NRC worked to resolve the differences between the two programs.

In retrospect, NRC and Utah may have approached the process with very different views of the desired outcome. For several reasons including its consistency with EPA's regulation of groundwater, the staff considered that its regulatory program was protective of public health, safety, and the environment. The staff approached the process with the assumption that while there may be differences between NRC's program and Utah's, the State, once it fully understood NRC's program, would be able to conclude that it was an acceptable surrogate for separate State regulation. The staff, therefore, tried to work with the State to understand the differences in the two regulatory programs and to determine if there were relatively simple things that could be done, in the context of NRC's program, to satisfy the State.

The State appears to have approached the process from the point of view of finding all the instances where its program would require more restrictive or different information or action than NRC's, and then getting NRC to add those as requirements on its licensees. The staff has concluded that it could not revise its program to accommodate more restrictive criteria used by the State. To do so would require changes in NRC regulations, guidance documents, policies, and/or procedures, and would add to the regulatory burden of licensees without a resultant increase in the protection of public health and safety. Early on in this process, the staff had considered addressing this dual regulation through a Memorandum of Understanding with Utah. The State's

inflexible position as described above has precluded its development to date, but the staff is planning to forward to Utah a draft MOU for consideration. The staff is also planning to suggest to Utah an additional alternative to help reduce dual regulation. This would involve getting Utah licensees to voluntarily commit to reporting on actions satisfying Utah, and including this commitment in the NRC licenses (see response to the September 16, 1996, letter to Chairman Jackson from Dr. Dianne Nielson, Executive Director of the State of Utah Department of Environmental Quality).