U.S. Department of Energy
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MAR 18 1997

Mr. Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards
Nuclear Regulatory Commission
Mail Stop T759
Washington DC 20555

SUBJECT: Final Ground Water Compliance Action Plan (GCAP), Remedial Action Plan Modification of the Inactive Uranium Mill Tailings Site at Spook, Wyoming

Dear Mr. Holonich:

Please find within, the subject GCAP which is in the form of proposed text language submitted as modification to the Remedial Action Plan (RAP) and Site Conceptual Design for Stabilization of the Inactive Uranium Mill Tailings Site at Spook, Wyoming. This text language is submitted for replacement of the current text identified in the RAP Volume I: Section 5.5 Aquifer Restoration, 1990.

The Department of Energy's (DOE's) UMTRA Ground Water Project, with support of the Wyoming Department of Environment Quality, has made a determination that 40 CFR 192 (Subpart B), ground water compliance, has been addressed by inclusion of the proposed modification to Section 5.5 of the RAP.

The U.S. Department of Energy has approved and distributed the Environmental Assessment of Ground Water Compliance Activities at the Uranium Mill Tailings Site, Spook, Wyoming. A Finding of No Significant Impact (FONSI) was signed and approved on March 10, 1997. The proposed action is to comply with the U.S. Environmental Protection Agency (EPA) standards for the UMTRA Project sites (40 CFR 192) by meeting supplemental standards based on the limited use ground water at the Spook site. The proposed action does not require site activities, including ground water monitoring, characterization, or institutional controls. The final Programmatic Environmental Impact Statement (PEIS) for the UMTRA Ground Water Project was approved for distribution on September 19, 1996. Distribution of the final PEIS began in October of 1996. The Record of Decision is expected to be approved and published this month.

Enclosed with the proposed RAP modification text language is a copy of the Site Observational Work Plan (SOWP) for contaminated ground water at the Spook site. This document was transmitted to the your office on August 14, 1995. Your staff's review of the SOWP resulted in a letter to DOE on April 23, 1996 stating that "In concurring on the Spook RAP for surface reclamation, NRC staff agreed with DOE's characterization of ground water conditions at the site and concluded that monitoring the uppermost aquifer is unnecessary." Further, NRC stated that "DOE's decision not to perform ground water remediation at the site is consistent with the RAP." The State of Wyoming has reviewed the SOWP and had no comments.

Upon NRC's concurrence that DOE has demonstrated compliance with Subpart B of 40 CFR 192, (aquifer restoration) at the Spook, Wyoming UMTRA site, the DOE will distribute page changes to the existing Spook RAP to DOE reading rooms, community libraries, and other recipients of the final RAP. This action will execute the second part of the two-step general license process for the Spook site (10 CFR 40.27). Because future monitoring is not required with the selection of the no ground water remediation strategy, the LTSP does not require modification.

If you have questions or need further clarification, please call Don Metzler of my staff at (970) 248-7612.

Sincerely,

/s/ Ray Plieness
Acting Team Leader, Projects Team

Enclosures
Proposed RAP mod language
SOWP

cc w/enclosures:
J. Erickson, Wyoming DEQ

cc w/o enclosures:
R. Plieness, GJO
J. Virgona, GJO
M. Layton, NRC
GWSPK 1.4 (Record Copy thru D. Flores)

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(PROPOSED LANGUAGE)

March 11, 1997

40 CFR 192 (Subpart B) Ground Water Compliance Modification to the Remedial Action Plan and Site Conceptual Design for Stabilization of the Inactive Uranium Mill Tailings Site at Spook, Wyoming (1990)

5.0 WATER RESOURCES PROTECTION STRATEGY

5.5 AQUIFER RESTORATION

To achieve compliance with Subpart B of 40 CFR 192, (aquifer restoration) at the Spook, Wyoming UMTRA site, the DOE proposes implementation of the no ground water remediation strategy. This determination utilizes a consistent and objective strategy selection framework developed in the Final Programmatic Environmental Impact Statement for the Uranium Mill Tailings Remedial Action Ground Water Project (October, 1996).

In summary, the no ground water remediation strategy is based on ground water in the uppermost aquifer being classified as limited use, thus providing the basis for the application of supplemental standards. The term "limited use" is defined in the final EPA ground water standards (60 FR 2854). Ground water within the uppermost aquifer at the Spook site contains widespread, ambient uranium and selenium contamination resulting from naturally-occurring conditions (natural uranium mineralization associated with alteration fronts) and from the effects of broad-scale human activity not related to uranium-milling operations (uranium exploration and mining activities).

Applying the decision framework developed in the Final Programmatic Environmental Impact Statement for the Uranium Mill Tailings Remedial Action Ground Water Project (October, 1996) as the strategy selection process in the Site Observational Work Plan (SOWP) for the UMTRA Project Site, at Spook, Wyoming (May, 1995); the DOE has determined that the ground water in the uppermost aquifer was contaminated by uranium processing activities at the Spook site, but qualifies for supplemental standards based on the limited use conditions. The framework as applied to the Spook site consists of five evaluative steps that are discussed below.

The first step of the decision framework was an assessment of existing data. The uppermost aquifer consists of the saturated upper sandstone unit of the Tertiary Wasatch Formation. Ground water contaminants are a result of uranium processing activities that occurred from 1962 until 1966. Section 3.0 of the SOWP provides a conceptual site model that includes the hydrogeologic setting, nature and extent of ground water contamination, and contaminant fate and transport. Evaluation of existing site data coupled with the Spook site conceptual model indicate that sufficient hydrological and ground water contamination characterization data exists to make an appropriate compliance strategy selection.

The second step compares the list of ground water contaminants with MCLs or background ground water quality. The contaminant list includes uranium, selenium, chromium, molybdenum, nitrate, combined radium -226 and -288, arsenic, and antimony. Additional constituents that are indicators of process-related contaminated ground water, when detected in elevated concentrations include: sulfate, ammonium, sodium, and manganese. Ground water contaminants from the uranium milling operation have seeped into the subsurface and migrated into the ground water system in the uppermost aquifer, forming a plume that encompasses an area of approximately 1200 acres.

The third step determines whether the contaminated ground water qualifies for supplemental standards based on the classification of ground water as limited use. The conceptual model describes the regional

background ground water quality and the ground water quality of the uranium mineralization belt in the area of the Spook site. The widespread, ambient contamination and technical impracticability of treating the ground water meet the requirements for supplemental standards under Subparts B and C. The concentrations of selenium and uranium found in background ground water cannot be cleaned up using treatment methods reasonably employed in public water supply systems. A treatability analysis is detailed in the SOWP (May 1995).

The fourth step determines whether human health and environmental risks that result from applying supplemental standards are acceptable. There is no risk to human health and the environment, because there are no known exposure pathways, for ground water from the uppermost aquifer to reach a receptor. No one is using or is projected to use the ground water from this aquifer for any purpose. Further, there is no discharge of ground water from the uppermost aquifer to 1) a deeper aquifer used for domestic and/or agricultural purposes, nor 2) a surface water body or surface expression.

The fifth and final step in the framework, selects an appropriate compliance strategy to meet the EPA ground water standards. The selection is to perform no remediation based on ground water in the uppermost aquifer being classified as limited use, which allows the application of supplemental standards. Limited use ground water at the Spook site is neither a current nor potential source of drinking water because of widespread, ambient contamination that cannot be cleaned up using treatment methods reasonably employed in public water supply systems (40 CFR 192.11(e)).

Details supporting the 1) regulatory framework requirements, 2) summary of site conditions, and 3) ground water compliance strategy selection can be found in the SOWP (May, 1995) and the Environmental Assessment of Ground Water Compliance Activities at the Uranium Mill Tailings Site, Spook, Wyoming (March, 1996).