

REC'D MAY 18 1983

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555



MAY 13 1983

Mr. Jefferson O. Neff  
Salt Repository Program Manager  
U. S. Department of Energy  
National Waste Terminal Storage  
Program Office  
505 King Avenue  
Columbus, OH 43201

Dear Mr. Neff:

It was mutually agreed at the April 19-20 meeting in Columbus that NRC must become familiar with the data available to the DOE/NPO salt programs. This is necessary to help assure that the NRC staff can be in an effective position to consult with DOE on licensing information needs which must be met by the current site investigations and subsequent site characterization activities. It was also agreed that a telephone conference call between DOE and NRC would be arranged by May 16, 1983 to discuss and transmit a data summary to NRC. The purpose of this letter is to describe in advance of the conference call specifically what the NRC staff would like to initially learn about the DOE salt data. What is needed now is a current summary of the type and amount of data which is available and which is in the process of being collected. The actual data (results such as the actual geophysical logs or measured parameter values) are not requested at this time. This summary is needed because this type of information is not completely available in the published DOE characterization reports.

In general, the types and amounts of data to include in the summary are related to field observations and measurements, field tests and laboratory test results supporting repository performance. The technical areas of interest are those related to 10 CFR 60, Subpart E, Technical Criteria: geology, geophysics, seismology, hydrogeology, geochemistry/hydro-chemistry, and geomechanics. Environmental and socioeconomic data are not included in this request.

The investigation areas of interest are those which DOE is presently considering for potential site nomination. Emphasis should be placed on DOE collected data when summarizing the type and amount of data in detail. Clearly, detail cannot be presented on all available data that

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has been collected over the years (e.g., 1000 drill stem tests in the Palo Duro basin). An example of a format and level of detail that could be used when summarizing the data is enclosed for your information.

Specifically, some of the types of data the NRC staff is interested in are given as follows. Borehole data include that given on the enclosed example. Surface geologic mapped data include: location and area (e.g. quadrangle identification), scale, and data mapped. Remote sensing data include: location and area, scale, and data mapped. Surface geophysical survey data include: survey type, location of measurements, miles of line, etc. Seismic monitoring data include: station locations and period of record. Test hole location, test intervals, type of test, and data obtained are needed for 1) hydrogeologic field tests, 2) hydrogeologic field monitoring, 3) hydrogeologic laboratory tests, 4) hydrochemical samples and laboratory tests, 5) geochemical samples and laboratory test, 6) geomechanical samples and laboratory tests, 7) geomechanical field tests, and 8) generic sealing tests. Other data types and amounts not mentioned above but which are in the DOE data base should also be included in the data base summary.

Sincerely,



Lawrence Chase, Ph.D.  
High-Level Waste Technical  
Development Branch  
Division of Waste Management

Attachment 1: Example format and  
content of the data  
summary

EXAMPLE FORMAT AND CONTENT  
OF DATA BASE SUMMARY

This example is based on: Wollitz, L.E.; et. al., 1982, Results of Hydraulic Tests in U. S. Department of Energy's Wells DOE-4, 5, 6, 7, 8 and 9, Salt Valley, Grand County, Utah: U. S. Geological Survey Open-File Report 80-346, 71 p.

Study Area: Salt Valley Anticline, Utah

Borehole: DOE-4

Borehole Data

Mapped location and altitude: Map such as Figure 3, p. 5 of Wollitz, et al., 1982

Maximum depth: 161 m (drilled depth), 150 m (completed depth)

Formations penetrated: Salt Valley anticline caprock, drilled to top of salt

Drilling techniques: Rotary drilling with polymer mud, dry air, air mist

Available logs: Lithologic log of complete hole

Geophysical logs of complete hole - caliper, neutron, gamma-gamma, gamma

Drillers logs - not available

Descriptive logs (e.g., sedimentary structures, lithofacies, etc.) - not available

Intervals cored: hole not cored

Reference(s): Wollitz, et. al., 1982

Hydrogeologic Field Test Data

Intervals tested: 1 interval, 134-149 m

Type of test: paired hole pumping test (DOE-4/DOE-5)

Data obtained: Transmissivity, horizontal and vertical hydraulic conductivity, altitude of potentiometric surface

Analytical technique:  $K_H$  - Theis recovery and Jacob straight-line methods,  $K_Y$  - Neuman Witherspoon ratio method

References(s) Wollitz, et. al., 1982

Hydrochemical Test Data

Interval sampled: 134-150 m

Type of test: laboratory tests (exact technique not needed at this time)

Data obtained: Temp.,  $HCO_3$ , Al, Ca, Mg, Na, K,  $SO_4$ , Cl,  $SiO_2$ , Fe, Mn, Li, Sr, U, hardness, dissolved solids, specific conductance, tritium, oxygen isotope ratio, deuterium/protium ratio, hydrogen isotope ratio calculated, pH, organic carbon, detergents, carbon-14, carbon isotope ratio.

References(s): Wollitz, et. al., 1982