

P.O. # 5-85105

G1L01938

Petroleum information

P.O. Box 2612

Denver, Co.

80201-2612

21 copies of
well logs at \$6.95/each = \$145.95

6055185-5800

DEPARTMENT COPY

RECEIVING RECORD

PURCHASE ORDER NO.

FORM 47-50M 5-83

UURI

UNIVERSITY OF UTAH RESEARCH INSTITUTE

RI 200-2644

July 20, 1985

PURCHASING DEPARTMENT
Salt Lake City, Utah 84108
Telephone (801) 524-3422Petroleum Information
P.O. Box 2612
Denver, CO 80201-2612BREAKAGE, DAMAGES, SHORTAGES,
OVERAGES, ETC., SHOULD BE NOTED AND
RETURNED WITH THIS FORM TO RECEIVING
DEPT. WITHIN 5 DAYS.

Quantity	DESCRIPTION	Dept. Est. Price \$ 145.95
<input checked="" type="checkbox"/> AT LEFT OF QUANTITY INDICATES ITEM(S) SHIPPED		<input type="checkbox"/> AT LEFT OF QUANTITY INDICATES ITEM(S) BACK ORDERED
21	Copies of well logs @ 10.95 each	

DATE REC'D / / 19 TIME A.M. / P.M.PACKING SLIP NO.
RECEIVED AND INSPECTED BY:

ARRIVED VIA

THEIR TRUCK PARCEL POST PREPAID OUR TRUCK EXPRESS COLLECT FREIGHT COMPANY BILL NO. COMPLETE INCOMPLETENUMBER OF PIECES RECEIVED IN DEPT. BY

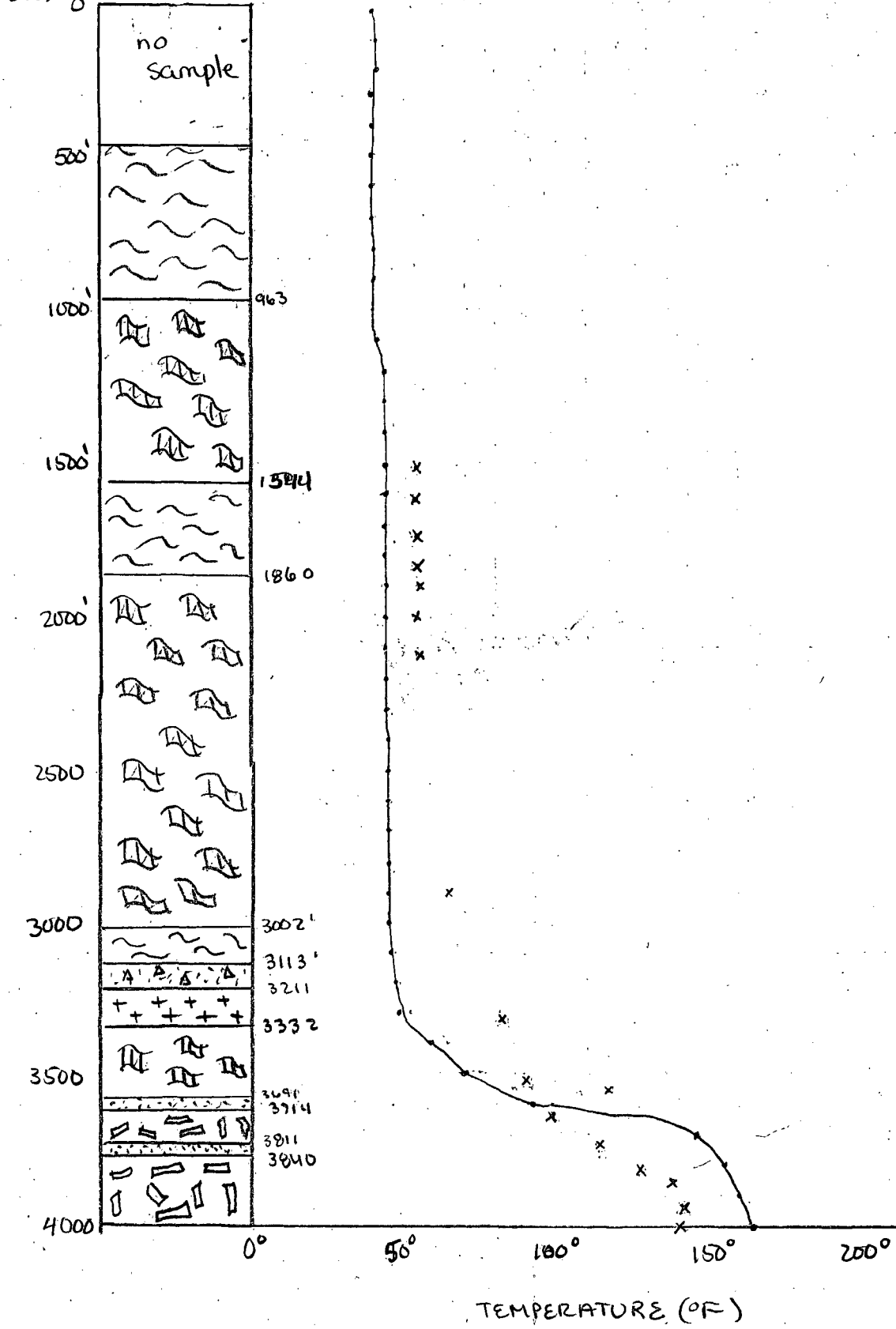
GEO NEWBERRY, N-1

11/1/51
 7.5
 6.0

22-141 50 SHEETS
 22-142 100 SHEETS
 22-144 200 SHEETS



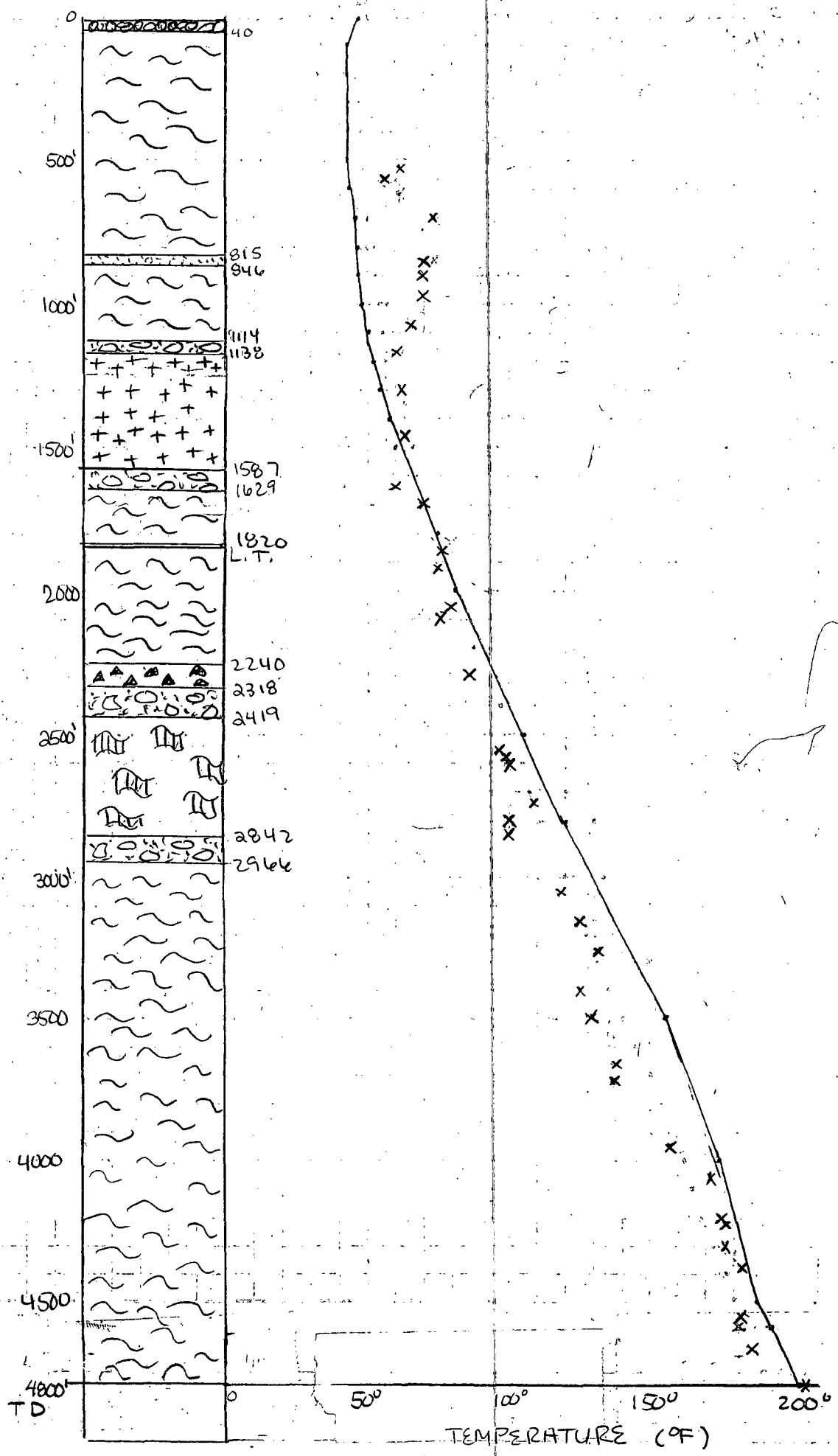
Depth
 (ft) 0'



CLACKAMAS CTGH-1

10-11-1973
9.5.916

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



Grace Mata
GRC
P.O. Box 1350
Davis, CA 95617-1350
Dear Grace,

Enclosed is the final version of the GRC paper
"Research Logging in the Cascades, a Status Report,"
with the minor corrections recommended by
the reviewer. I realize this is the second corrected
version you have received from us, and appreciate
your patience.

Sincerely,

Michele Lemieux



Petroleum Information

DB a company of
The Dun & Bradstreet Corporation

Mail: Box 2612, Denver, CO 80201-2612
Street: 4100 E. Dry Creek Rd., Littleton, CO
303-740-7100

July 13, 1988

University of Utah Research Institute
Earth Science Laboratory
Suite C
391 Chipeta Way
Salt Lake City, UT 84108-1295
Michele Lemieux

Dear Ms. Lemieux:

In answer to your letter about Oregon logs of U. S. Department of Energy. If the logs are ordered through the University and purchase order number, the cost is \$6.95 each log. If the logs are ordered by an individual (not through an University) the cost of logs are \$10.00-\$14.00 each log, depending on the length of paper.

For the following wells, we have:

Thermal Power

CIGH-1

28-8S-8E

e, ll,

grd-den-cal,

c-den, c-den,

neu, grn, guard

resist, Temp. 9 logs

Geo-Newberry

N-1

25-22S-12E

ie, bhc-acs,

gr, bhc-frac-acs,

cal, geothermal

6 logs

Geo-Newberry

N-3

24-20S-2E

den-grn, neu,

frac, Temp, calip

5 logs

I hope this information will be of help to you. Thank you for your interest in wanting to purchase logs.

If we can be of further help, please call us.

Sincerely yours,

Lois Peake

Lois Peake

Log Sales

N-1

Gamma Ray
BHC acoustic frac

caliper log

BHC acoustic log

induction electric

Temperature log

20 logs @ \$ 6.95/log = \$ 139.00

21

= 145.55

N-3

neutron
gamma ray / den
frac log

Temperature

caliper

CTGH-1

- gamma-ray neutron

- caliper - compens. density (2)

- Temperature

- Resist. / SP

- guard resist,

- gamma-ray density

- lateral log

- neutron acoustic

UNIVERSITY OF UTAH RESEARCH INSTITUTE

UURI

EARTH SCIENCE LABORATORY
391 CHIPETA WAY, SUITE C
SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

July 8, 1988

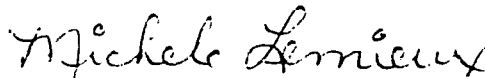
Rocky Mountain Well Log Service
P.O. Box 3150
Denver, CO 80201

To Whom It May Concern:

I'm interested in ordering the complete set of well logs for the three holes drilled under the U.S. Department of Energy Cascades Geothermal Drilling Program: Thermal Power CTGH-1, Geo-Newberry N-1 and Geo-Newberry N-3, all located in Oregon.

Would you please send me a price list? Also, would you accept a University of Utah Research Institute Purchase Order?

Thank you very much,



Michele Lemieux
Assistant Geologist

ML/cd

Petroleum Information

P.O. Box 2612

Denver, Colorado

80201-2612

Attention: Lois Peak

Dear Ms. Peak:

I would like to order the complete set of well logs for the three holes CTGH-1, GeoNewberry N-1 and GeoNewberry N-3 drilled in Oregon under the U.S. Department of Energy Cascades drilling program.

The list of ~~available~~ logs I received from you was missing a few items that I understood were available: ^{for} CTGH-1, guard resistivity, Temperature, and a ~~short~~ interval of an acoustic log; for Geo N-3, Temperature and caliper. Enclosed is a purchase order for 21 logs at \$6.95 each (assuming that the logs not on the list are available as well).

Thank-you very much for your help.

Sincerely,

Michele Lemieux
Assistant Geologist

ROAD, SITE AND LOCATION	\$11,544.39
RIG MOB/DEMOB	\$10,000.00
RIG	\$296,807.04
TRUCKING & HAULING	\$3,889.84
DRILL SITE GEOLOGISTS	\$26,560.00
MUD & CHEMICALS	\$24,618.32
CEMENT MATERIALS	\$9,140.65
GEOPHYSICAL LOGGING	\$10,031.91
DRILL BITS & TOOLS	\$23,492.83
OUTSIDE LABOR	\$1,423.85
OTHER EVALUTATION	\$6,954.20
OTHER	\$14,125.20
CONDUCTOR CASING	\$418.80
SURFACE CASING	\$10,588.64
WELLHEAD EQUIPMENT	\$2,589.46
CAMP & CATERING	\$4,270.89

TOTAL:	\$456,506.02
OVERALL COST/FT =	\$456,506/4800ft
=	\$95/FT

	GEO N - 1	GEO N - 3
RIG MOBILIZATION	\$3,000	\$8,723
ROTARY DRILLING	\$31,953	\$24,957
CEMENTING CASING INSTALLING BOPE	\$17,830	\$33,682
WIRELINE CORING	\$233,776	\$255,462
LOGGING AND DEMOBILIZATION		\$37,619

TOTAL COST	\$286,559 (to 4000')	\$360,443
ROTARY COST/FT	\$68/FT	\$55/FT
WIRELINE COST/FT	\$66/FT	\$72/FT
OVERALL COST/FT	\$72/FT	\$90/FT

	GEO N - 1	GEO N - 3
RIG MOBILIZATION	\$3,000	\$8,723
ROTARY DRILLING	\$31,953	\$24,957
CEMENTING CASING INSTALLING BOPE	\$17,830	\$33,682
WIRELINE CORING	\$233,776	\$255,462
LOGGING AND DEMOBILIZATION		\$37,619

TOTAL COST	\$286,559	\$360,443
	(to 4000')	

TABLE 1.b Estimate of Expenditure for
GEO N - 1 and GEO N - 3 (based on daily
drilling reports by GEO Operator Corp.)

	CTGH - 1	GEO N-1	GEO N - 3
TEMPERATURE	16 - 514 ft 0 - 4785 ft	0 - 4000 ft	50 - 4002 ft
CALIPER	0 - 510 ft 4100 - 4800 ft	0 - 4000 ft	1690 - 3999 ft
GAMMA RAY	0 - 4800 ft	0 - 4000 ft	50 - 1692 ft
SPONTANEOUS POTENTIAL	35 - 515.5 ft 4200 - 4798 ft	0 - 4000 ft	--
RESISTIVITY 16" - 64"	35 - 515.5 4200 - 4799 ft	0 - 4000 ft	--
INDUCTION	--	0 - 4000 ft	--
ACOUSTIC	4225 - 4425 ft	0 - 4000 ft	--
ACOUSTIC FRACLOG	--	0 - 4000 ft	1700 - 4001 ft
NEUTRON	20 - 516 ft 0 - 4800 ft	--	50 - 4000 ft
GAMMA - GAMMA DENSITY	0 - 510 ft 775 - 900 ft	--	--
INDUCED POLARIZATION	4200 - 4799 ft	--	--
LATERALOG	4200 - 4798 ft	--	--
DENSITY	4200 - 4295 ft	--	--
DENSILOG NUETRON	--	--	50 - 1692ft
GUARD RESISTIVITY	20 - 516 ft	--	--

TABLE 2. Geophysical Well Logs Available - for copies contact:
Rocky Mountain Well Log Service
P.O. Box 3150
Denver, Colorado 80201

	CTGH - 1	GEO N-1	GEO N - 3
TEMPERATURE	16 - 514 ft 0 - 4785 ft	0 - 4000 ft	50 - 4002 ft
CALIPER	0 - 510 ft 4100 - 4800 ft	0 - 4000 ft	1690 - 3999 ft
GAMMA RAY	0 - 4800 ft	0 - 4000 ft	50 - 1692 ft
SPONTANEOUS POTENTIAL	35 - 515.5 ft 4200 - 4798 ft	0 - 4000 ft	--
RESISTIVITY 16" - 64"	35 - 515.5 4200 - 4799 ft	0 - 4000 ft	--
INDUCTION	--	0 - 4000 ft	--
ACOUSTIC	4225 - 4425 ft	0 - 4000 ft	--
ACOUSTIC FRACLOG	--	0 - 4000 ft	1700 - 4001 ft
NEUTRON	20 - 516 ft 0 - 4800 ft	--	50 - 4000 ft
GAMMA - GAMMA DENSITY	0 - 510 ft 775 - 900 ft	--	--
INDUCED POLARIZATION	4200 - 4799 ft	--	--
LATERALOG	4200 - 4798 ft	--	--
DENSITY	4200 - 4295 ft	--	--
DENSILOG NUETRON	--	--	50 - 1692'
GUARD RESISTIVITY	20 - 516 ft	--	--

TABLE 2. Geophysical Well Logs Available - for copies contact:
Rocky Mountain Well Log Service
P.O. Box 3150
Denver, Colorado 80201

CTGH-1 GEO N-1 GEO N-3

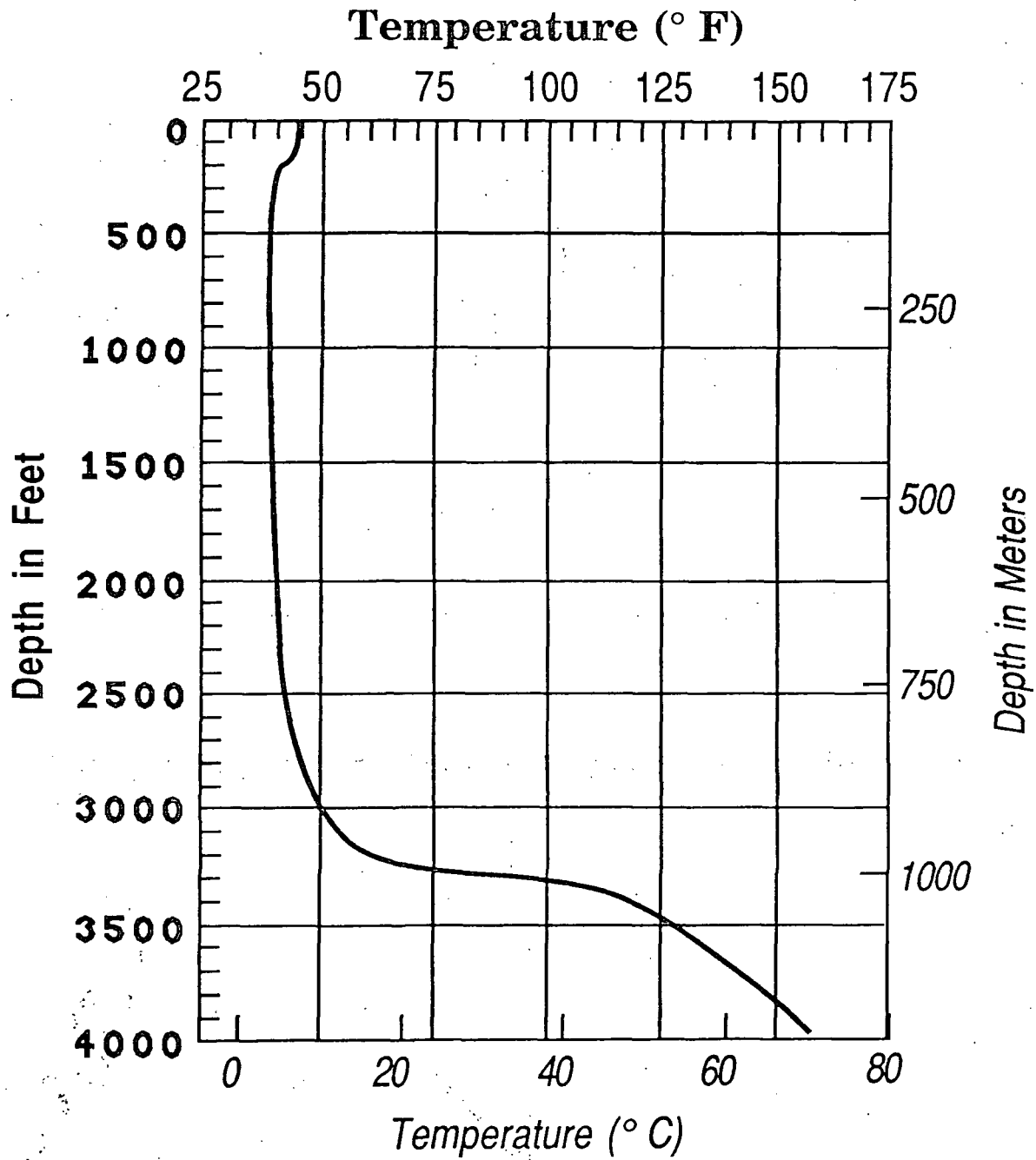
HEAT FLOW	SMU	SMU GEO	SMU GEO
DOWNHOLE Hg	--	GEO	GEO
ALTERATION	USGS	USGS GEO	USGS GEO
VOLCANIC STRATIGRAPHY	DOGAMI	Univ. of Wyo.	Univ. of Wyo.
CORRELATION OF ELECTRIC LOGS WITH ALTERATION\ANALYSIS OF WELL LOGS	UURI	UURI	UURI
GEOCHEMISTRY OF FLUIDS AND ROCKS	--	GEO	GEO
AGE DATA	--	GEO	GEO
PETROGRAPHIC ANALYSIS	--	GEO	GEO
SYNTHESIS OF DATA TO DEVELOP MODEL	DOGAMI	--	--

=====

SMU - Southern Methodist University
 GEO - GEO Operator Corp.
 USGS - United States Geological Survey
 DOGAMI - Oregon Dept. of Geology and
 and Mineral Industries
 Univ of WYO. - University of Wyoming
 Dept. of Geology
 UURI - University of Utah Research
 Institute - Earth Science Laboratory

TABLE 2. Scientific Studies

TEMPERATURE - DEPTH LOG GEO N-1



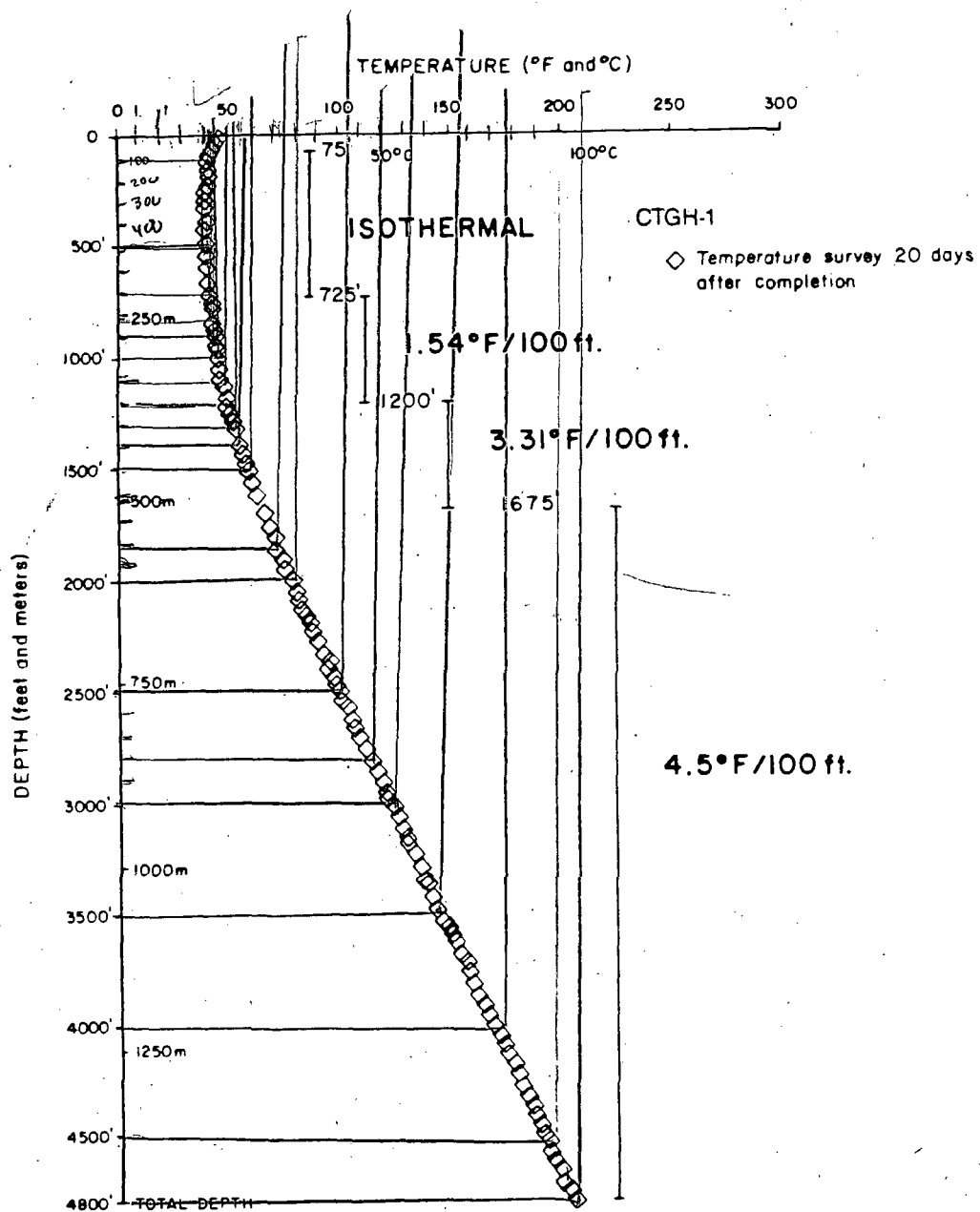


Figure 11. Temperature-depth plot for CTGH-1 as determined by Blackwell (1986).

CORE HOLE GEO N-1
BLACKWELL TEMPERATURE LOG OF 9/25/86
NEWBERRY VOLCANO, OREGON

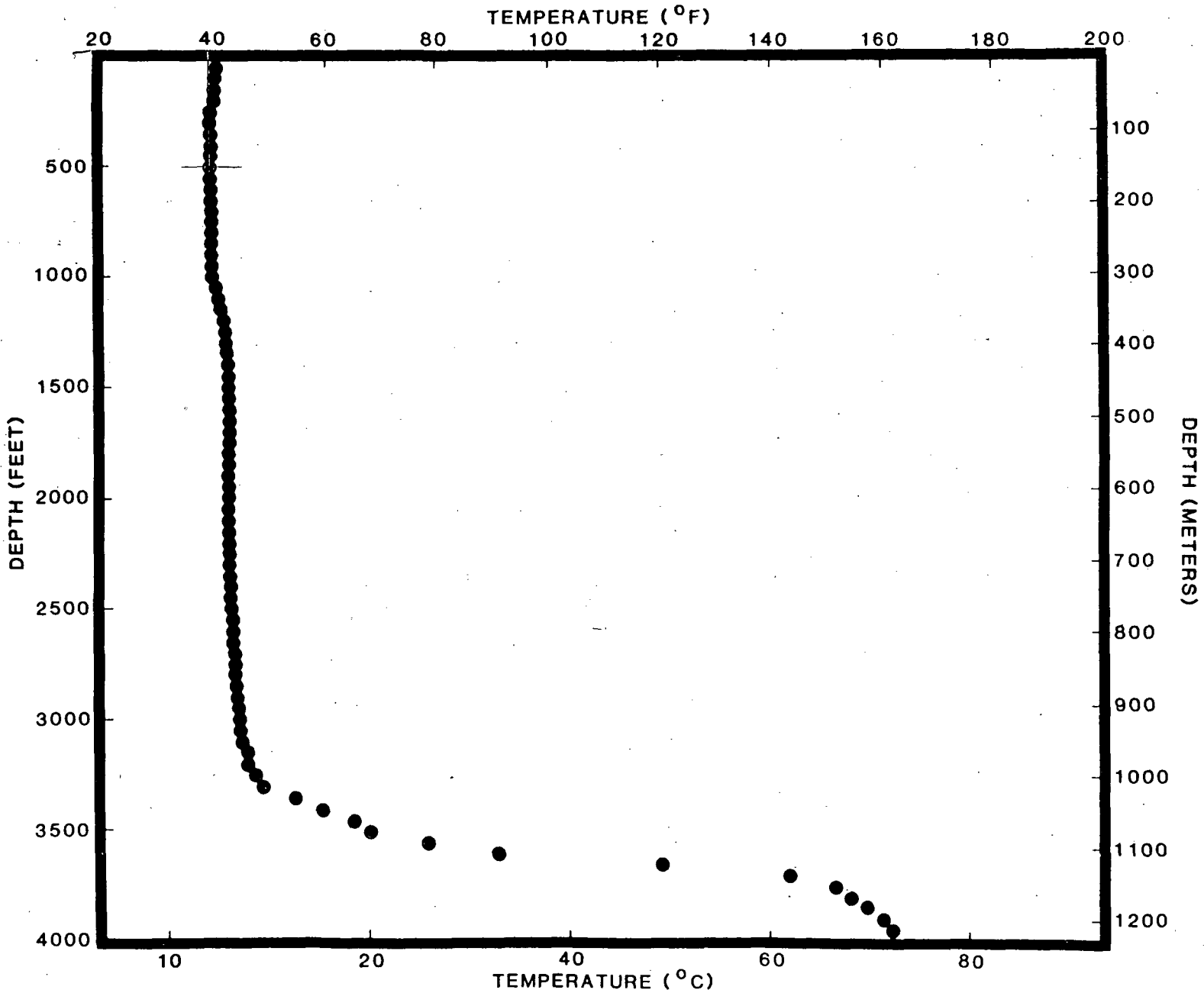


Figure 2G-4

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 1985-86
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shown by the dashed line). The heat flow value for this hole ranges between 96 and 128 mWm^{-2} .

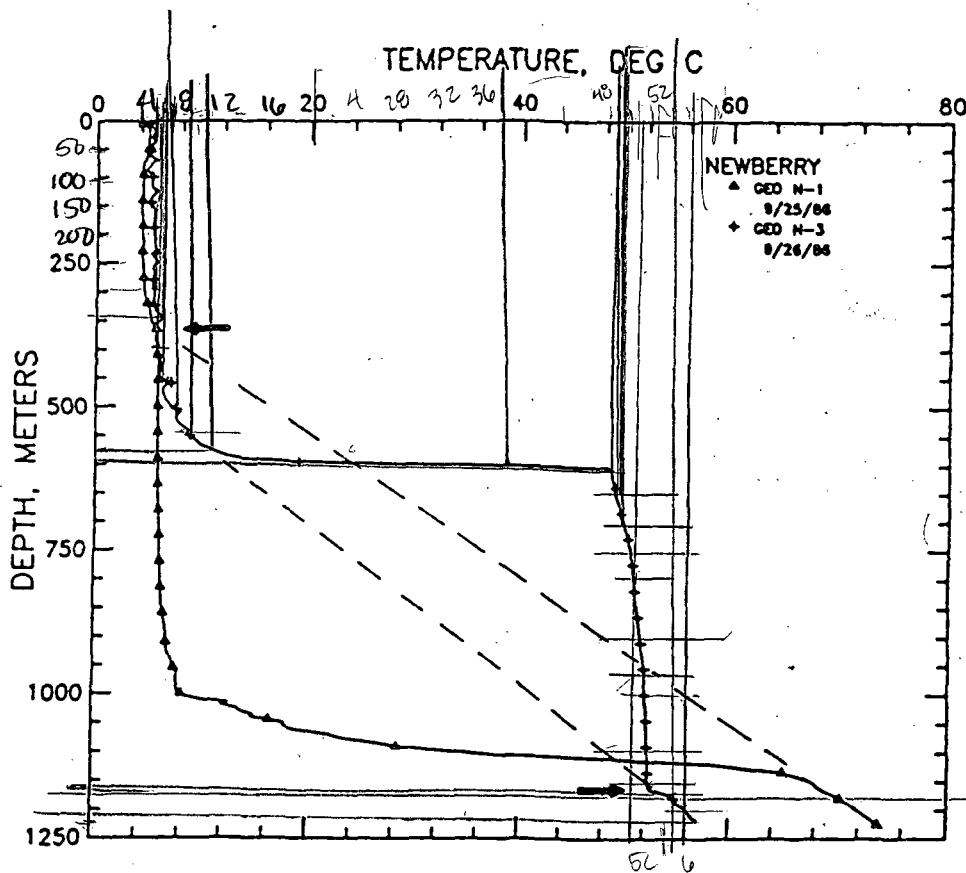


Figure 2. Temperature-depth curves for Geo-Operator Newberry holes. Every 5th point is shown.

In contrast, Hole N-1, approximately 2 km south of the south rim of the caldera, has a slightly higher temperature in the bottom of the hole, but a temperature-depth curve which may be due to intra-hole downflow. In this case, fluid might enter the hole at a depth of approximately 350-400 m (see arrows) and flow down the hole isothermally to exit between 1000 and 1100 m. In fact, in the period of time between when the hole was completed and logged in late 1985 and when it was logged in

1. Refer to this
Table instead of
listing Technical
problems and delays
in writing?

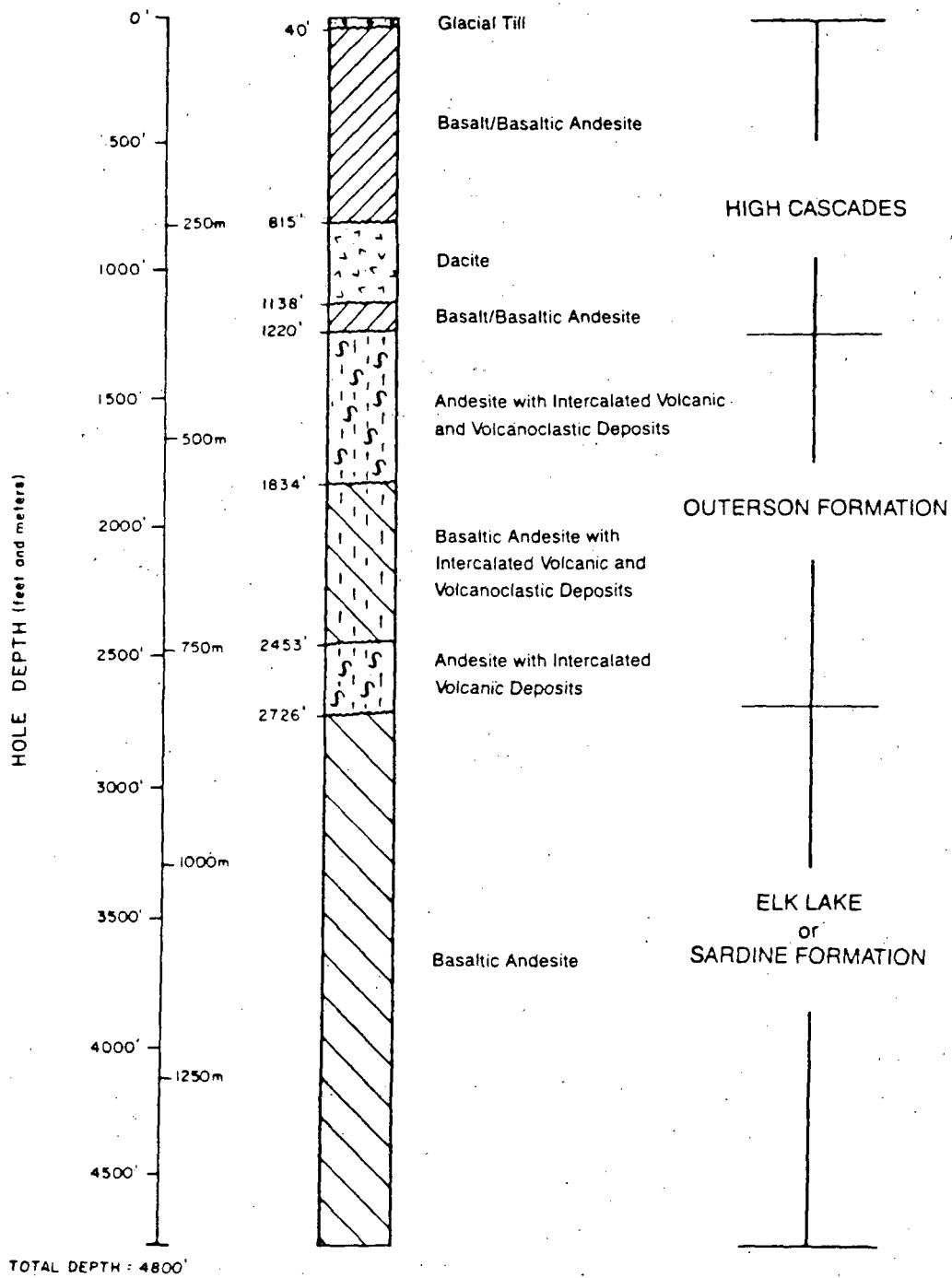


Figure 9. Generalized lithologic column for CTGH-1.

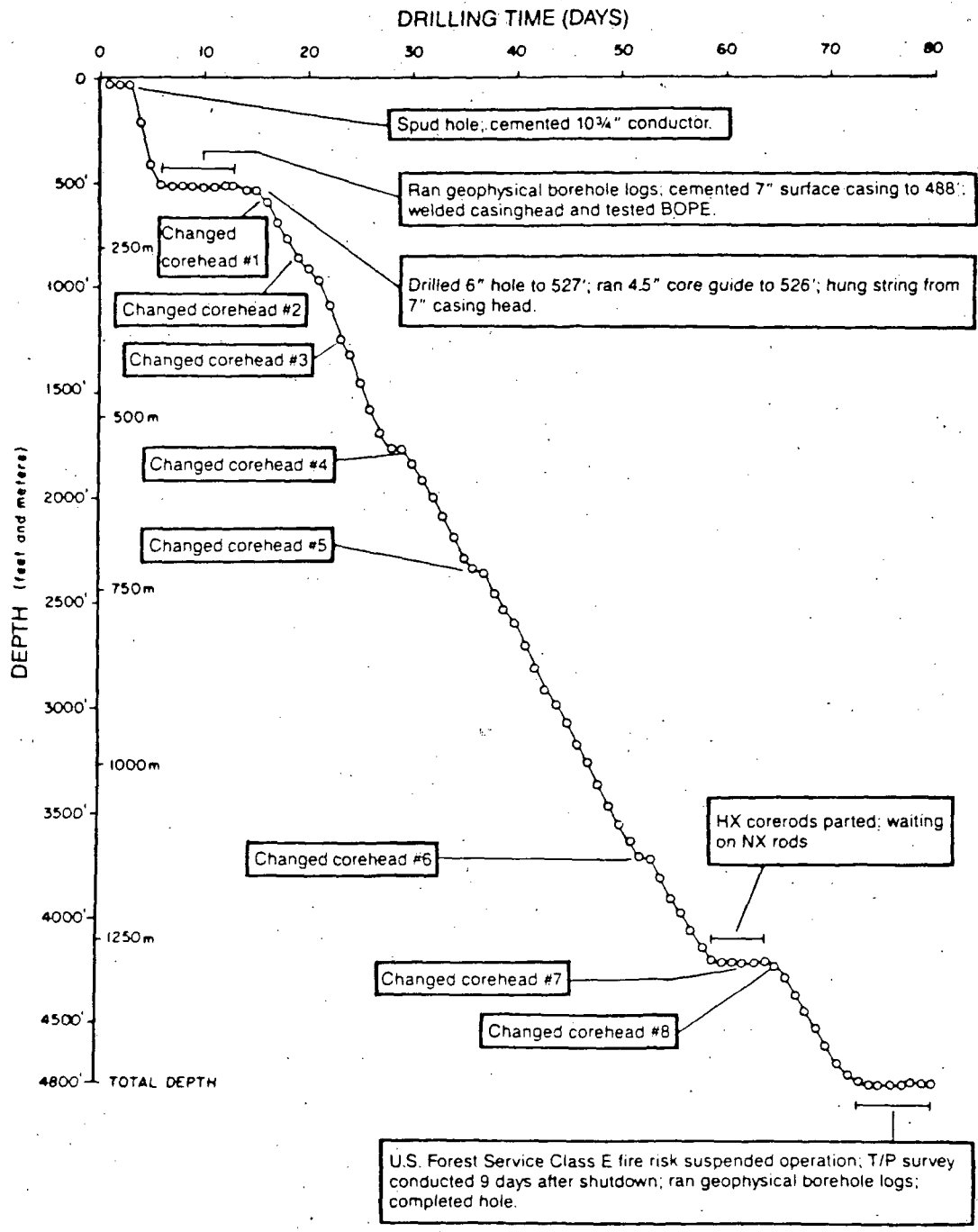
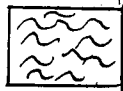


Figure 6. Depth penetration profile for CTGH-1.



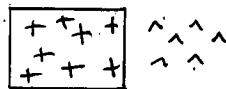
Basalt / Andesite flow



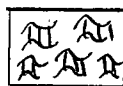
Flow Breccia



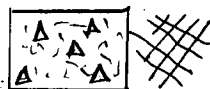
Dacite Flow



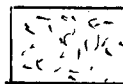
Basalt / Andesite
 intercalated with
 tuffs, agglomerates
 volcaniclastics and
 ash flows



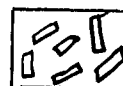
Cinder, ash, scoria
 and agglomerates



Lapilli Tuff
 and ash flow
 tuffs



Rhyodacite Flow



Lahar

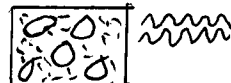


Figure 2
 a) b) c)

	CTGH - 1	GEO N-1	GEO N - 3
TEMPERATURE	16 - 516.5 ft 0 - 4785 ft	0 - 4000 ft	50 - 4002 ft
CALIPER	10 - 514 ft 4100 - 4800 ft	0 - 4000 ft	1690 - 3999 ft
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INDUCED POLARIZATION	4200 - 4799 ft	--	--
LATERALOG	4200 - 4798 ft	--	--
DENSILOG, NEUTRON	--	--	50 - 1692 ft
GUARD RESISTIVITY	20 - 514 ft	--	--

TABLE 2. Geophysical Well Logs Available. For copies contact:
Rocky Mountain Well Log Service
P.O. Box 3150
Denver, Colorado 80201

	CTGH-1	GEO N-1	GEO N-3
HEAT FLOW	SMU	SMU GEO	SMU GEO
DOWNHOLE Hg	--	GEO	GEO
ALTERATION	USGS	USGS GEO	USGS GEO
VOLCANIC STRATIGRAPHY	DOGAMI	Univ. of Wyo.	Univ. of Wyo.
CORRELATION OF ELECTRIC LOGS WITH ALTERATION\ANALYSIS OF WELL LOGS	UURI	UURI	UURI
GEOCHEMISTRY OF FLUIDS AND ROCKS	--	GEO	GEO
AGE DATA	--	GEO	GEO
PETROGRAPHIC ANALYSIS	--	GEO	GEO
SYNTHESIS OF DATA TO DEVELOP MODEL	DOGAMI	--	--
CORE STUDIES	UURI	UURI	UURI

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SMU - Southern Methodist University
GEO - GEO Operator Corp.
USGS - United States Geological Survey
DOGAMI - Oregon Dept. of Geology and
and Mineral Industries
Univ of WYO. - University of Wyoming
Dept. of Geology
UURI - University of Utah Research
Institute - Earth Science Laboratory

TABLE 3. Scientific Studies

DESCRIPTION	CTGH-1	GEO N-1	GEO N-3
DAILY DRILLING REPORT	X	X	X
DRILLING AND COMPLETION HISTORY	X		
LITHOLOGIC LOG	X	X	X
CORE RECOVERY LOG	X	X	X
CORE PHOTOS		X	X
TEMPERATURE DURING DRILLING	X	X	X
STANDING FLUID LEVEL	X	X	X
TEMPERATURE LOG		X	X
GRAPHIC DRILLING LOG (lithology, temp. from MRT, penetration rate, water level, lost circulation zones)	X		
SECONDARY MINERALOGY DESCRIPTION	X	X	X
HOLE COMPLETION SCHEMATIC	X	X	X
TABLE OF MEASURED THERMAL CONDUCTIVITY		X	
FINAL REPORTS	X	X	

TABLE 4. Open file data available. For copies contact:
University of Utah Research Institute
391 Chipeta Way Suite C
Salt Lake City, Utah 84108

Rocky Mountain Well log Service
P.O. Box 3150
Denver, Co
80201

To whom it may concern,

I'm interested in ordering the complete set of well logs for the three holes ^{drilled under the} U.S. Department of Energy Cascades Geothermal Drilling Program: Thermal Power CTGH-1, GeoNewberry N-1 and GeoNewberry N-3, all located in Oregon.

Would you please send me a price list?

Also, ^{would} you accept ^a university of Utah Purchase Order?

Thank-you very much,

Michele Lemieux
Assistant Geologist