

LEASE Desert PeakWELL NO. "B" 21-1SHEET NO. 1

DATE	TOTAL DEPTH	NATURE OF WORK PERFORMED
10-25-76	112	Nippling up 13 3/8" Conductor pipe. Location: 781' FSL and 1327' FEL, Sec. 21-22N-27E, Churchill Co., NV, 6000' Geothermal Exploratory Well, PPCo-100%, Operator. AFE PE-5511. Signal Drilling Company, Inc., Contr. Spudded 17 1/2" hole at 3:00 p.m., 10-24-76. Elevation: GL 4410', RKB 4437'. Drld 17 1/2" hole to 112' RKB at 5:30 p.m., 10-24-76. Ran two joints and one pc, 13 3/8" OD, 54.5#, K-55, BT&C csg, set at 110' RKB. Cemented w/150 sx Class G cement, 3% CaCl ₂ . Circ 60 sx good cement, job complete at 8:30 p.m., 10-24-76. WOC 6 hrs, started nippling up.
10-26-76	920	Drilling Sand, Gravel and claystone. Finished nippling up. Started 12 1/4" hole at 112'. Totgo, 1/4" at 115', 1/4" at 250', 1/2" at 406', 3/4" at 533, 3/4" at 683', 3/4" at 810'. Mud 8.8, V 60, WL 20, FC 4/32, pH 10.0, YP 39, PV 8, Gels 0-41, 10-81, Chl 5200. Flow line temp at 920', 110 F in, 134 F out.
10-27-76	1040	WOC Drld 12 1/4" hole to 1040', circulated out. Made wiper trip and circ hole clean. Came out of hole. Ran 13 jts, 9 5/8" OD 47# S-95 8R LT&C and 12 jts, 9 5/8" OD 47# N-80 BT&C csg w/baker guide shoe and float collar set csg at 1028' RKB. Cemented w/385 sx Class G cement, 1:1 perlite, 40% Silica flour, 2% gel, 3/4% D-31 and 2/10% R-5, 13.3#/gal. Lost approx 50% returns when cement to surface on last 60 bbls displacement. Cement dropped slowly in annulus after plug down. Job complete at 8:30 p.m., 10-26-76. WOC.
10-28-76	1040	Nippling up BOP's WOC 14 1/2 hrs. Filled annulus w/pea gravel from 70' RKB to surface. Welded on 9 5/8" SO X 10" 900 braden-head. Tested to 1500#, OK. Started nippling up BOP.
10-29-76	1040	Picking up 8 1/2" drilling assembly Finished nippling up. Tested blind rams and casing to 1500#, OK. Tested pipe rams, choke line, manifold valves, safety valves and Kelly Cock to 1500#, OK. Tested Hydril to 1000#, OK.

DAILY REPORT DETAILED

LEASE Desert Peak "B" 21-1WELL NO. 21-1SHEET NO. 2

DATE	TOTAL DEPTH	NATURE OF WORK PERFORMED
10-30-76	1620	Drilling chert and andesite Picked up 8½" drilling assy, drilled float collar, cement and shoe. Started 8½" hole at 1040'. Mud 8.9, V35, WL 11.2, FC 3/32, pH 7.6, YP 5, PV 7, Gels 0-3, 10-11, Chl 6100. Totco 3/4 at 1238', 1 at 1457'. Flow line temp at 1620', 148° F in, 152° F out.
10-31-76	2270	Drilling andesite. Mud 8.9#, V 31, WL 12, FC 2/32, pH 7.6, YP 5, PV 5, Gels 0-3, 10-9, Chl 6000'. Totco 1 at 1627, 1 at 1832, 1 3/4 at 2020'. Flow line temp at 2270', 140° F in, 153° F out.
11-1-76	3090	Drilling lime, tuff and andesite. Mud 8.8#, V 30, WL 18, FC 2/32, pH 7.6, YP 3, PV 2, Gels 0-2, 10-4, Chl 6200. Totco 2 at 2239', 4 at 2898'. Flow line temp at 2750', 164° F in, 182° F out. Started adding cooling water and circulating thru all pits. Flow line temp at 3090', 145° F in, 162° F out.
11-2-76	3674	Trip for bit. Drilled to 3628, lost circulation, mixed LCM, regained circ. Drilled to 3674, losing approx 50 bbls mud/hr. Lost approx 500 bbls. Formation has some pyrite and some alteration. CO ₂ increased below lost circulation zone from 5600 to 1100 ppm. Totco 3 at 3380. Flow line temp at 3628', 126° F in, 150° F out.
11-3-76	3674	Running temperature survey. Finished trip, circulated and conditioned mud. Pulled up into casing at 100'. Waited on Agnew and Sweet to run temperature survey. (Appears some water entry in hole).
11-4-76	3784	Drilling in limestone with full returns. Temp 158° in and 172° F out. Finished running Agnew and Sweet temp survey. Max temp at 3647', 282° F after leaving instrument seventeen minutes on bottom. Added approx 10 bbls/hr to keep hole full before running temp survey. Installed master gate-RIH and now drilling ahead.
11-5-76	3881	Running temperature survey. Drilled to 3881', lost returns, mixed LCM (30#/bbl) pumped in hole, no returns. Pulled up into casing, let set 14 hrs. Rigged up Agnew and Sweet to run temp survey.

DAILY REPORT DETAILED

LEASE DESERT PEAKWELL NO. B 21-1SHEET NO. 3

<u>DATE</u>	<u>TOTAL DEPTH</u>	<u>NATURE OF WORK PERFORMED</u>
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11-6-76	3881	Flowing well. Finished running temperature survey, max BHT 357° F. Went in hole open-ended. RU Nowsco, started jetting well at 1:25 p.m., well kicked off at 2:00 p.m., Flowing through 2½" ID choke line, WHP 150#, manifold pressure 100#, flowing temp 309-322° F, well cleaning up.
11-7-76	3881	Flowing well. Flowed 24 hrs through 3" choke line (2½" ID), Max flwg temp 340° F, WHP 150#, choke line 105#.
11-8-76	3881	Waiting on air drilling equipment. Shut in at 7:30 a.m., 11-7-76. Pumped in 20 bbls water to cool pipe, wellhead press to zero. Pulled drill pipe. Removed rotating head. RU Agnew and Sweet, Ran temperature survey, max temp 399.9° F at 3879'.
11-9-76	3935	Waiting on parts to repair air compressor. Rigged up air drilling equipment. Drilled with aerated water 3881-3935 and booster on air equipment broke down. (Drilled 8' fractures and drilled into Greenstone).
11-10-76	4140	Tripping (Tuff? Greenstone?) Repaired air compressor. Went in hole w/new bit, drilled fractures 3955-60' w/air and water, lost returns. Drilled to 3971' with no returns. Pulled up to 3690', regained circ w/air and water. Well came in, flowing steam, 300#, temp over 300° F. Cooled DP, went in hole to 3971', used soap, water and air, well circulated. Drilled to 3990' with steam, air, soap and water, lost returns. Regained circulation in two hours with maximum air, soap, and water. Drilled to 4140' with well flowing great amount of water and steam, gained approximately 1800 bbls wtr while drilling. Well hard to control due to pressure and temperature. Float in drill pipe plugged, started out of hole.
11-11-76	4150	Laying down drill pipe. Finished trip out of hole, corrected TD 4150'. RU Schlumberger, ran DIL and Sonic logs. GR tool failed. Laid down DP while repairing GR. Reran GR log. Started Laying down DP.

DAILY REPORT DETAILED

LEASE DESERT PEAK

WELL NO. B 21-1

SHEET NO. 4

DATE NATURE OF WORK	TOTAL DEPTH PERFORMED	
11-12-76	4150	Removing BOP's. Finished laying down drill pipe. Waited on Agnew & Sweet. Ran temperature survey.
11-13-76 to 11-17-76	4150	Preparing to flow. Tore down rotary. Waiting on NOWSCO unit.
11-18-76	4150	Moving out rotary. RU NOWSCO, went in hole to 600' [±] , kicked well off at 12:00 noon 11-17-76. Flowed well 1 hr. 5 mins. & shut in due to vibration. Mass flow 477,600# 1 hr., (21% steam) FL temp. 327°F, FWHP 104#. ISIP 118#. Ran Agnew & Sweet temperature survey. Max temp. 402.5°F after 5 mins. on bottom (4102'). Shut in. 9 5/8" casing at 1028', open hole 1028-4150'. <u>FINAL REPORT.</u>

11-17-76

Time	Lip Press Psig	WH Press Psig	Temp PF	Comments
12:00N				Well opened-N ₂
12:10	27	90	300	Surging-433,000# 1hr.
12:15	29	100	320	WH up ~5" 453,000
12:20	30	100	324	463,000
12:30	31	102	325	473,000
12:40	31.5	103	325	478,000
12:45	31.5	103	325	478,000
12:50	31	103	325	473,000
12:55	31	104	325	473,000
1:00	31.5	103	325	478,000
1:03	-	-	-	Well shut in
1:05		118	260	
1:10		97	210	
1:15		80	200	
1:25		64	-	

Solids in Water Samples

Cl = 4800 ppm
 Salinity ≈ 1200 μmhos (≈8000 ppm)
 pH = 6.9 dropping to 6.4
 Ca⁺⁺ = 62 ppm
 ALK = 58 ppm as HCO₃⁻
 SiO₂ = 300-310 ppm