

**INTER-OFFICE MEMORANDUM**

SUBJECT: Summary Hydrogeochemistry from McCoy Borehole 66-8      DATE: April 11, 1980

TO: W. M. Dolan, H. D. Pilkington, H. J. Olson, C. D. Tower, J. T. Gross

FROM: A. E. Shenker

Four water samples were collected and analyzed from the 66-8 wellbore at McCoy, Nevada (864). The drilling depths from which the samples were collected were 1630, 2050 (two samples), and 2410 feet (494, 620, and 730 meters). No temperature data was provided.

Geothermometry was performed on the analytical results and projected subsurface temperatures are reasonably consistent. Silica temperatures (quartz conducting) range from a low of 112°C at 2,410 feet (730 meters) to a high of 148°C at 1,630 feet (494 meters). The Na-K-Ca alkali thermometer yields subsurface temperature values ranging from 194°C at 2,050 feet (620 meters) to 205°C at 1,630 feet (494 meters). The Na-K geothermometer ranges from 214°C to 230°C.

The consistency of the data seems to indicate that although a number of distinct (?) water entries may have been encountered, all waters are similar in chemistry (bicarbonate). The entry at 1,630 feet (494 meters) appears to have a slightly greater component of "thermal water" than the other samples based on higher values of both silica and Na. The subsurface temperature data further suggest that the sampled waters are mixed. This hypothesis is based on the variation between silica and alkali geothermometers (generally differing by 60-80°C). Attempts at employing the "mixing model" failed because the chemical-temperature parameters in the samples under consideration fall out of bounds of the program (i.e., the curve generated does not cross the theoretical curve for silica vs. temperature).

Also of note are the moly values recorded from samples W13453-W13455 (moly for W13456 is not yet available). Moly was run both by colorimetry and atomic absorption and are real. Since contamination by moly grease is possible, assays of selected drill cuttings are suggested to confirm or refute these anomalous values.

INTER-OFFICE MEMO IDUM

Hydrogeochemistry from Borehole 56-8

April 11, 1980

Page 2

Complete chemical analyses follows:

	<u>W13453</u> <u>1630'</u>	<u>W13454</u> <u>2050'</u>	<u>W13455</u> <u>2050'</u>	<u>W13456</u> <u>2410'</u>
pH	9.4	9.1	9.0	9.0
Cl	38.	31.	32.	31.
F	5.6	3.0	4.4	4.1
SO <sub>4</sub>	100.	100.	87.	80.
HCO <sub>3</sub>	144.	142.	154.	204.
CO <sub>3</sub>	72.	24.	44.	20.
SiO <sub>2</sub>	120.	75.	65.	62.
Na	160.	98.	110.	110.
K	21.	14.	14.	14.
Ca	6.6	9.6	8.	6.
Mg	2.6	16.	14.	18.
Li	0.7	0.4	0.4	0.5
TDS	670.	513.	454.	550.
T <sup>OC</sup> SiO <sub>2</sub>	148.	121.	115.	112.
T <sup>OC</sup> Na/K	218.	230.	214.	214.
T <sup>OC</sup> Na/K/Ca	205.	197.	194.	197.
Cu	6.	2.	<2.	n.a.
Mo	710.	1400.	210.	n.a.

  
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