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January 23, 1986

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Yakima Indian Nation

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101-4

WM Project 10

Docket No. _____

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To: Linehan

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Mr. O.L. Olson, Director
Basalt Waste Isolation Project Office
U. S. Department of Energy
Richland Operations Office
P. O. Box 550
Richland, WA 99352

CONFEDERATED
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Re: NRC/DOE Pre-Test Consultation Meeting

Dear Mr. Olson:

The NRC/DOE LHST Pre-Test Consultation Meeting which took place in Richland, December 9-10, 1985, was attended by The Yakima Indian Nation. We verbally stated during the meeting that we would submit our comments in writing. Attached please find a copy of our comments.

Your attention to this matter would be greatly appreciated. If you have any questions, please feel free to call.

Yours sincerely,

YAKIMA INDIAN NATION

Russell Jim

Russell Jim, Manager
Nuclear Waste Program

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Enclosure

cc: John Linehan, NRC

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COMMENTS ON THE NRC/DOE
PRE-TEST CONSULTATION MEETING
DECEMBER 9-10, 1985
RICHLAND, WASHINGTON

ADMINISTRATIVE COMMENTS

The YIN requests that, in the future, consultation meetings follow the same procedures set forth for workshops. That is, we would like to participate in technical discussions, rather than just make comments at the end of the meeting. This would benefit technical exchange. This arbitrary definition of rules by meeting type seems designed to limit participation on the behalf of affected parties rather than enhance it.

The YIN would like to be informed as early as possible regarding the scheduling, agenda, and contents of future consultation meetings and workshops. The notice for this meeting was short and preliminary information such as the hydrographs and SD-BWI-TD-040 were not available to our technical representatives until they arrived at the meeting. The NRC received advance copies of SD-BWI-TD-040 along with a letter which indicated meaningful participation would require reading this document prior to meeting attendance.

To participate effectively, the YIN must receive critical data in an expeditious manner; especially critical hydrogeology data including the water level and piezometer data. Our most recent data are those collected in April 1985. Because these data are being collected on a continuing basis, we must receive them on a continuing basis. Anything that we can do (such as accepting a simpler computer format) we would like to do to expedite the transfer of data. As it currently stands, we are unable to independently conclude if baseline conditions exist. A mechanism must be established to allow affected parties to receive timely data.

TECHNICAL COMMENTS

Our comments cover four areas: the large-scale hydraulic stress tests, the tracer tests, the evaluation and data basis for flow directions, and quality assurance.

A. The large-scale hydraulic stress tests (LHST)

We believe these tests to be necessary, however, we do have several concerns:

- (1) The present plans appear to have been scaled back from

the tests originally envisioned.

(2) Because of the drilling and borehole activities in late 1985, and the expected drilling activities in the RRL in early 1986, we believe that additional time (3-4 more months) will be required to establish a baseline for the LHS Test. Also we believe that the projection of trends will introduce some additional level of uncertainty in the test analyses.

(3) Given the present uncertainty in the hydrologic system and its parameters, we expect that the actual implementation of the test would involve deviations from and modification to the initial plans. The deviations and modifications will require documentation to assure credibility of the data and the results of analysis.

(4) We believe that more LHST's than those currently planned will be required to characterize the site hydrogeology. This is especially true for low permeability horizons in which smaller portions of the site will be stressed.

(5) The use of geometric means tends to underestimate horizontal permeability. The geometric means are more appropriate for flow in a series--rather than channelized horizontal flow in basaltic flow tops and bottoms. An arithmetic mean is more appropriate for horizontal permeability or flow in parallel.

(6) The basis for assuming a 10:1 vertical to horizontal permeability ratio needs to be elaborated. Is the ratio based on data or a conceptual assumption?

(7) The specific storage values used in the axisymmetric simulations seem inconsistent with present conceptual models of the site hydrogeology. The flow tops have values only three times larger than the values for the flow interiors. Because both the matrix compressibility and effective porosity are expected to be much larger for the flow tops, the 3:1 ratio seems too low.

B. Tracer Tests

We believe that tracer tests are one of the most important aspects of the hydrologic testing program to be conducted at the site. Effective porosity or effective thickness are critical parameters in travel time evaluation. The presently available estimates based on field tests at the site are very limited. The inclusion of tracer tests in the large-scale test program is a positive move. In order to ensure that the parameters determined

will be meaningful in the site characterization and the performance assessment, we have the following comments.

(1) More tests are required, since the effective porosity and effective thickness are critical parameters. Too few tests are currently planned.

(2) We believe that it is more prudent to wait until the quasi-steady state condition has been attained prior to the introduction of tracers. This will simplify the subsequent analysis and minimize the uncertainty of the flow field. Since the formation storage is relatively low, the quasi-steady-state condition should occur within a reasonable period of time.

(3) The value of effective porosity used in the test design (0.003) may be too large. According to the analysis results reported in RHO-BW-CR-131p and RHO-BW-SA-300 p, the effective porosity of the McCoy Canyon flow top, is between 0.00016 to 0.00042 which is approximately one order of magnitude less than the value used in the test design.

(4) Based on the effective porosity value of 0.003, the proposed tracer injection rate, tracer solution volume, and chase water volume, the tracer distribution at the injection well, especially RRL-2C, is no longer pulse-like. This non-ideal tracer could cause the breakthrough curves observed at the pumping well, RRL-2B to be double-peaked. This phenomenon would introduce uncertainty into the interpretations of the breakthrough curves.

We believe that the design of the tracer volume, tracer injection procedure should be closely followed and will submit detailed comments as the need arises.

C. Flow Directions

(1) Site characterization will require data to describe the flow field in three dimensions. The baseline for the regional flow field will require at least one more year of stabilization of piezometric heads, and probably longer. BWIP talks as though the intent is to accomplish this long term baseline; however, no plan currently exists for this long quiet period, and we fear ambitious schedules may preclude it.

(2) More than the few piezometers presently installed will be required to establish or characterize the flow field. More wells and more coverage are required. The YIN want to be involved in the placement strategies of such facilities.

D. Quality Assurance

Because the test data may be used for licensing applications, the YIN is concerned that the QA program will not be in place when the LHST commences. In order to determine whether the test data could form part of the Site Characterization and be used in licensing application, it is necessary for the YIN to participate in the review of "DOE-RL Readiness Review Plan" documents and the "LHS Test Control Manual."