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Well History
Union Oil Company of California



DEPT. OF GEOLOGY
& MINERAL INDUST.

| | | | |
|-------------------------|-------|-------|---|
| TYPE WELL Geothermal | | | |
| SEC 10 | T 19S | R 45E | M |

COMPANY
Union Oil Co. of California

LEASE
Vale Federal

WELL NO.
47-10

COUNTY
Malheur

LOCATION
800' from South line and 2500' from West
line of Section 10.

AREA
Vale Oregon

| | | | | | | |
|--------------------|-----------------|-----------------|--------|----------------------|------|---------|
| ELEVATION 2790' | SPUD 7/10/81 | COMP. 8/2/81 | ABAND. | TOTAL DEPTH 3853' | PLUG | RECOMP. |
| HOLE DEVIATION | | | B.H.L. | | | |

| CASING RECORD | | | | | WELL DATA | |
|---------------|-----------|----------|-----|---------------------------|-----------|----------------------|
| SIZE | CEM. LDD. | DEPTH | SAX | W.S.O. - PERFS. - REMARKS | ELEC. LOG | |
| 13-3/8" | | 22' | | | | DIPMETER |
| 9-5/8" | | 114' | | | | CORE RECORD |
| 7" | | 835' | | | | HISTORY See Attached |
| 2-7/8" | | 3804.84' | | | | CORE ANALYSIS |
| | | | | | | PALEO. LETTER |

MARKERS - HORIZONS

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| DATE | DEPTH | PROGRESS HISTORY |
|---------|-------|--|
| 7-10-81 | | Moved Southwest Drilling Co. rig #11 from Zigzag, Oregon, to Vale Federal Lease #47-10. Moved in and rigged up, on day rate at 1000 hours, 7-10-81. Spudded well at 1800 hrs, 7-10-81. Drilled 17-1/2" hole to 22'. Ran and cemented a 13-3/8" cut-off joint of casing at 22' with 12 cu. ft. of 118# slurry. WOC. |
| 7-11-81 | | Cemented 13-3/8" casing from top. Cement fell 3' in annulus. Drilled 12-1/4" hole from 22' to 117'. Ran 3 joints 9-5/8" 40# K-55 butt casing with B&W float shoe (114.05'). Landed casing at 114'. Mixed 96 cu. ft. ready-mix slurry, pumped with rig pump. Slurry weight - 112#/cu. ft. Displaced with 38 cu. ft. mud. CIP at 2115 hours. Good cement returns to surface. |
| 7-12-81 | | Cut off 9-5/8" casing. Welded on 8"-900 SOW casing head. Installed 8" Shaffer mechanical BOP with pipe and blind rams. Tested BOP's to 800 psi, OK. RIH with bit #3 to cement at 80'. Drilled plug and hard cement to shoe at 114', and to formation at 117'. |
| 7-13-81 | | Drilled 8-3/4" hole from 117' to 400'. Lost circulation. Mixed and pumped LCM pill. Drilled from 400' to 430' with 60% returns and from 430' to 529' with full returns. |

- 07-14-81 Drilled 8-3/4" hole from 529' to 700'. Lost circulation. Drilled to 740' with 65% returns. Drilled to 789'.
- 07-15-81 Drilled 8-3/4" hole from 789' to 809'. Lost circulation. Mixed heavy LCM mud. Circulated. Drilled 8-3/4" hole from 809'. Lost returns at 839'. Mixed and added LCM. Drilled from 839' to 877'. Circulated. POH.
- 07-16-81 Circulated and cleaned out fill to total depth at 877'. Ran 21 joints 7" 8-round LT&C 26# K-55 casing with B&W weld-on float shoe on joint #1. Total length 835.07'. Landed with shoe at 835'. Cemented with 324 cu. ft. "A" cement (neat). Displaced cement with rig pump. Lead slurry (160 cu. ft.) contained 10% mica. Had good returns until completion of job. Cement fell back. Plug displaced with 176 cu. ft. mud. CIP at 1430 hours. WOC 8 hours. Did top cement job with 9 sacks neat cement.
- 07-17-81 Installed 7" SOW head. Tested weld to 800 psi, OK. Installed BOP. Tested casing and BOP to 800 psi. Made up BHA and RIH to top of cement at 826'. Drilled cement to shoe at 835'. Cleaned out to 877'. Drilled 6-1/8" hole from 877' to 931'.
- 07-18-81 Drilled 6-1/8" hole from 931' to 1227'.
- 07-19-81 Drilled 6-1/8" hole from 1227' to 1442'.
- 07-20-81 Drilled 6-1/8" hole from 1442' to 1592' with 95% returns.
- 07-21-81 Drilled 6-1/8" hole from 1592' to 1702'.
- 07-22-81 Drilled 6-1/8" hole from 1702' to 1745'.
- 07-23-81 Drilled 6-1/8" hole from 1745' to 1925'.
- 07-24-81 Drilled 6-1/8" hole from 1925' to 2040'.
- 07-25-81 Drilled 6-1/8" hole from 2040' to 2505'.
- 07-26-81 Drilled 6-1/8" hole from 2505' to 2920'.

- 07-27-81 Drilled 6-1/8" hole from 2920' to 2985'.
- 07-28-81 Drilled 6-1/8" hole from 2985' to 3105'. Lost 35 bbls mud. Spotted LCM. Drilled 6-1/8" hole from 3105' to 3125'.
- 07-29-81 Drilled 6-1/8" hole from 3125' to 3480'.
- 07-30-81 Drilled 6-1/8" hole from 3480' to 3645'.
- 07-31-81 Drilled 6-1/8" hole from 3645' to 3785'.
- 08-01-81 Drilled 6-1/8" hole from 3785' to 3853'. Ran DIL 3840' to 842', FDC 3840' to 842', CNL 3840' to 842', and temperature log from 3833' to 100'. Log indicated maximum bottom hole temperature 265°F.
- 08-02-81 Completed logging. RIH with 6-1/8" bit to 3853' (no fill). Conditioned mud and cooled hole. POH. Ran 123 joints 3-7/8" 6.5# J-55 EUE tubing with float valve on bottom of bottom joint. Landed tubing with float valve at 3805'. Hung on Midway donut hanger. Displaced mud inside of tubing with 22 bbls of water. Installed 8"-900 x 3"-600 adapter flange with 3" WKM valve SEB #591546-1) on top of well head. Released rig.
- 08/03/81 Cleaned location. Filled sump.

NOTE: Will re-seed location with grass acceptable to BLM representative at proper time.