



U.S. Department of Energy

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Mr. Melvyn Leach
U.S. Nuclear Regulatory Commission
Two White Flint North
11545 Rockville Pike
Mail Stop T7J8
Rockville, MD 20852-2747

Subject: Draft *Site Observational Work Plan for the Durango, Colorado, UMTRA Project Site*

Dear Mr. Leach:

The draft *Site Observational Work Plan for the Durango, Colorado, UMTRA Project Site* (SOWP) is being distributed with a copy of this letter to Ken Hooks and Bill Von Till of your staff. The SOWP defines the technical scope, objectives, and proposed strategy for the site from characterization through compliance requirements. This document presents the conceptual model, data analyses, modeling, and interpretations.

The Durango, Colorado, UMTRA site is comprised of two separate areas, consisting of the mill tailings area and the raffinate ponds area. The SOWP documents the site-specific strategies that will allow the DOE to comply with EPA ground water standards at both areas.

Section 7 of the SOWP describes the compliance strategies for the mill tailings area and the raffinate ponds area. The decision-making process used in selecting the compliance strategies for the Durango site followed the compliance selection framework presented in the *Final Programmatic Environmental Impact Statement for the Uranium Mill Tailings Remedial Action Ground Water Project*. Program activities conducted in preparation of the draft SOWP followed the observational approach and technical guidelines provided in the *Technical Approach to Groundwater Restoration*.

The proposed compliance strategy for the mill tailings area is natural flushing in conjunction with Institutional Controls and continued monitoring. With the exception of cadmium, ground water flow and transport modeling have predicted that site-related concentrations of all constituents will decrease to below UMTRA MCLs, human health risk-based levels, or background levels within 100 years. Selenium occurs naturally in background locations at the mill tailings area in concentrations above the MCL. Therefore, DOE defers to the ACL value of 0.05 mg/L for selenium from the EPA's Safe Drinking Water Act. The cadmium concentration is elevated in only one well (0612), and the ground water flow and transport models indicate cadmium levels will not decrease below the MCL within 100 years (because of the high estimated distribution coefficient used in modeling). However, historical cadmium concentrations from Well 0612 vary, and, since the completion of surface remediation, data

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Mr. Melvyn Leach

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JAN 24 2002

indicates a downward trend greater than indicated by the model. The trend indicates that cadmium will decrease below the MCL within 10 years. Cadmium will be monitored in Well 0612 for the next 10 years to verify the downward trend in concentration to below MCLs.

The proposed compliance strategy at the raffinate ponds area is no remediation with the application of Supplemental Standards based on the criterion of limited-use ground water due to widespread selenium contamination. Selenium concentrations exceeding the MCL are believed to be a result of natural sources at the site (coal, carbonaceous shale, and pyrite) and are not related to uranium ore processing. The selenium concentration exceeds the MCL in one background well; in other background wells, the reducing conditions prevent selenium from being mobilized into the ground water. However, historical analysis of the raffinate liquor from samples collected while the mill was in operation indicate that selenium was not present in the raffinate. Selenium is increasing in concentration, while concentrations of other ore-processing constituents are decreasing. The mobilization of selenium into ground water from natural sources is related to the oxidation-reduction potential (ORP) in the ground water; selenium is mobilized with increasing oxidation. In most cases, increasing and decreasing selenium values at the raffinate ponds area show a definite correlation with ORP.

Ground water from the bedrock formations beneath the raffinate ponds area is not a current or potential source of drinking water. Potable water is readily available from the municipal water system in the vicinity of the site. Future use of ground water from the bedrock aquifer is unlikely, based on the planned future development of a pumping plant on the raffinate ponds site. Therefore, the current and reasonably projected uses of site-affected ground water would be preserved with the application of Supplemental Standards.

The DOE will work with the City of Durango and the State of Colorado to establish appropriate Institutional Controls for the two areas during the period of natural flushing.

Please review and provide comments on this document. You may call me at 970/248-7612 if you have any questions.

Sincerely,



Donald R. Metzler
Program Manager

cc w/enclosure:
K. Hooks, NRC
B. Von Till, NRC

cc w/o enclosure:
S. Marutzky, MACTEC-ERS
Project File GWDUR1.1 (P. Taylor)