AMAX EXPLORATION, INC.
A SUBSIDIARY OF AMAX INC.

GEOTHERMAL BRANCH

INTER-OFFICE MEMORANDUM

SUBJECT: McCoy Electrical Soundings DATE: March 6, 1980

TO: William M. Dolan

FROM: Arthur L. Lange

SOME PRELIMINARY MT RESULTS AT MCCOY

The results of 3 one-dimensional inversions of magnetotelluric soundings in the vicinity of the McCoy drill site 66-8 have been supplied by phone this day by Aldo Mazzella. The results derive from one setup consisting of one magnetometer-electrode base (M6) and two satellite remote electrodes (A6, B6). The results are tabulated below and illustrated in the accompanying profile. Station A6 is located at the drill site. Weak signal in the 1 Hz-range resulted in some uncertainties indicated by "?". Low frequencies came in well and are expected to be reliable at depth. Data above 0.5km could not be recorded quantitatively; however, it was evident in the processing that a resistive surface layer was present throughout.

At the drill site (A6), a resistive layer of unknown thickness is underlain by a conductor (2.4 m) to 0.8km. This we assume to be due to brine and/or alteration, but conceivably a graphitic unit. The section becomes gradually more resistive (46Ωm @ 2km); thereafter decreasing to 1.9Ωm at 9km. This lower conductor I attribute to a zone of free ions resulting from high temperature and pressure, possibly partial melt.

A similar section appears at M6; however, the upper conductor appears no lower in resistivity than 9Ωm at 0.3km. Here the deep conductor ($<$1Ωm) appears upwarped to only 7.5km.

Station B6 suffered from considerable anisotropy, since the station is adjacent to higher topography. Higher resistivities (up to 76Ωm) at 3km may represent benign rock. The lower conductor here deepens.

Speculations: A liquid-phase reservoir may be expected 0.75km below our drill site, and most likely well above that depth. Drilling deeper (to 2 or more km), we can expect either dry rock or dry steam. The resistivities are reasonable for the latter.

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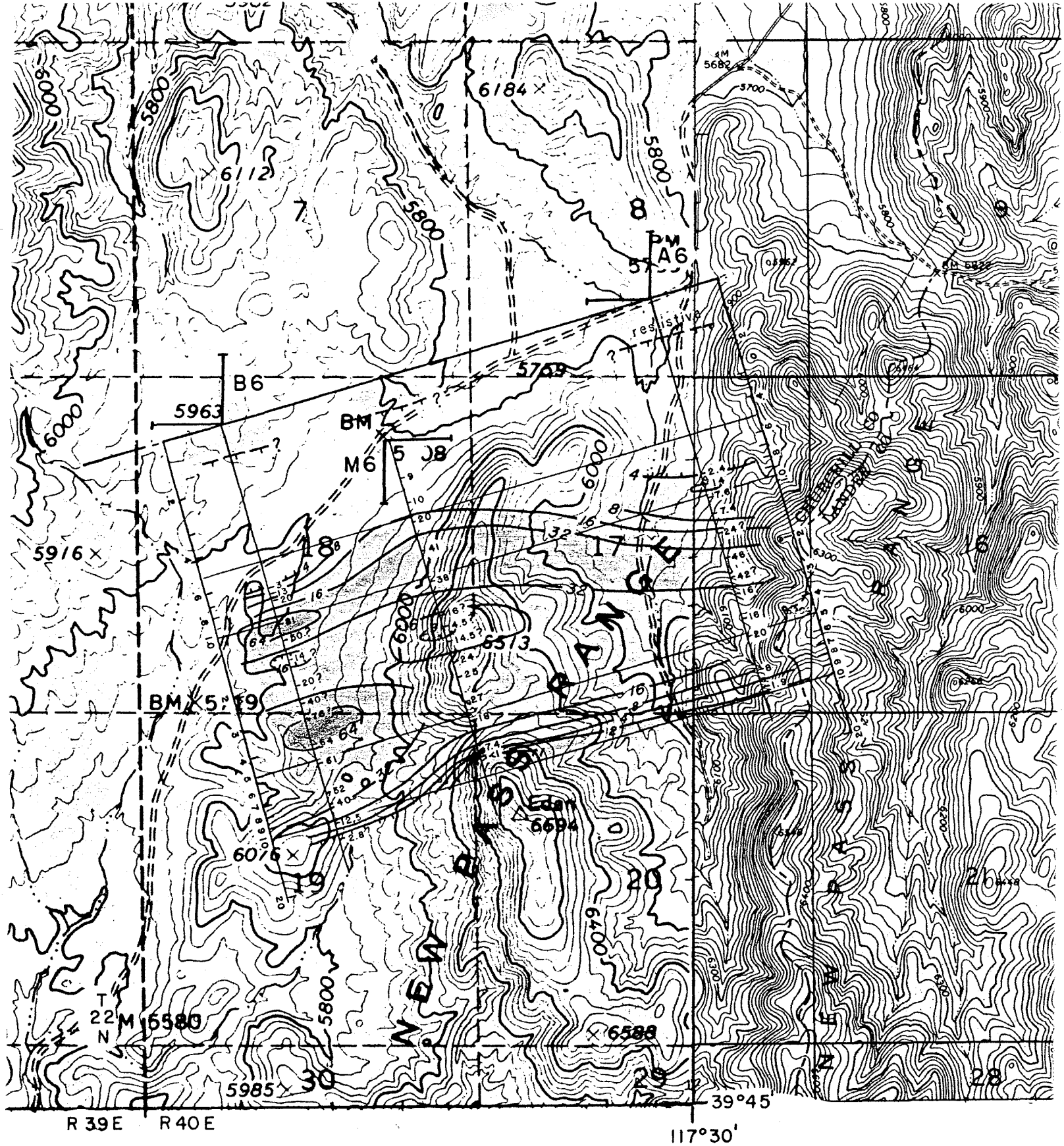
The reservoir under M6 is likely to be closer to the surface (0.3km), but less-liquid)--meaning either of lesser permeability or higher vapor content. If higher resistivies are due to vapor, then the steam reservoir here lies around 0.6km. This site appears to occupy an upwarp in isotherms, including the deep conductor. This upwarp is evident also in the magnetics. Unfortunately, we have no thermal data from this area. I suspect that if we did, temperature gradients would be higher than under A6.

Arthur L. Lange

ALL/p

DATA

Station B6 (Hills)		M6 (Base)		Station A6 (Drill site)	
Depth (km)	Ωm	km	Ωm	km	Ωm
.65	3Ωm	.3	9Ωm	.75km	2.4Ωm
.7	13.	.4	10.	.85	14.
.75	20.	.5	20.	1.0	7.6
1.0	81.	.7	41.	1.2	7.4
1.2	50. ?	1.0	38.	1.5	24. ?
1.5	14. ?	1.5	16. ?	2.	46.
2.	20. ?	1.7	4.5 ?	2.5	42. ?
2.5	40. ?	2.	14.5 ?	3.	16.
3.	76. ?	2.5	24.	4.	16.
4.	64.	3.	25.	5.	20.
5.	61.	4.	27.	7.	8.
7.	52.	5.	18.	9.	1.9 good
8.	40.	7.	7.4		
10.	12.5	7.5	<1.		
12.	2.8				



SCALE 1:24,000

1/2 0 1 Mile

.5 0 1 Kilometer

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Mc Coy – Nevada
MT 1D Inversions
ρ in Ω m

Source: AMAX Survey, 1980

3-7-80