

OCT 21 1983

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Mr. Carl Johnson
c/o Nevada Department of Minerals
400 West King Street
Carson City, Nevada 89710

Dear Carl,

I enjoyed meeting and talking with you at the October NRC/USGS Geology Workshop in Golden, Colorado and the NTS field trip. As we discussed, I am enclosing a list of all documents generated by the NRC pertaining to site characterization activities in Nevada for a potential high-level waste repository. Please review the list and let me know which documents you would like to obtain. Pursuant to your request. I have also enclosed a copy of the Geotrans review of the U.S.G.S. modeling study of the NTS area.

Please let me know if I can be of any further assistance. I look forward to working with you in the future.

Sincerely,

15/

Catherine F. Russell
State/Tribal Coordinator
BWIP and NTS
Division of Waste Management

Enclosure: List of documents

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Mr to C. Johnson

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WMHT DOCUMENT REVIEW SHEET

FILE: 3102.1

DOCUMENT: Waddell, Richard K., 1982, Two-Dimensional, Steady-State Model of Ground-Water Flow, Nevada Test Site and Vicinity, Nevada-California, U. S. Geological Survey Water Resources Investigations 82-4085 JPOHLE & r/f
WMHT Staff

REVIEWER: J. Pohle *J. Pohle 5/11/83*

DATE REVIEW COMPLETED: 5/4/83

BRIEF SUMMARY OF DOCUMENT:

DATE APPROVED: *PJ 5/10*

The work done by Waddell is essentially a quantification of Winograd and Thordarson's (1975) conceptual model of the regional groundwater flow system surrounding, and including, the Nevada Test Site. Waddell has made some refinements to this conceptual based on more recent data. This study deals only with flow and not transport. Some important assumptions in this model are: 1) the aquifer is treated as-a confined system; 2) steady state; 3) two-dimensional, areal flow (only horizontal flow); 4) boundaries are either no-flow or fixed flux. The code applied in this study uses an inverse procedure which allows parameter estimation within constraints given by a specified level of uncertainty for each parameter. The code then seeks to achieve a "best fit" by minimizing differences between calculated and observed head data. This report concludes that the conceptual model is consistent with existing data.

SIGNIFICANCE TO THE WASTE MANAGEMENT PROGRAM:

As indicated on page 43 of this report, "one of the prime reasons for modeling ground-water flow near the Nevada Test Site is to predict movement of radionuclides from a repository. These predictions can be done only through transport modeling, which requires estimates of flux. The flow model provides these estimates." A concern of the NRC staff is that if these flux estimates are used as boundary conditions for smaller scale performance assessment modeling the uncertainties in the fluxes must be evaluated. Indeed, the State of Nevada has expressed a similar concern to DOE (Specific Issue N; "... what is the level of confidence that the uncertainties introduced into the models are not compounded from one model level to a higher one?", April 20, 1983 letter from J. I. Barnes to DOE).

ACTION TAKEN:

GEOTRANS, Inc. was directed to review this report in detail. Their report, dated May 3, 1983 is attached. Copies of both reports have been distributed to cognizant NRC staff.

FOLLOW-UP ACTIVITY:

This topic has been identified for further technical discussion in future workshops. Possible preparation of a site technical position in this area is under staff discussion. Conceptual regional flow model(s) for NNWSI is identified as a draft NRC groundwater issue.