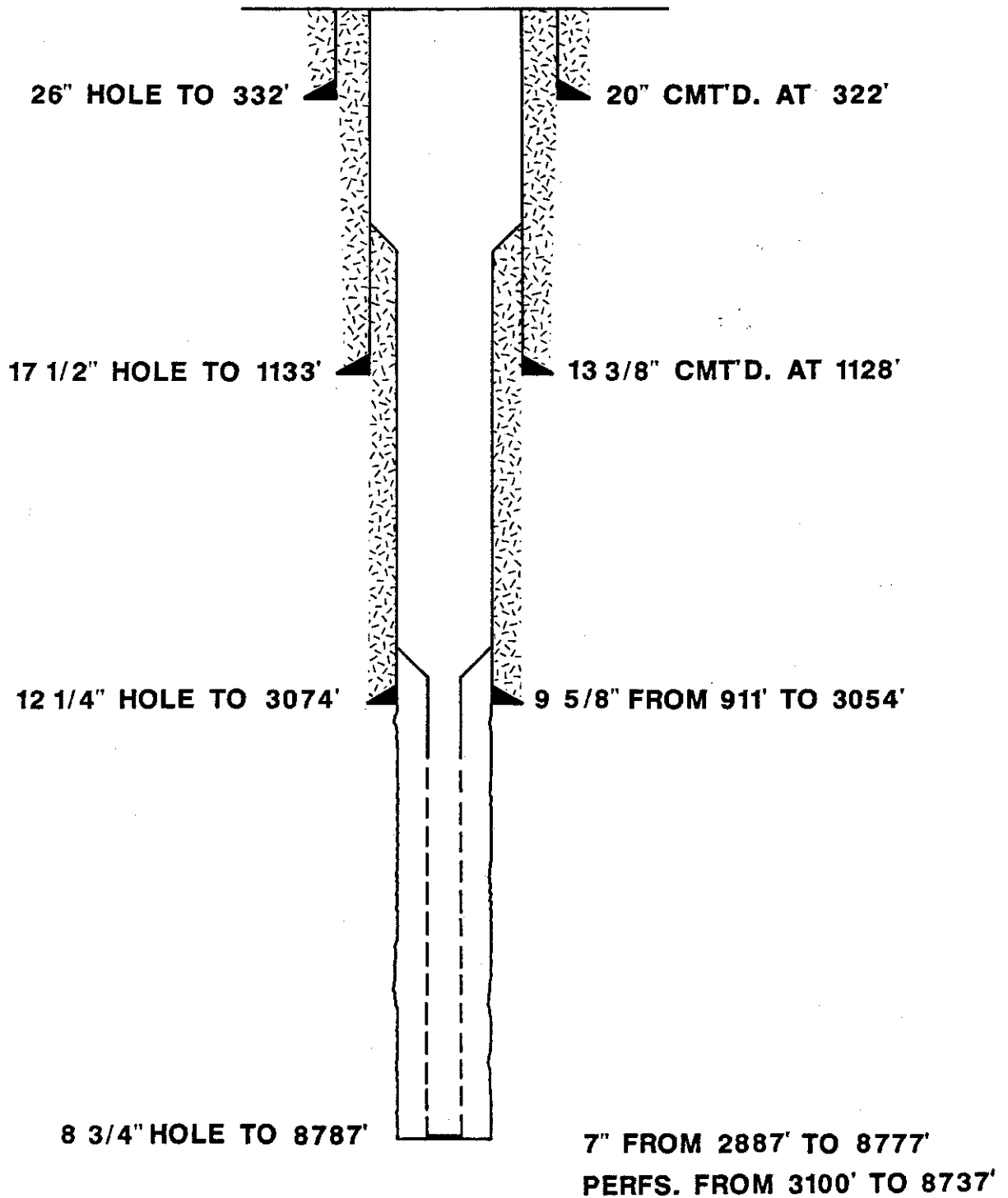
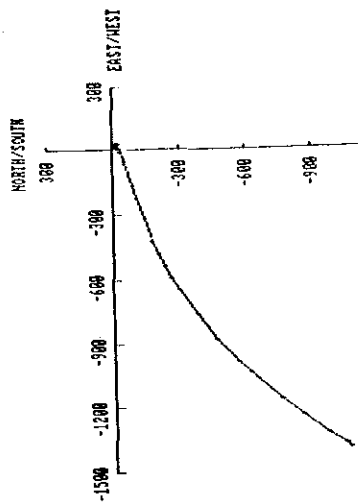


FIGURE 1.2

GLASS MOUNTAIN FEDERAL 31-17 COMPLETION SCHEMATIC

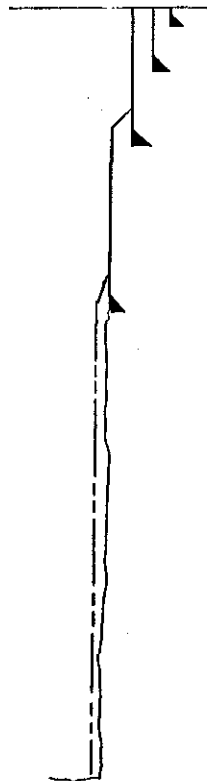
COMPLETION DATE : 9/11/88





Well Courses: GMF 31-17

SCHEMATIC



DESCRIPTION

- 55', 30" conductor pipe. Cemented.
- 322', 20" 94# K-55 Buttress casing. Cemented to surface.
- 1123', 13-3/8" 61# K-55 Buttress casing. Cemented to surface.
- 3054', 9-5/8" 40# K-55 Buttress casing with hanger at 911'.
- 8777', 7" 26# K-55 perforated buttress liner hung with 9-5/8" x 7" Midway hanger at 2887'.
- 8787' TD, 8-3/4" hole.

STEAM ENTRIES

SIDE TRACKS

None

LOST CIRCULATION ZONES

- 185' - 100 barrels
- 3550' - 90 barrels
- 5307' - 37 barrels

MISCELLANEOUS

RIG: GRACE DRILLING CO. NO. 169

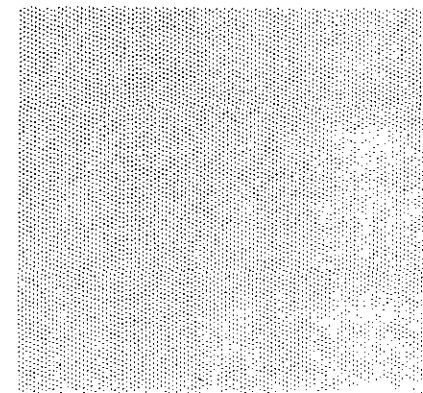
LOCATION: Approx 400'S & 1200'E of the NW Corner of Sec. 17, T43N, R4E, MDB&M

B.H.L.: 1069' South & 1395' West of surface location

U N I O N

GLASS MOUNTAIN FEDERAL UNIT 31-17
Medicine Lake Prospect
Siskiyou County, California

GROUND ELEVATION:	<u>6900'</u>	SPUD DATE :	<u>08/07/88</u>	T. M. DEPTH:	<u>8787'</u>
KELLY BUSHING :	<u>31'</u>	COMPLETION DATE:	<u>09/13/88</u>	T. V. DEPTH:	<u>8518'</u>
TOTAL FOOTAGE :	<u>8787'</u>	RIG TEST :	<u>N/A</u>	E. T. DEPTH:	<u>8787'</u>



File: well file
GMF 31-17



3-November-1998

Mr. Richard Estabrook
Bureau of Land Management
2550 North State Street
Ukiah, CA 95482-3023

Re: Glass Mountain Federal Unit - Recent Temperature and Pressure logs.

Dear Rich;

Attached please find three sets of data from the temperature - pressure logging that was recently completed at the Glass Mountain Federal Unit. The logging, which was done on wells within the proposed "Telephone Flat" Participating Area, was completed by the United States Geological Survey using high resolution tools which take one measurement per foot. The work was done for California Energy General Corporation.

The wells were logged on the following dates: GMF 68-8 on 20-October, GMF 31-17 on 21-October, and GMF 87-13 on 22-October. All wells were logged to approximately Total Depth, except for GMF 87-13. During that logging run the tool sat down at 2143 feet, which is just above the top of the 4 ½ inch liner at 2158 feet. After the wells were logged, a bottle of nitrogen was discharged into each wellhead to complete our 1998 Sundry Notice Operations.

This information should be considered Company Confidential, in as much as it is currently not in the public domain. I will forward to you any public releases of the information as they become available.

If you have any questions, please contact me at 760-499-2322 (voice), 760-499-2348 (fax) or by e-mail at alex.schriener@calenergycom.

Truly;

Alexander Schriener, Jr.
Manager, Geothermal Resources

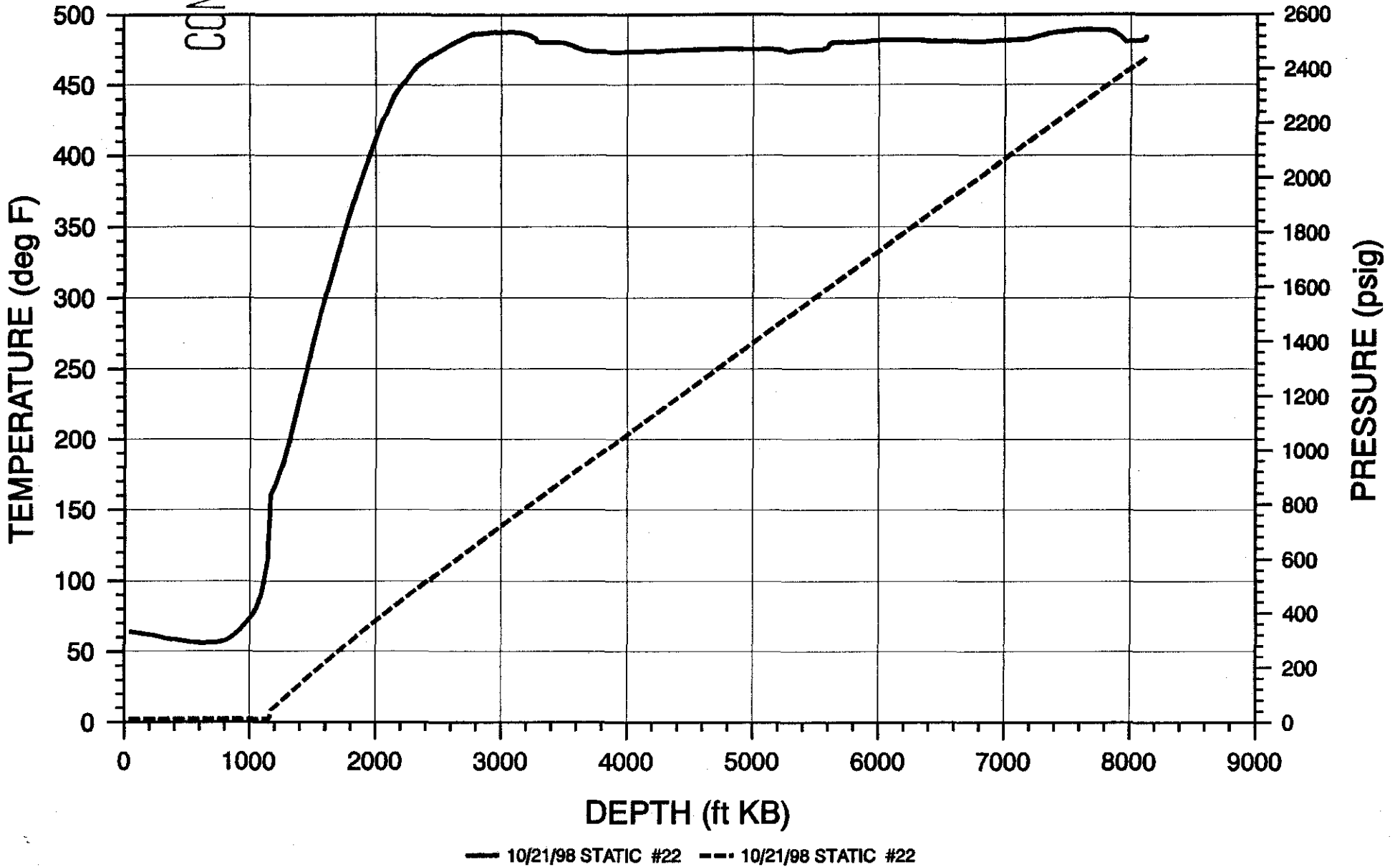
Cc: Vince Signorotti - CE, Brawley (via fax without attachments)
Dale Schuster - CE, Omaha (via fax without attachments)
Randy Sharp - USFS-BLM, Alturas (via fax without attachments)

CONFIDENTIAL

GLASS MT - 31-17

COMPLETION DATE - 09/13/88

TEMPERATURE (solid) & PRESSURE (dashed) SURVEYS



GMF 31-17

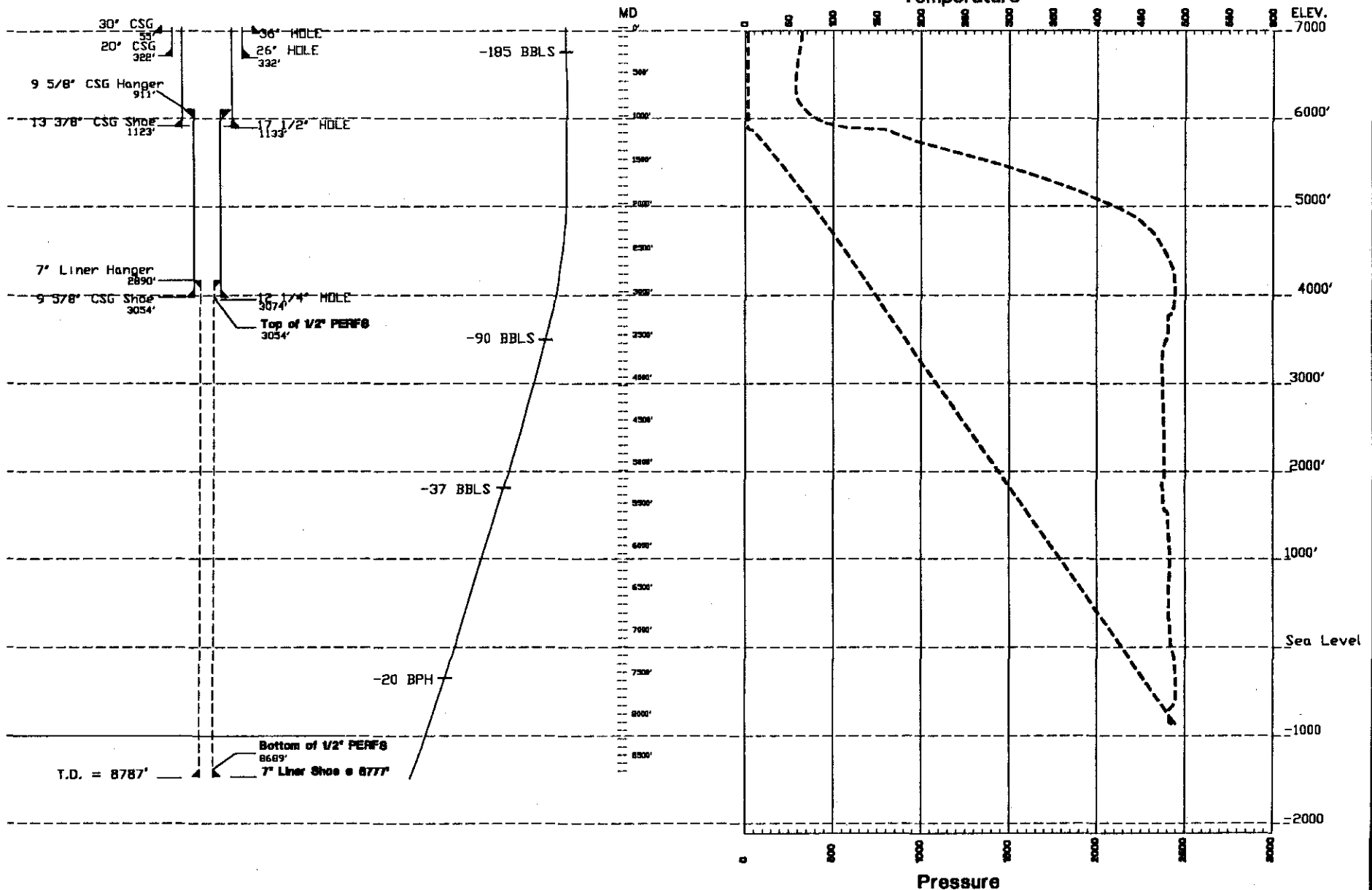
CONFIDENTIAL

SPUD 08/04/88
 COMPLETION 08/13/88
 T.D.-MD 8787', TVD 8618', SSD -1488'

▲ S55W

— 31-17 STATIC Pressure USGS 10/21/98

— 31-17 STATIC Temperature USGS 10/21/98



AN EVALUATION OF UNION'S GLASS MOUNTAIN
FEDERAL UNIT WELLS 68-8 AND 31-17

JOE BEALL, FEBRUARY 17, 1989

SUMMARY

GMF wells 68-8 and 31-17 are located only 2,200 feet apart and in spite of this show very different characteristics. Well 68-8 reaches a temperature of about 520°F at 3,500 feet. Below that depth the well is nearly isothermal or exhibits a low, positive temperature gradient to TD at 8,417'. Injection tests and temperature logs show clearly that the primary producing interval is between 5,000' and 7,000' (Figure 2). 68-8 produces about 60 klbs/hour of steam at a WHP of 100 psia.

Well 31-17 shows a temperature peak of about 480°F at a depth of 3,200'. (Figure 4) Injection tests and temperature measurements show that little or no productivity is obtained from that segment of the well. Below 3,200' the temperature gradient reverses (the temperature decreases) to a depth of 4,000'. Injection tests and temperature logs indicate that most of the production from 31-17 comes from an interval from 3,500' to 3,800'. At a WHP of 135 psia, the well produces approximately 65 klbs/hour of steam.

In summary, well 68-8 produces from a 520°F zone from 5,000' to 7,000'. Well 31-17 produces from a 460°F zone at 3,500' to 3,800'. These are rather pronounced differences for wells in such close proximity. These differences may reflect a very complex reservoir geometry.

GMF 68-8 DRILLING AND TESTING SYNOPSIS

In July-August, 1985, GMF 68-8 was drilled to a depth of 6571 feet with 9 5/8" casing set at 3,515 feet. Lost circulation was noted at 5,260' and intermittently from 6089' to T.D. A very brief injection test followed by pressure falloff measurements (the results of which we were not given until 1988) took place immediately after reaching T.D. Although the very limited testing indicated low permeability and flowrate potential, the well satisfied the federal unit drilling requirement for 1985. In 1986 and 1987 Union requested and received from the BLM a waiver of the unit drilling requirement. The government's leniency was apparently a result of their sympathy for the economic hardship in the oil business during that period.