LOCATION 087 N18 E20 33 BBA

well log # 102799

Plug and Abandonment Completion Report
Steamboat MTH 21-33 Permit # 384

Well completed 1/23/94
Abandonment 4/28/07
Ground level elevation 4690'
4 ½" casing surface to 160'
3.9" open hole from 160' to 710'
Static Fluid level (+-) 100'
No fresh ground water, only geothermal waters present in area.

MTH 21-33 has been plugged and abandoned as per the approved procedures. Using a 1.5" coil tubing unit cement has been placed in the well bore from a depth of 710' to surface. The 4.5" well casing will be cut below grade and a plate wielded to casing with well name and number.

4/27/07 Rigged up 1.5" coil tubing unit and cement pumping equipment. Ran in hole with 1.5" coil tubing to 710'. Pumped 2000 gallons of water ahead to cool well. Blended 40 sack (14 bbl) slurry and pumped through coil while pulling to surface. No returns to surface. After 3 hours the tubing ran back in hole and tagged top of cement @ 385'.

4/28/07 Pumped +- 100 gallons of water head to cool well, but filled the hole. Ran in hole with 1.5" coil tubing to 385' and tagged. Pumped 800 gallons through coil to cool well, Blended 40 sack (12 bbl) slurry and pumped through coil while pulling to surface. Full returns during the pumped stage of water and cement.

Cement Slurry's
1st plug 40 sacks premium cement, 35% SSA-1, 5% Microlite, 1.25% HALAD-322, .3% HALAD 344
2nd plug 40 sacks premium cement, 35% SSA-1, 5% Microlite, 1.25% HALAD-322, .3% HALAD 344

ORIG WELL LOG UNAVAILABLE. FILE THIS AS PLUGGING LOG.

TKG
05/10/07

Weight 102 MY
Pg 2

Tom Gallagher

From: Mark Tibbs [mtibbs@ormat.com]
Sent: Monday, April 30, 2007 08:38
To: Tom Gallagher
Subject: MTH 21-33

Tom,
4/28/07 the cement was tagged @ 385' and the hole was filed with less than a barrel of fluid. Ran the coil to 385' pumped 10 bbl slurry of cement with full circulation and brought cement to surface. I will send out final plugging report this week.

Thanks

Mark Tibbs
Ormat Nevada
775-336-0119 office
775-303-6796 cell
6225 Neil Rd. Suite 300
Reno, Nevada 89511

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STATE OF NEVADA
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

Log# 102799 Pg 3
PERMIT NO. .....
SHEET ..... OF .....

PROJECT STEAMBOAT - ORMAT DATE 4/27/07
SUBJECT PLUG MONITOR WELL DESIGNED JOSEPH D. TUCCI CHECKED TKG

MARK TIBBS / ORMAT / 4" CSG TO 160 / 3.9" HOLE TO 710
MTH 21-33 - 4" ID 160 = 0.0873 FT³/FT
3.9" HOLE 160-710 = .0830 FT³/FT
TOM G / JOSEPH D. TUCCI

4" = 13.96 FT³
3.9" = 45.63 FT³
} 59.6 FT³ = 10.6 BBLS TOTAL VOL

BEGIN PUMPING "LEASE H₂O" @ 10:00 (WATER TRUCK)
HOLE CAP = 0.0148 BBLS/FT

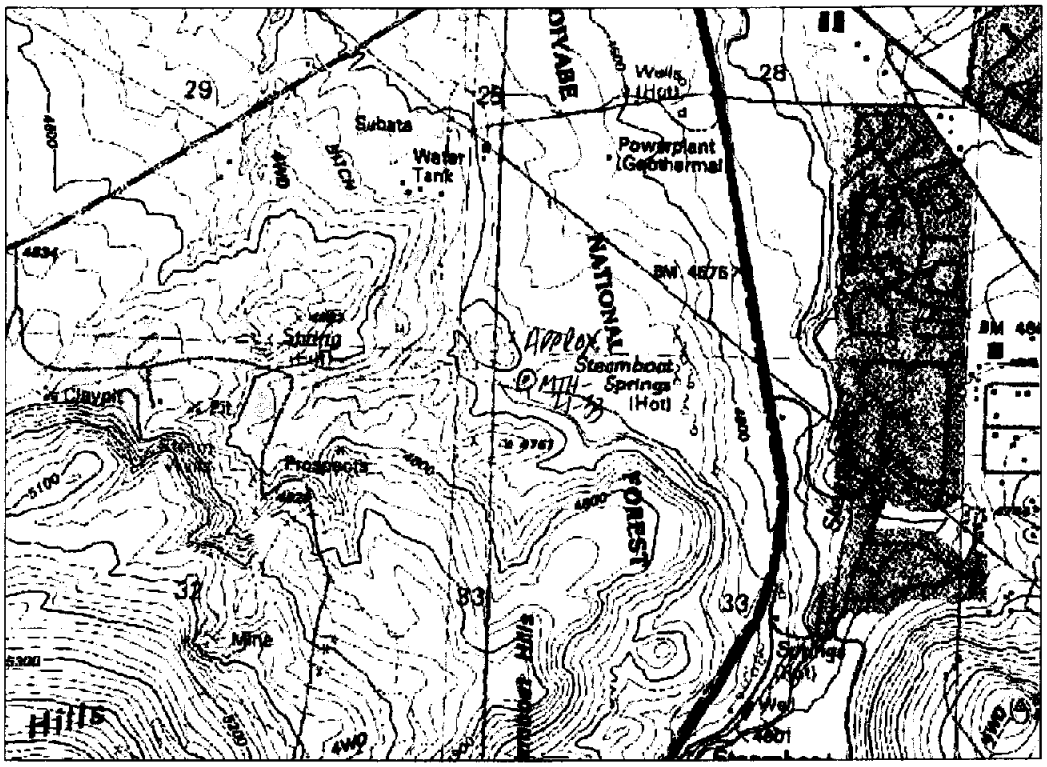
$$\frac{1.5\ \text{BBLS/MIN}}{0.0148\ \text{BBLS/FT}} = \frac{\text{BBLS}}{\text{MIN}} \times \frac{\text{FT}}{\text{BBLS}} = 101\ \text{FT/MIN}$$

PUMPED 22 BBLS H₂O @ 1 BPM - CAPACITY OF TUBINGS - THEN 14 BBLS CEMENT W/ (RETARDED TO +160°F)
- NO RETURNS TO SURFACE
WILL TAG CMT AND PROCEED (LATER)

CALLED MARK TIBBS - 16:50 4/27/07
TAGGED CMT @ 350 FT - WILL CONTINUE W/ PLUGGING TOMORROW

TBERM CEMENTED TO SURFACE ON SAT MORNING 4/28
ADDITIONAL 10 BBLS SLURRY
FULL RETURNS AS SOON AS STARTED PUMPING COLD H₂O FLUT.
TKG 4/30

Log # 102799
Pg 1



SCALE 1 : 24,000

2,000 0 2,000 4,000 6,000

FEET

Thursday, May 10, 2007 15:29

Log # 102799
895

ORMAT®

April 18, 2007

Russ Land
Nevada Division of Environmental Protection
Ground Water Protection Branch
Bureau of Water Pollution Control
901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701

Subject: Notice to Plug and Abandon MTH 21-33

Please find the Sundry Notice and Procedure to abandon the MTH 21-33. The future site of the Ormat Galena 3 power plant is located on the same location as the MTH 21-33. The well will be abandoned according to the NDOM requirements. Future monitoring of reservoir fluid levels can obtained from the use of MTH 12-33 that has 1/8" capillary tubing installed into wellbore to a depth of 500'.

A Sundry Notice has been submitted to the NDOM.

If you have any questions, please call. 775-336-0119

Sincerely

Mark Tibbs
mtibbs@ormat.com
Geothermal Well Field Specialist
Ormat Nevada

cc: Scott Kessler Ormat Nevada
cc: Paul Spielman Ormat Nevada

Ormat Nevada 6225 Neil Rd. Reno, Nevada 89511 p: 775-336-0119

Ir:

Log 102799
pg6

STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89703
(775) 684-7040 • Fax (775) 684-7052

GEOTHERMAL
SUNDRY NOTICE AND REPORT ON WELLS

- ☐ Notice of Intention of Change Plans
- ☐ Notice of Intention to Test Water Shut-Off
- ☐ Notice of Intention to Reopen or Repair Well
- ☐ Notice of Intention to Shoot or Acidize Well
- ☐ Notice of Intention to Pull or Alter Casing
- ☑ Notice of Intention to Abandon Well
- ☐ Other (state) _____
- ☐ Subsequent Report of Water Shut-Off
- ☐ Subsequent Report of Reopening or Repair
- ☐ Subsequent Report of Shooting or Acidizing
- ☐ Subsequent Report of Altering Casing
- ☐ Supplementary Well History
- ☐ Notice of Intention to Fracture Treat Formation(s)
- ☐ Other (state) _____

(Indicate above by check mark, nature of report, notice or other data.)

Permit Number 384 Date 4/16/07

Company Name ORMAT NEVADA Lease MEYBERG Well No. MTHZ1-33

Field or Area STEAMBOAT KGRA County Washoe

DETAILS OF WORK

(State names of and expected depths to objective zones: show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and ALL other pertinent data.)

P&A MTHZ1-33 from 100' Below CASING shoe @ 160' To Surface.
Attached Procedure & Well Schematic

I understand that this plan of work must receive approval in writing of the Division before operations may be commenced.

Company ORMAT NEVADA
Address 6225 Neil Road Suite 300
Reno Nevada 89511
Name MARK TIBBS
Position Well Field Specialist

DO NOT WRITE IN THE SPACE BELOW

Approved by _____
Position _____
Date _____

REMARKS: _____

(REV 5/10/2001 LV)

Tom Gallagher

Log# 102799 pg 7

From: Russ Land
Sent: Thursday, April 19, 2007 09:21
To: Tom Gallagher; Robert K. Martinez
Subject: FW: P&A MTH 21-33
Attachments: NDEP MTH 21-33.pdf

Good Morning, Gentleman. Just an FYI about a well at Steamboat. I don't have jurisdiction, but I guess they are trying to keep me in the loop for the UIC permit activities.

Russ Land
Supervisor, Ground Water Protection Branch

Nevada Division of Environmental Protection
Bureau of Water Pollution Control
901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701

p: (775) 687-9428
f: (775) 687-4684
e: rland@ndep.nv.gov
w: www.ndep.nv.gov

From: Mark Tibbs [mailto:mtibbs@ormat.com]
Sent: Thursday, April 19, 2007 8:31 AM
To: Russ Land
Subject: P&A MTH 21-33

Russ,
Attached file is for the P&A of the MTH 21-33 strat well that has been used for pressure monitoring. Galena 3 power plant will be sitting right on top of well. I have sent hard copies via mail.

Thanks

Mark Tibbs
Ormat Nevada
775-336-0119 office
775-303-6796 cell
6225 Neil Rd. Suite 300
Reno, Nevada 89511

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Log # 102799
Pg 8

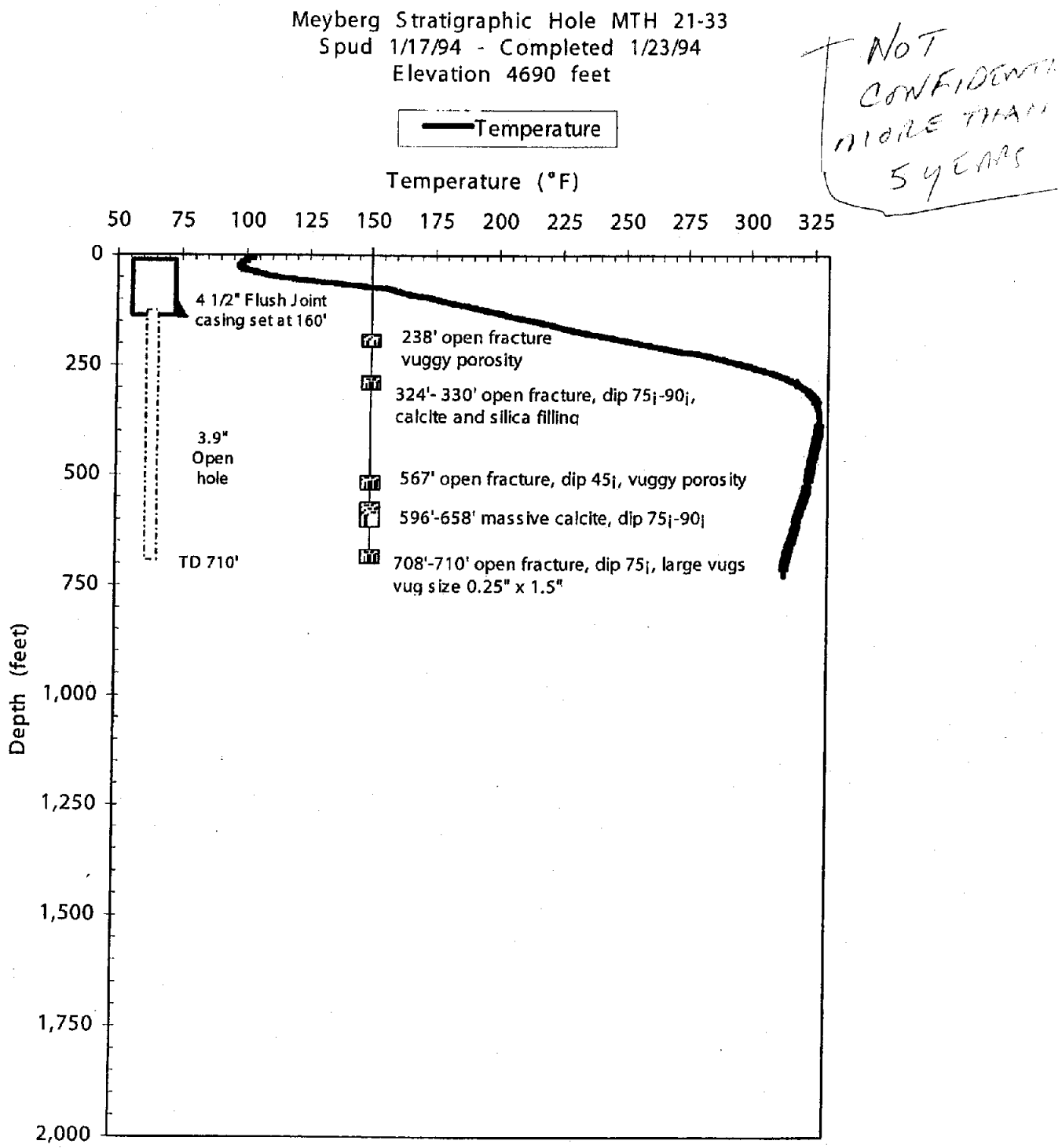
Plug and Abandonment Procedure
Steamboat MTH 21-33

Well completed 1/23/94
Ground level elevation 4690'
4 ½" casing surface to 160'
3.9" open hole from 160' to 710'
Static Fluid level (+-) 100'
No fresh ground water, only geothermal waters present in area.

1) Submit and file all permits.
2) Using a 1.5" coil tubing unit, rig up and run in hole to 260' and set a 200 ln/ft cement plug. Monitor circulation of fluid to surface.
3) Pull out of hole and wait on cement.
4) After 4 hours, run in hole with coil tubing and tag top of cement plug @ (+-) 60'.
5) If cement top is @ proper depth proceed with next step, if not repeat the 1st cement procedure, until a cement plug is in place at proper depth.
6) With coil tubing @ 60' begin to pump cement through coil inside 4 ½"" casing @ 2 bpm while pulling coil tubing up hole @ 6 fpm. Total cement volume 60 ln/ft.
7) Monitor that circulation of fluid to surface to continues.
8) Bring coil tubing and cement to with in 10' of surface and displace coil with fluid.
9) Rig down coil tubing unit and cementing equipment.
10) Excavate to 10' below grade and cut off all surface and intermediate casing and wellhead component.
11) Weld a plate on top of 4 ½""surface casing with well name and number.
12) Back fill excavation and clean location.

CHANGED TO
Pump full from
700' TO SURFACE.
TKG

Log 102799
pg 9



NOT CONFIDENT MORE THAN 5 YEARS

Figure 12. Completion, Geology and Temperature versus Depth for Slimhole MTH 21-33 (from Goranson 2001b).