

GL03011-7&8 - location map included
- graphic representation of casing included
- news releases
- letter to stock holders

Power Ranches #1

Elevation 1338'

0-5404' mud

GR 1358' KB

6153-9207' aerated water

TD 9207 (4-8-73) producing interval 6167'-8998'

Spudded 1-31-73

other logs: RES, gamma ray, neutron, cement bond, temp, acoust

- 6/7/73: Well pumped hot water approx. 1 wk.
Shut well in: lack of space to contain water
Prel. analysis 30,000 PPM combined solids
- 7/17/73: Drilling difficulties w/ Reda Pump. → When well is pumping, the water produced is too cool to flash to steam

- Rept of 5-7-73 from Oil & Gas Conservation Commission

to 9207' - well bottomed in hydrothermally altered rocks.

7" Production casing - 9065'

5400'-9000' - Continuous Geothl Zone
30% porosity (volc. ash)

* 5400' - steam started flashing to 9065'
325° F @ TD. (7m. cooled by drilling fluid)
525° F Est. true temp

- Higley Rept "World's Deepest Geothl Test"
4-27-73 - Fluid rate 3000-6000 GPM
- Below 9065' permeability decreased,
however bottom is not basement

A

Power #1

Summary of casing size

Hole Size (Date)	Casing Size (Date)	Depth
26" (1-31-73)	20" (2-2-73)	0-204'
17½" (2-1-73)	13¾" (2-14-73)	0-3117'
12¼"	9⅝" (3-6-73)	2903'-5404'
8½"	7" (3-30-73)	5201'-9064'

Power Ranch Inc., #1
Geothl. Kinetics Systems Corp.
725 R6E, Sect 1
Maricopa Co, Arizona.

* - Information listed below will not necessarily be found for all the tests; check w/ the accompanying sheets

A. Summary of casing

B. Drilling Rept

- 1. Date
- 2. Depth
- 3. Hole size
- 4. Casing size
- 5. Deviation
- 6. Bit
- 7. Rock Type
- 8. Temp_{IN} - Temp_{OUT}
- 9. Comments
- 10. Viscosity

Includes summary of temp. check + drill stem test at 4363'

C. Perforation data

- 1. Date
- 2. Depth
- 3. Perforation depth
- 4. Amt. shots, jets, or bullets
- 5. Results
- 6. Comments

D. Flow Test

- 1. Depth
- 2. Date
- 3. Time
- 4. Temp °F
- 5. Flow Rate
- 6. Salinity
- 7. Comments

E. Water Analysis

- 1. Date
- 2. Lab #
- 3. Time
- 4. Chemical analysis
- 5. Capacity (GPM)
- 6. Conductivity

F. Temperature Survey

- 1. Date
- 2. Instrument
- 3. Time
- 4. Max temp
- 5. Graph & list temp vs depth

G. Pressure Survey

1. Date

2. Time

3. Graph & list press. vs depth

Paper # 1

Summary of casing size

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Reported as of 7 am each morning

B

#1

Date	Depth	Hole Size	Casing Size	Deviation	Bit	Rk. type	T _i temp. in To temp. out	Comments
1/31/73	220'	26"						spudded hole at 7 a.m.
2/1	200'	17 1/2"				cong		
2/2	to 204'		20"					waiting on cement nipple up
2/3					#2			
2/4	575'							
2/5	1163'			288', 1/2° 650', 1/4° 1025', 3/4°		clay + cong		
2/6	1650'			1650', 3/4°	#2			
	1666'				#3			
2/7	1945'				#3	clay + shale		temp 96°F
2/8	2322'			2225', 3/4°	#3	anhydrite + clay		
2/9	2569'				#3			coming out of hole
2/10	2718'				#4	anhy.		
2/11	2929'				#4	anhy. + silt		
2/12	3060'					basalt + s.s.		
2/13	3118'							
2/14	3117'		13 3/8"					good circulation in cement waiting on cement nipple up
2/15								nipping up
2/16								nipping up
2/17						*70' of cement		started drilling at 6 p.m.
2/18	3252'				#6			
2/19	3493'				#6	dk. ign. material, volcs.		
2/20	3626'				#7	volcs.		
2/21	3719'					siltstone, shale, dk. brn. silty sh.	T _i 1050 To 1150	
2/22	3889'					gnw shale		
2/23	4016'				#7	coarse s.s., basalt, volcs.	T _i 1160 To 1210	
2/24	4363'				#8	volc, sand, clay		

SLOPE TEST:
3345', 3/4° [2/19]
Temp, 112 1/2°
vis., 40
weight 10
drilling, ~ 12 mins/
ft.

Feb 25, 1973 - 4363' : Circulating short^v to condition hole for
temp. check DST ^{tripping}

① Ran Almarado Temp Bomb - 4361' / 133.8°
(^{max.}_{therm.}) 4350' / 160°

② Drill Stem Test #1 4363'-4326'

Initial hydrostatic press.	2449 PSI
FHP	2499 PSI
I FP	328 PSI
FFP	1072 PSI
SIP	1541 PSI

Recov'd. 2430 supply mud cut brackish water

Date	Depth	Casing	Comments
3/25/73	9065' T.D.		1) Preparing to log 2) ran temp surveys 3) pumping water in to cool hole
3/26	9065' T.D.		1) Finish logging 4 am 2) Go in w/ magnet
3/27 c	9065' T.D.		1) Fishing for one cone, recovered 2
3/28	9065' T.D.		1) Fishing for cone
3/29	9065' T.D.		1) Recov'd all cones
3/30	9065' T.D.	7" (5201' - 9065')	
3/31	9065' T.D.		WOC
4/1	9065' T.D.		1) Laid down 4 1/2" drill pipe 2) Pick up 3 1/2" " "
4/2	9065' T.D.		1) Hit cement level at 7261' 2) Pull out & run east drill plug 3) Set at 5170'
4/3	9065' T.D.		1) 8 3/4" bit drilling w/ Halliburton easy plug
4/4			1) Drilled in plug w/ 8 3/4" bit to top of 7/8" liner 2) Ran 6" bit drilling in plug 3) Twisted off at 500'
4/5	7932' TD		1) Drilling in cement, Bit #14
4/6	8971'		1) Drilled cement 2) Pulled out & ran in button bit w/ 20 stands
4/7			Unloading hole
4/8	9707 TD.		1) Hit basement ~ 9181' 2) Pull out & run temp. survey
4/9	9207 T.D.		Logging top of basement, 9165' (according to log)
4/10			

Perforating 7" casing (#1)
 Reported ea. morning at 7 a.m.

Figures are also written in red because of discrepancies from different data sheets

C

Date	Depth	Perforation depth	Amt ^{shots} _{bullets}	Results	Exec Comments
4/10/73	9207TD	8998' 8995.5-8998.5	4 shots 4 jets	not enough fluid	1) Hit fluid ~ 3000' feet 2) Blew hole down 3) Fluid level increased from approx. 500' to 2000' then no further evidence of fluid entering hole
4/11		* 8148'-8152' 7752'-7760' 7006'-7014' 6309'-6313' 6167'-6168' * 8148'-8150' 7752'-7760' 7006'-7014' 6310'-6314' 6167'-6168'	8 shots 8 shots 8 shots 4 shots 2 shots 4 jets 8 jets 8 jets 4 jets 2 jets	not enough fluid no results large results sm- no results slight none	1) Went unloading hole; some steam flashes; not etc.
4/12		6314'-6322' 6140'-6150' 6174'-6184' intervals + amts same on both sheets	8 bullets 10 jets 10 jets	slight little or none slight	Blowing from 5490' at 7am + unloading periodically
4/13	5470'				1) Blowing hole 2) A lot of water & steam flashes Temp 160°
4/14	5490'				1) Blowing hole 2) went in bottom to aerate to check water output est. 150 gal/min
4/15		6154'-6174' 6212'-6232' 6323'-6347' 6360'-6363' 6154'-6174' 6212'-6232' 6323'-6347' 6360'-6363'	20 bullets 21 bullets 25 bullets 4 bullets 21 bullets 20 bullets 25 bullets 4 bullets	Small good small good	Came out of hole blowing hole down to 5000'
4/16	4100'-4140'				1) Blew hole; a lot of water + steam flashes; Temp. 160° 2) Running Almarada Temp. bombs to get gradient ~ 5000' - T.D.

Date	Perforation depth	Amt fired	Time
6/18/73	8980'-9025'	Zone #1 151, -8 gram jets	7:00 PM
	8950'-8980'		8:20 PM
6/19	8110'-8150'	Zone #2 151 jets	7:30 AM
	8110'-8075		1:48 A.M.
	8110'-8075		2:45 AM
	7772½-7735	Zone 3	4:00 A.M.
	7736-7697½		6:05 A.M.
	7067½-7027½	Zone 4	7:13 A.M.
7067½-7039'	8:10 A.M.		
7067'-7039	35 shots	9:30 A.M.	
			10:35 A.M.

Total jets fired over all 4 zones : 610 jets

Progress Rept / Drilling (July 9-17, 1973) D rept. written July 17, 1973

Hole # 1

* Additional info on flow rate is included w/ rept + my summary of the water analysis done on 7/17 (75-100 GPM), 5/110 (75 GPM), 5/114 (75 GPM)

Depth	Date	Time	Temp _{of}	Flow Rate	Salinity	Comments
Bottom (t.d. 159207')	7/9/73	2:30 am.	~85°	300 gal/min		
	7/9/73	4:30 am.	206°			
	7/9/73	daytime	208°	200 gal/min		
	7/9/73	evening ~6:30 pm	211°		38,000 ppm (no exact time given)	
	7/10/73		211°	200 gal/min	37,000 ppm (no exact time)	
	7/11/73		211°	150 gal/min	36,000 ppm (no exact time)	
	7/12/73		211°	150 gal/min	33,000 ppm (no exact time)	
	7/13/73		211°	150 gal/min	11	
	7/14/73		211°	150 gal/min	11	
	7/15/73		212°	250 gal/min		
	7/15/73	5:45 pm				33,000 ppm overloaded + kicked pump out
	7/16/73	7:00 am	105°			
	7/16/73	10 am	210°			(no exact time)
	7/16/73	3 pm	212°			33,000 ppm
	7/17/73		212°	150 gal/min	31,000 ppm (no exact time)	a lot of steam vapor
Shut down pump	7/18/73					
Shut down pump	7/19/73	7:00 am.	212°	150 gal/min		
	7/20/73				Running pressure bombs	
	7/21/73				Running max. thermometers.	
Shut down rig	7/22					
	7/24		306°			Ran temps.
	7/24		308°			
	7/24		308°			
	7/24		313°			
Shut in	7/25 - 9/28					

Power #1

(E) * amt. of elements not reported on this sheet, check for that info in package

Geothl. Kinetics Water Analysis - (date of rept) Mar 27, 1973
tests done by Arizona Testing Labs Lab # 4059

Reported at: 0956 hrs. just at end of blow
1236 hrs. near end of blow

Includes: total dissolved solids, lithium, fluorides, calcium, magnesium, potassium, sodium, chlorides, carbonates, Bicarbonates, Sulphates, nitrates, boron, pH, hydroxide
same co. a/a

Water Analysis - (date of rept.) Mar 27, 1973
Lab # 4059

TD 6163 if 1st sample taken w/ fluid level of 4183'
(Air drilling only)

Reported at: 0230 hrs. 2nd blow, 22 stands off bottom
0835 hrs just after blow
0900 hrs. 3/4 point in blow + at end

Includes: same categories a/a
same co. a/a

Water analysis - (date of rept.) Apr. 19, 1973
- sample received 4-13-73 Lab # 4237

Reported for: No HF, 4-10-73 at 8997'
HF

No HF, 4140', 5th Blow

HF, 4140', 5th Blow

Includes: same categories a/a -

- Doesn't test hydroxide

- Does include silica & mercury

Power #1

* amts. of elements not recorded on this sheet, check for that info in package

Geothl. kinetics

- tests done by N.Y. State Health Lab

May 10, 1973 (date of rept)

Lab # 53322 / sample #2

Capacity - 75 GPM

Includes analysis of -

- Routine elements (mg/l)
total hardness, calcium, magnesium, sodium, chlorides (250), sulfates (250)

Conductivity 30,000 mho. (?)

tests done by same co. a/a

May 14, 1973

Lab # 53703

Capacity 75 GPM

Includes analysis of:

- Routine elements (mg/l)

SPR, Soluble Solids (500), total hardness

Calcium, magnesium, sodium, total iron (0.3), Alk. P, Alk. MP, Chlorides (250), Nitrates (45), sulfates (250), manganese (0.05), pH, Copper (1.0), zinc (5.0)

- Trace elements (mg/l)

Arsenic (0.05), silver (0.05), Chromium (0.05),

cadmium (0.01), lead (0.05), selenium (0.01),

Fluoride (var.), mercury (0.005)

Water chem doesn't comply w/ 1962 Drinking Standards

Paver #1

* amt. of elements not reported on this sheet. check for that info in package

Geoth1 Kinetic - Water, Analysis
tests done by AZ State Health Lab

July 17, 1973

Lab # - ILLIGIBLE

Capacity 75-100 GPM

Includes analysis of:

Routine elements (mg/l)

soluble solids (500), total hardness,
calcium, magnesium, sodium, total iron (0.3),
ALK. P, ALK MP, chlorides (250), Nitrates (45)
Sulfates (250), Manganese (0.05), pH, Copper (1.0),
Zinc (5.0)

- Trace elements (mg/l)

Chromium (0.05), Fluoride (var.)

Power # 1

Temp. survey [F]

Geothl. Kinetics (subsurface static temp. grad. survey)
tests done by Agnew & Sweet

Pick up at 9065' March 24, 1973
Zero pt - Kelly Depth 9065'

Instrument 96° - 662° FAHR.

Intake 12 HR 7 1/4 (2) turns

Max temp. 261.0°F @ 9065'

Temp. vs. depth - graph + list of figures recorded
Includes casing PSIG OBS COR
tubing PSIG open open

Time on Bottom 12:26 A.M. 3/25/73

Time of Bottom 1:26 A.M. 3/25/73

Same co. a/a

pick up at 8015' July 19, 1973
Zero pt. - Kelley

Instrument 96° - 662° FAHR.

Intake 12 hrs 12 turns

Max temp 242.3°F @ 8015'

Temp vs. depth - graph + list of figures recorded

Depth w/ temp. recorded coming out
of hole at 7000', 5000', 3000', 1000'

Paper #2

temp. survey

Geothl. Kinetics (press. survey also done - included in my
tests done by Agnew + Sweet rept. in section on
press. surveys)

Pick up at 9050' July 20, 1973
Zero pt. - Kelley

Instrument 96° - 662° Fahr.
Intake 12 Hour 7 ~~1/2~~ turns
Max temp 262.2° F @ 9050'

Temp vs. depth - graph + list of figures recorded

Time on bottom 1:55 P.M. 7-20-73
Time off bottom 2:05 P.M. 7-20-73

Paper #1

(G)

Geothl. Kinetics - Pressure Survey
tests by Agnew & Sweet

April 16, 1973

Pick-up 7180'

zero pt. at Kelley

Includes depth, P-T, Grad.

same co. a/a - static pressure gradient survey
June 20, 1973

Includes:

Chart of Pressure vs. depth

List of Depth, Pres, Gradient.

Time on bottom 1:55 P.M. 7-20-73

Time off top 2:05 P.M. 7-20-73

zero pt at Kelley pick-up at 9050'

temp. survey also done at same time
- reported in my rept. in temp. survey section