



3 7 8  
DRAWER

Forms

Geysers  
Coring  
Project

ON-SITE SAMPLE  
RECORDS

WIRE-RUN DEPTH &  
RECOVERY RECORDS

CORING DATA FORMS

Date of Sampling	Time of Sampling	Run No.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				Pre-Fec core (Frozen) Waxed	Sealed in Core Liner or Al Tubing	Non-Sealed		
09/24	~1600	62	1.9-2.95 (1368.1-1369.15)	✓			Unocal (frozen in dry ice)	NA
09/24	1400	61	3.0-3.9 (1354.2-1355.1)	✓			Unocal	NA
09/26	~1615 hr	69	2.2-3.15 (1422.7-1423.65)	✓			" " Unocal 1	NA
09/26	~1615 hr	69	3.15-4.10 (1423.65-1424.6)	✓			" " Unocal 3	NA
09/26	~1615 hr	69	4.10-4.45 (1424.6-1424.95)	✓			" " unocal 4	NA
09/26	~1615 hr	69	6.10-6.55 (1424.95-1426.6)	✓			" " Unocal 2	NA
9/29	~14:05	88	7.2-10.2 (1601.2 → 1602.2)	✓			Unocal #1	NA
9/29	~14:05	88	8.7-9.2 (1600.7 → 1601.2)	✓			Unocal #2	NA
9/29	~14:05	88	3.4-4.4 (1595.4 → 1596.4)	✓			Unocal #3	NA
9/29	~14:05	88	4.4-5.6 (1596.4 → 1597.6)	✓			Unocal #4	NA

**GEYSERS CORING PROJECT . . . SB-15 Deepening  
On-Site Core Sample Record**



Coring Form

Hole: SB-15

Date: Sept 17-20-94

Hole Size: CHD 134  
(5.5)

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Core#	Time		Time	Depth		Dist Cored	Rec'd	SPMT G.P.M.	Pump Press (psi)	Bit RPM	WOB	Remarks
	Start Core	Stop Core		Top	Bottom							
1	3:15 PM	6:40 PM	3:35	825	834	9	7.5	40	100	150	2000	MOD LOSS / % RETURNS
2	7:20 PM			834	836	2	2	"	100	150	3000	
3	8:55	12:50	3:55	836	845.5	9.5	9.5	"	75	200	3000	
4	1:15	6:00	4:45	845.5	855.5	10	10	"	"	"	"	25% LOSS.
5	6:20	9:40	3:20	855.5	865.9	10.2	10.2	"	100	"	"	20% LOSS
6	9:40	12:45	3:05	865.9	875.9	10.2	10.2	"	75	"	3000	20%
7	1:15	2:20	1:05	875.9	880.6	4.7	4.7	"	150	"	3000	" Left 15 core. in hole
8	2:40	4:50	2:10	880.6	890.2	9.6	10.1	"	100	"	4000	" received .5 Ft core
9	5:20	7:05	1:45	890.2	898.6	8.4	8.4	"	100	"	4000	15% LOSS.
10	7:30	10:15	2:45	898.6	908.6	10	10	"	100	"	3000	15
11	10:35	12:55	2:20	908.6	918.28	9.68	9.68	"	100	"	3000	10
12	1:15	3:45	2:30	918.28	928.28	10	10	40	100	200	3000	10
13	04:00	6:30	2:30	928.28	937.96	9.68	9.68	"	100	200	3000	10% LOSS.
14	6:50	9:10	<del>9:10</del> 9:10	937.96	947.96	10	10	40	50	200	3000	"
15	9:35	11:45	2:10	947.96	957.64	9.68	9.68	"	50	"	3000	"
16	12:05	2:10	2:05	957.64	965.64	8	8	"	100	"	3000	10% LOSS
17	2:35	4:45	2:10	965.64	975.6	10	10	"	100	"	3000	10%
18	5:05	7:20	2:15	975.6	985.6	10	10	40	100	200	3000	10%
19	7:40	8:50	1:10	985.6	990.6	5	5	40	100	11	3000	10
20	9:05	11:10	2:05	990.6	1000.6	10	10	40	100	200	3000	10
21	11:35	1:15	1:40	1000.6	1006.6	6	6	40	100	200	3000	10%
22	1:40	2:30	0	1006.6	1006.9	0.3	0.3	40	100	200	3000	10%
23	6:15	9:30	3:15	1006.9	1016.68	9.78	9.78	40	100	200	4000	10%

(191.7) (194.9)  
(1.46% INCR.)



# Coring Form

 Hole: SB-15

 Date: Sept 20-23 94

 Hole Size: CHD 134  
(5.5)

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Core#	Time		Time	Depth		Dist Cored	Rec'd	SPM GPM	Pump Press (psi)	Bit RPM	WOB	Remarks	
	Start Core	Stop Core		Top	Bottom							MUD LOSS / RETURNS	TEMP.
24	9:50	12:50	3:00	1016.6	1026.2	9.6	9.6	40	0	200	3500	10%	
25	12:5	4:10	2:45	1026.2	1036.36	10.1	10.1					10% Pumped 2500 gal into mud pit.	142°
26	4:30	7:15	2:45	1036.36	1046.36	10	10	40	0	200	3500		156°
27	7:50	10:30	2:40	1046.36	1056.04*	9.68		40	0	200	3500	20%	146°
28	10:50	1:00	2:10	1056.04	1064.04*	8	8	40	0	200	3500	20% Lost bit for 4 min at 1052	149°
29	1:20	3:10	1:50	1064.04	1069.57	5.53	5.53	40	0	200	3300	20%	148°
30	3:30	6:20	2:50	1069.57	1077.57	8	8	40	0	200	3500	20%	147°
31	7:00	9:00	2:00	1077.57	1084.04	6.4	6.2	40	0	200	3500	20%	141°
32	9:30	12:05	2:35	1084.04	1094.04	10	10	40	0	200	3500	20%	142°
33	1:50	2:45	:55	1094.04	1099.04	5	5	40	0	200	3500	20% Bottom Hole TEMP 268°	
34	3:10	5:10	2:00	1099.04	1109.04	10	10	40	0	200	3500	20%	145°
35	5:30	7:20	1:50	1109.04	1115.22	6.28	6.18	40	0	200	3500	20%	154°
36	7:45	10:15	2:30	1115.22	1125.22	10	10	40	0	200	3500	20%	156°
37	10:35	12:50	2:15	1125.22	1134.90	9.68	9.68	40	0	200	3000	20%	159°
38	1:10	3:30	2:20	1134.90	1144.90	10	10	40	0	200	3000	20%	156°
39	3:50	6:10	2:20	1144.90	1154.58	9.68	9.68	40	0	200	3000	20%	156°
40	6:30	8:30	2:00	1154.58	1162.58	8	6	40	0	200	3000	20%	157°
41	8:55	11:40	2:45	1162.58	1172.3	9.8	10.2	40	0	200	3000	20%	151°
42	12:00	2:15	2:15	1172.3	1182.6	10.3	10.3	40	0	200	3000	20%	152°
43	2:35	5:00	2:25	1182.6	1192.7	10.1	10.1	40	0	200	3000	20%	151°
44	5:35	8:20	2:45	1192.7	1202.62	9.92	9.92	40	0	200	3000	20%	156°
45	8:45	11:20	2:35	1202.62	1212.62	10	10	40	0	200	3000	20%	157°
46	11:55	1:45	3:45	1212.62	1217.62	5	5	40	0-20	200	3000	20% Tube Sample	157°

\* we recorded X.A, not X.OA

 (201) (202)  
 (1% INCR.)



**Coring Form**

Hole: SB-15 Date: Sept 23-25-94 Hole Size: RHD 134 Page 3 of 4  
5.5 Hole Diameter

Core#	Time		Time	Depth		Dist Cored	Rec'd	SPM GPM	Pump Press (psi)	Bit RPM	WOB	Remarks
	Start Core	Stop Core		Top	Bottom							
47	2:15	4:50	2:35	1217.62	1227.62	10	10	40	0-20	200	3000	Mud Loss 20% 158°
48	5:10	7:10	2:00	1227.62	1237.62	10	10	40	0	200	3500	20% 154°
49	7:30	9:30	2:00	1237.62	1247.8	10.2	10.2	40	40	200	3500	20% 150°
50	9:50	11:50	2:00	1247.8	1257.8	10	10	40	40	200	3500	20% 151°
51	12:15	2:30	2:15	1257.8	1267.8	10	10	40	40	200	3500	20% 150°
52	2:50	5:05	2:15	1267.8	1277.8	10	10	40	40	200	3500	20% 152°
53	5:25	7:45	2:20	1277.8	1287.9	10.1	10.1	40	40	200	3500	20% 157°
54	8:00	10:15	2:15	1287.9	1298	10.1	10.1	40	0-20	200	3500	20% 157°
55	10:35	12:40	2:05	1298	1309	10	10	40	0-40	200	3500	20% 154°
56	1:05	2:05	1:00	1309	1313	5	5	40	0-40	200	3000	20% 149°
57	2:25	4:30	2:05	1313	1323.1	10.1	10.1	40	0-40	200	3000	20% 150°
58	4:50	6:30	1:20	1323.1	1331.56	8.46	8.46	40	0-40	200	3000	20% 150°
59	7:00	9:10	2:10	1331.56	1341.56	10	10	40	0-40	200	3000	20% 157°
60	9:30	11:35	2:05	1341.56	1351.24	9.6	9.6	40	40	200	3000	20% 149°
61	11:55	2:00	2:05	1351.24	1361.24	10	10	40	40	200	3000	20% 149°
62	2:20	3:20	1:00	1361.24	1366.2	5	5	40	40	200	3000	20% 149°
63	4:30	7:00	2:30	1366.2	1375.2	9	10	40	40	200	3000	20% 149°
64	8:00	11:15	3:15	1375.2	1385.2	10	10	40	0	200	3000	0 149°
65	11:50	3:10	3:20	1385.2	1395.48	10.28	10.28	35	0	200	3000	10.0 149°
66	3:35	7:00	3:35	1395.48	1405.48	10	10	35	0	200	3000	NO RETURN 149°
67	7:35	10:20	2:45	1405.48	1415.48	10	10	35	0	200	3000	" 149°
68	10:45	11:55	1:10	1415.48	1420.48	5	5	35	0	200	3000	" 149°
69	1:00	4:00	3:00	1420.48	1429.96	9.48	0					



# Coring Form

Hole: SB-15

Date: Sept 26-29-94

Hole Size: 134

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Core#	Time		Time	Depth		Dist Cored	Rec'd	SPM G-PM	Pump Press (psi)	Bit RPM	WOB	Remarks
	Start Core	Stop Core		Top	Bottom							
<del>70</del>	<del>1429.96</del>	<del>1432.96</del>										
70	4:45	5:45	1:00	1429.96	1432.96	3	3	25	0	950	2000	T.L.C.
71	6:25	9:15	2:50	1432.96	1442.96	10	10	25	0	200	2000	
72	9:45	11:20	1:35	1442.96	1449.64	6.68	6.68	25	0	200	2000	
73	12:05	2:10	2:05	1449.64	1456.32	6.68	6.68	25	0	200	2000	
74	6:30	9:15	2:45	1456.32	1466.32	10	10	25	0	200	2000	fluid level dropped during
75	9:45	12:15	2:30	1466.32	1476.32	10	10	25	0	200	2000	fluid level back up to 180'
76	12:40	3:40	3:00	1476.32	1486.32	10.2	10.2	25	0	200	2000	
77		7:50		1486.32	1496.52	10	10	25	0	200	2500	
78	8:25	10:55	2:30	1496.52	1506.78	10.26	10.26	25	0	200	500-1500	
79	11:30	2:15	2:45	1506.78	1516.78	10	10	25	0	200	2000	
80	3:25	6:10	2:45	1516.78	1527	10.22	10.22	25	0	200	2500	
81	6:35	8:05	1:30	1527	1532	5	5	25	0	200	2500	fluid level 450'
82	8:35	11:25	2:50	1532	1542	10	10	25	0	200	2500	fluid level 450'
83	1:55	2:50	2:55	1542	1552	10	10	25	0	200	2500	" " 450'
84	3:15	5:55	2:40	1552	1562	10		25	0	200	2500	450'
85	6:15	9:40	3:25	1562	1572	10	10	25	0	200	2500	
86	10:40	1:50	3:10	1572	1582	10	10	25	0	200	3000	
87	2:15	5:50	3:35	1582	1592	10	10	25	0	200	2500	
88	6:15	9:05	2:50	1592	1602	10	10	25	0	200	2500	T.P.



Run No.	Date	Time (on deck)	Driller's Depth (ft)		Amount Drilled (ft)	Amount Recovered (ft)	Core Recovery (%)	Notes, Comments
			Top	Bottom				
1	09/17	1854	825	834	9 <sup>0</sup>	8 <sup>25</sup>	92%	what a relief!
2	"	2055 hr	834	836	2 <sup>0</sup>	2 <sup>0</sup>	100%	locking ring jammed into core abrasion; prob. cause of short run
3	9/18	0200	836'	845.5'	9.5	10	105%	
4	9/18	0620	845.5	855.5	10	10.3	103%	
5	9/18	0940	855.5	865.5 <sup>7</sup>	10 <sup>2</sup>	10.3	103%	711.6
6	9/18	1303	865.7	875.9'	10 <sup>2</sup>	10 <sup>3</sup>	101%	
7	9/18	1420	875.9	880.6	4 <sup>7</sup>	4 <sup>0</sup>	85%	Bonner Sample
8	09/18	1715	880.6	890.2	9 <sup>5</sup>	10 <sup>5</sup>	109%	
9	09/18	1905	890.2	898.6	8 <sup>4</sup>	8 <sup>8</sup>	105%	
10	9/18	2215	898.6	908.6	10'	10'	100%	
11	9/19	0052 on bottom 0110h.	908.6	918.3	9.7	10.2	105%	
12	9/19	0350	918.3	928.3	10	10	100%	Bonner, Williams, Conca & Persoff samples.
13	9/19	0645	928.3	938	9.7	10	103%	
14	9/19	0925	938	948	10	10.3	103%	*Persoff sample
15	09/19	1155	948	957.7	9 <sup>7</sup>	10.0	103%	

**GEYSERS CORING PROJECT ... SB-15 Deepening  
Core-Run Depth and Recovery Log**



Run No.	Date	Time (on deck)	Driller's Depth (ft)		Amount Drilled (ft)	Amount Recovered (ft)	Core Recovery (%)	Notes, Comments
			Top	Bottom				
16	09/19/94	1430 hr.	957.7	965.7	8	8.1	101	
17	09/19/94	17	965.7	975.6	9.9	10.25	104	
18	9/19/94	1935	975.6	985.6	10	10.3	103	
19	9/19/94	2050	985.6	990.6	5	5 <sup>0</sup>	100	Bonner sample
20	9/19/94	2310	990.6	1000.6	10	9 <sup>2</sup>	99	
21	9/20	0115	1000.6	1006.6	6	6 <sup>0</sup>	100	
22	9/20	02:30	1006.6	1006.9	.3	.3	100	POOH $\frac{1}{2}$ CHANGE BIT @ 1006.9'
23	9/20	09:45	1006.9	1016.7	9.8	9.6	98	
24	9/20	13:00	1016.7	1026.2	9.5	10.4		
25	9/20	17:05	1026.2	1036.4	10.2	10.3		
26	9/20	19:45	1036.4	1046.4	10			
27	9/20	22:45	1046.4	1056.4	10	10.2		Lost circulation @ 1052' for 24min. Then returns
28	9/21	01:20	1056.4	1064.4	8			
29	9/21	03:10	1064.4	1069.6	5.2	5.2		
30	9/21	04:30	1069.6	1077.6	8'	7.9		Split tube mismatch - core pumped out of tube - shoe broke - piece left in hole.

**GEYSERS CORING PROJECT ... SB-15 Deepening  
Core-Run Depth and Recovery Log**

Arg rate = 3.3'/hr prior to bit change on 9/20



Run No.	Date	Time	Driller's Depth (ft)		Amount Drilled (ft)	Amount Recovered (ft)	Core Recovery (%)	Notes, Comments
			Top	Bottom				
31	9/21		1077.6	1084.0	6.4	6.3		
32	9/21	12:25	1084.0	1094.0	10	10.3		
33	9/21	15:15	1094.04	1099.04	5.0	5.0		5' BONNER
34	9/21	17:20	1099	1109	10	10.1		
35	09/21	19:30	1109	1115.2'	6.2			
36	09/21	22:15	1115.22	1125.22	10	10	100%	
37	9/22	00:50	1125.22	1134.90	9.68	10.1		
38	9/22	3:30	1134.9	1144.9	10	10.1		
39	9/22	6:10	1144.9	1154.58	9.68	10		
40	9/22	8:30	1154.58	1162.58	8	6		
41	9/22	12:00	1162.58	1172.3	9.7	10.3		
42	9/22	14:30	1172.3	1182.6	10.3	10.4		
43	09/22	17:30	1182.6	1192.7	10.1	10.2		
44	09/22	20:45	1192.7	1202.6	9.9	10		
45	9/22	23:20	1202.62	1212.62	10	10		

**GEYSERS CORING PROJECT . . . SB-15 Deepening  
Core-Run Depth and Recovery Log**

Run No.	Date	Time	Driller's Depth (ft)		Amount Drilled (ft)	Amount Recovered (ft)	Core Recovery (%)	Notes, Comments
			Top	Bottom				
46	9/23	1:45	1212.62	1217.62	5'	5'	100	SEALED 5' BONNER
47	9/23	4:50	1217.6	1227.6	10'	10.2	102	
48	9/23	7:10	1227.6	1237.6	10'	10.3	103	
49	09/23	09:30	1237.6	1247.8	10 <sup>2</sup> '	10 <sup>2</sup> '	100	
50	09/23	11:50 hr	1247.8	1257.8	10 <sup>0</sup> '	10 <sup>0</sup> '	100	
51	09/23	14:30	1257.8	1267.8	10 <sup>0</sup> '	10 <sup>0</sup> '	100	
52	09/23	17:15	1267.8	1277.8	10 <sup>0</sup> '	10 <sup>1</sup> '	100	
53	09/23	19:40	1277.8	1287.2	10 <sup>1</sup> '	10 <sup>1</sup> '	100	Bonner Sample 2.45-3.65'
54	9/23	22:15	1287.9	1298.0	10.1	10.2	101	
55	9/24	00:40	1298.0	1308.0	10'	10.1	101	
56	9/24	02:05	1308.0	1313.0	5'	5'	100	SEALED 5' BONNER
57	9/24	4:30	1313.0	1323.1	10.1	10.1	101	
58	9/24	6:30	1323.1	1331.56	8.46	9.0		
59	09/24	9:10	1331.56	1341.56	10 <sup>0</sup> '	10 <sup>0</sup> '		
60	9/24	11:35	1341.6	1351.2	9.6	10 <sup>0</sup> '		Prominent open, qtz-cal ≠ py vmt!

**GEYSERS CORING PROJECT ... SB-15 Deepening  
Core-Run Depth and Recovery Log**



Run No.	Date	Time	Driller's Depth (ft)		Amount Drilled (ft)	Amount Recovered (ft)	Core Recovery (%)	Notes, Comments
			Top	Bottom				
61	09/24	1400	1351.2	1361.2	10 <sup>0</sup>	10 <sup>0</sup>	103	Unocal & Persoff sample taken
62	09/24	1520	1361.2	1366.2	5 <sup>0</sup>	5 <sup>0</sup>	100	core for use in "dry run" for 09/25 Unocal pressure coring
63	09/24	1900	1366.2	1375.2	9 <sup>0</sup>	9 <sup>0</sup>	107	TOTAL LOSS OF RETURNS @ 1369' @ 1735 hr
64	9/24	23:15	1375.2	1385.2	10'	10.2	102%	EST. LOSS = -60 BPH
65	9/25	3:10	1385.2	1395.48	10.28'	10.3	100%	"
66	9/25	7:10	1395.5	1405.5	10.0	10.1	101	NO RETURNS LOSS ≈ -60 BPH
67	09/25	10:20	1405.5	1415.5	10 <sup>0</sup>	10.2	102%	
68	09/25	?	1415.5	1420.5	5 <sup>0</sup>	5 <sup>0</sup>	100	5' Bonner sample
69	09/25	16:50	1420.5	1429.9	9 <sup>5</sup>	9.3	98	UNOCAL PRESSURE RUN
70	9/26	~18:00	1429.9	1432.9	3 <sup>0</sup>	3 <sup>15</sup>	105	
71	09/26	2115	1432.9	1442.9	10 <sup>0</sup>	10 <sup>0</sup>	100	
72	09/27	00:20	1442.9	1449.64	6.68	6.74	101%	CORE SEEMS MUCH LESS HOT THAN PRIOR RUNS
73	09/27	2:10	1449.6	1456.3	6.7	6.8	101	TRIP FOR BIT @ 1456.32
74	09/27	0945	1456.3	1466.3	10 <sup>0</sup>	10.1	101	FLUID LEVEL DROPPED FR. 400' BGL TO 180' BGL @ 11457 → PROBABLE STEAM ENTRY
75	09/27	1215 <sub>hr</sub>	1466.3	1476.3	10 <sup>0</sup>	10 <sup>0</sup>	100	FLUID LEVEL BACK UP TO 180' IN HOLE

**GEYSERS CORING PROJECT ... SB-15 Deepening  
Core-Run Depth and Recovery Log**



Run No.	Date	Time	Driller's Depth (ft)		Amount Drilled (ft)	Amount Recovered (ft)	Core Recovery (%)	Notes, Comments
			Top	Bottom				
76	09/27	1540	1476.3	1486.5	10 <sup>±</sup>	10 <sup>±</sup>	100	Temp. drop in fluid level in pipe - quickly restored
77	09/27	1950	1486.5	1496.5	10 <sup>±</sup>	10 <sup>±</sup>	100	
78	09/27	2345	1496.6	1506.78	10 <sup>±</sup>	10 <sup>±</sup>	102	
79	09/28	2:15	1506.78	1516.78	10.0	10.2	102	
80	09/28	0650	1516.78'	1527.0	10.0	10.22	102	
81	09/28	08:30	1527.0	1532.	5'	5'	100	BONNER 5' RUN CORE IS QUITE HOT
82	09/28	1205	1532'	1542'	10'	10'	100	RETRIEVED CORE IS NOTABLY COOLER THAN ABOVE.
83	09/28	1450	1542	1552	10'	10'	100	LUKEWARM CORE
84	09/28	1820	1552	1562	10'	10'	100	LUKEWARM CORE
85	09/28	22:40	1562'	1572'	10'	9.6'	96	LUKEWARM CORE
86	09/29	1:50	1572.0'	1582.0'	10'	10.2	102	"
87	09/29	5:50	1582.0	1592.0'	10	10.2	102	"
88	09/29	14:05	1592.0	1602'	10 <sup>±</sup>	10 <sup>±</sup>	100%	UNUSUAL pressure run

poss "steam entry"??

**GEYSERS CORING PROJECT . . . SB-15 Deepening Core-Run Depth and Recovery Log**



Date of Sampling	Time of Sampling	Run No. <del>Run No.</del> smp. no.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				Waxed	Sealed in Core Liner or Al Tubing	Non-Sealed		
9/14	15:00	20	746			✓ 20%		
9/14	17:30	21	759			✓ 50%		
9/14	18:00	22	763			NUL		
09/14	<del>08</del> 19:30	23	770					
09/14	<sup>n</sup> 21:30	24	779			4%		
09/14	22:40	CA/SCP 25	785					
09/15	23:50	CA/SCP 9A-26	789					
09/15	01:30	CA/SCP 9A-27	795					
09/15	<del>02:00</del> 02:35	CA/SCP 9A-28	800					
09/15	03:34	CA/SCP 9A-29	803					

CA/SCP  
9A-24

GEYSERS CORING PROJECT . . . SB-15 Deepening  
On-Site Core Sample Record

Sample No.	Date	Time	Sample Type	Comments <i>sampled by</i>
CA-GCP 94-1	09/08/94	11345 PDT	FRESH WATER FR. INLET @ MLID TANK NEAREST RIG - SMALL PRIMARY MUD-MIX TANK	JBH
CA-GCP 94-2	09/08/94	11400	DRILLING - MUD "RETURNS" (w/CUTTINGS)	JBH
CA-GCP 94-27	09/09/94	110715	do — new drilling through <sup>bridge</sup> @ 6730'	JBH
CA/GCP 94-30	09/16/94	1845	"Fresh" wash water for core (in trailer) (a little rust)	JBH
CA/GCP 94-31	9/16/94	2300	Drilling mud returns	Strong ammonia odor @ return line / DEN.
CA/GCP 94-32	9/20	2220	Drilling mud returns -	DEN
CA/GCP 94-33	9/22	1400	Drilling mud returns	PFD
CA/GCP 94-34	09/22	NA	* SP-101 drilling polymer (dry)	"
CA/GCP 94-35	09/22	NA	"Poly-Plus" MI drilling fluids - batch 309	"
CA/GCP 94-36	09/22	NA	"Tube-lube" linseed soap	"
CA/GCP 94-37	09/22	NA	Dense soda ash (additive for mud)	"
CA/GCP 94-38	09/22	NA	KOPR-KOTE	"

**GEYSERS CORING PROJECT . . . SB-15 Deepening  
On-Site Sample Record:  
Drilling Fluids and Additives; Other Potential Core Contaminants**



CA-GCP-9A-3  
 CA-GCP-9A-4  
 CA-GCP-9A-5  
 9A-6  
 9A-8  
 9A-9  
 9A-10  
 9A-11  
 9A-12  
 9A-13  
 9A-14  
 15  
 16  
 17  
 18

Date of Sampling	Time of Sampling	Run No.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				Waxed	Sealed in Core Liner or Al Tubing	Non-Sealed		
09/08/94	1230	NA	702' w/cuttings hulls			X	Jeff Hulen UURI	NA
09/08/94	1240	NA	702' cuttings cleaned of hulls			X	"	}
09/08/94		NA	741' cuttings cleaned of hulls			X	"	
09/09/94	0830	NA	1450' cuttings cleaned of hulls & mud			X	"	
09/10/94	0730	NA	1730 ft. : cuttings cleaned of hulls & mud			X	"	
09/12/94	11000	NA	1146 ft do			X	"	
09/12/94	11015	NA	1163 ft do.			X	"	
09/14/94	10900	NR	1750' - 713' supposedly in cement plug.			X	"	
09/14	10915	NA	1715'			X	"	
09/14	10930	NA	1718'			X	"	
09/14	10945	NA	1720'			X	"	
09/14	?	NA	1724'			✓		
09/14	?	NA	1725'			✓		
09/14	112105	NA	1735'			✓		
09/14	1400	NA	1738' (?)			✓		

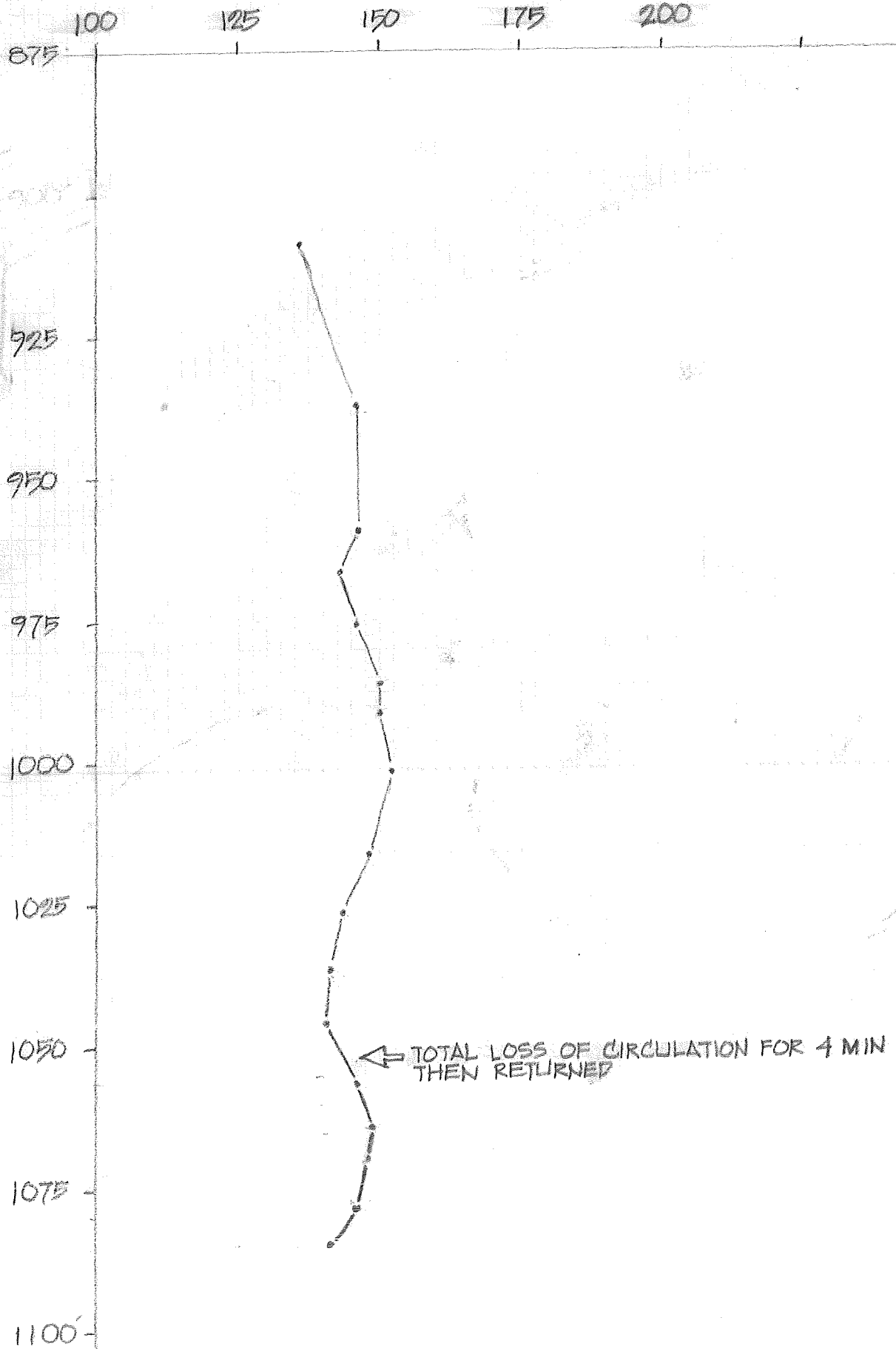
GEYSERS CORING PROJECT ... SB-15 Deepening  
 On-Site Core Sample Record

OF TOTAL ROCK			SAMPLE DEPTH	(approx.) % CEMENT CUTTING	(approx.) % ROCK CUTTINGS	% OTHER	% VEINS	COMMENTS	% PYRITE
VIBS	% GW	% AR							
5	88 <del>88</del>	7	713'	8	92	—	X		1
5	83 <del>83</del>	17	715'	7	93	Tr. drill steel	X		3
5	60	35	720' 718'	<del>11</del>	89	—	X	much of the argillite well-foliated	2
7	68	25	725' 720'	7	93	—	X	"	2
5	75	20	725'	50	50	—	—	"	2
5	90	5	730'	15	85	—	—	2 diff. colors cement - pale pink & orange gray	2
4	66	30	745'	25	75	—	—		2
3	92	<del>5</del>	746'	15	85	—	—	2 diff. colors cement - pale gray & orange	2
10	95	5	759'	<1	>99	—	—		2
10	85 <del>95</del>	5	763'	<1	>99	—	12	m-gt GW	2
2	97	1	770'	1	99	—	X		1
2	91	1	779'	<1	>99	—	X		28
5	94	1	785	2	98	—	+	py increases	4
5	95	—	789	1	99	Tr. chloritic rounded & milled fragment	X		2
5	92	3	795'	2	98	Tr. cotton seed hulls	X		2
5	93	2	800'	<1	>99	—	—		3
3	95	2	803	5	95	fr. chloritic schist	—		12
3	97	—	806' 4:30 p.	3%	97%	a couple of conspicuous pyrite microveinlets.	→	DRILL RATE	—
1	97	3	809' 5:30 p.	0	100%	com disem pyr TR BIT GOUGE?	—	Fract loose arg AR 1/10cc 1mm AR clasts in GW	—
1	99	1	817' 7pm	0	100%	—	—		—
2-3	97	—	823' 8pm	0	100%	—	—		—

W 2:00-9:10 SW. MONT.



# MUD RETURN TEMP.



MUD RETURN TEMP.

1000 100 125 150 175 180 190 200

1025

1050

1075

1100

1125

1150

1175

1200

1225

DEPTH

2PM

11/8

PCW

11/8

11/8

11/8

11/8



Date of Sampling	Time of Sampling	Run No.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				Waxed	Sealed in Core Liner or AI Tubing	Non-Sealed		
9/19	0430	12	2.2 - 3.0' (920.5-921.3)		✓		CONCA - WASH. STATE U.	
09/20	1305	24	7.05 - 7.7' (1023.75-1024.4)		✓		"	
09/21	2245	36	7.7' - 8.5' 1122.92' - 1123.72'		✓		"	
09/22	7:30	48	1.2 - 2.1' 1228.8 - 1229.7'		✓		Not a great smpl. - fractured, fell apart when placed in tube (take another) (extra)	
09/23	14:30	51	3.8 - 4.6 (1261.6 - 1262.4)		✓		" Conca	
09/24	6:30	58	1.1 - 2.1' 1324.1 - 1325.1		✓		"	
09/27	00:20	72	0.7 - 1.5 1443.6 - 1444.4		✓		UNOCLAL PRESSURE CORE JUST ABOVE	
09/28	0650	80	1.1 - 2.0 (1517.88 - 1518.78)		✓			
					✓			
					✓			
					✓			
					✓			
					✓			
					✓			
					✓			

**GEYSERS CORING PROJECT ... SB-15 Deepening  
On-Site Core Sample Record**

need to take @ 4  
 925'  
 970'  
 1065'  
 1150'  
 1154'  
 1200'  
 1270'  
 1300'  
 1365'  
 1420'  
 1465'  
 1520'  
 1525'  
 1620'

Date of Sampling	Time of Sampling	Run No.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				Waxed	Sealed in Core Liner or AI Tubing	Non-Sealed		
09/18	1430	7	875.9- 820.6' (0-4.7')		✓		BOLLNER LLH	
9/19	0430h	12	0.60-1.80 (918.9-920.1)		✓			
9/19	2050 hr	19	0-5.0 (985.6-990.6)		✓			
09/20	1305	24	2.2-3.6 (1018.9-1020.3)		✓			
09/21	1500	33	0-5.0 (1094-1099)		✓			
09/22	0630	39	0-1.5 (1144.9-1146.4)		✓			
9/22	02:15	46	0-5.0 1212.6-1217.6		✓			
09/23	1950	53	2.45-3.65 1280.25-1281.15		✓			
09/24	02:05	56	0-5.0 (1308.0-1313.0)		✓			
09/24		62	0-1.10 (1361.2-1362.3)		✓			
09/25		68	0-5.0 (1415.5-205)		✓			
9/27	10:00	74	0-1.0 (1464.7-1465.7)		✓			
9/28	08:15	81	0-5.0 (1527.0-1532.0)		✓			
9/28	2240	85	5.5-6.7 (1567.5-1568.7)		✓			
					✓			

**GEYSERS CORING PROJECT ... SB-15 Deepening  
On-Site Core Sample Record**



Need to take @ u

~~925~~

~~970~~

~~1112~~

~~1170~~

~~1185~~

~~1185~~

~~1124~~

~~1124~~

~~1124~~

~~11390~~

~~11390~~

~~11440~~

~~11440~~

~~11540~~

~~11600~~

Date of Sampling	Time of Sampling	Run No.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				Protec core <del>Waxed</del>	Sealed in Core Liner or AI Tubing	Non-Sealed		
09/18/94	1945	6	0.25-0.60 865.95-866.3	✓			WILLIAMS-LISGS	
9/19	0430	12	918.3-919	✓				
9/19	1720	17	(0.4-0.8) 966.1-966.5	✓				
9/20	1300	24	(1.8-2.2) 1018.5-1018.9	✓				
9/21	12:35	32	+1.2 to +1.7 (1085.2 → 1085.7)	✓				
9/22	04:20	38	2.0 - 2.5 (1137.9' - 1138.4')	✓				
09/22	1730	43	9.65-10.25 (1192.25-1192.85)	✓				
09/23	1150	50	1.20-2.10 (1249.0-1249.9)	✓				
09/23	2243	54	9.7' - 10.1' (1298.0 - 1298.5)	✓				
09/24	09:45	59	0.95-1.35' (1332.51'-1332.91')	✓				
09/24	1900	63	8.90-9.60 (1375.1-1375.8)	✓				
09/27	00:20	72	1.5-2.2 (1444.4-1445.2)	✓				
09/27	23:40	78	1.45'-2.0 (1497.05'-1498.6)	✓				
09/28	22:40	85	8.9-9.4 (1570.9-1571.4)	✓				
				✓				

GEYSERS CORING PROJECT . . . SB-15 Deepening  
On-Site Core Sample Record





Take another at about:

~~n1140~~  
~~n1160~~  
~~n1175~~  
~~n1200~~  
~~n1220~~  
~~n1240~~  
~~n1260~~  
~~n1290~~  
~~n1310~~  
~~n1330~~  
~~n1350~~  
~~n1370~~  
~~n1390~~  
~~n1410~~  
~~n1430~~  
~~n1450~~

Date of Sampling	Time of Sampling	Run No.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				sealed protected core Waxed	Sealed in Core Liner or AI Tubing	Non-Sealed		
9/22	04:20	38	8.9-9.5 (1144.8'-1145.4')	<input checked="" type="checkbox"/>			PERSOFF LBL	
9/22	09:00	40	0-0.9' 1154.58'-1155.40'	<input checked="" type="checkbox"/>				
09/22	1730	43	2.35-2.70 (1184.95'-1185.3')	<input checked="" type="checkbox"/>				
09/22	2045	44	5.65-6.00 (1198.35'-1198.7')	<input checked="" type="checkbox"/>				
09/23	0511	47	1.0'-1.8' (1218.6'-1219.4')	<input checked="" type="checkbox"/>				
09/23	0930	49	8.9-9.8 (1246.5'-1247.4')	<input checked="" type="checkbox"/>				
09/23	1715	52	9.8-10.15 (1277.6'-1277.95')	<input checked="" type="checkbox"/>				
09/23	2243	54	0-0.55' 1287.9'-1288.45'	<input checked="" type="checkbox"/>				
09/24	05:00	57	0.3-0.8' 1313.3'-1313.8'	<input checked="" type="checkbox"/>				
09/24	09:45	59	0.2'-0.95' 1331.76'-1332.51'	<input checked="" type="checkbox"/>				
09/24	1400	61	8.7-9.3' (1359.9'-1360.5')	<input checked="" type="checkbox"/>				
09/24	23:55	64	1.9-2.4' (1377.1'-1377.6')	<input checked="" type="checkbox"/>				
09/25	07:45	66	0.0'-0.55' (1395.5'-1396')	<input checked="" type="checkbox"/>				
09/26	21:45	71	3.6'-4.1' (1436.5'-1437.0')	<input checked="" type="checkbox"/>				
09/27	00:20	72	2.2-3.6 1445.1'-1445.9'	<input checked="" type="checkbox"/>				

**GEYSERS CORING PROJECT ... SB-15 Deepening  
On-Site Core Sample Record**

Date of Sampling	Time of Sampling	Run No.	Depth or Depth Interval	Core sample type			Recipient: Investigator and institution	Date Sample Returned to UURI
				<del>Washed</del> sealed Protect- core	Sealed in Core Liner or AI Tubing	Non-Sealed		
1465 09/27	10:00	74	9.4-9.9 1465.7-1466.2	<input checked="" type="checkbox"/>			PERSOFF, LBL	
1480 09/27	1540hr	76	7.6-8.4 1483.9-1484.7	<input checked="" type="checkbox"/>			✓	
1500 09/27	2340h	78	5.3-5.8' (1501.9'-1502.4')	<input checked="" type="checkbox"/>				
1520 1' 1546 09/28	0650h	80	0.4-1.1 (1517.18-1517.88)	<input checked="" type="checkbox"/>				
1560 09/28	1450	83	4.9-5.4 (1546.9-1547.4)	<input checked="" type="checkbox"/>				
09/28	22:40h	85	8.4-8.9 (1570.4-1570.9)	<input checked="" type="checkbox"/>				
1580 09/29	02:20h	86	8.6-9.2 (1580.6-1581.2)	<input checked="" type="checkbox"/>				
				✓				
				✓				
				✓				
				✓				
				✓				
				✓				
				✓				
				✓				

**GEYSERS CORING PROJECT ... SB-15 Deepening  
On-Site Core Sample Record**



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 28, 1994

**Time:** 23:59

**Present Activity:** Coring.                      **Depth:** 1572'

**Bit:** New Bit: #L36544, Longyear S6 in @ 1456.3'; Old bit #L31622, Longyear S6 drilled 449'

**24hr. Activity Summary:** (00:00-2:15) finish core run #79, (2:15-3:25) retrieve core & service rig, (3:25-6:10) core run #80, (6:10-6:35) retrieve core, (6:35-8:05) core run #81 (5' Bonner sealed core run), (8:05-8:35) retrieve core, (8:35-11:25) core run #82, (11:25-11:55) retrieve core, (11:55-14:50) core run #83, (14:50-15:15) retrieve core, (15:15-17:55) core run #84, (17:55-18:20) retrieve core, (18:20-21:40) core run #85, (21:40-22:15) retrieve core, (22:15-past mid.) core run #86.

**Core Recovered:** Run #79 1506.8-1516.8' D 10.0 R 10.2, Run #80 1516.8-1527.0' D 10.0 R 10.2, Run #81 (Bonner Run) 1527.0-1532.0' D 5.0 R 5.0, Run #82 1532.0-1542.0' D 10 R 10, Run #83 1542.0-1552.0' D 10 R 10, Run #84 1552.0-1562.0' D 10 R 10, Run #85 1562.0-1572.0' D 10 R 9.6.

**Drill Rates:** Run #79 = 3.6 ft/hr, Run #80 = 3.6 ft/hr, Run #81 = 3.3 ft/hr, Run #82 = 4.0 ft/hr, Run #83 = 3.4 ft/hr, Run #84 = 3.8 ft/hr, Run #85 = 2.6 ft/hr.

**General Lithology:** 1506' - 1592' = generally massive Graywacke with occasional thin Argillite beds and contorted Argillite structures, traces of yellow-green stain in calcite / quartz veins; there are sheared interbedded Graywacke / Argillite intervals @ 1533', 1553-55' and 1559 - 62'; a large hydrothermal vein at 1508-9'; fault breccia at 1535-6' and 1557-58';

**Mud Report #1:** Time: 11:45 from pit                      Depth: 1542'                      Mud Type: Poly-plus/SP101

MW: 8.4	Vis: 43	PV: 4	YP: 3	gel: 0/0
pH: 8.5	FL: n/c	CT: <1	Cl: 800	TH: 30
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100	Temp: n/a

**Mud Report #2:** Time: 22:20 from pit                      Depth: 1572'                      Mud Type: Poly-plus/SP101

MW: 8.4	Vis: 44	PV: 4	YP: 3	gel: 0/0
pH: 8.5	FL: n/c	CT: <1	Cl: 700	TH: 20
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100	Temp: n/a

**Remarks:** Coring ahead with no returns, continue losing 45-60 bbls/hr, start pressure core run at 06:30 at a depth of 1592' for final core of well.

*Report By: David Serr*

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 27, 1994

**Time:** 23:59

**Present Activity:** Coring.                      **Depth:** 1506'

**Bit:** New Bit: #L36544, Longyear S6 in @ 1456.3'; Old bit #L31622, Longyear S6 drilled 449'

**24hr. Activity Summary:** (00:00-00:20) finish core run #72, (00:20-2:10) core run #73, (2:10-2:35) retrieve core, (2:35-6:30) trip for new bit at 1456.3', (6:30-9:15) core run #74, (9:15-9:45) retrieve core, (9:45-12:15) core run #75, (12:15-12:45) retrieve core, (12:45-15:40) core run #76, (15:40-16:10) retrieve core, (16:10-19:50) core run #77, (19:50-20:25) retrieve core, (20:25-22:55) core run #78, (22:55-23:30) retrieve core, (23:30-past mid.) core run #79.

**Core Recovered:** Run #73 1449.6-1456.3' D 6.7 R 6.8, Run #74 1456.3-1466.3' D 10.0 R 10.1, Run #75 1466.3-1476.3' D 10 R 10, Run #76 1476.3-1486.5' D 10.2 R 10.2, Run #77 1486.5-1496.5 D 10.0 R 10.0, Run #78 1496.6-1506.8' D 10.0 R 10.1.

**Drill Rates:** Run #73 = 3.2 ft/hr, Run #74 = 3.6 ft/hr, Run #75 = 4.0 ft/hr, Run #76 = 3.4 ft/hr, Run #77 = 2.8 ft/hr, Run #78 = 4.3 ft/hr.

**General Lithology:** 1449-1483' = 85% Graywacke, 15% Argillite: massive Graywacke with three contorted & sheared Argillite beds, Graywacke lacks obvious soft sediment deformation and has occasional darker silty zones, highly contorted Argillite interval at 1471-1475' that is probably a remnant shear zone, intensely fractured Argillite zones at 1476.5 and 1481', common fractured calcite/quartz veins at angles generally between 60 and 90 degrees from perpendicular to the core, exposed vein surfaces exhibit 1-4mm bladed calcite crystals, trace of Epidote noted at 1469-1471', traces of finely disseminated pyrite throughout, common sulfides in and around veins.

1483-1495' = 80% Argillite, 20% Graywacke: incredible interval of elongated Graywacke clasts suspended vertically in a black Argillite, assumed to be caused by post-depositional slumping, intense wiry sulfide veinlets, common white quartz veins, traces of Epidote.

1495-1498' = massive Graywacke as described above.

1498-1506' = Hydrothermal Breccia Zone: 60% Graywacke, 40% Argillite: Highly brecciated and porous zone with Graywacke & Argillite bedding still preserved, several punky simi-friable areas in Graywacke with intense clay alteration, enormous white calcite/quartz vein cutting through core with large bladed calcite crystals and numerous vugs with drusy quartz, abundant pyrite and other sulfides, appears formation clay has been sucked out by drilling action.

**Mud Report #1:** Time: 13:00 from pit                      Depth: 1478'      Mud Type: Poly-plus/SP101

MW: 8.4	Vis: 44	PV: 4	YP: 3	gel: 0/0
pH: 9.0	FL: n/c	CT: <1	Cl: 1000	TH: 40
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100	Temp: n/a

**Mud Report #2:** Time: 21:15 from pit                      Depth: 1503'      Mud Type: Poly-plus/SP101

MW: 8.4	Vis: 44	PV: 4	YP: 3	gel: 0/0
pH: 8.6	FL: n/c	CT: <1	Cl: 800	TH: 30
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100	Temp: n/a

**Remarks:** Coring ahead with no returns, losing up to 60 bbls/hr, on run #74 fluid level dropped from 180' to 400' at approx. 1457' (possible steam entry), fluid level came back up to 180' during run #75, temporary drop in fluid level on run #76 then quickly came back up (another possible steam entry), had occasional torque problems and had to pump more fluid to keep the pipe free.

*Report By: David Serr*



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

Date: September 26, 1994

Time: 23:59

Present Activity: Coring. Depth: 1447'

Bit: #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-13:30) continue waiting for hole to pressure up, (13:30-14:30) pull out pressure core, (14:30-15:30) kill well, (15:30-16:45) displace fluid in hole with polymer, (16:45-17:45) core run #70, (17:45-18:25) retrieve core, (18:25-21:15) core run #71, (21:15-21:45) retrieve core, (21:45-00:20) core run #72.

**Core Recovered:** Run #70 1429.9-1432.9' D 3.0 R 3.15, Run #71 1432.9-1442.9' D 10 R 10, Run #72 1442.9-1449.64' D 6.7 R 6.7.

**Drill Rates:** Run #70 = 3.0 ft/hr, Run #71 = 3.5 ft/hr, Run #72 = 2.6 ft/hr.

**General Lithology:** 1415-1420' = Bonner sealed core tube ( rocks not seen ).  
1420-1449' = 90% Graywacke, 10% Argillite: continued massive turbidite flows with occasional thin Argillite beds and wispy Argillite structures, graded bedding occurs 1426.5', interstratified Graywacke & Argillite from 1430-1433', very contorted Argillite & Graywacke quartz veined breccia zone from 1442-1443.5', good slicken-sides at Graywacke/Argillite contact at 1447' dipping at 62 degrees from perpendicular to the core, common fractured calcite/quartz veins at angles between 60 and 90 degrees from perpendicular to the core, first occurrence of Epidote at 1431' in hydrothermal veins and in carbonate dissolution voids, Wairakite at 1433', continued good trace disseminated sulfides locally abundant in and around veins.

**Mud Report #1:** Time: 21:45 from pit Depth: 1443' Mud Type: Poly-plus/SP101

MW: 8.4	Vis: 40	PV: 4	YP: 2	gel: 0/0
pH: 9.0	FL: 30+	CT: 0	Cl: 900	TH: 40
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100	Temp: n/a

**Remarks:** Left well shut in for 24 hours waiting for hole to pressure up, retrieved pressure core, hole appeared to be void of mud, displace fluid in hole with polymer, continue coring without returns pumping 20-26 gals/min.

*Report By: David Serr*

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 25, 1994

**Time:** 23:59

**Present Activity:** Coring.                      **Depth:** 1429.9'

**Bit:** #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-3:10) finish core run #65, (3:10-3:35) retrieve core, (3:35-7:10) core run #66, (7:10-7:35) retrieve core & service rig, (7:35-10:20) core run #67, (10:20-10:45) retrieve core, (10:45-11:55) core run #68 (Bonner sealed 5' core), (11:55-13:00) retrieve core, (13:00-16:00) core run #69 (Unocal Pressure Core), (16:00-midnight) left core in place, shut in well, hook up lubricator, monitor pressure, wait for hole to pressure up.

**Core Recovered:** Run #65 1385.2-1395.5' D 10.3 R 10.3, Run #66 1395.5-1405.5' D 10 R 10.1, Run #67 1405.5-1415.5' D 10 R 10.2, Run #68 (Bonner) 1415.5-1420.5' D 5 R 5, Run #69 (Unocal Pressure Core) 1420.5-1429.9' D 9.5 (wait for pressure to build).

**Drill Rates:** Run #65 = 3.0 ft/hr, Run #66 = 2.7 ft/hr, Run #67 = 3.6 ft/hr, Run #68 = 4.5 ft/hr, Run #69 = 3.3 ft/hr.

**General Lithology:** 1387-1415' = 75% Graywacke, 25% Argillite; predominately massive turbidite flows with occ thin argillite beds which are typically very wispy; slicks are noted at the argillite / graywacke contact @ 1392'; a hydrothermal quartz / calcite vein with vugs, (one at 20 mm) is present at 1394'; highly contorted argillite, calcite veins and graywacke in chaotic shear patterns from 1413.5 - 1415'.

<b>Mud Report #1:</b>	<b>Time:</b> 24:00 from pit	<b>Depth:</b> 1429'	<b>Mud Type:</b> Poly-plus/SP101	
MW: 8.4	Vis: 44	PV: 4	YP: 2	gel: 0/0
pH: 9.0	FL: 30+	CT: < 1	Cl: 900	TH: 40
Sand: 0	Solids: <1%	Met Bl: 0	Liquid: -/99	Temp: n/a

**Remarks:** Continue coring without returns, fluid level @ 180'.

**Report By:** David Serr



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

Date: September 23, 1994

Time: 23:59

Present Activity: Coring. Depth: 1305'

Bit: #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00- 01:45) continue core run #46 (Bonner Core); (1:45-2:15) retrieve core; (2:15- 4:50) core run #47; (4:50-5:10) retrieve core; (5:10 - 07:10) core run #48; (7:10-7:30) retrieve core; (7:30-09:30) core run #49; (9:30-9:50) retrieve core; (9:50-11:50) core run #50; (11:50-12:15) retrieve core; (12:15-14:30) core run #51; (14:30-14:50) retrieve core; (14:50-17:05) core run #52; (17:05-17:25) retrieve core; (17:25-19:40) core run #53; (19:40-20:00) retrieve core; (20:00-22:15) core run #54; (22:15-22:35) retrieve core; (22:35-00:40) core run #55.

**Core Recovered:** Run #46 1212.6- 1217.62' D 5 (Bonner samp.); Run #47 1217.62'- 1227.62 D 10 R 10.2; Run #48 1227.62- 1237.62' D 10 R 10.3; Run #49 1237.6- 1247.8' D 10.2 R 10.2; Run #50 1247.8- 1257.8' D 10 R 10; Run #51 1257.8- 1267.8' D 10 R 10; Run #52 1267.8-1277.8' D 10 R 10.1; Run #53 1277.8-1287.9' D 10.1 R 10.1; Run #54 1287.9- 1298.0' D 10.1 R 10.2; Run #55 1298.0-1308.0' D 10 R 10.1.

**Drill Rates:** Run #45=3.9 ft/hr; Run #46=2.6 ft/hr; Run #47=3.9; Run #48=5.0; Run #49=5.1; Run #50=5.0; Run #51=4.4; Run #52=4.4; Run #53=4.4; Run #54=4.5; Run #55=4.9

**General Lithology:** 1212-1308'= 90% Graywacke, 10% Argillite: continued massive turbidite flows with occasional thin Argillite beds and wispy Argillite structures, graded bedding occurs at 1211', 1220', 1275' & 1286', common Franciscan calcite/quartz veins 1mm to 3cm thick and predominately at high angles (from perpendicular to the core), some vertical fractures, the thicker veins generally occur at Graywacke/Argillite contacts, breccia zone in bedding plane fracture at 1290' with clay alteration, vugs and euhedral quartz crystals, common disseminated sulfides in and around veins.

**Mud Report #1:** Time: 09:00 from pit Depth: 1245' Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 32	PV: 3	YP: 2	gel: 0/0
pH: 8.5	FL: 21	CT: < 1	Cl: 1250	TH: 200
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: n/a

**Mud Report #2:** Time: 22:45 from flowline Depth: 1298' Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 31	PV: 3	YP: 2	gel: 0/0
pH: 8.5	FL: 22.0	CT: < 1	Cl: 1250	TH: 240
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 157 F

**Remarks:** Continue losing 20% of returns on runs #46 through #55, flowline temp=158 F @ 3:00, 151 F @ 6:00, 151 F @ 9:00, 150 F @ 12:00, 152 F @ 15:00, 157 F @ 18:00, 154 F @ 21:00, 154 F @ 24:00.

Report By: David Serr

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 21, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-1:00) Continue core run #28; (1:00-1:20) retrieve core; (1:20-3:00) core run #29; (3:00-3:30) retrieve core; (3:30-6:20) core run #30; (6:20-7:00) retrieve core; (7:00-9:00) core run #31; (9:00-9:30) retrieve core; (9:30-12:10) core run #32; (12:10-13:45) retrieve core & survey; (13:50-14:45) core run #33 (Bonner sample); (14:45-15:10) retrieve core; (15:10-17:10) core run #34; (17:10-17:30) retrieve core; (17:30-19:20) core run #35; (19:20-19:45) retrieve core; (19:45-22:15) core run #36; (22:15-22:53) retrieve core; (22:53-00:50) core run #37.

**Core Recovered:** Run #29 1064.4-1069.6' D 5.2 R 5.2 ; Run #30 1069.6-1077.6' D 8 R 7.9 ; Run #31 1077.6-1084.0' D 6.4 R 6.3 ; Run #32 1084.0-1094.0' D 10 R 10.3 ; Run #33 1094.0-1099.0 D 5 R 5 (Bonner sample) ; Run #34 1099.0-1109.0' D 10 R 10.1 ; Run #35 1109-1115.2' D 6.2 R 6.3 ; Run #36 1115.2-1125.2' D 10 R 10 ; Run #37 1125.2-1134.9 D 9.7 R 10.1.

**Drill Rates:** Run #29= 3.1ft/hr; Run #30= 2.7ft/hr; Run #31=3.2 ft/hr; Run #32=3.6 ft/hr; Run #33=5 ft/hr; Run #34=5 ft/hr; Run #35=3.1 ft/hr; Run #36=4 ft/hr.

**General Lithology:** 1064-1134' = 70% Graywacke, 30% Argillite: generally massive turbidite flows interbedded with thinly laminated Argillite, Argillite commons occurs as irregular convoluted wispy structures and detached flame structures within the massive Graywacke, thicker beds of Argillite with convoluted lamination at 1069-1077', in some areas the Graywacke and Argillite are highly mottled and veined with older white Franciscan age calcite & quartz, the calcite & quartz veins range in size from 1mm to 7 cm and most are 60-70 degrees from perpendicular to the core, alteration zone in Graywacke at 1101-1102' with matrix material altered to clay, common disseminated pyrite (abundant near veins).

**Mud Report #1:** Time: 08:00 from flowline Depth: 1081' Mud Type: Poly-plus/SP101

MW: 8.4	Vis: 31	PV: 3	YP: 2	gel: 0/0
pH: 8.6	FL: 22	CT: < 1	Cl: 1150	TH: 120
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 150 F

**Mud Report #2:** Time: 22:15 from flowline Depth: 1115' Mud Type: Poly-plus/SP101

MW: 8.4	Vis: 32	PV: 3	YP: 2	gel: 0/0
pH: 8.5	FL: 24	CT: < 1	Cl: 1200	TH: 160
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 156 F

**Remarks:** Losing 20% of returns on runs #29 through #37, flowline temp = 147 F @ 6:20, 142 F @ 12:25, 156 F @ 20:45. Deviation survey @ 1099', 7 deg S40W, BHT=268 F

*Report By: David Serr*

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 20, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** New bit: #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-1:15) Continue core run #21; (1:15-1:40) retrieve core; (1:40-2:30) core run #22, made .3' in 50 min, bit dull; (2:30-2:45) retrieve short core; (2:45-6:15) trip for new bit; (6:15-9:30) core run #23; (9:30-9:50) retrieve core; (9:50-13:00) core run #24; (13:00-13:25) retrieve core; (13:25-16:10) core run #25; (16:10-16:30) retrieve core; (16:30-19:15) core run #26; (19:15-19:50) retrieve core; (19:50-22:30) core run #27; (22:30-22:50) retrieve core; (22:50-1:00) core run #28.

**Core Recovered:** Run #22 1006.6-1006.9' D .3 R .5 ; Run #23 1006.9-1016.7' D 9.8 R 9.6 ; Run #24 1016.7-1026.2' D 9.5 R 10.4 ; Run #25 1026.2-1036.4' D 10.2 R 10.3 ; Run #26 1036.4-1046.4' D 10 R 10 ; Run #27 1046.4-1056.4 D 10 R 10.2 ; Run #28 1056.4-1064.4' D 8 R 8.2.

**Drill Rates:** Run #22 = .36 ft/hr; Run #23 = 3.0 ft/hr; Run #24 = 3.0 ft/hr; Run #25 = 3.95 ft/hr; Run #26 = 3.63 ft/hr; Run #27 = 3.76 ft/hr; Run #28 = 3.7 ft/hr.

**General Lithology:**

1006-1056' = 70% Graywacke, 30% Argillite: generally massive turbidite flows interbedded with thinly laminated Argillite, Argillite commons occurs as irregular convoluted wispy structures and detached flame structures, Graywacke / Argillite contacts range from perpendicular to parallel with the core axis, both Graywacke and Argillite are in some areas highly mottled and veined with older white Franciscan age calcite & quartz, enormous hydrothermal vein at 1033' with large secondary quartz crystals up to 1 cm and bladed calcite (dip angle = 80 deg.), Argillite shear zone at 1042', good trace disseminated & vein pyrite, lost circulation at 1052' with some slicken-sides at that location.

1056-1064' = 50% Graywacke, 50% Argillite: highly brecciated zone, 1cm-50cm pieces of siltstone and Graywacke mottled & veined with older white calcite & quartz "floating" in dark-gray to black carbonaceous rich Argillite (the white veins do not extend into the Argillite), secondary sulfide veins cut through the breccia fragments, soft crumbly black carbonaceous shale at 1063', intense wavy sulfide veining at 1062'.

<b>Mud Report:</b>	<b>Time:</b> 22:00 from flowline	<b>Depth:</b> 1054'	<b>Mud Type:</b> Poly-plus		
MW: 8.4	Vis: 33	PV: 4	YP: 2	gel: 0/0	
pH: 8.6	FL: 20	CT: < 1	Cl: 1100	TH: 80	
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99+	Temp: 150 F	

**Remarks:** Losing 10% of returns on runs #22 through #26, losing 20% of returns on runs #27 and #28, took a drink on run #27 (lost circulation for 4 mins @ 1052' then regained circulation), flowline temp = 148 F @ 9:00, 149 F @ 23:00.

*Report By: David Serr*



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 19, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 23 S6 Longyear, 5.5", Shell # 10966 Longyear.

**24hr. Activity Summary:** (00:00-00:55) Continue core run #11; (00:55-1:15) retrieve core; (1:15-3:45) core run #12; (3:45-3:55) retrieve core; (3:55-6:35) core run #13; (6:35-6:50) retrieve core; (6:50-9:15) core run #14; (9:15-9:35) retrieve core; (9:35-11:45) core run #15; (11:45-12:05) retrieve core; (12:05-14:10) core run #16; (14:10-14:35) retrieve core; (14:35-16:45) core run #17; (16:45-17:05) retrieve core; (17:05-19:20) core run #18; (19:20-19:40) retrieve core; (19:40-20:50) core run #19; (20:50-21:05) retrieve core; (21:05-23:10) core run #20; (23:10-23:35) retrieve core; (23:35-1:15) core run #21.

**Core Recovered:** Run #11 908.6-918.3' D 9.7 R10.2 ; Run #12 918.3-928.3' D 10 R 10 ; Run #13 928.3-938' D 9.7 R 10 ; Run #14 938-948' D 10 R 10.3 ; Run #15 948-957.7' D 9.7 R 10 ; Run #16 957.7-965.7' D 8 R 8.1 ; Run #17 965.7-975.6' D 9.9 R 10.25 ; Run #18 975.6-985.6' D 10 R 10.3 ; Run #19 (Bonner sample) 985.6-990.6' D 5 R 5 ; Run #20 990.6-1000.6' D 10 R 10 ; Run # 21 1000.6-1006.6' D 6 R 6.

**General Lithology:** 908-931' = 60% Graywacke, 40% Argillite: massive Graywacke with no evidence of reconstitution or deformation, sharp grain boundaries; interbedded with nearly equal amounts of wavy Argillite with semi-parallel convoluted laminations, flame structures and slump deformation features at Graywacke/Argillite contacts, fractures largely induced by stress release along bedding planes and older veins, common Franciscan calcite/quartz vein fill; one 4 by 10 mm vug in calcite vein, trace disseminated sulfides.

931-934' = 80% Graywacke, 20% Black carbonaceous shale; highly calcareous mottled Graywacke with several soft carbonaceous sulfide rich shale zones.

934-1006 = 75% Graywacke, 25% Argillite: generally massive turbidite flows interbedded with thinly laminated silty Argillite, common contorted slump deformation features and swirls of Argillite, Graywacke/Argillite contacts sometimes nearly vertical, large euhedral quartz vein at 946-948', continued highly calcareous from Franciscan calcite/quartz vein fill, two small vugs, trace fine disseminated pyrite.

<b>Mud Report #1:</b>	<b>Time:</b> 23:00	<b>from flowline</b>	<b>Depth:</b> 990'	<b>Mud Type:</b> Poly +
MW: 8.4	Vis: 32	PV: 3	YP: 2	gel: 0/0
pH: 8.8	FL: 25+	CT: film	Cl: 1000	TH: 80
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99+	Temp: 152 F

**Remarks:** Losing 10% of returns on runs #11 through #21. Flowline temp = 146 F at 11:00., Flowline temp = 152 F at 23:00.

**Report By:** David Serr

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 18, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 23 S6 Longyear, 5.5", Shell # 10966 Longyear.

**24hr. Activity Summary:** (00:00-00:50) Continue coring run #3; (00:50-1:15) retrieve core; (1:15-6:00) core run #4; (6:00-6:20) retrieve core; (6:20-9:40) core run #5; (9:40-9:55) retrieve core; (9:55-13:03) core run #6; (13:03-13:15) retrieve core; (13:15-14:20) core run #7; (14:20-14:40) retrieve core; (14:40-17:10) core run #8; (17:10-17:20) retrieve core; (17:20-19:05) core run #9; (19:05-19:30) retrieve core; (19:30-20:15) core run #10; (20:15-20:35) retrieve core; (20:35-00:35) core run #11.

**Core Recovered:** Run #3 836-845.5' D 9.5 R 10 ; Run #4 845.5-855.5' D 10 R 10.3 ; Run #5 855.5-865.7' D 10.2 R 10.3 ; Run #6 865.7-875.9' D 10.2 R 10.3 ; Run #7 875.9-880.6' D 4.7 R 4.0 ; Run #8 880.6-890.2' D 9.6 R 10.5 ; Run #9 890.2-898.6' D 8.4 R 8.8 ; Run #10 898.6-908.6' D 10 R 10.

**General Lithology:** 825-845' = 80-100% Graywacke, 0-20% Argillite: common "thermal shock" fracturing along pre-existing veins and Argillite bedding planes, slump deformation at Graywacke/Argillite contact, common calcite and pyrite vein fill, abundant pyrite in areas associated with Argillite beds, some steeply dipping Argillite bedding planes, no open vugs observed.

845-875' = 90-100% Graywacke, 0-10% Argillite: generally less "thermal shock" and/or pressure release fracturing, generally thin contorted Argillite interbeds in massive Graywacke; common older calcite/quartz veining in Graywacke, sulfides decreasing with depth.

875-908' = 80-100% Graywacke, 0-20% Argillite: generally as above, intensely brecciated zone at 885-887', massive Graywacke turbidity beds with thin laminated Argillite interbeds, continued calcite/quartz vein fill as above, trace disseminated pyrite.

<b>Mud Report #1:</b>	<b>Time:</b> 11:00 from flowline	<b>Mud Type:</b> Poly +		
MW: 8.4	Vis: 33	PV: 3	YP: 3	gel: 0/1
pH: 9.2	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: tr	Met Bl: tr	Liquid: -/99+	Temp: 134 F

<b>Mud Report #2:</b>	<b>Time:</b> 23:00 from flowline	<b>Mud Type:</b> Poly +		
MW: 8.4	Vis: 32	PV: 3	YP: 2	gel: 0/1
pH: 9.1	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: tr	Met Bl: tr	Liquid: -/99+	Temp: 136 F

**Remarks:** No loss on run #3, lost 25% of returns on middle of run #4, lost 20% of returns on run # 5, lost 20% of returns on run #6, lost 20% of returns on run #7, lost 20% of returns on run #8, lost 15% of returns on run #9, lost 15% of returns on run #10, lost 15% of returns on run # 11.

**Report By:** David Serr



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 17, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 23 S6 Longyear, Shell # 10966 Longyear.

**24hr. Activity Summary:** (00:00-1:00) set 7" casing on bottom & rig down casing tongs; (1:00-3:30) run rod in, 7' fill on bottom; (3:30-4:45) clean out 7' fill & drill f/ 823-825'; (4:45-5:15) circulate hole clean; (5:15-7:00) pull out hole; (7:00-12:15) service rig & prepare rig for coring, make up wire line equipment; (12:15-13:30) clean out mud tanks, run in hole with core barrel; (13:30-15:15) circulate old mud out, pump down tube; (15:15-19:00) Core Run #1, ROP 2 ft/hr; (19:00-19:20) retrieve core; (19:20-20:55) Core Run #2; (20:55-21:15) retrieve core; (21:15-23:59) Core Run #3, ROP 1.5-2 ft/hr.

**Core Recovered:** Run #1 825' to 834' D 9', R 8.2' ; Run #2 834' to 836' D 2', R 2' .

**General Lithology:** 825-836' = 100% Graywacke: overall massive Graywacke, abundant fracturing along pre-existing calcite veins induced by "thermal shock", abundant calcite and pyrite vein fill, appears to have been highly stressed with older fractures being cut and offset by newer fractures.

<b>Mud Report #1:</b>	<b>Time:</b> 23:30 from pit	<b>Mud Type:</b> Poly +		
MW: 8.4	Vis: 36	PV: 4	YP: 4	gel: 0/0
pH: 9.3	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: n/a

<b>Mud Report #2:</b>	<b>Time:</b> 23:59 from flowline	<b>Mud Type:</b> Poly +		
MW: 8.4	Vis: 33	PV: 3	YP: 3	gel: 0/1
pH: 9.3	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 133 F

**Remarks:** Drill with full returns.

*Report By: David Serr*

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 27, 1994

**Time:** 23:59

**Present Activity:** Coring.                      **Depth:** 1506'

**Bit:** New Bit: #L36544, Longyear S6 in @ 1456.3'; Old bit #L31622, Longyear S6 drilled 449'

**24hr. Activity Summary:** (00:00-00:20) finish core run #72, (00:20-2:10) core run #73, (2:10-2:35) retrieve core, (2:35-6:30) trip for new bit at 1456.3', (6:30-9:15) core run #74, (9:15-9:45) retrieve core, (9:45-12:15) core run #75, (12:15-12:45) retrieve core, (12:45-15:40) core run #76, (15:40-16:10) retrieve core, (16:10-19:50) core run #77, (19:50-20:25) retrieve core, (20:25-22:55) core run #78, (22:55-23:30) retrieve core, (23:30-past mid.) core run #79.

**Core Recovered:** Run #73 1449.6-1456.3' D 6.7 R 6.8, Run #74 1456.3-1466.3' D 10.0 R 10.1, Run #75 1466.3-1476.3' D 10 R 10, Run #76 1476.3-1486.5' D 10.2 R 10.2, Run #77 1486.5-1496.5' D 10.0 R 10.0, Run #78 1496.6-1506.8' D 10.0 R 10.1.

**Drill Rates:** Run #73 = 3.2 ft/hr, Run #74 = 3.6 ft/hr, Run #75 = 4.0 ft/hr, Run #76 = 3.4 ft/hr, Run #77 = 2.8 ft/hr, Run #78 = 4.3 ft/hr.

**General Lithology:** 1449-1483' = 85% Graywacke, 15% Argillite: massive Graywacke with three contorted & sheared Argillite beds, Graywacke lacks obvious soft sediment deformation and has occasional darker silty zones, highly contorted Argillite interval at 1471-1475' that is probably a remnant shear zone, intensely fractured Argillite zones at 1476.5 and 1481', common fractured calcite/quartz veins at angles generally between 60 and 90 degrees from perpendicular to the core, exposed vein surfaces exhibit 1-4mm bladed calcite crystals, trace of Epidote noted at 1469-1471', traces of finely disseminated pyrite throughout, common sulfides in and around veins.

1483-1495' = 80% Argillite, 20% Graywacke: incredible interval of elongated Graywacke clasts suspended vertically in a black Argillite, assumed to be caused by post-depositional slumping, intense wiry sulfide veinlets, common white quartz veins, traces of Epidote.

1495-1498' = massive Graywacke as described above.

1498-1506' = Hydrothermal Breccia Zone: 60% Graywacke, 40% Argillite: Highly brecciated and porous zone with Graywacke & Argillite bedding still preserved, several punky semi-friable areas in Graywacke with intense clay alteration, enormous white calcite/quartz vein cutting through core with large bladed calcite crystals and numerous vugs with drusy quartz, abundant pyrite and other sulfides, appears formation clay has been sucked out by drilling action.

<b>Mud Report #1:</b>	Time: 13:00 from pit	Depth: 1478'	Mud Type: Poly-plus/SP101
MW: 8.4	Vis: 44	PV: 4	YP: 3            gel: 0/0
pH: 9.0	FL: n/c	CT: <1	Cl: 1000        TH: 40
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100    Temp: n/a
<b>Mud Report #2:</b>	Time: 21:15 from pit	Depth: 1503'	Mud Type: Poly-plus/SP101
MW: 8.4	Vis: 44	PV: 4	YP: 3            gel: 0/0
pH: 8.6	FL: n/c	CT: <1	Cl: 800         TH: 30
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100    Temp: n/a

**Remarks:** Coring ahead with no returns, losing up to 60 bbls/hr, on run #74 fluid level dropped from 180' to 400' at approx. 1457' (possible steam entry), fluid level came back up to 180' during run #75, temporary drop in fluid level on run #76 then quickly came back up (another possible steam entry), had occasional torque problems and had to pump more fluid to keep the pipe free.

*Report By: David Serr*



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

Date: September 26, 1994

Time: 23:59

Present Activity: Coring. Depth: 1447'

Bit: #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-13:30) continue waiting for hole to pressure up, (13:30-14:30) pull out pressure core, (14:30-15:30) kill well, (15:30-16:45) displace fluid in hole with polymer, (16:45-17:45) core run #70, (17:45-18:25) retrieve core, (18:25-21:15) core run #71, (21:15-21:45) retrieve core, (21:45-00:20) core run #72.

**Core Recovered:** Run #70 1429.9-1432.9' D 3.0 R 3.15, Run #71 1432.9-1442.9' D 10 R 10, Run #72 1442.9-1449.64' D 6.7 R 6.7.

**Drill Rates:** Run #70 = 3.0 ft/hr, Run #71 = 3.5 ft/hr, Run #72 = 2.6 ft/hr.

**General Lithology:** 1415-1420' = Bonner sealed core tube ( rocks not seen ).  
1420-1449' = 90% Graywacke, 10% Argillite: continued massive turbidite flows with occasional thin Argillite beds and wispy Argillite structures, graded bedding occurs 1426.5', interstratified Graywacke & Argillite from 1430-1433', very contorted Argillite & Graywacke quartz veined breccia zone from 1442-1443.5', good slicken-sides at Graywacke/Argillite contact at 1447' dipping at 62 degrees from perpendicular to the core, common fractured calcite/quartz veins at angles between 60 and 90 degrees from perpendicular to the core, first occurrence of Epidote at 1431' in hydrothermal veins and in carbonate dissolution voids, Wairakite at 1433', continued good trace disseminated sulfides locally abundant in and around veins.

<b>Mud Report #1:</b>	Time: 21:45 from pit	Depth: 1443'	Mud Type: Poly-plus/SP101
MW: 8.4	Vis: 40	PV: 4	YP: 2 gel: 0/0
pH: 9.0	FL: 30+	CT: 0	Cl: 900 TH: 40
Sand: 0	Solids: nil	Met Bl: 0	Liquid: -/100 Temp: n/a

**Remarks:** Left well shut in for 24 hours waiting for hole to pressure up, retrieved pressure core, hole appeared to be void of mud, displace fluid in hole with polymer, continue coring without returns pumping 20-26 gals/min.

Report By: David Serr

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

Date: September 25, 1994

Time: 23:59

Present Activity: Coring. Depth: 1429.9'

Bit: #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-3:10) finish core run #65, (3:10-3:35) retrieve core, (3:35-7:10) core run #66, (7:10-7:35) retrieve core & service rig, (7:35-10:20) core run #67, (10:20-10:45) retrieve core, (10:45-11:55) core run #68 (Bonner sealed 5' core), (11:55-13:00) retrieve core, (13:00-16:00) core run #69 (Unocal Pressure Core), (16:00-midnight) left core in place, shut in well, hook up lubricator, monitor pressure, wait for hole to pressure up.

**Core Recovered:** Run #65 1385.2-1395.5' D 10.3 R 10.3, Run #66 1395.5-1405.5' D 10 R 10.1, Run #67 1405.5-1415.5' D 10 R 10.2, Run #68 (Bonner) 1415.5-1420.5' D 5 R 5, Run #69 (Unocal Pressure Core) 1420.5-1429.9' D 9.5 (wait for pressure to build up).

**Drill Rates:** Run #65 = 3.0 ft/hr, Run #66 = 2.7 ft/hr, Run #67 = 3.6 ft/hr, Run #68 = 4.5 ft/hr, Run #69 = 3.3 ft/hr.

**General Lithology:** 1387-1415' = 75% Graywacke, 25% Argillite; predominately massive turbidite flows with occ thin argillite beds which are typically very wispy; slicks are noted at the argillite / graywacke contact @ 1392'; a hydrothermal quartz / calcite vein with vugs, (one at 20 mm) is present at 1394'; highly contorted argillite, calcite veins and graywacke in chaotic shear patterns from 1413.5 - 1415'.

<b>Mud Report #1:</b>	Time: 24:00 from pit	Depth: 1429'	Mud Type: Poly-plus/SP101	
MW: 8.4	Vis: 44	PV: 4	YP: 2	gel: 0/0
pH: 9.0	FL: 30+	CT: < 1	Cl: 900	TH: 40
Sand: 0	Solids: <1%	Met Bl: 0	Liquid: -/99	Temp: n/a

**Remarks:** Continue coring without returns, fluid level @ 180'.

*Report By: David Serr*



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

Date: September 24, 1994

Time: 23:59

Present Activity: Coring. Depth: 1387'

Bit: #L31622 Longyear S6, in @ 1006.9'

**24hr. Activity Summary:** (00:00- 00:40) finish core run #55; (00:40-1:05) retrieve core; (1:05-2:05) core run #56, 5' Bonner samp.; (2:05-2:25) retrieve core; (2:25-4:30) core run #57; (4:30-4:50) retrieve core; (4:50-6:30) core run #58; (6:30-7:00) retrieve core; (7:00-9:10) core run #59; (9:10-9:30) retrieve core; (9:30-11:15) core run #60; (11:15-11:55) retrieve core; (11:55-14:00) core run #61; (14:00-14:20) retrieve core; (14:20-15:20) core run #62, "dry run" for 9/25 Unocal pressure coring; (15:20- 16:30) cont. "dry run"; (16:30-19:00) core run # 63; (19:00-20:00) mix mud?; (20:00-23:15) core run #64; (23:15-23:50) retrieve core; (23:50-3:10) core run #65.

**Core Recovered:** Run #56 1308.0-1313.0' D 5 (Bonner samp); Run #57 1313.0- 1323.1', D 10.1 R 10.1; Run #58 1323.1- 1331.56' D 8.46 R 9.0; Run #59 1331.6- 1341.6', D 10 R 10; Run #60 1341.6- 1351.2', D 9.6 R 10.0; Run #61 1351.2-1361.2' D 10 R 10; Run #62 1361.2- 1366.2' D 5.0 ("dry run" for 9/25 Unocal pressure coring); Run #63 1366.2-1375.2' D 9.0 R 9.0; Run #64 1375.2-1385.2' D 10.0 R 10.2.

**Drill Rates:** Run #56 = 5 ft/hr; Run # 57 = 4.8 ft/hr; Run #58 = 5.1 ft/hr; Run #59 = 4.5 ft/hr; Run #60 = 4.6 ft/hr; Run #61 = 4.7 ft/hr; Run #62 = 5.0 ft/hr; Run #63 = 3.6 ft/hr; Run #64 = 3.0 ft/hr.

**General Lithology:** 1308- 1323' = 70% Argillite, 30% Graywacke: interlaminated Argillite and Graywacke, very contorted Argillite, several large white calcite/quartz veins and fracture fill, Hydrothermal breccia zone at 1317.2 to 1318.0' with sheared up Argillite and Graywacke, punky Graywacke with clay altered matrix, large bladed calcite crystals and vugs in calcite veining, common disseminated pyrite, abundant pyrite in and around veins and fractures. 1323-1369' = 95% Graywacke, 5% Argillite: coarse grained lithic Graywacke to 1336' with minor veining and fractures, massive turbidite flows with occasional thin interbedded Argillite and Argillite clasts, veining continued as above with local slight green tint (probably prehnite). 1369-1370' = Hydrothermal altered zone: total loss of circulation @ 1369', milky quartz fracture fill, 10mm open vugs lined with drusy quartz, large bladed calcite. 1370-1387' = 50% Graywacke, 50% Argillite: intercalated Graywacke & Argillite locally highly convoluted, good slicken-sides at 1387', strong calcite/quartz veining with common disseminated pyrite.

**Mud Report #1:** Time: 08:30 from flowline Depth: 1339' Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 31	PV: 4	YP: 2	gel: 0/0
pH: 8.7	FL: 18	CT: < 1	Cl: 1200	TH: 180
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 151

**Mud Report #2:** Time: 23:00 from flowline Depth: 1384' Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 40	PV: 5	YP: 3	gel: 0/0
pH: 8.8	FL: 24.0	CT: < 1	Cl: 1000	TH: 80
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: NR

**Remarks:** Continue losing 20% of returns on runs #56 through #59, slight increase in loss on run #60 to 25% loss, lost total returns on run #61 at 1369' (17:35), got partial returns at 1381' for a short time, drill ahead with no returns, estimated loss rate = 60 BPH, mud column balanced high up in the hole; flowline temps = 150 F @ 3:00, 150 F @ 6:00, 151 F @ 9:00, 148 F @ 12:00, 149 F @ 15:00, 149 F @ 16:00, lost returns @ 17:35.

Report By: David Serr

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

Date: September 23, 1994

Time: 23:59

Present Activity: Coring. Depth: 1305'

Bit: #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-01:45) continue core run #46 (Bonner Core); (1:45-2:15) retrieve core; (2:15-4:50) core run #47; (4:50-5:10) retrieve core; (5:10-07:10) core run #48; (7:10-7:30) retrieve core; (7:30-09:30) core run #49; (9:30-9:50) retrieve core; (9:50-11:50) core run #50; (11:50-12:15) retrieve core; (12:15-14:30) core run #51; (14:30-14:50) retrieve core; (14:50-17:05) core run #52; (17:05-17:25) retrieve core; (17:25-19:40) core run #53; (19:40-20:00) retrieve core; (20:00-22:15) core run #54; (22:15-22:35) retrieve core; (22:35-00:40) core run #55.

**Core Recovered:** Run #46 1212.6- 1217.62' D 5 (Bonner samp.); Run #47 1217.62'-1227.62 D 10 R 10.2; Run #48 1227.62- 1237.62' D 10 R 10.3; Run #49 1237.6- 1247.8' D 10.2 R 10.2; Run #50 1247.8- 1257.8' D 10 R 10; Run #51 1257.8- 1267.8' D 10 R 10; Run #52 1267.8-1277.8' D 10 R 10.1; Run #53 1277.8-1287.9' D 10.1 R 10.1; Run #54 1287.9-1298.0' D 10.1 R 10.2; Run #55 1298.0-1308.0' D 10 R 10.1.

**Drill Rates:** Run #45=3.9 ft/hr; Run #46=2.6 ft/hr; Run #47=3.9; Run #48=5.0; Run #49=5.1; Run #50=5.0; Run #51=4.4; Run #52=4.4; Run #53=4.4; Run #54=4.5; Run #55=4.9

**General Lithology:** 1212-1308'= 90% Graywacke, 10% Argillite: continued massive turbidite flows with occasional thin Argillite beds and wispy Argillite structures, graded bedding occurs at 1211', 1220', 1275' & 1286', common Franciscan calcite/quartz veins 1mm to 3cm thick and predominately at high angles (from perpendicular to the core), some vertical fractures, the thicker veins generally occur at Graywacke/Argillite contacts, breccia zone in bedding plane fracture at 1290' with clay alteration, vugs and euhedral quartz crystals, common disseminated sulfides in and around veins.

**Mud Report #1:** Time: 09:00 from pit Depth: 1245' Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 32	PV: 3	YP: 2	gel: 0/0
pH: 8.5	FL: 21	CT: < 1	Cl: 1250	TH: 200
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: n/a

**Mud Report #2:** Time: 22:45 from flowline Depth: 1298' Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 31	PV: 3	YP: 2	gel: 0/0
pH: 8.5	FL: 22.0	CT: < 1	Cl: 1250	TH: 240
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 157 F

**Remarks:** Continue losing 20% of returns on runs #46 through #55, flowline temp=158 F @ 3:00, 151 F @ 6:00, 151 F @ 9:00, 150 F @ 12:00, 152 F @ 15:00, 157 F @ 18:00, 154 F @ 21:00, 154 F @ 24:00.

Report By: David Serr



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 22, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-00:50) Continue core run # 37, retrieve core; (01:10- 03:30) core run # 38, retrieve core; (03:50- 06:10) core run # 39, retrieve core; (06:30- 08:30) core run #40, retrieve core; (08:55- 11:40) core run #41, retrieve core; (12:00- 14:15) core run #42, retrieve core; (14:35- 17:00) core run #43, retrieve core; (17:35- 20:20) core run #44, retrieve core; (20:20-23:20) core run #45, retrieve core; (23:20-past midnight) core run #46 (Bonner )

**Core Recovered:** Run #37 1125.22- 1134.9' D 9.68' R 10.1'; Run #38 1134.9- 1144.9' D 10' R 10.1'; Run #39 1144.9- 1154.58', D 9.68' R 10'; Run #40 1154.58- 1162.58' D 8' R 6'; Run #41 1162.58 - 1172.3', D 9.8, R 10'; Run #42 1172.3 - 1182.6' D10.3', R 10.4'; Run #43 1182.6 - 1192.7' D 10.1', R 10.2'; Run #44 1192.7 - 1202.6' D 99.9, R 10.0'; Run #45 1202.6- 1212.6' D 10 R 10.

**Drill Rates:** Run #36=4 ft/hr; Run #37=2.27 ft/hr; Run #38=4.29 ft/hr; Run #39=4.15 ft/hr; Run #40=5 ft/hr; Run #41=3.45 ft/hr; Run #42=4.577 ft/hr; Run #43=4.488 ft/hr; Run #44=3.6 ft/hr; Run #45=4.09 ft/hr.

**General Lithology:** 1134-1156' = 90% Graywacke, 10% Argillite: continued massive turbidite flows with scattered wispy Argillite structures, two 6" thick dipping Argillite units between 1139-1142' with intense wavy sulfide veining, common fractured Franciscan calcite/quartz veins 1mm to 3cm at angles 60-80 degrees (from perpendicular to the core), common disseminated pyrite (abundant near veins). 1156-1162' = Hydrothermal altered zone: soft and gummy, sheared Graywacke & Argillite breccia with kaolinite & sericite alteration, very abundant calcite & possible anhydrite, sulfide rich with pyrite, marcasite & possible galena, two feet of core missing from this section. 1162-1184' = 95% Graywacke, 5% Argillite: massive Graywacke with a few thin wispy Argillite streaks, solid with common thin criss-crossed calcite/quartz veins, long vertical veins, abundant disseminated pyrite especially near veins.

1184-1202'= 50% Graywacke, 50% Argillite: angular Argillite "rip-up" clasts and detached flame structures floating in Graywacke, dispersed 1 cm Argillite fragments, common white calcite/quartz veins and scattered small blebs of calcite, rare pyrite in this section.

1202-1212'= 90% Graywacke, 10% Argillite: back in massive Graywacke as @ 1134-1156'

**Mud Report #1:** Time: 09:00 from pit Depth: ? Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 31	PV: 3	YP: 2	gel: 0/0
pH: 8.6	FL: 21	CT: < 1	Cl: 1200	TH: 180
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: n/a

**Mud Report #2:** Time: 22:30 from flowline Depth: 1208' Mud Type: Poly-plus/SP101

MW: 8.4+	Vis: 32	PV: 4	YP: 2	gel: 0/0
pH: 8.5	FL: 19.6	CT: < 1	Cl: 1200	TH: 180
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 156 F

**Remarks:** Continue losing 20% of returns on runs #36 through #45, flowline temp=156 F @ 3:00, 156 F @ 6:00, 151 F 9:00, 151 F @ 12:00, 151 F @ 15:00, 152 F @ 18:00, 156 F @ 21:00, 157 F @ 24:00.

*Report By: David Serr*



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 21, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-1:00) Continue core run #28; (1:00-1:20) retrieve core; (1:20-3:00) core run #29; (3:00-3:30) retrieve core; (3:30-6:20) core run #30; (6:20-7:00) retrieve core; (7:00-9:00) core run #31; (9:00-9:30) retrieve core; (9:30-12:10) core run #32; (12:10-13:45) retrieve core & survey; (13:50-14:45) core run #33 (Bonner sample); (14:45-15:10) retrieve core; (15:10-17:10) core run #34; (17:10-17:30) retrieve core; (17:30-19:20) core run #35; (19:20-19:45) retrieve core; (19:45-22:15) core run #36; (22:15-22:53) retrieve core; (22:53-00:50) core run #37.

**Core Recovered:** Run #29 1064.4-1069.6' D 5.2 R 5.2 ; Run #30 1069.6-1077.6' D 8 R 7.9 ; Run #31 1077.6-1084.0' D 6.4 R 6.3 ; Run #32 1084.0-1094.0' D 10 R 10.3 ; Run #33 1094.0-1099.0 D 5 R 5 (Bonner sample) ; Run #34 1099.0-1109.0' D 10 R 10.1 ; Run #35 1109-1115.2' D 6.2 R 6.3 ; Run #36 1115.2-1125.2' D 10 R 10 ; Run #37 1125.2-1134.9 D 9.7 R 10.1.

**Drill Rates:** Run #29= 3.1ft/hr; Run #30= 2.7ft/hr; Run #31=3.2 ft/hr; Run #32=3.6 ft/hr; Run #33=5 ft/hr; Run #34=5 ft/hr; Run #35=3.1 ft/hr; Run #36=4 ft/hr.

**General Lithology:** 1064-1134' = 70% Graywacke, 30% Argillite: generally massive turbidite flows interbedded with thinly laminated Argillite, Argillite commonly occurs as irregular convoluted wispy structures and detached flame structures within the massive Graywacke, thicker beds of Argillite with convoluted lamination at 1069-1077', in some areas the Graywacke and Argillite are highly mottled and veined with older white Franciscan age calcite & quartz, the calcite & quartz veins range in size from 1mm to 7 cm and most are 60-70 degrees from perpendicular to the core, alteration zone in Graywacke at 1101-1102' with matrix material altered to clay, common disseminated pyrite (abundant near veins).

**Mud Report #1:** Time: 08:00 from flowline Depth: 1081' Mud Type: Poly-plus/SP101  
MW: 8.4 Vis: 31 PV: 3 YP: 2 gel: 0/0  
pH: 8.6 FL: 22 CT: < 1 Cl: 1150 TH: 120  
Sand: 0 Solids: 1% Met Bl: tr Liquid: -/99 Temp: 150 F

**Mud Report #2:** Time: 22:15 from flowline Depth: 1115' Mud Type: Poly-plus/SP101  
MW: 8.4 Vis: 32 PV: 3 YP: 2 gel: 0/0  
pH: 8.5 FL: 24 CT: < 1 Cl: 1200 TH: 160  
Sand: 0 Solids: 1% Met Bl: tr Liquid: -/99 Temp: 156 F

**Remarks:** Losing 20% of returns on runs #29 through #37, flowline temp = 147 F @ 6:20, 142 F @ 12:25, 156 F @ 20:45. Deviation survey @ 1099', 7 deg S40W, BHT=268 F

*Report By: David Serr*

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 20, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** New bit: #L 316 22 S6 Longyear, in @ 1006.9'

**24hr. Activity Summary:** (00:00-1:15) Continue core run #21; (1:15-1:40) retrieve core; (1:40-2:30) core run #22, made .3' in 50 min, bit dull; (2:30-2:45) retrieve short core; (2:45-6:15) trip for new bit; (6:15-9:30) core run #23; (9:30-9:50) retrieve core; (9:50-13:00) core run #24; (13:00-13:25) retrieve core; (13:25-16:10) core run #25; (16:10-16:30) retrieve core; (16:30-19:15) core run #26; (19:15-19:50) retrieve core; (19:50-22:30) core run #27; (22:30-22:50) retrieve core; (22:50-1:00) core run #28.

**Core Recovered:** Run #22 1006.6-1006.9' D .3 R .5 ; Run #23 1006.9-1016.7' D 9.8 R 9.6 ; Run #24 1016.7-1026.2' D 9.5 R 10.4 ; Run #25 1026.2-1036.4' D 10.2 R 10.3 ; Run #26 1036.4-1046.4' D 10 R 10 ; Run #27 1046.4-1056.4 D 10 R 10.2 ; Run #28 1056.4-1064.4' D 8 R 8.2.

**Drill Rates:** Run #22 = .36 ft/hr; Run #23 = 3.0 ft/hr; Run #24 = 3.0 ft/hr; Run #25 = 3.95 ft/hr; Run #26 = 3.63 ft/hr; Run #27 = 3.76 ft/hr; Run #28 = 3.7 ft/hr.

**General Lithology:**

1006-1056' = 70% Graywacke, 30% Argillite: generally massive turbidite flows interbedded with thinly laminated Argillite, Argillite commons occurs as irregular convoluted wispy structures and detached flame structures, Graywacke / Argillite contacts range from perpendicular to parallel with the core axis, both Graywacke and Argillite are in some areas highly mottled and veined with older white Franciscan age calcite & quartz, enormous hydrothermal vein at 1033' with large secondary quartz crystals up to 1 cm and bladed calcite (dip angle = 80 deg.), Argillite shear zone at 1042', good trace disseminated & vein pyrite, lost circulation at 1052' with some slicken-sides at that location.

1056-1064' = 50% Graywacke, 50% Argillite: highly brecciated zone, 1cm-50cm pieces of siltstone and Graywacke mottled & veined with older white calcite & quartz "floating" in dark-gray to black carbonaceous rich Argillite (the white veins do not extend into the Argillite), secondary sulfide veins cut through the breccia fragments, soft crumbly black carbonaceous shale at 1063', intense wavy sulfide veining at 1062'.

<b>Mud Report:</b>	<b>Time:</b> 22:00 from flowline	<b>Depth:</b> 1054'	<b>Mud Type:</b> Poly-plus
MW: 8.4	Vis: 33	PV: 4	YP: 2 gel: 0/0
pH: 8.6	FL: 20	CT: < 1	Cl: 1100 TH: 80
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99+ Temp: 150 F

**Remarks:** Losing 10% of returns on runs #22 through #26, losing 20% of returns on runs #27 and #28, took a drink on run #27 (lost circulation for 4 mins @ 1052' then regained circulation), flowline temp = 148 F @ 9:00, 149 F @ 23:00.

*Report By: David Serr*

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 19, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 23 S6 Longyear, 5.5", Shell # 10966 Longyear.

**24hr. Activity Summary:** (00:00-00:55) Continue core run #11; (00:55-1:15) retrieve core; (1:15-3:45) core run #12; (3:45-3:55) retrieve core; (3:55-6:35) core run #13; (6:35-6:50) retrieve core; (6:50-9:15) core run #14; (9:15-9:35) retrieve core; (9:35-11:45) core run #15; (11:45-12:05) retrieve core; (12:05-14:10) core run #16; (14:10-14:35) retrieve core; (14:35-16:45) core run #17; (16:45-17:05) retrieve core; (17:05-19:20) core run #18; (19:20-19:40) retrieve core; (19:40-20:50) core run #19; (20:50-21:05) retrieve core; (21:05-23:10) core run #20; (23:10-23:35) retrieve core; (23:35-1:15) core run #21.

**Core Recovered:** Run #11 908.6-918.3' D 9.7 R10.2 ; Run #12 918.3-928.3' D 10 R 10 ; Run #13 928.3-938' D 9.7 R 10 ; Run #14 938-948' D 10 R 10.3 ; Run #15 948-957.7' D 9.7 R 10 ; Run #16 957.7-965.7' D 8 R 8.1 ; Run #17 965.7-975.6' D 9.9 R 10.25 ; Run #18 975.6-985.6' D 10 R 10.3 ; Run #19 (Bonner sample) 985.6-990.6' D 5 R 5 ; Run #20 990.6-1000.6' D 10 R 10 ; Run # 21 1000.6-1006.6' D 6 R 6.

**General Lithology:** 908-931' = 60% Graywacke, 40% Argillite: massive Graywacke with no evidence of reconstitution or deformation, sharp grain boundaries; interbedded with nearly equal amounts of wavy Argillite with semi-parallel convoluted laminations, flame structures and slump deformation features at Graywacke/Argillite contacts, fractures largely induced by stress release along bedding planes and older veins, common Franciscan calcite/quartz vein fill; one 4 by 10 mm vug in calcite vein, trace disseminated sulfides.

931-934' = 80% Graywacke, 20% Black carbonaceous shale; highly calcareous mottled Graywacke with several soft carbonaceous sulfide rich shale zones.

934-1006 = 75% Graywacke, 25% Argillite: generally massive turbidite flows interbedded with thinly laminated silty Argillite, common contorted slump deformation features and swirls of Argillite, Graywacke/Argillite contacts sometimes nearly vertical, large euhedral quartz vein at 946-948', continued highly calcareous from Franciscan calcite/quartz vein fill, two small vugs, trace fine disseminated pyrite.

<b>Mud Report #1:</b>	<b>Time:</b> 23:00 from flowline	<b>Depth:</b> 990'	<b>Mud Type:</b> Poly +
MW: 8.4	Vis: 32	PV: 3	YP: 2
pH: 8.8	FL: 25+	CT: film	Cl: 1000
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99+
			gel: 0/0
			TH: 80
			Temp: 152 F

**Remarks:** Losing 10% of returns on runs #11 through #21. Flowline temp = 146 F at 11:00., Flowline temp = 152 F at 23:00.

*Report By: David Serr*



**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 18, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 23 S6 Longyear, 5.5", Shell # 10966 Longyear.

**24hr. Activity Summary:** (00:00-00:50) Continue coring run #3; (00:50-1:15) retrieve core; (1:15-6:00) core run #4; (6:00-6:20) retrieve core; (6:20-9:40) core run #5; (9:40-9:55) retrieve core; (9:55-13:03) core run #6; (13:03-13:15) retrieve core; (13:15-14:20) core run #7; (14:20-14:40) retrieve core; (14:40-17:10) core run #8; (17:10-17:20) retrieve core; (17:20-19:05) core run #9; (19:05-19:30) retrieve core; (19:30-20:15) core run #10; (20:15-20:35) retrieve core; (20:35-00:35) core run #11.

**Core Recovered:** Run #3 836-845.5' D 9.5 R 10 ; Run #4 845.5-855.5' D 10 R 10.3 ; Run #5 855.5-865.7' D 10.2 R 10.3 ; Run #6 865.7-875.9' D 10.2 R 10.3 ; Run #7 875.9-880.6' D 4.7 R 4.0 ; Run #8 880.6-890.2' D 9.6 R 10.5 ; Run #9 890.2-898.6' D 8.4 R 8.8 ; Run #10 898.6-908.6' D 10 R 10.

**General Lithology:** 825-845' = 80-100% Graywacke, 0-20% Argillite: common "thermal shock" fracturing along pre-existing veins and Argillite bedding planes, slump deformation at Graywacke/Argillite contact, common calcite and pyrite vein fill, abundant pyrite in areas associated with Argillite beds, some steeply dipping Argillite bedding planes, no open vugs observed.

845-875' = 90-100% Graywacke, 0-10% Argillite: generally less "thermal shock" and/or pressure release fracturing, generally thin contorted Argillite interbeds in massive Graywacke; common older calcite/quartz veining in Graywacke, sulfides decreasing with depth.

875-908' = 80-100% Graywacke, 0-20% Argillite: generally as above, intensely brecciated zone at 885-887', massive Graywacke turbidity beds with thin laminated Argillite interbeds, continued calcite/quartz vein fill as above, trace disseminated pyrite.

<b>Mud Report #1:</b>	<b>Time:</b> 11:00 from flowline	<b>Mud Type:</b> Poly +		
MW: 8.4	Vis: 33	PV: 3	YP: 3	gel: 0/1
pH: 9.2	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: tr	Met Bl: tr	Liquid: -/99+	Temp: 134 F

<b>Mud Report #2:</b>	<b>Time:</b> 23:00 from flowline	<b>Depth:</b> 908'	<b>Mud Type:</b> Poly +	
MW: 8.4	Vis: 32	PV: 3	YP: 2	gel: 0/1
pH: 9.1	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: tr	Met Bl: tr	Liquid: -/99+	Temp: 136 F

**Remarks:** No loss on run #3, lost 25% of returns on middle of run #4, lost 20% of returns on run # 5, lost 20% of returns on run #6, lost 20% of returns on run #7, lost 20% of returns on run #8, lost 15% of returns on run #9, lost 15% of returns on run #10, lost 15% of returns on run # 11.

**Report By:** David Serr

**Epoch Well Logging, Inc.**  
**Geysers Coring Project SB-15**  
**Daily Report**

**Date:** September 17, 1994

**Time:** 23:59

**Present Activity:** Coring.

**Bit:** #L 316 23 S6 Longyear, Shell # 10966 Longyear.

**24hr. Activity Summary:** (00:00-1:00) set 7" casing on bottom & rig down casing tongs; (1:00-3:30) run rod in, 7' fill on bottom; (3:30-4:45) clean out 7' fill & drill f/ 823-825'; (4:45-5:15) circulate hole clean; (5:15-7:00) pull out hole; (7:00-12:15) service rig & prepare rig for coring, make up wire line equipment; (12:15-13:30) clean out mud tanks, run in hole with core barrel; (13:30-15:15) circulate old mud out, pump down tube; (15:15-19:00) Core Run #1, ROP 2 ft/hr; (19:00-19:20) retrieve core; (19:20-20:55) Core Run #2; (20:55-21:15) retrieve core; (21:15-23:59) Core Run #3, ROP 1.5-2 ft/hr.

**Core Recovered:** Run #1 825' to 834' D 9', R 8.2' ; Run #2 834' to 836' D 2', R 2' .

**General Lithology:** 825-836' = 100% Graywacke: overall massive Graywacke, abundant fracturing along pre-existing calcite veins induced by "thermal shock", abundant calcite and pyrite vein fill, appears to have been highly stressed with older fractures being cut and offset by newer fractures.

<b>Mud Report #1:</b>	<b>Time:</b> 23:30 from pit	<b>Mud Type:</b> Poly +		
MW: 8.4	Vis: 36	PV: 4	YP: 4	gel: 0/0
pH: 9.3	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: n/a

<b>Mud Report #2:</b>	<b>Time:</b> 23:59 from flowline	<b>Mud Type:</b> Poly +		
MW: 8.4	Vis: 33	PV: 3	YP: 3	gel: 0/1
pH: 9.3	FL: 20+	CT: film	Cl: 1000	TH: tr
Sand: 0	Solids: 1%	Met Bl: tr	Liquid: -/99	Temp: 133 F

**Remarks:** Drill with full returns.

**Report By:** David Serr