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PROJECT WM-10

NOTE TO: R. Boyle, WMHL
R. Cook, WMHT
J. Greeves, WMHT
P. Justus, WMHT
M. Knapp, WMHL
P. Prestholt, WMHT
T. Verma, WMHT

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FROM: Robert J. Wright
High-Level Waste Technical
Development Branch
Division of Waste Management

SUBJECT: REFERENCES IN THE DSCA THAT ARE NOT AVAILABLE IN THE PUBLIC DOMAIN

David Tiktinsky and Ron Uleck have reviewed the DSCA (both text and appendices) to determine which of the references that were cited in that document are not obtainable in the public domain. These will need to be provided to the Public Document Room.

Attached is a list of references: those checked need to be provided to the PDR. The following table indicates who is responsible for each references.

Name	Page
R. Boyle	None
R. Cook	7-14, P-15, P-16, P-18, Q-18, Q-19, Q-21
J. Greeves	6-13, 10-4
P. Justus	5-15, T-21, U-14
M. Knapp	None
P. Prestholt	0-3
T. Verma	3-13

Please deliver two (2) copies of each of the above references to David Tiktinsky by May 16, 1983.

Robert J. Wright
High-Level Waste Technical
Development Branch
Division of Waste Management

Attachment:
List of References

OFC	WMHT:isk	WMHT	WMHT				00451
NAME	DTiktinsky	RJWright	HJMiller				
	5/6 /83	5/6 /83	5/6 /83				

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(2) Emphasis should be given to forming a connection between natural occurrences of radionuclide migration, site-specific repository conditions, field experiments, and laboratory experiments. This connection is necessary to establish a basis for extrapolating the results of laboratory analyses and short-term field experiments for the assessment of the performance of a repository over long time periods. Establishing such an understanding would assist in validation of numerical models and the rendering of license assessments.

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(6) Retrievability of waste has not been given due consideration, and the conceptual design appears to assume that retrieval is a simple reversal of waste emplacement. Details of plans to demonstrate the constructibility of waste emplacement holes, and the feasibility of emplacement and subsequent retrieval of waste are needed at an early date.

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(1) They are inexpensive and can therefore be used in large sections (Charlot, 1981; Newby, 1982; Gause, 1982; Newby, 1981).

(2) They are easy to fabricate and most steel are easy to weld (Charlot, 1981; Newby, 1982; Gause, 1982; Newby, 1981).

(3) Our knowledge of the characteristics and long-term reliability of carbon steels and iron has been built up over centuries (Johnson, 1980).

Figures P-14 and P-15 provide an example of one canister construction and emplacement design. In general, the canisters are prescribed to be very long relative to their diameter. Proposed wall thicknesses range from 4 cm to 25 cm (BWIP View Graph, 1982; Newby, 1982; Newby, 1981).

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volume is another important parameter effecting leach rates. However, the difficulty in the determination of the total surface area makes the exact formulation of this parameter extremely difficult. As parameters having secondary effects on the leaching process, partial devitrification, internal stress, surface roughness, and local inhomogeneity contribute to changes in the leach rate. No quantitative data on the contribution of these parameters are available at the present time.

In glass, local corrosion is not any more severe than general corrosion. Static fatigue, however, should be recognized as an important mode of disintegration over geological time. From the well-defined fracture mechanics, it is known that there is a fatigue limit for borosilicate glass below which no cracking occurs; however, changes at the microstructural level may modify the fatigue limit hypothesis. Modifications may arise due to surface stress, solution pH, humidity, temperature, pressure, and compositional and microstructural inhomogeneity. With respect to radiation effects, radiolysis, radiation-induced cracking and pH change require further investigation.

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