

6101959

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: August 20, 1985

TIME: 8:30 AM

Backhoe operator engaged by Tonto to dig sump and cellar.
Rig expected to move on location this date.

Estimated cost to date: 0

G-1119

As. of Late Thur.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

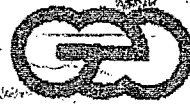
DATE: Aug. 21, 1985

TIME: 2:00 PM

Rig on location. Pits dug, Tonto rigging up. Mud pit reveals 7 feet of cinder underlain by a horizon presumed to be Mazama Ash.

Total est. cost to date: \$3,000

Bruce



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

As of date _____
Time _____

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: August 22, 1985

TIME: 3:00 PM

Pit lined, Tonto rigging up. Begin hauling water late afternoon.

Total est. cost to date: \$3,000

Bruce



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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

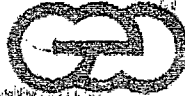
DATE: Aug. 23, 1985

TIME: 3:30 PM

Work continuing to rig up. Mixed mud, hauling water.

Total est. cost to date: \$3,000-

[Handwritten signature]



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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 24, 1985

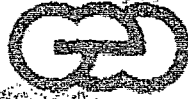
TIME: 4:00PM

DEPTH: 110'

5 5/8" hole spudded 9:00 PM, 8/23/85. Circulation lost at 2' depth. Rotary drilling 5'/hr without returns.

Total est. cost to date: \$13,078*.

*Note: This estimate includes mobilization, day and footage rates, and crew per diem. Costs for items such as mud and additives, water and water hauling, bits (and other supplies) are not included in this estimate. The estimate will be adjusted upward as supply information is provided by Tonto.



GEO-NEWBERRY Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 25, 1985

TIME: Noon

DEPTH: 160'

Rotary drilling 10'/hr in tight hole with no returns. POH last night, greased rods.

Total est. cost to date: \$15,818*.

*Note: This estimate includes mobilization, day and footage rates, and crew per diem. Costs for items such as mud and additives, water and water hauling, bits (and other supplies) are not included in this estimate. The estimate will be adjusted upward as supply information is provided by Tonto.

160'



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 26, 1985

TIME: 1:00 PM

DEPTH: 200'

Drilling 3'/hr with no returns. Bottom hole temperature at 200' is less than 100°F.

Total est. cost to date: \$22,207*.

*Note: This cost reflects adjustment upward for site preparation, supplies, and water hauling.



Geo-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 27, 1985

TIME: 12 noon

DEPTH: 305'

Drill rods parted, 9 drill rods + sub & bit left in hole. RIH with 4 1/2" bit to clean hole above fish, before attempting to retrieve fish with tap.

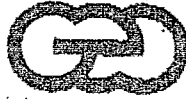
Total est. cost to date = \$26,286.

8. AM. Aug. 28th. Phone call to Mike Johnson: at Motel

Tapped into fish. 2 rods out, then back in and got the rest out. Change to 20' rods. to reduce bending, as of last night (27-28th).

I reported this to Sue P.

Bruce.



GEO-NEWBERRY Center, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 28, 1985

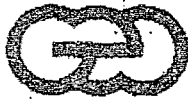
TIME: 11:00 AM

DEPTH: 305'

Fish retrieved with tap. POH, wait for delivery
of new 5 5/8" button bit.

Total est. cost to date = \$28,536

\$83.70/ft. exclusive of \$3,000 mob. cost.



GEO-NEWBERRY Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 29, 1985

TIME: 10:30 AM

DEPTH: 375'

Drilling 3'/hr. with no returns. Bottom hole
temperature at 350' is less than 100°F.

Total est. cost to date: \$31,472.



GEO Newberry Center, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 30, 1985

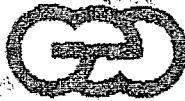
TIME: 10:00 AM

DEPTH: 470'

4½" casing with diamond shoe run to 450', tight hole necessitates turning casing to T.D. BOPE delivered to drill site this date. BHT at 430' - less than 100°F.

Total est. cost to date = \$34,653*.

*Note: This estimate does not include mud or water hauling for the last three days.



GEO-Newberry Center, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Aug. 31, 1985

TIME: 7:30 PM

DEPTH: 470'

Pumped 40 cubic ft. Portland type 1-P cement through casing, displaced with 13 cubic ft. water. No cement returns observed. Pumped 20 cubic ft. cement mixed with cotton seed hulls down annulus. WOC Nipple up hydril, blind rams, pipe rams. Accumulator not functioning.

Total est. cost to date = \$36,903.



GEO-NEWBERRY Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

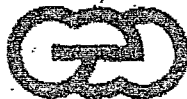
DATE: Sept. 1, 1985

TIME: 12:30 PM

DEPTH: 470'

H&H repairs accumulator. Test BOPE with USFS and BLM representatives present. Weld leaks. Reschedule test.

Total est. cost to date = \$39,153.



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 2, 1985

TIME: 10:00 AM

DEPTH: 470'

Attempt to repair weld leaks. Gates on BOP leaking, attempt to seal leaks. ELM rep. approves drilling ahead on condition of replacing O-rings on BOP gates.

Total est. cost to date = \$50,103.*

*Note. This estimate includes cost of casing, damaged rods, and cement job.

Ron King



GEO-Newberry Center, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 3, 1985 10 days since Spud
TIME: 2:00 PM
DEPTH: 470'

Cement tagged in casing at 210', drilled out. POH,
lay down tricone, pick up core bit & barrel, RIH.

Total est. cost to date = \$52,783.

Call from Mike Johnson, ~9:00 AM, Sep. 4.

1. how much cement in the hole.
40 cu. ft. down casing.
2. Cost of 5 5/8" bit 2nd → \$378
3. ~520' asst of 9 PM. 3rd casing to 465'

(?) ~50% excess cement.
- 60 cu ft total in
40 cu ft down casing.

Driller - Danny Ellis - Foreman
Wyane B. Expiditer
Ron Clark - night driller

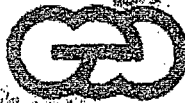
Footage Cost at 470'
52,783 → \$112/ft.
- 3,000 mob.
- 4,700 casing
<u>45,083</u> → \$96/ft.

if continued → \$388,000 Total hole cost.

4.5" casing has 4.0 I.D.
255' cement in casing = 22.25 ft³
40 ft³ poured in.
- 22.25 left in casing.
17.75 ft³ delivered to annulus.
could fill 286' of annulus.

Rate 470" drill in ~ 6 days.
est. \$2,458/day materials & bits.
\$31.4/ft

Mob. cost	3,000
Cost. Rig ~	12,600
Footage ~	4,606
Materials & bits ~	<u>14,747</u>
est. Total	34,953 as of 470' on Aug. 29



GEO-Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 4, 1985

TIME: 12:30 PM

DEPTH: 579'

Drilling 8-10'/hr. in basalt. BHT at 570' is less than 100°F.

Total est. cost to date = \$56,630.

*4.5 casing ... 4 ...
... in casing ...
...
... - 80' ...*



GEO-Newberry Geotec, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

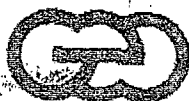
DATE: Sept. 5, 1985

TIME: 11:00 AM

DEPTH: 672'

Drilling 6' /hr. in basalt. BHT at 668' is less than 100°F.

Total est. cost to date = \$60,835.



GEO Newberry Center, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 6, 1985

TIME: 11:00 AM

DEPTH: 714'

Bevel drive shaft stripped, 4:30 P.M., 9/5/85.
Rig shut down, waiting for replacement part
to arrive from Salt Lake City.

Last lithology: Basalt.

Total est. cost to date = \$63,816.

63,816
- 52,783

11,033 / 714 = \$15.45/ft

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 7, 1985 DAYS SINCE SPUD: 15

TIME: 2:00 PM

DEPTH: 769'

FOOTAGE DRILLED SINCE LAST REPORT: 55

PERCENT RECOVERY: 89

Gear shaft flown in from Salt Lake City in P.M., 9/6/85.
Rig repaired, began drilling ahead at midnight. New O-rings
for BOPE delivered and installed by H&H Tool Co. this date.

Last lithology: basalt

Total est. cost to date: \$65,446.

001

'85 09/08 20:59

GEO NEWBERRY

503 389 6735

887

85 09/08 20:54

GEO NEWBERRY

503 389 6735

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 8, 1985 DAYS SINCE SPUD: 16

TIME: 11:30 AM

DEPTH: 851'

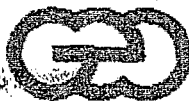
FOOTAGE DRILLED SINCE LAST REPORT: 82

PERCENT RECOVERY: 83

POH, change bit. RIH, drilling 5-6'/hr. in basalt.

Total est. cost to date: \$68,887

ave.
 \$ 42/ft for core
 since 470' depth
 over-all ave (less Mob)
 \$ 77.4/ft
 ave coring rate:
 76'/day



GEO-NEWBERRY CORP. Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 9, 1985 DAYS SINCE SPUD: 17

TIME: 1:00 PM

DEPTH: 896'

FOOTAGE DRILLED SINCE LAST REPORT: 45

PERCENT RECOVERY: 95

Mud pump broke down, 6:30 P.M., 9/8/85. Rig shut down until 11:00 A.M. this date while new pump is obtained. Install new pump, R.H. BHT at 870' is less than 100°F. Bit changed at 787'. *Handwritten note: 787' - 870'*

Last Lithology: Basalt.

Total est. cost to date: \$73,991.



GEO Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 10, 1985 DAYS SINCE SPUD: 18

TIME: 11:00 A.M.

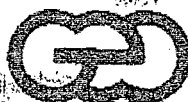
DEPTH: 1,017'

FOOTAGE DRILLED SINCE LAST REPORT: 121

PERCENT RECOVERY: 85

Drilling 4-10'/hr. in basalt. BHT at 999' is less than 100°F. BOPE test witnessed to satisfaction of BLM.

Total est. cost to date: \$77,378.



GEO Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 11, 1985 DAYS SINCE SPUD: 19

TIME: 3:30 P.M.

DEPTH: 1,152'

FOOTAGE DRILLED SINCE LAST REPORT: 135

PERCENT RECOVERY: 87

Drilling 5'/hr. in basaltic andesite. BHT at 1,102' is less than 100°F. Fluid sampling tool RIH, did not function properly.

Total est. cost to date: \$82,555.

*8th day coring.**~ 50' fluid in hole.*

*ave. Coring rate: 85'/day
ave. Coring Cost: \$43.65/ft
overall cost \$71.66/ft.*

Water Sample treatment

- 1. Cadmium chloride - for sulfates.*
- 2. NaOH treated*



GEO-NEWBERRY CENTER, INC.

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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 12, 1985 DAYS SINCE SPUD: 20

TIME: 11:00 A.M.

DEPTH: 1,250'

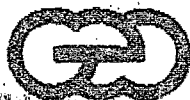
FOOTAGE DRILLED SINCE LAST REPORT: 98

PERCENT RECOVERY: 89

Drilling 5-6'/hr. in basalt to basaltic andesite.
BHT at 1,201' is less than 100°F.

Total est. cost to date: \$87,238.

core recovery overall
87.2%



GEO Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: 9/13/85 DAYS SINCE SPUD: 21

TIME: 12 noon

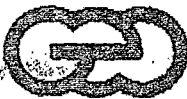
DEPTH: 1,375'

FOOTAGE DRILLED SINCE LAST REPORT: 125

PERCENT RECOVERY: 73

Drilling 4'/hr. in basalt to basaltic andesite.
Recovery low in interflow rubble. BHT at
1,325' is less than 100°F.

Total est. cost to date: \$92,966.



GEO-NEWBERRY Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 14, 1985 DAYS SINCE SPUD: 22

TIME: 1:30 P.M.

DEPTH: 1,402'

FOOTAGE DRILLED SINCE LAST REPORT: 27

PERCENT RECOVERY: 57

Drilling 7'/hr. in basalt. POH, change bit, RIH, drill ahead, core barrel sanded in, POH, clean out, RIH, drill ahead.

Total est. cost to date: \$97,633.



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 15, 1985 DAYS SINCE SPUD: 23

TIME: noon

DEPTH: 1,512'

FOOTAGE DRILLED SINCE LAST REPORT: 110

PERCENT RECOVERY: 85

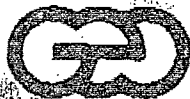
Drilling 5-7'/hr. in basalt to basaltic andesite. BHT at 1,408' = 65°F. BHT at 1,512' = 54°F. Fluid samples taken from core barrel at 1,402' and 1,512'.

Total est. cost to date: \$102,375.

overall \$677/ft

coring \$476/ft

coring 80'/day



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 16, 1985 DAYS SINCE SPUD: 24

TIME: 11:30 AM

DEPTH: 1,612'

FOOTAGE DRILLED SINCE LAST REPORT: 100

PERCENT RECOVERY: 84

Drilling 5-7'/hr. in basalt to basaltic andesite.

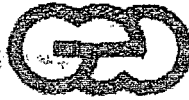
BHT at 1,612' = 54°F.

Total est. cost to date: \$107,607.

overall \$ 66.75/ft

coring \$ 48/ft.

coring rate 81.6/day



GEO-Newsberry Center, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 17, 1985 DAYS SINCE SPUD: 25

TIME: 1:00 PM

DEPTH: 1,698'

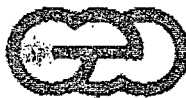
FOOTAGE DRILLED SINCE LAST REPORT: 86

PERCENT RECOVERY: 85

Drilling approximately 3-4'/hr. in basaltic
andesite.

Comments: Fluid sampling tool was run success-
fully at 1,698' depth.

Total est. cost to date: \$112,366.



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 18, 1985 DAYS SINCE SPUD: 26

TIME: 11:45 AM

DEPTH: 1,751'

FOOTAGE DRILLED SINCE LAST REPORT: 53'

PERCENT RECOVERY: 84'

Drilling 3-4'/hr. in basalt to basaltic andesite.
BHT at 1,712' = 55°F. Changed bits at 1,698'.

Total est. cost to date: \$116,235.



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

Bruce

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 19, 1985 DAYS SINCE SPUD: 27

TIME: 12:15 PM

DEPTH: 1,830'

FOOTAGE DRILLED SINCE LAST REPORT: 79

PERCENT RECOVERY: 82

Drilling approx. 5'/hr. in basalt to basaltic
andesite. BHT at 1,817' = 54°F. Fluid samples
taken from core barrel at 1,817'.

Total est. cost to date: \$121,790.

#66.5ft
ave 80'/day



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 20, 1985 DAYS SINCE SPUD: 28

TIME: 12 noon

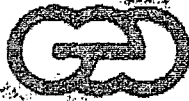
DEPTH: 1,905'

FOOTAGE DRILLED SINCE LAST REPORT: 75'

PERCENT RECOVERY: 83

Drilling approx. 4'/hr. in basalt to basaltic
andesite. BHT at 1,900' = 55°F. Fluid samples taken
from core barrel at 1,900'.

Total est. cost to date: \$126,446.



GEO-Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 21, 1985 DAYS SINCE SPUD: 29

TIME: 12:30 PM

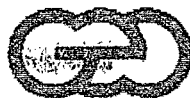
DEPTH: 1,980'

FOOTAGE DRILLED SINCE LAST REPORT: 75

PERCENT RECOVERY: 77

Drilling 4-5'/hr. in basalt. Water level
fluctuated between 1,200'-1,800' depth.
Wireline had to be repaired.

Total est. cost to date: \$131,053.



GEO-Neuberry Grater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEUBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 22, 1985 DAYS SINCE SPUD: 30

TIME: 1 PM

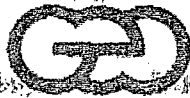
DEPTH: 2,078'

FOOTAGE DRILLED SINCE LAST REPORT: 98

PERCENT RECOVERY: 89

Drilling approx. 4'/hr. in basalt. BHT=54°F at 2,002'. Water level still fluctuating between 1,200' & 1,700'. Collected samples of core barrel fluid at 2,078' and mud samples at 1 PM today.

Total est. cost to date: \$136,476



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 23, 1985 DAYS SINCE SPUD: 31

TIME: 12:30 PM

DEPTH: 2,177'

FOOTAGE DRILLED SINCE LAST REPORT: 99

PERCENT RECOVERY: 98

Drilling 4'/hr. in basalt. Fluid level at approx.
1,500'. BHT at 2,108' = 55°F.

Total est. cost to date: \$141,838.



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 24, 1985 DAYS SINCE SPUD: 32

TIME: 12:00 noon

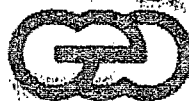
DEPTH: 2,294'

FOOTAGE DRILLED SINCE LAST REPORT: 117

PERCENT RECOVERY: 97

Changing O-ring on hydraulic ram. Fluid level at 1,600'. BHT at 2,207' is less than 100°F. Last Lithology: Basalt.

Total est. cost to date: \$147,724.



GEO-Newsberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

Bruce

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 25, 1985 DAYS SINCE SPUD: 33

TIME: 11:00 AM

DEPTH: 2,398'

FOOTAGE DRILLED SINCE LAST REPORT: 104

PERCENT RECOVERY: 95

Drilling 5'/hr. in basalt. Fluid level at 1,600'.
BHT at 2,308' is less than 100°F. Attempted to run
fluid sampling tool; would not function.

Total est. cost to date: \$153,231.



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 26, 1985 DAYS SINCE SPUD: 34

TIME: 1:30 PM

DEPTH: 2,452'

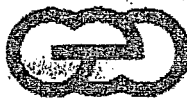
FOOTAGE DRILLED SINCE LAST REPORT: 54

PERCENT RECOVERY: 96

POH, change bit, RIH. Drilling 5'/hr. in basalt to basaltic andesite. BHT at 2,398' is less than 100°F. Fluid sample taken from core barrel at 2,412'. Fluid level at 1,600'.

Total est. cost to date: \$158,430.

*4 day ave. 93'/day
ave 96% recovery
\$ 64.6/ft*



GEO-NEWBERRY CENTER, INC.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 27, 1985 DAYS SINCE SPUD: 35

TIME: 1:00 PM

DEPTH: 2,564'

FOOTAGE DRILLED SINCE LAST REPORT: 112

PERCENT RECOVERY: 98

Drilling 5'/hr. in basalt. Fluid level at 1,600'.
BHT at 2,502' is less than 100°F.

Total est. cost to date: \$164,483.



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 28, 1985 DAYS SINCE SPUD: 36

TIME: 9:30 AM

DEPTH: 2,668'

FOOTAGE DRILLED SINCE LAST REPORT: 104

PERCENT RECOVERY: 97

Drilling 7'/hr. in basalt. BHT at 2,602' is less than 100°F.

Total est. cost to date: \$170,107.



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 29, 1985 DAYS SINCE SPUD: 37

TIME: 1:00 PM

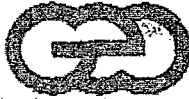
DEPTH: 2,724'

FOOTAGE DRILLED SINCE LAST REPORT: 56

PERCENT RECOVERY: 95

Wireline broke: POH, repair, RIH, drill ahead.
Drilling 5'/hr. in basalt to basaltic andesite.
BHT at 2,712' is less than 60°F. Fluid samples
taken from core barrel at 2,707'.

Total est. cost to date: \$175,538.



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Sept. 30, 1985 DAYS SINCE SPUD: 38
TIME: 1:00 PM
DEPTH: 2,800'
FOOTAGE DRILLED SINCE LAST REPORT: 76
PERCENT RECOVERY: 91

Repaired hydraulic ram. Drilling ahead 2-5'/hr.
in basalt to basaltic andesite. Fluid level at
1,600'.

Total est. cost to date: \$180,819.

coring \$55/ft.
overall \$64.58/ft.
coring 83'/day.
~\$5,360/day.



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 1, 1985 DAYS SINCE SPUD: 39

TIME: 1:00 PM

DEPTH: 2,891'

FOOTAGE DRILLED SINCE LAST REPORT: 91

PERCENT RECOVERY: 96

Repaired hydraulic ram. Drilling ahead 5'/hr in basaltic tuff. BHT at 2,820' was less than 60°F. BHT at 2,891'=64°F after allowing 1.5 hours to elapse without pumping mud down hole.

total est. cost to date: \$186,763.



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 2, 1985 DAYS SINCE SPUD: 40

TIME: 12:30 PM

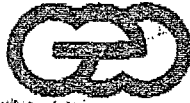
DEPTH: 2,923'

FOOTAGE DRILLED SINCE LAST REPORT: 32

PERCENT RECOVERY: 97

Core tube stuck, wireline snapped, POH, repair wireline, free core tube, RIH. Drilling ahead 5'/hr. in basalt to basaltic andesite. Fluid sample collected from core barrel at 2,923'.

Total est. cost to date: \$190,838.



Geo-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 3, 1985 DAYS SINCE SPUD: 41

TIME: 11:00 AM

DEPTH: 2,996'

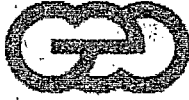
FOOTAGE DRILLED SINCE LAST REPORT: 73

PERCENT RECOVERY: 94

Drilling ahead at 4'/hr. in basalt.

total est. cost to date: \$196,111.

65.46/ft.



GEO Newberry Craters, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 4, 1985 DAYS SINCE SPUD: 42

TIME: 11:00 AM

DEPTH: 3,102'

FOOTAGE DRILLED SINCE LAST REPORT: 106

PERCENT RECOVERY: 95

Drilling 3-5'/hr. in basaltic andesite. BHT at
3,098' is less than 60°F.

TOTAL EST. COST TO DATE: \$202,813.

65#38/ft.



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 5, 1985 DAYS SINCE SPUD: 43

TIME: 11:30 AM

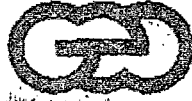
DEPTH: 3,167'

FOOTAGE DRILLED SINCE LAST REPORT: 65

PERCENT RECOVERY: 97

POH, change bit, RIH, drilling 4-5'/hr. in fault breccia and basaltic dikes.

TOTAL EST. COST TO DATE: \$208,239



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 6, 1985 DAYS SINCE SPUD: 44
TIME: 1:30 Pm
DEPTH: 3,263'
FOOTAGE DRILLED SINCE LAST REPORT: 96
PERCENT RECOVERY: 93

Drilling 3-5'/hr in basaltic andesite. BHT at
3,208' is less than 60°F.

TOTAL EST. COST TO DATE: \$215,479.

#66/ft.



GEO Newberry Grater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

Bruce

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 7, 1985 DAYS SINCE SPUD: 45

TIME: 10:30 AM

DEPTH: 3,332'

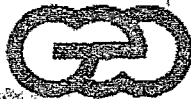
FOOTAGE DRILLED SINCE LAST REPORT: 69

PERCENT RECOVERY: 96

Drilling 3-4'/hr. in fault breccia. BHT at 3,312'
is 82°F.

TOTAL EST. COST TO DATE: \$220,994.

*2/10/85
047
Laird
Hickman
Chickadee, Calif.*



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 8, 1985 DAYS SINCE SPUD: 46
TIME: 10:30 AM
DEPTH: 3,412'
FOOTAGE DRILLED SINCE LAST REPORT: 80
PERCENT RECOVERY: 88

Drilling 5'/hr. in basaltic andesite. BHT at 3,412'
is below 60°F.

TOTAL EST. COST TO DATE: \$226,926.

B 66.5/ft.



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 9, 1985 DAYS SINCE SPUD: 47

TIME: 11:00 AM

DEPTH: 3,468'

FOOTAGE DRILLED SINCE LAST REPORT: 56

PERCENT RECOVERY: 95

Drilling 4'/hr. in basaltic andesite. Fluid sample
collected from core barrel at 3,424'.

TOTAL EST. COST TO DATE: \$231,986.



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 10, 1985 DAYS SINCE SPUD: 48

TIME: 12:00 noon

DEPTH: 3,545'

FOOTAGE DRILLED SINCE LAST REPORT: 78

PERCENT RECOVER: 88

POH, change bit. Last lithology drilled was basalt.
BHT at 3,318' = 95°F. Fluid sample taken from core
barrel at 3,545'.

TOTAL EST. COST TO DATE: \$238,098.

\$ 67/ft.



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

Bruce

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 11, 1985 DAYS SINCE SPUD: 49
TIME: 11:00 AM
DEPTH: 3,605'
FOOTAGE DRILLED SINCE LAST REPORT: 59
PERCENT RECOVERY: 97

Run rod into hole to 3,540' after bit change. Temperature at 3,540' = 117°F. Wash and ream to T. D. Drilling ahead 5-6'/hr. in basaltic andesite.

A tentative decision has been made by GEO-Operator to deepen the core hole to 4,650 feet. The estimated cost for this extension is \$82,500-\$135,000; the higher figure to include the possibility of hole completion problems. The Department of Energy has been requested to telecopy by Monday morning, Oct. 14, 1985, their decision as to whether or not to participate in the additional costs and the additional data. Over the weekend, a water sample will be collected and a temperature build up test (Horner plot) will be conducted to give the best possible estimate of current down hole conditions.

TOTAL EST. COST TO DATE: \$244,502.

\$67.82/ft.



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 12, 1985 DAYS SINCE SPUD: 50

TIME: 10:30 AM

DEPTH: 3,635'

FOOTAGE DRILLED SINCE LAST REPORT: 30

PERCENT RECOVERY: 86

Mislatched, POH, clean tube, bit, RIH. Last lithology
=basaltic andesite. BHT at 3,615' = 97°F.

TOTAL EST. COST TO DATE: \$248,500.



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 13, 1985 DAYS SINCE SPUD: 51
TIME: 4:00 PM
DEPTH: 3,672'
FOOTAGE DRILLED SINCE LAST REPORT: 37
PERCENT RECOVERY: 99

Conduct time-temperature build-up test, wireline snaps during testing. Fish for wireline, unsuccessfully, rig up new set-up to continue test. Rough estimate of equilibrated BHT=151°F, gradient=2.75°F/100'. Last lithology drilled was basaltic andesite.

TOTAL EST. COST TO DATE: \$254,305.



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

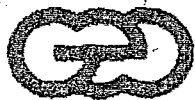
GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 14, 1985 DAYS SINCE SPUD: 52
TIME: 11:00 AM
DEPTH: 3,736'
FOOTAGE DRILLED SINCE LAST REPORT: 64
PERCENT RECOVERY: 96

Drilling 5'/hr. in basaltic andesite, which underlies
14' of clay-rich tuff. BHT at 3,732' after one hour
pump shutdown=114°F.

TOTAL EST. COST TO DATE: \$259,734.



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

Bruce

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 15, 1985 DAYS SINCE SPUD: 53

TIME: 9:30 AM

DEPTH: 3,762'

FOOTAGE DRILLED SINCE LAST REPORT: 26

PERCENT RECOVERY: 100

Last drilling 4'/hr. in basaltic andesite. Changed
bit, drilled through caved zone at 1,300'.

TOTAL EST. COST TO DATE: \$264,914



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 16, 1985 DAYS SINCE SPUD: 54
TIME: 9:30 AM
DEPTH: 3,784'
FOOTAGE DRILLED SINCE LAST REPORT: 22
PERCENT RECOVERY: 96

Last drilling 4'/hr. in basaltic andesite. POH to change bad bit at 1 PM yesterday. Got back on bottom at 1 AM this morning.

TOTAL EST. COST TO DATE: \$268,570.



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 17, 1985 DAYS SINCE SPUD: 55

TIME: 11:30 AM

DEPTH: 3,857'

FOOTAGE DRILLED SINCE LAST REPORT: 73

PERCENT RECOVERY: 96

Drilling 4-5'/hr. in andesite. BHT at 3,802'=128°F.
BHT at 3,854'=124°F.

TOTAL EST. COST TO DATE: \$274,461.

ave. @ 7 1/2 ft.



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 18, 1985 DAYS SINCE SPUD: 56

TIME: 10:00 AM

DEPTH: 3,918'

FOOTAGE DRILLED SINCE LAST REPORT: 61

PERCENT RECOVERY: 98

Drilling 4'/hr. in andesite. BHT at 3,864'=138°F.
BHT at 3,914'=140°F.

TOTAL EST. COST TO DATE: \$279,781.



Geo Newberry Crater, Inc.
A Subsidiary of Geo Exploration, Inc.

Bruce

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 19, 1985 DAYS SINCE SPUD: 57

TIME: 10:30 AM

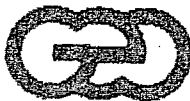
DEPTH: 3,990'

FOOTAGE DRILLED SINCE LAST REPORT: 72

PERCENT RECOVERY: 99

Drilling 4-5' hr. in andesite. BHT at 3,964' is 142°F.

TOTAL EST. COST TO DATE: \$2,857,654



Geo Newberry Crater, Inc.

10000 10th Street, San Diego, CA 92121

Bruce

GEO-NEWBERRY CORE HOLE N-1

DAILY REPORT

DATE: Oct. 20, 1985 DAYS SINCE SPUD: 58

TIME: 10:00 AM

DEPTH: 4,059'

FOOTAGE DRILLED SINCE LAST REPORT: 69

PERCENT RECOVERY: 100

Drilling 4-5' hr. in andesite. BHT at 4,014=140°F.

total est. cost to 4,000' = \$286,559

TOTAL EST. COST TO DATE: \$291,717.

From 3,545' to 4059' Costs
were \$53,619
ave. \$104/ft., ave. 51.4 ft/day

overall ave. \$71.64/ft.
Demob not included
~ 69'/day ave. rate
ave. ~ \$71/ft not
including mobilization

Cost - coring only 470' to 4000' ave. \$66.23/ft.

WELL SUMMARY

API NO.:

Sheet 1 of 2

WELL NAME GEO N-1	OPERATOR GEOOC	WELL COURSE PLOT 1"=1000'
SURFACE LOCATION 3600'W. and 2750'N. of SF. Corner		SECTION T. R. 25 22S. 712E.
BOTTOM HOLE LOCATION N/A		CLOSURE N/A
TOTAL DEPTH - Measured	WELL COURSE PLAN 1"=1000'	
TRUE VERTICAL DEPTH N/A		
SURFACE ELEVATION 5840'		
FIRST STEAM DEPTH		
FIRST STEAM (S.S.) DEPTH		
WELL COST		
DAYS ON WELL 76		
A.F.E. NUMBER		
CASING SCHEMATIC (no scale)	WELL HISTORY ABSTRACT	
	<p> Aug. 20-23, 1985: Tonto digs cellar and mud pit, moves rig onto location, rigs up, hauls water, mixes mud. </p> <p> Aug. 24-28: Spud 5-5/8" hole, drill from 0-305' with no circulation, twist off, leave 90' of drill rods + sub + bit in hole. RIH with tap, retrieve fish. </p> <p> Aug. 29-30: Drill 5-5/8" hole from 305'-470', POH, run 4 1/2" casing to 468' cement with 450 gal Portland I-P cement and 100 gal water. </p> <p> Aug. 30-Sept. 2: Nipple up BOPE, test, weld leak detected, gates leak; repair leaks, replace O-rings in gates, test BOPE. </p> <p> Sept. 2-6: RIH with 3-15/16" tricone, tag cement at 210', drill out cement. POH, pick up 3-25/32" core bit and barrel, RIH, core 3-25/32" hole from 487'-714', rotation head gear shaft stripped, stand by for part. </p> <p> Sept. 7-Oct. 12: Core drill 3-25/32" hole from 714'-787'. POH. Change bit, RIH, core from 787'-1400'. POH, change bit, RIH, core from 1400'-1698', POH, change bit, RIH, core from 1698'-2424', POH, change bit, RIH, core from 2424'-2707', POH, change bit, RIH, core from 2707'-3109', POH, change bit, RIH, core from </p>	

WELL SUMMARY

API NO.:

 Sheet 2 of 2

WELL NAME GEO N-1	OPERATOR GEOOC	WELL COURSE PLOT 1"=1000'
SURFACE LOCATION		SECTION T. R.
BOTTOM HOLE LOCATION		CLOSURE
TOTAL DEPTH - Measured	WELL COURSE PLAN 1"=1000'	
TRUE VERTICAL DEPTH		
SURFACE ELEVATION		
FIRST STEAM DEPTH		
FIRST STEAM (S.S.) DEPTH		
WELL COST		
DAYS ON WELL		
A.F.E. NUMBER		
CASING SCHEMATIC (no scale)	WELL HISTORY ABSTRACT 3109'-3546', POH, change bit, RIH, core from 3546'-3672'. Oct. 12-Nov. 3: Run temperature build-up test, core from 3672'-3762', POH, change bit, RIH, core from 3762'-	
	POH, remove BOPE. Dresser Atlas arrives, rigs up, runs geophysical logs. Run 1½" tubing inside rods, fill tubing with water. Nov. 4-8: Pump Shur-Gel and trip out rods, pump LCM & Shur-Gel from top of hole, cap and lock tubing, Tonto rigs down. Nov. 9: Temperature log by Geotech Data run; pipe locked, cellar covered with planks.	

DATE:

GEOOC 7-84



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 5/24/86 DAYS SINCE SPUD: N/A

TIME: 11:00 AM

DEPTH: N/A

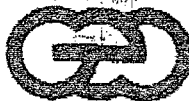
FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Trip by Drillers to LaPine, check out and start up equipment, haul timbers to drill site.

TOTAL EST. COST TO DATE: N/A

W.C. Walker
Geologic Field Technician



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 5/27/86 DAYS SINCE SPUD: N/A

TIME: 11:00 AM

DEPTH: N/A

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Haul some equipment/supplies to drill location by
drillers.

TOTAL EST. COST TO DATE: N/A

W. C. Walker

Geologic Field Technician



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 5/28/86 DAYS SINCE SPUD: N/A

TIME: 11:00 AM

DEPTH: N/A

FOOTAGE DRILLED SINCE LAST REPORT: N/A

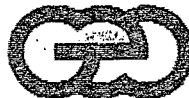
PERCENT RECOVERY: N/A

Drillers picking up timbers for cellar, etc. and will construct today. Backhoe scheduled for 5/29/86.

TOTAL EST. COST TO DATE: N/A

W. C. Walker

Geologic Field Technician



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 5/29/86 DAYS SINCE SPUD: N/A

TIME: 4:00 PM

DEPTH: N/A

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Backhoe operator engaged by Tonto to dig sump and cellar. Rig expected to move on location 5/30/86.

TOTAL EST. COST TO DATE: N/A

W. C. Walking

Geologic Field Technician



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 5/30/86 DAYS SINCE SPUD: N/A

TIME: 4:00 PM

DEPTH: N/A

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Cp50 moved on location, various supplies are brought on location, fuel tanks arrived and set up.

TOTAL EST. COST TO DATE: N/A

W. C. Walker
Geologic Field Technician



GEO-NEWBERRY Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/1/86 DAYS SINCE SPUD: N/A

TIME: 12:00 noon

DEPTH: N/A

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Drillers continued set up of equipment in preparation for anticipated start up 6/2/86, i.e., removal of spindle from main wheel and incidentals.

TOTAL EST. COST TO DATE: \$8,723.29

W. C. Walker
Geologic Field Technician



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 5/31/86 DAYS SINCE SPUD: N/A

TIME: 12:00 noon

DEPTH: N/A

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Drillers blocked and leveled drill, raised tower, ran guy-lines, hauled equipment from LaPine, off-loaded mud, and general set up of sight.

TOTAL EST. COST TO DATE: \$8,723.29

W. C. Walker
Geologic Field Technician



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: ~~6/3/86~~ DAYS SINCE SPUD: 1

TIME: 9:10 AM

DEPTH: 35'

FOOTAGE DRILLED SINCE LAST REPORT: 35'

PERCENT RECOVERY: 0%

Spud @ 2PM (6/2/86). Lost circulation @ 1.0'.
Scoria/cinders 0-7' w/harder rock 7-35' depth.

TOTAL EST. COST TO DATE: \$8,723.29

W. C. Walkley
Geologic Field Technician



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/4/86 DAYS SINCE SPUD: 2

TIME: 10:45 AM

DEPTH: 140'

FOOTAGE DRILLED SINCE LAST REPORT: 105'

PERCENT RECOVERY: 0%

Tri-cone bit advance @ approximately 5'/hr. w/some
caving present (i.e., ream and wash required)

TOTAL EST. COST TO DATE: \$20,162.86

W. C. Walker
Geologic Field Technician



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/5/86 DAYS SINCE SPUD: 3

TIME: 9:00 AM

DEPTH: 270'

FOOTAGE DRILLED SINCE LAST REPORT: 130'

PERCENT RECOVERY: 0% *45% (100' - 130')*

New bit put on @ 180'. Drilling progressing w/some caving primary in upper 40'. Casing/liner +BOPE expected to arrive today.

TOTAL EST. COST TO DATE: 24,540.81

W. C. Walker

Geologic Field Technician



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/6/86 DAYS SINCE SPUD: 4

TIME: 8:00 AM

DEPTH: 390'

FOOTAGE DRILLED SINCE LAST REPORT: 120'

PERCENT RECOVERY: 0%

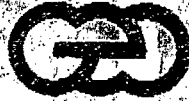
Formation change at 358'. Drilling rate slowed from 10'/hr. to 3'/hr. Dan Ellis, Tonto's driller/foreman, stops by office between 8AM and 9AM every day.

TOTAL EST. COST TO DATE: 29,843.00

William J. Donsat

Geologic Field Technician

Drilled to 452' on Friday night & set casing Sat.



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/7/86 DAYS SINCE SPUD: 5

TIME: 8:30 AM

DEPTH: 454'

FOOTAGE DRILLED SINCE LAST REPORT: 64

PERCENT RECOVERY: 0%

Stopped drilling at 454'. POH. Running casing.
Casing at 340' at 7:30 AM.

TOTAL EST. COST TO DATE: 33,680

W. C. Walkley
GEOLOGIC FIELD TECHNICIAN



GEO-NEWBERRY Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/8/86 DAYS SINCE SPUD: 6

TIME: 11:30 PM

DEPTH: 454'

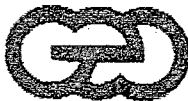
FOOTAGE DRILLED SINCE LAST REPORT: 0'

PERCENT RECOVERY: 0%

Casing to 453'. Set BOPE and hydraulics to accumulator. However, ID of bottom flange not large enough (i.e., 4") to allow bit into hole to drill out cement. BOPE lifted off, and test delayed while flange is being machined.

TOTAL EST. COST TO DATE: 36,429

W. C. Walker
GEOLOGIC FIELD TECHNICIAN



GEO Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/9/86 DAYS SINCE SPUD: 7

TIME: 1:00 PM

DEPTH: 454'

FOOTAGE DRILLED SINCE LAST REPORT: 0

PERCENT RECOVERY: 0%

BOPE Flange machined, and BOPE is in the process of being reconstructed. Estimated time for BOPE test w/BLM representative is 9-10 PM this evening.

TOTAL EST. COST TO DATE: 44,057.95

W.C. Walker
GEOLOGIC FIELD TECHNICIAN



GEO Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/11/86 DAYS SINCE SPUD: 9

TIME: 9:15 AM

DEPTH: 454'

FOOTAGE DRILLED SINCE LAST REPORT: 0'

PERCENT RECOVERY: 0%

Evening (6/10/86) Hydril (Annular preventer) and Ram preventer tested negatively due to faulty equipment. BOPE supplier (H&H) is sending technician who is expected to arrive late this evening.

TOTAL EST. COST TO DATE: 50,746.00

W. C. Walker
GEOLOGIC FIELD TECHNICIAN



GEO-NEWBERRY Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/12/86 DAYS SINCE SPUD: 10

TIME: 10:00 AM

DEPTH: 454'

FOOTAGE DRILLED SINCE LAST REPORT: 0'

PERCENT RECOVERY: 0%

Third attempt to cement casing/shoe scheduled for 12:00 noon today. Last evening (6/11/86) H&H rep. serviced BOPE; however, official BOPE test has not been scheduled.

TOTAL EST. COST TO DATE: 53,646.00

W. C. Walker
GEOLOGIC FIELD TECHNICIAN

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 8/13/88 DAYS SINCE SPUD: 11

TIME: 10 AM

DEPTH: 484'

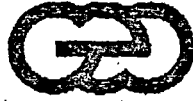
FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Cemented casing. Drilling out cement.

TOTAL EST. COST TO DATE: \$87,160.00

WJD:bk



GEO-NEWBERRY Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/15/86 DAYS SINCE SPUD: 13
TIME: 10:40 AM
DEPTH: 565'
FOOTAGE DRILLED SINCE LAST REPORT: 111'
PERCENT RECOVERY: 89%

Positive test for BOPE and casing (6/14/86). Drilling
advance approx. 8'/hr. w/ Temp. less than 60°F.

TOTAL EST. COST TO DATE: 66,362.00

W. C. Walker

Geologic Field Technician



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GEO-NEWBERRY CORE HOLE N-3

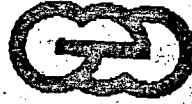
DAILY REPORT

DATE: 6/16/86 DAYS SINCE SPUD: 14
TIME: 10:00 AM
DEPTH: 716'
FOOTAGE DRILLED SINCE LAST REPORT: 151'
PERCENT RECOVERY: 78%

Drilling proceeding at average rate of 6.3'/hr. Some recovery problems encountered in cinder agglomerate.

TOTAL EST. COST TO DATE: 71,169.00

W. C. Walker
GEOLOGIC FIELD TECHNICIAN



GEO Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/17/86 DAYS SINCE SPUD: 15
TIME: 9:00 AM
DEPTH: 802'
FOOTAGE DRILLED SINCE LAST REPORT: 86'
PERCENT RECOVERY: 91%

Average drilling advance @ 4.0'/hr. Caving problems
behind bit has slowed down advance somewhat. Core
loss due to cinder/ash lithology

TOTAL EST. COST TO DATE: 76,824.00

W. C. Walkley
GEOLOGIC FIELD TECHNICIAN



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/18/86 DAYS SINCE SPUD: 15

TIME: 9:30 AM

DEPTH: 895'

FOOTAGE DRILLED SINCE LAST REPORT: ~~173'~~ 95

PERCENT RECOVERY: 95%

Drilling advance average 7.5'/hr. over last 24 hrs. period. Rod broken @ 135' off bottom but was successfully retrieved.

TOTAL EST. COST TO DATE: 81,042.00

W. C. Walker
Geologic Field Technician



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/19/86 DAYS SINCE SPUD: 17

TIME: 10:00 AM

DEPTH: 932'

FOOTAGE DRILLED SINCE LAST REPORT: 37'

PERCENT RECOVERY: 92%

Less footage drilled is a result of ash falling on top of core barrel (i.e., mismatch, trip-out, grease rods, RIH).

TOTAL EST. COST TO DATE: 85,957.00

W. C. Walker
Geologic Field Technician



GEO-Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/20/86 DAYS SINCE SPUD: 18

TIME: 9:00 AM

DEPTH: 1066'

FOOTAGE DRILLED SINCE LAST REPORT: 134'

PERCENT RECOVERY: 85%

Last drilling 5'/hr in basaltic andesite. Temperature still less than 60°F.

TOTAL EST. COST TO DATE: 90,770.00

William J. Sansant

Geologic Field Technician



GEO Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/21/86 DAYS SINCE SPUD: 19

TIME: 9:00 AM

DEPTH: 1167'

FOOTAGE DRILLED SINCE LAST REPORT: 101'

PERCENT RECOVERY: 100%

Last drilling 3'/hr. in basaltic andesite. Bad rod vibrations; tripped out and greased rods yesterday evening.

TOTAL EST. COST TO DATE: 95,653

William J. Deane

Geologic Field Technician



GEO Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/22/86 DAYS SINCE SPUD: 20

TIME: 9:00 AM

DEPTH: 1241'

FOOTAGE DRILLED SINCE LAST REPORT: 74

PERCENT RECOVERY: 100%

Last drilling 3'/hr in basalt. Tripped out to change bit.

TOTAL EST. COST TO DATE: 99,974

William J. Dancart

Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/23/86 DAYS SINCE SPUD: 21

TIME: 9:00 AM

DEPTH: 1327'

FOOTAGE DRILLED SINCE LAST REPORT: 86'

PERCENT RECOVERY: 96% *Hydrothermal*

Drilling advance averages 3.6'/hr. primarily in cinder
agglomerate. Static water level is thought to be 1220'.

TOTAL EST. COST TO DATE: 105,040.

W. C. Walker

Geologic Field Technician



GEO Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/24/86 DAYS SINCE SPUD: 22

TIME: 9:00 AM

DEPTH: 1,424'

FOOTAGE DRILLED SINCE LAST REPORT: 97'

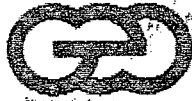
PERCENT RECOVERY: 96%

Advance approx. 4.0'/hr. in ash/cinder lithology. We are still encountering caving problems and the hole is dry to the bit.

TOTAL EST. COST TO DATE: 109,814.00

W. C. Walker

Geologic Field Technician



GEO-Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/25/86 DAYS SINCE SPUD: 23
TIME: 9:00 AM
DEPTH: 1,529'
FOOTAGE DRILLED SINCE LAST REPORT: 105'
PERCENT RECOVERY: 90%

Drilling advance @ 4.4'/hr. in cinder/ash lithology.
There is no water in hole and there is still a problem
w/caving.

TOTAL EST. COST TO DATE: 114,653.00

W. C. Walkley
Geologic Field Technician



GEO Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/26/86 DAYS SINCE SPUD: 24

TIME: 9:00 AM

DEPTH: 1,607'

FOOTAGE DRILLED SINCE LAST REPORT: 78'

PERCENT RECOVERY: 94%

Drilling advance is 3.3'/hr. through andesitic pyroclastic flow units. Less footage attained is due, in part, to bit change.

TOTAL EST. COST TO DATE: 120,331.00

W. C. Walkey
Geologic Field Technician



GEO-Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/27/86 DAYS SINCE SPUD: 25

TIME: 9:00 AM

DEPTH: 1,702'

FOOTAGE DRILLED SINCE LAST REPORT: 95'

PERCENT RECOVERY: 100%

Last drilling 7'/hr. in solid andestic flow. Had mud loss, caving problems at 1,685'.

TOTAL EST. COST TO DATE: 125,393.00

A handwritten signature in cursive script, reading "William J. Damsch", written over a horizontal line.

Geologic Field Technician



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6-28-86

DAYS SINCE SPUD: 26

TIME: 9:00 AM

DEPTH: 1840'

FOOTAGE DRILLED SINCE LAST REPORT: 138'

PERCENT RECOVERY: 100

Rods presently stuck 140' off bottom; trying to work loose.

TOTAL ESTIMATED COST TO DATE: \$131,251

William J. Dinsart

Geologic Field Technician



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6-29-86

DAYS SINCE SPUD: 27

TIME: 9:00 AM

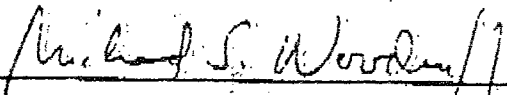
DEPTH: 1840'

FOOTAGE DRILLED SINCE LAST REPORT: none

PERCENT RECOVERY: N/A

Rods still stuck, presently about 195' off bottom. If rods can't be worked loose, we may have to leave them in the hole as casing and reduce to NQ hole.

TOTAL ESTIMATED COST TO DATE: \$134,511



Geologic Field Technician



GEO Newberry Crater, Inc.
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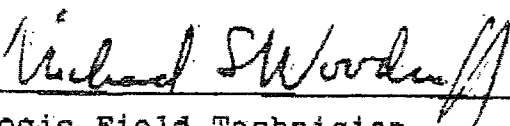
GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 6/30/86 DAYS SINCE SPUD: 28
TIME: 9:00 AM
DEPTH: 1,702'
FOOTAGE DRILLED SINCE LAST REPORT: N/A
PERCENT RECOVERY: N/A

Hole lost below 1,702' due to caving problems. HQ drill string cemented in place at 1,702'. Hole will be re-entered and drilled out with HQ tools.

TOTAL EST. COST TO DATE: 165,053.00



Geologic Field Technician



GEO-Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/1/86 DAYS SINCE SPUD: 29

TIME: 8:30 AM

DEPTH: 1,702'

FOOTAGE DRILLED SINCE LAST REPORT: N/A

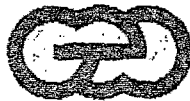
PERCENT RECOVERY: N/A

Drilling out cement at 1,480'

TOTAL EST. COST TO DATE: 167,804.00

William J. Darnett

Geologic Field Technician



GEO-NEWBERRY Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/2/86 DAYS SINCE SPUD: 30

TIME: 9:00 AM

DEPTH: 1,705'

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Pulled out of hole to cement broken pieces of bit 3 feet below H rods.

TOTAL EST. COST TO DATE: 171,622.00

William J. Dansart

Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-3-86

DAYS SINCE SPUD: 31

TIME: 9:00 AM

DEPTH: 1841'

FOOTAGE DRILLED SINCE LAST REPORT: 1'

PERCENT RECOVERY: N/A

Cemented pieces of bit, drilled out cement and cove to depth of original hole. Presently coring ahead below 1841'.

TOTAL ESTIMATED COST TO DATE: \$175,435

Richard S. Woodruff

Geologic Field Technician



GEO Operator Corporation
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

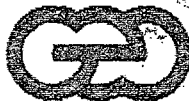
DATE: 7-4-86 DAYS SINCE SPUD: 32
TIME: 9:00 AM.
DEPTH: 1947'
FOOTAGE DRILLED SINCE LAST REPORT: 106'
PERCENT RECOVERY: 100

Presently coring ahead in solid rock below 1947'.

TOTAL ESTIMATED COST TO DATE: \$181,188

William J. Darsent

Geologic Field Technician



GEO Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-5-86

DAYS SINCE SPUD: 33

TIME: 9:00 AM

DEPTH: 2072'

FOOTAGE DRILLED SINCE LAST REPORT: 125

PERCENT RECOVERY: 98

Presently drilling @ 5.2'/hour in andesitic flow rock. Static fluid level maintains @ 1720'.

TOTAL ESTIMATED COST TO DATE: \$186,934

W. C. Walker
Geologic Field Technician



GEO-NEWBERRY Crater, Inc.

A Subsidiary of Geotechnical Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-6-86

DAYS SINCE SPUD: 34

TIME: 9:00 AM

DEPTH: 2141'

FOOTAGE DRILLED SINCE LAST REPORT: 69

PERCENT RECOVERY: 100

Stuck rods at 1904'. Freed rods, pulled back, washed and reamed to bottom. Presently drilling ahead at 5'/hour below 2141'.

TOTAL ESTIMATED COST TO DATE: \$191,664

William J. Dunsart

Geologic Field Technician



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

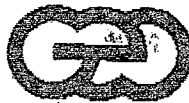
DATE: 7/7/86 DAYS SINCE SPUD: 35
TIME: 9:00 AM
DEPTH: 2,252.5'
FOOTAGE DRILLED SINCE LAST REPORT: 111.5'
PERCENT RECOVERY: 95

Presently coring ahead below 2252.5' at 4.5' to 5' per hour in hard andesitic flows. Some caving problems encountered between 2230 and 2243. Fluid level static at 1720'. Temperature still below 60° F.

TOTAL EST. COST TO DATE: 197,203.00



Geologic Field Technician



GEO Newberry Crater, Inc.
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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/8/86 DAYS SINCE SPUD: 36

TIME: 8:30 AM

DEPTH: 2,319'

FOOTAGE DRILLED SINCE LAST REPORT: 66.5

PERCENT RECOVERY: 96

Presently shut down due to water truck breakdown; ran out of water. At 2,262', pulled rods back into shoe and washed back to bottom; hole condition good. Temperature remains below 60°F.

TOTAL EST. COST TO DATE: 201,527.00



Geologic Field Technician



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/9/86 DAYS SINCE SPUD: 37

TIME: 8:30 AM

DEPTH: 2,402'

FOOTAGE DRILLED SINCE LAST REPORT: 83'

PERCENT RECOVERY: 96

Presently coring ahead below 2,402' in basaltic cinders. Washed to bottom and resumed drilling after water truck delay at 14:15, 7/8/86. Fluid level remains static at 1,740', temperature remains below 60°F.

TOTAL EST. COST TO DATE: 206,343.00

M.S. Woodruff

Geologic Field Technician



GEO-NEWBERRY Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/10/86 DAYS SINCE SPUD: 38

TIME: 8:30 AM

DEPTH: 2,528'

FOOTAGE DRILLED SINCE LAST REPORT: 126'

PERCENT RECOVERY: 93.25

Presently coring ahead below 2,528' in basaltic cinders. Encountered caving problems between 2,432' and 2,460' in cinders and ash. Temperature remains below 60°F. Fluid level remains static at 1,720'.

TOTAL EST. COST TO DATE: 212,517.00

M.S. Woodruff

Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/11/86 DAYS SINCE SPUD: 39

TIME: 9:00 AM

DEPTH: 2,625'

FOOTAGE DRILLED SINCE LAST REPORT: 97'

PERCENT RECOVERY: 89.7

Presently coring ahead below 2,625' in broken cinders.
Encountered caving problems @ 2,564', sticky @ 2,610'.
Temperature 64°F, fluid level static @ 1,720'.

TOTAL EST. COST TO DATE: 218,530.00

M. S. Woodman
Geologic Field Technician



Geo Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-12-86

DAYS SINCE SPUD: 40

TIME: 9:00 AM

DEPTH: 2731'

FOOTAGE DRILLED SINCE LAST REPORT: 106'

PERCENT RECOVERY: 100

Drilling ahead at 5'/hour in solid flow rock. Last temperature 60°F at 2663'.

TOTAL ESTIMATED COST TO DATE: \$224,577

William I. Darsent
Geologic Field Technician.



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-13-86

DAYS SINCE SPUD: 41

TIME: 8:30 AM

DEPTH: 2794.5'

FOOTAGE DRILLED SINCE LAST REPORT: 63.5'

PERCENT RECOVERY: 90.6

POOH for bit change at 2751'. Encountered cave upon re-entry about 130' off bottom, drilled cave and washed back to bottom. Some caving and sticky areas 2758' to 2785'. Presently drilling ahead below 2794.5'. Temperature still less than 60°F.

TOTAL ESTIMATED COST TO DATE: \$230,124

M.S. Woodruff

Geologic Field Technician



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/14/86 DAYS SINCE SPUD: 42

TIME: 9:00 AM

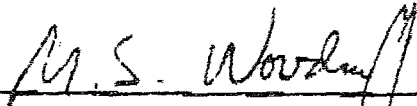
DEPTH: 2,897.5'

FOOTAGE DRILLED SINCE LAST REPORT: 103'

PERCENT RECOVERY: 99.5

Presently coring ahead below 2,897.5' in lithic-rich tuff. Muddy and sticky, stuck rods at 2,868', worked free after 15 minutes. Temperature 64°F at 2,862', fluid level remains static at 1,720'.

TOTAL EST. COST TO DATE: 236,066.00



Geologic Field Technician



GEO-Newberry Crater, Inc.

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GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/15/86 DAYS SINCE SPUD: 43

TIME: 9:00 AM

DEPTH: 2,998'

FOOTAGE DRILLED SINCE LAST REPORT: 100.5'

PERCENT RECOVERY: 100

Presently coring ahead below 2,998'. Temperature 67°F at 2,960'. Samples of secondary mineralization taken at 2,882' and 2,897' sent to Jeff Sternfeld in Santa Rosa for analysis. Fluid level static at 1,720'.

TOTAL EST. COST TO DATE: 242,096.00

M. S. Woodruff
Geologic Field Technician



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/16/86 DAYS SINCE SPUD: 44 *70 ft/day*
TIME: 8:30 AM
DEPTH: 3,089'
FOOTAGE DRILLED SINCE LAST REPORT: 91
PERCENT RECOVERY: 100

Presently drilling ahead below 3,090' in flow rock.
Temperature at 3,061' was 78°F.

TOTAL EST. COST TO DATE: 248,646.00 *\$80.49/ft.*

William J. Dunsen

Geologic Field Technician



GEO Newberry Crater, Inc.

A Subsidiary of Continental Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/17/86 DAYS SINCE SPUD: 45
TIME: 10:00 AM
DEPTH: 3,183'
FOOTAGE DRILLED SINCE LAST REPORT: 94
PERCENT RECOVERY: 98

Presently drilling ahead in dense flow rock. Temperature @ 3,160' is 103°F. Fluid sample taken @ 3,041' appears clear w/notable absence of drilling mud.

TOTAL EST. COST TO DATE: 254,836.00

\$80/Ft.

W. C. Walker
Geologic Field Technician



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/17/86 DAYS SINCE SPUD: 45

TIME: 10:00 AM

DEPTH: 3,183'

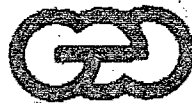
FOOTAGE DRILLED SINCE LAST REPORT: 94

PERCENT RECOVERY: 98

Presently drilling ahead in dense flow rock. Temperature @ 3,160' is 103°F. Fluid sample taken @ 3,041' appears clear w/notable absence of drilling mud.

TOTAL EST. COST TO DATE: 254,836,00

W. C. Walker
Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

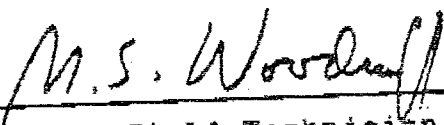
GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/18/86 DAYS SINCE SPUD: 46
TIME: 8:30 AM
DEPTH: 3,276'
FOOTAGE DRILLED SINCE LAST REPORT: 93
PERCENT RECOVERY: 97.3

Presently coring ahead below 3,276'. Plugged off bit
at 3,213', cleaned out with no problems. Temperature 103°F
at 3,213', 82°F at 3,269. Fluid level at 1,850'.

TOTAL EST. COST TO DATE: 261,017.00



Geologic Field Technician



GEO-Newberry Crater, Inc.

A Subsidiary of Geotherm Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-19-86 DAYS SINCE SPUD: 47
TIME: 9:00 AM
DEPTH: 3357'
FOOTAGE DRILLED SINCE LAST REPORT: 81
PERCENT RECOVERY: 96.9

Presently coring ahead below 3357' in hard and broken glass and cinders. Temperature 94°F @ 3320'. Fluid level static @ 1720'.

-----TOTAL ESTIMATED COST TO DATE: \$266,908-----

M.S. Woodruff
Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-20-86 DAYS SINCE SPUD: 48
TIME: 8:00 AM
DEPTH: 3397'
FOOTAGE DRILLED SINCE LAST REPORT: 40'
PERCENT RECOVERY: 76.25

Some caving and torque problems @ 3377'; temperature 92°F. POOH for bit change @ 3385', trip in greasing rods to 2650', washed and reamed to 2800', lowered to 3320' and washed and reamed to bottom. Presently coring ahead below 3397' in broken cinders.

TOTAL ESTIMATED COST TO DATE: \$272,019

Handwritten signature of M. S. Woodruff in black ink, written over a horizontal line.
Geologic Field Technician



GEO-NEWBERRY Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/21/86 DAYS SINCE SPUD: 49

TIME: 8:30 AM

DEPTH: 3,444'

FOOTAGE DRILLED SINCE LAST REPORT: 47

ave. 70'/day

PERCENT RECOVERY: 57.4

Some caving problems @ 3,397', 3,410'. Temperature 110°F @ 3,420'. Stuck inner tube @ 3,441', broke wireline at overshot. POOH to retrieve tube, changed bit (rerun #NO-X9-2122), ran back in hole greasing rods. Washed and reamed 2,620' to 2,800' and 3,280' to bottom. Presently coring ahead below 3,444' in broken obsidian.

TOTAL EST. COST TO DATE: 276,873.00

ave \$80.39/ft.

Geologic Field Technician



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

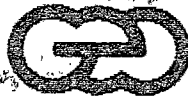
DAILY REPORT

DATE: 7/22/86 DAYS SINCE SPUD: 50
TIME: 8:30 AM
DEPTH: 3,495.5'
FOOTAGE DRILLED SINCE LAST REPORT: 51.5
PERCENT RECOVERY: 77.7

Formation very hard and broken; difficult drilling.
Temperature 123°F @ 3,463'. Caving problems 3,475'-
3,495'. Presently coring ahead below 3,495.5' in badly
broken devitrified obsidian.

TOTAL EST. COST TO DATE: \$ 281,733

M. S. Warden
Geologic Field Technician



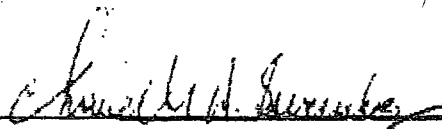
GEO Newberry Grater, Inc.
A Subsidiary of Geotechnical Resources International, Inc

GEO NEWBERRY
GEO NEWBERRY CORE HOLE N-3
DAILY REPORT-SUPPLEMENT
July 23, 1986

Cost projections for drilling 3532-4000 feet (TD) and
completing core hole

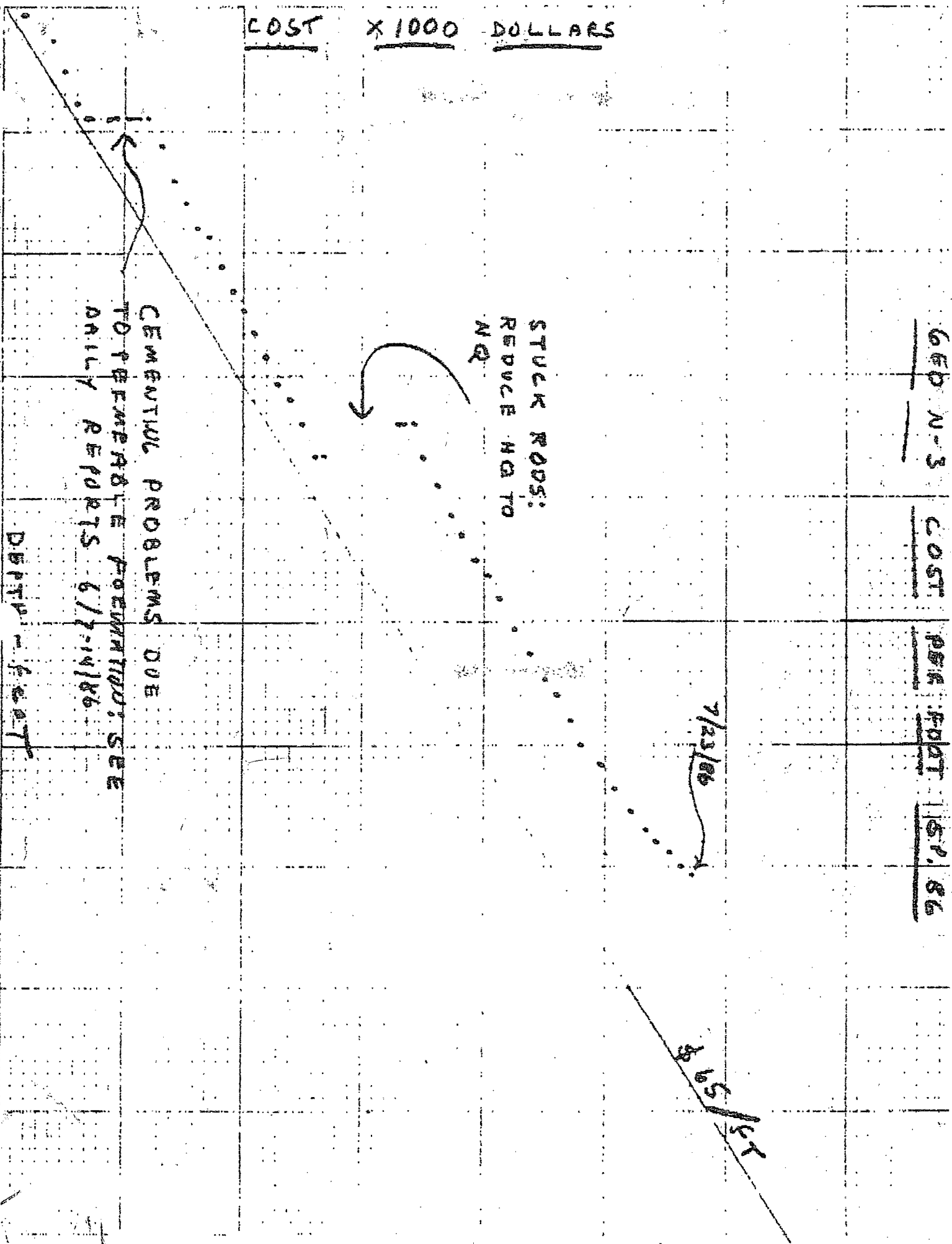
Attached is a diagram summarizing costs to date (7/23/86).
Projected costs to complete and core hole are summarized
below and are based on the following assumptions: 1)
penetration rate of 50'/day, 2) two days for logging,
and 3) one day to run tubing.

Additional bits (544 ea.x3)	1,632
Footage (36.60/ft.x468')	17,129
Day rate (2100/day x13)	27,300
Per diem (150/day x13)	1,950
Water truck driver (325/day x13)	4,225
Mud cost (est. 250/day x10)	2,500
Sure gel (15.97/sack x30)	479
H ₂ S detector rental (94/day x13)	1,222
BOP rental (248/day x13)	3,224
Water truck (150/day x13)	1,950
Rig mob/demob	6,000
Dresser Atlas logging	25,474
Tubing (2.85/ft.x4,000')	<u>11,400</u>
TOTAL ESTIMATED COST	\$104,485


Chandler Swanberg, President

GEO N-3 COST PER FOOT 151.86

COST X 1000 DOLLARS



STUCK RODS:
REDUCE HQ TO
NR

CEMENTIUM PROBLEMS DUE
TO PERMISSIBLE POTENTIAL; SEE
DAILY REPORTS 6/7-14/86

DEPTH - FEET

7/23/86

151.86/515



GEO-Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/23/86 DAYS SINCE SPUD: 51

TIME: 8:30 AM

DEPTH: 3,532.5'

FOOTAGE DRILLED SINCE LAST REPORT: 37

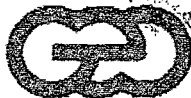
PERCENT RECOVERY: 51.4

Temperature 103°F at 3,510'. Difficult drilling in very hard and broken formation. POQH for bit change at 3,525'. Tripped in greasing rods to 3,480', washed and reamed 3,480' to bottom. Presently coring ahead below 3,532.5'. Fluid level remains static at 1,720'.

TOTAL EST. COST TO DATE: \$286,790

M.S. Woodruff

Geologic Field Technician



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/24/86 DAYS SINCE SPUD: 52

TIME: 8:30 AM

DEPTH: 3,632'

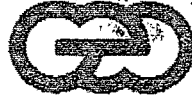
FOOTAGE DRILLED SINCE LAST REPORT: 99.5'

PERCENT RECOVERY: 100

Temperatures 106°F/105°F at 3,560'; 103°F/101°F at 3,612'.
Good drilling progress in fairly solid basaltic andesite
flow. Presently coring ahead below 3,632'. Pervasive
secondary alteration continues including some silicification,
Fe sulfides and oxides, calcite and zeolite. Fluid level
static at 1,720'.

TOTAL EST. COST TO DATE: \$293,623

M. S. Woodruff
Geologic Field Technician



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/25/86 DAYS SINCE SPUD: 53

TIME: 8:30 AM

DEPTH: 3,709'

FOOTAGE DRILLED SINCE LAST REPORT: 77

PERCENT RECOVERY: 94.6

Continued good drilling in very hard formation. Problems with dropping core out of the inner tube at 3,656', 3,691'. Temperature 101°F at 3,660', 105°F/90°F at 3,710'. Presently coring ahead below 3,709'.

TOTAL EST. COST TO DATE: \$299,625

M.S. Woodruff

Geologic Field Technician



GEO Newberry Crater, Inc.

A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7-26-86 . DAYS SINCE SPUD: 54
 TIME: 8:30 AM
 DEPTH: 3792.5'
 FOOTAGE DRILLED SINCE LAST REPORT: 83.5
 PERCENT RECOVERY: 100.6

Continued good drilling in hard, fractured formation. Some minor problems with wireline and release on overshoot. Temperature 102°F/103°F at 3760'. Presently coring ahead in broken obsidian and cinders.

TOTAL ESTIMATED COST TO DATE: \$305,820

M. S. Woodruff

 Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Cenothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

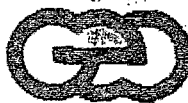
DAILY REPORT

DATE: 7/27/86 DAYS SINCE SPUD: 55
TIME: 9:00 AM
DEPTH: 3,878.5'
FOOTAGE DRILLED SINCE LAST REPORT: 86
PERCENT RECOVERY: 99

Presently drilling ahead in hard fractured formation. Some caving and wireline/overshots release problems. Temperature test @ 3,812' @ 135°F (i.e. thermometer equilibrated on bottom for 40 minutes while water pump on CP50-2 was changed out). At 3,858.5' a temperature of 103°F was obtained.

TOTAL EST. COST TO DATE: \$312,058

W.C. Walker
Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

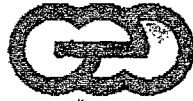
DAILY REPORT

DATE: 7/28/86 DAYS SINCE SPUD: 56
TIME: 9:00 AM
DEPTH: 3,961'
FOOTAGE DRILLED SINCE LAST REPORT: 82.5
PERCENT RECOVERY: 99

Temperature tests are as follows: 130°F @ 3,908.5' and
119°F @ 3,961'. Drilling ahead in very hard, dense
pyroclastic flow rock.

TOTAL EST. COST TO DATE: \$318,267

W.C. Walker
Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/29/86 DAYS SINCE SPUD: 57

TIME: 7:00 AM

DEPTH: 4,002' TD

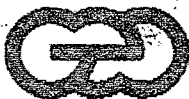
FOOTAGE DRILLED SINCE LAST REPORT: 41

PERCENT RECOVERY: 95

Completed drilling. POH. Rigged up Dresser Atlas.
Ran temperature, caliper, and acoustic logs. Preparing
to run neutron log. Maximum bottom hole temperature
so far is 130°F.

TOTAL EST. COST TO DATE: \$322,824

William J. Darsart
Geologic Field Technician



GEO-NEWBERRY Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/30/86 DAYS SINCE SPUD: 57

TIME: 7:00 AM

DEPTH: 4,002' TD

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Dressler Atlas successfully completed; temperature caliper, acoustic frac-log, and neutron logs to TD, as well as gamma/density log to approx. 1,700' (i.e. to bottom of HQ rods in hole). Last drilling shift dismantled BOPE, conditioned hole to TD, and pumped hole abandonment mud. Liner pipe is scheduled to be put in today.

TOTAL EST. COST TO DATE: \$326,027

W. C. Walker

Geologic Field Technician



GEO-Newberry Crater, Inc.
A Subsidiary of Geothermal Resources International, Inc.

GEO-NEWBERRY CORE HOLE N-3

DAILY REPORT

DATE: 7/31/86 **DAYS SINCE SPUD:** 59

TIME: 9:00 AM

DEPTH: 4,002' TD

FOOTAGE DRILLED SINCE LAST REPORT: N/A

PERCENT RECOVERY: N/A

Liner pipe (1.751" ID) successfully put in hole, filled w/water, and hanging approx. 6" off bottom. Flange is on top and drillers are preparing to move off site.

TOTAL EST. COST TO DATE: \$345,749

W. C. Walker

Geologic Field Technician

Clackamas Thermal Gradient Hole CTGH-1

DRILLING AND COMPLETION HISTORY

DATE	ACTIVITY
7 June 1986	Spudded 1030 hours with Boyles Bros. rotary rig. Drilled 12-1/4" hole to 35' but could not run a 10-3/4" conductor below 12'.
8 June 1986	Moved rig 6' and drilled a 8-3/4" hole to 35'; opened hole to 12-1/4". Ran 10-3/4", 40.5 lbs K-55 conductor to 28'.
9 June 1986	Completed running conductor to 35'. Cemented conductor with 16 sacks Portland cement, 16 sacks construction cement and 3% CaCl ₂ . Cement in place at 1430 hours. Waiting on cement.
10 - 12 June 1986	Drilled 8-3/4" hole from 35 - 517'. Lost 50% (+1000 gals) of drilling mud at 400 - 410' and 60 barrels at 425'.
13 June 1986	Geophysical borehole logging conducted. Circulated hole clean in preparation for running 7", 26 lbs K-55 buttress casing. Ran casing which became stuck at 488'; unable to circulate casing to bottom or pull up. Rigged up Halliburton cementers. Pumped 5 barrels of water ahead of 13.5 pound per gallon slurry of 122 cubic feet of Class G cement, mixed 1:1 with perlite plus 40% silica flour and 2% gel. Followed with 15.5 pound per gallon tail slurry of 32 cubic feet of Class G cement plus 40% silica flour. Displaced slurries with 19 barrels of water. Obtained good cement returns at surface. Plug bumped at 4000 psig and held. Cement level dropped in 7" to 10-3/4" annulus. Cement operation witnessed and approved by BLM.
14 June 1986	Outside cement job completed with four barrels of Class G cement mixed 1:1 with perlite; filled 7" to 10-3/4" annulus to surface. Released rotary rig. Dug cellar.
15 June 1986	Completed cellar construction. Welded LARKIN casing head to 7" casing. Set up BOPE and notified BLM and DOGAMI for BOP test.

5/15
-482
29

16 June 1986 Leak in 8-5/8" x 6" Series 900 flange in 7" Larkin casing head precluded successful BOPE test. Waiting on air delivery of replacement flange.

17 June 1986 Reworked threads on 8-5/8" x 6" 900-series flange but would not seat properly. Air delivered flange seated and sealed in Larkin head. Rigged BOPE including Hydril MSP 2000 unit, Shaffer dougla gate with blind and rod rams, remote hydraulic controls.

18 June 1986 BOPE tested and approved by BLM.

19 June 1986 Stabilized Boyles Bros. core rig over BOPE and cellar; built rig floor.

20 June 1986 Drilled float collar at 466' and cement to 488' with 6" bit. Cleaned out hole to 517' and drilled to 527'. Circulated 30 minutes and pulled out of hole (POH). Left fish (6" bit and 4.5' joint) on bottom. Called for an overshot.

21 June 1986 Recovered fish. Ran 4.5" core guide string to 526' and hung string from 7" casing head.

22 - 24 June 1986 Cored ahead with 3.937" diamond corehead (HX size) from 527 - 744' with full core recovery. Lost total fluid return at 530' (22 June). Attempted to plug LCZ from shoe of 7" (488') with LCM and mud on 24 June with no success.

25 - 30 June 1986 Cored from 854' to 1316' with no fluid returns. Tripped out of hole for new HX bit at 1271'. Experienced mud thinning due to water inflow on 25 June; greased rods on 27th. Core recovery virtually 100%.

1 - 5 July 1986 Cored from 1316' to 1775' with no fluid returns where tripped for new bit. Core recovery 100%.

6 - 12 July 1986 Cored from 1775' to 2336' with no fluid returns and 100% core recovery. Wireline broke pulling core at 2336'; POH for repair and new bit. H₂S detection equipment installed and operating on 8 July. All three crews trained in H₂S safety and equipment. Electronic failure of H₂S detection equipment on 9 July (2083'). Repaired and operating by 2500'. Maximum recording thermometer temperatures (MRT) at 2130' and 2243' were 75° and 69°F respectively.

13 - 14 July 1986 Cored from 2366' to 2466' with no fluid returns and 100% core recovery.

15 July 1986 Cored to 2476'. Core barrel jammed in core rods at +500' depth upon core retrieval. Wireline broke, POH 17 stands and retrieved core barrel. Laid down one joint of bad core rod. Ran in hole (RIH) and washed bridge from 1776' to 1780' and 5' of fill on bottom. Cored to 2535' with no fluid returns and 100% core recovery. MRT at 2544' was 96°F.

16 July 1986 Cored to 2594' with no fluid returns and 100% core recovery. Upon core retrieval at 2584', barrel became stuck at 400' and wireline broke. POH; laid down one bad joint of core rod. MRT at 2584' was 99°F.

17 - 28 July 1986 Cored from 2594' to 3721' with no fluid returns and 100% core recovery. POH to change bit after 1385' and 340 hours; only one-third worn. MRT data as follows: 3059' - 119°F; 3159' - 124°F; 3254' - 131°F; 3641' - 138°F and 3711' - 137°F.

29 July - August 1986 Cored from 3721' to 4203' with no fluid returns and 100% core recovery. HX core rods parted while coring at 4203'. Waiting on NX rods to run fishing spear.

5 - 7 August, 1986 Waiting on NX rods. RIH with NX open ended and found HX rods parted at 823'. RIH to retrieve core barrel at 4193'.

8 - 10 August 1986 Recovered core barrel after two attempts. RIH with 2.875" diamond corehead (NX size) and NCC rods. Milled out HX bit at 4203' and cored ahead to 4226'. POH to replace bit. MRT at 4216' was 177°F.

11 - 17 August 1986 Cored from 4226' to 4780' with no fluid returns and 100% core recovery. Received a U. S. Forest Service order for complete shutdown of rig operations because of a Class E fire risk. MRT data as follows: 4296' - 178°F; 4383' - 183°F; and 4540' - 182°F.

18 August 1986 Cored from 4780' to 4800' with no fluid returns and 100% core recovery. Could not obtain exception to shutdown order in spite of about 900 barrels water supply on the drillsite which is located in a clear-cut. POH to 4150'. Closed blind rams and Hydril on NCC rods; closed Kelly valve and shutdown operations at 1200 hrs.

27 August 1986 Ran a Pruett wireline temperature/pressure survey after nine-day shutdown with U. S. Forest Service approval. Recorded maximum hole temperature of 210°F at total depth.

30 August 1986

Class E fire risk condition lifted. Drillsite operations scheduled to resume 2 September.

2 September 1986

Started operations at 2000 hours. Ran NCC rods and NX bit string from 4250' to 4800'. Hole clear to bottom. Initiated hole cooling for geophysical logging operation. MRT at 4800' is 204°F.

3 September 1986

Cooled borehole with 8 hour circulation to about 153°F. NCC rods POH.

4 September 1986

Ran gamma-gamma density/caliper, sonic and spontaneous potential/16'-64' resistivity logs. Temperature in hole rebounded quickly, to over 185°F which caused the density and sonic tools to fail. Found erratic readings from resistivity tool; cablehead problem. POH, ran NCC rods into hole to initiate cooling again.

5 - 7 September 1986

Completed borehole geophysical logging. Laid down NCC rods, pumped out cellar and removed BOPE. Bolted 1-1/4" plate flange to Larkin casing head. Flange includes a 3" full opening gate to allow logging tool access. Rigged down, cleaned cellar and pits. Released rig on 1300 hours, 7 September 1986.

JLI/ma

October 28, 1986

JLI092

THERMAL POWER COMPANY

WELL NO. CTG 1 AFE NO. BELOW
 REPORT NO. 1 DATE 7 JUNE 86
 TOTAL RIG DAYS 0 + 10 HRS TIME FROM SPUD 10 HRS
 DEPTH @ 2400 HRS. 35 FOOTAGE DRLD. 35
 HRS. DRILLED 5 HRS HRS. TRIPPED _____
 HRS. OTHER 5 HRS COOLING TOWER IN USE, YES NO
 MUD WT. 8.3 PPG VIS. 60 SEC W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

CSG _____
 " CSG. _____
 " CSG. _____
 " CSG. _____

LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
1	12 1/4"	KEED	J136J	294316	NONE	0	35	35	5	HL	60	I B G
												I B G
												I B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1	5"	6"	54	88	0	88		

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LOG
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Mixed Spud mud. Spudded 10^{am} 6-7-86
Drilled 12 1/4" hole from surface to 12' depth;
stopped on boulder bed PCH.
Ran 12 1/4" air hammer; drilled 12-35' depth
"rough going." PCH
Ran 12 1/4" bit and reamed 0-35'. PCH.
Ran 10 3/4" conductor one 35' joint; stopped
at 12'. PCH.
Reamed hole w 12 1/4" bit to 35' PCH
Ran 10 3/4" conductor; again stopped at
12' PCH and shut down

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION \$ 7005
 RIG MOVES 7000
 RIG 1736
ABATEMENT
 BITS No. 1 600
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL _____
 FUEL, WATER POWER _____
 MUD 411
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES _____
 FISHING & DIRECTIONAL _____
 OTHER WATER LINE 500

OPERATION @ 0600 HOURS FOLLOWING DAY:
REVIEWING CONDUCTOR HOLE PROBLEM

DAILY TOTAL 17,552
 FORWARD _____
 ACCU. TOTAL \$ 17,552
 AFE 86-D01-4300-02A

INOPERATIVE EQUIPT, EXPLAIN _____

SUPERVISOR POWLEN 10.9 June

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. BELOW

REPORT NO. 2 DATE 8 JUNE 86

TOTAL RIG DAYS 1+10 HRS TIME FROM SPUD _____

DEPTH @ 2400 HRS. 35 FOOTAGE DRLD. 35

HRS. DRILLED 3 1/2 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____

HRS. OTHER 11 COOLING TOWER IN USE, YES NO

MUD WT. 8.8 PPG VIS. 54 W.L. 54 CK. 2/32 PH 6.8 CHL 400 YP 21

P.V. 17 GELS 9/12 % SAND 3 % SOLIDS 3.5 % LOST CIRC. MTL. NONE

GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1

FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.

MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

CSG _____
" CSG. _____
" CSG. _____
" CSG. _____

LINER _____
TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>2</u>	<u>8 1/4</u>	<u>SMITH</u>	<u>AB6779</u>	<u>NONE</u>	<u>0</u>	<u>35</u>	<u>35</u>	<u>3 1/2</u>	<u>ALL</u>	<u>60</u>	<u>60</u>	T P G
---	---	---	---	---	---	---	---	---	---	---	---	T P G
---	---	---	---	---	---	---	---	---	---	---	---	T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	<u>3"</u>	<u>6"</u>	<u>54</u>	<u>88</u>	---	<u>88</u>	---	---

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____

DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____

STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Moved truck into rotary rig 6'

Spudded second conductor hole

Walled 8 1/4" hole in 3 1/2 hrs POH

Ran 12 1/4" bit; beamed opened hole

but stopped at 20'. POH

Ran 12 1/4" air hammer; opened hole to 35'

POH

Ran 10 3/4" conductor; stopped at 24'

POH and ran 12 1/4" bit CD to 35' POH

Ran 10 3/4" conductor; stopped at 28'

Shut down at 2300 hrs

Filled first conductor hole w

cuttings from second hole

OPERATION @ 0600 HOURS FOLLOWING DAY:

Prep to CD again; have straight

hole. Expect to cement 10 3/4"

conductor

COSTS

TANGIBLES

CASING _____

VALVES _____

FLANGES _____

OTHER _____

INTANGIBLE

LOCATION _____

RIG MOVES _____

RIG _____ 1325

ABATEMENT _____

BITS _____

DRILL EQUIP. MAIN. _____

DRILL. EQUIP. RENTAL _____

FUEL, WATER POWER _____

MUD _____

SUPERVISION & LABOR _____ 300

CEMENT SERVICES _____

TRANSPORTATION _____

LOGGING SERVICES _____

FISHING & DIRECTIONAL _____

OTHER Boyles Rig Sup. 500

DAILY TOTAL _____ 2175

FORWARD _____ 17,552

ACCU. TOTAL _____ 19,727

AFE 86-D01-4300-02

SUPERVISOR BOWDEN AD-99 June

INOPERATIVE EQUIPT, EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 3 DATE 9 JUNE 86
 TOTAL RIG DAYS 3 TIME FROM SPUD 20+10 hrs
 DEPTH @ 2400 HRS. 35 FOOTAGE DRLD. 0
 HRS. DRILLED 0 HRS. TRIPPED _____
 HRS. OTHER 9 COOLING TOWER IN USE, YES NO
 MUD WT. 8.8 VIS. 65 W.L. _____ CK. _____ PH _____ CHL _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

CSG 10 3/4" at 35'
 " CSG. _____
 " CSG. _____
 " CSG. _____

LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.				
_____	_____	_____	_____	_____	_____	_____	_____	_____				

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LGH _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Started up rig at 9 am
Ran 12 1/4" air hammer and
C.O. to 35' POH.
Ran one joint of 10 3/4" K-55
40.5 201-ft conductor casing
to 35'.
Blew hole dry with air
Cemented conductor at 35' depth
with slurry of 16 bag Portland
Cement and 16 bag of construction
Cement plus 3% CaCl₂
CIP at 1430 hrs. Shut down
rig at 1800 hrs WOC

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	<u>Pit liner \$ 500</u>
RIG MOVES	_____
RIG	<u>1125</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	<u>157</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>900</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>BOXES SUP. 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Preparing to drill out with 8 3/4" bit

DAILY TOTAL 3232
 FORWARD 19,727
 ACCU. TOTAL 22,959
 AFE 86-001-4200-02
 SUPERVISOR BOWDEN RD Name

INOPERATIVE EQUIPT. EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTG4-1 AFE NO. 10th?
 REPORT NO. 4 DATE 6/11/86
 TOTAL RIG DAYS 4 TIME FROM SPUD 3+10hrs
 DEPTH @ 2400 HRS. 220' FOOTAGE DRLD. 195'
 HRS. DRILLED 4 1/2 HRS. TRIPPED _____
 HRS. OTHER 2 1/2 COOLING TOWER IN USE, YES NO
 MUD WT. 8.8 VIS. 40 W.L. _____ CK. _____ PH _____ CHL _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: 160' = 1/2° ; 220' = No Data

10 3/4" CSG. 35'
 " CSG. _____
 " CSG. _____
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>2</u>	<u>8 3/4"</u>	<u>Smith</u>	<u>F3</u>	<u>AV6059</u>	<u>None</u>	<u>35'</u>	<u>-</u>	<u>195'</u>	<u>4 1/2</u>	<u>5-1500</u>	<u>65</u>	<u>I E G</u>
												<u>I B G</u>
												<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	<u>5"</u>	<u>6</u>	<u>80</u>	<u>114</u>	<u>100</u>	<u>114</u>		

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: 1 x 8 3/4" bit, 1 x 6" DC, 10 x 4 1/2" DC, Total length 220'
 TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Drilled 8 3/4" hole from 35' to 220'

2 1/2 hrs running deviation survey problem with clock

Shut down 1900 hours

Geophysical borehole loggers called out 1700 hours

JLS

COSTS	
TANGIBLES	
CASING	
VALVES	
FLANGES	
OTHER	
INTANGIBLE	
LOCATION	<u>3096</u>
RIG MOVES	
RIG	
ABATEMENT	
BITS	<u>2500 (B.T #2)</u>
DRILL EQUIP. MAIN.	
DRILL. EQUIP. RENTAL	
FUEL, WATER POWER	
MUD	<u>200</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	
TRANSPORTATION	
LOGGING SERVICES	<u>300</u>
FISHING & DIRECTIONAL	
OTHER	<u>Boyles sup 250</u>
DAILY TOTAL	<u>6646</u>
FORWARD	<u>22946</u>
ACCU. TOTAL	<u>29605</u>
AFE	

OPERATION @ 0600 HOURS FOLLOWING DAY: _____

INOPERATIVE EQUIPT, EXPLAIN _____ SUPERVISOR Buddy Bowden

THERMAL POWER COMPANY

WELL NO. LTGH-1 AFE NO. _____
 REPORT NO. 5 DATE 6/11/86
 TOTAL RIG DAYS 5 TIME FROM SPUD 41.10 hrs
 DEPTH @ 2400 HRS. 420' FOOTAGE DRLD. 200'
 HRS. DRILLED 11 1/2 HRS. TRIPPED _____
 HRS. OTHER 1/2 COOLING TOWER IN USE, YES NO
 MUD WT. 9.2 VIS. 61 W.L. 10 CK. 2 PH 7.2 CHL 400 YP 26
 P.V. 18 GELS 12/21 % SAND 5 % SOLIDS 6 % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: 220° - 72°

10 3/4" CSG 35'
 " CSG. _____
 " CSG. _____
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>2</u>	<u>8 3/4"</u>	<u>Smith</u>	<u>F-3</u>	<u>AV 6019</u>	<u>None</u>	<u>35'</u>	<u>—</u>	<u>385'</u>	<u>21</u>	<u>15-16000</u>	<u>65</u>	<u>T B G</u>
												<u>T B G</u>
												<u>T B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	<u>5"</u>	<u>6"</u>	<u>80</u>	<u>131</u>	<u>100</u>	<u>131</u>		

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: 8 3/4" bit, 1 1/2" drill collar, 20 x 1 1/2 DC total 420'
 TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
drilled 8 3/4" hole from 220' to 420'
1/2 hr other = surveys
400-410' lost 50% returns
~1000 gal
410' full returns
JLI

OPERATION @ 0600 HOURS FOLLOWING DAY:

 INOPERATIVE EQUIP'T, EXPLAIN _____

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	<u>45</u>
RIG MOVES	_____
RIG	<u>2993</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	<u>190</u>
TRANSPORTATION	_____
LOGGING SERVICES	<u>300</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>Boyles SR. 250</u>
DAILY TOTAL	<u>4078</u>
FORWARD	<u>29605</u>
ACCU. TOTAL	<u>33683</u>
AFE	_____

SUPERVISOR Buddy Bowden

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 6 DATE 12 JUNE 86
 TOTAL RIG DAYS 6 TIME FROM SPUD 50+10 hrs
 DEPTH @ 2400 HRS. 517 FOOTAGE DRLD. 97
 HRS. DRILLED 9.5 HRS. TRIPPED _____
 HRS. OTHER 3.5 COOLING TOWER IN USE, YES NO
 MUD WT. 8.8 VIS. 70 W.L. 10 CK. 2/32 PH. 7 CHL. 400 YP. 22
 P.V. 20 GELS 12/26 % SAND 0.5 % SOLIDS 3.0 % LOST CIRC. MTL. 6-8
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: 517' 2°

10^{3/4}" CSG. 35'
 " CSG. _____
 " CSG. _____
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>2</u>	<u>8^{3/4}</u>	<u>SMITH</u>	<u>AV6019</u>	<u>F-3</u>	<u>NONE</u>	<u>35</u>	<u>517</u>	<u>482</u>	<u>2.5</u>	<u>1500</u>	<u>60</u>	<u>14 P 2 G N</u>
												T B G
												T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	<u>5"</u>	<u>6"</u>	<u>80</u>	<u>131</u>	<u>100</u>	<u>131</u>		

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: 8^{3/4}" BIT ONE 6" DC
24 4.5" DC

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Drilled 8^{3/4}" hole 420' to 517'
Lost 10 barrels of mud at 425'
2 1/2 hrs circulating mud - condition
ing hole at 517'
1/2 hr survey at 517'
Geophysical logging crew/truck
arrived at 2100 hrs at drill site

COSTS

TANGIBLES	
CASING	
VALVES	
FLANGES	
OTHER	
INTANGIBLE	
LOCATION	
RIG MOVES	
RIG	<u>\$1711</u>
ABATEMENT	
BITS	
DRILL EQUIP. MAIN.	
DRILL. EQUIP. RENTAL	
FUEL, WATER POWER	
MUD	<u>450</u>
SUPERVISION & LABOR	<u>POWEN 300</u>
CEMENT SERVICES	
TRANSPORTATION	
LOGGING SERVICES	<u>300</u>
FISHING & DIRECTIONAL	
OTHER	<u>VALVES 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Logging borehole, from 517 to 35'
HALLIBURTON on location
 INOPERATIVE EQUIP'T. EXPLAIN _____

DAILY TOTAL 3011
 FORWARD 33,683
 ACCU. TOTAL 36,694
 AFE 86-201-4300-02
 SUPERVISOR POWEN 10-13 June

THERMAL POWER COMPANY

WELL NO. CTG H 1 AFE NO. _____

REPORT NO. 7 DATE 13 JUNE 1986

TOTAL RIG DAYS 7 TIME FROM SPUD 60 + 10 hrs LINER _____

DEPTH @ 2400 HRS. 517' FOOTAGE DRLD. 0 TIE-BACK _____

HRS. DRILLED 0 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____

HRS. OTHER 19 COOLING TOWER IN USE, YES NO

MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH _____ CHL _____ YP _____

P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____

GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1

FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.

MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35'
7" CSG. 488'
" CSG. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____

DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LOG

STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Colorado Logging completed GP log
0600-1300 hrs.

Ran 8 3/4" bit to 517'. CD - no fill found
on bit. PDIH

Ran 7" casing. Stopped at 70'. PDIH.
removed centralizer from first joint

Ran 7" casing. Stopped at 488'. Tried to
circulate cement to bit; no go
rigged to cement. HALLIBURTON pumped
5 bbls water ahead of cement slurry of
12.2 cu ft Class G 11:1 peroxide plus 40% silica
flour, 2% gel at 13.5 ppg density
Failed 32 cu ft Class G plus 40% Silo 2
at 15.5 ppg. Replaced w 10 bbls water
CIP at 0130 hrs, 14 JUNE 86
Had good cement returns. Plug
pumped at 1000 ppg Held OK

Ran 519' of 7" 26 lbs R-55 BT+C
Casing shoe at 488'; float collar at 466'.

Cement dropped in annulus

OPERATION @ 0600 HOURS FOLLOWING DAY:
Plug to do outside cement job

COSTS

TANGIBLES

CASING _____

VALVES _____

FLANGES _____

OTHER _____

INTANGIBLE

LOCATION _____

RIG MOVES _____

RIG \$ 2375

ABATEMENT _____

BITS _____

DRILL EQUIP. MAIN. _____

DRILL. EQUIP. RENTAL _____

FUEL, WATER POWER _____

MUD _____

SUPERVISION & LABOR 300

CEMENT SERVICES 9471

TRANSPORTATION _____

LOGGING SERVICES 300

FISHING & DIRECTIONAL _____

OTHER TRIPLES 250

DAILY TOTAL 12696

FORWARD 312694

ACCU. TOTAL 49390

AFE _____

SUPERVISOR BOWDEN 00-14 June

INOPERATIVE EQUIPT, EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 8 DATE 14 JUNE 86
 TOTAL RIG DAYS 8 TIME FROM SPUD 10+10HRS
 DEPTH @ 2400 HRS. 317 FOOTAGE DRLD. 0
 HRS. DRILLED _____ HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 9 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10^{3/4} CSG. 35'
 7" CSG. 488
 " CSG. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOW _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Mixed 4 barrels of Class G cement
and perlite 1:1 and filled
annulus between 7" and 10^{3/4}"
Cement level came to surface
and remained there
Rigged down rotary tools
Cut off 7" casing
Pumped out pits
Digging cellar

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 1000</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	_____
FISHING & DIRECTIONAL	_____
OTHER	<u>Boyles 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY: _____
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL	<u>1550</u>
FORWARD	<u>49,390</u>
ACCU. TOTAL	<u>\$ 50,940</u>
AFE	<u>86-101-4300-02</u>
SUPERVISOR	<u>Bowden RD. 15 June</u>

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 9 DATE 15 JUNE 1986
 TOTAL RIG DAYS 9 TIME FROM SPUD 802 + 10 Hrs
 DEPTH @ 2400 HRS. 317 FOOTAGE DRLD. 0
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER 12 COOLING TOWER IN USE. YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

1074. CSG. 35'
 7" CSG. 488
 " CSG. _____
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
												T B G
												T B G
												T B G
PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.				

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LCA
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Constructed cellar
Welded on LARKIN casing head
to 7" casing
Set on BOP equipment

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 1500</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	_____
FISHING & DIRECTIONAL	_____
OTHER	<u>Hayes Sup 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Preparing to pressure test BOP
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL	<u>\$ 2050</u>
FORWARD	<u>50940</u>
ACCU. TOTAL	<u>\$ 52990</u>
AFE <u>86-B01-4300-02</u>	
SUPERVISOR	<u>KANDEN</u> <u>NO. 16 June</u>

THERMAL POWER COMPANY

WELL NO. CTG11 1 AFE NO. _____
 REPORT NO. 10 DATE 16 JUNE 1986
 TOTAL RIG DAYS _____ TIME FROM SPUD 90 + 10 hrs
 DEPTH @ 2400 HRS. 317' FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER 11 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 " CSG. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE MIN. AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Ripped up BOPs and 2" choke manifold
Could not obtain pressure buildup; found leak in 8 5/8" x 16" 900 series flange that screws into 7" LARKIN head.
Must repair or recut threads on flange to fit with the BEMO required BOP test.
Ordered replacement flange from Hanco - Farmington by air delivery.

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____
INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG 1375
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL _____
 FUEL, WATER POWER _____
 MUD _____
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 2200
 FISHING & DIRECTIONAL _____
 OTHER byes 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Seeking local thread checking capacity.

DAILY TOTAL 24125
 FORWARD 52990
 ACCU. TOTAL 57115
 AFE 86 201-4300-02
 SUPERVISOR BOWDEN 10.17 June

INOPERATIVE EQUIPT, EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTOH 1 AFE NO. _____
 REPORT NO. 11 DATE 17 JUNE 1980
 TOTAL RIG DAYS 11 TIME FROM SPUD 10:00 + 10:00
 DEPTH @ 2400 HRS. _____ FOOTAGE DRLD. _____
 HRS. DRILLED 517 HRS. TRIPPED _____
 HRS. OTHER 8 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 " CSG. _____
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

8 hrs Worked on 8 3/8" x 6" 900 Series flange. Recut threads; still would not seat.
Replacement flange air delivered in PORTLAND.

COSTS

TANGIBLES
 CASING 10 3/4 and 7" 9 1405
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG 1000
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL _____
 FUEL, WATER POWER _____
 MUD _____
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 300
 FISHING & DIRECTIONAL _____
 OTHER 10 hrs 750

OPERATION @ 0600 HOURS FOLLOWING DAY:
Air delivered flange seated and sealed in casing head. PMP for 1500 pressure test
 INOPERATIVE EQUIPT. EXPLAIN _____

DAILY TOTAL 3255
 FORWARD 57115
 ACCU. TOTAL 560,370
 AFE 80:001-4300-02
 SUPERVISOR BOWDEN DO. R. June

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 12 DATE 18 JUNE 1986
 TOTAL RIG DAYS 12 TIME FROM SPUD 12 + 10 HRS LINER _____
 DEPTH @ 2400 HRS. 517 FOOTAGE DRLD. _____ TIE-BACK _____
 HRS. DRILLED _____ HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 12 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS. _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. _____
 7" CSG. 35'
 7" CSG. 488'
 7" CSG. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Installed replacement flange in 7" LARKIN casing head. Installed BOP: double gate and Hydral units and 40 gallon accumulator. Tested blind rams and pipe rams with 1000 psig (water) for 30 mins each. Tested Hydral with 1750 psig (water) for 30 mins.
 Pressured accumulator to 2800 psig. At Muroto Station worked blind rams, pipe rams and Hydral with test then 10% pressure bleed down.
 BOP TEST OBSERVED AND APPROVED BY DENNIS DAVIS BLM 18 JUNE 86.
 Rained all day at Dillite. Snowed at the higher elevations!

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>1500</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	_____
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
 Adjusting DC rig base and cables.
 Prep to clean out hole to 517', then run 4.5" casing core guide.
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL	<u>2050</u>
FORWARD	<u>60,370</u>
ACCU. TOTL	<u>602,420</u>
AFE	<u>86-007-430002</u>
SUPERVISOR	<u>BOWDEN</u>

18 June 86

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 13 DATE 19 JUNE 1986
 TOTAL RIG DAYS 13 TIME FROM SPUD 122 + 10 days
 DEPTH @ 2400 HRS. 517' FOOTAGE DRLD. 0
 HRS. DRILLED 0 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 17 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10^{3/4} CSG. 35
 7 " CSG. 488
 " CSG. _____
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.				
_____	_____	_____	_____	_____	_____	_____	_____	_____				

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____ HIGH AVERAGE LCA

REMARKS FOR 24 HOUR PERIOD:
Aligned - stabilized core rig over
BDP stack and cellar.
Built rig floor and doghouse
Commenced picking up core
Wds at 2345 hrs

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>2125</u>
ABATEMENT	_____
BITS	
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>504</u>
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>WELDEL 844</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>700</u> GPASS, ADDL
FISHING & DIRECTIONAL	_____
OTHER	<u>GRAL 1500</u> CATCH UP
DAILY TOTAL	<u>5703</u>
FORWARD	<u>62,420</u>
ACCU. TOTAL	<u>68,123</u>
AFE 80. DOT 4200-02	
SUPERVISOR	<u>Bowden 200</u> 20 June

OPERATION @ 0600 HOURS FOLLOWING DAY:
Cleaned out cement to 490'; cleaned
out hole to 507'. Prep to bit hole
below 517' to seat 4.5" string
 INOPERATIVE EQUIPT., EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTG14-1 AFE NO. _____

REPORT NO. 14 DATE 20 JUNE 1986

TOTAL RIG DAYS 14 TIME FROM SPUD 130+10HRS LINER _____

DEPTH @ 2400 HRS. 529 FOOTAGE DRLD. 10 TIE-BACK _____

HRS. DRILLED 2 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____

HRS. OTHER 17 COOLING TOWER IN USE, YES NO

MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH _____ CHL _____ YP _____

P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____

GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1

FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.

MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 " CSG. _____
 " CSG. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
3	6"	HTC	RR162	CCS	NONE	517	529	12	2	500	120	T P G
												T P G
												T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1	5"	6"	80	131	100	131		

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____

DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: 6" BIT 4.5' JOINT D.P.
X SUB, T.G. 21'

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LCM _____

STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Picked up 6" bit, drilling assembly and 3 1/2" core rods RTH

Pulled float collar at 466' and cement in bottom joint of 7" to 488'

Cleaned out 8 3/4" hole to 517' and drilled 6" hole to 529'
Circulated 30 minutes and PCH

Found that 6" bit and 4.5 joint left on bottom. Shut down at 1000 hrs after calling for overshot

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	\$ 2250
ABATEMENT	_____
BITS #3	300
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	225
FUEL, WATER POWER	_____
MUD	500
SUPERVISION & LABOR	300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	330
FISHING & DIRECTIONAL	_____
OTHER	Boyles 250 Machining 50
DAILY TOTAL	4205
FORWARD	68,123
ACCU. TOTAL	72,328
AFE 86-201 4200-02	
SUPERVISOR	BOWDEN N. 25 June 86

OPERATION @ 0600 HOURS FOLLOWING DAY: _____

INOPERATIVE EQUIPT, EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 15 DATE 21 JUNE 1986
 TOTAL RIG DAYS 15 TIME FROM SPUD EDT 10:00
 DEPTH @ 2400 HRS. 527 FOOTAGE DRLD. 0
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER 13 COOLING TOWER IN USE. YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____ HIGH AVERAGE LOG _____

REMARKS FOR 24 HOUR PERIOD:

Ran 5 1/2" Bowen overhead with 4 1/2" grapples. Latched on to fish; DDT with frame.

Ran 26 joints of 4.5" core guide casing. Welded hood straps at each coupling and slipped on 11 solid bar stabilizers. Hung this core guide string at 526' (to be recovered before running any protection casing); hung from 1" Jackson Casinghead.

OPERATION @ 0600 HOURS FOLLOWING DAY:
 Casing at 534' without returns

INOPERATIVE EQUIPT, EXPLAIN _____

COSTS

TANGIBLES

CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____

INTANGIBLE

LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 1625</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>Boyles 250</u>
	<u>Fishing tools 2215</u>

DAILY TOTAL	<u>5070</u>
FORWARD	<u>72,328</u>
ACCU. TOTAL	<u>77,398</u>
AFE	<u>86-001-4300-02</u>

SUPERVISOR BOWDEN

RD-22 June 86

THERMAL POWER COMPANY

WELL NO. CTG 1 AFE NO. _____
 REPORT NO. 16 DATE 22 JUNE 1986
 TOTAL RIG DAYS 16 TIME FROM SPUD SD + 10 hrs
 DEPTH @ 2400 HRS. 597 FOOTAGE DRLD. 70
 HRS. DRILLED 22 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 2 COOLING TOWER IN USE YES NO
 MUD WT. 8.4 VIS. 45 W.L. 10 CK. 1/32 PH. 6.5 CHL. 400 YP. 15
 P.V. 20 GELS. 418 % SAND 0 % SOLIDS 0.5 % LOST CIRC. MTL. ±1
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10^{3/4}" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
1	5.937"	C	20	303-454	=	527	588	61	22	300	350	P G
				65 1490								I B G
												I B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1				35	100	35	Small triplex pump for coring	

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LCA _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Lost mud circulation just below 530' ±

Vertical Christensen diamond core head was worn at end of 61 runs.

Using 10' core barrel

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	\$ 2291
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	750
SUPERVISION & LABOR	300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	330
FISHING & DIRECTIONAL	_____
OTHER	Proyles 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 615' without returns

DAILY TOTAL	\$ 3921
FORWARD	77,348
ACCU. TOTAL	78,319
AFE	86 D01-4300-02
SUPERVISOR	FRAN WISEA

NO. 23 June 1986

INOPERATIVE EQUIPT., EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTAH-1 AFE NO. _____
 REPORT NO. 17 DATE 6/23/86
 TOTAL RIG DAYS 17 TIME FROM SPUD 16:10:12
 DEPTH @ 2400 HRS. 694 FOOTAGE DRLD. 97
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 60 W.L. 12 CK. thin PH 6.5 CHL 400 YP 10
 P.V. 20 GELS 4/8 % SAND 0 % SOLIDS 0.5 % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

103/4 " CSG. 35
 7 " CSG. 488
 4.5 " CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>2</u>	<u>3.937</u>	<u>Christ.</u>	<u>NC</u>	<u>651489</u>		<u>588</u>	<u>INC</u>	<u>106</u>	<u>24</u>	<u>12200</u>	<u>350</u>	<u>T P G</u>
												<u>T P G</u>
												<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>2535</u>	<u>100</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored & 597 to 694'
No mud returns

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 719'

INOPERATIVE EQUIPT. EXPLAIN _____

COSTS

TANGIBLES

CASING _____

VALVES _____

FLANGES _____

OTHER _____

INTANGIBLE

LOCATION _____

RIG MOVES _____

RIG 2943

ABATEMENT _____

BITS _____

DRILL EQUIP. MAIN. _____

DRILL. EQUIP. RENTAL 675

FUEL, WATER POWER _____

MUD 696

SUPERVISION & LABOR 300

CEMENT SERVICES _____

TRANSPORTATION _____

LOGGING SERVICES 330

FISHING & DIRECTIONAL _____

OTHER _____

Boyles 250

DAILY TOTAL 5194

FORWARD 81319

ACCU. TOTAL 86513

AFE _____

SUPERVISOR Bowden Bowden 25 June 1986

THERMAL POWER COMPANY

WELL NO. LT24H-1 AFE NO. _____
 REPORT NO. 18 DATE 6/24/86
 TOTAL RIG DAYS 18 TIME FROM SPUD 17+10h
 DEPTH @ 2400 HRS. 774 FOOTAGE DRLD. 80
 HRS. DRILLED 1942 HRS. TRIPPED _____
 HRS. OTHER 442 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. 12 CK. film PH. 6.5 CHL. 400 YP. 10
 P.V. 18 GELS. 4/8 % SAND 0 % SOLIDS 0.5 % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: 738' = 2x2° No direction yet

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
2	3.937	CL	NL	651489		588	10C	186	4372	1200	350	I P G
												I P G
												I P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1				2833	100			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored from 694 - 774', no returns
3 1/2 hrs pulled bit to 7" casing
shot @ 488', mixed LCM & mud
trying to plug LCR, no success.
1 1/2 hr mg maintenance

OPERATION @ 0600 HOURS FOLLOWING DAY:

Coring @ 797'

INOPERATIVE EQUIPT. EXPLAIN _____

COSTS

TANGIBLES

CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE

LOCATION 1200 (allow)
 RIG MOVES _____
 RIG 2991
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 275
 FUEL, WATER POWER _____
 MUD _____
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION 1130 (trucking)
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER Boyles SUP 250

DAILY TOTAL 6476
 FORWARD 86513
 ACCU. TOTAL 92989
 AFE _____

SUPERVISOR Buddy Bowden / 15 25 June 86

THERMAL POWER COMPANY

WELL NO. CTG H-1 AFE NO. _____
 REPORT NO. 19 DATE 6-25-86
 TOTAL RIG DAYS 19 TIME FROM SPUD 10A + 10M
 DEPTH @ 2400 HRS. 859' FOOTAGE DRLD. 85'
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 67 °F. DEVIATION SURVEYS: 753' = .272° 532° E
MRT @ 865' = 67° F

10 3/4 " CSG. 35'
 7 " CSG. 438'
 4.5 " CSG. 526' (Temp)

LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>2</u>	<u>3.937"</u>	<u>Chis.</u>	<u>NC</u>	<u>651489</u>		<u>588</u>	<u>859</u>	<u>271</u>	<u>67.5</u>	<u>12000</u>	<u>320</u>	<u>I B G</u>
												<u>I B G</u>
												<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>2</u>				<u>25-35</u>	<u>100</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cond 774 to 859'; no returns
Water flow into hole thinning
mud, losing lubricity. Rod vibration
being monitored to determine if greasing
is required.

JLF
26 June 86

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring @ 864'.

INOPERATIVE EQUIPT, EXPLAIN _____

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	_____
ABATEMENT	_____
BITS	<u>2579</u>
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>275</u>
FUEL, WATER POWER	_____
MUD	<u>626 (2amp)</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	_____
<u>Boyles SUP</u>	<u>250</u>
DAILY TOTAL	<u>4360</u>
FORWARD	<u>93 989</u>
ACCU. TOTAL	<u>97 349</u>
AFE	_____
SUPERVISOR	<u>Buddy Bowden</u>

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 20 DATE 2-26-86
 TOTAL RIG DAYS 20 TIME FROM SPUD 19d+10hr
 DEPTH @ 2400 HRS. 918 FOOTAGE DRLD. 59
 HRS. DRILLED 21 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 3 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 68 °F. DEVIATION SURVEYS: _____
 MRT @ 918' = 68°F

10 3/4" CSG. 35'
 7" CSG. 488
 4 1/2" CSG. 526 TEMPORARY
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>3</u>	<u>3.937</u>	<u>CHRIS</u>	<u>NC</u>	<u>651492</u>		<u>959</u>	<u>1NC</u>	<u>59</u>	<u>21</u>	<u>1000</u>	<u>7-700</u>	<u>T P G</u>
												<u>T P G</u>
												<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>2</u>				<u>25-35</u>	<u>50-100</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

CORED FROM 959 TO 918 FT
TRIP FOR BIT CHANGE @ 959 FT
TRIP FOR MIS. @ 959 FT
1 HR WASH & RE-DRILL FROM 900 TO 913 FT
2 HR RIG MAINT.

27 JUNE 86

OPERATION @ 0600 HOURS FOLLOWING DAY:
CORING @ 938 FT

INOPERATIVE EQUIPMENT EXPLAIN

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>2165</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>275</u>
FUEL, WATER POWER	_____
MUD	<u>216</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	_____
FISHING & DIRECTIONAL	<u>R</u>
OTHER	<u>BOYLESUP 250</u>
	<u>2 GEOLOGISTS 330</u>
DAILY TOTAL	<u>3536</u>
FORWARD	<u>97349</u>
ACCU. TOTAL	<u>100,885</u>
AFE	_____

Boyd Powell

THERMAL POWER COMPANY

WELL NO. CTG 1 AFE NO. _____
 REPORT NO. 21 DATE 27 JUNE 1986
 TOTAL RIG DAYS 21 TIME FROM SPUD 200 + 10 hrs LINER _____
 DEPTH @ 2400 HRS. 962 FOOTAGE DRLD. 44 TIE-BACK _____
 HRS. DRILLED 13 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 11 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10^{3/4}" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>3</u>	<u>3 3/4</u>	<u>3</u>	<u>1</u>	<u>651492</u>	<u>-</u>	<u>857</u>	<u>100</u>	<u>103</u>	<u>34</u>	<u>1000</u>	<u>440</u>	<u>I P G</u>
---	---	---	---	---	---	---	---	---	---	---	---	<u>I P G</u>
---	---	---	---	---	---	---	---	---	---	---	---	<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
---	---	---	---	<u>25-35</u>	<u>50-100</u>	---	---	---

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Coed 5.937" hole from 918 to 962'. No drilling fluid returns
Pulled out to grease core rods at 947'
Had to work back through two bridges at 600-620' and at 690-710'
At 962', banded in the inner core barrel; broke well line in recovery attempt. P.O.H.

OPERATION @ 0600 HOURS FOLLOWING DAY: _____

INOPERATIVE EQUIPT. EXPLAIN _____

COSTS	
TANGIBLES	_____
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	_____
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 7335</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>275</u>
FUEL, WATER POWER	_____
MUD	<u>150</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>Coreo sup. 250</u>
DAILY TOTAL	<u>\$ 3640</u>
FORWARD	<u>100,885</u>
ACCU. TOTAL	<u>104,525</u>
AFE	<u>DOT 4300-02</u>

LOWDEN
AD-28 June

THERMAL POWER COMPANY

WELL NO. CTG141 AFE NO. _____
 REPORT NO. 22 DATE 28 JUNE 86
 TOTAL RIG DAYS 22 TIME FROM SPUD 210+104MS
 DEPTH @ 2400 HRS. 1083 FOOTAGE DRLD. 171
 HRS. DRILLED 20 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 4 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H, D RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 Temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>5</u>	<u>3.937</u>			<u>651492</u>	<u>-</u>	<u>854</u>	<u>-</u>	<u>727</u>	<u>58</u>	<u>1000</u>	<u>400</u>	<u>I P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>25-50</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE MIN AVERAGE LG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored 3.937" hole from 962'
to 1083'. Greased rods
helped
No drilling fluid returns

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG \$ 4004
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 275
 FUEL, WATER POWER _____
 MUD 750
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER POYLES SIP 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
CORING AT 1123

DAILY TOTAL \$ 5409
 FORWARD 104,525
 ACCU. TOTAL 109,934
 AFE 82 4300-02

INOPERATIVE EQUIPT. EXPLAIN

Handwritten signature/initials

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 23 DATE 24 JUNE 1986
 TOTAL RIG DAYS 23 TIME FROM SPUD 22DT 10:45
 DEPTH @ 2400 HRS. 1245 FOOTAGE DRLD. 162
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.5 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

1074 CSG _____
 7" CSG. 35
 4.5" CSG. 488
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
3	3.937	UHPG	MC	151402	-	859	-	386	87	1000	480	T P G
												T P G
												T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
				5-15	25-50			

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Coed 3.937" hole from 1083'
to 1245'. No drilling fluid
returns. Obtaining 100% core
recovery.

Reported to D. DAVIS - BLM
Progress to objectives 30 JUNE 1986

OPERATION @ 0600 HOURS FOLLOWING DAY:
Ship for new core head at
1211' depth
 INOPERATIVE EQUIPT, EXPLAIN _____

COSTS

TANGIBLES	AMOUNT
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 5483</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>POYLES 500 250</u>
DAILY TOTAL	<u>26963</u>
FORWARD	<u>104,932</u>
ACCU TOTAL	<u>116,895</u>
AFE	<u>86 DOT 4300-02</u>
SUPERVISOR	<u>BORDEN</u>

NO 30 June

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 24 DATE 30 JUNE 1986
 TOTAL RIG DAYS 24 TIME FROM SPUD 230 + 10 HRS
 DEPTH @ 2400 HRS. 1316 FOOTAGE DRLD. 71
 HRS. DRILLED 15 HRS. TRIPPED 4 HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 3 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 PPG VIS. 45 SEC W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10⁴⁴ " CSG. 35
 7 " CSG. 488
 4.5 " CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT - SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
4	3.937"	CHCIS	MC 434930	-	1271	TNC	74		1000	400	T P G
							45	15			T P G
											T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Core bit no. 3 was 2/3 worn upon replacement at 1271' depth; had cored 412' total interval from 854' to 1271' in ± 85 hrs.
 Core bit no. 4 has same diameter 3.937". Had to wash at 660' on way in.
 Cored 1245 to 1316' without putting fluid returns. Obtained 100% core recovery.
 * BOWDEN thinks a water zone at 660', 660' and 680' is cause of both water and rock being into corehole and is also the chief lost circulation zone.

OPERATION @ 0600 HOURS FOLLOWING DAY:
 Coring at 1348' depth.

INOPERATIVE EQUIPT EXPLAIN

COSTS

TANGIBLES

CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE

LOCATION _____
 RIG MOVES _____
 RIG \$ 3528
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL _____
 FUEL, WATER POWER _____
 MUD 200
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER HOLES SUP 250
 ROD GREASE 650

DAILY TOTAL \$ 5258
 FORWARD \$ 116,895
 ACCU. TOTAL \$ 122,153
 AFE 86 001 4300.02

AD July 86
 BOWDEN

THERMAL POWER COMPANY

WELL NO. CTGilt 1 AFE NO. _____
 REPORT NO. 25 DATE 1 JULY 1986
 TOTAL RIG DAYS 25 TIME FROM SPUD 24D + 10HRS LINER _____
 DEPTH @ 2400 HRS. 1453' FOOTAGE DRLD. 137' TIE-BACK _____
 HRS. DRILLED 24 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 67 °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>4</u>	<u>3.937"</u>	<u>DHRIS</u>	<u>MC</u>	<u>454430</u>	<u>-</u>	<u>1271</u>	<u>-</u>	<u>182</u>	<u>39</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>5-15</u>	<u>25-50</u>	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LCA _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored 1316' - 1453'

100% core recovery

No dulling fluid returns

Liquid level in well bore
at 40-45' depth.

COSTS	
TANGIBLES	_____
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	_____
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4047</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>450</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>POHES 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Logging at 1491'
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL 6277
 FORWARD 17715.3
 ACCU TOTAL 178430
 AFE 86 D01 4300-02
 SUPERVISOR POWEN

DD-2 July 1986

THERMAL POWER COMPANY

WELL NO. CTGHT 1 AFE NO. _____
 REPORT NO. 26 DATE 2 JULY 1986
 TOTAL RIG DAYS 26 TIME FROM SPUD 25 DAYS
 DEPTH @ 2400 HRS. 1590 FOOTAGE DRLD. 137
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE. YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 61 °F. DEVIATION SURVEYS: FLUID LEVEL 15'
MRT AT 1600'

104" CSG. 35
 7" CSG. 408
 4.5" CSG. 526 temporary.

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>4</u>	<u>3.537</u>	<u>CHRS</u>	<u>MC</u>	<u>434930</u>		<u>1271</u>	<u>Tk</u>	<u>319</u>	<u>63</u>	<u>1000</u>	<u>400</u>	<u>I P G</u>
												<u>T P G</u>
												<u>T B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>3-7.5</u>	<u>100-150</u>			

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cond 1453' to 1590' in
24 hrs of coring operations
137/24 hrs = 5.7083 feet/hr
20" coring operating rate

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>84894</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>200</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>1045 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:

INOPERATIVE EQUIPMENT EXPLAIN:

DAILY TOTAL 16274
 FORWARD 128,430
 ACCU. TOTAL 144,704
 AFE 86201 4300-02 - BRIDEN

DD-3 July

THERMAL POWER COMPANY

WELL NO. CTH 1 AFE NO. _____
 REPORT NO. 27 DATE 2 JULY 1986
 TOTAL RIG DAYS 27 TIME FROM SPUD 262 + 10 = 272
 DEPTH @ 2400 HRS. 1690 FOOTAGE DRLD. 100'
 HRS. DRILLED 23 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: 1620' 12° N 39° E

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
4	5.937"	CHRS	MC	454930	-	1271	MC	419	86	1002	400	T P G
												T P G
												T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
I				5-15	150			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored from 1590 to 1690'
100% core recovery; no dulling
fluid returns
1 hr - survey at 1620'

COSTS

TANGIBLES

CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE

LOCATION _____
 RIG MOVES _____
 RIG \$ 3670
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 300
 FUEL, WATER POWER _____
 MUD 300
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER CORES 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Cruling at 1711'

DAILY TOTAL 5150
 FORWARD 134,704
 ACCU. TOTAL 139,854
 AFE 86-201-4300-02

W. J. Kelly
Kowben

INOPERATIVE EQUIPT EXPLAIN

THERMAL POWER COMPANY

WELL NO. CTG 14 1 AFE NO. _____
 REPORT NO. 20 DATE 4 JULY 1986
 TOTAL RIG DAYS 28 TIME FROM SPUD 7D + 10hrs
 DEPTH @ 2400 HRS. 1765 FOOTAGE DRLD. 24 75
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

104" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
4	3 9/16	UABBS	MC	454930		1 7/8	1 1/2	494	710	1000	400	P G
												I R G
												I R G
PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.				
1				545	150							

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cool from 1690 to 1765
Obtained 100% core recovery.
No drilling fluid returns!

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 2752</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>325</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>POYLES 250</u>
DAILY TOTAL	<u>4257</u>
FORWARD	<u>\$ 139,854</u>
ACCU. TOTAL	<u>144,111</u>
AFE #01	<u>4300-02</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Rip for new core head, after
reaching 1775' depth

INOPERATIVE EQUIPMENT _____

AD. 5 July 1986

THERMAL POWER COMPANY

WELL NO. CTG11 AFE NO. _____
 REPORT NO. 29 DATE 5 JULY 1986
 TOTAL RIG DAYS 29 TIME FROM SPUD 282+1000
 DEPTH @ 2400 HRS. 1775 FOOTAGE DRLD. 10'
 HRS. DRILLED 6 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 18 COOLING TOWER IN USE, YES NO
 MUD WT. 8.5 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

1054 - CSG. 35
 7.5 - CSG. 488
 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>4</u>	<u>3 1/2</u>	<u>CHRS</u>	<u>MC</u>	<u>454920</u>		<u>1771</u>	<u>1775</u>	<u>504</u>	<u>116</u>	<u>1000</u>	<u>480</u>	<u>I P G</u>
												<u>I B G</u>
												<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored only 10' 1765-1775
when mislatch to core barrel
occurred. Cring rate had
dropped. P.O.H. picked up
new core head. R.H.
Had to wash down from 560
to 963'

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 1117</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>250</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Crings out of hole. Core barrel
jammed at 1779'

DAILY TOTAL 2547
 FORWARD 14411
 ACCU TOTAL \$ 146658
 AFE 80.DOT 4300.02

THERMAL POWER COMPANY

WELL NO. CTOH 1 AFE NO. _____
 REPORT NO. 30 DATE 6 JULY 1986
 TOTAL RIG DAYS 20 TIME FROM SPUD 20+10 HRS
 DEPTH @ 2400 HRS. 1828 FOOTAGE DRLD. 53
 HRS. DRILLED 12 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 12 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 75 °F. DEVIATION SURVEYS: _____
MRT 1846

1074
 "CSG. 35
 "CSG. 488
 "CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>5</u>	<u>7.971</u>	<u>MC</u>	<u>652461</u>			<u>1775</u>		<u>53</u>	<u>12</u>	<u>1000</u>	<u>400</u>	<u>P G</u>
												<u>I B G</u>
												<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>150</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Core barrel not seated behind
collar at 1779' depth. PCH and
serviced entire casing assembly
RTH. Washed through bridge at
660-foot depth. No other
bridges or problems in return
to bottom at 1779'.
Cored 53' total interval from
1775 to 1828; obtained 100%
core recovery; no dulling
fluid returned

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 1945</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>750</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>333</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring below 1847 feet depth

DAILY TOTAL	<u>\$ 3375</u>
FORWARD	<u>146658</u>
ACCU. TOTAL	<u>\$ 150033</u>
AFE	_____

INOPERATIVE EQUIPT EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CT641 AFE NO. _____
 REPORT NO. 31 DATE 7 July 1980
 TOTAL RIG DAYS 31 TIME FROM SPUD 300 + 10 hrs
 DEPTH @ 2400 HRS. 1917 FOOTAGE DRLD. 89
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE. YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 75 °F. DEVIATION SURVEYS: _____
 MRT AT 1939

10³⁴ CSG. 35
 7⁴⁵ CSG. 488
 4⁵ CSG. 526 Temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>5</u>	<u>3.931"</u>	<u>CHRS</u>	<u>MC</u>	<u>65246</u>		<u>1775</u>	<u>1742</u>	<u>142</u>	<u>36</u>	<u>1000</u>	<u>4007</u>	<u>P G</u>
												<u>I R G</u>
												<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>200</u>			

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LGA _____
 STEAM ENTRIES: DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored 89' from 1828 to 1917'
Obtained 100% core recovery
No drilling fluid returns
D. WALTERS Ex Hog Switch
on location July 7th
installed #25 detection system
trained two crews on HRS
safety and detection system

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 3260</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>200</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coming at 1939'
 INOPERATIVE EQUIPT EXPLAIN _____

DAILY TOTAL 4646
 FORWARD 130,233
 ACCU. TOTAL 134,679
 AFE 86 601-4300-02

Handwritten signature and date:
 8 July
 Bowen

THERMAL POWER COMPANY

WELL NO. CTG H-1 AFE NO. _____
 REPORT NO. 32 DATE 8 JULY 1986
 TOTAL RIG DAYS 32 TIME FROM SPUD 310 + 10 hrs
 DEPTH @ 2400 HRS. 1998 FOOTAGE DRLD. 81
 HRS. DRILLED 24 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.5 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 1/4 CSG. 35'
 " CSG. _____
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>5</u>	<u>5.977</u>	<u>CLARIS</u>	<u>MC</u>	<u>652461</u>		<u>1725</u>	<u>1723</u>	<u>223</u>	<u>60</u>	<u>1000</u>	<u>400</u>	T P G
												T P G
												T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>200</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE MIN. AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored from 1917 to 1998
100% core recovery; no drilling
fluid returns
All training on H₂S safety
and detection completed with
all these drilling crews

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES 8 2972
 RIG _____
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 300
 FUEL, WATER POWER _____
 MUD 300
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Crung at 2016

DAILY TOTAL 4452
 FORWARD 154619
 ACCU. TOTAL 159131
 AFE 86 001-4300-02

D. J. G. Borden

INOPERATIVE EQUIPT. EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTG 1 AFE NO. _____
 REPORT NO. 33 DATE 9 July 1980
 TOTAL RIG DAYS 33 TIME FROM SPUD 20 + 10 hrs
 DEPTH @ 2400 HRS. 2083 FOOTAGE DRLD. 85
 HRS. DRILLED 24 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 75 °F. DEVIATION SURVEYS: _____
 *MCT#20751

10 1/4" CSG. 35
 7" CSG. 488
 4 1/2" CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
5	3.937	WILCOX	WIC	05 2461		1775	1784	304	84	1000	480	T B G
												T B G
												T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1				5-15	200			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cord 3.937" hole from 1998
to 2083' Obtained 100% recovery.
No drilling fluid returns
H₂S detection equipment NOT
OPERATING. Some minor
electric outage. Will repair
or replace and have it
functioning by 2500' depth

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	\$ 3557
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	300
FUEL, WATER POWER	_____
MUD	250
SUPERVISION & LABOR	300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	330
FISHING & DIRECTIONAL	_____
OTHER	\$ 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Loss at 2103'. Pump pressure
fell to zero at 2102'. Fluid level
fell to 4.150'.
 UNOPERATIVE EQUIPMENT EXPLAIN _____

DAILY TOTAL \$ 4987
 FORWARD 157,131
 ACCU. TOTAL \$ 162,112
 AFE # 26201-4300-02

D. J. O'Quay
Bohden

THERMAL POWER COMPANY

WELL NO. CTG4 AFE NO. _____
 REPORT NO. 34 DATE 10 July 1986
 TOTAL RIG DAYS 34 TIME FROM SPUD 230 + 10 hrs
 DEPTH @ 2400 HRS. 2181 FOOTAGE DRLD. 98
 HRS. DRILLED 24 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH _____ CHL _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 75 °F. DEVIATION SURVEYS: _____
MCT 2130

10²⁴ CSG
 " CSG. 35
 7.5 CSG. 488
 " CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT - SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
5	2.957	CHES	MIL	2461	175	100	406	108	1000	400	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>5-15</u>	<u>150</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Crud 98' from 2083 to 2181'
Recovered 100% ; NO DRUG FLOWID
Allowed

COSTS	
TANGIBLES	_____
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	_____
LOCATION	_____
RIG MOVES	_____
RIG	<u>4106</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Crud at 2201' some
no chatter.

DAILY TOTAL	<u>5636</u>
FORWARD	<u>162112</u>
ACCU. TOTAL	<u>161,748</u>
AFE	<u>80 DOT 4,800 - 02</u>

INOPERATIVE EQUIP'T. EXPLAIN _____

DD 11 July
Bowden

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. 1034 CSG. 35'
 REPORT NO. 35 DATE 11 JULY 1986 CSG. 488
 TOTAL RIG DAYS 35 TIME FROM SPUD 540 + 10 hrs CSG. 526 temporary
 DEPTH @ 2400 HRS. 2286 FOOTAGE DRLD. 105 LINER _____
 HRS. DRILLED 24 HRS. TRIPPED _____ TIE-BACK _____
 HRS. OTHER _____ COOLING TOWER IN USE. YES NO RIG NO. _____
 MUD WT. 8.9 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 69 °F. DEVIATION SURVEYS: _____
MPT at 2243'

3.937"

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>5</u>	<u>CHRIS</u>	<u>MC</u>	<u>65</u>	<u>461</u>		<u>175</u>	<u>INC</u>	<u>511</u>	<u>132</u>	<u>100</u>	<u>400</u>	<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>I</u>				<u>575</u>	<u>150</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cut from 2181 to 2286'

Reamed 105' = 100%

No fluid returns

COSTS

TANGIBLES

CASING _____

VALVES _____

FLANGES _____

OTHER _____

INTANGIBLE

LOCATION _____

RIG MOVES _____

RIG \$ 4400

ABATEMENT _____

BITS _____

DRILL EQUIP. MAIN. _____

DRILL. EQUIP. RENTAL 300

FUEL, WATER POWER _____

MUD 300

SUPERVISION & LABOR 300

CEMENT SERVICES _____

TRANSPORTATION _____

LOGGING SERVICES 330

FISHING & DIRECTIONAL _____

OTHER PAVLES 250

OPERATION @ 0600 HOURS FOLLOWING DAY:

Coming at 2306'

INOPERATIVE EQUIPT., EXPLAIN _____

DAILY TOTAL 5880
 FORWARD 167,745
 ACCU. TOTAL 173,628
 AFE 86 DOT 4300 02
 SUPERVISOR _____

DD 12 July

Bowden

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 36 DATE 12 July 1986
 TOTAL RIG DAYS 36 TIME FROM SPUD 5SD + 10MS
 DEPTH @ 2400 HRS. 2336 FOOTAGE DRLD. 50
 HRS. DRILLED 8 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 76 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____
None

10³⁴ CSG. 35'
 7 CSG. 488
 45 CSG. 326 Temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>5</u>	<u>3.937</u>	<u>CHLGS</u>	<u>MC</u>	<u>652461</u>		<u>1775</u>	<u>2336</u>	<u>361</u>	<u>140</u>	<u>1000</u>	<u>400</u>	<u>1/2 worn</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>150</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cred from 2286 to 2336 *
When wireline parted pulling
core barrel off bottom
POH severed core barrel; ran
new diamond core bit; drilled 1000
RTH cleaned and washed from
880 to 1000'
* full core recovery; no drilling
fluid returns

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 2095</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>PAKES 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Washing below 1800'

DAILY TOTAL	<u>3575</u>
FORWARD	<u>\$ 173,628</u>
ACCU. TOTAL	<u>\$ 177,203</u>
AFE	<u>86001 4300 02</u>

DO-13 July
Bowden

THERMAL POWER COMPANY

WELL NO. CT641 AFE NO. _____
 REPORT NO. 37 DATE 13 May 1980
 TOTAL RIG DAYS 27 TIME FROM SPUD _____
 DEPTH @ 2400 HRS. 2368 FOOTAGE DRLD. 32
 HRS. DRILLED 9 HRS. TRIPPED _____
 HRS. OTHER 15 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10³⁴ " CSG. 35
 7 " CSG. 488
 7.5 " CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>1</u>	<u>3.937</u>	<u>PARIS</u>	<u>MC</u>	<u>1022460</u>		<u>2336</u>		<u>32</u>	<u>9</u>	<u>1000</u>	<u>400</u>	T B G
												T B G
												T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>150</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Washed from 1000' to 2336' TD
No significant debris on bottom

Core from 2336 to 2368'

Full core recovery obtained;
no drilling fluid returns

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 1340</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>PAVLES 750</u>
	<u>1" WATER LINE 500</u>
DAILY TOTAL	<u>3370</u>
FORWARD	<u>177,203</u>
ACCU. TOTAL	<u>\$ 180,573</u>
AFE	<u>86,201 4,200 02</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coming at 2385'

INOPERATIVE EQUIP'T. EXPLAIN _____

DDA July
 BOWDEN

THERMAL POWER COMPANY

WELL NO. CTGHT 1 AFE NO. _____
 REPORT NO. 38 DATE 14 July 1986
 TOTAL RIG DAYS 38 TIME FROM SPUD 210+10HRS
 DEPTH @ 2400 HRS. 2466 FOOTAGE DRLD. 98'
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 85 °F. DEVIATION SURVEYS: _____
MKT AT 2395

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>6</u>	<u>3.931</u>	<u>CRG</u>	<u>HL</u>	<u>652460</u>		<u>2336</u>	<u>TAC</u>	<u>130</u>	<u>33</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
												<u>T P G</u>
												<u>T R G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>T</u>				<u>5-15</u>	<u>150</u>			

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE (HIGH AVERAGE LOG) _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored from 2368 to 2466'
100% core recovery; no drilling
fluid returns

Had cored to 2476'. Core
band jammed in core rods
at 2500' depth upon
retrieval. broke wellline
again. PCH

OPERATION @ 0600 HOURS FOLLOWING DAY:

INOPERATIVE EQUIPT EXPLAIN

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4106</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>BOYLES 250</u>
DAILY TOTAL	<u>5636</u>
FORWARD	<u>180,373</u>
ACCU TOTAL	<u>186,209</u>
AFE	<u>06/20/86 4300 02</u>

DD 15 July
Bowden

THERMAL POWER COMPANY

WELL NO. CTG4-1 AFE NO. _____
 REPORT NO. 39 DATE 7/15/86
 TOTAL RIG DAYS 39 TIME FROM SPUD 38D+10hr
 DEPTH @ 2400 HRS. 2535 FOOTAGE DRLD. 69
 HRS. DRILLED 19 HRS. TRIPPED 5 hrs
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35'
 7" CSG. 488
 4.5" CSG. 526 temporary

LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
#6	3.737	CH	NC	652460		2336		199	52	1000	400	I B G
												I B G
												I B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
#1				5-15	150			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LOG
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
5 hrs on trip. Run in hole with
wireline to retrieve core at 2476
Pulled out of hole with core in a
barrel, hung up inside core tubing.
Pulled wireline into, pulled
out of hole, 17 stands, retrieved
core barrel, laid down 1 joint
of bad core tubing. Run into
hole at 2476. Washed out
bridge from 1776 to 1780.
Washed out 5' of tell on
bottom. 19 hrs coring from
2466' to 2535'. No mud
returns at 100% core recovery.

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 2562'

INOPERATIVE EQUIP'T. EXPLAIN _____

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER (truck) Mercant	_____
INTANGIBLE	D+R cap - \$240
LOCATION	_____
RIG MOVES	_____
RIG	3046
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	\$300
FUEL, WATER POWER	_____
MUD	\$250
SUPERVISION & LABOR	\$300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	\$250
FISHING & Boyles sup	_____
DIRECTIONAL	_____
OTHER (Unload/Load/mud)	\$750
2 G. lifts =	\$330
DAILY TOTAL	\$5566
FORWARD	\$4850?
ACCU. TOTAL	\$19175
AFE	_____

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 40 DATE 7-16-86
 TOTAL RIG DAYS 40 TIME FROM SPUD 29+10h
 DEPTH @ 2400 HRS. 2594 FOOTAGE DRLD. 59
 HRS. DRILLED 16 HRS. TRIPPED _____
 HRS. OTHER 8 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____
MRT @ 2584' = 99°F

1034 CSG. 35
 CSG. _____
7 " CSG. 488
4.5 " CSG. 526 Temp
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>6</u>	<u>3.475</u>	<u>Chris</u>	<u>NL</u>	<u>652460</u>	<u>-</u>	<u>2386</u>	<u>-</u>	<u>258</u>	<u>68</u>	<u>1000</u>	<u>400</u>	<u>I P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>515</u>	<u>150</u>	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Core 2535 - 2594', no mud returns,
100% core recovery
RIH w/ wireline to retrieve core @
2584', core barrel stuck on way out
at 400', pulled wireline in two, pulled
10 stands, retrieved core barrel,
laid down 1 bad joint of core tubing,
installed new wireline. RIH 10 stands to
2584', continued to core to 2544'.

OPERATION @ 0600 HOURS FOLLOWING DAY:
Logging @ 2613'

COSTS	
TANGIBLES	_____
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	_____
LOCATION	_____
RIG MOVES	_____
RIG	<u>2770</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	_____
<u>Boyles SUP</u>	<u>250</u>
DAILY TOTAL	<u>4300</u>
FORWARD	<u>19175</u>
ACCU. TOTAL	<u>196075</u>
AFE	<u>2613'</u>

JLI
17 July '86

THERMAL POWER COMPANY

WELL NO. CTG 41 AFF NO. _____
 REPORT NO. 41 DATE 17 July 86
 TOTAL RIG DAYS 41 TIME FROM SPUD 400 + 10 hrs
 DEPTH @ 2400 HRS. 2708 FOOTAGE DRLD. 114'
 HRS. DRILLED 23 1/2 HRS. TRIPPED _____
 HRS. OTHER 1/2 COOLING TOWER IN USE, YES NO
 MUD WT. 8.9 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 101 °F. DEVIATION SURVEYS: _____
d 2663' MKTS Water level 85'

10" CSG. 35
 " CSG. _____
 7.5" CSG. 488
 " CSG. 526 temp

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>6</u>	<u>3 1/2</u>	<u>CMRS</u>	<u>MC</u>	<u>652160</u>		<u>7336</u>	<u>INC</u>	<u>372</u>	<u>9 1/2</u>	<u>1000</u>	<u>400</u>	<u>P G</u>
												<u>I B G</u>
												<u>I B G</u>

PUMP LINER STROKE SPM GPM PSI TOTAL GPM NOZZLE VEL. ANNULUS VEL.
1 _____ 5-15 175 _____ _____ _____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE WELL AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored from 2594 to 2708'
Recovered 114' or 100% cores
No drilling fluid returns.

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES 5
 RIG \$ 5348
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 300
 FUEL, WATER POWER _____
 MUD 350
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Crung at 2733'

INOPERATIVE EQUIPT. EXPLAIN _____

DAILY TOTAL 6878
 FORWARD 196.275
 ACCU. TOTAL \$ 702.953
 AFE 86 DOT 4300-02

10.18 July
Bowden

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 42 DATE 18 July 86
 TOTAL RIG DAYS 42 TIME FROM SPUD 42+10hrs
 DEPTH @ 2400 HRS. 2809 FOOTAGE DRLD. 101
 HRS. DRILLED 24 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 103 °F. DEVIATION SURVEYS: _____
 AT 2802'

10^{3/4}" CSG. 35
 7^{1/2}" CSG. 488
 " CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>6</u>	<u>5.937</u>	<u>CHCIS</u>	<u>MC</u>	<u>162460</u>		<u>2336</u>	<u>Inc</u>	<u>473</u>	<u>115 1/2</u>	<u>1000</u>	<u>400</u>	<u>T R G</u>
												<u>T R G</u>
												<u>T R G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>225</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored 101', from 2708' to 2809'
Got 100% core recovery; no drilling
fluid returns

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4681</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 2831'. Some rod chatter

DAILY TOTAL 6211
 FORWARD 202953
 ACCU. TOTAL \$ 209,164
 AFE 86-001-4300-02

Allen R. Bowen
BOWEN

INOPERATIVE EQUIPT. EXPLAIN _____

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 43 DATE 19 JULY 1986
 TOTAL RIG DAYS 43 TIME FROM SPUD 420 + 10 hrs
 DEPTH @ 2400 HRS. 2912' FOOTAGE DRLD. 103
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.7 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS. _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 114 °F. DEVIATION SURVEYS: _____
MRT AT 2903'

10 3/4" CSG _____ 35
 7" CSG. 488
 4.5" CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>6</u>	<u>3.937"</u>	<u>CHRIS</u>	<u>MR.</u>	<u>654260</u>		<u>2336'</u>	<u>-</u>	<u>576</u>	<u>134</u>	<u>100</u>	<u>400</u>	<u>I P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>5-15</u>	<u>300</u>	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored from 2809 to 2912'
Recovered 100% cores from the
103-foot interval
No drilling fluid returns

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4774</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>BOYLES 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 2933' No rod chatter.

DAILY TOTAL	<u>\$ 6304</u>
FORWARD	<u>\$ 209,164</u>
ACCU. TOTAL	<u>215,468</u>
AFE #	<u>86-0014300-02</u>

DD 20 July
 Bowden

THERMAL POWER COMPANY

CSG 10 ³/₄ set @ 35'
 " CSG. 7" Act - 488'
 " CSG.

WELL NO. CTGH#1 AFE NO. _____
 REPORT NO. 44 DATE 7/20/86
 TOTAL RIG DAYS 44 TIME FROM SPUD 43 D + 10 hrs
 DEPTH @ 2400 HRS. 2980 FOOTAGE DRLD. 68'
 HRS. DRILLED 15 HRS. TRIPPED _____
 HRS. OTHER 9 COOLING TOWER IN USE. YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS. _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: MRT 2942, 112° and level @ 63'

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT FT.	HRS.	WT.	RPM	COND
<u>6</u>	<u>3 7/8</u>	<u>CHRISTEN</u>	<u>NC</u>	<u>652460</u>		<u>2336</u>	<u>Incomp 644</u>	<u>144.5</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
											<u>T P G</u>
											<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>300</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cores from 2912 to 2980, No mud
Returns. Core recovery 100%. 1 hr
MRT Seismic and fluid level
8 hrs drilling w/ TML core at bottom.
Get it out of the rods.
lost 4 feet of core out of
inner barrel

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 2993'

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>3152</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	_____
FISHING & DIRECTIONAL	_____
OTHER	<u>supervisor - 250</u> <u>2-Geologists - 330</u>
DAILY TOTAL	<u>4682</u>
FORWARD	<u>215,468</u>
ACCU. TOTAL	<u>220150</u>
AFE	_____

THERMAL POWER COMPANY

10³/₄" - 35'
 " CSG. _____
 " CSG. _____
 " CSG. 7" - 488
 " CSG. cont to surf.

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 45 DATE 7-21-86
 TOTAL RIG DAYS 4.5 TIME FROM SPUD 44+10hr.
 DEPTH @ 2400 HRS. 3069 FOOTAGE DRLD. 89
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE. YES NO
 MUD WT. 9.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS. _____ % SAND. _____ % SOLIDS. _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR. _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: 3059' - 119° F M R T

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>6</u>	<u>3.937</u>	<u>Chr.</u>	<u>NC</u>	<u>652400</u>	<u>—</u>	<u>2336</u>	<u>inc</u>	<u>733</u>	<u>178.5</u>	<u>1000</u>	<u>400</u>	<u>I P G</u>
												<u>I P G</u>
												<u>I P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>I</u>				<u>5-15</u>	<u>250</u>			

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE MIN AVERAGE ACC. _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored 2980' - 3069'
no mud returns
100% recovery

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>4501</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300 / Boyle Bros 250</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	_____
FISHING & DIRECTIONAL	_____
OTHER	<u>geologists - 330</u>
DAILY TOTAL	<u>6031</u>
FORWARD	<u>220,150</u>
ACCU. TOTAL	<u>226,181</u>
AFE	_____

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring @ 3089

(R.K.B.)
 (224)

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 46 DATE 7-22-86
 TOTAL RIG DAYS 46 TIME FROM SPUD 45+10hr
 DEPTH @ 2400 HRS. 3173 FOOTAGE DRLD. 704
 HRS. DRILLED 24 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: MRT @ 3159 - 124°

CSG _____
 " CSG. _____
 " CSG. _____
 " CSG. _____

LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>6</u>	<u>3.937</u>	<u>Chr</u>	<u>NC</u>	<u>652460</u>		<u>2336</u>	<u>line</u>	<u>837</u>	<u>52.5</u>	<u>1000</u>	<u>400</u>	<u>I P G</u>
												<u>I P G</u>
												<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>I</u>				<u>575</u>	<u>17.5</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
water level 80 feet
Cored 3069-3173'
No mud returns
100% recovery

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG 5388
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 300
 FUEL, WATER POWER _____
 MUD 350
 SUPERVISION & LABOR Boyle Bros 250
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES _____
 FISHING & DIRECTIONAL _____
 OTHER Geologists 330

DAILY TOTAL 10918
 FORWARD 226,181
 ACCU. TOTAL 233,099 (D.D.H.)
 AFE _____

OPERATION @ 0600 HOURS FOLLOWING DAY:

Coring @ 3189

INOPERATIVE EQUIPMENT _____

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 47 DATE 23 July 1986
 TOTAL RIG DAYS 41 TIME FROM SPUD 400 + 10 hrs
 DEPTH @ 2400 HRS. 3269 FOOTAGE DRLD. 96
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 131 °F. DEVIATION SURVEYS: _____
MRT AT 3259

10 3/4" CSG. 35'
 7" CSG. 488
 4 1/2" CSG. 526 temporary
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>10</u>	<u>5.937</u>	<u>CHRS</u>	<u>MC</u>	<u>162460</u>		<u>2336</u>	<u>TNC</u>	<u>933</u>	<u>226</u>	<u>1000</u>	<u>480</u>	<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>I</u>				<u>5-15</u>	<u>185</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE WELL AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cord from 3173 to 3269'

Got 100% core recovery; no

drilling fluid returns

Liquid level in ~~at~~ borehole

at 60' depth

COSTS

TANGIBLES

CASING _____

VALVES _____

FLANGES _____

OTHER _____

INTANGIBLE

LOCATION _____

RIG MOVES _____

RIG _____ \$ 4973

ABATEMENT _____

BITS _____

DRILL EQUIP. MAIN. _____

DRILL. EQUIP. RENTAL 300

FUEL, WATER POWER _____

MUD _____ 350

SUPERVISION & LABOR _____

CEMENT SERVICES _____

TRANSPORTATION _____

LOGGING SERVICES 330

FISHING & DIRECTIONAL _____

OTHER BOXES 250

OPERATION @ 0600 HOURS FOLLOWING DAY:

Coming at 3290'

DAILY TOTAL 6503
 FORWARD 233,099
 ACCU. TOTAL 239,602
 AFE 86,201 4,200 02

Handwritten signature and notes:
 [Signature]
 [Notes]

INTERNATIONAL OIL WORK COMPANY

WELL NO. CTG-1 **AFE NO.** _____
REPORT NO. 48 **DATE** 24 July 1986
TOTAL RIG DAYS 48 **TIME FROM SPUD** 470 + 10425
DEPTH @ 2400 HRS. 3355 **FOOTAGE DRLD.** 86
HRS. DRILLED 22 1/2 **HRS. TRIPPED** _____
HRS. OTHER 1 1/2 **COOLING TOWER IN USE,** YES NO
MUD WT. 8.4 **VIS.** 45 **W.L.** 12 **CK.** 1/32 **PH** 6.5 **CHL** 1000 **YP** 10
P.V. 15 **GELS** 4 **% SAND** 0 **% SOLIDS** 5 **% LOST CIRC. MTL.** _____
GALVONIC PROBE _____ **CORRATOR** _____ **SULPHIDE** _____ **OXY.** _____ **AIR-H₂O RATIO** 1
FORM. DRLD. _____ **FLOW LINE TEMP.** _____ **°F.** **SUCTION TEMP.** _____ **°F.**
MAX. TEMP. 176 **°F.** **DEVIATION SURVEYS:** _____
3350

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary
LINER _____
TIE-BACK _____
HRS. REPAIR _____ **RIG NO.** _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
10	3.937	URS	MC	652460		2336	TUC	7019	249	1000	400	T R G
												T R G
												T R G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1				5-75	150			

AIR COMP. NO. _____ **CFM.** _____ **PSI** _____ **TEMP. °F** _____ **CHEM.** _____ **RATIO** 1 **RATE** _____
DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ **TOTAL PICKUP WT.** _____ **ROTARY TORQUE** _____ HIGH AVERAGE LOG
STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored from 3269 to 3355 feet
 Obtained 100% core recovery;
 no drilling fluid returns
 Water level in cored hole is 80 feet

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	\$ 4543
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	200
FUEL, WATER POWER	_____
MUD	300
SUPERVISION & LABOR	300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	330
FISHING & DIRECTIONAL	_____
OTHER	Boyles 250
DAILY TOTAL	6023
FORWARD	759,602
ACCU. TOTAL	\$ 745,625
AFE	86.001 4300.02

OPERATION @ 0600 HOURS FOLLOWING DAY:
 Running at 3382 feet

DD-257
 BOWEN

INTERNATIONAL DRILLING COMPANY

WELL NO. CT 1041 AFE NO. _____
 REPORT NO. 49 DATE 25 JULY 1980
 TOTAL RIG DAYS 49 TIME FROM SPUD 48 D + 12 hrs
 DEPTH @ 2400 HRS. 3461 FOOTAGE DRLD. 106
 HRS. DRILLED 24 HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.7 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 127 °F. DEVIATION SURVEYS: _____
 MRT 3451

10^{3/4}" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>10</u>	<u>5.937</u>	<u>CHRG</u>	<u>MC</u>	<u>152460</u>		<u>2336</u>	<u>1126</u>	<u>1126</u>	<u>273</u>	<u>700</u>		<u>I R G</u>
												<u>I R G</u>
												<u>I R G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>575</u>		<u>200</u>		

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Drill 106 feet, from 3355 to 3461
Got 100% core recovery; no mud returns

Brookline water level at 70 feet.

OPERATION @ 0600 HOURS FOLLOWING DAY:
Drill below 3483 feet

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 5492</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>
DAILY TOTAL	<u>6912</u>
FORWARD	<u>\$245,628</u>
ACCU. TOTAL	<u>252,540</u>
AFE	<u>86401 4300 02</u>

RD. 26 July
 BOWDEN

HERMAL POWER COMPANY

WELL NO. CTG 4-1 AFE NO. _____
 REPORT NO. 50 DATE 26 JULY 1986
 TOTAL RIG DAYS 50 TIME FROM SPUD 4:10 P.M.
 DEPTH @ 2400 HRS. 3562 FOOTAGE DRLD. 101
 HRS. DRILLED 13 1/2 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 12 COOLING TOWER IN USE, YES NO
 MUD WT. 8.8 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 131 °F. DEVIATION SURVEYS: _____
MCI 3542

10 3/4" CSG. 35
 7" CSG. 488
 4 1/2" CSG. 576 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>10</u>	<u>3.831</u>	<u>PHRS</u>	<u>TC</u>	<u>62460</u>		<u>2336</u>	<u>1721</u>		<u>286</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>575</u>	<u>350</u>	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Coiled from 3461 to 3562 feet
Got 10% core recovery
nodulating fluid returns

Coiled water level at 10 feet

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coiling at 3582 feet

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 5723</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>BOXES 250</u>
DAILY TOTAL	<u>7203</u>
FORWARD	<u>4 257,397</u>
ACCU. TOTAL	<u>799,800</u>
AFE	<u>80201 4300 02</u>

DO 27 feet
Graded

INTERNATIONAL WORKER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 51 DATE 21 NOV 1980
 TOTAL RIG DAYS 51 TIME FROM SPUD 90+10 hrs
 DEPTH @ 2400 HRS. 3641 FOOTAGE DRLD. 79
 HRS. DRILLED 21 HRS. TRIPPED _____
 HRS. OTHER 3 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 4 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 138 °F. DEVIATION SURVEYS: 3300' 3/4" N16:W
 . MRT AT 3641

1074" CSG
 7.5" CSG. 488
 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>6</u>	<u>3.937</u>	<u>CHRS</u>	<u>MC</u>	<u>652160</u>	<u>-</u>	<u>7336</u>	<u>-</u>	<u>1306</u>	<u>217.5</u>	<u>100</u>	<u>400</u>	<u>P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I B G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>5-75</u>	<u>350</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Drilled 79 feet, from 3562 to
3641 feet. 100% core recovery.
No mud returns
Conclude water level at 90 feet

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coiling at 3661 feet

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4763</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>350</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>VALVES 250</u>
DAILY TOTAL	<u>9 6243</u>
FORWARD	<u>254,800</u>
ACCU. TOTAL	<u>266,043</u>
AFE DD 1	<u>4,200.02</u>

NO. 28 Jan
 Borden

THERMAL POWER COMPANY

WELL NO. CTG 1 AFE NO. _____
 REPORT NO. 52 DATE 28 July 1980
 TOTAL RIG DAYS 32 TIME FROM SPUD 510 + 10 hrs
 DEPTH @ 2400 HRS. 3721 FOOTAGE DRLD. 80
 HRS. DRILLED 23 HRS. TRIPPED _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 137 °F. DEVIATION SURVEYS: _____
 MRT AT 3711

10^{3/4}" CSG. 35
 7" CSG. 488
 4.5" CSG. 320 temporary
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>2</u>	<u>5.937</u>	<u>CHRS</u>	<u>MC</u>	<u>652460</u>		<u>2336</u>	<u>3721</u>	<u>1385</u>	<u>370 1/2</u>	<u>1000</u>	<u>400</u>	<u>1/3 when</u>
												T B G
												T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>350</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE ^{HIGH AVERAGE LEN} _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Crud 80 feet, from 3641 to 3721 feet.
Got 100% core recovery; no
drilling fluid returns

Water level in crot hole is 65 feet

OPERATION @ 0600 HOURS FOLLOWING DAY:
Sup for new diamond corehead,
and new core barrel at 3721

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4821</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>380</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>ROCKED 250</u>
DAILY TOTAL	<u>6301</u>
FORWARD	<u>266,043</u>
ACCU. TOTAL	<u>\$ 272,344</u>
AFE	<u>86,501 4300 02</u>

D. J. ...
 29 July
 BOWDEN

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 53 DATE 20 JULY 1980
 TOTAL RIG DAYS 53 TIME FROM SPUD 520+10 HRS
 DEPTH @ 2400 HRS. 3723 FOOTAGE DRLD. 2
 HRS. DRILLED 1 HRS. TRIPPED _____
 HRS. OTHER 23 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. NONE °F. DEVIATION SURVEYS: _____

10^{3/4} CSG. 35
 " CSG. _____
 4-5" CSG. 488
 " CSG. 526 Temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>7</u>	<u>3.937</u>	<u>CHRS</u>	<u>MC</u>	<u>652958</u>		<u>3721</u>		<u>2</u>	<u>1</u>	<u>1000</u>	<u>400</u>	<u>I P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>I P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>5-15</u>	<u>550</u>	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored only 2' (3721-23) with
new 3.937" corehead
Ran new corehead - bit no. 7,
corehead, latch couple and
runner shell
RTH Washed 800 to 965' interval
and chased casing to bottom
Worked BOP equipment

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 1982</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>TOOLS 250</u>
DAILY TOTAL	<u>3462</u>
FORWARD	<u>\$ 272,304</u>
ACCU. TOTAL	<u>\$ 275,806</u>
AFE 86-101	<u>4300 02</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 3743'

THERMAL POWER COMPANY

WELL NO. CTGHI AFE NO. _____
 REPORT NO. 54 DATE 30 July 1986
 TOTAL RIG DAYS 54 TIME FROM SPUDS 53.0 FLOHRS
 DEPTH @ 2400 HRS. 3811 FOOTAGE DRLD. 88
 HRS. DRILLED 23 1/2 HRS. TRIPPED _____
 HRS. OTHER 12 COOLING TOWER IN USE. YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX TEMP. 146 °F. DEVIATION SURVEYS: _____
 MTL AT 3763'

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>7</u>	<u>3 9/16"</u>	<u>CHRS</u>	<u>MP</u>	<u>105 2958</u>		<u>3721</u>	<u>TWC</u>	<u>90</u>	<u>24 1/2</u>	<u>1000</u>	<u>400</u>	<u>I P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>I</u>				<u>5-15</u>	<u>350</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored from 3723 to 3811 feet
Obtained 100% core recovery;
no drilling fluid returns

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4621</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>VALVES 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 3831 feet

DAILY TOTAL 6101
 FORWARD 8275.806
 ACCU. TOTAL 281,907
 AFE 86001 4300.02

NO. 31 for
 POWER

THERMAL POWER COMPANY

WELL NO. CTG141 AFE NO. _____
 REPORT NO. 55 DATE 31 JULY 1986
 TOTAL RIG DAYS 55 TIME FROM SPUD 540 HOURS
 DEPTH @ 2400 HRS. 3901 FOOTAGE DRLD. 90
 HRS. DRILLED 23 HRS. TRIPPED _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 155 °F. DEVIATION SURVEYS: _____
MRT AT 3891'

10^{3/4}" CSG. 35
 7^{1/2}" CSG. 488
 4^{1/2}" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>7</u>	<u>3.951</u>	<u>CHRIS</u>	<u>MC</u>	<u>652958</u>		<u>3721</u>	<u>INC</u>	<u>180</u>	<u>47.5</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
												<u>T P G</u>
												<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>								

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LGH
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Core 90 feet from 3811 to 3901 feet

Got 100% core recovery; no

drilling fluid returns

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4787</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>BYE 750</u>
DAILY TOTAL	<u>\$ 6267</u>
FORWARD	<u>781,907</u>
ACCU. TOTAL	<u>788,174</u>
AFE	<u>80 801 4300-02</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:

Drung at 3921'

Drilling Supervisor

INTERNAL POWER COMPANY

WELL NO. CTGH AFE NO. _____
 REPORT NO. 510 DATE 1 AUG 86
 TOTAL RIG DAYS 56 TIME FROM SPUD SSD + 10 HRS
 DEPTH @ 2400 HRS. 3982 FOOTAGE DRLD. 81
 HRS. DRILLED 23 HRS. TRIPPED _____ MRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 162 °F. DEVIATION SURVEYS: _____
MRT AT 3972

1034 CSG 35
 7 CSG 488
 45 CSG 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
1	3 3/4"	CHRS	MC	652958	-	3721	-	761	70.5	1000	4000	P G
	3.937"											I P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1				5-15	350			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE WELL AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Coed 81 feet from 3901 to 3982 feet
Recovered 100%; no drilling fluid
Returns
Water level in corehole at 75'
below surface

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>9 4880</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>APPLS 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Crang at 4002 feet

DAILY TOTAL \$ 10360
 FORWARD 288174
 ACCU. TOTAL 294,534
 AFE 86101 4300 02

PD. Wang
 LOWERY

THERMAL POWER COMPANY

WELL NO. CTG4 1 AFE NO. _____
 REPORT NO. 57 DATE 2 AUG 86
 TOTAL RIG DAYS 57 TIME FROM SPUD 802 TURNS
 DEPTH @ 2400 HRS. 4062 FOOTAGE DRLD. 80
 HRS. DRILLED 23 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 48 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 167 °F. DEVIATION SURVEYS: _____
NRT AT 4052

10³⁴ CSG. 35
 7⁴⁵ CSG. 488
 4⁵ CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>7</u>	<u>3.937</u>	<u>CRG65</u>	<u>HP</u>	<u>1052058</u>	<u>-</u>	<u>374</u>	<u>-</u>	<u>341</u>	<u>93</u>	<u>1000</u>	<u>4000</u>	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>575</u>	<u>350</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO _____ RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored 80 feet, from 3982 to 4062 feet
Got 100% core recovery. No mud
returns
Water level at 70 feet below
surface

COSTS	
TANGIBLES	_____
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	_____
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 5379</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>TOOLS 250</u>
DAILY TOTAL	<u>\$ 6859</u>
FORWARD	<u>294,534</u>
ACCU. TOTAL	<u>\$ 301,393</u>
AFE 86 001	<u>4300.02</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Logging at 4083 feet

*DD King
 HAWERY*

THERMAL POWER COMPANY

WELL NO. CTG 11 AFE NO. _____
 REPORT NO. 58 DATE 3 AUG 86
 TOTAL RIG DAYS 58 TIME FROM SPUD 570 + 10 HRS
 DEPTH @ 2400 HRS. 4143 FOOTAGE DRLD. 81
 HRS. DRILLED 23 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 167 °F. DEVIATION SURVEYS: _____

1034
 ° CSG. 35
 ° CSG. 488
 ° CSG. 526 Temporary
 LINER _____
 TIE-BACK _____

NET AT 4133'

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>7</u>	<u>3.137</u>	<u>CHRS</u>	<u>NP</u>	<u>652450</u>	<u>-</u>	<u>3721</u>	<u>-</u>	<u>422</u>	<u>116.5</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>515</u>	<u>350</u>	_____	_____	_____

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Drill 81 feet, from 4062 to 4143
feet. Obtained 100% core recovery;
no mud returns
Water level in well at 75 feet
below ground surface

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 5609</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>350</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>BOYLES 250</u>
DAILY TOTAL	<u>1089</u>
FORWARD	<u>301,393</u>
ACCU. TOTAL	<u>308,482</u>
AFE	<u>80201 4300 02</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Dring at 4163 feet

Handwritten signature: W. H. Hanger
 LOWERY

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 59 DATE 4 AUG 86
 TOTAL RIG DAYS 39 TIME FROM SPUDS 580 + 10 hrs
 DEPTH @ 2400 HRS. 4203 FOOTAGE DRLD. 60
 HRS. DRILLED 13.5 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 10.3 COOLING TOWER IN USE, YES NO
 MUD WT. 8.9 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 171 °F. DEVIATION SURVEYS: _____
MRT AT 4173

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>7</u>	<u>5.857</u>	<u>CHRIS</u>	<u>MC</u>	<u>652958</u>	<u>-</u>	<u>3721</u>	<u>-</u>	<u>482</u>	<u>130</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>575</u>	<u>350</u>	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored 60 feet, from 4143 to 4203 feet
Recovered 100% cores; no mud returns

Sudden failure of HX core rods, while coring at 4203'
Core rod string weight suggests break at 1000-1200' depth range.

 OPERATION @ 0600 HOURS FOLLOWING DAY:
Waiting on HX rods for fishing
Man with spear.

COSTS	
TANGIBLES	_____
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	_____
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 4187</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>300</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>services 250</u>
DAILY TOTAL	<u>\$ 2667</u>
FORWARD	<u>308 482</u>
ACCU. TOTAL	<u>\$ 314,149</u>
APR 6 1987	<u>4300 02</u>

10500
 LOWERY

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFF. NO. _____
 REPORT NO. 62 DATE 5 AUG 86
 TOTAL RIG DAYS 62 TIME FROM SPUD 590 + 10 hrs
 DEPTH @ 2400 HRS. _____ FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10" CSG. 35
 7" CSG. 488
 4 1/2" CSG. 526 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>7</u>	<u>3 1/2</u>	<u>Wells</u>	<u>MC</u>	<u>65 2938</u>								<u>I P G</u>
												<u>I P G</u>
												<u>I P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Shut down; waiting on NX

logs

OPERATION @ 0600 HOURS FOLLOWING DAY:
As above

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 0</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>0</u>
SUPERVISION & LABOR	_____
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>VALVES 750</u>
DAILY TOTAL	<u>1480</u>
FORWARD	<u>314,709</u>
ACCU. TOTAL	<u>315,629</u>
A/E	<u>80001 4300 02</u>

DD. King

Bowden

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 61 DATE 12/15/86
 TOTAL RIG DAYS 61 TIME FROM SPUD 10 hrs
 DEPTH @ 2400 HRS. 4203' FOOTAGE DRLD. 0
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER 24 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 480
 4.5" CSG. 326 temporary
 LINER _____
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE ^{HIGH AVERAGE LG} _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

24 hrs shut down;
waiting on NX rods

OPERATION @ 0600 HOURS FOLLOWING DAY:
As above

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 0</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>350</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>TOOLS 250</u>
DAILY TOTAL	<u>1180</u>
FORWARD	<u>345,629</u>
ACCU. TOTAL	<u>\$ 346,809</u>
AFE	<u>86 001 4300 02</u>

10-7 Aug
 BOWDEN

THERMAL POWER COMPANY

WELL NO. CTG 4-1 AFE NO. _____
 REPORT NO. 62 DATE 7/11/86
 TOTAL RIG DAYS 62 TIME FROM SPUD _____
 DEPTH @ 2400 HRS. 4203' FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED 10
 HRS. OTHER 10 1/4 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 1/4" CSG. 35
 4 1/2" CSG. 488
 4 1/2" CSG. 526 temporary
 LINER _____
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
												I P G
												I P G
												I P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

12 hrs: Shut down, waiting on NX rods

12 hrs Unloaded truck

Picked up NX rods; RTH open ended. Found break in NX rods at 823' depth and at a connection per diller's record

POA, picked up latching assembly

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>1500</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>price 250</u>
DAILY TOTAL	<u>2680</u>
FORWARD	<u>316,809</u>
ACCU. TOTAL	<u>319,489</u>
AFE 86 001	<u>4300 02</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:

Remaining in hole at 2500' with NX rods and latching assembly

D.D. S. Aug
 BOWDEN

THERMAL POWER COMPANY

WELL NO. CTG 1 AFE NO. _____
 REPORT NO. 65 DATE 8 Nov 86
 TOTAL RIG DAYS 103 TIME FROM SPUD 7D + 10HRS
 DEPTH @ 2400 HRS. 4203 FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 24 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 4 1/2" CSG. 526 temporary

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
												I R G
												I R G
												I R G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO L RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Run latching assembly on
 WCC rods to top of core barrel
 at 4193 feet. Latched?
 P.H. No core barrel.
 Examined latch assembly,
 suspect release of core barrel
 at 823 feet

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	\$ 3000
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	300
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	330
FISHING & DIRECTIONAL	_____
OTHER	BOYLES 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
 Rig shut down. Latching
 assembly going to maintenance shop
 for refurbishment.

DAILY TOTAL \$ 4180
 FORWARD 310,489
 ACCU. TOTAL 323,669
 AFE 86 DOL 4300 02

W.D. King
 BOWDEN

THERMAL POWER COMPANY

WELL NO. CTGH-1 AFE NO. _____
 REPORT NO. 64 DATE Aug 86
 TOTAL RIG DAYS 24 TIME FROM SPUD 30+10 hrs
 DEPTH @ 2400 HRS. 4203 FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 24 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

1034 CSG 35
 7 CSG 488
 45 CSG 526 temporary
 LINER _____
 TIE-BACK _____

BIT	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
												T P G
												T P G
												T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE High Average Len _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Started up rig at noon
 RTH with new latch; found
 core barrel at 4193 feet
 Latched to core barrel. PDIH ready
 Recovered core barrel

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	\$ 1500
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	300
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	330
FISHING & DIRECTIONAL	_____
OTHER	TRAYLES 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
 RTH with new NX core head

DAILY TOTAL	2680
FORWARD	373,669
ACCU. TOTAL	376,349
AFE	80.00 (4300.02)

NO. 1000
 BOWDEN

THERMAL POWER COMPANY

WELL NO. CTG 1 AFE NO. _____
 REPORT NO. 65 DATE 10 Aug 86
 TOTAL RIG DAYS 65 TIME FROM SPUD 6hr 10 des
 DEPTH @ 2400 HRS. 4226 FOOTAGE DRLD. 23'
 HRS. DRILLED 4 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 20 COOLING TOWER IN USE, YES NO
 MUD WT. 8.9 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

CSG _____
 " CSG. _____
 " CSG. _____
 " CSG. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>8</u>	<u>2.875"</u>	<u>Chlor</u>	<u>NX</u>	<u>052302</u>		<u>4203</u>	<u>4226</u>	<u>23</u>	<u>4</u>	<u>500</u>	<u>300</u>	<u>I P G</u>
												<u>worn</u>
												<u>I P G</u>
												<u>I P G</u>

PUMP I LINER _____ STROKE _____ SPM _____ GPM 5-15 PSI 600-800 TOTAL GPM _____ NOZZLE VEL. _____ ANNULUS VEL. _____
 AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Milled out HX diamond corehead
 on bottom with NX diamond
 corehead (bit 8) and cored
 to 4226'.

Recovered 100% core; had returned!
 R/H to replace worn bit 8

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG \$ 3057
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 300
 FUEL, WATER POWER _____
 MUD 250
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 530
 FISHING & DIRECTIONAL _____
 OTHER BOYLES 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
 R/H with new NX diamond core
 head and new core barrel

DAILY TOTAL 4487
 FORWARD 376,349
 ACCU. TOTAL 730,836
 AFE 86 DOT 4200 02

DD 11 Aug
 BRIDEN

MINERAL POWER COMPANY

WELL NO. CTG11-1 AFE NO. _____
 REPORT NO. 66 DATE 11/16/86
 TOTAL RIG DAYS 06 TIME FROM SPUD 6:50 + 10 hrs
 DEPTH @ 2400 HRS. 4279 FOOTAGE DRLD. 53
 HRS. DRILLED 13.5 HRS. TRIPPED _____
 HRS. OTHER 10.5 COOLING TOWER IN USE, YES NO
 MUD WT. 8.5 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 178 °F. DEVIATION SURVEYS: _____
 At 4296'

10 3/4" CSG _____
 7" CSG. 35'
 4.5" CSG. 480'
 4.5" CSG. 526'
 LINER 3.5 4725'
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
<u>9</u>	<u>2.875</u>	<u>Caro</u>	<u>NX</u>	<u>65301</u>		<u>4226</u>	<u>-</u>	<u>53</u>	<u>13.5</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>I</u>				<u>5-15</u>	<u>450</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Core from 4226 feet to 4279 feet.
Obtained 100% core recovery;
no drilling fluid returns
Liquid level in core hole is
870 feet below surface

OPERATION @ 0600 HOURS FOLLOWING DAY:
Logging NX hole at 4300 feet

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 3545</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>200</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>Boyles 250</u>
DAILY TOTAL	<u>\$ 4975</u>
FORWARD	<u>330,836</u>
ACCU. TOTAL	<u>335,769</u>
AFE 86 D01	<u>4300 02</u>

W.D. Blang
BOWDEN

MINERAL POWER COMPANY

WELL NO. CTGH 1 **AFE NO.** _____
REPORT NO. 67 **DATE** 12-11-86
TOTAL RIG DAYS 67 **TIME FROM SPUD** 11:01 AM
DEPTH @ 2400 HRS. 4371 **FOOTAGE DRLD.** 92
HRS. DRILLED 23 **HRS. TRIPPED** _____
HRS. OTHER 1 **COOLING TOWER IN USE,** YES NO
MUD WT. 8.5 **VIS.** 45 **W.L.** _____ **CK.** _____ **PH** _____ **CHL** _____ **YP** _____
P.V. _____ **GELS** _____ **% SAND** _____ **% SOLIDS** _____ **% LOST CIRC. MTL.** _____
GALVONIC PROBE _____ **CORRATOR** _____ **SULPHIDE** _____ **OXY.** _____ **AIR-H₂O RATIO** 1
FORM. DRLD. _____ **FLOW LINE TEMP.** _____ °F. **SUCTION TEMP.** _____ °F.
MAX. TEMP. 182 °F. **DEVIATION SURVEYS:** _____
MRT AT 4383

10 1/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526
 LINER 2.5" 4205
 TIE-BACK _____

BIT # 9 **SIZE** 2 1/8 **MAKE** CHRS **TYPE** NX **SER. NO.** 652301 **JETS** _____
IN 4276 **OUT** 147 **FT.** _____ **HRS.** 3 1/2 **WT.** 1000 **RPM** 400 **COND** _____
 _____ **T** _____ **R** _____ **G** _____
 _____ **T** _____ **R** _____ **G** _____
PUMP 1 **LINER** _____ **STROKE** _____ **SPM** _____ **GPM** 5-15 **PSI** 450 **TOTAL GPM** _____ **NOZZLE VEL.** _____ **ANNULUS VEL.** _____
AIR COMP. NO. _____ **CFM** _____ **PSI** _____ **TEMP. °F** _____ **CHEM.** _____ **RATIO** 1 **RATE** _____
DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ **TOTAL PICKUP WT.** _____ **ROTARY TORQUE** _____ HIGH AVERAGE LOG
STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Cored 92 feet from 4276 to 4371 feet
 Obtained 100% core recovery.
 No drilling fluid returns

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	\$ 6170
ABATEMENT	_____
SITS	_____
DRILL EQUIP. MAINT.	_____
DRILL. EQUIP. RENTAL	300
FUEL, WATER POWER	_____
MUD	700
SUPERVISION & LABOR	300
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	330
FISHING & DIRECTIONAL	_____
OTHER	Expenses 250
DAILY TOTAL	7550
FORWARD	9 335,761
ACCU TOTAL	9 343,311
AFE	82 DOT 4300 02

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring NX hole at 4390
INCORPORATING EQUIPMENT _____

D. J. Borden
 13 Aug
 Borden

THERMAL POWER COMPANY

WELL NO. CT6H-1 AFE NO. _____
 REPORT NO. 69 DATE 13 Aug '86
 TOTAL RIG DAYS 68 TIME FROM SPUD 68 DFDIA
 DEPTH @ 2400 HRS. 4450 FOOTAGE DRLD. 79
 HRS. DRILLED 23 HRS. TRIPPED _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS. _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 183 °F. DEVIATION SURVEYS: _____
 @ 4430' - Flow level = 60'

10 1/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526
 LINER 3.5" 4205'
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS. WT.	RPM	COND
9	2335	CHRS	NA 652301		4226		226	59.5	540-300-400T	P G
									1000lb	I B G
										I B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
1				5-15	650			

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LOG

REMARKS FOR 24 HOUR PERIOD:

Cored from 4371 to 4450' - No
fluid returns; 100% core recovery

Picked up torque at 4405-4437'; attempting
to improve mud system

Worked BOP and pipe rams.

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	_____
ABATEMENT	_____
BITS	<u>5315</u>
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>200</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>Boyle's SUP: 250</u>
	<u>TRUCKING 2400</u>
DAILY TOTAL	<u>9095</u>
FORWARD	<u>243311</u>
ACCU. TOTAL	<u>252406</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring @ 4430'

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 69 DATE 14 NOV 86
 TOTAL RIG DAYS 69 TIME FROM SPUD 8 P.M. 10 HRS
 DEPTH @ 2400 HRS. 4530 FOOTAGE DRLD. 80
 HRS. DRILLED 25.5 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 0.5 COOLING TOWER IN USE, YES NO
 MUD WT. 8.5 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 182 °F. DEVIATION SURVEYS: _____
MRT AT 4540

10^{3/4}" CSG. 35
 7" CSG. 488
 4.5" CSG. 526
 LINER 3.5" 4205
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>9</u>	<u>2.875</u>	<u>CHRIS</u>	<u>NX</u>	<u>652301</u>		<u>4226</u>	<u>306</u>		<u>85</u>	<u>1000</u>	<u>400</u>	<u>T P G</u>
												<u>T P G</u>
												<u>T B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>					<u>350-650</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored 80' from 4450 to 4530'
Got 100% core recovery; no mud
returns.
Squirrel Creek water supply
continues adequate yield; enough
to keep 500 barrel lake tank full
and to meet daily req - cooling
requirement.
Forest Service visits drillsite every
2-3 days to ensure over water
supply status and fire compliance.

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 5320</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>200</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>BORES 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Logging at 4550 feet

DAILY TOTAL	<u>6700</u>
FORWARD	<u>352,406</u>
ACCU. TOTAL	<u>359,106</u>
AFE	<u>86 601 4300 0 2</u>
SUPERVISOR	<u>Bowden</u>

INOPERATIVE EQUIPT, EXPLAIN _____

NO. 15 Day

THERMAL POWER COMPANY

CTGIT-1

10^{3/4}" CSG. 35
 7" CSG. 488
 4.5" CSG. 520
 LINER 3.5 4205

WELL NO. _____ AFE NO. _____
 REPORT NO. 70 DATE 15 AUG 86
 TOTAL RIG DAYS 10 TIME FROM SPUD 02:10 PM
 DEPTH @ 2400 HRS. 4620 FOOTAGE DRLD. 90
 HRS. DRILLED 22.5 HRS. TRIPPED _____
 HRS. OTHER 1.5 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH _____ CHL _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 184 °F. DEVIATION SURVEYS: _____
MRT AT 4630

4620

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS. WT.	RPM	COND.
<u>9</u>	<u>2.75</u>	<u>CHRS</u>	<u>NX</u>	<u>1052301</u>	<u>1/226</u>	<u>396</u>	<u>1065</u>	<u>1000</u>	<u>400</u>		<u>P G</u>
											<u>T B G</u>
											<u>T B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-15</u>	<u>300</u>			

AIR COMP NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored from 4530 to 4620
Obtained 100% core recovery;
no drilling fluid returns

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG 106347
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 300
 FUEL, WATER POWER _____
 MUD 300
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER BOYLES 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coring at 4640
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL 878.27
 FORWARD 359.186
 ACCU. TOTAL 366.933
 AFE 86 2001 4300 02
 SUPERVISOR BRODEN

NO BLING
BRODEN

THERMAL POWER COMPANY

WELL NO. CTG4-1 AFE NO. _____
 REPORT NO. 71 DATE 16 Nov 86
 TOTAL RIG DAYS 71 TIME FROM SPUD 700 + 100s
 DEPTH @ 2400 HRS. 4700 FOOTAGE DRLD. 80
 HRS. DRILLED 23 HRS. TRIPPED _____
 HRS. OTHER 1 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 104 °F. DEVIATION SURVEYS: _____
MRT AT 4700 ±

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 576
 LINER 3.5 4205
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
<u>7</u>	<u>2.875</u>	<u>Ones</u>	<u>NX</u>	<u>652301</u>		<u>4226</u>		<u>4700</u>	<u>124.5</u>	<u>1000</u>	<u>400</u>	<u>E G</u>
												<u>T B G</u>
												<u>T B G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>I</u>				<u>575</u>	<u>350</u>			

AIR COMP. NO. _____ CFM. _____ PSI. _____ TEMP. °F. _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LOG
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored from 4620 to 4700'
Got 100% core recovery
no drilling fluid returns

COSTS

TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 6365</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>200</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Coming at 4720'
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL \$ 7745
 FORWARD 366,983
 ACCU. TOTAL 374,678
 AFE 86 2001 4300 02
 SUPERVISOR (Signature)

AD. 17 Aug

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 72 DATE 17 Aug 80
 TOTAL RIG DAYS 12 TIME FROM SPUD 710 + 1025
 DEPTH @ 2400 HRS. 4760 FOOTAGE DRLD. 60
 HRS. DRILLED 18 HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 0 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH _____ CHL _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 145 °F. DEVIATION SURVEYS: _____
MKT AT 4750'

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526
 LINER 3.5 4205
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS. WT.	RPM	COND
<u>9</u>	<u>2.875"</u>	<u>CHRS</u>	<u>NV</u>	<u>652301</u>		<u>4726</u>		<u>536</u>	<u>147.5</u>	<u>1000</u>	<u>462</u>
											<u>I R G</u>
											<u>I R G</u>

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>				<u>5-75</u>	<u>300</u>			

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
Cored from 4700 to 4760 feet
Recovered 100% cores; no
drilling fluid returns
1 hr temperature survey
5 hrs recovering and repairing
broken wire line and core
barrel.

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG \$ 4975
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN: _____
 DRILL. EQUIP. RENTAL 200
 FUEL, WATER POWER _____
 MUD 200
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES 330
 FISHING & DIRECTIONAL _____
 OTHER 250

OPERATION @ 0600 HOURS FOLLOWING DAY:
Working at 4780 feet
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL 36185
 FORWARD 371.676
 ACCU. TOTAL 380.863
 AFE 86 1001 4300 02
 SUPERVISOR B.W. DEAN

RD. 18 Aug

THERMAL POWER COMPANY

WELL NO. CT6H 1 AFE NO. _____
 REPORT NO. 73 DATE 18 AUG 86
 TOTAL RIG DAYS 13 TIME FROM SPUD 20:40 AM
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. 40
 HRS. DRILLED 13 HRS. TRIPPED _____
 HRS. OTHER 11 COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 45 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. 197 °F. DEVIATION SURVEYS: _____
MR 1 AT 4790

1036 " CSG. 35
 7 " CSG. 488
 4.5 " CSG. 526
 LINER 2.5 4205

BIT - SIZE MAKE TYPE SER. NO. JETS IN OUT FT. HRS. WT. RPM COND
9 285 CHRS NX 652301 4 4766 576 160 1/2 1000 400 T P G

 PUMP LINER STROKE SPM GPM PSI TOTAL GPM NOZZLE VEL. ANNULUS VEL.
1 _____ 5-15 300 _____ _____
 AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Core from 4760 to 4800 feet
Obtained 100% core recovery;
no drilling fluid returns
Received Forest Service order
to shut down rig and operations
due to high fire hazards. All
timber logging operations also
shut down today by this
condition & determination
pulled casing string off bottom,
and into BX with NX bit
at 4150. Used Nams on MCC rod
string. Hadul and Kelly cock
shut down at mid day Aug 18

OPERATION @ 0600 HOURS FOLLOWING DAY:
Suspended - shut down per OHS
Condition E
 INOPERATIVE EQUIPT, EXPLAIN _____

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 3120</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>100</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>330</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>250</u>
DAILY TOTAL	<u>4400</u>
FORWARD	<u>380,863</u>
ACCU. TOTAL	<u>\$ 385,263</u>
AFE <u>86</u> <u>DRILL</u> <u>4300</u> <u>02</u>	
SUPERVISOR	<u>Samuel</u>

RD 19 Aug

THERMAL POWER COMPANY

WELL NO. CTAH-1 AFE NO. _____
 REPORT NO. 74 DATE 27 Aug 86
 TOTAL RIG DAYS 74 TIME FROM SPUD 8:10 + 10 hrs
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 1/4" CSG. 35 feet
 7" CSG. 488
 4.5" CSG. 526
 LINER 3.5 4205
 TIE-BACK _____

HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	I P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	I P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	I P G
PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL	GPM	NOZZLE	VEL.	ANNULUS	VEL.	
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE ^{HIGH AVERAGE LEN.} _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Prueitt Industries, Inc. ran a temperature-pressure survey from surface to total depth.

Field readings are as follows:

DEPTH (ft)	TEMPERATURE (°F)	PRESSURE (PSI)
100	BTL*	22
1000	BTL	420
2100	78	902
3000	120	1297
4000	171	1730
4800	210/208	2074

4800 feet pick-up.

* BTL = Below Tool Limit of 500F
 ** Two temperature tools run.

OPERATION @ 0600 HOURS FOLLOWING DAY:
 Suspended - shut down per USFS
 fire hazard condition "C"

COSTS

TANGIBLES
 CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE
 LOCATION _____
 RIG MOVES _____
 RIG _____
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL _____
 FUEL, WATER POWER _____
 MUD _____
 SUPERVISION & LABOR _____
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES _____
 FISHING & DIRECTIONAL _____
 OTHER Survey

DAILY TOTAL _____
 FORWARD 385,263
 ACCU. TOTAL _____
 AFE 86 0001 4300 02

JLI
 2 Sept 86

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 75 DATE 2 SEPT 86
 TOTAL RIG DAYS 75 TIME FROM SPUD _____
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F
 MAX. TEMP. 204 °F. DEVIATION SURVEYS: _____
time MRTs at 4800'

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL I

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ C
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

10 ^{3/4} " CSG	35'
7" CSG	488'
4.5" CSG	526'
LINER	35' 4205'
TIE-BACK	_____
HRS. REPAIR	_____ RIG NO. _____

Uncon. plate
Cool items
need confirmation
DD 3 Sept 86

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

First Service lifted Fire Precaution Class E on 8-30-86

Logley Bros crews arrived back on drillsite afternoon of 9-2-86. Started up rig at 2000 hrs. RHT with wireline; found water level at 50-foot depth.

RHT with NCC rods - NX bit from 4150' to 4800'. No problems, and no fill on bottom. Ran three MRTs to 4800'; all recorded 204°F

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	_____ ? Omission
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>4300</u> ? Logley & Sons
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	_____
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>990</u> 9, 20, 21 Aug P 330/day
FISHING & DIRECTIONAL	_____
OTHER	<u>750</u>
WHITTEMAN	<u>4000</u> Logley 30/day
DAILY TOTAL	_____
FORWARD	<u>\$ 385,263</u>
ACCU. TOTAL	_____
AFE	<u>86 5001 4300 02</u>
SUPERVISOR	_____

OPERATION @ 0600 HOURS FOLLOWING DAY:
RHT and removed NX bit. Going in hole with open ended NCC rods to circulate & cool hole for final GP
 INOPERATIVE EQUIPT EXPLAIN *Atch hole loss.*

DD 3 Sept 86

THERMAL POWER COMPANY

WELL NO. CTG1H AFE NO. _____
 REPORT NO. 70 DATE 3 SEPT 86
 TOTAL RIG DAYS 16 TIME FROM SPUD _____
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. _____
 MRS. DRILLED _____ MRS. TRIPPED _____
 MRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 32 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526
 LINER 3.5" 4205
 TIE-BACK _____
 MRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	I P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T B G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
<u>1</u>	_____	_____	_____	<u>5-15</u>	<u>310</u>	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:
POH, dropped NX bit from string
ROH with NCE rods open-ended to
4800' TD. Calculated light-dubbing
fluid and water for 8 hours to cool
hole for logs.
POH rigging up loggers at 2400 hrs

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 3000</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	_____
FUEL, WATER POWER	_____
MUD	<u>100</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>4065</u>
FISHING & DIRECTIONAL	_____
OTHER	<u>EXILES 250</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:
Logging corehole with final
geophysical program
 INOPERATIVE EQUIPT, EXPLAIN _____

DAILY TOTAL	<u>\$ 7715</u>
FORWARD	<u>345,023</u>
ACCU TOTAL	<u>\$ 407,178</u>
AFE NO	<u>11001-4300-02</u>
SUPERVISOR	<u>BONDEN</u>

PRUETT
27 AUG 86
RD
27 Aug 86

THERMAL POWER COMPANY

WELL NO. CT6H-1 AFE NO. _____
 REPORT NO. 77 DATE 4 SEP 86
 TOTAL RIG DAYS 17 TIME FROM SPUD _____
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. 8.4 VIS. 32 W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 3/4" CSG. 35
 7" CSG. 488
 4.5" CSG. 526
 LINER 35 4205
 TIE-BACK _____

HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	<u>17</u>	<u>350</u>	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____
 STEAM ENTRIES, DEPTH, LBS. _____ HIGH AVERAGE LOG

REMARKS FOR 24 HOUR PERIOD:

Completed 11 hrs of borehole
 geophysical logging: SP,
 Resistivity, Caliper, etc
 13 hrs RTH Cooling Port
 for additional logs
 Geohist DOBAMI onsite
 past two days sampling the
 rock cores per his DOE contract
 USFS rep. onsite stating
 Access Period site requirements
 including switching/trenching
 OPERATION @ 0600 HOURS FOLLOWING DAY:
 Logging

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 5000</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	<u>100</u>
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	_____
FISHING & DIRECTIONAL	_____
OTHER	<u>BOXES 250</u>
DAILY TOTAL	<u>3950</u>
FORWARD	<u>402,718</u>
ACCU. TOTAL	<u>\$ 406,668</u>
AFE	<u>80 APR 4300 02</u>

INOPERATIVE EQUIPT. EXPLAIN _____ SUPERVISOR Bowden

DO
 5 Sept 86

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 78 DATE 5 SEPT 86
 TOTAL RIG DAYS 78 TIME FROM SPUD 7:10 AM
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. 0
 HRS. DRILLED _____ HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER 24 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 5/8" CSG 35
 7 1/2" CSG 488'
 5 1/2" CSG 526'
 LINER 3.5 4205'
 TIE-BACK _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE _____ HIGH AVERAGE LCR
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Accomplished geophysical bore hole logging. Velocity and time.
Completed logging at 2400 hrs 5 Sept 86. No problems with HX rod break at 873'.
All core boxes, from 526' to 4800' shipped out to UORT Salt Lake City

COSTS

TANGIBLES

CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE

LOCATION _____
 RIG MOVES _____
 RIG \$ 3000
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL 300
 FUEL, WATER POWER _____
 MUD _____
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION _____
 LOGGING SERVICES _____
 FISHING & DIRECTIONAL _____
 OTHER Barrels Parts 750

DAILY TOTAL * 3850
 FORWARD 406,668
 ACCU. TOTAL 410,518
 AFE 76,490 4300 02

SUPERVISOR Bowden

OPERATION @ 0600 HOURS FOLLOWING DAY:
Shutting down NCC rods

INOPERATIVE EQUIPT, EXPLAIN _____

NO 6/24/86

THERMAL POWER COMPANY

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 79 DATE 6.9 SEPT 86
 TOTAL RIG DAYS 79 TIME FROM SPUD _____
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____
 HRS. OTHER 24 COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH. _____ CHL. _____ YP. _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

10 1/4" CSG. _____ 35.
 7" CSG. _____ 488.
 4.5" CSG. _____ 526.
 LINER 3.5 _____ 4705.
 TIE-BACK _____
 HRS. REPAIR _____ RIG NO. _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND.
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.
_____	_____	_____	_____	_____	_____	_____	_____	_____

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE ^{HIGH AVERAGE LOG} _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

Finished laying down NCC rods.
Removed rig floor; pumped out
cellar; removed BOP.

Installed 1 1/4" thick plate flange
on Jackson casing head with
ring groove and bolts.
6" long nipple and 3" full opening
valve on top
Shut down rig at 2400 hrs
6.9 Sept 86

COSTS	
TANGIBLES	
CASING	_____
VALVES	_____
FLANGES	_____
OTHER	_____
INTANGIBLE	
LOCATION	_____
RIG MOVES	_____
RIG	<u>\$ 3000</u>
ABATEMENT	_____
BITS	_____
DRILL EQUIP. MAIN.	_____
DRILL. EQUIP. RENTAL	<u>300</u>
FUEL, WATER POWER	_____
MUD	_____
SUPERVISION & LABOR	<u>300</u>
CEMENT SERVICES	_____
TRANSPORTATION	_____
LOGGING SERVICES	<u>15,500!</u>
FISHING & DIRECTIONAL	_____
OTHER <u>TRUCKS</u>	<u>250</u>
<u>WELLHEAD</u>	<u>2150</u>
DAILY TOTAL	<u>\$ 21,500</u>
FORWARD	<u>410,518</u>
ACCU. TOTAL	<u>432,018</u>
AFE <u>86 HADL</u>	<u>4300 02</u>
SUPERVISOR	<u>POWLEN</u>

OPERATION @ 0600 HOURS FOLLOWING DAY:

INOPERATIVE EQUIPT. EXPLAIN _____

20
 8/9/86

THERMAL POWER COMPANY

1044 CSG 35
7.5" CSG. 488
" CSG. 526
LINER 3.5" 4209

WELL NO. CTGH 1 AFE NO. _____
 REPORT NO. 80 DATE 7 SEPT 86
 TOTAL RIG DAYS 80 TIME FROM SPUD _____
 DEPTH @ 2400 HRS. 4800 FOOTAGE DRLD. _____
 HRS. DRILLED _____ HRS. TRIPPED _____ HRS. REPAIR _____ RIG NO. _____
 HRS. OTHER _____ COOLING TOWER IN USE, YES NO
 MUD WT. _____ VIS. _____ W.L. _____ CK. _____ PH _____ CHL _____ YP _____
 P.V. _____ GELS _____ % SAND _____ % SOLIDS _____ % LOST CIRC. MTL. _____
 GALVONIC PROBE _____ CORRATOR _____ SULPHIDE _____ OXY. _____ AIR-H₂O RATIO 1
 FORM. DRLD. _____ FLOW LINE TEMP. _____ °F. SUCTION TEMP. _____ °F.
 MAX. TEMP. _____ °F. DEVIATION SURVEYS: _____

BIT #	SIZE	MAKE	TYPE	SER. NO.	JETS	IN	OUT	FT.	HRS.	WT.	RPM	COND
												T P G
												T P G
												T P G

PUMP	LINER	STROKE	SPM	GPM	PSI	TOTAL GPM	NOZZLE VEL.	ANNULUS VEL.

AIR COMP. NO. _____ CFM _____ PSI _____ TEMP. °F _____ CHEM. _____ RATIO 1 RATE _____
 DRILLING ASSEMBLY, TOTAL LENGTH AND DESCRIPTION: _____

TOTAL STRING WT. _____ TOTAL PICKUP WT. _____ ROTARY TORQUE HIGH AVERAGE LOG _____
 STEAM ENTRIES, DEPTH, LBS. _____

REMARKS FOR 24 HOUR PERIOD:

*Dugged down core rig,
 cleaned cellar and pits
 RELEASED RIG 1300 hrs
 7 Sept 86*

COSTS

TANGIBLES

CASING _____
 VALVES _____
 FLANGES _____
 OTHER _____

INTANGIBLE

LOCATION _____
 RIG MOVES 3000 DEMOB
 RIG 750
 ABATEMENT _____
 BITS _____
 DRILL EQUIP. MAIN. _____
 DRILL. EQUIP. RENTAL _____
 FUEL, WATER POWER _____
 MUD _____
 SUPERVISION & LABOR 300
 CEMENT SERVICES _____
 TRANSPORTATION 2400 *BALANCE TANK + POP RETURN*
 LOGGING SERVICES _____
 FISHING & DIRECTIONAL _____
 OTHER PROLES 250

DAILY TOTAL 96700
 FORWARD 432,018
 ACCU. TOTAL 438,718
 AFE 86 4300.02

SUPERVISOR BONDEN *8 Sept 86*

OPERATION @ 0600 HOURS FOLLOWING DAY:
Will get location marking and access trail detaching damage cost estimates plus HX rod + 45"

INOPERATIVE EQUIPT. EXPLAIN costs to add in



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

M E M O R A N D U M

TO: P. M. Wright
FROM: L. E. Orvin
SUBJECT: Thermal Power Report given verbally
by Joseph Iovenetti
DATE: July 15, 1986

Thermal Power Report # 38

7/14/86

Depth at 2400 hrs. 2466'
Cored 2368-2466 with 100% core recovery.

No fluid returns.

As of 600 hrs. on 7/15/86, the core barrell jammed in core rods at approx. 500' depth. Pulling out of hole.



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

M E M O R A N D U M

TO: P. M. Wright
FROM: L. E. Orvin
SUBJECT: Thermal Power Report given verbally
by Joseph Iovenetti
DATE: July 15, 1986

Thermal Power Report # 39

7/15/86

Depth at 2400 hrs. 2535' 5 hours tripping out of hole. Ran into hole to retrieve core at 2476.. Core barrell hung up inside tubing. Pull 17 stands out of hole. Layed down 1 joint of bad tubing. Ran into hole at 2476 and washed out bridge to 1776-1780 and 5' of fill on bottom.

Cored from 2466-2535, 69' with no mud returns and 100% core recovery.



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

M E M O R A N D U M

TO: P. M. Wright
FROM: L. E. Orvin
SUBJECT: Thermal Power Report given verbally
by Joseph Iovenetti
DATE: July 17, 1986

Thermal Power Report # 40

WEDNESDAY, July 16, 1986

Depth at 2400 hours: 2594'

Record from 2535-2594 No mud returns, 100% core recovery.

Ran in hole wireline to retrieve core at 2584'. Core barrell stuck on way out at 2400'. Pulled wireline in two. Pulled tense bands. Retrieved core barrell. Layed down 1 bad joint of core tubing. Installed new wire lines. Ran hole tense bands to 2584'. Core 2594'.

0600 hrs. coring 2613'.

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

M E M O R A N D U M

TO: P. M. Wright
FROM: Louise Orvin/Joseph Iovenetti
SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti
DATE: July 18, 1986

THERMAL POWER REPORT # 41

For the 17th of July:

At 2400 hours: 2708'
Cored from 2594' to 2708'.

No fluid returns. 100% core recovery.

0600 hrs. coring 2733'.



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

M E M O R A N D U M

TO: P. M. Wright
FROM: Louise Orvin/Joseph Iovenetti
SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti (Jeff Hebein in Joe's absence)
DATE: July 23, 1986

THERMAL POWER REPORT # 46

For the 22th of July:

Total Rig Days: 46
At 2400 hours: 3173'
Time from spud : 45 plus 10 hours
Footage Drilled: 104'
Hours drilled: 24
Mud weight 8.4
Dicostity: 45
Deviation Survey: MRT at 3159' 124°F (3)
Bit: 6 Size: 3.937 Make: Christensen Type: NC
Serial No. 6S2460 In: 2336' Out: Incomplete Feet 837' Hours: 202.5
Weight: 1,000 RPM: 400
Pump-1
5-15 gal. per minute
PSI: 175

Remarks for 24 hour period: Water level at 80' Cored 3069' to 3173'.
No mud returns. 100% core recovery.

0600 hrs. Coring at 3189'

Daily Cost: \$6,918
Cumulative total: \$233,099

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SALT LAKE CITY, UTAH 84108-1295
TELEPHONE 801-524-3422

M E M O R A N D U M

TO: P. M. Wright
FROM: Louise Orvin/Joseph Iovenetti
SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti
DATE: July 28, 1986

THERMAL POWER REPORT # 51

For the 27th of July:

Depth at 2400 hours: 3641'

Report for 2400 hour period: Cored from 79' from 3562' to 3641'.

100% core recovery. No fluid returns.

As of 600 hrs. 28 July: Coring at 3661.

Daily: \$62,243
Cumulative: \$266,043



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

M E M O R A N D U M

TO: P. M. Wright
FROM: Louise Orvin/Joseph Iovenetti
SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti
DATE: August 1, 1986

THERMAL POWER REPORT # 53
For the 29th of July 1986:

Depth at 2400 hours: 3723'

Report for 2400 hour period: Cored only 2' from 3721-3723' with new core-head, Bit #7. Worked on BOP equipment.

As of 0600 hrs on the 30th of July: Coring at 3743'.

Daily: \$3,462
Cumulative: \$275,806

Daily Report No. #54:
Report on July 30, 1986

Total depth 3811' at 2400 hrs.
Cored 3723-3811'.
100 % core recovery. No fluid returns.
MRT meeting at 3763' 146°F.
Operation at 0600 hrs. on 31st of July: Coring at 3831'

Daily: \$6,101
Cumulative: \$281,907

Daily Report No. 55:
July 31, 1986

Depth at 2400 hour period: 3901'
Remarks for 2400 hr. period: Cored from 3811-3901'.
100% core recovery, no fluid returns.

As of 0600 hrs. coring on August 1, 1986 at 3921'
MRT reading at 3891' is 155°F.

Daily: \$6267
Cumulative: \$288,174



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

M E M O R A N D U M

TO: P. M. Wright
FROM: Louise Orvin/Joseph Iovenetti
SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti
DATE: August 4, 1986

THERMAL POWER REPORT # 56

August 01, 1986

Depth at 2400 hours: 3982'
Report for 2400 hour period: cored 81' from 3901 to 3982' 100% core
recovery, no fluid returns.
Maximum Temperature Reported for Period: 3972' 162°F
Operation of 0600 hrs Coring at 4002'

Daily: \$6,360
Cumulative: \$294,534

Daily Report Number 57:

August 2, 1986

Depth at 2400 hours: 4062'
Report for 2400 hour period: Cored 80' from 3982'-4062' 100 % core recovery,
no fluid returns.
Maximum temperature reported for period: 4052' 167°F
Operations of 0600 hours: Coring at 4083'

Total: \$6,850
Cumulative: \$301,393

Daily Report No. #58

August 3, 1986

Depth at 2400 hours: 4143'
Report for 2400 hour period: Cored 81' from 4062-4143' 100 % core recovery.
No fluid returns.
Maximum Temperature Reported for Period: MRT at 4133-167°F
Operations of 0600 hours: Coring at 4163'

Daily: \$7,089
Cumulative: \$308,482



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

M E M O R A N D U M

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 5, 1986

THERMAL POWER REPORT # 59

August 04, 1986

Depth at 2400 hours: 4203'
Report for 2400 hour period: cored 60' from 4143 to 4203' 100% core
recovery, no fluid returns Sudden failure of Hx core rods while coring at
4203'. Core rod string weight suggest break at 1,000 to 1200'. MRT reading
at 4173' 171°F.
Operation of 0600 hrs: Waiting on NX rods for fishing run with spear.

Daily: \$5,667
Cumulative: \$314,149

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

M E M O R A N D U M

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 6, 1986

THERMAL POWER REPORT # 60

August 05, 1986

Depth at 2400 hours: 4203'

Report for 2400 hour period:

Waiting on NX core rods and fishing spear.



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

M E M O R A N D U M

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 7, 1986

THERMAL POWER REPORT # 61

August 06, 1986

Depth at 2400 hours: 4203'

Report for 2400 hour period:

Waiting on a report on the mechanical conditions of the hole based on the NX core rods into th hole.

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

M E M O R A N D U M

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 8, 1986

THERMAL POWER REPORT # 62

August 07, 1986

Depth at 2400 hours: 4203'

Report for 2400 hour period:

Running hole with NX rods; found break at 823' at a connection. Pulled out of hole. Picked up latching assembling.

Operation 0600 hr.: Running in hole at 2500' with NX rods and latching assembly.

Daily Cost: \$2,680
Cumulative: \$319,489



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

M E M O R A N D U M

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 11, 1986

THERMAL POWER REPORT # 63

August 08, 1986

Depth at 2400 hours: 4203'

Report for 2400 hour period: Ran latching assembly on NCC rods to top of core barrell at 4193'. Questionable latching. Pulled out of hole no core barrell. Examined the latch assembly suspect relief of core barrell at 823'.

Operation 0600 hr.: Rig shut down latching assembly in machine shop for modification.

Daily: \$4,180
Cumulative: \$323,669

Daily Report No. 64

August 9, 1986

Depth at 2400' 4203'

Remarks: Start of rig up at noon. Ran in hole with new latch assembly. Core barrell found at 4193'. Latch to core barrell pulled out of hole slowly, core barrell recovered.

0600: Running in hole with new NX core head.

Daily: \$2,680
Cumulative: \$326,349

Daily Report No. 65

August 10, 1986

2400 hour: 4226'

Remarks: Milled out HX diamond core head with NX diamond core head and cored to 4226'. Recovery: 100% core. Full returns. Pulled out of hole to replace one bit. Bottom hole temperature at 4216': 177°-180°F.

Operation at 0600: Ran in hole with new NX diamond core head, new core barrell and coring.

Daily: \$4,487

Cumulative: \$330,836

UURI

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

M E M O R A N D U M

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 13, 1986

THERMAL POWER REPORT # 67

August 12, 1986

Depth at 2400 hours: 4371'

Report for 2400 hour period: During past 24 hours cored 92', from 4279' to 4371'. 100% core recovery. No fluid returns.

Operation 0600 hr. on August 13, drilling Nx at 4390' MRT reading at 4383' = 182°F.

Daily: \$2,550
Cumulative: \$343,311

UURI

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

MEMORANDUM

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 14, 1986

THERMAL POWER REPORT # 68

August 13, 1986

Depth at 2400 hours: 4450'

Report for 2400 hour period: Cored from 4371-4450'. 100% core recovery. No fluid returns.

Picked up torque at 4405-4407'. Attempt to improve mud system. Worked BOPE, (blow out prevention equipment).

Operation 0600 hr.: Coring at 4470'. Temperature at 4470' - 183°F.

Daily: \$9,095
Cumulative: \$352,406



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

M E M O R A N D U M

TO: P. M. Wright
Susan Prestwich (Telecopy)

FROM: Louise Orvin/Joseph Iovenetti

SUBJECT: Thermal Power Report given
verbally by Joseph Iovenetti

DATE: August 15, 1986

THERMAL POWER REPORT # 69

August 14, 1986

Depth at 2400 hours: 4430'

Report for 2400 hour period: Cored 80' from 4450-4530' 100% core recovery.
No fluid returns.

Squirrel creek water supply continues at an adequate field; enough to keep 500 barrel breaker tank full and to meet daily requirements. Forest Service visits drill site every two or three days to ensure water supply status and fire compliance.

Operation 0600 hr.: (On following day) Coring at 4550'. MRT Reading at 4550' - 182°F.

Daily: \$6,700

Cumulative: \$359,106

TONTO DRILLERS LOG

No 004633

ation _____ Hole # _____

Shift Started 7:30 ^{AM} Ended 7:30 ^{P.M.} Date 6-2-86

Driller G. Behunin Rig # CP50#2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	11:30						FINISH	RIG UP
11:30	12:30							REPLACE SHIFTING FORK ON RIG
12:30	2:00							HAUL WATER MIX MUD
2:00	7:30		30	30				TRI-CONE
<div style="border: 1px solid black; padding: 10px; width: 200px; margin: auto;"> <p style="font-size: 24px; margin: 0;">N-3-3</p> </div>								
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation _____

55 Tri CONE # 43869

19-Gel 1-Soda ASH

Client Approval W.C. Walker Tonto Approval W

TONTO DRILLERS LOG

No 004634

ation _____ Hole # N-3

Day Shift Started 7:30 A.M. Ended _____ A.M.
 Night _____ P.M. _____ P.M.

Date 6-3-86

Driller G. Behunin Rig # CP 50 #2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	9:30		30	38			HARD	TRI-CONE
9:30	10:30		38	45				ROCK SOFTER AT 38'
10:30	11:30		hole caving rods tight, reamed up + down hole, still tight.					
11:30			pulled out bit, hole caved in at surface, stood drill collars in tower, hooked up other tri cone, drilled out cave					
	2:00		greased + lowered in bit + collars					
3:00	4:00		45	60			HARD AT 50'	TRI-CONING
4:00	6:15		60	70			HARD	" "
6:15	7:30		70	80				SOFT AGAIN AT 72
					TOTAL			PERCENTAGE RECOVERY

Comments / Explanation 1-pail Rod grease 24-gel

TRUCK MILES 1568 - 2 LPS

Client Approval W.C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004665

Location GEO BEND Hole # N-3
 Shift Started 7:30 A.M. Ended 7:30 P.M.
 Driller GEO BEHUNIN Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	9:55		130	140			HARD	TRI-CONE
9:55	11:50		140	150			SOFTER	FROM 147
11:50	12:55		150	160			STILL	SOFT
12:55	1:40		160	170			SOFT	
1:40	3:00		170	180			TURNED	HARD 175
3:00	4:00		pulled FOR bit change, hole CAVED AT SURFACE, STOOD COLLARS IN TOWER, hooked up OTHER TRI-CONE, drilled OUT CAVE ON SURFACE + INTO BOTTOM					
4:00	5:30							
5:30	7:30		180	190			HARD	TRI-CONE
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation 1-Pail Rod grease 1-Soda ASH 20-Gel

New bit # 80161 ON 180'

Client Approval W.C. Watkey Tonto Approval _____

TONTO DRILLERS LOG

No 004630

Location Geo. Bend Hole # N-3
 Day Shift Started 7:30 AM Ended _____ A.M.
 Night (P.M.) Date 6-4-86 P.M.
 Driller D. Ellis Rig # CP 50#2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	1000		190	200			HARD	
1000	1200		200	210				SOFTER @ 203'
1200	1230						WASH + REAM	
1230	300		210	220				VERY HARD 213 to 219
300	400		220	230				SOFT. CAVE
400	430						WASH + REAM	
430	530		230	240				SOFT.
530	615		240	250				SOFT
615	650		250	260				"
650	730		260	270				"
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation 710-176 Hub 1568-S 1735^{end} (167) Mil 4 Loads 2.5 Hr
re trip 10 Hr (2 Hrs Tire Shop) 3.5 Hrs UNLOAD water & Help on DRILL
15.5 @ 4:00 AM to 7:30 PM

20 GEL

Client Approval W. C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004602

Location GEO. BEND Hole # N-3
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started 7:30 P.M. Ended 7:30 P.M. Date 6/5/86
 Driller G. BEHUNIH Rig # EP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	8:15		280	280			SOFT	TRI-CONE
8:15	9:15		280	290			SOFT	" "
9:15	10:20		290	300			SOFT	" "
10:20	11:30		300	310			SOFT	" "
11:30	12:35		310	320			SOFT	" "
12:35	1:40		320	330			Firm	" "
1:40	3:00		330	340			"	" "
3:00	4:20		340	350			"	" "
4:20	6:00		350	360			HARDER AT 358	" "
6:00	7:30		360				VERY VERY HARD	TRI-CONING
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation 1735 Start 1841 end 3 Loads
26-Gel

Client Approval William J. Damsch Tonto Approval _____

TONTO DRILLERS LOG

№ 004659

Location Geo BEND Hole # N-3
 Day Shift Started 7:30 AM Ended _____ A.M.
 Night Shift Started _____ P.M. Date 6-5-86 P.M.
 Driller D. Ellis Rig # CP50#2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	1000		360	370				VERY HARD, HOLE CLEAN
1000	200		370	380				" " " "
200	330							PRESURE PUMP REPAIR
330	615		380	390				A. BIT SOFTER @ 388
615	-		390					SMALL SOFT STRINGERS
TOTAL								PERCENTAGE RECOVERY

Comments / Explanation 20 - GEL

Client Approval _____ Tonto Approval William J. Densen T

TONTO DRILLERS LOG

No 004660

Location GEO BEND Hole # N-3
 Day Shift Started 7:30 AM. Ended 7:30 AM.
 Night Shift Started 7:30 PM. Ended 7:30 PM. Date 6/6/86
 Driller GEO. BEHUNIN D. ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	9:00		390	400				VERY HARD 395
9:00	10:30		400	410				SOFTER 395
10:30	11:30							UNLOAD TRANSPORT
11:30	1:00		410	420				"
1:00	2:30		420	430				"
2:30	3:45		430	440				"
3:45	7:30		440					VERY HARD FROM 440
<hr/>								
7:30	8:30		440	450				VERY HARD
8:30	12:00		450	454				" "
								WON'T GO ANY MORE
00								TRIP OUT BACK REAM, + REAM + WASH HOLE CLEAN UP BAD SPOTS, RUN BACK TO BOTTOM, HOLE CLEAN, TRIP OUT.
	400							
400	506							TRIP TO PHONE
500	7:30							START RUNNING CASING. CASING TO 340
<hr/>								
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation 1997 ENL START 1841 4 Loads WATER

DAY - 249el

NITE - 11 GEL

TRI-CONE SHOT

Client Approval William J. Darsart

Tonto Approval _____

TONTO DRILLERS LOG

№ 004663

Location G.E.O BEND Hole # N-3
 Day Shift Started 7:30 ^{AM}/_{P.M.} Ended _____ A.M.
 Night _____ P.M. Date 6-9-86
 Driller G. Behunin D. Ellis Rig # CP-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
7:30	9:00							Rig Kill line + blow-by
9:00	9:30							REPAIR ACCUMULATOR pump
9:30	12:00							INSTALL wireline hoist
12:00	2:00							Hook up B.O.P
2:00								RUN Rods INTO BOTTOM, NO CEMENT, WASH
	4:00							Washed hole, NO RETURN
4:00	5:00							pulled Rods
5:00	7:30							CEMENTING
<hr/>								
7:30								CLEAN UP,
								INSTALL 5500' NEW WIRELINE
	7:30							CEMENT SET.
					TOTAL			
					PERCENTAGE RECOVERY			

Comments / Explanation _____
Water start 2084
END 2126 1 Load
20 PORTLAND CEMENT.

Client Approval [Signature] Tonto Approval _____

TONTO DRILLERS LOG

No 004605

Location GEO BEND Hole # N-3
 Day Shift Started 7:30 AM Ended _____ A.M.
 Night Shift Started _____ P.M. Date 6-11-86
 Driller G. Behunin D. Ellis Rig # CP50#2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
7:30	12:00							FIGURE OUT PLAN WITH CLIENT FOR CEMENTING hole, FIND PUMP FOR CEMENT,
12:00								WAIT ON BOP REPAIR MAN, PULL RODS
	7:30							CHANGE OIL ON RIG, RIG UP LINES + CUT PLATE FOR CEMENT JOB. CHECK BOP
7:30								BOP REPAIR, GOT REASONABLE TEST ON BAC + PIPE RAMS
	7:30							
TOTAL								PERCENTAGE RECOVERY

Comments / Explanation Need STARTING Fluid oil FILTERS # (1342) + (1791)
Start 2161
END 2194 / Load

Client Approval W.C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004604

Location GEO OPERATOR BEND Hole # 6/12/86
 Day Shift Started 730 AM. Ended _____ AM.
 Night Shift Started _____ P.M. Ended _____ P.M. Date N-3
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
730	100							RIG FOR CEMENT, WAIT ON TRUCK
100	1:30							MIX DRY CEMENT @ 5 GALS PER 1 BAG
1:30	4:00							PUMP CEMENT
4:00								CLEAN UP, WAIT ON CEMENT. CHANGE OIL IN PUMP + POWER PLANT.
	6:00							
6:00	7:30							CHECK CEMENT WITH VALVE, STILL HAS PRESSURE
730	1000							CEMENT SET.
1000								CHECK VALVE, STILL UNDER PRESSURE
1000								
	300							CEMENT SET,
300								STILL HAS PRESSURE,
300	600							CEMENT SET.
600	730							PULL OFF VALVES + FITTINGS + CLEAN
				TOTAL		PERCENTAGE RECOVERY		

Comments / Explanation PUMP 480 APPROX GALS OF CEMENT TO 1900 P.S.I
HOLD PRESURE,

Client Approval W. J. D...

Tonto Approval _____

TONTO DRILLERS LOG

No 004607

Location GEO BEND Hole # N-3
 Day Shift Started 7:30 AM. Ended AM.
 Night Shift Started P.M. Ended P.M.
 Date 6/14/86
 Driller BEHUNIN , ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	9:00		365	396	21			
9:00	11:30		396	452	56			
11:30	12:00							Pull Rods
12:00	12:30							Rig. FOR TEST
12:30	2:40							TAKE B/M pressure TEST
2:40	3:45							CLEAN TANKS, MIX mud
3:45	5:00							Rig ROT HEAD, grease + lower Rods
5:00	6:00							FINISHED cleaning out CEMENT LCM + plugs 453
6:00	7:30		453	462	9	9		
<hr/>								
9:00	9:00		462	472	10'	10'	HARD	10' PIECE OF CORE
10:00	10:30		472	482	10	10		100% MUD LOSS @ 478
10:30	11:00							PUMP H.P.M., NO RETURN
11:00	12:30		482	492	10'	10		
12:30	2:00		492	502	10	10	HARD	
2:00	3:30		502	512	10	10		HOLE DRY
3:30	4:15		512	519.5	7.5	4.53	MUSH	RED ASH
4:15	5:00		519.5	525	5.5	0.0	SOFT	" " DROPPED CORE
5:00	5:40		525	529.5	4.5	3.67	"	" "
5:40	7:00		529.5	540	10.5	10.5		
7:00	7:30							CORING
								20' FLUID IN HOLE
TOTAL								
							PERCENTAGE RECOVERY	

Comments / Explanation ~~Need to order more core~~ Box:
1-pail of Rod grease - 3-9el #1 - SODA ASH 100 LB.
Start 2235 end 2406 5 Loads
NITE 6 GEL 1 POLY 1 COTTONSEED
8 CORE BOXES.
BIT # 1466/5 SHELL # 2927
 Client Approval W.C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004608

Location Geo Bend Hole # N-3
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Date 6/15/86
 Driller BEHUNIN ELLIS Rig # _____

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
730	8:40	1	540	549.5	9.5	9.5		WATER TEST
8:40	9:20	2	549	555	5.5	5.5		
9:20	10:15	3	555	565.5	10.5	10.5		
10:15	10:30		565.5					Temp. TEST below 60°
10:30	11:15	4	565.5	572	6.5	6.5		
11:15	12:00	5	572	577	5	5		
12:00	12:50	6	577	584	7	6		Dropped core
12:50	1:30	7	584	590	6	1		Fluid level 490
1:30	2:25	8	590	598	8	8		
2:25	3:00	9	598	603	5	0		Dropped core
3:00	4:00	10	603	607	4	3		Beefed up mud
4:00	4:50	11	607	612	5	5		
4:50	5:50	12	612	622	10	7		Dropped core
5:50	6:15	13	622	623	1	3		
6:15	7:30	14	623	628	5	4		
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation Start 2406 end 2476 2 loads 6-Gel

Client Approval W. C. Walker Tonto Approval _____

TONTA DRILLERS LOG

No 004609

Location GEO BEND Hole # N-3

Day Shift Started 7:30 ~~A.M.~~ P.M. Ended 7:30 A.M. ~~P.M.~~ Date 6-15-86

Driller D ELLIS Rig # CP 50 #2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
6730	815	1	628	633	5	1.5	GRAVEL, CINDEERS	STUCK TUBE	
815	900	2	633	638	5	4	"	"	
900	940	3	638	640.5	2.5	2	"	"	
940	1030	4	640.5	644	3.5	2.5	"	" STUCK TUBE	
1030	1150	5	644	653	9	8.5	"	"	
1150	105	6	653	663	10	9.5	"	" TEMP TEST, BELOW 60°	
105	215	7	663	673	10	9	"	"	
215	300	8	673	678	5	5	RED CINDEERS	WATER SAMPLE	
300	345	9	678	682.5	4.5	3	"	"	
345	415	10	682.5	687	4.5	1.5	"	"	
415	500	11	687	691	4	3	"	"	
500	530	12	691	695	4	2.5	"	"	
530	600	13	695	697	2	1	"	"	
600	635	14	697	700	3	1	"	"	
635	710	15	700	704	4	3.5			
710	730							CORING	
TOTAL							PERCENTAGE RECOVERY		%

Comments / Explanation STATIC LEVEL ~~530~~ 530

5 GEL

LAST CORE Box # 22

Client Approval W.C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004610

Location GEO BEND Hole # N-3
 Day Shift Started 7:30 AM. Ended 7:30 AM.
 Night Shift Started 7:30 P.M. Ended 7:30 P.M. Date 6/16/86
 Driller GEO BEHUNIN D. ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	8:55		704	710.5	6.5	7	HARDER ROCK		
8:55	9:45		710.5	716	5.5	5.5	Hole dry to the BIT		
9:45	10:30		716	721	5	5			
10:30	11:45		721	731.5	10.5	10.5			
11:45	1:15		731.5	742	10.5	10.5			
1:15			hole caved in behind behind bit, washed +						
			back reamed to casing, pulled rods, changed						
	3:30		bit + shell						
3:30	4:50		Greased rods, run back in. washed in last 50'						
4:50	5:30		9' of cave on bottom, drilled it out						
5:30	6:20		742	746	4	4		WATER SAMPLE	
6:20	7:30		746	750	4	4			
7:30	8:30		750				HOLE TIGHT	PULL BACK 40' WASH + REAM	
8:30	10:00	1	750	760	10	6	CINDERS	HOLE DRY, CAVE	
10:00	10:45	2	760	762.5	2.5	2.5	GRAVEL	CAVE CINDERS	
10:45	12:40	3	762.5	771.5	9	7.5	GOUGE	CINDERS, REAM CAVE	
12:40	2:00	4	771.5	781.5	10	10		HOLE TIGHT.	
2:00	2:30	5	781.5				PULL BACK 40'	WASH + REAM	
2:30	4:10	5	781.5	791.5	10	10		HARD	
4:10	5:35	6	791.5	799	8.5	8.5		HOLE CAVING BEHIND BARREL	
5:35	6:00							PULL BEAM + WASH.	
6:00	6:45	7	799	802.5	3.5	3.0	RED ASH @ 802		
6:45	7:30		CORING					STATIC LEVEL 760'	
TOTAL									PERCENTAGE RECOVERY

Comments / Explanation BIT # X7-741 Shell # 2926 ON 742
3 - PAIS Rod Grease 9 - Gel 1 - POLY CORE
WATER START 2476 END 2550 2 Loads
NITE TEMP TEST @ 771.5 BELOW 60°
10 - GEL

Client Approval W.C. Walker Tonto Approval _____
 1 SOA ASH 100 LB.

TONTO DRILLERS LOG

No 004611

Location GEO BEND Hole # N-3
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 6/17/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
730	8:15	1	802.5	804.5	2.0	2.0		
8:15	9:20	2	804.5	812	7.5	7.5		
9:20	10:50	3	812	822	10	10		CONDITIONED hole FOR CAVE
10:50	12:40	4	822	832	10	10		hole dry TO THE bit
12:40	2:35	5	832	842	10	10		HARD
2:35	4:30	6	842	852	10	10		"
4:30	6:30	7	852	862	10	10		VERY HARD 100' OF Fluid in hole
6:30	7:30		862					CORING (Fluid SAMPLE)
<hr/>								
730	750	1	862	866	4	4		RED CINDERS + ASH
750	905	2	866	871.5	5.5	5		" " " LAST CORE SPR.
905	945	3	871.5	872	.5	0		CORE SPRING IN HOLE
945	1015							DRILL OUT CORE SPRING
1015	1130	4	872	879.5	7.5	7.8		CINDERS
1130	120	5	879.5	889.5	10	9		CINDERS, STICKY
120	240	6	889.5	895	5.5	5.5		" "
240	420	7	895	905	10	9.0		" "
420	449							CAN'T PULL TUBE RODS APART
445	530							TRIP OUT SLOW, 120' ROD + CORE BARREL OFF
530								PULL ON TAP, TRIP IN SLOW, GOT HOOKED, PUMP MUD
								730 FLUSH HOLE, PULL BACK OFF BOTTOM 8'
<hr/>								
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation 10 - GAL

START 2550 END 2619 END 2 LOADS

7 GAL

Client Approval W. C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004613

Location CEO BEND

Hole # N-3

Day Shift Started 7:30 A.M.
Night P.M.

Ended _____ A.M.
P.M.

Date 6/19/86

Driller BEHUNIN

ELLIS

Rig # CP-50-2.

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	9:50	1	932	942	10	10	HARD	Temp. Test below 60°	
9:50	11:40	2	942	952	10	10	"	Hole Dry To The bit	
11:40	1:20	3	952	962	10	10	"	" " " " "	
1:20	3:15	4	962	972	10	10	"	" " " " "	
3:15	4:45	5	972	982	10	10	(Cinders)	Fluid Sample	
4:45	5:35	6	982	985	3	2	"		
5:35	6:25	7	985	989	4	3.5	"		
6:25	7:30	8	989	994	5	5	"	10' OF Fluid in hole	
7:30	8:30	1	994	1000	6	5	RED CINDERS		
8:30	9:20	2	1000	1003.5	3.5	3.5	"	"	
9:20	10:55	3	1003.5	1014	10.5	10	"	HARDER	
10:55	12:45	4	1014	1024	10	10	HARD		
12:45	2:30	5	1024	1034.5	10.5	10.5	"	40' OF FLUID IN HOLE	
2:30	4:15	6	1034.5	1045	10.5	9.5	RED CINDERS & BLACK SAND		
4:15	5:45	7	1045	1055.5	10.5	10.5	GRAY CINDERS		
5:45	7:30	8	1055.5	1066	10.5	8.5	"	" HOLE DRY	
TOTAL							PERCENTAGE RECOVERY		

Comments / Explanation 9-Gel 13 GEL Poly
changed oil in mixer + pumps
WATER Start 2706 End 2780 2 loads
Need Right Side Ex Pipe from Manfold.

Client Approval William J. Dewart

Tonto Approval [Signature]

TONTO DRILLERS LOG

No 004614

Location GEO BENO Hole # N-3
 Day Shift Started 730 AM. Ended _____ AM.
 Night _____ P.M. P.M. Date 6/20/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
730	8:45	1	1066	1072	6	7	cinders		
8:45	9:45	2	1072	1080	8	5	"		
9:45	11:30	3	1080	1090.5	10.5	10	"	CONDITIONING hole FOR CAVE	
11:30	1:15	4	1090.5	1099.5	9	8			
1:15	3:15	5	1099.5	1109.5	10	10			
3:15	4:10	6	1109.5	1113	3.5	2.5		Fluid Sample	
4:10	5:30	7	1113	1122	9	6		hole dry TO THE bit	
5:30	6:10	8	1122	1126	4	2			
6:10	7:30	BAD Rod VIBRATION, pulled Rods. FOR GREASE							
7:30	1030	TRIP IN, GREASE RODS, WASH + REAM 40' TO BOTTOM HOLE BONE DRY.							
1030	1115	1	1126	1128.5	2.5	1	RED CINDERS	HOLE DRY	
1115	1215	2	1128.5	1132.5	4	3.5	"	" CAVE	
1215	200	3	1132.5	1142	9.5	7.5	"	"	
200	330	4	1142	1150.5	8.5	7	"	" HOLE DRY	
330	520	5	1150.5	1161	10.5	10.5	GREY	" "	
520	710	6	1161	1167	6	6	HARD	20' FLUID IN HOLE	
710	730	CORING							
TOTAL							PERCENTAGE RECOVERY		

Comments / Explanation 129el 5 GREASE
11 GEL
1 POLY
1 SAND ASH 100LB
Water Start 2780 END 2929 4 Loads

Client Approval William J. Demant Tester Approval [Signature]

TONTO DRILLERS LOG

No 004668

Location Geo BENO Hole # N-3
 Day Shift Started 7:30 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 6/21/83
 Driller BEHUNIN ELLIS Rig # EP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	8:15		1167					hole tight, wash + condition hole
8:15	10:45	1	1167	1177	10-10	Fluid		sample TEMP. TEST below 60°
10:45	11:40	2	1177	1180	3	2		Dry to the bit
11:40	1:20	3	1180	1190	10	10		Mud-Sand + cinders
1:20	3:10	4	1190	1199	9	9		
3:10	4:55	5	1199	1206.5	7.5	7.5		condition hole for CAVE
4:55	7:10	6	1206.5	1217	10.5	10.5		HARD
7:10	7:30							Coring
7:30	8:10	1	1217	1220	3	2		CINDERS
8:10	9:30	2	1220	1224.5	4.5	3		" HOLE TIGHT, CAULING BEHIND BARGE.
	10:30							PULL BACK, WASH + REAM. FLUSH HOLE, 30' FLUID.
10:30	12:00	3	1224.5	1230	5.5	4.5		CINDERS CAVE
12:00	12:30							PULL BACK, WASH + REAM 40' FLUID IN HOLE.
12:30	2:00	4	1230	1233.5	3.5	3		CINDERS, BAD CAVE.
2:00	2:30							WASH + REAM
2:30	3:30	5	1233.5	1236.5	3.0	2.		CINDERS CAVE
3:30	4:00							WASH + REAM CAVE
4:00	5:30	6	1236.5	1241	4.5	5.5		
5:30	6:00							WASH + REAM
6:00	7:30							TRIP OUT RODS
TOTAL								PERCENTAGE RECOVERY

Comments / Explanation 10-Gel 12. GEL, 1 SODA ASH 100LB
HOLE TIGHT, BLACK CINDERS, GOUGE, CAULING BADLY @ 1218, 1 POLY
START 2929 END 3072 4 LOADS

TEST H2S EQUIPMENT, WORKING

Client Approval _____ Tonto Approval _____

TONTO DRILLERS LOG

No 004669

Location GEO BEND Hole # N-3
 Day Shift Started 7 30 A.M. Ended 7 30 A.M.
 Night Shift Started 7 30 P.M. Ended 7 30 P.M. Date 6/22/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
7:30	9:00						Realign + Block Rig	
9:00	11:15						Grease + Lower Rods	
11:15	12:15	1	1241	1242			Washing To bottom + drilling cave	
12:15	1:30	2	1242	1250	8	8		Fluid Sample
1:30	2:30	3	1250	1253	3	3		
2:30	4:00	4	1253	1260.5	7.5	7		
4:00	5:05	5	1260.5	1263.5	3	3	Muddy	
5:05	7:30	6	1263.5	1272	8.5	8.5	SAND	TEMPTEST 64°

7:30	9:15	1	1272	1278.5	6.5	6.5	SAND + CINDERS	FLUID @ 1220
9:15	10:40	2	1278.5	1285	6.5	5	"	" STICKY
10:40	12:20	3	1285	1290	5	4.5	"	"
12:20	2:30	4	1290	1299.5	9.5	9	CINDERS	
2:30	4:30	5	1299.5	1307	7.5	7.5	SAND	GOUGE CINDERS
4:30	5:20	6	1307	1310	3	2.5	CINDERS	
5:20	6:35	7	1310	1317	7	6.5	"	(RED)
6:35	7:30	8	1317	1326.5	9.5	9.5		
							STATIC LEVEL @ 1220'	
TOTAL					PERCENTAGE RECOVERY			

Comments / Explanation Shell # 2752 BIT # X7-741 RERUN
6 PAIRS Red grease 6 gel
Water 3072 end 3177 end 3 loads
NITE - 1 POLY 10 GEL

Client Approval M.C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004670

Location GEO BEND Hole # N-3
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 6/23/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
7:30	8:55	1	1326.5	1331.5	5	5	Cinders		
8:55	10:15	2	1331.5	1339.5	8	8	"		
10:15	11:25	3	1339.5	1345	5.5	5.5	"	Fluid Sample	
11:25	12:55	4	1345	1355	10	10	"		
12:55	2:15	5	1355	1357.5	2.5	2.5	"	Conditioning hole for CAVE	
2:15	3:15	6	1357.5	1362	4.5	4.5	"		
3:15	4:10	7	1362	1366	4 4	4	"		
4:10	5:00	8	1366	1370	4	3	"	Fluid level 1340	
5:00	6:00	9	1370	1376	6	6	"	Temp Test hole Dry	
6:00	7:10	10	1376	1381.5	5.5	5.5	"	hole CAVING AT BOTTOM	
7:10	7:30						"	hole dry to the bit Temp. Test 63°	
<hr/>									
7:30	9:20	1	1381.5	1390	8.5	8.	CINDERS		
9:20	10:55	2	1390	1397	7 6	6	"		
10:55	11:25	3	1397	1398	2 1.5	1.5	"		
11:25	1:25	4	1398	1406	8	7	"	WASH & REAM CAVE.	
1:25	2:45	5	1406	1411	5	4.5	"	HOLE DRY	
2:45			BAD CAVE	PULL BACK 60'				PUMP HEAVY POLY MIX DOWN	
	3:45		OUTSIDE RODS,	WASH CAVE TO BOTTOM.					
3:45	4:50	6	1411	1415.5	4.5 4.5	4.5	CINDERS CAVE		
4:50	6:00	7	1415.5	1420	4.5	4.5	CINDERS,	BAD CAVE @ 1417	
6:00	7:05	8	1420	1424.5	4.5	3.5			
7:05	7:30			CORING,			HOLE DRY		
TOTAL							PERCENTAGE RECOVERY		%

Comments / Explanation 8-Gel 1-poly cote
3 GAL DIESEL, B.O.P.
WATER Start 3177 end 3354 4 loads water 1 Trip
NIFE 10 GEL
1 POLY
1 SODA ASH 100 LB

Client Approval _____ Tonto Approval _____

TONTO DRILLERS LOG

No 004671

Location Geo BEND Hole # N-3
 Day Shift Started 730 A.M. Ended 730 A.M.
 Night P.M. P.M.
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
730	9:15	1	1424.5	1432	7.5	7.5	broken	
9:15	11:10	2	1432	1442	10	10	Solid	Fluid level 1432
11:10	1:00	3	1442	1452	10	10	HARD	
1:00	2:45	4	1452	1462	10	10	"	Fluid SAMPLE 1462
2:45	4:00	5	1462	1468	6	3.5	cinders	
4:00	5:00	6	1468	1471.5	3.5	3	"	
5:00	6:15	7	1471.5	1477	5.5	5	"	TEMP TEST below 60°
6:15	7:05	8	1477	1482	5	5	"	hole dry to the bit
7:05	7:30	9	1482					COILING
<hr/>								
830	830	1	1482	1487.5	5.5	4.5	CINDERS	DRILL CAVE
830	930	2	1487.5	1490.5	3.	3.	"	" "
930	1050	3	1490.5	1493.5	3.	1.5	"	BAD CAVE,
1050	1210	4	1493.5	1497.5	4.	3.5	"	DRILL CAVE
1210	130	5	1497.5	1501.5	4.	4.	BROKEN	
130	310	6	1501.5	1507	5.5	4.	CINDERS	DRILL CAVE
310	410	7	1507	1511	4.	4.	BROKEN	CINDERS
410	450	8	1511	1512.5	1.5	1.	"	DRILL CAVE, DRY HOLE ETC
450	620	9	1512.5	1522	9.5	8.5	CINDERS	" "
620	730	10	1522	1529	7	7.1		
							10' FLUID IN HOLE	
TOTAL					PERCENTAGE RECOVERY			

Comments / Explanation 8-9el

Water Start 3354 end 3502 end 4 loads
NITE 8 GEL
1 PONY

1200 1210 1220

TONT DRILLERS LOG

No 004672

Location GEO BEND Hole # N-3
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started 7:30 P.M. Ended 7:30 P.M. Date 6/25/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	9:40	1	1529	1539	10	10	HARD	Fluid level (1530)	
9:40	11:15	2	1539	1549.5	10.5	10.5	CINDERS	Fluid Sample	
11:15	1:50	3	1549.5	1559.5	10	10	VERY HARD	UNLOAD MUD TRANSPORT	
1:50	4:20	4	1559.5	1570	10.5	10.5		CONDITION HOLE FOR VIBRATION	
4:20	6:10							PULL RODS FOR GREASE + BIT CHANGE	
6:10	7:30							GREASE + LOWER ROD	
7:30								FINISH LOWERING + GREASING RODS TO 1540'	
	1100							WASH + REAM CAVE TO BOTTOM, FLUID @ 1540	
1100	1150	1	1570	1572	2	2	CINDERS	TEMP TEST, BELOW 60°	
1:50	2:00	2	1572	1582	10	10	SOLID	WITH SOFT SEAMS	
2:00	4:05	3	1582	1592	10	8.5	"	" " " "	
4:05	6:10	4	1592	1602	10	9.5	"	" " " "	
6:10	7:15	5	1602	1607.5	5.5	3	"	CINDERS	
7:15	7:30							CORING	
								FLUID LEVEL @ 1540	
TOTAL							PERCENTAGE RECOVERY		

Comments / Explanation CORE BOXES 105-113 BIT # 7061-12
WELL # 2927 7-GREASE 8 GEL 1 POLY
WATER START 3502 END 3605 END
NITE 8 GEL

Client Approval M.C. LaPalmer Tonto Approval _____

TONT DRILLERS LOG

No 004673

Location GEO BEND Hole # N-3
 Day Shift Started 7:30 AM. Ended _____ AM.
 Night Shift Started _____ PM. Ended _____ P.M.
 Date 6/26/86
 Driller BEHUNIN ELLIS Rig # C.P-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
7:30	8:30	1	1607.5	1611	3.5	3	Cinders		
8:30	9:25	2	1611	1613	2	2	"		
9:25	10:30	3	1613	1617.5	4.5	4.5	"		
10:30	11:35	4	1617.5	1622.5	5	5	"		
11:35	12:45	5	1622.5	1627.5	5	5	"		
12:45	2:00	6	1627.5	1635	7.5	7.5	"		
2:00	2:50	7	1635	1637	2	1.5	"		
2:50	3:35	8	1637	1639.5	2.5	1.5	"	Fluid Sample	
3:35	4:55	9	1639.5	1643.5	4	3.5	"		
4:55	6:00	10	1643.5	1646	2.5	2.5	"		
6:00	6:50	hole caving, High Torque, pulled back 60' condition hole							
6:50	7:30	11	1646	1652	6	6		Fluid level 1540	
7:30	8:45	1	1652	1657	5	5	CINDERS		
8:45	10:15	2	1657	1664.5	7.5	7.0	"	BOUGIE	
10:15	11:40	3	1664.5	1670.5	6	5	"	HOLE DRY, TEMP TEST BELOW 60°	
11:40	1:10	4	1670.5	1678	7.5	7.5	"	CAVE, HOLE TIGHT.	
1:10	2:10	5	1678	1681	3	2	"	" " "	
2:10	3:30	6	1681	1685	4	4	"	PULL BACK, WASH & REAM	
3:30	5:00	100% MUD LOSS, HOLE FELL IN, PULL BACK 120', WASH & REAM BACK TO BOTTOM, CLEAN HOLE,							
5:00	6:05	7	1685	1692	7	7	HARDER.	FLUID @ 1680	
6:05	7:30	8	1692	1702	10	10	SOLID		
TOTAL							PERCENTAGE RECOVERY		%

Comments / Explanation CORE Box 113-117-122

WATER START 2605 END 2719 3 Loads
7 Gel, 1 Poly COREL, 1 100lbs Soda Ash
8 BEL 1 POLY CORE

Client Approval William J. D... #

TONTO DRILLERS LOG

No 004674

Location GEO BENO Hole # N-3
 Day Shift Started 7:30 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Date 6/27/86
 Driller BEHONIN ELLIS Rig # EP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	9:10	1	1702	1712	10	10	Solid.		
9:10	10:35	2	1712	1722	10	10	"		
10:35	12:00	3	1722	1732	10	10	broken		
12:00	1:40	4	1732	1740.5	8.5	8	Mud-Ash Cinders	Fluid Samples (Stuck Tube)	
1:40	3:00	5	1740.5	1751	10.5	10.5	Ash + Cinders		
3:00	4:15	6	1751	1761	10	10	"		
4:15	6:00	7	1761	1770	9	9	HARD		
6:00	7:30	8	1770	1777	7	7		Fluid level 1700	
7:30	8:40	1	1777	1783	6	5.5	CINDERS	TEMP TEST, BELOW 60°	
8:40	9:50	2	1783	1789.5	6.5	5.5	"	RED ASH	
9:50	11:10	3	1789.5	1795	5.5	5.5	"	" "	
11:10	12:55	4	1795	1805.5	10.5	10.5	"	" "	
12:55	2:35	5	1805.5	1815.5	10	10	"		
2:35	4:15	6	1815.5	1826	10.5	10.5	"		
4:15	5:35	7	1826	1836	10	10	"		
5:35	6:10	8	1836					HOLE TIGHT, PULL BACK 60', WASH + REAM	
			1840	4.					
6:10			HOLE FELL IN, PULL BACK 140', HOLE VERY TIGHT						
	7:30		HUNG RODS,						
			RODS STUCK 140' OFF BOTTOM						
TOTAL							PERCENTAGE RECOVERY		

Comments / Explanation CORE BOX # 123-130¹³⁷ 9-Gel 1-poly

WATER START 3719 END 3890 5 LOADS OF WATER

NOTE 9 GEL

TONTA DRILLERS LOG

No 004676

Location GEO BEND

Hole # N-3

Day Shift Started 7:30 A.M. Ended _____ A.M.
Night _____ P.M. P.M.

Date 6-29-86

Driller G. Behunin D. Ellis

Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	11:00							WORKING ON STUCK ROD
11:00								PUSH ROD BACK DOWN TO 1702 AS FAR AS IT WILL GO
	1:30							CHECK FLUID LEVEL 20' IN ROD (1680')
1:30	3:00							CEMENT IN HQ ROD
3:00								PULL B.O.P CUT OFF H ROD, CEMENT IN TOP OF
	7:30							H REINSTALL B.O.P
<hr/>								
7:30								CLEAN UP, CEMENT SET.
TOTAL						PERCENTAGE RECOVERY		

Comments / Explanation 21 BAGS CEMENT
JMT 710-176 ROUND TRIP LA PINE FOR NQ RODS
APPROX 70 MILES

TONTO DRILLERS LOG

No 004677

Location Geo Bend Hole # N-3
 Day Shift Started 7:30 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Date 6-30-86
 Driller G. Behunin D. Ellis Rig # CP50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30								CLEAN OUT CEMENT, CHANGE PIPE RAM JAWS ON B.O.P
								BRAKE OUT REMAINING H ROD, CHANGE CHUCK JAWS
								MAKE UP STRING OF NEW ROD, CHECK CEMENT
								AT 1420 BROKE OUT ROD IN 60'S
	<u>7:30</u>							WENT TO REDMOND AIRPORT AFTER BITS (NOT IN)
7:30								BITS IN REDMOND @ 11:15 PM, PICK UP,
	1215							TRAVEL TO DRILL SITE
1215	430							RIG CORE BARREL, LOWER RODS, TO 1420,
430	730							DRILL CEMENT TO 1480
TOTAL								PERCENTAGE RECOVERY

Comments / Explanation TRUCK MIKES 4178

BIT # L93588
 SHELL # 2754

Client Approval William J. D...

TONTO DRILLERS LOG

No 004679

Location GEO BENO Hole # N-3
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 7/1/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	12:30		1480	1582				DRILLING CEMENT
12:30	6:00		1582	1690				CEMENT HARDER
6:00	7:30		1690					DRILLING ON LANDING RING
7:30								DRILL BIT + SHELL THROUGH
	10:30							H LANDING RING,
10:30	17:00		TROUBLE FROM LANDING RING ON, BIT GONE					
	2:00		@ 1702.					
2:00	4:30		TRIP RODS, BIT COMPLETELY GONE, SHELLSHOT,					
4:30			1702	1704.8, ?				H BIT OFF OR MAYBE PIECE OF
	6:00		LANDING RING, TRY 3 TIMES, NO CEMENT CORE,					
6:00			TRIP RODS OUT.					
				1704.8				
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation _____

Water Start 4178 END 4252 ~~END~~ 2 Loads

BIT # X9-2122 SHELL # 2557

Client Approval M.C. Walker

TONTO DRILLERS LOG

No 004678

Location GEO BEND Hole # N-3
 Day Shift Started 730 AM. Ended _____ AM.
 Night Shift Started _____ P.M. Ended _____ P.M.
 Date 7/2/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
730			1704.8					RUN RODS back in with blunt END ON Rod, hammered on steel in hole to set it in +
	1:00							brake it up, pulled Rods put on core barrel; RUN back in
1:00	3:15		1704.8	1704.8				Drilling STEEL
3:15	4:15		1704.8	1712				Drilling very HARD CEMENT, won't gain
4:15	5:30		1712	1722				
5:30	6:15		1722	1724				
6:15	7:30		1724					CORING CEMENT
730	830		1724	1732.5				CEMENT.
830	900		1732.5					HARD CEMENT, WRONG BIT.
900	1130							TRIP RODS, CHANGE BIT, GREASE
1130	145		1732.5	1762				
145	400		1762	1782				
400	450		1782	1802				OUT OF CEMENT @ 1786
450	625		1802	1822				SOME CEMENT & CAVE
625	730		1822	1822 1841				CAVE + SLUDGE.
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation 1 ROD GREASE
BIT # 490292
WATER 4252 END 4286 1 Load
4 GEL & SODA ASH 100 LB

Client Approval W.C. Walker Tonto Approval _____

TONTO DRILLERS LOG

No 004658

Location CEO BEND Hole # N-3
 Day Night Shift Started 7:30 A.M. Ended 7:30 A.M. Date 7/5/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
7:30	9:20	1	2072	2082	10	10		
9:20	11:15	2	2082	2092	10	10		Temp. TEST below 60'
11:15	11:30	3	2092	2094	2	2		hole getting tight
11:30			Tried washing, NO good, back reamed with pump, ON STILL TIGHT, 1904 Rods STUCK, pushed down Rod + got Free, washed + backed reamed to 1840 pulled Rod + stripped them, RUN BACK IN WASHED					
7:30			Through bad Zone					
2:30	9:30		WASH + REAM, SWEEP HOLE TO BOTTOM					
7:30	10:30	1	2094	2098	4	0		DROPPED CORE
10:30	11:55	2	2098	2104	6	10		RECOVER CORE.
11:55	1:20	3	2104	2112	8	7.5	CINDERS + ASH @ 2106	
1:20	3:00	4	2112	2121	9	9.5	"	
3:00	5:10	5	2121	2131	10	9.5	"	
5:10	7:30	6	2131	2141	10	10	HARD.	
								STATIC LEVEL @ 1720
TOTAL					PERCENTAGE RECOVERY			

Comments / Explanation Box # 162-168 6-9el 1-Rod grease
Water Start 4483 end 19539 3 Loads
NITE SHIFT, 4 GEL, 1 POLY 1 SODA ASH 100LB

Client Approval W. W. [Signature]

TONTO DRILLERS LOG

No 004645

Location CEO BEND Hole # N-3
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started 7:30 P.M. Ended 7:30 P.M. Date 7/6/86
 Driller BEHUNIN EBBLS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	9:35	1	2141	2151	10	10	HARD	
9:35	11:35	2	2151	2161.5	10.5	10.5	"	
11:35	1:25	3	2161.5	2171.5	10	10	"	
1:25	3:40	4	2171.5	2182	10.5	10.5	"	Temp. TEST below 60°
3:40	5:30	5	2182	2191	9	9	"	
5:30	7:30	6	2191	2201	10	10	"	
7:30	9:40	1	2201	2211.5	10.5	10.5	HARD	FLUID @ 1720
9:40	11:55	2	2211.5	2221.5	10	9.5	"	
11:55	1:55	3	2221.5	2231.5	10	8	HARD, BROKEN,	CINDERS ASH
1:55	3:40	4	2231.5	2238.5	7	7	CINDERS	CAVE
3:40	4:45	5	2238.5	2243	4.5	1.5	"	SOFT. " RED ASH
4:45	6:45	6	2243	2252.5	9.5	9.5	HARD	
6:45		7	2252.5				CORING.	
					STATIC LEVEL @ 1720			
TOTAL					PERCENTAGE RECOVERY			

Comments / Explanation Box 169-180 6-9el
Water Start 4539 End 4740 4 Loads
NITE 5 Gen

Client Approval Richard L. Woodruff Tonto Approval _____

TONTO DRILLERS LOG

No 004646

Location GEO BEND 583 Hole # N-3
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 7/7/86
 Driller BEHUNIN ELLIS Rig # EP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	9:00	1	2252.5	2262	9.5	9.5		Flush hole
9:00			2262		pulled Rods Through head with pump on			
	12:00		up TO CASING. washed back TO bottom, hole in good shape					
12:00	1:30	2	2262	2271	9	7	CINDERS	Fluid Samples
1:30	3:20	3	2271	2281	10	10	"	
3:20	5:00	4	2281	2288.5	7.5	7	"	Temp. TEST below 60°
5:00	6:55	5	2288.5	2298.5	10	10	HARD	
6:55	7:30	6	2298.5					CORING
<hr/>								
7:30	9:00	1	2298.5	2309	10.5	10.5	HARD	
9:00	11:00	2	2309	2319	10	10	SOFTER	
11:00	1:00		PULL RODS BACK TO 1700 FT, CLEAN HOLE					
1:00								
	7:30		OUT OF WATER					
<hr/>								
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation Box # 181-186 5-gel 1-poly

NITE 2 GEL

in Mi: 1 A ... +

TONTO DRILLERS LOG

No 004648

Location GEO BEND 583 Hole # N-3
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 7/9/86
 Driller BEHUNIN ELLS Rig # EP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
730	9:10	1	2402	2409.5	7.5	7.5	TUFT		
9:10	10:50	2	2409.5	2422	12.5	10	CINDERS+ASH (Muddy)		
10:50	12:00	3	2422	2429	7	6	"		
12:00	1:10	4	2429	2432	3	2	BROKEN DROPPED CORE		
1:10	2:30	5	2432	2437	5	6	HARD+broken-hole caving		
2:30	4:45	6	2437	2445.5	8.5	8.5	CONDITIONING hole FOR CAVE		
4:45	6:15	7	2445.5	2456	10.5	10	HARD+BROKEN-obsidian+ASH		
6:15	7:30	8	2456	2461	5	4.5	CINDERS		
730	800						TEMP TEST, BELOW 60°		
800	950	1	2461	2471.5	10.5	10.5	CINDERS		
950	1145	2	2471.5	2482	10.5	10	" SOLID		
1145	1205	3	2482	2487	5	5	HARD, BROKEN		
1205	330	4	2487	2496.5	9.5	9.5	" "		
330	520	5	2496.5	2508	11.5	8	CINDER + ASH		
520	640	6	2508	2518	10	10	ASH		
640	730	7	2518	2518	10	10	" BUT SOLID		
STATIC LEVEL @ 1720									
TOTAL						PERCENTAGE RECOVERY			

Comments / Explanation Box 196-208 1-poly 5-GEL NEXT TEMP TEST @ 2460
WATER START 4907 END 5148 6 LOADS
NITE 7 GEL 1 SOOA ASH

D. J. ...

TONTO DRILLERS LOG

No 004649

Location GEO BEND 583 Hole # N-3
 Day Shift Started 7:30 AM. Ended _____ AM.
 Night Shift Started _____ P.M. Date 7/10/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	9:30	1	2528	2538	10	10	Harder		
9:30	11:20	2	2538	2548	10	10	"		
11:20	1:00	3	2548	2557	9	7.5	broken	Fluid Sample	
1:00	2:30	4	2557	2563	6	4	cinders	Temp-TEST-64°	
2:30	3:20	5	2563	2564.5	1.5	.5	"	Hole Caving	
3:20	4:45	6	2564.5	2568	3.5	2.5	"	CONDITION Hole For CAME	
4:45	6:10	7	2568	2575	7	6.5	"		
6:10	7:30	8	2575	2578	3	3	"		
<hr/>									
7:30	9:00	1	2578	2583	5	5	BROKEN	CINDERS	
9:00	11:00	2	2583	2593	10	10	"	"	
11:00	12:10	3	2593	2596.5	3.5	3	"	"	
12:10	2:30	4	2596.5	2607	10.5	10	"	"	
2:30	4:00	5	2607	2612.5	5.5	4	"	STICKY	
4:00	5:00	6	2612.5	2615	2.5	2	"	"	
5:00	6:15	7	2615	2619	4	3	"	"	
6:15		8	2619	2625	6	6	"	"	
STATIC LEVEL @ 1720.									
TOTAL							PERCENTAGE RECOVERY		%

Comments / Explanation Box 208-216 GEL-5 NEXT TEST 2560
ERTK START 5148 END 5254 DRILLSTAR-3 15-GAL. Diesel
715-759 4324 4400

NOTE 7-GEL 1 POLY
 Client Approval Michael Smith Tonto Approval _____

TONTO DRILLERS LOG

No 004650

Location CEO BEND 583 Hole # N-3
 Day Shift Started 7:30 AM. Ended 730 AM.
 Night Shift Started 7:30 P.M. Ended 730 P.M.
 Date 7/11/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
730	9:40	1	2625	2635	10	10			
9:40	11:10	2	2635	2641.5	6.5	6.5		Fluid samples	
11:10	12:50	3	2641.5	2646	4.5	4		Dropped core in rods	
12:50	3:00	4	2646	2656	10	10.5		Shook out core	
3:00	4:40	5	2656	2663	7	6		Temp. Test 60'	
4:40	6:20	6	2663	2671	8	8		Condition hole for cave	
6:20	7:30	7	2671					Coring	

730	800	1	2671	2681	10	10		CINDERS	
800	1000	2	2681	2690.5	9.5	9.5		"	
1000	1220	3	2690.5	2701	10.5	10.5		HARD	
1220	220	4	2701	2711	10	10		"	
220	415	5	2711	2721	10	10		"	
415	625	6	2721	2731	10	10		"	
625		7	2731						
TOTAL							PERCENTAGE RECOVERY		%

Comments / Explanation Box # 217-227 8-9el NEXT TEST @ 2660
1 LBS START 4404 END 4552 4 Loads
NITE 7 GEL 1 POLY 1 SOA ASH 100LB.

Client Approval W.C. Walker

TONTO DRILLERS LOG

No 004651

Location GEO BENO 583 Hole # N-3
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 7/12/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
7:30	8:40	1	2731	2738.5	7.5	6	CINDERS CLAY	
8:40	10:00	2	2738.5	2742	3.5	2.5	"	CONDITION hole FOR CAVE
10:00	11:40	3	2742	2747	5	5	"	Fluid SAMPLES
11:40	1:00	4	2747	2751	4	3		
1:00			pulled Rods FOR bit change, Rods TIGHT IN SPOTS coming out, greased Rods + RUN BACK IN					
	5:00		STARTED drilling CAVE 130' OFF BOTTOM					
5:00	7:00							DRILLING CAVE
7:00	7:30		2751	2752	1	1		Pull Tube FOR CAVE
30	9:45	1	2752	2757.5	5.5	5	BROKEN	WASH HOLE / TEMP TEST
7:45	12:00	2	2757.5	2767.5	10	10	"	CAVE (BELOW 60°)
12:00	2:45	3	2767.5	2777.5	10	10	CINDERS, BROWN , STICKY	
2:45	4:45	4	2777.5	2784.5	7.5	5	"	WASH, GOUGE, ? STICKY
4:45	7:00	5	2784.5	2794.5	10	10	SOLID	DRILL CAVE
7:30	7:30	6						CORING
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation Box # 228-232 6-Gel TEST 2768
MILES START 4552 END 4716 (416) 2-PAIRS Rod grease
BIT # X7 2209
Shell # 2755 FOR 2751 8 GEL 1 POLY
NITE, CAVE, WASH + DRILL EACH RUN, PULL BACK + CONDITION HOLE
 Client Approval Mil. D. ...

TONTO DRILLERS LOG

No 004652

Location Geo BEND 583 Hole # N-3
 Day Shift Started 730 A.M. Ended 730 A.M.
 Night Shift Started 730 P.M. Ended 730 P.M. Date 7/13/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
730	9:00	1	2794.5	2804.5	10	10	ASTROPIC VOLCANICS		
9:00	10:50	2	2804.5	2814.5	10	10			
10:50	12:35	3	2814.5	2823	8.5	8			
12:35	2:15	4	2823	2833	10	10			
2:15	3:50	5	2833	2842	9	9		Fluid Sample	
3:50	5:40	6	2842	2852	10	10			
5:40	7:30	7	2852	2862	10	10		Temp. Test 64°	
730	850	1	2862	2867.5	5.5	5.5	HARD		
850	1245	2	2867.5	2877.5	10	10	VERY, VERY HARD, MUO SEHM, STUCK		
1245	355	3	2877.5	2887.5	10	10	VERY HARD + MUDDY		
355	700	4	2887.5	2897.5	10	10	" "	" "	
700		5	2897.5				CORING		
TOTAL							PERCENTAGE RECOVERY		

Comments / Explanation Box # 233 - 244 TEST 2860
N 4466 START 4/16 END 4/9/9 LOADS 5 7-GEI

NITE 9 GEL

need Diesel conditioner

Client Approval Nicholas J. Smith

TONTO DRILLERS LOG

No 004653

Location GEO BEND 583 Hole # N-3
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M. Date 7/14/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
730	9:20	1	2897.5	2908	10.5	10.5	Hydrogeonetically Altered	
9:20	11:10	2	2908	2918	10	10	Diabase, with intrusives	
11:10	1:15	3	2918	2928	10	10	OF CRAPTITE (IE) mud	
1:15	3:05	4	2928	2938	10	10		
3:05	5:00	5	2938	2948	10	9.5	(HARD) Fluid samples	
5:00	7:30	6	2948	2957.5	9.5	10	VERY VERY HARD (ANDRASITE)	
730	800		TEMP TEST 67°					
800	1105	1	2957.5	2967.5	10	9.5	VERY HARD, MUDDY SEAMS	
1105	200	2	2967.5	2977.5	10	10.5	" "	
200	435	3	2977.5	2988	10.5	10.5	" "	
435	650	4	2988	2998	10			SOFTER @ 2995
650	730		2998				CORING.	
TOTAL							PERCENTAGE RECOVERY	

Comments / Explanation BOX # 245-255 TEST 2960 100%
MIKES START 4919, END 5115 LOADS 5 LOADS 8-GEL 1-POLY 1-SODA ASH
NITE 8 GEL 1 POLY

Client Approval Mike D.../...

TONTA DRILLERS LOG

No 004654

Location GEO BEND 583 Hole # N-3
 Day Shift Started 730 A.M. Ended 730 A.M.
 Night Shift Started 730 P.M. Ended 730 P.M. Date 7/15/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
730	9:20	1	2998	3008	10	10	TUFT + STUFF		
9:20	11:00	2	3008	3018	10	10			
11:00	11:10	3	3018	3028	10	10	HARD		
11:10	2:35	4	3028	3031	3	3	"		
2:35	5:15	5	3031	3041	10	10	very HARD	Fluid SAMPLES	
5:15	7:05	6	3041	3051	10	10	Muddy		
7:05	7:30	7	3051					CORING	
730	955	1	3051	3061	10	9	DROPPED CORE TEMP TEST 77° + 78°		
955	100	2	3061	3070.5	9.5	10.5	HARD		
100	345	3	3070.5	3081	10.5	9.0	HARD, MUDDY, DROPPED CORE		
345	615	4	3081	3089.5	8.5	10	" "		
615	730	5	3089.5				CORING		
TOTAL							PERCENTAGE RECOVERY		

Comments / Explanation Box #256-265 TEST 3060
MILES START 5115 ENDS 243 LOADS 3 LOADS 8 GEL
8 GEL 1 POLY
TEMP TEST @ 3061 77° + 78°

(Handwritten signature)

TONTO DRILLERS LOG

No 004655

Location GEO BEND 583 Hole # N-3
 Day Shift Started 730 A.M. Ended 730 A.M.
 Night Shift Started 730 P.M. Ended 730 P.M. Date 7/16/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
730	9:30	1	3089.5	3098.5	9	9	HARD	
9:30	10:45	2	3098.5	3099.5	1	1	BROKEN WEDGES	
10:45	11:05	3	3099.5	3100	10.5	10.5	"	
1:05	2:50	4	3100	3120	10	10	SOFTER BUT MUDDY	
2:50	4:30	5	3120	3130	10	10	"	
4:30	6:20	6	3130	3140	10	10	"	
6:20	7:30	7	3140	3150	10			CORING
730	830	1	3140	3150	10	10	SOFT MUDDY	
830	1045	2	3150	3160	10	9.5	"	TEMP TEST 103° + 103°
1045	1250	3	3160	3169.5	9.5	9.5	"	" , HARD @ 3165
1250	235	4	3169.5	3173	3.5	3	HARD + BROKEN	STUCK TUBE
235	400	5	3173	3175.5	2.5	2.5	"	CAVE
400	550	6	3175.5	3181	5.5	4.5	"	DRILL CAVE, MUDDY
550	730	7	3181	3183.5	2.5	2	"	" " "
DRILL + REDRILL CAVE EVERY RUN,								HOLE CLEARS UP.
TOTAL							PERCENTAGE RECOVERY %	

Comments / Explanation Box # 266-275 TEST 3160
MILES START 5243 END 5413 LOADS 4 LOADS 8-GEL
TEMP TEST @ 3160 103° BOTH THERMOMETERS
NITE 7 GEL 1 POLY

Client Approval W.C. Walker Tonto Approval _____

TONT DRILLERS LOG

No 004656

Location Geo BEND 583 Hole # N-3
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started 7:30 P.M. Ended 7:30 P.M. Date 7/12/86
 Driller BEHUNIN ELLIS Rig # CP50-2

TIME FROM	TIME TO	CORE RUN #	DEPTH FROM	DEPTH TO	FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
7:30	9:30	1	3183.5	3193.5	10	10	TUFT		
9:30	11:30	2	3193.5	3202	8.5	8.5	HARD		
11:30	1:30	3	3202	3212	10	8	"	pulled OFF CORE	
1:30	3:00	4	3212	3213	1	3	Temp. Test	1103° & 1103°	
3:00			3213					Rise in Fluid level due to plugged bit	
	4:00							Cleaned out plug level at 1850	
4:00	6:00	5	3213	3220.5	7.5	7.5			
6:00	7:30		3220.5					CORING	
7:30	8:30	1	3220.5	3230.5	10	10	TUFT	MUDDY	
8:30	10:40	2	3230.5	3238	7.5	7.5	HARD	BROKEN	
10:40	1:00	3	3238	3248	10	9.5	BROKEN	DRILL PAUSE	
1:00	3:40	4	3248	3259	11	10.5	SOLID, SOFT SEAMS	TEMP TEST.	
3:40	5:25	5	3259	3269.5	10.5	8.5	CINDERS	SOFT SEAMS, TEMP TEST	
5:25	7:10	6	3269.5	3276	5.5	7	?	MUDDY FLUID SAMPLE	
7:10	7:30	7	3276					CORING	
TOTAL							PERCENTAGE RECOVERY		

Comments / Explanation Box 276-284 TEST 3260
MILES, START 5413 END 5575 LOADS 4 LOADS 8-Gel 1-Soda ASH
TEMP TEST @ 3259, 82° + 82°, @ 3269 82° + 82°
FLUID SAMPLE @ 3276
 Note 9 GEL 1 POLY

Client Approval Michael Woodruff Tonto Approval _____

TONTO DRILLERS LOG

No 004657

Location Geo BEND 583 Hole # N-3
 Day Shift Started 730 AM. Ended _____ AM.
 Night Shift Started _____ P.M. Ended _____ P.M.
 Date 7/18/86
 Driller BEHUNIN ELLIS Rig # CP-50-2

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	9:35	1	3276	3286	10	10		
9:35	11:00	2	3286	3290	4	3	HARD + broken	
11:00	1:15	3	3290	3297	7	6.5	" " "	
1:15	3:00	4	3297	3300	3	2	Dropped core in rods	
3:00	5:06	5	3300	3305.5	5.5	5.5	Shook out core	
5:00	7:00	6	3305.5	3314	8.5	8.5		
7:00	7:30	7	3314					CORING

7:30	9:00	1	3314	3320	6	6	HARD + BROKE	TEMP TEST. 94° + 94°
9:00	11:30	2	3320	3326	6	6	OBSIDIAN ?	HARD, CINDERS
30	200	3	3326	3336.5	10.5	10.5	CINDERS	
200	450	4	3336.5	3346.5	10	10	HARD CINDERS	
450	730	5	3346.5	3357	10.5	10.5	"	
					TOTAL	PERCENTAGE RECOVERY		

Comments / Explanation Box # 285-292 TEST 3320
MILES START 5575, END 5688 LOADS 3 8-Gel
TEMP TEST @ 3320, 940
710-176 Start 5254 END 5280 END 1 Load
8 GEL 1 POLY

Client Approval Michael S Woodall Tonto Approval _____

TONTO DRILLERS LOG

Location Geo BEND Hole # N-3
 Date 7/19/86
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M.
 Driller BEHUNIN ELLIS RIG # EP-50-2
 JOB # 583

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
730	10:00	1	3357	3364	7	8	(UNLOAD TRANSPORT)	Fluid Samples
10:00	12:00	2	3364	3367.5	3.5	3.5		HARD + SHATTERED
12:00	3:15	3	3367.5	3377.5	10	10	(OBSIDIAN)	Temp TEST 192° + 92°
3:15	3:45	4	3377.5					CONDICTION hole FOR CAVE + high TORQUE
3:45	5:45	4	3377.5	3382	4.5	2		Dropped CORE?
5:45	7:30	5	3382	3385	3	0		believe bit is SHOT!!
730	815		3385					BIT SHOT.
815								TRIP OUT, CHANGE BIT, NO-X7-2208 ON, CHECK LATCH COUPLING + CHANGE LANDING RING, ROTATE SHELL # 2757 ON.
								TRIP IN + GREASE 2650, HOOK UP, WASH + REAM TO 2800, LOWER TO 3320, WASH + REAM TO BOTTOM
345	505	1	3385	3389	4	3		BROKEN
505		2	3389	3397	8	4		BROKEN CINDELS, CLAY, SAND GRAVEL GOUGE, SILT, MUD
					TOTAL		PERCENTAGE RECOVERY	

nents/Explanation Box #293-296 TEST 3370
7K MILES START 5688 END 5804 LOADS 3 Loads 9-Gel 100 lb. Soda
710-176 START 5254 END 5352 1 Load Rods ASH
2 Rod GREASE 5 GEL
BIT # NO X7-2208, SHELL # 2757

TONTO DRILLERS LOG

Location GEO BEND Hole # N3
 Date 7/20/86
 Day Shift Started 730 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M.
 Driller BEHUNIN FLLS RIG # CP-50-2
 JOB # 583

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
730	9:10	1	3397	3399.5	1.5	1.5	Drilled	MOSTLY CAVE	
9:10	11:20	2	3399.5	3408	9.5	5			
11:20	12:50	3	3408	3412	4	2.5		hole caving	
12:50	2:20	4	3412	3414	2	1	CONDIT	ION hole FOR CAVE	
2:20	4:40	5	3414	3422	8	6		TEMP TEST @ 110° & 110°	
4:40	6:05	6	3422	3432	10	6			
6:05	7:30	7	3432	3436	4	2			
730	920	1	3436	3440	4	2.5		FLUID SAMPLE	
920	1100	2	3440	3441	1	.5	BIT GONE	DRILL CAUSE, STUCK TUBE	
00			BROKE WIRELINE @ OVERSHOT, TRIP OUT RODS						
			BIT SHOT, RERUN SMT BLK # NO X9-2122 ON						
			TRIP IN & GREASE, WASH & REAM 2620 TO 2800 &						
	600		3280 TO BOTTOM						
600	730	3	3441	3444	3	1			
			STATIC LEVEL 1720'						
TOTAL							PERCENTAGE RECOVERY		

nents/Explanation Box # 297-299 TEST 3420 @ 110°
16 MILLS START 5804 END 5946 LOADS 4 7-Gel
#210 - 176 START 5352 END 5452 1 Load 2-DRILL STAR
1 Rod GREASE 3 Gel 20 Gal - Diesel
BIT # NO X9-2122 RERUN ON 1-Poly
Air Drill 11

TONTO DRILLERS LOG

Hole # N-3

Location Geo BEND Date 7/21/86

Day Shift Started 730 A.M. Ended 730 A.M.
 Night Shift Started 730 P.M. Ended 730 P.M.

RIG # CP-50-2

Driller BEHUNIN ELLIS JOB # 583

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
730	9:25	1	3444	3445.5	1.5	2	very Hard + Shattered		
9:25	11:35	2	3445.5	3450	4.5	4.5	"		
11:35	2:10	3	3450	3457	7	7	"		
2:10	4:45	4	3457	3463.5	6.5	6	"	TEMP TEST ↑ 123° ↓ 45° HIGH	
4:45	6:50	5	3463.5	3470.5	7	7	"		
6:50	7:30	6	3470.5					CORING	
730	900	1	3470.5	3475.5	5.0	4.5	VERY HARD + BROKEN		
900	1025	2	3475.5	3478	2.5	0.5	MUD SEAMS?	DRILL PAUSE	
1025	1200	3	3478	3482	4	2	" "	" "	
1200	155	4	3482	3484.5	2.5	1.5	" "	HARD " "	
155	315	5	3484.5	3485	0.5	0.5	DRILL PAUSE,	BADLY BROKEN, HARD	
315	515	6	3485	3489	4	1.5	MUD SEAM	" " "	
515		7	3489	3495.5	6.5	3	" "	" " "	
TOTAL							PERCENTAGE RECOVERY		

Notes/Explanation Box #300-303

3463^(R)
TEST 3470 123°

7K MILES START 5946 END 6099 LOADS 4

8-Gel 1-poly

7-GEL

A 2 0 0 1 0 1

TONTO DRILLERS LOG

Location GEO BEND Hole # N-3
 Date 7/24/86
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started _____ P.M. Ended _____ P.M.
 Driller BEHUNIN ELLIS RIG # CP-50-2
 JOB # 583

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	9:50	1	3632	3642	10	10	HARD		
9:50	11:20	2	3642	3647	5	4.5	BROKEN		
11:20	1:10	3	3647	3652	5	5.5	CRAP	Fluid Samples	
1:10		4	3652	3656	4			dropped core in rock	
	3:50	5	3656			0.5	SHOOK OUT	core + redrilled it	
3:50	5:45	6	3656	3662	6	7	TEMP. TEST	101° ↓ 101° BRASS	
5:45	7:30	7	3662	3671	9	9			
7:30	10:50	1	3671	3681.5	10.5	10.5		STUCK TUBE	
10:50	1:30	2	3681.5	3691.5	10	8.5	HARDER	DROPPED CORE IN ROCKS	
1:30	4:15	3	3691.5	3699	7.5	10	SHAKE OUT	CORE & RECOVER	
4:15	6:45	4	3699	3709	10	8.5	VERY HARD	TEMP TEST 105° ↓ 90 BRASS	
6:45	7:30	5	3709				CORING	DROPPED CORE	
TOTAL							PERCENTAGE RECOVERY		%

Comments/Explanation Box # 316-322 TEST 3660 101°
MILES 6334 START 6480 END 2 LOADS 8-Gel 3710 105°
8 GEL 1 Poly

Handwritten signature

TONTA DRILLERS LOG

Hole # N-3

Location Geo BEND Date 7/25/86

Day Shift Started 7:30 A.M. Ended 7:30 A.M.
Night Shift Started _____ P.M. Ended _____ P.M.

RIG # CP-50-2

Driller BEHUNIN ELLIS JOB # 583

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	10:15	1	3709	3718	9	10.5		REPAIR wireline	
10:15	12:45	2	3718	3728	10	10		CHANGED oil	
12:45	3:05	3	3728	3738	10	10			
3:05	5:00	4	3738	3743	5	5		Fluid Samples	
5:00	7:30	5	3743	3753	10	10		Trouble releasing Tube	
			3753						
7:30	10:10	1	3753	3763	10	10		TEMP TEST 102° + 103°	
10:10	12:35	2	3763	3774	11	10		SOFT SEAMIS ?	
12:35	3:35	3	3774	3784.5	10.5	10.5		CINDERS + HARD + MUDDY	
3:35	5:15	4	3784.5	3789	4.5	4		" BROKEN	
5:15	7:00	5	3789	3792.5	3.5	4		" MUD SEAM @ 3792.0	
7:00	7:30	6	3792.5					WASH + CLEAN HOLE	
TOTAL							PERCENTAGE RECOVERY		%

Comments/Explanation Box # 323-332 TEST 3760, 102 + 10:

MILES 6480 START 6592 END 3 LOADS

9 - GEL
8 - GEL

Asst. Driller

TONTO DRILLERS LOG

Location GEO BEND Hole # N-3
 Date 7/27/86
 Day Shift Started 7:30 A.M. Ended 7:30 A.M.
 Night Shift Started _____ P.M. Ended _____ P.M.
 Driller BEHUNIX ELLIS RIG # CP-50-2
 JOB # 583

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS	
FROM	TO		FROM	TO					
7:30	10:00	1	3878.5	3888.5	10	10			
10:00	12:15	2	3888.5	3898.5	10	10			
12:15	3:00	3	3898.5	3908.5	10	10		Temp. TEST \uparrow 130° \downarrow 130°	
3:00	5:15	4	3908.5	3918.5	10	10			
5:15	7:00	5	3918.5	3923	4.5	4.5		Fluid SAMPLE	
7:00	7:30		3923					CORING	
7:30	9:10	1	3923	3930	7	6	BROKEN	MUD SEAMS	
9:10	10:35	2	3930	3932	2	2.5	TUFF.	MOODY	
10:35	12:5	3	3932	3942	10	9.5	"	"	
12:5	4:00	4	3942	3951.5	9.5	9	"	" HARD	
4:00	7:00	5	3951.5	3961	9.5	10	"	" "	
	7:30							TEMP TEST 118 + 120	
TOTAL							PERCENTAGE RECOVERY		%

Comments/Explanation Box #342-350 TEST 3910 130°
MILES 6711 START 6826 END 3 LOADS
7 Gel, 1 Poly CORE L TEST 3961
10 GEL 1 SODA ASH 100 LB
100 lb 1 Puller

TONTO DRILLERS LOG

Location BEO BEND Hole # N-3
 Date 7/30/86
 Day Shift Started 7:30 A.M. Ended _____ A.M.
 Night Shift Started _____ P.M. Ended _____ P.M.
 Driller BEHUNIN ELLIS RIG # CP-50-2
 JOB # 583

TIME		CORE RUN #	DEPTH		FOOTAGE CORED	FOOTAGE RECOVERED	ROCK TYPE	ACTIVITY / PURPOSE / MATERIALS
FROM	TO		FROM	TO				
7:30	11:30							BRAKE OUT NEW Rod in 205
11:30	3:30							STRAP liner pipe waiting on OK To Lower
3:30								Lower liner pipe, filling it with water
	7:30							Every 500'
7:30								Lower + Fall Liner + Land on casing
								Flange liner hanging approx 6" off
	2:30							Bottom.
2:30	7:00							CLEAN UP + TEAR DOWN
TOTAL							PERCENTAGE RECOVERY %	

Comments/Explanation TK MILES 4 HRS, HAUL EQUIP, TO LARNE
YARD

- 1 1 1/2" x 2" LINER FLANG, 1 1/2" x 2" N. PIPE 1- 2x2" N. PIPE
- 1- 2" TEE 3- 2" BULL PLUG, ALL SCH 80, 1- 2" PLUG SCH 40

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR

8 June 1986
(Date)

DRILLING DAY

1

WELL NAME

CTAH-1

LOCATION

Section 23, T8S, R8E, Oregon

PRESENT DEPTH

~15'

FT.

PROPOSED DEPTH

5000'

FT.

DEPTH FROM

FT. TO

FT.

AVE. DRILLING RATE

FT/HR.

CASING

AT

FT.

AT

FT.

AT

FT.

DIRECTIONAL SURVEY

DETAILED LITHOLOGY

Glacier outwash

OTHER SIGNIFICANT DATA

Drilling through boulders reached 35' and attempted to run conductor pipe but hole was too deviated. Rig was skidded 6' to the west and new hole started.

REPORTED BY

Joe Jovani Ho

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR

10 June '86
(Date)

DRILLING DAY

4

WELL NAME

CTGH-1

LOCATION

SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH

220

FT.

PROPOSED DEPTH

5000

FT.

DEPTH FROM

35

FT. TO

220

FT.

AVE. DRILLING RATE

FT/HR.

CASING

AT

FT.

AT

FT.

AT

FT.

DIRECTIONAL SURVEY

DETAILED LITHOLOGY

BASALT / BASALTIC ANDESITE

OTHER SIGNIFICANT DATA

FULL RETURNS, FLUID STANDING AT

SURFACE

REPORTED BY

Doug Goodwin @ 2200hrs / JLI

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebein: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 11 June '86
(Date)

DRILLING DAY 5

WELL NAME CTGH-1

LOCATION SECTION 28, T8S, R2E, OREGON

PRESENT DEPTH 480 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM _____ FT. TO _____ FT. AVE. DRILLING RATE 40 FT/HR.

CASING _____ AT _____ FT.

_____ AT _____ FT.

_____ AT _____ FT.

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY BASALT/BASALTIC ANDRESITE (AS ABOVE (A/A)); DRILLING THROUGH A SERIES OF THIN FLOWS

OTHER SIGNIFICANT DATA ① LCZ @ 400' = 1000 gals, recovered

Full circulation; 400'-420' only very minor losses

② T_m = 68°F, T_{out} = 65°F

REPORTED BY Doug Goodwin @ 2230 hrs / JLI

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 12 June 1986
(Date)

DRILLING DAY 6

WELL NAME CTAH-1

LOCATION SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH 517 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 480 FT. TO 517 FT. AVE. DRILLING RATE _____ FT/HR.

CASING _____ AT _____ FT.

_____ AT _____ FT.

_____ AT _____ FT.

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY As above

OTHER SIGNIFICANT DATA ① Lost circulated @ 517'

② LCZ @ 425' pumped 1000 gals + 3 (125 gal) stock tanks and regained circ

③ @ 490' T_{in} = 63°F, T_{out} = 61°F

Note: T of make-up water going into the sump is 71°F

REPORTED BY Doug Goodwin @ 2130 hrs, 12 June / JLI

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 13 June 1986
(Date)

DRILLING DAY 7

WELL NAME CTCH-1

LOCATION SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH 517 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM _____ FT. TO _____ FT. AVE. DRILLING RATE _____ FT/HR.

CASING _____ AT _____ FT.

_____ AT _____ FT.

_____ AT _____ FT.

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Glacier outwash / bedrock contact @ about 40'

OTHER SIGNIFICANT DATA Run geophysical log from 0630 to 1215 as per program plus a deviation survey. Water level found @ 20' where T = 62°F, @ BH (517) T = 48°F. Log and operation were reported as very good and successful, respectively. Scale during caliper run, electronically sketched and needs to be corrected on final copy along with depth correlating all the logs.

REPORTED BY Doug Goodwin @ 1500 hrs, 14 June / JCI

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute ✓

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 22 June 1986
(Date)

DRILLING DAY 8-15

WELL NAME _____

LOCATION _____

PRESENT DEPTH _____ FT. PROPOSED DEPTH _____ FT.

DEPTH FROM _____ FT. TO _____ FT. AVE. DRILLING RATE _____ FT/HR.

CASING _____ AT _____ FT.

_____ AT _____ FT.

_____ AT _____ FT.

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY _____

OTHER SIGNIFICANT DATA Running casing cement, test BOP, etc.

REPORTED BY JLI

- cc: W. L. D'Olier; Thermal Power Co.
- J. J. Hebein; Thermal Power Co.
- E. D. James; Chevron Resources Co.
- D. Nielsen; University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 22 June 1986
(Date)

DRILLING DAY 16

WELL NAME CT644-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 539 1/2 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 527 FT. TO 539 1/2 FT. AVE. DRILLING RATE _____ FT/HR.

CASING _____ AT _____ FT.

_____ AT _____ FT.

_____ AT _____ FT.

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY As above, slight porphyritic basalt/basaltic andesite; minor vertical fracturing; slight occurrence of clay in fractures

OTHER SIGNIFICANT DATA ① 4" casing set @ 0240 22 June; ② made 3 core runs; ③ partial LC @ 534', Total LC @ 536'; ④ Fluid level ~ 20-30' but mud is thick; ⑤ casing about 3-7' per run; ⑥ during circ T mud in = 48°F T mud out = 55°F, MRT's = 55°F, make-up water = 51°F.

REPORTED BY Doug Goodwin @ 1730h 22 June 1985 /SLI

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebein: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 25 June 1986
(Date)

DRILLING DAY 19

WELL NAME CTAH-1

LOCATION SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH 806 FT. PROPOSED DEPTH 5000' FT.

DEPTH FROM 799 FT. TO 806 FT. AVE. DRILLING RATE 8.75 FT/HR. ^{CORING}

CASING 10 3/4 AT 35 FT.

7 AT 488 FT.

4.5 AT 526 FT. (temporary)

DIRECTIONAL SURVEY 733' = 272° S13°E

DETAILED LITHOLOGY same as before: brecciated ^{vertical} flow boundaries, dense internal portions of flows. Internal flow portions not fractured. Clay found in flow tops.

OTHER SIGNIFICANT DATA ① Water level @ 28' (hydrostatic 1/2 hr) @ 799'

Core depth - ② MRT @ 690-700' = 75, 72, 73 °F 1st run, 70, 70, 69 2nd run;

Trud in = 65 °F; ③ Core recovery 100% in dense internal portions of

flows, 50-80% in flow tops on average. ④ Water pumped in to hole 11500 gals.

REPORTED BY Doug Co. Swin for 1030 h 25 June '86

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebein: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 26 June 1986
(Date)

DRILLING DAY 20

WELL NAME CT 44-1

LOCATION SECTION 28, T8S, R3E, OREGON

PRESENT DEPTH 866.5 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 806 FT. TO 866.5 FT. AVE. DRILLING RATE 5 FT/HR.

CASING 10 1/4" AT 35 FT.

7" AT 438 FT.

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Lahan encountered @ 815' to ~846', gradational

bottom into a regolith to ~854', 854-866' either dolitic or andesite flow

864-866.5 distinct "sausage-like" fractures at 80° angle to core length (maybe platy type flow).

OTHER SIGNIFICANT DATA ① Water level @ 26'; ② mRT = 65, 67, 67°F @ ^{860'} 800-870';

③ T mud in = 61°F; ④ Core runs = 12, cut 60 feet; average recovery 70%;

⑤ utilized 7500 gals of water; ⑥ Very short core runs in highly fractured rock

REPORTED BY Dave Goodwin for 1130h 26 June '86

JCI

- CC: W. L. D'Olier: Thermal Power Co.
- J. J. Hebein: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 27 June '86
(Date)

DRILLING DAY 20-21

WELL NAME CTGH-1

LOCATION SECTION 28, T8S, R3E, OREGON

PRESENT DEPTH 944.5 @ 1000h FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 806 FT. TO 944.5 FT. AVE. DRILLING RATE 87 FT/HR.

CASING 10 3/4" AT 35 FT. AVE. CORE RECOVERY 88%

7" AT 488 FT.

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Dacite locally brecciated - may be an intrusive,
too early to define

OTHER SIGNIFICANT DATA ① Water level @ 944' = 26'

② MRT's @ 918' = 67, 67, 69°F

Trend is = 67°F

③ Water loss = 6250 gals

REPORTED BY Doug Goodwin @ 1200h, 27 June '86 / JLI

- CC: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 28 June '86
(Date)

DRILLING DAY 21-22

WELL NAME CT 4H-1

LOCATION SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH 977.5 @ 1000h FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 944.5 FT. TO 977.5 FT. AVE. ^{CORING} DRILLING RATE 7.1 FT/HR.

CASING 10 3/4" AT 35 FT. AVE. CORE RECOVERY = 92%

7" AT 488 FT. Footage drilled: 33'

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 944.5 to 977.5: dacite but it maybe a disc. hc
sub-volcanic intrusive

OTHER SIGNIFICANT DATA ① Water level @ 977 = 23'

② MRT's @ 968' = 67, 65, 68°F

T_{mud} @ 968' = 67°F

③ Water use = 2000 gals

④ Sluff encountered @ 600' during core run,
washed and pushed sluff to bottom

REPORTED BY Angela McDonald @ 2330h / JLI 24 June '86

- CC: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 29 June 1986
(Date)

DRILLING DAY 22-23

WELL NAME CT 4H-1

LOCATION SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH 1151' @ 1000 hrs FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 977.5 FT. TO 1151 FT. AVE. ^{CORING} DRILLING RATE 10.9 FT/HR.

CASING 10 3/4" AT 35 FT. AVE. CORE RECOVERY 100%

7" AT 488 FT. Footage drilled 173.5'

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 977.5 to 1110': diorite; 1110' = contact w/ a debris flow, no bake zone evident; 1138': basalt flow; drilled interval fractured

OTHER SIGNIFICANT DATA ① Water loss @ 1131' drilled = 35';

② MRT @ 1093' = 63, 63 and 65°F

T_{mod in} = 64°F

③ Water use = 9000 gals

REPORTED BY Angela McDaniel @ 2330 h / JLI 29 June '86

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 30 June '86
(Date)

DRILLING DAY 23-24

WELL NAME CTAH-1

LOCATION SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH 1271' @ 1000h FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 1151 FT. TO 1271 FT. AVE. DRILLING RATE 3.2 FT/HR.

CASING 10 3/4" AT 35 FT. AVE CORE RECOVERY: 100%

7" AT 488 FT.

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 1151-1230': basaltic andesite; 1230-1236.5'

lahar flow; 1236.5-1250: sediments; 1250-1271': lahar

Core is coming out rubble.

OTHER SIGNIFICANT DATA ① Water level: NO DATA BECAUSE OF BIT TRIP

② mRT's = 61, 61 (3rd brock)

• T_{max} = 60°F

③ Water use = 9000 gals

④ Bridge @ 660'

REPORTED BY Doug Goodwin @ 1150h / JCI 30 June '86

cc: W. L. D'Olier: Thermal Power Co.
J. J. Hebeins: Thermal Power Co.
E. D. James: Chevron Resources Co.
D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 1 July 86
(Date)

DRILLING DAY 24-25

WELL NAME CTGH-1

LOCATION SECTION 28, T8S, R8E, OREGON

PRESENT DEPTH 1366 @ 1000h FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 1271 FT. TO 1366 FT. AVE. ^{CORING} ~~DRILLING~~ RATE 14.8 FT/HR.

CASING 10 3/4" AT 35 FT. AVE CORE RECOVERY: 96%

7" AT 488 FT.

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 1271-1297': loam; 1297-1300.5' = pebbly, sandy silt; 1300.5-1366' = sandstone but top 10' very weathered

OTHER SIGNIFICANT DATA ① Water level ~40' @ 1356' - may not be significantly different from previous measurement due to mechanical set-up

② MRT @ 1348': 67, 63, no reading Tmd = ~63°F

③ Water use 5000 gals

REPORTED BY Doug Goodwin @ 1135h / JLI 1 July 86

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebein: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute ✓

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR

2 July 1986
(Date)

DRILLING DAY

25-26

WELL NAME

CT 4H-1

LOCATION

SECTION 28, T8S, R3E, OREGON

PRESENT DEPTH

1512 @ 1000

FT.

PROPOSED DEPTH

5000

FT.

DEPTH FROM

1366

FT. TO

1512

FT.

AVE. ^{CORING} DRIPPING RATE

12.1

FT/HR.

CASING

10 3/4"

AT

35

FT.

AVE. CORE RECOVERY = 49%

7"

AT

488

FT.

FOOTAGE CORED = 146'

4.5"

AT

526

FT.

(temporary)

DIRECTIONAL SURVEY

DETAILED LITHOLOGY

1366-1512': andesite

OTHER SIGNIFICANT DATA

① Water level ~ 45' @ 1481'

② MRT's = 63, 64 ^{no} _{min}; Tunnel in = 63°F

③ Water use 9000 gals

REPORTED BY

Doug Woodwin @ 1200h / JLI 2 July 1986

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebein: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 3 July 1986
(Date)

DRILLING DAY 26-27

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 1619 @ 1000 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 1512 FT. TO 1619 FT. AVE. ^{CORING} DRILLING RATE 9.6 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES: 107'

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 1512'-1587': andesite fractured, 1587'-1619':
volcanoclastic sediments principally conglomerates. Minor clay
in fractures, void spaces. Slight pyrite in volcanoclastic sediments.
No significant signs of hydrothermal alteration.

OTHER SIGNIFICANT DATA ① Water level @ 1615' = 18' (Not sure if meaningful yet)

② MRT's = 61, 61, 63°F @ 1615'; Tmud = 60°F

③ Water use 6500 gals.

④ Conditioned hole w/ mud @ 1605' to
reduce torque which decreased by 1/3.

REPORTED BY Doug Goodwin @ 1230h / JLS 3 July '86

- CC: W. L. D'Olier: Thermal Power Co.
- J. J. Hebein: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @ 2200 3451 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 3350 FT. TO 3451 FT. AVE. ^{CORING} DRILLING RATE 9.7 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES: 101'

4.5" AT 576 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 2965.6-3451: basaltic andesite

- Alteration: ① Slight increase in silica in small venticles, vesicles and voids
- ② minor brown clay, ^{moderately pervasive} blue-green clays (palaeoandesite(?))
- ③ Minor to trace native copper (wires and plates) on clay; trace silver(?)
↳ pipe dope?, shavings of drill string?
- ④ Minor ~~gypsum~~
- ⑤ Common zeolite

OTHER SIGNIFICANT DATA ① Water level @ 3400' = 70'

② MRT's @ 3400' = 128.5°F, @ 3450' = 127°F

③ Water use = 9000 gals. Increase in water use due to rod chatter. No significant change in the permeability of the core section.

REPORTED BY Angela McDannel @ 0930 26 July '86 / JCI

- cc: W. L. D'Olier: Thermal Power Co.
J. J. Hebein: Thermal Power Co.
E. D. James: Chevron Resources Co.
D. Nielsen: University of Utah Research Institute

DRILLING DAY 49-50

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @ 2200h = 3552 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 3451 FT. TO 3552 FT. AVE. ^{CORING} DRILLING RATE 8.5 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORED: 101'

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 2965.6 - 3552': basaltic andesite, as above

Alteration: clay blue, green and white; slightly-moderately pervasive;
zeolites common, as above; trace copper (native);
minor silica in venalets and voids

OTHER SIGNIFICANT DATA ① Water level @ 3491' = 90', @ 3542' = 70'

② MRT's @ 3491' = 129.5, 129.5, 130°F, @ 3542' = 131, 131, 131.5°F

③ Water use = 7500 gals

Waibel's site review of cores indicates not much water movement below 1500-
2000'. No significant thermal signature evident in rocks.

REPORTED BY Angela McDonald @ 0935 27 July '86 /SLI

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

DRILLING DAY 50-51

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @ 2200h 3641 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 3552 FT. TO 3641 FT. AVE. DRILLING RATE 7.8 FT/HR.
CORING

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES: 89'

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 2965.6-3641: basaltic andesite, as above

Alteration: Detecting slightly less clay last 2 days. Clay present as before (blue-green, brown and white); Silica, as before in voids and viallet, appears to be replacing clay; Rare copper.

OTHER SIGNIFICANT DATA ① Water level @ 3592.5' = 90'

② MRT's @ 3592.5' = 132, 132.5°F; 3641' = 138°F

③ Water use = 9800 gals

REPORTED BY Angela McDaniel @ 0930, 28 July '86 / SLI

- W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR

28 July 1986
(Date)

DRILLING DAY 51-52

WELL NAME CTGH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 3711' at 2200 lbs FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 3641 FT. TO 3711 FT. AVE. ^{CORING} DRILLING RATE 7.7 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES: 70'

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY

DETAILED LITHOLOGY Basaltic andesite - same as previous day.
Alteration same as previous day. Some clay-zeolite-
silica profiles, but no copper evident

OTHER SIGNIFICANT DATA Water levels: 3671' depth 105' below ground
3711 65' below ground
Water use: 4800 gals.
MRTs at 3671' depth 140.5 - 140.5 - 140
at 3711' " 137 - 137.5 - broken

REPORTED BY Angela Ortolini 29 July 86 / AVO

- W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

Discussed possible
 SWANBERG and
 MARSHALL REED visit

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR

29 July 1986
(Date)

DRILLING DAY 52-53

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 3721' at 2200 hours FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM _____ FT. TO _____ FT. AVE. ^{COAL} DRILLING RATE 6 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES:

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Basaltic andesite. No silica. Fractures about barren of secondary minerals!

OTHER SIGNIFICANT DATA Water level at 3721' hole depth* 50' below ground
* no rods in corehole

When pulling bit 6 for replacement, corehole was tight in 200-foot interval, 800-1000' depths

REPORTED BY Roy Godwin 1320 hrs 30 July 86 / RD

- CC: W. L. D'Olier: Thermal Power Co.
 J. J. Hebeins: Thermal Power Co.
 E. D. James: Chevron Resources Co.
 D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 7-30th
(Date)

DRILLING DAY 53-54

WELL NAME CT4H-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 3801' (2200 hrs) FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 3721' FT. TO 3801 FT. AVE. ^{CORING} DRILLING RATE 8.7 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES: 80'

4.5" AT 576 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY basaltic andesite; decrease in clay;
silica decreased; minor copper (trace); minor
zeolites; otherwise little alteration

OTHER SIGNIFICANT DATA water level @ 3721' - 50' @
@ 3763 - -80'

MRT @ 3763' - 145, 145, 146'

H₂O consumption = ?

REPORTED BY Angela McDaniel (G.J.H.)

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 31 July 1986
(Date)

CORING
DRILLING DAY 54-55

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @ 2200h 3891 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 3801 FT. TO 3891 FT. AVE. ^{CORING} DRILLING RATE 8.3 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORED: 90

4.5" AT 576 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 2965.5 - 3981': basaltic andesite

Alteration: slight increase in clay and silica content
in zones of intense fracturing; minor zeolites

OTHER SIGNIFICANT DATA ① Water level @ 3841' = 85', @ 3891' = 80'

② MRT's @ 3841' = 148, 149.5, 150°F;
@ 3891' = 151*, 154.5, 155°F

③ Water use = 5700 gals

Water use for day 53-54 = 5600 gals

REPORTED BY Angela McDonnell @ OARCS 1 Aug / JLT

* Mercury separated

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR

1 Aug '86
(Date)

CORING

DRILLING DAY

SS-56

WELL NAME

CTAH-1

LOCATION

Section 28, T8S, R8E, OREGON

PRESENT DEPTH

@ 2200 h

3972'

FT.

PROPOSED DEPTH

5000

FT.

DEPTH FROM

3891

FT. TO

3972

FT.

AVE. DRILLING RATE

8.7

FT/HR.

CASING

10 3/4"

AT

35'

FT.

AVE. CORE RECOVERY: 100%

7"

AT

488

FT.

FOOTAGE CORES: 81'

4.5"

AT

526

FT.

(temporary)

DIRECTIONAL SURVEY

DETAILED LITHOLOGY

basaltic andesite as above

Alteration: common clay, predominantly green/green-blue type (celadonite?);
two types of zeolites present, require XRD for identification; silica
common in dense portions of flows occurs as vug filling, in small
fractures and occasionally replacing clay; trace foliated
clear mineral (possibly anhydrite/gypsum)

OTHER SIGNIFICANT DATA

① Water level @ 3931.5 = 75', @ 3972' = 75'

② MRT's @ 3931.5 = 153, 154, 155 °F, @ 3972' = 159, 162, 162 °F

③ Water use = 6800 gals

REPORTED BY

Angela McDaniel @ 0915 h 2 Aug / JLI

cc: W. L. D'Olier: Thermal Power Co.
J. J. Hebein: Thermal Power Co.
E. D. James: Chevron Resources Co.
D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 2 Aug '86
(Date)

CORING
DRILLING DAY 56-57

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @ 2200h 4052 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 3972 FT. TO 4052 FT. AVE. ^{CORING} DRILLING RATE 7.8 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT.

FOOTAGE CORES: 80'

4.5" AT 576 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Same as previous day

OTHER SIGNIFICANT DATA ① Water level @ 4012 = 50', @ 4052 = 70'
② MPT's @ 4012' = 156, 165, 166°F, @ 4052 = 163, 163.5, 167°F
③ Water use = 4400 gal.

REPORTED BY Angela McDaniel @ 0920h, 3 Aug / JLI

CC: W. L. D'Olier: Thermal Power Co.
J. J. Hebeins: Thermal Power Co.
E. D. James: Chevron Resources Co.
D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 3 Aug 1986
(Date)

CORING
DRILLING DAY 57-58

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @ 2200h 4133 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 4052 FT. TO 4133 FT. AVE. ^{CORING} DRILLING RATE 7.8 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%
7" AT 488 FT. FOOTAGE CORES: 81'
4.5" AT 576 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Same lithology as before: basaltic andesite. Finding that
with depth the dense portions of the flows are becoming thicker while the
interflow horizons are thinning. Intercept drilling through flank of a paleo-volcano.
Alteration: dense flows generally more fractured than intra-flow horizon
and contain predominantly clay (green/blue-green) + silica, zeolite ±
whereas, the intraflow breccia contain abundant zeolite, minor clay ± silica
Clay found to slightly effervesce with HCl. Clay identification in progress.

OTHER SIGNIFICANT DATA _____

- ① Water level @ 4093' = 70' ; 4133' = 75'
- ② MRT's @ 4093' = 163, 166 , @ 4133 = 165^u, 167.5^oF
- ③ Water use = 6000 gals

REPORTED BY Angela McDonald @ 0930h 4 Aug / JLI

- cc: W. L. D'Olier: Thermal Power Co.
 J. J. Hebein: Thermal Power Co.
 E. D. James: Chevron Resources Co.
 D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 4 Aug '86
(Date)

CORING
DRILLING DAY 58-59

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @ 2200 h 4203 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 4133 FT. TO 4203 FT. AVE. ^{CORING} ~~DRILLING~~ RATE 6.8 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT.

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Rock type and alteration the same as
yesterday

OTHER SIGNIFICANT DATA ① Water level @ 4173' = 60'

② MRT's @ 4173 = 165*, 171°F

③ Water consumption = 7000 gals

REPORTED BY Angela McDonnell @ 0930 5 Aug / JLI

* MRT not functioning properly.

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR

5 Aug - 9 Aug 1964
(Date)

CORING
DRILLING DAY 60-61 to 63-64

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 4206 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 4203 FT. TO 4206 FT. AVE. ^{CORING} DRILLING RATE _____ FT/HR.

CASING	<u>10 3/4"</u>	AT	<u>35'</u>	FT.	AVE. CORE RECOVERY:
	<u>7"</u>	AT	<u>488</u>	FT.	FOOTAGE CORES:
	<u>4.5"</u>	AT	<u>576</u>	FT.	(temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY _____

OTHER SIGNIFICANT DATA rig down due to broken 1 1/2 core rods. @ 4203' when machine rods twisted off; upon retrieval of inner core barrel found 3' of core; ∴ depth = 4206'.

REPORTED BY Angela McDonald 20915 12 Aug / JES

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 10 August '86
(Date)

CORING
DRILLING DAY 64-65

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH @2200 4226 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 4206 FT. TO 4226 FT. AVE. ^{CORING} ~~DRILLING~~ RATE 7.1 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES: 20

4.5" AT 526 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY still basaltic - andesite; alteration ? micaceous
no remains the same

- OTHER SIGNIFICANT DATA
- ① Water level - full returns
 - ② MRT's @ 4216 = 177, 177, 180°F, * (Build-up after 40 min)
 - ③ Water use = 0 : no water lost, complete returns

* W.M monitor every 30' and with full returns T read out/in will be recorded.

REPORTED BY Angela McDonnell @ 0915h / 11 Aug - JLT

- cc:
- W. L. D'Olier: Thermal Power Co.
 - J. J. Hebeins: Thermal Power Co.
 - E. D. James: Chevron Resources Co.
 - D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 11 August '86
(Date)

CORING
DRILLING DAY 65-66

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 2200h 4266 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 4226 FT. TO 4266 FT. AVE. ^{CORING} DRILLING RATE 9.7 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT.

4.5" AT 576 FT. (temporary)

FOOTAGE CORES: 40'

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY 2965.5 - 4266': basaltic - andesite; intra-flow

veinics does not sustain fracturing; alteration mineralogy same except
found trace pyrite @ 4256' occurs in a vesicles on zeolite, slightly
oxidized

Fracturing: light to medium intensity

OTHER SIGNIFICANT DATA ① Water level @ 4256 = 60' *

② MRT's @ 4256 = 176, 176, 176 °F

③ Water use = 4000 gals

* @ 4226 - lost circulation

REPORTED BY Angela McDonnell @ 0915 12 Aug / JLI

- cc: W. L. D'Olier: Thermal Power Co.
- J. J. Hebeins: Thermal Power Co.
- E. D. James: Chevron Resources Co.
- D. Nielsen: University of Utah Research Institute

THERMAL POWER COMPANY

DAILY GEOLOGIC REPORT FOR 12 Aug '86
(Date)

CORING
DRILLING DAY 66-67

WELL NAME CT24-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 2200 4363 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 4266 FT. TO 4363 FT. AVE. ^{CORING} DRILLING RATE 8.3 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT.

FOOTAGE CORES: 97'

4.5" AT 576 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY same as before; 0-trace pyrophyllite - possibly;
trace the slightly magnetic mineral which is oxidizing; however, it
is rare and small; not sure if it is a primary mineralogical feature

OTHER SIGNIFICANT DATA ① Water level @ 4325' = 60', 4353' = 55'
② mRi's @ 4325' = 179, 179, 204*; 4353' = 179, 179, 179
③ Water use = 8000 gals

REPORTED BY Angela McDannel @ 0925 13 Aug 86 / JLI
* Probable error

cc: W. L. D'Olier: Thermal Power Co.
J. J. Hebeins: Thermal Power Co.
E. D. James: Chevron Resources Co.
D. Nielsen: University of Utah Research Institute

WELL NAME CTAH-1

LOCATION Section 28, T8S, R8E, OREGON

PRESENT DEPTH 4430 FT. PROPOSED DEPTH 5000 FT.

DEPTH FROM 4363 FT. TO 4430 FT. AVE. ^{CORING} DRILLING RATE 6.7 FT/HR.

CASING 10 3/4" AT 35' FT. AVE. CORE RECOVERY: 100%

7" AT 488 FT. FOOTAGE CORES: 117'

4.5" AT 576 FT. (temporary)

DIRECTIONAL SURVEY _____

DETAILED LITHOLOGY Same as before, secondary minerals = slight and consist of zeolite, clay and silica; brecciated intervals (interflow breccias) are 0 to slightly fractured; dense flows are slightly fractured:

- OTHER SIGNIFICANT DATA
- ① Water level @ 4383' = 60', 4470' = 70'
 - ② mRT's @ 4383' = 182°F, @ 4470' = 183, 183, 183.5°F
 - ③ Water use = 12000 gals

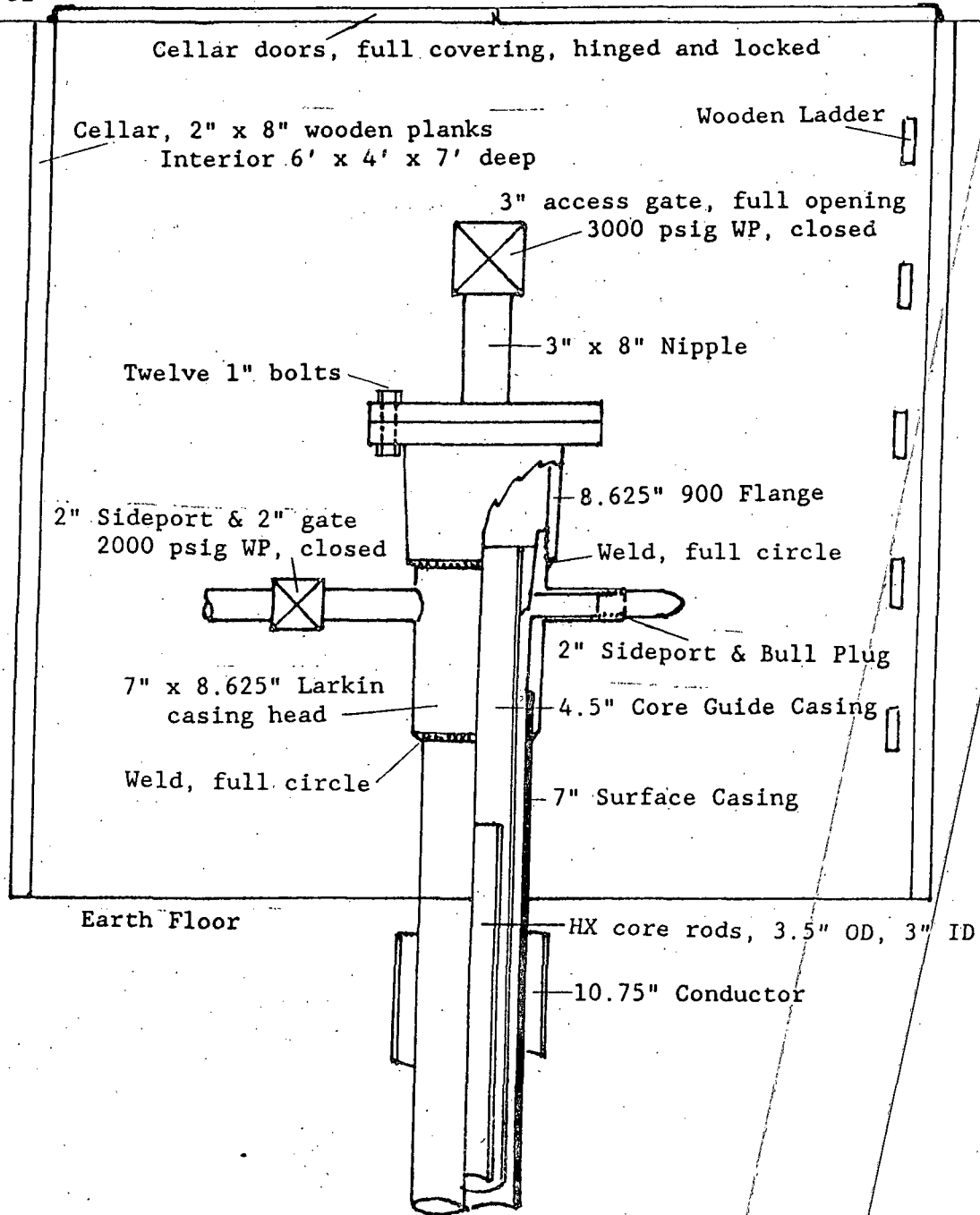
REPORTED BY Doug Goodwin @ 1145, 14 Aug '86/SLI

- cc:
- W. L. D'Olier: Thermal Power Co.
 - J. J. Hebeins: Thermal Power Co.
 - E. D. James: Chevron Resources Co.
 - D. Nielsen: University of Utah Research Institute

CLACKAMAS THERMAL GRADIENT HOLE

Schematic: Casing Head, Access Gate and Cellar

Ground Level



Keys to Cellar Lock With:

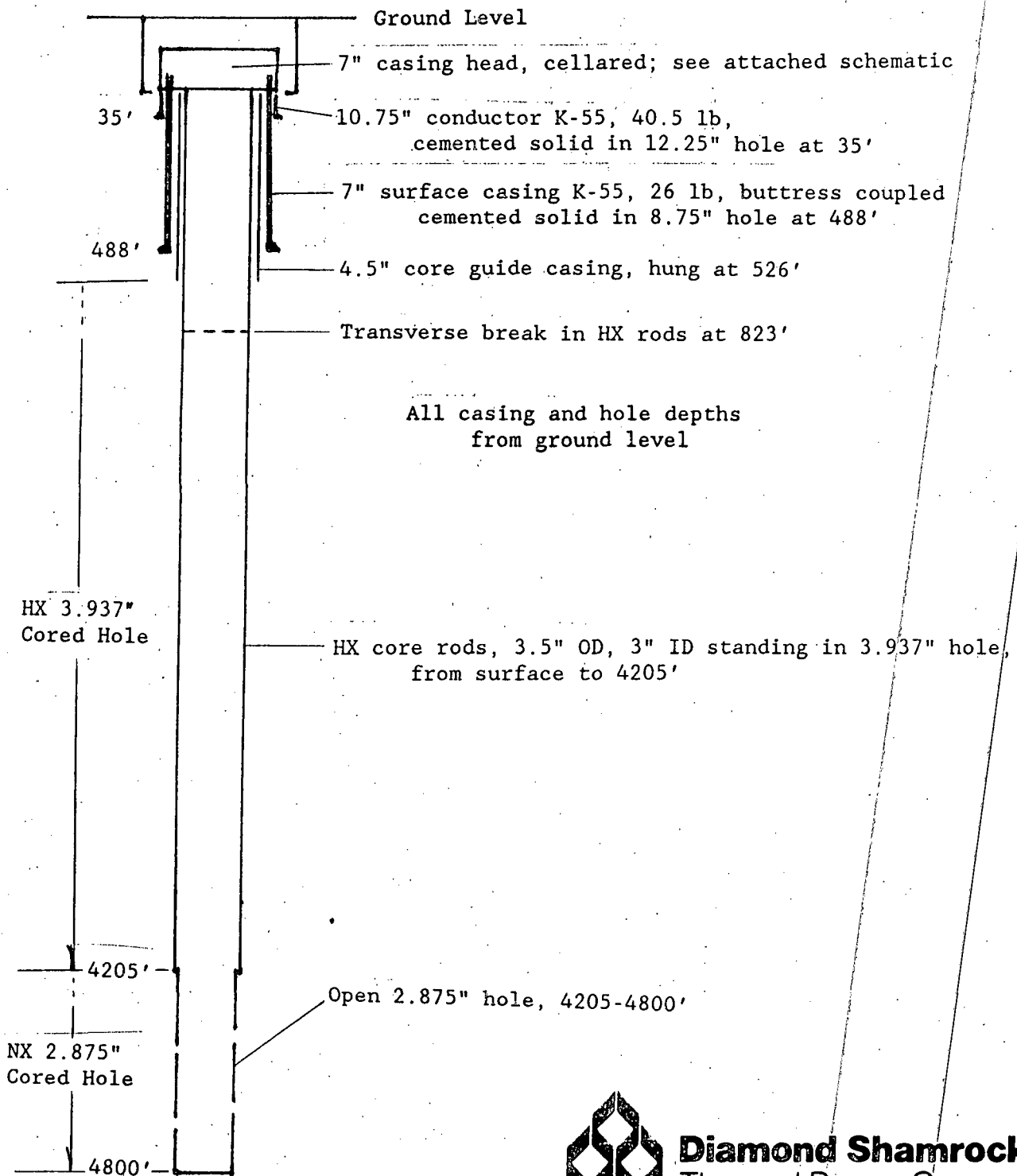
TPC, Santa Rosa, Calif., 707/576-7022
Harold Hill, Detroit, Oregon, 503/854-3441



Diamond Shamrock
Thermal Power Corporation

CLACKAMAS THERMAL GRADIENT HOLE 4800 TD

Schematic: Actual Completion Configuration



Diamond Shamrock
Thermal Power Company

Completion Date: 7 September 1986

DOE Access Period: 12 months ending 7 September 1987