

Distribution:

TYPE VISIT CONFERENCE TELEPHONE

Location of Visit/Conference (Return to WM, 623-SS) INCOMING OUTGOING

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU See List Below ORGANIZATION (Office, dept., bureau, etc.) DOE/RHO-RL TELEPHONE NO.

SUBJECT Hydrochemistry at DC-23

ROUTING	
NAME/SYMBOL	INT
See Attached List	

Teleconference Participants

At NRC
Mike Weber, WMG
Paul Hildenbrand, WMPC
Harold Lefevre, WMG
Paul Bembia, WMG

At DOE-RL
Marv Furman, DOE-RL
Ron Smith, RHO
Vern Johnson, RHO
Tom Early, RHO
Steve Baker, RHO
Leo Lenhardt, RHO
Bob Cook, NRC OR

We contacted DOE-RL to inquire about the results of recent hydrochemical sampling at DC-23GR. A summary of the teleconference is given below.

DOE stated that seven zones have been hydraulically tested at DC-23GR: the Priest Rapids (PR), Sentinel Gap (SG), Ginkgo (G), Rocky Coulee, Cohasset, Birkett, and Umtanum (U). Of these seven, four have been sampled for hydrochemical data: the Priest Rapids, Sentinel Gap, Ginkgo, and Umtanum. DOE provided the following hydrochemical data:

Unit	Cl ⁻	CH ₄	S ²⁻	SO ₄ ²⁻	Na ⁺	K ⁺	Mg ²⁺	Ca ²⁺	pH	Alk.(as CaCO ₃)
PR	134	150	0.3	B.D.	128	20	LT 0.2	4.2	9.6-	approx.
SG	120	110	0.3	B.D.	-	-	-	-	9.9 for	150 for
G	70	LT 0.2	2	B.D.	130	12	LT 0.2	2.4	all	all
U	400	LT 0.2	0.2	B.D.	-	-	-	-	samples	samples

NOTE: All units (excluding pH) are in mg/l
B.D. = Below Detection (less than 1 mg/l present)
LT = Less than
- = Not reported by DOE

DOE was asked to explain the apparent inverse concentration gradient observed at DC-23 for chloride, particularly the low Cl⁻ measurement at the Ginkgo. DOE stated that it is much too early to interpret the Cl⁻ data, or even to determine whether or not the data are indeed anomalous. DOE does not yet have the tritium data back for these samples, so they have not determined if drilling fluids contaminated the samples. If the tritium data does suggest sample contamination, further sampling at these boreholes will be difficult, if not impossible, using existing technology. Open intervals in the Wanapum Basalt have been cased off in DC-23GR and sampling is not considered feasible for the piezometers that have since been installed in DC-23W. It will apparently require a major effort if more hydrochemical sampling is necessary at DC-23.

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When Mike Weber asked how this data might change the conceptual model for ground water flow at Hanford, DOE refused to speculate on the causes or implications of the inverted concentration gradient. They stated that much more data are needed, and the interpretation process will take a great deal of time to complete. According to DOE, interpretations of this sort are what the five-year site characterization activities are for.

DOE stated that they are no longer using the "crimped pipe" sampling method. Problems with quality assurance and complications forced DOE to revert to submersible pump sampling used previously. So the sampling methodology used at DC-23 was the same as that of the other wells, and data collected at DC-23 should be comparable to those already collected at Hanford.

When NRC requested documentation of the sampling and analytical techniques being used, DOE responded that such documents have already been sent to the NRC. The reference number given for sampling and analytical procedures was BOP C4.7.

DOE also stated that video logs for both of the DC-23 boreholes "probably" exist, and a full suite of geophysical logs do exist. Marv Furman (DOE) then suggested that the conversation was straying from its scheduled purpose, which was to discuss the hydrochemistry at DC-23. Marv Furman suggested that if we are interested in the geophysical logs at DC-23, we will need to schedule another teleconference at a later date.

We thanked DOE for the information and terminated the teleconference.

Action Required:

Bob Cook will request video and geophysical logs from DOE for the DC-23 boreholes, and will report back to Mike Weber once he has examined them.

Harold Lefevre will coordinate a teleconference to discuss the video and geophysical logs with the appropriate DOE and RHO people.

Mike Weber will draft a letter to DOE regarding the need to include contingency provisions in testing plans. These contingency provisions should eliminate sampling problems such as those encountered at DC-23, where well completions (casing, piezometer installations) may preclude further sampling.

ACTION REQUIRED

SEE ABOVE

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
Paul J. Bembia, WMGT	<i>Paul J. Bembia</i>	06/05/86

ACTION TAKEN The above tasks will be coordinated by the designated NRC staff members. Any information concerning the above tasks will be distributed to BWIP team members (and other appropriate WM staff) when it becomes available.

SIGNATURE	TITLE	DATE
<i>Paul J. Bembia</i>	Geochemist	06/05/86

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