WM-10

WM Record File 101.2
WM Dir.
WM Dep. Dir.
WMPI WMLL
WMRT Wright WMNH
WMUR Others
Prethol H. Greeves
rec'd 3/23/83

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

MAR 1 8 1983

WM Record File 101.2

WM Project WM-10
Docket No.
PDR ✓
LPDR ✓

Distribution:

(Return to WM, 623-SS)

Dr. Robert J. Wright
Senior Technical Advisor
High Level Waste Technical
Development Branch
Division of Waste Management
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Dr. Wright:

NRC QUESTIONS ON CORE AND DRILLING FLUID LOSSES

Pursuant to a telephone request by J. Greeves, a conference call was held on March 16, 1983, to discuss questions on core loss and drilling fluid loss in deep boreholes. NRC participants included H. Miller, R. Wright, J. Greeves and T. Verma; Rockwell participants were S. Baker, J. LaRue and W. Price, with L. Olson and A. Lassila present from DOE. Following are the NRC questions and the BWIP responses.

Question

Do you see mud loss in the dense interiors of candidate horizons in boreholes other than RRL-2?

Answer

No. The mud loss into the interior of the Umtanum Flow in RRL-2 is attributed to a small fracture zone which has an equivalent hydraulic conductivity of $10^{-4}$ to $10^{-3}$ feet/second.

Question

Do you see core loss in the dense interiors of candidate horizons in boreholes other than RRL-2?

Answer

Yes. Some degree of core loss is typical in all of our boreholes. These core losses are attributable to either 1-mechanical problems, 2-core disking,



00325

or 3-poorly indurated interbeds, flowtops or fracture zones. In the RRL-2 Umtanum interior we had a combination of two problems in the zone from 3773 to 3783. These problems were core disking and mechanical problems. The J. K. Smit bits were undersized and the core dropped from the bottom of the core barrel.

Question

Were you using a triple tube core barrel?

Answer - Yes

Question

We did not think it was possible to lose core with a triple tube core barrel.

Answer

Yes, you still lose some degree of core with a triple tube core barrel.

Question

We interpret the mud loss in the Umtanum interior to be in the zone of disking between 3773 and 3783.

Answer

The zone of mud loss is not between 3773 and 3783. It is between 3822 and 3823. This has been confirmed by geophysical surveys, a "spinner" survey and hydrologic testing.

Question

How do you know that there is no mud loss between 3773 and 3783?

Answer

The zone from 3762 to 3805 was packed off and hydrologically tested. It has an equivalent conductivity of $10^{-12}$ to $10^{-11}$ feet/second.

Question

Do you have drillers' reports on RRL-6 and RRL-14? If so, can we have a copy?

Answer

Yes, we have the reports and they will be supplied to you.

Question

Your coring records are misleading by reporting only cumulative %. All coring records we have seen report core % by run.

Answer

Column 7 on the coring record reports core % by run

Question

Figure 16 has two depth scales in feet. The left scale and the right scale differ by 10 feet.

Answer

You are correct.

Question

Are other Umtanum flowtops as thick as the flowtop found in RRL-2?

Answer

No. RRL-14 is 69' thick, RRL-6 is 93' thick, DC-12 is 53' thick, DC-7/8 is 88.5' thick and DC-15 is 108' thick.

Question

What was the thickness of the flowtop in RRL-2?

Answer

It is 148' thick.

Question

Do you have plans to monitor RRL-2 during shaft construction?

Answer

Yes, we are currently evaluating what monitoring we can and should do. If you have any suggestions or input, it will gladly be accepted. We will be talking with the USGS to get their input. Selected horizons in the Grand Ronde will be monitored in RRL-2 and monitoring may be done in RRL perimeter holes.

Question

Will you drill a new well to assist in monitoring shaft construction?

Answer

We currently have no plans to drill such a well. If there is a justification for such a well, we would consider drilling it.

Question

Do you plan to monitor RRL-6 and RRL-14 during shaft construction?

Answer

We do not know at this time if it is possible to get a response in these wells since they are almost 1.5 miles away from the shaft site. We will be investigating this possibility.

Question

You may not even get a response in RRL-2.

Answer

That is true.

In response to the NRC request on driller's logs, we are transmitting copies of Shift Report of Operations for RRL-2, 6 and 14, geophysical logs for DC-4, 6, and 8, and summary geologic logs for RRL-6 and 14.

If you have any questions covering this material, please call A. G. Lassila of my staff.

Very truly yours,

O. L. Olson

O. L. Olson, Project Manager
Basalt Waste Isolation Project Office

BWI:AGL

Enclosures

cc, w/o encl: R. Stein, HQ