MICHAEL VAUGHAN

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Technical Memorandum
Unocal Science & Technology Division
Brea, California

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To:	Terry W. Kelley, Santa Rosa	**Memo:**	PMR 90-03M
From:	D. L. Gallup, I M. E. Obando, I	**Date:**	January 4, 1990
Department:	Products, Processes & Materials Research	**Project:**	745-72160
Subject:	GMF 68-8 FLUID ANALYSES	**Manager:**	K. Baron, I

cc: **Library (2)**
Patent
S. K. Alley, AD
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C. A. Hildebrand, Santa Rosa
B. J. Kelly, R
L. D. Krenzke, I
D. S. Pye, UOC
C. T. Ratcliffe, I
H. D. Simpson, I
R. N. Upadhyay, AD
N. E. Voegtly, Cloverdale
J. W. Ward, A

We recently analyzed brines and steam condensates collected during flow tests of the well, GMF 68-8. The attached table presents the results of the analyses. The first set of six samples was received on October 19, 1989 and the second set of three samples was received on November 17, 1989. The brine and steam condensates are similar in composition to those analyzed from the 1988 flow test.* In general, the brines consist of neutral sodium, potassium, calcium chloride solutions. Steam condensates consist primarily of carbonic acid and exhibit slightly acidic pH. Harrison Crecraft has suggested to us that the acidity may be due in part to the formation of sulfuric acid from oxidation of sulfide during weathering. Based on the chemistries of the brines and condensates, we anticipate that fluids produced from the Glass Mountain reservoir will exhibit low scaling and corrosion potentials.

Calculated geothermometers based on sodium, potassium, calcium and silica concentrations in the brine predict downhole temperatures of the well averaging about 475°F.

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* D. L. Gallup, Tech. Memo. PMR 88-161M, November 18, 1988.

D. L. Gallup
Sr. Research Associate

M. E. Obando
Research Tech.

DLG/MEO(ss)
Attachment

Table

Fluid Analyses (mg/L)

Sample	Description	ab No	pH	HCO3	NH3	TC-CL	HS	SO4	Susp Solids	TDS	B	Ca	Fe	Mn	K	Si	Na	Al	Mg	Li	Rb
1	GMF 68-8	3039	6.5	10	30.0	2135.0	< 5	82.0	2890	3820	-	-	-	-	-	-	-	-	-	-	-
	BRINE	3040	-	-	-	-	-	-	-	-	16.0	52.0	0.7	0.2	189	327	1210	1.0	1.6	9.2	1.6
2	GMF 68-8	3043	7.2	10	15.0	1886.0	5.0	5.0	3150	3770	-	-	-	-	-	-	-	-	-	-	-
	BRINE	3044	-	-	-	-	-	-	-	-	16.0	40.0	0.9	0.1	189	322	1190	0.9	0.9	9.0	1.6
3	GMF 68-8	3050	7.4	10	15.0	1842.0	< 5	4.0	3070	3850	-	-	-	-	-	-	-	-	-	-	-
	BRINE	3051	-	-	-	-	-	-	-	-	16.0	34.0	0.5	0.1	187	317	1160	1.0	0.6	8.9	1.3
4	GMF 68-8	3053	7.3	10	10.0	1850.0	< 5	2.0	3000	3560	-	-	-	-	-	-	-	-	-	-	-
	BRINE	3054	-	-	-	-	-	-	-	-	16.0	25.0	0.3	0.1	186	314	1130	1.1	< 0.5	8.6	1.5
5	GMF 68-8	3057	7.2	10	5.0	1675.0	< 5	0.0	2980	3830	-	-	-	-	-	-	-	-	-	-	-
	BRINE	3056	-	-	-	-	-	-	-	-	16.0	23.0	0.4	0.1	183	311	1120	1.1	< 0.5	8.5	1.5
6	GMF 68-8	3041	6.1	10	35.0	3.0	5.0	22.0	53	35	-	-	-	-	-	-	-	-	-	-	-
	STEAM	3042	-	-	-	-	-	-	-	-	0.2	0.3	2.9	0.1	< 0.3	2.7	0.8	< 0.05	< 0.1	< 0.01	< 0.1
7	GMF 68-8	3060 B	7.7	10.0	2.0	2111.0	< 5.0	37	22	4320	-	-	-	-	-	-	-	-	-	-	-
	BRINE	3061 B	-	-	-	-	-	-	-	-	18	22	< 0.5	< 0.5	199	370	1160	NA*	NA	NA	NA
8	GMF 68-8	3062 B	7.1	10.0	3.0	1870.0	< 5	35	580	3510	-	-	-	-	-	-	-	-	-	-	-
	BRINE	3063 B	-	-	-	-	-	-	-	-	16	22	< 0.5	< 0.5	180	350	1050	NA	NA	NA	NA
9	GMF 68-8	3060 S	5.1	15.0	10.0	3.0	< 5	7.0	0.0	7.0	-	-	-	-	-	-	-	-	-	-	-
	STEAM	3060 S	-	-	-	-	-	-	-	-	0.2	0.4	1.0	0.0	< 0.3	1	1	NA	NA	NA	NA

* NA= NOT ANALYZED

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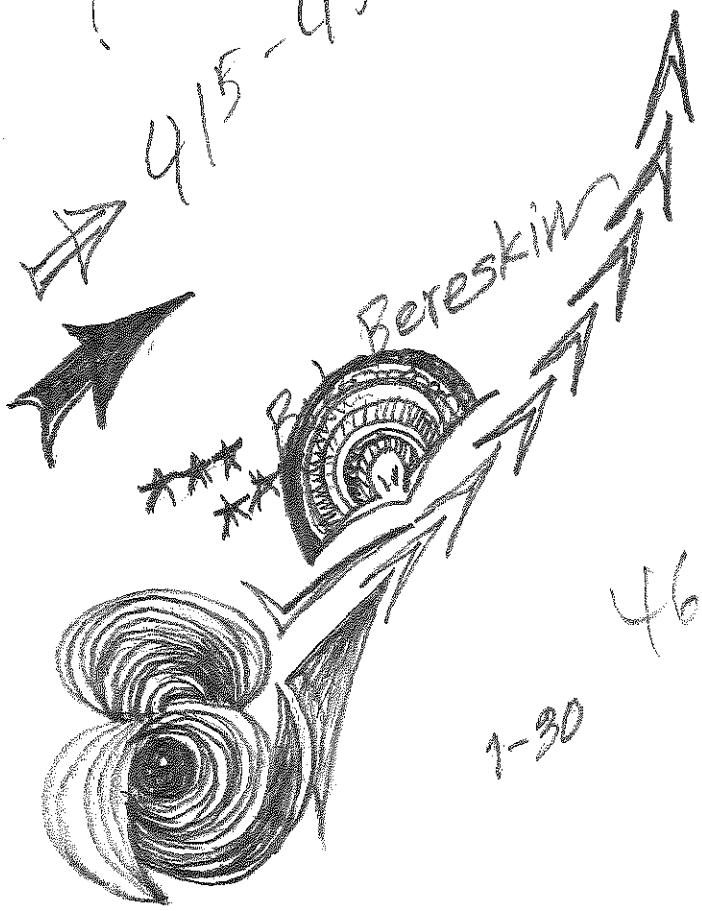

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