

DRILL HOLE LOG - COVER SHEET

SITE 13

~~P. Permit 47~~ ?

LOCATION

<sup>1</sup>Township/Range/Section 35/8E - 14BC <sup>1</sup>State Oregon

<sup>4</sup>Topo. Quad. Government Camp 7 1/2 <sup>1</sup>AMS Quad. Vancouver

Elevation 3126 feet <sup>2</sup>953 meters [Source USGS 7 1/2']

<sup>1</sup>Latitude \_\_\_\_\_ <sup>1</sup>Longitude \_\_\_\_\_

<sup>1</sup>Hole Owner (and Number) Northwest Natural Gas ~~217 299 1~~ ~~P. Permit~~ 217 299 1

<sup>1</sup>Date(s) Logged 7/19/79 <sup>4</sup>Inclination & Bearing Vert.

<sup>1</sup>Geologic Province High Cascades

KEY INFORMATION

<sup>2</sup>Depth Logged 284m <sup>2</sup>Max. Temp. 11.64 <sup>2</sup>Bottom Hole Temp. 11.64

<sup>2</sup>Depth to Water <5m <sup>2</sup>Min. Temp. 8.15 <sup>2</sup>Surface Temp. 7.1

DRILLING INFORMATION

Drilling Contractor and Address Skyler Bros. - Portland, Or. <sup>2</sup>Drilling Dates 6/11/79 - 7/12/79

Drilling Method mud rotary Drilled Depth 935'

Hole Size and Casing Record 200' of 8" casing - 1 1/2" steel pipe to total depth - annulus filled w/ heavy mud  
Comments \_\_\_\_\_

TERRAIN INFORMATION

Ground Cover, Collar none; Within 150 m heavy conifer forest

Topographic Setting, Local RIVBED /; Regional MT N FLANK

Relief, Local (m) 85m; Regional (m) 825

Slope Orientation, Local South; Regional West

Slope Angle, Local \_\_\_\_\_; Regional \_\_\_\_\_

HEAT FLOW INFORMATION

Shape of T-D Curve DRLDIST Quality of Gradient C

Purpose of Hole LOC/REG HF

<sup>4</sup>Geologic Log (include aquifers) will be available

<sup>4</sup>Geophysical Logs Available -

Thermal Conductivity Samples cuttings available

<sup>4</sup>Radioactivity Samples -

References \_\_\_\_\_

Comments \_\_\_\_\_

hole collared High Cascades andesite - penetrated into ~~stone~~ contact zone of Laurel Hill pluton and remained there to total depth

B	A
C	D

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor AMERICAN DEEP DRILLING Report # 1

Location 3S RE 14 BC Date 6-6-79

Well # Zig Zag 1  
DRILLING WITH 6" AIR HAMMER

Depth @	Formation	ft.
<u>10</u> <u>AM/PM</u>		
Log: <u>10' MED GRAY APHAUTIC BASALTIC ANDESITE</u>		
<u>RARE PHENO PC</u>		
<u>20' SAME RK PC XTLs ARE MED GRAY NO</u>		
<u>PHENOS. BASALTIC ANDESITE -</u>		
<u>ONE FRAG WITH OPEN JOINT FACE (NO</u>		
<u>SECONDARY XTLs)</u>		
<u>30' SAME - DARKER GRAY SOME OXIDIZED FRAGS</u>		<u>30'</u>
<u>34' MUDFLOW RK (DRILLER)</u>		<u>34'</u>
<u>40' NOT MUDFLOW BUT WEATHERED RK</u>		<u>40'</u>
<u>PALE GREENISH WHITE QTZ &amp; ORITE?</u>		
<u>PHENOS OF PC &amp; MAGS ALTERED TO CHLORITE</u>		
<u>LOOSE XTLs OF QTZ, SOME ~10% QTZ IN RK</u>		
<u>RARE PC XTL, RED ORANGE OXIDATION SPEC. NEMATITE</u>		
<u>50' SAME RK MUCH MORE OXIDIZED, LITTLE</u>		<u>50'</u>
<u>QTZ. RK COULD ACTUALLY BE <sup>AND</sup> ANDESITE, PIECES PC</u>		
<u>DRILLER SAYS ANDESITE FLOW 43'-48'</u>		
Depth @ _____ AM/PM		
Total Footage		

Drilling Fluid:

- Mud - Additives \_\_\_\_\_
- Air - Pressure 220-250 P.S.I. Additives \_\_\_\_\_

Weather Report RAIN

8071-NS Observer J Meyer

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor AMERICAN Deep DRILLING Report # 1

Location 358E 14 Bc #13 Date 6-6-79

Well # Zig Zag 1

35'/hr  
100'  
29 gal/min

Depth @ _____ AM/PM	Formation	ft.
Log: 60' <u>greenish white ANDRESITE?</u>		60'
<u>CHLORITIZED, LGE XTLS PC &amp; Fe MAG (Altered to chlorite)</u>		
<u>OXIDIZED</u>		
70' <u>SAME RK <u>POPHYRITIC</u> -</u>		70'
<u>CHLORITE MILKY PC, &amp; apl. grd MASS grtz?</u>		
<u>LITTLE OXIDATION</u>		
80' <u>SAME</u>		80'
90' <u>SAME APPEARS SAME AS 40' ONLY</u>		90'
<u>XTLS ARE LARGER &amp; NO-As OXIDIZED</u>		
100' <u>SAME RK TYPE ONLY MORE FINE</u>		100'
<u>GRAINED - FLAKES of Fe MAG RARE PRENSOS</u>		
<u>APPEARS MORE WEATHERED SAME AS 40'</u>		
110' <u>SAME LARGER FRESHER XTLS LIKE 70'</u>		110
120' <u>SAME FINE GRAINED grtz VEINLETS</u>		120
130' <u>SAME Fe MAGS MORE FLAKY</u>		130
140' <u>SAME ALMOST PURE WHITE LGE Fe MAGS (CHLORITE)</u>		140
Depth @ <u>4</u> AM/PM <u>px?</u>		
Total Footage		

Drilling Fluid:

- Mud - Additives \_\_\_\_\_
- Air - Pressure \_\_\_\_\_ P.S.I. Additives NONE

Weather Report Raw

Observer J Meyer

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor AMERICAN Deep DRILLING Report # 1

Location 3 S 8 E 14 AC #13 Date 6-6-79

Well # \_\_\_\_\_

Depth @ 4 AM/PM

Log: 150' SAME

160' SAME RK MORE OXIDATION

Fe MAGS NOT TOTALLY CHLORITIZED

YELLOW STAINS IN PC AROUND CHLORITIZED

MNLS QTZ & BLACK METALLIC VEINLETS

Formation

ft.

150

160

163'

Depth @ 4:40 AM/PM

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

8071-NS

Observer J Meyer

NORTHWEST GEOTHERMAL CORPORATION  
DRILLING LOG

Contractor AMERICAN Deep DRILLING Report # 2  
Location 358E 14 BC Date 6-8-79  
Well # 13

Depth @ 9:20 (AM/PM)

Formation  
163' ft.

Log: 170' SAME AS 160'

180' SAME RK TYPE EPIDOTE

VERY HARD DRILLING 185-189'

190' TWO RK TYPES 50% AS BEFORE

50% GREENISH GRAY APLANITIC

few bands of PC MICROLITES of 1/2 MGS

ANDASITE? VEINLETS of Qtz

200' 100% RK TYPE AS AT 180'

AS MUCH EPIDOTE, MORE SIGNS

of OXIDATION.

RK AT 185-189' PROBABLY DIKE RK

\* CHANGING 6 1/2" TO 10" REAMER (AIR HAMMER)

Depth @ 11:40 (AM/PM)

200'

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure 220-250 P.S.I. Additives \_\_\_\_\_

Weather Report SUNNY

8071-NS

Observer J Meyer

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor AMERICAN Deep DRILLING

Report # 3

Location 358E 14BC

Date 6-8-79

Well # 13

STATIC WATER LEVEL 4'

Depth @ \_\_\_\_\_ AM/PM

Log: CEMENTED HOLE

6-11-79 REPORT #4 REAMED  
OUT HOLE TO 200 FT 10 IN

6-12-79 CLEANED OUT HOLE WITH  
Report # 5 9 7/8 ROLLER CONC BIT LEDGES  
TO 100'

#6 6-13-79 CEMENTED SURFACE CASING  
200' <sup>WEAR</sup> RETURNS TO SURFACE  
100 SACKS CEMENT  
~~20'~~ TOP OF CEMENT  
OUTSIDE PIPE 20' BELOW SURFACE

Formation

ft.

Depth @ \_\_\_\_\_ AM/PM

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

8071-NS

Observer J Meyer



NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor AMERICAN Deep DRILLING

Report # 8

Location 3 S 8 E 14 BC

Date 6-15-79

Well # 13

Depth @ 8:30 AM/PM

Formation

223 ft.

Log: 230' SAME R. AS ABOVE

10-15% oxidized? MUCH MORE WHITE

240' SAME RK TYPE TR PYRITE MORE GREEN

LESS EPIDOTE, BLACK METALLIC MULL?

242' fracture: oxidized fracture

OPEN NO SECONDARY RTZ NO CALC.

250' SAME RK TYPE OXIDIZED, SPEC. MAGNETITE

MAGNETITE GRASSY METALLIC MULL GRAY

GRAY-BLACK STREAK EPIDOTE

260' SAME METALLIC MULLS GONE

270' SAME - CARBON, TAU MNL SECONDARY

RK CHIPS ARE MAGNETIC, BACK TO

AT LEAST 170'

280' SAME STILL SIGNS OF FRACTURING

290' SAME NO OXIDATION

300' SAME OXIDATION - OPEN FRACTURE

ABOUT 6 gal/min  
WATER AT 242' depth

250'

260

270

280

290

300

Depth @ 12:35 AM/PM

300

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure 220-250 P.S.I. Additives \_\_\_\_\_

Weather Report cloudy

8071-NS

Observer J Meyer

10 30 AM  
WATER  
TEMP 44 OF  
2 30 PM  
44 OF  
35 F



NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling

Report # 8

Location 352E 14BC

Date 6-15-79

Well # 13

290' - 310' fractured zone

Depth @ 12 35 AM/PM

Formation

300 ft.

Log: 310 same as before oxidized logs

315'

320 same as 310 - NO OXIDATION veins of gtz

1:40 PM water out 44 in 36

320 - Rk cuttings half 10-15% magnetite

2:40 PM water out 40 in 36

True of all samples sd for veins

of ep. date LAO's Heust PC

330 same as 320 TR BORING pipe

340 same as 330

350 same greenish gray and white d. oxide

360 D. Ho w/ minor ox. d.

370 same but with heavy

oxidation, yellow green

ep. date (?) and rust brown

stains. Hole accented

major fracture @ 370 which

drove the air hammer

Depth @ 4:45 AM/PM

370'

Total Footage

Drilling Fluid:

Mud - Additives

Air - Pressure 200-250 P.S.I. Additives

Weather Report

8071-NS

Observer J Meyer

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling Report # 9  
Location 35-SE 14bc Date 6-18-79  
Well # 13

Depth @	AM/PM	Formation	Temperature
3:00	AM		370 ft.
Log: Motor Driller had trouble finding a roller cone bit arrived about noon, tripped hole to remove air hammer, resumed drilling @ 3 PM. 6" bit			Discharge water 40°F
380'		Same - Greenish gray and white d. oxide w/ minor oxidation	37°F
390'		Ditto, medium oxid	37°F
400'		Ditto, minor oxid	37°F
Depth @ <u>5:30</u> AM/PM			400 ft.
Total Footage			30

Drilling Fluid:  
 Mud - Additives \_\_\_\_\_  
 Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report Cloudy w/ AM Drizzle  
8071-NS Observer J. Hook

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor AMERICAN Deep DRILLING

Report # 10

Location 35 RE 14bc

Date 6-19-79

Well # 13

Depth @ _____ AM/PM	Formation	ft.
Log: <u>DRILLER ARRIVED WITH MUD TRAILER</u>		
<u>9 SPINDLE AT 1:30 PM DRILLING WITH</u>		<u>160 PSI TO CLEAR WATER</u>
<u>AIR</u>		<u>20-14-1000</u>
<u>410' SAME RK TYPE AS BEFORE</u>		<u>WATER TEMP WHEN</u>
<u>OXIDIZED</u>		<u>FIRST DOWN 37°F</u>
<u>420' SAME RK TYPE - WHITE SOFT</u>		<u>15 MIN LATER 39°F</u>
<u>VEIN MATERIAL CLAY? ED. DOTE</u>		
<u>7E PYRITE</u>		
<u>430' SAME RK TYPE CLAY IS GONE</u>		<u>430'</u>
<u>OXIDIZED - CHANGED COLOR OF WATER TO</u>		
<u>LT BROWN - FROM MILKY GREEN</u>		
<u>440' SAME - LITTLE OXIDATION - SOME</u>		<u>440'</u>
<u>WHITE CLAY</u>		
<u>450' SAME SOME OXIDATION NO CLAY</u>		
<u>460' SAME SOME OXIDATION CLAY - RK APPEARS WEATHERED</u>		<u>460'</u>
<u><del>THE</del> <del>SOFT</del> <del>CLAY</del></u>		
<u>470' SAME - 460-470 DRILLER FEEL</u>	<u>FREE ZONE</u>	<u>WATER INCREASED</u>
Depth @ _____ AM/PM		<u>5 pm 39°</u>
Total Footage		

24' / hr

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure 115 P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

Observer J Meyer

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling

Report # 11

Location 35/20 146

Date 6-20-79

Well # 13

Depth @ 10:30 AM/PM

Formation

Log: Driller advised of water valve  
but flange was too large. Had  
to get red to build up distance  
between casing and flange. Finished  
welding. Checked water and  
had it inspected by C. D. Mason 11/6/79.

470 ft.

2:45<sup>PM</sup> started drilling to 470'  
480' Green & gray and white  
due to some or chert, but good,  
came @ 475'.

470'

Drilling water  
38°F

490 D. Ho, med. L. oxide.

495 D. Ho, med. to oxide.

Depth @ 5:30 AM/PM

495'

Total Footage

Drilling Fluid:

Mud - Additives None

Air - Pressure Normal P.S.I. Additives

Weather Report Partly Cloudy - Cool

Observer J. Hook



NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling Report # 13

Location 3 S 8 E 14 6c Date 6-22-77

Well # 13

Depth @ 9:00 AM/PM

Log: 520' Greenish gray  
and white diorite with  
1. M. oxidation but few  
streaks of

530 D.Ho

540 D.Ho but fewer  
streaks of

Rig broke down 12 30 pm

Depth @ 12:30 AM/PM

Total Footage

540

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report Sunny

Observer J. Boyd 45WH

Formation

515 ft.

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling Report # 14 (rose 1)  
 Location 35/06 14bc Date 6-26-79  
 Well # 13

Depth @	AM/PM	Formation	in	out
9'45"	AM		540	ft.
Log:				
550		Greenish gray and white gtz. <u>diorite</u> , very i. Hc oxid, numerous slickensides.	45°	45° F
560		Ditto (12.30)	50°	50° F
570		Ditto		
575'		@ 1:45 PM - cavity.	54°	53°
580		D.H. w/ increased greenish yellow & rusty oxid from cavity. Trace of Chalcopyrite		
590		D.H. moderate oxid. (3:00 PM) trace pyrite, trace Chalcopyrite?	57	57
600		D.H. slickensided, oxid.		
610		D.H. " " " "		
Note: Panned cuttings direct from casing omitted - Heavy material to 110 cu ftounds.				
Depth @	AM/PM	Continued next page		
Total Footage				

Drilling Fluid:  
 Mud - Additives \_\_\_\_\_  
 Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report Sunny  
 8071-NS Observer J W Hook

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor \_\_\_\_\_

Report # 14 (Page 2)

Location \_\_\_\_\_

Date \_\_\_\_\_

Well # \_\_\_\_\_

Depth @ \_\_\_\_\_ AM/PM

Formation

Log: Contd.

620 Ditto mudstone oxid,  
mudstone slickensides.

630 Ditto w/ slickens + oxid.

Note: Driller noted a number  
of small ~~cracks~~ cavities from  
575 to the present depth

in + out  
57°F 57°F

Depth @ 6 AM/PM

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

8071-NS

Observer J. W. Hoop





NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling Report # 16  
Location 35/06 1460 Date \_\_\_\_\_  
Well # \_\_\_\_\_

Depth @ 10:00 (AM) PM

Log: 670' Greenish gray  
qtz. diorite w/ streaks of  
+ ox. d.

680 Some extent soft  
fault zone w/ white clay  
and rounded qtz, magnetite  
etc. xls from 678 to 680

690 D.Ho, with some  
scattered fault gouge, very  
heavy pyrite, med. ox. d.

700 Greenish gray qtz diorite  
w/ med ox. d, med. streaks  
and heavy pyrite. (No salt gouge)  
Driller reported small cavities.

710 D.Ho, harder

720 D.Ho, "

730 Ditto, less ox. d, less pyrite.

Depth @ 5 PM AM/PM

Total Footage

Formation

663 ft.

Temp

in 52°F cat 52°F

Fault  
@ 678-  
690

20' / 1/2

11:00 PM

52°F 52°F

735

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report Sunny

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling Report # 17

Location 352E 14 Rd Date 6-29-79

Well # 13

Depth @ _____ AM/PM	Formation
Log: <u>CIRCUMVENTION AT 11:30 AM</u>	<u>735 ft.</u>
<u>740' mud pump broke - 2 hrs delay</u>	<u>12:15 PM MUD TEMP in 44</u> <u>OUT 44</u>
<u>frags 15% (very small) &amp; traces of quartz</u>	<u>28 1/2 sec FUNNEL TEST</u> <u>MUD. MARSH FUNNEL</u>
<u>TR 2250' TR AT 2250', heavy mud on clay</u>	<u>1:30 PM MUD IN 45</u> <u>OUT 44</u>
<u>(frags use case at 740') ON 2250' TR</u>	
<u>50' 700 TRAIL ABOVE 700'</u>	
<u>750' same as 740' clay frags</u>	<u>3 PM MUD IN 46°F</u> <u>OUT 46</u>
<u>750-760 ADDED LDC MUD - LAST 100 GAL MUD</u>	<u>750'</u>
<u>760' SAME AS 750' TR ORIENTATION</u>	<u>760'</u>
<u>770' 80% clay material, actual gas some</u>	<u>770'</u>
<u>VERY POOR CUTTINGS RETURN</u>	
<u>780' VERY FINE CUTTINGS NEARLY ALL</u>	<u>780'</u>
<u>412 LIQUIDS, VERY LITTLE CLAY, VERY GOOD</u>	

Depth @ \_\_\_\_\_ AM/PM  
Total Footage \_\_\_\_\_

Drilling Fluid:

- Mud - Additives \_\_\_\_\_
- Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report Cloudy

Observer J. Meyer

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling

Report # 18

Location 3 S 8 E 1460

Date 7-2-79

Well # 13

Depth @ 9 AM/PM

Log: 790' pure calcite

SAME AS TYPE 30% calcite

TR pyrite

800 SAME

810 SAME AS TYPE calcite very

white little calcite, few pyrite

fractures

820 SAME AS 810

830 SAME

836 fracture zone small mud loss

840 SAME AS 830 TR pyrite

Formation

780 ft.

DRILLING  
LOG  
7/2/79

10:30 AM mud in 41  
OUT 41

NOON mud in 46  
OUT 46

2:45 PM mud in 50  
OUT 50

4:05 PM mud in 52  
OUT 52

820'

830'

836'

840'

Depth @ 5:20 AM/PM

Total Footage

843

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report cloudy

8071-NS

Observer J. Mager

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling Report # 19

Location 3 S 8 E 14 60 - Zigzag Date 7-3-71

Well # 13

Depth @ 12:30 AM/PM

Formation

843 ft.

Log:

850 greenish gray str.

dark, 1.46 ~~at~~ oxide

trace of pyrite

860 same, med. to ex. d.

in pyrite

870 Same rock type with

heavy oxidation and consid. dark

pyrite

880 Same, less oxid, darker

in pyrite.

Note: Driller reported

numerous open fractures throughout

but heaviest oxidation was

at 870

Depth @ 5:30 AM/PM

880

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

Observer J. W. Hook

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling Report # 20  
 Location 35/0E 146c-Zigzag Date 7-5-79  
 Well # 13

Depth @ 9 (AM/PM) Formation 880 ft.

Log:  
890 Greenish gray quartz  
diorite, moderate oxidation,  
traces quartz, open fractures.  
900 D.H. w/ lost circulation  
(partial loss).  
Notes: drilling slow through  
fractured zone because of cautious  
use of pressure on b.t. Formation  
below 900 was firm and cir-  
culations were resumed.  
Breakdown 11:30 to 2:15.  
Drilled 9-11:30 and  
2:15 to 6:15.

in	out	
43	49	F
50	50	F

Depth @ 6:15 (AM/PM) Total Footage 905

Drilling Fluid:  
 Mud - Additives lost circulation material  
 Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report Mostly Sunny  
 8071-NS Observer J W Hook

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling

Report # 21

Location 35 SE 14 BC - Zigzag

Date 7-6-79

Well # 13

Depth @ 11:45 (AM/PM)

Log: clear mud

910 ft. d. 1/2" grey sand

1/2" - 5/8" sand

920 SAME

930 SAME AS 920

940' SAME - slight increase in sand

Driller reported that there is a slight loss of mud while drilling

Formation

905 ft.

MUD TEMP 42°

910'

1 PM MUD IN 46

920' out 47

3 PM MUD IN 50  
out 50

940'

Depth @ \_\_\_\_\_ AM/PM

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report cloudy

8071-NS

Observer J Meyer

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling

Report # 22

Location 357E 14B - Zigzag

Date 7-9-77

Well # 13

Depth @ \_\_\_\_\_ AM/PM

Log: Attempted to resume drilling but pipe refused to turn when lowered to bottom.

Pulled pipe and found that all three roller cones were missing from b.t.

Discussed situation w/ Bill Covert and decided to discontinue drilling and set observation pipe.

Formation

940 ft.

Depth @ \_\_\_\_\_ AM/PM

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

Observer J.W. Hook



NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor American Deep Drilling

Report # 23

Location 35/EE 146c-giggag

Date 7-10-79

Well # \_\_\_\_\_

Depth @ \_\_\_\_\_ AM/PM

Log: set observation  
pipe - suspended 2.5  
feet off bottom.

Formation

TD 940 ft.

Depth @ \_\_\_\_\_ AM/PM

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

Observer J Hook

NORTHWEST GEOTHERMAL CORPORATION

DRILLING LOG

Contractor Ann Deep Drilling

Report # 24

Location 9E 14bc - Ziggag

Date 7/11/79

Well # \_\_\_\_\_

**TD. 940'** Prep well!

Depth @ \_\_\_\_\_ AM/PM

Formation

940 ft.

Log: \_\_\_\_\_

Finished setting  
observation pipe +  
Moved to ~~2/2~~ 2/2 9ac

Depth @ \_\_\_\_\_ AM/PM

Total Footage

Drilling Fluid:

Mud - Additives \_\_\_\_\_

Air - Pressure \_\_\_\_\_ P.S.I. Additives \_\_\_\_\_

Weather Report \_\_\_\_\_

Observer JW Hook