



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV
URANIUM RECOVERY FIELD OFFICE
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FEB 9 1990

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Docket No. WM-67

MEMORANDUM FOR: Ramon E. Hall
Director

FROM: Joe P. Grimm
Project Manager

SUBJECT: DATA REVIEW: DOE'S AMBROSIA LAKE UMTRA PROJECT SITE

Introduction

On February 5, 1990, I traveled to Albuquerque, New Mexico, to conduct a review of geological data collected by the Department of Energy (DOE) at the Ambrosia Lake, New Mexico, UMTRA Project site. My purpose was to observe geological samples collected from wells drilled at the site. The samples consist of drill cuttings and rock core recovered from holes drilled for site characterization and installation of monitor wells. The first goal of the data review was to familiarize myself with the general geological description of rock types which underlie the site. The second goal was to resolve specific discrepancies between logs of various wells, verify DOE's interpretations of geological conditions, and collect information missing in DOE submittals.

Background

The Ambrosia Lake tailings pile overlies alluvial valley fill and the lower stratigraphic section of the Mancos Shale. The lower Mancos in this area consists of typical, dark grey, dense claystone, interbedded with three coarser-grained units, known in ascending order as the Tres Hermanos A, B, and C sandstones. The site is then underlain by the Dakota Sandstone and Morrison Formation, which are of less significance to the remedial action.

Results

Rock core is stored in a laboratory/warehouse operated by DOE's Technical Assistance Contractor (TAC). Core sampled from most of the bedrock section was available from wells numbered 683 and 684. Core from selected intervals was collected for wells numbered 773, 779, and 781.

The most important result of the data review was my observation that the Tres Hermanos members are not coarse-grained, yellow-grey, porous sandstones so

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typical of other Cretaceous sandstones in western New Mexico. Rather, the Tres Hermanos, most notably unit C, is very dark grey, fine-grained sandstone and siltstone, with a high percentage of shaley or clayey matrix material. The rock appears very poorly sorted and displays a large degree of uneven and contorted bedding.

Samples recovered from the interval interpreted as the Tres Hermanos B include a light grey, fine- to medium-grained sandstone. All samples taken from intervening sections consist of dense, dark grey, fossiliferous claystone typical of the main body of the Mancos Shale.

Discussion

Tres Hermanos unit C should probably not be labeled a sandstone, but rather a poorly sorted sandy mudstone. My observation probably supports DOE's interpretation that the Tres Hermanos C provides only low quantities of poor-quality ground water. DOE's Remedial Action Plan (RAP) probably could be revised to more accurately indicate the lithology of the Tres Hermanos sandstones. This revision would more accurately reflect stratigraphic conditions at the site, and could contribute to a more technically sound and complete ground-water protection strategy.

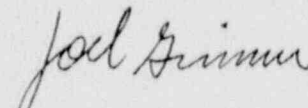
Summary

The primary goal of the data review was achieved because information was collected which is not only difficult to portray in text, but also difficult to observe in the field. The observations made will provide significant input to the staff's Technical Evaluation Report (TER), both on the geologic and ground-water protection sections.

The second goal will be satisfied with submittal by DOE/TAC of the following information:

- 1) Lithologic logs of series-600 wells, drilled early in 1989, but omitted from the most recent version of the RAP. This information was provided for my retention during the data review.
- 2) Lithologic logs of series-700 wells, drilled in 1985, which have been recently revised, and supposedly are more accurate than a version of drilling logs submitted in DOE's 1987 "Information for Bidders." Submittal of these data is in preparation.

The data review was arranged by DOE's Project Managers Michael Abrams and Steven Hamp. I was assisted by Mr. Gerald Linday, TAC. Additional information is being prepared for submittal by Mr. Erik Storms, TAC.


Joel P. Grimm
Project Manager

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