SAMPLE LOG
COMPILED FROM THE
MICROSCOPIC EXAMINATION OF WELL CUTTINGS
AND CONVENTIONAL CORES*

*The ten foot samples described in the compilation of this log are each composed of five samples caught in the mud return flow line at two foot intervals by personnel of the Baroid Well Logging Laboratory truck.

Sinclair Oil & Gas Company
No. 1 Mapleton Federal
SE¼ NE¼ SE¼ 12-16S-10W
Lane County, Oregon

Ground Elevation - 483.06'
(plus 14.84' to K.B.)
August 23, 1955

DITCH SAMPLE DESCRIPTIONS

10- 20	Sandstone, dark gray, fresh, fine-grained to weathered, buff to reddish-brown silty sand to siltstone. Typical Tyee? Ss. firm to hard, appr. 35% weathered to 65% fresh fragments.
20- 30	As above. Sandstone 60-70% weathered to altered. Contains gabbro fragments. Prob. contam. in cellar.
30- 40	Pred. fresh, gray, v.f.g. ss. - graywacke type. V.f.g. to silty.
40- 50	As above. Abd. weathered fragments.
50- 60	Ss. Dark gray to gray, silty to v.f.g. Traces dark gray, silty mudstone to shaly fragments. Mica.
60- 70	As above. Mica.
70- 80	As above. Increase of mica. Traces shale.
80- 90	As above. To med. grained sand.
90-100	As above. Increase of firm to hard, v.f.g. silty ss.
110-120	Ss. as above. Trace shale. Firm to tough ss.
120-130	As above. Micaceous.
130-140	Ss. as above, micaceous. Locally with carbonaceous material. Increase of micaceous shale - dark gray.
140-150	As above.
150-160	Ss. as above. Quartzose f.g. to v.f.g., semi-ang. to sub-rounded. Traces shale. Micaceous.
160-170	As above.
170-180	As above. Abd. mica.
180-190	Ss. as above w/increase dark gray shale.
190-200	As above w/30% dark gray, imp. dirty shale fragments.

200-210	Ss. as above w/shale as above.
210-220	Ss. as above w/decreasing shale.
220-230	Ss. as above. Shale fragments.
230-240	As above.
240-250	As above.
250-260	As above.
260-270	Ss. as above. Gray to dark gray, pred. fine to v.f.g. quartzose w/minor shale, to mudstone (dark gray) fragments.
270-280	As above.
280-290	As above.
290-300	As above.
300-310	As above. Approx. 25% dark gray shale fragments.
310-320	As above. Shale as above. Trace of woody carb. material in shale.
320-330	As above. Shale decreasing.
330-340	As above.
340-350	As above. Shale fragments approx. 30%.
350-360	Ss. as above. Shale as above.
360-370	As above, throughout.
370-380	As above, throughout.
380-390	Ss. as above. Decreasing shale. Trace pyrite.
390-400	As above throughout. Ss. pred. ang. to sub-ang.
400-410	As above. No pyrite.
410-420	As above.
420-430	As above.
430-440	As above.
440-450	Ss. as above, lt. gray (dry) to dark gray (wet), pred. f.g. micaceous to v.f.g. quartzose, w/fragments dark gray shale.

450-460	As above. Poorly washed sample. Pred. quartzose sand.
460-470	Ss. as above w/shale as above.
470-480	As above.
480-490	As above.
490-500	Sand as above. Silty to v.f.g. Traces shale.
500-510	As above. Silty to v.f.g. Traces shale.
510-520	As above. Silty to v.f.g. Traces shale.
520-530	Sand as above (50%) w/influx of dark gray silty shale to shale.
530-540	Sand as above (60%) and shale (40%).
540-550	Sand as above (60%) and shale (40%).
550-560	Sand as above (60%) and shale (40%).
560-570	Sand as above (80%) and decreasing shale as above (20%).
570-580	Sand as above w/shale as above (20%).
580-590	Sand as above w/decreasing dark gray shale (10%).
590-600	Sand as above. Light gray (dry) v.f.g. to silty, dirty, micaceous. Trace shale.
600-610	As above.
610-620	As above w/40% shale as above.
620-630	As above w/20% shale as above.
630-640	As above w/10% shale as above.
640-650	As above w/10% shale as above.
650-660	As above w/30% shale as above.
660-670	As above w/10% shale as above.
670-680	As above 3/10% shale as above.
680-690	As above w/traces shale as above.
690-700	As above w/10% shale as above.

700-710 As above w/30% shale as above.

710-720 As above w/30% shale as above.

720-730 Sand as above w/30% shale as above.

730-740 Sand as above w/30% shale as above.

740-750 Sand as above w/30% shale as above.

750-760 Sand as above w/30% shale as above.

760-770 Sand as above w/20% shale as above.
Note: Hole size - 9-7/8" below 771'.

770-780 Sand, light gray to dark gray, silty to v.f.g., occ. med. gr., micaceous w/dark gray, mic. shaly mudstone to siltstone. Rare trace pyrite. Sand is quartzose.

780-790 As above. No pyrite.

790-800 Sand as above w/shale as above. Trace calcite.

800-810 Sand to siltstone as above w/stringers dark gray shaly mudstone to siltstone.

810-820 As above.

820-830 As above.

830-840 As above.

840-850 As above. Shale approx. 35% of sample. Abd. mica.

850-860 As above.

860-870 As above. Cement fragments.

870-880 As above.

880-890 Sand as above. Quartzose, pred. v.f.g. but locally med. gr. w/fragments dark gray, dirty, siltstone. Mudstone and shale as above. Shale stringers subordinate. Mica.

890-900 As above.

900-910 As above.

910-920 As above.

920-930 As above.

930-940 As above.

940- 950	As above.
950- 960	As above.
960- 970	As above.
970- 980	As above.
980- 990	As above.
990-1000	As above.
1000-1010	As above.
1010-1020	As above.
1020-1038	Sand as above, silty to v.f.g. w/dark gray silty shale to shale to mudstone. Mica.
1030-1040	As above. Ss. sl. calc. loc.
1040-1050	As above.
1050-1060	As above. Sample predominantly shale.
1060-1070	As above. Sand w/shale. Shale, mudstone and silty shale is subordinate.
1070-1080	As above.
1080-1090	As above.
1090-1100	As above.
1100-1110	As above. Loc. w/ill-sorted sand.
1110-1120	As above.
1120-1130	As above.
1130-1140	As above.
1140-1150	As above.
1150-1160	Ss. as above w/subordinate shale.
1160-1170	As above.
1170-1180	As above. Note: Sample is last of series prior to logging of and catching of samples by Baroid. Baroid began logging at 1176'. Baroid arrived on location 8:00 P.M. 7/20/55; began logging w/new bit on bottom at 11:30 P.M. 8/20/55.
1176-1190	Sand, light gray to dark gray silty to v.f.g. to f.g. mic. ill-sorted w/dark gray siltstone, to mudstone, to shale (10%).

1190-1200 As above.

1200-1210 Sand, light gray, silty to v.f.g., locally ill-sorted to med. gr.; micaceous w/dark gray, minutely micaceous siltstone, to mudstone to shale. White, fluorescent amorphous calcite fragments; sparse.

1210-1220 As above throughout. Abd. fine mica. Sand in part is calcareous. Fragments of white fluorescent calcite as above.

1220-1230 As above throughout.

1230-1240 As above throughout.

1240-1250 As above. Sand is tight. Traces of minute pyrite. Rare mineral fluorescence.

1250-1260 As above throughout. Trace only dark green glauconite.

1260-1270 Sand as above w/shale as above. Trace fluorescent calcite.

1270-1280 As above throughout.

1280-1290 As above throughout.

1290-1300 As above. Traces fluorescent calcite. Trace (?) glauconite.

1300-1310 As above. Traces fluorescent calcite.

1310-1320 As above. Traces fluorescent calcite.

1320-1330 As above. Traces mineral fluorescence.

1330-1340 As above. Trace fluorescent calcite.

1340-1350 As above. Trace fluorescent calcite. Slight increase dark gray to gray-brown silty shale. Sands exhibit very poor porosity.

1350-1360 Sand as above w/subordinate shale (10-20%).

1360-1370 Sand predominantly silty to v.f.g., ill-sorted, tight. Abd. mica. Trace fluorescent calc. only. Trace shale.

1370-1380 As above.

1380-1390 As above.

1390-1400 As above.

1400-1410 Sand, light gray to gray as above, micaceous, poorly-sorted, silty to v.f.g., poor porosity, w/dark gray shale to siltstone as above. Shale subordinate.

1410-1420	Sand as above. Rare brownish crenulated mica. Trace fluor. calcite.
1420-1430	As above.
1430-1440	As above.
1440-1450	As above.
1450-1460	As above.
1460-1470	As above, sands loc. are ill-sorted w/occasional quartz grains of med. size. Trace fluor. calcite. Loc. rare basaltic rounded sand grains.
1470-1480	As above. Sand pred. silty to v.f.g.
1480-1490	As above. Sand pred. silty to v.f.g.
1490-1500	As above. Slight incr. shale to dark gray mic. siltstone.
1500-1510	As above. Increase of dark gray silty shale, etc., to 40-50% of sample.
1510-1520	Sand as above. Pred. silty to v.f.g. Shale decreasing. Loc. rounded basaltic sand grains. Shale decreased.
1520-1530	As above.
1530-1540	As above. Shale subordinate.
1540-1550	Sand as above. Shale trace only.
1550-1560	Sand as above. Traces of shale only.
1560-1570	Sand as above. Shale subordinate.
1570-1580	As above.
1580-1590	As above. Increase of shale to silty shale to 30% of sample.
1590-1600	As above. Shale to silty shale (mic.) to mudstone to 50% of sample.
1600-1610	As above. Silty shale to shale to mudstone. 50% of sample.
1610-1620	Pred. sand as above. Silty shale to shale to mudstone. 20% of sample.
1620-1630	Pred. sand as above. Silty shale to shale to mudstone. 20% of sample.

1630-1640	Pred. sand as above. 10% of sample.
1640-1650	Pred. sand as above. Trace light green-gray, sl. calc. silty ss.
1650-1660	Sand as above, silty to v.f.g., gen. ill-sorted and loc. to med. gr., silty shale to shale ± 10% of sample. Micaceous. Trace light green-gray, sl. calc. ss.
1660-1670	As above.
1670-1680	As above.
1680-1690	As above.
1690-1700	As above. Slight increase in shale.
1700-1710	As above. Shale to 10-15% of sample.
1710-1720	As above. Shale and silty shale to 10% of sample.
1720-1730	As above.
1730-1740	As above.
1740-1750	As above.
1750-1760	As above. Traces of carb. material in ss. Pinkish ang. fragments, minute.
1760-1770	Sand as above w/subordinate shale as above.
1770-1780	As above.
1780-1790	As above.
1790-1800	As above.
1800-1810	As above.
1810-1820	As above.
1820-1830	As above.
1830-1840	Sand, light gray, gen. v.f.g. to f.g. - loc. med. gr. ill-sorted micaceous as above w/dark gray shale to siltstone subordinate.
1840-1850	As above.
1850-1860	As above.
1860-1870	As above.

1870-1880 As above. Sl. increase shale.

1880-1890 As above. Shale increased as above.

1890-1900 As above. Shale and silty shale ± 30% of sample.

1900-1910 As above. Shale and silty shale ± 30% of sample. Tr. fluor. calcite.

1910-1920 As above. Shale and silty shale ± 40-50% of sample.

1920-1930 Sand as above. Shale % decreasing to 10% of sample.

1930-1940 Sand as above. Shale % decreasing to 10% of sample.

1940-1950 Sand as above w/subordinate shale. Trace gray to dark gray graywacke, trace black, soft shale.

1950-1960 Note: Sharp increase in drilling time rate on Baroid work sheet and distinct break on Geolograph chart. Log break at 1969' as top of igneous body. Fragments of dense, v. fine, even-textured basalt, green-gray to olive-green gray.

1970-1980 Basalt. Flood of basalt as above. Trace olivene?? Local tr. brownish glassy phasing. Very fine, even-textured, felsitic, dense.

1980-1990 Basalt. Light to dark green, even-textured phaneric.

1990-2000 Basalt as above, dense, very finely textured, felsitic.

2000-2010 Basalt, light to dark green to green-gray. Loc. minutely glassy? Felsitic.

2010-2022 Basalt to 2022'. Base of basalt (sill??). Top of lt. gray sand at 2022'. Marked decrease of basalt % below 2018'.

2022-2030 Sand, light gray, micaceous, ill-sorted, tight, v.f. to f.g. to m.g. quartzose, some brown mica, cremulated. Incorporated basaltic fragments, rare to absent w/shale and dark gray silty shale (micaceous) (Tyee??).

2030-2040 Sand as above. Trace shale as above.

2040-2050 Sand, light gray, mic., v.f.g. as above w/subordinate shale as above.

2050-2060 Sand as above. Trace woody carb. material. Shale as above.

2060-2070 Sand as above. W/incr. dark gray shale as above.

2070-2080 Sands as above w/increased shales and silty shales to 30-40% of sample.

2080-2090	Sand as above. Decreasing shale.
2090-2100	Sand as above, w/subordinate shale as above.
2100-2110	Sand as above, decreasing shale. Loose, ang., fine-to-med. qtz. grains along w/sand aggts. Some rounded, coarse, ang. basalt grains.
2110-2120	Shale and silty shale, dark gray, micaceous, types as above, with sand trace only.
2120-2130	Shale and silty shale w/minor sands as above.
2130-2140	Sand as above w/25-30% of shale as above.
2140-2150	Sands as above, pred. f.g. w/subordinate shale as above.
2150-2160	Sands as above. Sl. increase dark gray mic. silty shale.
2160-2170	Sands as above. Tr. carbonaceous material. Subordinate shale and silty shale.
2170-2180	As above. Tr. carbonaceous material. Subordinate shale and silty shale.
2180-2190	As above. Tr. carbonaceous material. Subordinate shale and silty shale.
2190-2200	As above. Tr. carbonaceous material. Subordinate shale and silty shale.
2200-2210	As above w/incr. shales and silty shales. Tr. min. fluor. shale 20-30%.
2210-2220	As above. Shale increased to 40-50%.
2220-2230	Sand as above w/dark gray mic. silty shale and shale to 40-50% of sample. Tr. and flecks of black carb. material in shales and in ss. Black or dark biotite. Brownish mica.
2230-2240	Sand w/shale as above.
2240-2250	Sample pred. shale as above w/10% sand as above.
2250-2260	As above, sample w/shale and siltstone predominating.
2260-2270	Sand as above w/subordinate siltstone and gray shale as formerly.
2270-2280	As above.
2280-2290	As above.

2290-2300	Sample pred. shale and silty shale as above w/tr. sand as above.
2300-2310	Sand as formerly, mic., ill-sorted, f.g. to loc. m.g. w/traces dark gray siltstone and shale. Por. poor to nil.
2310-2320	As above. Abd. loose sub-rounded to ang. quartz grains.
2320-2330	As above.
2330-2340	As above.
2340-2350	As above. Abd. loose quartz grains.
2350-2360	As above. Baroid notation of white clay not confirmed in dry sample examined. In wet sample clay gels rapidly. Prob. bentonitic.
2360-2370	Sand as above w/shale as above.
2370-2380	Sand as above w/shale as above.
2380-2390	Sand and shale as above to 2388'. At 2388' top of dark green, finely-to-even textured basalt.
2390-2400	Basalt, dark green-gray, even-textured, dense, w/trace calcite veining.
2400-2410	Basalt as above w/light green-gray segregations - zeolitic? Calcite veining.
2410-2420	Basalt as above.
2420-2430	Basalt as above, dark green-gray, v. fine and even-textured. Minute calcite veining.
2430-2440	Basalt as above.
2440-2450	Basalt as above. Trace fluor. calcite.
2450-2460	Basalt as above. Tr. fluor. calcite. Tr. opal(??) Hornblende crystal. Tr. pyrite.
2460-2470	Basalt as above. Tr. fluor. calcite.
2470-2480	Basalt as above. Calcite veining.
2480-2490	2480-2482 estimated as basalt as above. 2482-2490 shale, chiefly silty, micaceous. Sl. increase in gas in cuttings. Tr. carb. material. Tr. v.f.g. sand.

2490-2500	Shale as above with agg'ts. of silty to v.f.g. dirty, tight, dark gray sand; loc. carb. flecks. Sands are somewhat similar to sands above but are somewhat better sorted. Appears tight. No fluor. or cut. Micaceous.
2500-2510	Sand, light gray w/shale as above, w/dark gray v.f.g. sand as above. Light gray sands again are quartzose and are locally ill-sorted. No cuts. Tr. white ash(??) Calcareous in part.
2510-2520	Sands as above w/dark gray shale to silty shale as above.
2520-2530	Sand as above w/shales as above.
2530-2540	As above w/incr. v.f.g. sands.
2540-2550	Sand as above w/shale as above.
2550-2560	Shale, dark gray, silty, mic. w/fine to v.f.g. sands; sands are ill-sorted, dirty, calcareous in part.
2560-2570	Shale and silty shale as above w/sands as above. Increased shale.
2570-2580	As above.
2580-2590	Shale as above. Increased, w/sand stringers as above.
2590-2600	Shale as above and sand as above. Shale 50% of sample.
2600-2610	Shale as above w/30% sand as above.
2610-2620	Shale and sand as above. Tr. carbonaceous material in sands, continuing v.f.g., highly micaceous.
2620-2630	As above.
2630-2640	As above. Abd. loose silty to f.g. quartz grains. Traces lignite. Sample pred. sand.
2640-2650	Shale as above w/some v.f.g. sand agg'ts. as formerly. Traces.
2650-2660	Shale as above w/tr. sand as above.
2660-2670	Shale as above w/tr. sand as above.
2670-2680	Shale, dark loc. sl. silty, micaceous. Tr. sand as above only.
2680-2690	Shale as above.
2690-2700	Shale as above.

2700-2710 Shale, dark gray, loc. sl. silty. Silty type w/fine diss. mica. Mica constituent app. lessthan formerly. Very slightly bentonitic to non-bentonitic.

2710-2720 Shale, dark gray as above. Sparse tr. light brown, calc. shale to shaly ls. Tr. platy calcite.

2720-2730 As above throughout.

2730-2740 Shale, dark gray as above, loc. sl. silty w/minute dis. fine mica. V. sp. trace slickensiding.

2740-2750 Shale, dark gray as above.

2750-2760 Shale as above.

2760-2770 Shale as above.

2770-2780 Shale as above. Trace greenish-gray sandy siltstone. Basalt 2772-2780.

2780-2790 Shale as above. Trace greenish-gray sandy siltstone.

2790-2800 Shale, dark gray and silty shale, also dark gray and minutely micaceous with traces of lt. gray-white bentonitic shale. Traces calcite.

2800-2810 Shale as above w/fragments of green-gray basalt. No well-definited drilling time break. Suggested top at 2800'. Basalt.

2810-2820 Shale as above w/abd. basalt fragments as above. Appr. incr. basalt.

2820-2830 Sample pred. basalt, green-gray, v. fine and even-textured. Tr. pyrite. Calcite veining.

2830-2840 Sample, basalt as above and shale as formerly in app. 50-50%. Log as basaltic interval. (Bit change and down time).

2840-2850 Basalt, green-gray, dense, v. fine and even textured. Calcite fragments and calcite veining.

2850-2860 Basalt as above w/shale fragments as formerly. See below.

2860-2870 Sample w/basalt as above and shale as formerly. Based on drilling time break place base of basalt at 2858'. Shale top at 2858'.

2870-2880 Shale, dark gray and silty shale. Dark gray mica, very rare to absent, also with tr. lt. gray, sl. silty shale. Shales somewhat bentonitic.

2880-2890	Shale as above.
2890-2900	Shale as above. Loc. sl. bentonitic. Tr. lighter gray, somewhat bentonitic shale.
2900-2910	Shale as above.
2910-2920	Shale, dark gray w/dark gray, silty, sl. mic. shale. Trace calcite veining with some sparse, dark green-gray slickensided shale. Shales are somewhat bentonitic.
2920-2930	Shales as above.
2930-2940	Shales as above w/tr. hard, dark gray, sl. mic., non-calc. siltstone. Non-fluor. Tr. fluor. calcite.
2940-2950	As above throughout and w/sparse traces lt. gray-white calc. siltstone.
2950-2960	Shales, dark gray as above w/tr. basalt. Log top at 2958'.
2960-2970	As above. Tr. basalt fgmts. Log base of basalt at 2967'. Tr. gray calc. silt. as above.
2970-2980	Shale, dark gray to occ. greenish-gray w/lt. gray, v. dense siltstone fragments. Tr. pyrite. Tr. basalt fgmts.
2980-2990	Shale as above w/tr. siltstone as above. Tr. mineral fluor. No cuts. Minute calcite veining.
2990-3000	Shale as above w/tr. dark gray, sl. silty shale and trace brown, hard siltstone.
3000-3010	Shale as above.
3010-3020	Shale to 3014'. Log top of dense green-gray basalt at 3014'.
3020-3030	Log basalt as above to 3025'. Below 3025 - dark gray shale.
3030-3040	Shale, dark gray as above. Note: Ran 1st Schlumberger logs at 3043'.
3040-3050	Shale, dark gray as above w/sl. silty sh. Tr. calc. veining and sparse tr. lt. gray hard siltstone as before. Tr. pyrite.
3050-3060	As above throughout.
3060-3070	Shale as above. Tr. siltstone. Tr. only basalt fragments.
3070-3080	Shale as above, appears but v. sl. bentonitic, tr. siltstone as above and tr. gray-white calc. siltstone.
3080-3090	As above.
3090-3100	As above.

3100-3110	As above.
3110-3120	As above.
3120-3130	As above.
3130-3140	Shale and silty shale as above. Sp. tr. basalt fgmts. Tr. hard, light gray, sandy siltstone. Tr. brownish shale.
3140-3150	Shale, dark gray as above w/traces brown shale, non-bent. but somewhat softer shale.
3150-3160	Shale, prin. dark gray as above.
3160-3170	Shale as above w/v. sp. fgmts. of light gray compact calc. silty sand, tight.
3170-3180	Shale, dark gray as above w/tr. only of light gray siltstone as above.
3180-3190	Shale as above.
3190-3200	Shale as above w/sp. tr. light gray siltstone as above.
3200-3210	Shale as above, dark gray and also w/sl. greenish gray cast. Tr. light gray siltstone as above. V. sl. bentonitic.
3210-3220	Shale as above throughout.
3220-3230	Shale as above w/traces of light gray, v.f.g. siltstone, calc., tr. calcite.
3230-3240	Shale as above.
3240-3250	Shale as above.
3250-3260	Shale, dark gray, loc. sl. green-gray.
3260-3270	Shale as above. Tr. calcite. Tr. light brown calc. siltstone or silty ls. Tr. light gray, hard, silty sand.
3270-3280	Shale as above w/accessories as above.
3280-3290	Shale as above w/dark gray, silty shale. Ls. as above, rare to absent.
3290-3300	Shale as above w/silty shale as above. Tr. only of white to cream ls(?).
3300-3310	Shale as above. Tr. light gray to gray-brown, dense ls.
3310-3320	Shale as above. Gray to dark gray.
3320-3330	Shale as above. Tr. white ash??

3330-3340	Shale as above.
3340-3350	Shale as above.
3350-3360	Shale as above w/fgmts. light gray silty dense ss.
3360-3370	Shale, dark gray as above. Traces light gray, fine, dense, silty sand.
3370-3380	Shale, dark gray w/traces of light brown, calc. siltstone to silty ls. and tr. light gray dense silty sand.
3380-3390	Shale, dark gray as above. Trace calcite.
3390-3400	Shale as above. Fgmts. brown calc. siltstone to ls. as formerly. Calcite veinlets. Tr. light gray silty sand as before. No fluor. No cuts.
3400-3410	Shale as above w/ls. and silty sand as above. Also w/dark green-gray basalt fgmts.
3410-3420	As above. Trace only of basalt fgmts. Tr. minute pyrite in shales.
3420-3430	Shale as above. Some calcite veinlets. Tr. basalt fgmts.
3430-3440	Shale as above. Tr. brown ls. as above. Shale w/dark gray silty shale.
3440-3450	Shale, gen. dark gray. Shale, sl. bentonitic, less silty than formerly.
3450-3460	Shale as above.
3460-3470	Shale as above.
3470-3480	Shale as above.
3480-3490	Shale as above.
3490-3500	Shale as above. Tr. calcite.
3500-3510	Shale as above. Tr. calcite, fluor. No cuts.
3510-3520	Shale as above. Tr. fluor. calc. No cuts. Shale appar. somewhat softer.
3520-3530	Shale, dark gray as above w/some brown silty ls. as before. Tr. calcite. Shale is v. sl. silty.
3530-3540	As above throughout.
3540-3550	Shale as above. Traces only auxiliary types as above.
3550-3560	Shale as above. Ls. fgmts. as above.

3560-3570	Shale as above. Tr. ls. fgmts. as above.
3570-3580	Shale, dark gray, loc. silty as above w/some greenish gray shales and silty shales. Calcite fgmts.
3580-3590	Shales as above w/tr. brownish silty ls. as formerly, also w/tr. tight v.f.g. to silty dark gray sands.
3590-3600	Shale as above. Tr. brownish ls. as above.
3600-3610	Shale as above. Tr. brownish ls. as above.
3610-3620	Shale as above w/tr. of lighter greenish gray purer, somewhat bentonitic shale.
3620-3630	Shale, brownish silty ls. and calcite fgmts.
3630-3640	Shale as above, gen. dark gray, somewhat silty w/traces of lighter greenish gray, somewhat bent. shale.
3640-3650	Note: Increased penetration rate from 3640 to 3650, not reflected by new lithologic types in sample. Prob. due to difference in weights at tower change. Sample is predom. dark gray shale as formerly. Some calcite veinlets. Break at 3644'.
3660-3670	Shale, dark gray as above. Slightly silty.
3670-3680	Shale, dark gray as above.
3680-3690	Shale, dark gray as above.
3690-3700	Shale, dark gray as above.
3700-3710	Shale, dark gray as above. Slightly silty. Some bentonitic shale.
3710-3720	Shale, dark gray as above. Slightly silty. Tr. gummy bent. shale.
3720-3730	Shale, dark gray as above. Slightly silty. Tr. gummy bent. shale.
3730-3740	Shale, dark gray as above. Tr. greenish, slickensided sh. Tr. bent. sh. Rare tr. brown ls.
3740-3750	As above throughout.
3750-3760	As above throughout.
3760-3770	As above throughout.

3770-3780	As above w/bentonitic green-gray shale.
3780-3790	As above w/bentonitic green-gray shale.
3790-3800	Shale, dark gray silty w/a lighter green-gray bentonitic shale.
3800-3810	Shale, dark gray silty as above w/bent. sh. as above.
3810-3820	Shale types as above. Tr. black lignite??
3820-3830	Shale types as above. Increasing bentonitic types. Trace of brown to tan ls.; dense. Trace only siltstone, dark gray. Note incr. in gas in mud from 3824 to 3828.
3830-3840	Shale types as above.
3840-3850	Shale types as above. Sl. poss. increase in silty shale.
3850-3860	Shale types as above. Sl. poss. increase in silty shale.
3860-3870	Shale types as above, pred. dark gray, sl. silty shale. Tr. calcite. Tr. tan to brown ls.
3870-3880	Shales as above.
3880-3890	Shales as above. Traces calcite.
3890-3900	Shales as above. Pred. gray silty shale.
3900-3910	Shales as above. Pred. gray silty shale.
3910-3920	Shales as above. Tr. brown ls.
3920-3930	Shales as above. Tr. brown ls.
3930-3940	Shales to 3932. As above at 3932. Lt. gray white hard calc. tuff from 3932 to 3942. Tuff is traversed by black basic aphanite, basaltic type, v. dense, contact preserved in cuttings. Pyrite crystals.
3942-3950	Gabbro, dark green-gray.
3950-3960	Gabbro, dark green-gray to gray-brown, xtalline.
3960-3970	Note: Base of gabbroid phase selected at 3964 ft. on slight drilling time variation and decreasing % of igneous rock in samples. Top of shale sequence at 3964'.
3970-3980	Shale, dark gray silty w/traces lighter green-gray bentonitic shale w/some igneous fgmts; traces brown to tan ls. as before. Sand noted on Baroid (tr. only) not confirmed. Calcite fgmts.
3980-3990	Shales as above. Tr. tan to brown silty ls.
3990-4000	As above throughout.

4000-4010 As above throughout.

4010-4020 Shale, dark gray, somewhat silty, w/some lighter greenish-gray bent. shale. Lt. brown to tan silty ls. fgmts., traces fluorescent calcite. Tr. yellow fl. in ls., non-petroliferous.

4020-4030 Shales as above w/tan to brown ls. as formerly.

4030-4040 As above.

4040-4050 Shale, dark gray, silty as before, minutely micaceous. Tr. brown ls. as before. Tr. fluor. calcite.

4050-4060 Shale, dark gray, somewhat silty as before. Trace only brown to tan silty ls. as before. V. rare trace fluor. calcite.

4060-4070 As above throughout. Trace basalt fgmt.

4070-4080 Shale as above, gen. somewhat silty. Rare tr. v.f.g. ill-sorted silty sand. Tr. brown calcite veined ls.

4080-4090 Shale as above. Brown to tan ls. fgmts. as formerly. Tr. fluor. calcite.

4090-4100 Shale as above. Trace of light gray v.f.g. to silty sand, hard; non-fluor., ill-sorted, tight.

4100-4110 Shale as above. Prin. dark gray silty. Tr. brown to tan silty ls. as before.

4110-4120 Shale as above. Prin. dark gray silty. Tr. brown to tan silty ls. as before.

4120-4130 Shale as above w/lighter gray to greenish-gray, softer, sl. bent. shale. Suggested top of influx at 4120.

4130-4140 Shale types as above w/increasing lt. greenish-gray, softer bent. shale; also w/silty impure variations.

4140-4150 Shales; types as above. Trace tan to brown silty ls. as formerly and w/v. silty impure lt. gray shales.

4150-4160 Shale, dark gray silty, minute diss. mica. Tr. slickensided calcite fgmts. Tr. lighter green bent. shale as above. Calc. veinlets.

4160-4170 Shale as above throughout. Tr. also tan to brown silty ls.

4170-4180 As above. V. sp. tr. of light gray sandy siltstone. Tr. brown silty ls.

4180-4190 Shales as above. Tr. brown to tan silty ls.

4190-4200 Shales as above. Tr. brown to tan silty ls. Calcite fgmts., gray siltstone.

4400-4410 Shale, dark gray, silty.

4410-4420 Shale, dark gray, silty.

4420-4430 Shale, dark gray, silty as above.

4430-4440 Shale as above w/traces gray v.f.g. silty sand, non-fluor. No show. Note: At 4436 Baroid began logging trace of sand as above and 10% from 4436 to 4442'. Samples circulated and examined in 2' intervals and described as follows:

4436-4438 Sand aggregating 10 to 15% of sample, v.f.g. lt. gray compact silty, fairly firm, calcareous; interstitially well-filled, apparent porosity probably is poor. Somewhat trashy, dirty, ill-sorted. Accompanied by shale as formerly and abd. calcite fgmts.

4438-4440 Materials as above w/shale predominating and sands as above decreasing to less than 10% in sample; also w/abd. calcite fgmts. and traces brown ls.

4440-4442 Shales as above w/trace only of sand as above.

4442-4444 Shales as above w/calcite fgmts. Very rare trace of sand as above.

4444-4446 As above throughout. Very rare trace of sand as above. One fragment of very ill-sorted sand w/minute lignite seams.

4446-4448 As above throughout. Sand as above, vestigal trace only.

4448-4449 Shale, dark gray, somewhat silty, as above.

4449-4460 Shale, dark gray, somewhat silty, as above.

4460-4470 Shale as above. Rare trace sand as above. Samples after bit change and/or trips w/abd. cavings.

4470-4480 Shale, dark gray silty as above.

4480-4490 Shale, dark gray silty as above. Trace of carbonaceous material in the shales. Trace only brown silty ls. as before.

4490-4500 Shale as above.

4500-4506 Note: 4500-4506 sample prior to coming out of hole. Shale as above.

4500-4510 Shale as above. Trace only of v.f.g. sand as formerly. Rare trace of lignite.

4510-4520 Shale as above.

4200-4210	Shale, dark gray, somewhat silty, as above, w/tr. lighter green-gray bent. shale. Tr. tan ls. as before.
4210-4220	Shale types as above. Silty ls. as above. Calc. veinlets.
4220-4230	Shale, dark gray silty. Tr. only gray v.f.g. silt to silty ss. Tr. only sl. bluish shale.
4230-4240	Shale, dark gray silty. Tr. fl. calc. Sample after trip, and had to ream from 690' off bottom. Sample prob. not represented in full.
4240-4250	Shale, dark gray silty as above. Tr. brownish to tan ls. Tr. fluor. calcite.
4250-4260	Shale, dark gray, silty as above. Tr. brown silty ls. as above.
4260-4270	Shale as above w/v. sl. tr. v.f.g. silty gray sand (4266-4268). Sample circulated at 4272. V. meager tr. of tight, lt. gray silty to v.f.g. gray sand, non-fluor., v. sl. calc.
4270-4280	Shale, dark gray silty as above. V. rare tr. light gray sandy silt as above. Decreased sand.
4280-4290	Shale, dark gray silty as above.
4290-4300	Shale as above. Tr. v.f. silt as above.
4300-4310	Shale, dark gray silty w/trace only of light gray silt w/carbonaceous flecks and fragments.
4310-4320	Shale as above w/trace v.f.g. silty tight sand at 4312-14. Circulated sample has trace only of v.f.g. silty sand. Tr. tan silty ls.
4320-4330	Shale as above. Rare tr. of v.f.g. silt to silty sand. Tr. tan ls. as above.
4330-4340	Shale, dark gray as above.
4340-4350	As above. Tr. tan ls. as above.
4350-4360	Shale, dark gray silty. Tr. of basalt fgmts., calcite fgmts.
4360-4370	Shale, dark gray silty. Calcite fgmts.
4370-4380	Shale, dark gray silty. Trace only light gray sl. micaceous sandy silt.
4380-4390	Shale as above. Traces of tan dense ls.
4390-4400	Shale, dark gray, silty.

4520-4530 Shale, dark gray, somewhat silty, as formerly. Sp. traces of light gray siltstone. Sp. traces of tan silty ls.

4530-4540 Shale, as above. Trace tan silty ls. as above.

4540-4550 Shale, as above. Trace tan silty ls. as above.

4550-4560 Shale, as above, w/traces of a brownish tinged shale, firm, v. weakly calc. Also w/trace ls. as above.

4560-4570 Shale, dark gray as above. Calcite fgmts.

4570-4580 Shale, dark gray as above. Calcite fgmts.

4580-4590 Shale, dark gray as above. Sp. calcite fgmts. Tr. only silty ss.

4590-4600 Shale, dark gray as above. Sp. calcite fgmts. Tr. only silty ss.

4600-4610 As above throughout.

4610-4620 Shale as above. Sp. calcite fgmts.

4620-4630 Shale as above. Sp. calcite fgmts.

4630-4640 Shale as above. Sp. calcite fgmts.

4640-4650 Shale, dark gray silty as above. Calcite fgmts.

4650-4660 Shale, dark gray silty as above. Calcite fgmts.

4660-4670 Shale, dark gray silty as above. Calcite veinlets. Tr. slickensided shale. Trace only of gray siltstone.

4670-4680 Shale as above. Calcite fgmts. Rare trace gray siltstone.

4680-4690 Shale as above. Trace light powder blue fluorescence and yellow calcite fluorescence.

4690-4700 Shale as above w/yellowish calcite fluor. Note rig notified of fluorescence at 4694 and continuing fragments to 4700. Mineral fluorescence - calcite.

4694-4696 2 ft. sample. Shale as above. Trace only of fluorescence in slightly calcic silty shale.

4696-4698 2 ft. sample. Shale as above. Calcite fluorescence.

4698-4700 2 ft. sample. Shale as above. Tr. brown ls. as formerly, calcite fluorescence.

4700-4710 Shale as above. Calcite fgmts.

4710-4720 Shale as above. Trace only of silty sand, dirty, ill-sorted. Tr. also brown limestone. Calcite fragments.

4720-4730	Shale as above. Calcite fgmts. Tr. white to cream colored silt.
4730-4740	Shale as above. Calcite fgmts.
4740-4750	Shale as above. Calcite fgmts. Tr. only light gray siltstone. Lignite fgmt.
4750-4760	Shale, dark gray as above. White calcite fragment. Tr. brown to tan ls. as before.
4760-4770	Shale as above w/calcite fgmts. as above and w/brownish silty ls. as above. Also w/traces of somewhat brownish, somewhat silty shale. Samples circulated on slight drilling break 4766 to 4772 - as below.
4766-4768	2 ft. sample. Dark gray shale as above w/traces brown ls. Also w/traces of light gray calc. siltstone and a gray to gray-brown dirty silty shale.
4768-4770	2 ft. sample. Dark gray shale w/traces gray to gray-brown dirty shale.
4770-4772	2 ft. sample as above. Trace only of v.f.g. siltstone, gray.
4770-4780	Shale, dark gray silty as above.
4780-4790	As above.
4790-4800	As above.
4800-4808	Shale as above. Note Core No. 1 from 4808 to 4815'. Recovered 6'. Recovery is badly broken and fractured - shattered, gray to sl. greenish gray, v. sl. silty shale. Abundant calcite veinlets. Recovery is fragmentary to biscuit type recovery. At 4809 are curved high angle to vertical calcite veining suggestive of complex jointing. At 4809 to 4809.5 slight banding to laminae of silty shale. Measured dip 70°. From 4811 to 4811.3 slickensided shale. Remainder of recovery massive, in biscuits, hard, dark gray somewhat silty shale traversed by 1/16" to 1/8" calcite veinlets at angles from 40° to 80°. Shale is very slightly calcareous.
4815-4820	Shale as above. Abd. cavings.
4820-4830	Shale, dark gray, somewhat silty as above. White and brownish calcite fgmts.
4830-4840	Shale, dark gray as above. Trace only of silty gray sand. In place?? Rare fleck of carbonaceous material in shale.
4840-4850	Shale as above. Few slickensided fragments. Ss. fgmts. (cavings).
4850-4860	Shale as above.

4860-4870 Shale as above, dark gray, v. sl. silty as before. Some slickensided surfaces. Tr. brownish ls. as formerly. Calcite fragments.

4870-4880 Shale as above. Calcite fragments. Tr. brownish shale and tr. lighter gray tough siltstone.

4880-4890 Shale as above. Calcite fragments. Traces of v.f.g. silty sand, carbonaceous (cavings??).

4890-4900 Shale as above. Some slickensided surfaces.

4900-4910 Shale as above. Some slickensided surfaces. Traces of light gray thin platy siltstone. Calcite fragments.

4910-4920 Shale as above w/traces of gray, harder, indurated silty shales traversed by calcite veinlets and minute pyrite veinlets. V. dense, even-textured basalt fgmts., sparse. Suggested top of igneous at 4914'.

4920-4930 Basalt, dark green-gray, dense. Occupies 30 to 40% of sample. Abd. shale cavings.

4930-4940 Basalt. Base suggested at 4932' - decreasing % of basalt fgmts. in samples from 4932 to 4940. Below 4932 dark gray shale as before.

4940-4950 Shale, dark gray as before.

4950-4960 Shale, dark gray as above.

4960-4970 Shale, dark gray as above.

4970-4980 Shale, dark gray as above.

4980-4989 Shale as above w/drilling break at 4982 to 4984. Trace only of v.f.g. lt. gray silty sand. Weak pale blue fluorescence of CCl_4 cut. Trace sand as above - 4888-89 (cavings) while circulating sample. Log as trace of sand with active hydrocarbons trace.

Core No. 2. 4989 to 5000. Interval 11'. Recovered 11' 100%.
4989 to 4990 (1'). Shale, dark gray, hard, very sl. silty as before. Some slickensiding, possibly due to coring. Recovery badly broken by coring.

4990 to 4991.2 (1.2'). Shale as above with abundant minute calcite veining. Recovery broken and shattered.

4991.2 to 4999 (7.8'). Shale, dark gray, massive as above. Fairly hard. Mica is minute and disseminated. Some slickensided section. Exhibits vari-angle jointing. Recovery is broken and fractured and in biscuits.

Core No. 2 (contd.) 4999 to 4999.2 (.2). Limestone, somewhat silty, gray to gray-brown, in contact with shales. Measured dip 20°.

4999.2 to 5000 (0.8). Shale, dark gray as above.

5000-5010 Sample after coring and reaming. Abd. cavings. Shale, dark gray as before.

5010-5020 Shale as above. Calcite fgmts. (fluor.)

5020-5030 Shale as above. Calcite fgmts. (fluor.) Sl. slickenside.

5030-5040 Shale as above. Calcite fgmts. Tr. brown ls. Rare trace v.f.g. silty ss.

5040-5050 Shale as above. Calcite fgmts. Tr. brown ls.

5050-5060 Shale as above. Calcite fgmts. Tr. brown to tan ls.

5060-5070 Shale as above. Calcite fgmts. Tr. brown to tan ls.

5070-5080 Shale, dark gray as above. Calcite fgmts.

5080-5090 Shale, dark gray as above. Calcite fgmts.

5090-5100 Shale, dark gray as above. Calcite fgmts.

5100-5110 Shale, dark gray as above. Calcite fragments. Calcite veinlets in shale. Some slickensided fragments. Tr. light gray siltstone. V. sparse tr. basalt fgmts.

5110-5120 As above throughout w/increase in gray basalt; pyrite and pyrite veinlets (sample 5114-5118) with basalt fragments.

5120-5130 Note: trip at 5128 for bit change. Inordinate amount of cavings. Shale as above; some slickensided surfaces; calcite fragments. Sample carrying basalt fragments in slightly increased % as above.

5130-5140 Shale, dark gray, somewhat silty, as before. Some calcite fgmts. Trace only of basalt fgmts.

5140-5150 Shale as above. Calcite fgmts. and calcite veinlets in shale. Traces of basalt fgmts.

5150-5160 Shale as above. Tr. basalt fgmts. Trace brown ls. as before. Rare trace only of v.f.g. trashy sand, no-fluor.

5160-5170 As above, shale. Tr. basalt fgmts. Calcite and calcite veinlets. Fresh, dark gray basalt fgmts., trace only.

5170-5180 Shale, dark gray as above. Calcite fragments. Tr. only light gray v.f.g. silty sand. Rare trace only of basalt fragments.

5180-5190 Shale as above. Some slickensided surfaces. Tr. light tan silty ls. as before. Calcite fgmts. Tr. light gray tough siltstone.

5190-5200 Shale as above. Calcite fragments.

5200-5210 Shale as above. Calcite fragments.

5210-5220 Shale as above. Calcite fragments. Traces of lighter gray firm siltstone. No fluorescence. Some calcite veinlets. Note: Trip at 5214. Reamed 55' from bottom.

5220-5230 Shale as above. Some slickensided surfaces. Calcite fragments as above. Trace only of v.f.g. silty sand to siltstone.

5230-5240 Shale as above. Calcite fragments.

5240-5250 Shale as above. Calcite fragments.

5250-5260 Shale as above. Calcite fragments. Tr. brown silty ls. as formerly. Tr. only of lt. gray siltstone.

5260-5270 Shale as above w/trace sl. brownish ls. as before. Calcite fragments.

5270-5280 Shale as above. Calcite fragments. Tr. light gray silty sand to siltstone. No fluor.

5280-5290 Shale as above. Somewhat calcareous.

5290-5300 Shale as above with light gray ill-sorted v.f.g. to f.g. firm ss. fragments. Some calc. cementation. Non-fluor. quartzose and w/some calcite fgmts. Tight.

5300-5310 Shale as above w/ss. as above, diminished to trace only.

5310-5320 As above throughout. Trace tan to brown ls. Calcite fgmts. Fragment of v.f.g. sand in contact w/black tarry hydrocarbon and in turn w/shale. Positive hydrocarbons cut. Prominent straw yellow fluorescence in CCl_4 - streamer cut in CCl_4. Note: examined all cuttings in sample and in the duplicate sample from this interval for further hydrocarbon indications as above. Found none.

5320-5330 Note: trip at 5321. Reamed 110' cavings to bottom. Sample is predominantly shale as before. Calcite fragments. App. abd. cavings.

5330-5340	Shale as above. Trace of light gray v.f.g. ss., some calc. cementation, ill-sorted tight appearing. Tr. gray to grayish brown ls.
5340-5350	Shale as above. Calcite fragments. Tr. tan ls.
5350-5360	Shale as above. Traces of a light gray, somewhat silty calc. shale. Tr. brown ls. Rare trace only v.f.g. gray ss.
5360-5370	Shale as above w/brown ls. as above. Trace only v.f.g. ss. No fluor. or cut.
5370-5380	Shale, dark gray as formerly. Fragment w/minute pyrite. Tr. brown ls. Sp. fgmts. lighter gray sl. bent. shale. Calcite fragments.
5380-5390	Shale as above w/traces of a lighter gray shale. Tr. brownish ls. Some slickensided surfaces. Trace of v. dense basalt, fgmt. only.
5390-5400	Shale as above. Calcite fgmts. Tr. basalt.
5400-5410	Shale as above. Calcite fgmts. Some minute pyrite fragments. Tr. tan ls. as formerly. Some basalt fragments, sparse.
5410-5420	Shale as above. Tr. basalt fragments. Tr. also v.f.g. compact ss., pink grains (cavings).
5420-5430	Baroid notes hole caving 5420-30. Sample is shale as before, calcite fragments. Trace only of basalt fgmts.
5430-5440	Shale as above. Calcite fragment.
5440-5450	Shale as above w/trace of light gray v.f.g. sand aggl., non-fluor. No cut.
5450-5460	Shale as above w/traces of extra f.g. gray sand. Tight, calc. cement.
5460-5470	Shale as above. Tr. tan ls. and tr. light gray sand as previously.
5470-5480	Shale, dark gray and some finely pyritic shale fgmts. Tr. only light gray ss. as above.
5480-5490	Trip at 5484. Sample is predom. dark gray shale as before. Traces only of v.f.g. to f.g. light gray ss. No fluor. No cut. Calcite fgmts.
5490-5500	Shale as above. Some calcite veining. Tr. brown ls. as before. Calcite fgmts. (Baroid notes abd. cavings.)
5500-5510	Shale as above.

5510-5520	Shale as above. Trace only of light gray v.f.g. ss. as before.
5520-5530	Shale as above. Calcite fgmts.
5530-5540	As above.
5540-5550	As above.
5550-5560	Trip at 5550. Cavings abd. Sample is pred. shale as formerly. Tr. only brownish ls. Calcite fragments.
5560-5570	Shale as above. Calcite fragments.
5570-5580	As above.
5580-5590	Shale as above. Tr. sl. brownish shale. Traces pyrite and tr, of silty to v.f.g. sand. Some sl. greenish slickensided shale.
5590-5600	Shale as above. Calcite fgmts.
5600-5610	Shale as above. Tr. lignite (no fluor - no cut). Tr. brown ls.
5610-5620	Shale as above w/traces of brown ls. as before and trace only v.f.g. lt. gray sand, non-fluor. Trace pyritic shale, calcite fragments.
5620-5630	Shale as above. Trace light gray sand as above.
5630-5640	Shale as above, some slickensided surfaces. Calcite fragments. Trace only of v.f.g. to silty, dirty gray sand. No cuts.
5640-5650	Shale as above. Somewhat calcareous as before. Trace brown ls.
5650-5660	Shale as above. Trace brown ls.
5660-5670	Shale as above. Calcite fragments.
5670-5680	Shale as above. Trace only of gray to lt. greenish-gray dense v.f.g. ss. w/flesh to pinkish fgmts. Some calc. cement. Non-fluor. Tight, sub-ang. grains.
5680-5690	Shale as above. Tr. brown ls.
5690-5700	Shale as above.
5700-5710	Shale as above.
5710-5720	Shale as above. Tr. only brown ls.
5720-5730	Shale as above. Tr. only brown ls.
5730-5740	Shale as above. Tr. only brown ls.

5740-5750 Shale as above.

5750-5760 Shale as above. Trace only of v.f.g. lt. gray ss., no fluor. Calcite fragments.

5760-5770 Shale, dark gray as above. Trace of brown ls. Calcite fgmts.

5770-5780 Shale, dark gray as above. Trace of brown ls. Calcite fgmts.

5780-5790 Shale, dark gray as above.

5790-5800 Shale, dark gray as above. Fragment only of lt. gray v.f.g. calc. cem. ss. No fluor in sample. Very pale blue fluor. w/CCL_4. After evap. v. weak barely detect fluorescence in residue. Trace of bright green sl. calc. shale.

5800-5810 Shale, dark gray as above. Tr. light gray v.f.g. ss. as above.

5810-5820 Shale as above to 5814'. At 5814 to 5820, 10-20% of dark and light greenish gray v.f.g. graywacke type sand. Interstitial space. Locally clay-shale filled. Reddish to flesh colored grains. Ss. is dense, firm, loc. sl. calc. Series of 2' samples 5814-5820. No cuts.

5820-5823 Shale w/ill sorted dense dark green-gray ss. as above. Note
5823-5830 trip at 5823. Sample following trip from 5823 - contaminated with pipe dope; exhibited unusual and high bright pale blue fluorescence. See details for gas in mud and cuttings, etc., due to pipe dope. Sample examined at rig shows 10% sands as above.

5830-5840 Shale, dark gray as above w/traces of lt. green-gray dense ss. as above. Tr. coal (fgmt. only). Sample does not reflect full 10% of ss. as noted by Baroid, possibly 5%.

5840-5850 Shale as above w/ss. as above and tr. light gray f.g. ss. No cuts.

5850-5860 Shale as above. Trace ss. only. Baroid notes: 10% sand to 5856. Traces beyond.

5860-5870 Shale as above. Traces sand as above only.

5870-5880 Shale as above. Trace tan to cream ls. as before. Trace ss. only.

Note: Samples 5830-5880 contain sparse mineral fluoresc. gen. from calcite fragments. Contamination effect after trip at 5824 - vastly to nearly completely diminished.

5880-5890 Shale, dark gray as above. Shale is somewhat calcareous. Tr. brown ls. as before and trace only v.f.g. graywacke.

5890-5900 Shale as above. Firm. Calcite fgmts. Trace tan ls. Rare trace only ss. as above.

5900-5910 Shale as above. Brown and tan ls. fgmts.

5910-5920 Shale as above. Brown and tan ls. fgmts.

5920-5930 Shale as above. Trace only of v.f.g. ang. qtzose sand. No fluor. Tight well cemented.

5930-5940 Shale, dark gray, somewhat calcareous.

5940-5950 Shale as above. Tr. brown ls. as formerly. Tr. light green-graywacke. Note: trip at 5943'.

5950-5960 Shale, dark gray as formerly. Calcite fragments. Tr. brown ls.

5960-5970 Shale as above. Traces of a v.f.g. lt. gray to green-gray ss. No fluor.

5970-5980 Shale as above. Calcite fragments.

5980-5990 Shale as above. Also w/fragments of reddish to brick red to maroon shale to slightly sandy shale. Top logged at 5984.

2 foot samples: 5984-86 - reddish silty shale w/slightly mottled appearance. Bright green clayshale? flecks. Tr. fresh appearing basalt. Estimated 25% of sample is red clastic.

5986-88 - gray shale as above w/reddish silty to sandy shale, to shale. Some calcite veinlets. Has appearance of a baked shale.

5988-90 - gray and red shales as above.

5990-6000 Shales to silty shales as above. Gray shales w/reddish silty to somewhat sandy shale. Calcareous.

6000-6010 Shale, dark gray as above w/reddish and greenish somewhat mottled shale (trip at 6006'). Traces of lt. gray v.f.g. sand. Fragments of reddish silty to sandy shale.

6010-6020 Shale types as above w/greenish-gray graywacke. Tr. volc. agglomerate? Sands tight, well cem. No cut. Sample 6018 to 6020 contains 30% microscopic conglomerate. Bright green fgmts. pyroxene?? Green and gray and maroon shales.

6020-6030 Primarily a microscopic conglomerate as above.

6030-6040 Microscopic conglomerate as above. See description of Core No. 3 below.

Depth adjustment 6040-6042 S.T.M.

Core No. 3 - 6042-6052'. Recovery 8.5' (85%). Microscopic conglomerate; massive, composed of pinpoint to pea-sized fragments of dark-grayish blue to black shale (50%); lt. green shale (40%); and maroon and reddish brown soft shale fragments (10%), tightly cemented in a matrix of calcite and amorphous calcium carbonate. Fragments are predominantly rounded but some are angular. Traces of pyrite. Heavy. Volcanic and igneous fragments absent.
Baroid analysis: Porosity - 12%; Permeability - zero; Water saturation - 97%; Oil saturation - zero. Note Sept. 5, 1955, Revised Calculations by Baroid - Porosity - 7%; Water saturation - 71%.

6052-6060 Ditch Samples. Congl., v.f.g. as in Core No. 3 above. Shale fragments (cavings??). Congl. w/pred. gray shale fgmts.

6060-6070 Congl. as above. Matrix is light, calcic, as in core above, soft. Material megascopically is v.f.g. to f.g. to occ. m.g. - ill sorted.

6070-6080 As above. Abd. shale cavings. Individual graining still pred. gray shales w/subordinate maroon. Colors better seen when wet; also breaks readily. Shale fragments are pred. rounded. Some min. fluor. No cuts.

6080-6090 Congl. to congl. ss. as above. Sl. increase in ang. maroon shale fgmts., local only. Shale fgmt. prin. dark gray (cavings).

6090-6100 Microscopic congl. as above. Shale fgmts. (cavings?)

6100-6110 Microscopic congl. as above. Shale fgmts. (cavings?)

6110-6120 Microscopic congl. as above. Shale fgmts. (cavings?)

6120-6130 Conglomerate, microsc. v.f.g. as above. Calcic matrix shale fgmts. as before. Traces red shale. Individual grains continue pred. gray shales w/maroon shale fgmts. subordinate but generally larger. May be local phase.

6130-6140 Microscopic cgl. as above.

6140-6150 Microscopic cgl. as above. Some clear transparent bright green grains, pyroxene?? w/embedded ang. dark shale fgmt. Gray shales in sample regarded as cavings.

6150-6160 Microscopic congl. as above. Some maroon shale fragments. Clear transparent non-calc. greenish-yellow grains, pyroxene? Matrix calcic as before. Mineral fluorescence.

6160-6170 Microscopic congl. as above. Traces brick-red shale grains. Sample carries 10%+ shale cavings.

6170-6180 Microscopic congl. as above.

6180-6190 Microscopic congl. as above. Shale grains in sample, loose, generally rounded to sub-rounded, may be washed or broken from calcic matrix. Bright green-yellow, soft, transp. grains, pyroxene??

6190-6200 Microscopic congl. as formerly. Ab. bright yellow-green fgmts., loose grains.

6200-6210 Microscopic congl. as above.

6210-6220 Microscopic congl. as above. Trace green grains as above in aggregate. Trace of basalt fgmt. green-gray. Matrix still calcareous.

6220-6230 Microscopic congl. as above. Abd. dark gray shale fgmts. Tr. red shale.

6230-6240 Microscopic congl. as above. Bright green loose grains as before. Rounded amorph. $CaCO_3$ grains.

6240-6250 Microscopic congl. as above.

6250-6260 Microscopic congl. as above.

6260-6270 Microscopic congl. as above w/abd. dark gray and sparse red shale fragments (cavings?). Calcic matrix. Sparse bright green transp. fgmts. Included grains appear. similar in size and shape to those of core above.

6270-6280 As above throughout.

6280-6290 Microscopic congl. as above w/cavings of gray shale as above.

6290-6300 Microscopic congl. as above in white calcareous and slightly calc., somewhat harder matrix. Individual grains are pred. gray shades; red to maroon grains somewhat sparse.

6300-6310 Microscopic congl. as above w/abd. dark shale cavings. Clear bright green fgmts., pyroxene. Matrix calcic - grain size not apparently increased over core. Trace only of a gray f.g. sand containing trace biotite - non-calc.

6310-6320 Microscopic congl. as above. Sl. incr. light gray grains. Highly calc. matrix and some included calcite grains. Decr. in maroon fgmts.

6320-6330 Microscopic congl. as above - gray w/calcic matrix. Abd. calcite.

6330-6340 Microscopic congl. as above, highly variable grain types, increase of reddish to maroon fgmts.

Barcid noted influx of calcite 6342 and sample 6342-6344 indicates abd. loose well-rounded amorphous calcite grains, also greenish-gray mic. cgl. as above w/included calcite grains.
6344-46. As above w/abd. loose calcite and included calcite grains in micr. cgl. as above.
6346-48. As above, abd. calc. fgmts.

6340-6350 As above w/abd. calcite fgmts. Grain sizes vary to microscopic coarse, pred. sub-rounded, minor reddish to maroon shale fgmts.

6350-6360 As above w/abd. white rounded loose amorphous calcite fgmts.

6360-6370 As above w/calcite fgmts. decreased.

6370-6380 Micr. cgl. to f.g. ss. as above w/abd. amorphous calcite fgmts., loose. Shale fragments are regarded as cavings. Fragments w/appr. coarser grains than in Core No. 3.

6380-6390 As above. Abd. calcite fgmts., abd. min. fluor. Fragments of a v.f.g. gray ss. or mic. cgl. as above.

6390-6400 Mic. cgl. as above. Fragments identical to portions of Core No. 3 as above. Marked decrease in calcic fragments. Matrix of the congl. is calcic.

6400-6410 As above throughout.

6410-6420 Mic. cgl. as above. Matrix is calcic. Texture varies considerably from meg. med.-gr. to microscopically v.f.g. Grains are predominantly grayish to greenish gray shales. Shales in sample exceed 10%, prob. all cavings.

6420-6430 As above. Abd. loose calcite grains, rounded, and loose rounded to sub-rounded gray shale grains.

6430-6440 As above.

N.B. at 6442'.

6440-6450 Micr. congl. as above w/variations in grain size to v.f.g. to minute - grains pred. dark gray shale, maroon grains subordinate, ab. calcite fgmts. and calcic. Shale cavings.

6450-6460 As above. Abd. loose rolled calcite fragments. Shale cavings.

6460-6470 As above throughout.

6470-6480 As above throughout.

6480-6490 As above.

6490-6500 Micr. congl. as above. Abd. loose calcite grains. Shale cavings.

6500-6510 Micr. congl. as above. Abd. loose calcite grains. Shale cavings.

6510-6520 Micr. congl. as above. Abd. loose calcite grains. Shale cavings. Calcic matrix and some calcite veining.

6520-6530 Micr. congl. as above w/traces transp. to transluc. greenish to greenish-yellow grains - pyroxene??

6530-6540 Micr. congl. as above. Transp. grains, pyroxene traces of less calcic to greenish shaly matrix. Traces of quartz grains.

6540-6550 Micr. congl. as above w/influx of grayish to grayish-greenish shale. Shale influx, hard to wash, microscopic congl. present but becoming subordinate.

6550-6560 Micr. congl. and shale. Congl. becoming shaly, both in matrix and in included grains. Some loose greenish pyroxene? fgmts. Probably increase in coarseness of grains.

6560-6570 Shale w/micr. congl. as above. Traces red shale fragments. Fragments of micro. congl. very similar to that of Core No. 3 above.

6570-6580 Shale, dark gray w/micr. congl. as above. Tr. red shale fragments. Abd. calcite fgmts. Traces of pyroxene? Dark gray shale fragment?

6580-6590 Shale, dark grey w/micr. congl. as above. Traces of a siliceous black hard shale. Possible top at 6580. Pronounced formation change. Very smooth (fracture face slabby). Also w/hard dark gray v.f.g. silty ss. Microscopic, gritty.

6590-6600 Abd. cavings of micr. congl. and gray and reddish shale. Drilling time change pronounced at 6590 to 6592. Traces pyrite. Black hard dense shale w/minute calcite veins. Matrix not calcareous. Almost lithographic, hard dark gray v.f.g. silty ss., microscopic, gritty.

6600-6610 Black hard dense shale as above.

6610-6614 As above.

at 6614, ran Second Run Schlumberger Logs and took conventional core at bottom of hole prior to reaming hole and setting intermediate string.

Core No. 4 - 6614-6620. Recovery 3.0 feet.

Conglomerate: massive, hard, generally coarse, with fragments to 3" plus size. Fragments are shale; generally dark, hard, with subordinate maroon fragments, angular to sub-rounded, ill-sorted with very thin calcite veining and v. minor quartz veining. Brecciated appearance. Top 0.4' of core is v. dense,

very dark gray, hard, fine grained, silty ss., microscopically gritty, equivalent to resistive section on electric log from 6580-6600. Local incipient high-angle fractures. Some dark gray to black shale fragments, comparatively soft. No igneous fragments. Color cast of core predominantly chocolate or maroon.

Note: Core No. 4 - 6614-6620 - taken while Baroid on standby time. No ditch sample over the interval 6614-6620 during coring. Ditch sample 6614 to 6620 taken while reaming rathole from 6614 to 6620, by Baroid, October 2, 1955.

Note: In the following descriptions the referred euhedral pyroxene embedded or loose euhedral greenish or greenish-yellow or greenish-black mineral grains have been determined as augite or slightly altered augite (pigeonite??).

6614-6620 Ditch sample while reaming core hole. Some cement contamination and cavings. Sample congl. types as in Core No. 4 above.

6620-6630 Conglomerate. As in Core No. 4 above. Cuttings pred. gray to dark gray shale w/some variation to lt. green to maroon to purplish. Traces rolled augite (?) fgmts. Fine to medium cong. ss. fgmts., reddish. Basalt cavings. Tr. Magn. susc. in gray shales.

6630-6640 Congl. to congl. ss. as above. Pred. dark gray shales but w/ variation to green, red and maroon shale fgmts. Tr. pyroxene fgmts. Sample shows high magnetic susceptibility in shales. Abd. calcite. Some min. fluor.

6640-6650 As above. Considerable variation in color. Greenish pyroxene (?) fragments incorporated in shale.

6650-6660 Congl. to congl. ss. as above. Gray hard shale and gray shale fgmts. predom. Occ. ang. shale breccia fgmts. Green pyroxene fgmts. loose and incorp. in shale. Magnetic susceptibility in shale fgmt. Gray green basalt. Igneous fragments. V. fine groundmass w/prominent pyroxene (?) or olivine. Basalt. Traces altered basalts. Top basalts at 6660.

6660-6670 Sample with abundant gray, v. fine textured basalt - enclosed euhedral grains of green to olive-green to greenish-yellow augite. Fragments of shale w/incorporated pyroxene fgmts. Suggest top of igneous at 6660'. Traces calc. amygdaloidal basalt.

6670-6680 Basalts as above. Sample pred. igneous fragments.

6680-6690 Basalt as above. Hard, dark gray, Basalt predominating in sample. Fgmts. of congl. and congl. ss. sparse - cavings.

6690-6700 Basalt as above. Abd. euhedral augite grains loose and encl. in v.f. textured matrix. Fgmts. of congl. ss. sparse.

6700-6710 Basalt as above.

6710-6720 Basalt. Sample 90% dark gray basalt fragments as above. Traces of congl. ss. as in overlying sequence, traces gray and greenish shales - cavings?

6720-6730 Predominantly basalt as above w/some fragments of gray to reddish amygdaloidal basalts w/calcite amygdule fillings, also w/some fgmts. of congl. ss. as above.

6730-6740 Sample predominantly gray basalts as above. Sl. incr. % of gray basalt. Tr. frosted and rounded quartz grains. Tr. green fibrous mineral.

6740-6750 Basalt. Pred. in sample, dark gray, v.f. textured as above. Traces of amygdaloidal basalt. Sparse fgmts. of gray and reddish shales as in cong. ss. above basalt.

6750-6760 Note: Drilling time break at 6758'. Sample from 6750-6760 is preponderantly basalt as above. Traces gray shale.

6758-6760 Circulated Sample. Abd. basalt. Abd. white calcite fgmts. Traces of maroon and green to gray tuff?

6760-6762 Circulated Sample. Sl. increase of maroon to reddish to gray shale. Abd. basalt as above. Abd. wh. calc. fgmts.

6762-6764 Circulated Sample. Congl. ss. fgmts. sparse, ch. gray calcic matrix, basalt. Drilling time break from 6758' to 6764' averaged 7.5 m/ft. Log as congl. ss. as previously.

6760-6770 Sample preponderantly basalt, dark gray, v.f. textured w/ euhedral green-yellow augite. Log top of basalt at 6764'.

6770-6780 Sample preponderantly basalt, dark gray to gray-black and dark green gray. Traces of reddish altered amygd. basalts. Trace only of v. lt. green gray sandy tuff. Free and enc. augite? grains. Tr. soft fibrous lt. green mineral.

6780-6790 Preponderantly basalt as above. Some loose calcite fgmts. Loose green pyroxene grains. Tr. reddish altered basalt.

6790-6800 Sample preponderantly basalts as above, chiefly dark gray to gray bl. to greenish gray; v.f. textured euhedral pyroxene. Tr. green shale. Fragment of congl. ss.

6800-6810 Sample preponderantly basalt as above.

6810-6820 Sample prepond. basalt as above. Tr. congl. to congl. ss. Loose calcite fgmts.

6820-6830 Sample is preponderantly basalt as above. Essentially a dark gray to green-gray, v.f. textured basalt as above. Green pyroxene, loose calcite fgmts. Tr. reddish amygdaloidal basalt. Tr. lt. green shale.

6830-6840 Basalt types as above. Basalts as above with appreciable magnetic susceptibility.

6840-6850 Basalt as above. Pred. dark gray, v.f. textured - pyroxene grains - loose and encl. in matrix. Trace congl. ss. only. Calcite fgmts. Trace reddish altered basalts.

6850-6860 Basalts as above. Tr. light gray ash??

6860-6870 Basalt as above.

6870-6880 Basalts as above. Calcite fragments.

6880-6890 Basalts as above. Calcite fragments. Tr. only calcite veined congl. ss.

6890-6900 Sample is predominantly basalt, dark gray to dark green-gray w/prominent euhedral pyroxene grains. Trace only of congl. ss. Traces of altered purplish to reddish altered basalt or tuff??

6900-6910 Basalt as above, abundant calcite and some zeolite fragments. Traces of gray and purplish gray ash. Note: drilling time break 6910-6916.

6910-6914 - Abd. calcite. Calcite veining in gray to soft purplish to reddish ash or tuff?? Some non-calcareous white zeolites. Abd. basalt fgmts. Log interval 6909 to 6915 as ash or tuff intercalation in basalts.

6916-6920 (6910-6920) Basalts as above. Tr. ang. congl. ss. Sample is preponderantly basalt, abd. large pyroxene fgmts. Some calcite.

6920-6930 Sample is preponderantly basalt as above. Tr. only congl. ss. (cavings). Trace brownish altered basalt.

6930-6940 Sample is preponderantly dark gray, v.f. text. basalt as above. Abd. green pyroxene fgmts. Tr. maroon to reddish ash or tuffs.

6940-6950 Sample as above throughout, predom. basalts.

6950-6960 Basalts as above, predominating w/traces brownish altered basalts.

6960-6970 As above throughout.

6970-6980 Sample is preponderantly dark gray basalts as above. Traces of brownish to reddish tuffs (?) w/tr. of purplish ash fgmts. Tr. also congl. ss. Spherulites in brown altered basalt.

6980-6990 As above throughout.

6990-7000 Sample principally basalt as above. Abd. calcite fgmts. Traces of reddish brown tuffs and ash.

7000-7010 Sample principally basalt as above. Sparse fragments pyroclastics as above. Tr. only reddish ferruginous sandy tuff?

7010-7020 Sample principally basalt as above. Tr. only reddish tuffs as above.

7020-7030 As above throughout. Abd. calcite.

7030-7040 Sample is predominantly dark gray, v.f. textured basalt as above. Bit change and trip at 7134'. Traces of congl. ss., possibly cavings. Minor traces brownish to reddish to purplish tuffs? and ash fgmts., also cavings?

7040-7050 Sample is predominantly basalt as above. Tr. calcite and traces ash as above.

7050-7060 As above throughout. Tr. fibrous green mineral. Rounded white zeolite fgmts. Trace platy green enstatite?? Sample is principally basalt.

7060-7070 Sample is predominantly basalt, dark gray to gray-black euhedral pyroxene embedded and loose. Trace of amygdaloidal basalts. Traces brownish to reddish tuffs and ash. White zeolite? and calcite fgmts. Tr. congl. ss. Green fibrous mineral.

7070-7080 As above throughout. Basalt predom. Tr. of v. dense gray basalt, magnetic. White zeolites and calcite as above. White frosted quartz grain. Milky spheroids in tuffs?

7080-7090 Basalts, dark gray as above w/increasing gray, v. dense, v.f. textured basalts. Traces of brownish and reddish ash and tuff. White calcite and zeolite fgmts.

7090-7100 As above throughout.

7100-7110 Predom. basalts as above w/accessory types as above. Incr. of white quartz (veining?). Trace congl. ss.

7110-7120 As above throughout. White calcite and white zeolite and some white quartz fgmts. Traces gray congl. ss. w/sub-rndd. quartz grains.

7120-7130 Pred. basalts and pyroclastics as above. Decr. white mineral fragments.

7130-7140 As above throughout.

7140-7150 Sample is predom. basalt, dark gray to green-gray, gen. v.f. textured. Tr. amygdaloidal basalts. Also fgmts. of congl. ss. and traces reddish to brown tuffs.

7150-7158 Sample 7150-7160. Basalts as above. Trace serpentinized (?) surfaces. Lithologic break at 7158'.

7158-7160 Tuff to tuffaceous sand, w/basalt fgmts. Tuff. sd. is v.f.g. gray, soft and w/extra fine ang. quartz grains, comp. soft. Log as tuffaceous sand or sandy tuff.

7160-7162 Basalt w/fragments of gray ash and sl. sandy ashes to tuffs. Basalts predominate in the sample.

Core No. 5 - 7162 to 7172'. Recovery 9 feet.
Basalt, dark gray green to grayish, locally somewhat porphyritic, generally glassy. Groundmass gen. glassy, loc. dense, very fine textured. Jointing at 7168-7171' with serpentinized mineral surfaces. Some greenish calcite. Heavy, joint or fracture surfaces with alteration minerals with serpentinized aspect. Basal 0.5" w/white rounded, slightly calcic amygdaloidal fillings. Euhedral pyroxene - augite phenocrysts.

7170-7180 Sample predominantly basalt, gray green to gray, v.f. textured, somewhat glassy. Some euhedral pigeonite. Trace only of v.f.g. tuffaceous sand.

7180-7190 Sample is predominantly basalt. Gray ash fragments. Basalt appr. magnetic.

7190-7200 Sample is predominantly basalt as above. Traces brownish tuffs? Some white calcite, zeolite, and quartz fragments. Tr. congl. ss.

7200-7210 Sample pred. basalts. Fresh v.f. textured gray, gray-green, sl. altered to glassy. Tr. brownish tuff or shale. Tr. congl. ss. Euhedral pigeonite.

7210-7220 Sample is pred. basalts - magn. attr. Gen. are dark gray to green-gray dense. Tr. reddish ferruginous pyroclastics, abd. calcite and some white zeolite. Some mineral fluorescence. Embedded and loose pigeonite grains.

7220-7230 Basalts, gray to green-gray, v.f. textured, somewhat glassy. Some calcite veining. Some glassy phases in basalts. Tr. reddish ferruginous pyroclastics. Tr. breccia.

7230-7240 Sample preponderantly gray to green-gray basalt as above. Traces of volcanic breccia w/enclosed quartz grains. Traces pyroclastics.

7240-7250 Drilling time break logged below 7248'. Sample from 7240-7248. Pred. basalt as above w/abd. white mineral fragments, calcite, zeolites, apparently some white vein materials.

Sequence of 2 foot samples from 7248-7260 as below.

7248-7250 Basalt predominating w/abd. white calcite and zeolite grains. Basalts, dark gray and gray-green - some glassy phases and trace of basalt (glassy) breccia. Loose pigeonite grains.

7252-7254 As above throughout.

7254-7256 As above throughout w/abd. zeolite fgmts., calcite fgmts. and trace quartz? veining. Tr. glassy basalt.

7256-7258 As above throughout. Abd. calcite and zeolite fgmts. Thin veining thru basalts. Tr. basalt breccia - dark gray.

Note: Above series of 2' samples are circulated samples. Drilling time broke from 13 m/ft. at 7248 to 2 m/ft. at 7258'. Lost 4" mud in tanks (+ 30 bbls.) Section from 7248 to 7258 interpreted as veined and fractured cavernous basalts. Drilling at 7258' w/10.6 m/ft. rate. Mud action indicates no permeability - cavity filling while drilling.

7258-7260 Sample pred. basalts. Less vein material as above.

7260-7270 Sample is predominantly basalt, gray to greenish-gray, somewhat glassy - to gen. v.f. textured, some w/thin quartz veining. Calcite fgmts., zeolites. Basalts magnetic. Augite xtals, tr. quartz. Some min. fluor.

7270-7280 Pred. basalts as above w/veined basalt breccia trace. Some veining, zeolite fgmts. Veined and fractured basalts.

7280-7290 As above, primarily basalts. Decreased zeolite fgmts.

7290-7300 Basalts as above, accessories as above.

7300-7310 Basalts as above. Veined basalts - zeolitic? Zeolite fgmts. Traces vein quartz. Large augite xtals. Tr. amygdaloidal basalt. App. veined and fractured section.

Note: Increased drilling time at 7302-7310.

7302-7304 - Basalts as above, abd. zeolite, calcite, tr. quarts. App. veined and fractured section.

7304-7306 - As above. Tr. reddish baked? tuffs.

7310-7320 Primarily basalts. Appr. augite xtals. Abd. vein and zeolitic material. Ochre to reddish baked tuffs?

7320-7330 As above throughout.

7330-7340 Basalts as above. Abd. zeolites. Large augite xtals. Some calcite fragments. Tr. brownish hard altered basalts.

7340-7350 As above, primarily basalts. Augite grains in red altered basalts. Minute veining in basalts.

7350-7360	Basalts as above. Euhedral pigeonite fgmts. Zeolites and calcite. Tr. minor veining in basalt. Trace soft green, serpentinized mineral. Trace of reddish baked tuff. Basalts w/mag. attraction.
7360-7370	As above throughout.
7370-7380	As above throughout w/some loose pigeonite xtals.
7380-7390	As above throughout.
7390-7400	As above throughout. Trace quartz. Trace veined tuff. (Noted at rig - sample w/minute free copper veins.)
7400-7410	Sample is predominantly basalts as above. Dark gray to gray-green; euhedral pigeonite, tr. amygdaloidal basalt, tr. lt. gray soft ash. Zeolite fgmts. Tr. reddish tuff.
7410-7420	Sample is predom. basalt as above. Accessory traces as above.
7420-7430	Sample is predom. basalt as above. Traces gray soft ash? Some veining in basalts, calcite fragments, zeolites.
7430-7440	Sample is predom. basalts as above, gen. dark green-gray, gen. v.f. textured. Loc. glassy phases, veined, zeolites. Tr. brownish tuff, abd. pigeonite xtals.
7440-7450	As above w/some amygdaloidal basalts.
7450-7460	As above. Tr. vein quartz.
7460-7470	Basalt as above. Tr. red tuff. Tr. gray ash??
7470-7480	Basalt as above. Traces red and brown tuff fragments. Zeolite fragments.
7480-7490	Basalt as above w/associated pyroclastics as above. Tr. serpentinized basalt.
7490-7500	Pronounced drilling time break at 7500' and top of formation change at 7500'. Basalts and associated pyroclastic (traces) as above to 7500'. At 7500' influx of spherical loose zeolites.
7500-7502 (circulated sample)	At 7500 influx of spherical to ovoid cream-colored fragments of non-quartzose, non-calcareous loose grains, classed as zeolitic fillings from amygdules in basalt. Occasional 'ball' w/adhering basalt. Fragments of fibrous zeolites. Traces greenish basaltic glass.
7502-7504 (circulated sample)	Sample preponderantly loose balls of amygdule fillings, firm - somewhat soft and brittle, non-calcareous (also non-calcareous in powder). Traces volc. glass.

7504-7506 (circulated sample)	As above, loose balls of well-rounded generally spherical soft zeolite? fragments derived from amygdule filling. Some balls w/adhering basalt fragments.
7506-7516	As above. Predominantly amygdule fillings - balls of zeolitic material. Increase in drilling time and basalts at 7516'. Occurrence classified as partially reworked local zeolite zone in basalts and local sand - not far from source. Matrix is questionable - if soft ash, little or none preserved. Base noted at 7518'.
7516-7520	Top at 7518 - basalt, gray, v/dense, magnetic, lacks greenish pigeonite xtals. D.T. ranging between 9-12 m/ft. V. dense and even textured, somewhat amygdaloidal, w/amygdules well embedded in matrix.
7520-7530	Sample completed after trip - some cavings. Primarily basalt, v. dense, dark gray, even-textured, somewhat amygdaloidal. Tr. reddish basalt and tr. cong. ss. (cav.?)
7530-7540	Basalt, dark gray w/traces loose pigeonite fgmts. (cav.) Tr. green, soft fibrous mineral. Tr. only spheroids (zeolites).
7540-7550	Basalt, dark gray, v. dense, even textured w/traces of altered basalts (reddish), trace lt. greenish spherulitic tuff.
7550-7560	Basalt as above w/subordinate altered basalts. Tr. amygdaloidal basalt. Tr. loose pigeonite grain. Trace zeolite balls.
7560-7562 (circulated sample)	Basalt types as above. Tr. breccia. Tr. zeolites.
7562-7564	Basalt types as above, some zeolite fgmts. Tr. zeolite balls.
7564-7566 (circulated sample)	As above throughout. Trace of veining in basalts. Tr. clorite??
7566-7568 (circulated sample)	As above throughout. Trace green spherulitic tuff? Tr. black pyroxene.
	Note: Drilling time break 6564-6568 - basalts chiefly w/some altered basalts zeolitic minerals. Interflow facies.
7560-7570	Primarily basalt w/subordinate minerals as noted above.
7570-7580	Basalts, dark gray, v.f. and even textured. Tr. calcite veining. Pigeonite inclusions. Traces only loose zeolite fgmts.
7580-7590	As above, primarily basalt. Traces reddish tuffs.
7590-7600	Basalt as above. Minor trace green spherulitic tuff?

7600-7610 Predom. basalts as above w/trace assoc. pyroclastics as above. Tr. zeolites.

7610-7620 Basalts as above w/assoc. pyroclastics as above.

7620-7630 Basalt as above. Tr. tuffs. Some zeolite fragments.

7630-7640 Basalt as above w/subordinate types as above.

7640-7650 Basalts as above. Traces white zeolitic and vein minerals. Tr. altered basalts.

7650-7660 As above throughout.

7660-7670 As above throughout.

7670-7680 As above throughout. Tr. green fibrous mineral.

7680-7690 Basalt as above. Dark gray-black, v. dense loc. sl. glassy. Traces subordinate tuffs, etc., as above.

7690-7700 Basalts as above. Tr. gray tuffs.

7700-7710 Basalts as above, containing prominent phenocrysts of greenish augite. Some greenish altered to serpentinized basalts. Zeolite fragments. Tr. reddish altered basalts.

7710-7720 Basalts as above w/fragments of light gray tuffaceous siltstone or sandy gray ash. Development suggested at 7710-7714 of tuffaceous siltstone.

7720-7730 Basalts, dark gray, v. dense w/some green augite phenocrysts. Traces zeolites.

7730-7740 Basalts as above, dense, dark-gray, some altered or serpentinized surfaces. Few zeolite fragments. Trace only of gray ash or tuff siltstone.

7740-7750 Note: 2' samples.

7740-7742 - 27 m/ft. Basalts w/red, ocher & maroon altered basalts.

7742-7744 - 10.6 m/ft. Basalts w/traces of gray tuffaceous siltstone, v/minute quartzose grains.

7744-7746 - Basalt fragments as above w/gray tuff, waterlain? siltstone; log from 7742 to 48 w/basalts below.

7750-7760 Basalts, dark gray dense with reddish to brownish altered basalt fragments, traces of gray tuff siltstone, zeolites, loose augite xtals. Augite xtals in reddish altered basalts.

7760-7770 As above throughout, w/abd. reddish altered basalts. Zeolite fragments. Increased drilling penetration at 7776'.

7780-7790 Drilling time break throughout interval. Basalts dense to slightly glassy w/reddish altered basalts. Some zeolites and spheroidal zeolites. Increased penetration rate due to chilled or glassy phase and zeolitic soft phase in basalts.

7790-7800 Basalts, gray dense and basalts reddish altered w/large loose augite phenocrysts. Minute spheroidal zeolite and angular zeolite fragments. Red amygdaloidal altered basalts.

7800-7810 Basalts, dark gray as above, somewhat glassy w/abundant red, altered minute amygdaloidal basalts, soft w/zeolite filled cavities (amygdules).

7810-7820 Abundant red to gray to green to gray, soft altered amygdaloidal basalts w/zeolite filled amygdules. Loose spheroidal zeolites. Thin flows?

7820-7830 As above, primarily soft varicolored altered amygdaloidal basalts w/zeolite filled vesicles. Abd. loose spheroidal zeolites.

7830-7840 As above throughout. Loose green augite grains.

7840-7850 Basalts, altered amygdaloidal, reddish and fresh gray amygdaloidal basalts with dense basalts. Some reddish altered basalts. Trace only gray tuffaceous siltstone. Above apparently a series of thin soft altered amygdaloidal flows - zeolite filling.

7850-7860 Basalts, pred. denser gray but with amygdaloidal basalts as above. Suggested break at base at 7856'.

7860-7870 Note: At 7863', twisted off and left 6-6" drill collars and bit in hole. Recovered fish. Down time total - 23 hrs. Sample is hard, dense, tough, dark gray black basalt, drilling rate = 20 m/ft. Also w/altered basalts - reddish - and w/basalts w/ large augite phenocrysts - Zeolites - amyg. bas. (cav.) Tr. veining. Zeolites. Mag. attr.

7870-7880 Pred. hard, extra dense gray-black basalt as above w/reddish altered basalt. Zeolites as above.

7880-7890 Basalt, dark gray black dense hard, phenocrysts of augite. Traces reddish altered veined and amygdaloidal basalt. Tr. greenish chloritized surfaces. Zeolite fragment. Augite xtals.

7900-7910 Basalts as above.

7910-7920 Basalts as above - decreased reddish altered basalts.

7920-7930 Basalts as above.

7930-7940 Basalts, dark gray, dense, as above, and with 30 to 40% of red altered basalts: some amygdaloidal; some dense abundant zeolites. Green fibrous mineral.

7940-7950 Basalt types as above with 30 to 40% reddish altered basalts; accessories as above. Quartz fragment. Green augite.

7950-7960 Basalt, pred. dark gray to green-gray dense as above with decrease reddish altered basalt types (10%). Note: reddish altered basalts including red amygdaloidal altered basalts are non-magnetic. Fresh gray basalts are magnetic. Loose augite.

7960-7970 Basalts as above. Reddish altered basalts 10-20% of sample. Zeolites. Augite phenocrysts in dense basalts.

7970-7980 As above with tr. greenish altered (chloritized) basalt.

7980-7990 As above. Reddish altered basalts. Decr. to 10% of sample.

7988-7990 - Circulated out sample. Interval 7988-90 drilled at 3.9 m/ft. rate. Sample is 60% soft reddish altered amygdaloidal basalt, zeolite filled. Apparently flow zone.

7990-8000 Basalts, dark gray dense, occ. w/green augite phenocrysts as above, and 30% red altered basalts, some amygdaloidal. Abundant loose zeolites. Note sample after fishing for and retrieving 5 drill collars. Slightly altered amygdaloidal basalt w/augite phenocrysts. Fresh basalts magnetic; reddish altered basalts as above.

8000-8010 Basalts, preponderantly dark gray, fresh basalt - decreased reddish altered basalts. Olivene?

8010-8020 As above. Abd. zeolites.

8020-8030 As above. Tr. greenish altered basalts. Abd. loose zeolite fgmts.

8030-8040 As above throughout. Appr. 10% red altered basalts.

8040-8050 As above throughout.

8050-8060 As above throughout.

8060-8070 Basalts as above. Pred. dark gray dense and reddish altered basalts. Augite phenocrysts. Zeolites.

8070-8080 As above throughout. Rare trace only extra f.g. gray tuff. Siltstone.

8080-8090 Basalt types as above. Dark gray dense hard (pred.) w/some reddish altered basalts. Fresh amygdaloidal basalts. Some augite phenocrysts. Zeolite fragments. Green serp. surfaces.

8090-8100 Basalts and accessory types as above. Basalts w/sl. to complete alterations.

8100-8110 Basalts as above.

8110-8120 Basalts, dark gray dense w/traces reddish altered basalt. Zeolites, w/some greenish zeolites. Augite.

8120-8130 As above. Tr. greenish serpentinized surfaces, gray basalts w/rusty red oxidized altered grains.

8130-8140 Basalts, dark gray dense as above w/red altered basalts as above. Zeolite fragments. Augite.

8140-8150 Basalts as above.

8150-8160 Basalts, dark gray dense and reddish altered basalts as before. Also w/partially altered dark gray dense basalt w/altered rust-colored patches, minute; magnetic green fibrous mineral. Zeolites. Augite. Tr. tuff. siltstone?

8160-8170 Basalt types as above, dark gray dense, reddish altered and partially altered speckled rust colored basalt. Tr. amygdaloidal basalts. Tr. vein quartz. Zeolites. Hornblende?

8174-8176 - Special 2' sample w/notation by Baroid small amount of sand. Material basalts as above and some green to greenish-gray zeolitic aggregates ("fishroe aggt's.") Tr. serpentinized surface.

8170-8180 Basalt types as above w/some reddish altered amygdaloidal basalts. Augite. Abd. loose zeolites.

8180-8190 Basalt types as above. Zeolites. Tr. vein(?) quartz.

8190-8200 Basalt types as above. Dark gray dense predominating.

8200-8210 Basalt, dark gray, dense w/subordinate reddish altered basalts and partially altered basalts. Abd. zeolite fgmts.

8210-8220 Basalts as above with influx of reddish altered basalt zone 8206-8210 - circulated 2' samples 8206-8208 and 8208-8210 w/ increased reddish altered basalts, green slickensided and serpentinized surfaces. Augite phen. Trace only tuff. siltstone.

8220-8230 Basalts as above. Pred. dark gray w/reddish altered basalts. Green augite. Dark gray, partially altered basalts. Zeolite.

8230-8240 Basalts as above. Pred. dark gray dense fresh w/red altered basalt. Zeolites.

8240-8250 Basalts as above. Trace only gray tuff siltstone??

8250-8260 Basalts as above.

8260-8270 Basalts, pred. dark gray to sl. gray-green, dense to sl. granular to zeolitic to porphyritic, gray and with reddish altered basalts and slightly altered basalts. Some zeolites, augite fragments. Traces of a lighter gray tuff. siltstone?

8270-8280 Basalts as above w/lighter gray hard diabase and a softer gray altered diabase. Lighter gray basalts, gen. hard to locally soft. Groundmass sl. granular. Tr. pyrite. Zeolites. Altered lt. gray basalts (diabase).

8280-8290 Basalt types as above, dark gray, dense; reddish to rust to brown altered basalts; and lighter gray diabase, granular, hard to somewhat softer, altered pyrite. Green fibrous mineral. Tr. augite. Some zeolites.

8290-8300 Basalt types as above w/lt. gray granular type predominating (v. sl. calc.) diabase.

8300-8310 Pred. lt. gray diabase and altered type as above w/some red altered basalts and dark gray dense basalts. Diabase w/considerable variation in hardness. Tr. green fibrous mineral.

8310-8320 Basalt types as previously described w/altered zeolitic amygd. basalts and gray diabase? as above (50%). Zeolite fgmts. Tr. pyrite in groundmass. Diabase(?) magnetic.

8320-8330 Basalts and diabase as above w/lt. gray amygdaloidal basalt fragments. Greenish altered zeolite(?) fragments.

8330-8340 As above; pred. lighter gray diabase w/basalts as above.

8340-8350 Pred. lt. gray to somewhat greenish gray diabase - granular, altered uneven hardness. Tr. gray tuff.(?) Red altered basalts. Augite(?) in groundmass of gray diabase(?) Light colored lath shaped feldspar.

8350-8360 Pred. lt. gray to sl. greenish gray diabase, lighter gray ash(?) fragments. Tuff(?), w/dark gray and some reddish basalts as previously. Variation in hardness. Zeolite fgmts. Magnetic.

8360-8370 Pred. lt. gray to sl. green-gray (diabase) as above w/softer tuffs? zeolite grains w/some dark gray basalts as formerly.

8370-8380 As above. Non-calc. No porosity.

8390-8400 As above. Trace pyrite. V. faint tr. calcareousness.

8400-8410 As above w/tr. gray bl. somewhat glassy basalts.

8410-8420 Heterogeneous sample: mixed dark gray and gray dense basalts, lighter gray diabase and red altered basalts. (Sample after out of hole ±10 hrs. and addition of new drill collars.)

8420-8430 Appreciably decreased diabase, sample predom. dark gray to gray black, v. dense basalts. Augite phenocrysts. Some reddish altered basalts. Zeolite fgmts.

8430-8440 Pred. dark gray basalts as above. Some reddish altered basalts and slightly altered basalts. Traces diabase, some zeolite fragments.

8440-8450 As above throughout.

8450-8460 As above throughout.

8460-8470 Pred. dark gray, v. dense basalt as above. Traces diabase and altered diabase. Some altered basalts.

Note: Circulated samples due to drilling time decrease 8470-8476.

8470-8472 - Basalt, dark gray dense w/appr. increase in light colored angular zeolite fragments. Augite phenocrysts.

8472-8474 - As above. Increased soft zeolites (aug.)

8274-8276 - As above. Increased soft zeolite fgmts. Veining, poss. cavernous or vugular zone.

8470-8480 Pred. dark gray dense basalt as above. Apparent cavernous, softer zeolitic zone from 8472 to 8478. Augite fragments. Dark basalt is magnetic. Traces diabase fgmts. Minute pyrite. Zeolite fragments.

8480-8490 Predom. dark gray, v. fine textured basalts. Augite phenocrysts. Zeolite fragments. Some reddish altered basalts and altered diabase fgmts., (some v. soft, appearance like tuff siltstone).

8490-8500 Note: Drilling break 8492-8498 with circ. sample 8492-8494.

8492-8494 - Basalt w/abd. soft zeolite fragments. Apparently softer, possibly cavernous zone.

8494-8496 - As above.

8490-8500 Dark gray basalts as above w/light colored zeolite fragments.

8500-8510 Dark gray to sl. greenish gray dense v.f. textured basalt. Augite phenocrysts. Some reddish altered basalts. Some diabase fragments.

8510-8520 As above throughout.

8520-8530 Basalts, pred. dark gray, dense. Some augite phenocrysts; and red and greenish altered basalts. Abd. zeolite fragments. Tr. diabase and altered diabase.

8530-8540 As above throughout. Tr. green fibrous mineral. Ash(?) fgmts.

8540-8550 Basalt, dark gray dense, v.f. textured groundmass w/green augite phenocrysts. Considerable reddish altered basalt. Zeolite fgmts. Some diabase fgmts.

8550-8560 As above throughout.

8560-8570 As above throughout.

8570-8580 Pred. dark gray dense basalt, some reddish altered basalts and partially altered basalts. Zeolite fragments. Traces of lighter gray diabase. Green slickensided surfaces. Augite.

8580-8590 Pred. dark gray dense basalt as above. Tr. black basalt. Zeolite fragments. Tr. gray amygdaloidal basalts. Pyrite. Tr. rounded loose frosted zeolite. Augite. Altered basalts.

8590-8600 As above throughout.

8600-8610 Pred. basalts as above. Increase of reddish altered basalts and sl. altered basalts. Tr. greenish chloritized(?) basalts. Green fibrous mineral. Augite.

8610-8620 Note: Interval 8610-8620 in series of 2' samples. Drilling time break 8610-8622.

8610-8612 - Dark gray basalt, occ. somewhat granular. Increase of zeolite fragments. Augite. Diabase fgmts. and altered diabase fgmts. Altered basalts. Augite.

8612-8614 - As above. Incr. in zeolite fgmts. Diabase and altered diabase fgmts. Green fibrous mineral. Green altered basalt.

8614-8616 - As above, pred. dark gray basalt. Increase of zeolites.

8616-8618 - As above. Increase of zeolites and reddish and greenish altered basalts.

8618-8620 - As above. Drilling time break believed due to zeolitic softer zone in the basalts.

8620-8630 Basalt, dark gray dense, v. fine textured. Augite. Reddish altered basalts. Zeolite fragments. Traces diabase and altered diabase.

8630-8640 Basalts, pred. dark gray dense as above. Accessory types as above.

8640-8650 Basalts as above throughout.

8650-8660 Basalts as above. Slight increase in altered basalts. Green fibrous mineral.

8660-8670 As above throughout.

8670-8680 Basalt, dark gray, dense, v. fine textured with traces of gray amygdaloid basalts. Reddish altered basalts. Traces of diabase. Green augite xtals. Zeolite fragments.

8680-8690 As above throughout.

8690-8700 As above throughout. Increase in zeolite fragments.

8700-8710 As above throughout. Increase in diabase fragments and altered diabase.

8710-8720 Basalts as above. Tr. greenish altered basalts.

8720-8730 Basalts, dark gray dense v/fine textured as above. Augite. Some reddish altered basalts. Diabase fragments. Zeolite fgmts.

8730-8740 As above throughout.

8740-8750 As above throughout.

8750-8760 Basalt, dark gray dense w/some green augite phenocrysts. Zeolite fragments. Tr. bluish olivene(??) Some altered basalts, reddish to rarely dark brownish. Loose augite.

8760-8770 Basalts as above.

8770-8780 Basalts as above.

8780-8790 Basalts, dark gray dense, augite phenocrysts w/altered basalts and partially altered basalts. Zeolites. Tr. amygdaloidal basalts. Tr. diabase.

8790-8800 Basalts as above. Tr. olivene(?)

8800-8810 Basalts as above.

8810-8820 Basalts as above. Incr. of zeolites at 8816.

8820-8830 Preponderantly dark gray dense basalt as above. Green augite. Reddish altered basalt fragments. Some rounded zeolites, greenish altered basalts. Greenish serpentine or asbestiform to altered asbestiform fragments.

8830-8840 Basalt as above throughout. Green fibrous mineral. Brownish to greenish talcose altered basalt?

8840-8850 Basalt, dark gray dense. Augite. Reddish altered basalts. Zeolite fragments.

8850-8860 Basalts as above. Augite. Zeolites, altered basalt. Tr. altered diabase. Tr. greenish asbestiform mineral. Green clay-like altered basalt?

8860-8870 As above throughout.

8870-8880 As above throughout. Trace calcite. Fluorescence. Tr. serpentine or greenish asbestiform fgmts.

8880-8890 As above throughout. Tr. olivene(??)

8890-8900 As above w/tr. diabase and altered diabase.

8900-8910 Basalts, principally dark gray, dense, v. fine textured. Augite, loose and in phenocrysts. Hornblende(?) xtals. Some reddish to red-brown altered basalts. Greenish altered basalts. Zeolite fragments. Tr. hard diabase. Greenish serpentine.

8910-8920 Basalts as above. Augite. Zeolite fgmts. Trace amygdaloidal basalts. Altered basalts. Greenish serpentine.

8920-8930 Basalts as above w/increase in altered basalts. Zeolite fgmts. Greenish serpentine.

8930-8940 Basalts as above. Reddish altered basalts. Augite. Zeolites.

8940-8950 Basalts, predom. dark gray dense as above, w/altered basalts. Zeolite fgmts. Fgmts. greenish serpentine.

8950-8960 Basalts as above throughout. Tr. serpentinized faces.

8960-8970 Basalts as above throughout. Tr. vein quartz. Tr. serpentine.

8970-8980 Basalt, dark gray, dense v.f. textured. Abd. zeolite fgmts. Tr. calcite. Tr. diabase. Altered basalt fgmts. Green serp.

8980-8990 Basalt as above throughout.

8990-9000 Basalts, dark gray dense, v. fine textured. Less augite. Zeolites. Trace calcite. Some reddish altered basalt. Green serpentine.

9000-9010 Basalts, dark gray dense as above. Olivene? Zeolites. Appr. less augite. Tr. diabase. Zeolites. Green serpentine fgmts.

9010-9020 Basalts, dark gray dense. Some augite. Red and greenish altered basalts. Tr. vein quartz. Zeolites. Olivene??

9020-9030 Basalts, dark gray dense as above.

9030-9040 Basalts as above.

9040-9050 Basalts as above.

9050-9060 Basalt, dark gray dense w/some fragments of lighter gray diabase. Decreased augite. Zeolite fragments. Reddish altered basalts. Diabase % increased at 9064 to 9082. Green serpentine fgmts.

9060-9070 Basalts as above w/increased gray diabase. Incr. in augite fgmts. Altered basalts. Diabase fgmts. show considerable variation in hardness. Zeolite fgmts. Green serpentine fgmts.

9070-9080 Basalts and lt. gray diabase. Diabase w/zeolite fgmts. Altered diabase. Fgmts. of diabase are magnetic. Green serpentine fgmts.

9080-9090 Pred. dark gray dense basalts as before. Augite w/traces diabase fgmts. Zeolites. Some altered basalt. Green serpentine.

9090-9100 As above throughout.

9100-9110 Pred. dark gray dense basalt as above. Tr. basalt porphry. Some diabase fragments. Tr. native copper. Zeolites. Augite. Altered basalts. Green serp. or asbestiform fibrous mineral.

9110-9120 As above throughout.

9120-9130 As above throughout. Slickensided surfaces. Considerable textural variation and degree of alteration in the basalts. Slickensided (vein) surfaces. Green serp. or asbestiform fibrous mineral.

9130-9140 Basalts as above. Appr. green slickensided surfaces, accompanied by zeolites, and altered basalts as above. Green serpentine.

9140-9150 Prep. dark gray basalt as above. Abd. augite; accessory types as above. Green serpentine.

9150-9160 Basalt, dark gray, dense - augite phenocrysts, altered basalts. Traces of diabase. Zeolite. Green serpentine.

9160-9170 Basalt, dark gray, dense; as above throughout.

9170-9180 Basalts, dark gray dense, v. fine textured. Ab. zeolites. Some altered basalts. Augite. Green serpentine.

9180-9190 Note: Hole bridged at 8890. Cleaned out from 9160-9192. Large amount of cavings noted coming over shaker 9180-9200. Sample comfirms above: is pred. dark gray dense basalt; ab. zeolites, altered basalts, augite, tr. diabase. Fibrous green ash, serp.

9190-9200 As above throughout.

9200-9210 Basalts, dark gray dense, v.f. textured w/some basalt porphry - altered basalt. Zeolites. Some gray basalts.

9210-9220 As above. Loose augite. Altered basalts. Zeolites.

9220-9230 As above throughout.

9230-9240 As above throughout. Tr. of diabase.

9240-9250 As above.

9250-9260 Basalt, dark gray, dense. Tr. augite w/grayish, sl. granular basalt, altered basalts, zeolite fragments. Green serpentine.

9260-9270 Basalt, dark gray, dense, augite phenocrysts. Tr. diabase traces, pyrite; abd. zeolites, altered basalts. Green serpentine.

9270-9280 As above w/altered basalts, granular variation to gray basalts. Green serpentine.

9280-9290 As above throughout.

9290-9300 Basalt, dark gray as above. Decreased altered basalts. Augite phenocrysts. Some zeolite fragments. Green serp. Tr. diabase.

9300-9310 Basalt, dark gray dense to v.f. textured and gray sl. gramular basalts; some altered basalts. Augite. Tr. vein quartz. Tr. diabase and altered diabase. Tr. serpentine fragments. Minor tr. amygdaloidal basalts. Tr. pyrite.

9310-9320 Basalts as above.

9320-9330 Basalts as above.

9330-9340 Basalts as above. Traces diabase - altered basalts, etc.

9340-9350 Basalts as above.

9350-9360 Basalts as above.

9360-9370 Basalt, dense, v.f. textured, dark gray as above w/gray granular basalts. Augite phenocrysts - loose augite xtals.

9370-9380 Basalt, dark gray dense, v.f. textured w/augite and gray granular basalt and diabase. Some altered basalts. Tr. native copper. Some zeolite fgmts. Less augite than formerly.

9380-9390 Basalts as above, dark gray dense w/gray, sl. gramular basalts and diabase. Some altered basalts and some zeolite fgmts.

9390-9400 As above throughout. Zeolite fgmts. appr. decreased.

9400-9410 As above throughout.

9410-9420 As above throughout.

9420-9430 Basalts, gray, gramular to diabase, and dark gray, dense basalts w/augite phenocrysts as before. All types magnetic. Decreased zeolites and altered basalts. Some diabase fgmts. w/augite xtals.

9430-9440 Basalts as above.

9440-9450 Basalt, gray, granular to diabase, magnetite? xtals, magnetic. Hornblende? V. minor dark gray basalts. Lessened zeolites and altered basalts.

9450-9460 Basalts as above.

9460-9470 Basalts as above.

9470-9480 Basalts as above.

9480-9490 Basalts as above.

9490-9500 Basalts as above.

9500-9510 Basalts, gray granular to diabasic. Some reddish altered basalts. Some zeolite fragments. Some dark gray dense basalt.

9510-9520 As above throughout. Sl. increase zeolites.

9520-9530 Basalt, prin. gray granular to diabase. Some zeolites. Some reddish altered basalts.

9530-9540 As above throughout.

9540-9550 Basalts as above with increased reddish altered basalts and greenish altered basalt porphry. Incr. of zeolite fragments. Decrease in drilling time probably due to softer altered basalts 9536 to 9558.

9550-9560 As above throughout.

9560-9570 Basalts as above, gray to sl. grayish-green, somewhat gramular, w/some dense basalts and altered basalts. Some diabase. Some zeolites and zeolitic basalts. Some dense dark gray basalts.

9570-9580 Basalts as above throughout. Sl. increase in dense augite bearing basalt. Some serpentinized surfaces.

9580-9590 Basalts, gray, granular to diabase to dense, some altered basalts. Some zeolites. Serpentinized surfaces. Few augite phenocrysts.

Note: At 9594, hook broke. Sample 9590-9600 in hole for approx. 48 hours before repairs completed and drilling resumed.

9590-9600 Basalts, gray, granular to diabasic as above. Augite. Some zeolites and zeolite aggregates. Some altered basalts and partially altered basalts.

9600-9610 Basalts as above w/sp. loose augite fragments. Some zeolite aggregates and loose zeolite fgmts. Red altered basalts.

9610-9620 As above w/dense basalts. Augite phenocrysts.

9620-9630 Basalt types as above w/increase in darker gray dense basalts w/augite and in reddish altered basalts. Some zeolite fragments. Tr. serpentine or asbestiform mineral.

9630-9640 Note: At depth 9638' off bottom reaming 23 hrs. Sample is predom. dark gray dense basalt w/augite phenocrysts. Some zeolites and some altered basalts.

9640-9650 Basalts, dark gray dense, augite xtals. Zeolite fragments. Some altered basalts and granular basalt to diabases. Traces par. altered basalts - hematite.

9650-9660 Basalts as above. (Gel fgmts. due to high vis.)

9660-9670 Basalts as above.

9670-9680 Basalts as above. Admixed dark gray dense w/augite phenocrysts and gray granular basalts to diabase. Some zeolite fragments, some altered basalts. Tr. amygdaloidal gray basalts. Samples w/adhering gel reflecting high mud viscosity. Partially altered basalt.

9680-9690 As above. Some calcite veining. Tr. basalt breccia? Serpentine fragments.

9690-9700 Basalt types as above. Some diabase. Some serpentine fragments. Dense gray magn. basalt. Some zeolite fgmts.

9700-9710 Basalt types as above. Increased zeolite fgmts. Altered basalts.

9710-9720 Basalts as above.

9720-9730 As above throughout.

9730-9740 As above throughout.

9740-9750 Basalts as above; dark gray, dense w/augite phenocrysts w/some lighter gray granular basalts. Loose ang. and rounded zeolite fragments; some reddish altered basalts. Local greenish serpentinized surface; green asbestiform fgmts.

9750-9760 Basalts as above, lessened rounded zeolites.

9760-9770 Basalts as above.

9770-9780 Basalts as above.

Note: Examination and description of samples 9780 to 10,080 by H. W. DeJong.

9780-9790 Basalt, dark gray, dense, w/augite phenocrysts and w/some lighter gray dense to f. xln. basalts. Loose and imbedded ang. and rounded zeolite fragments; some reddish altered basalts. Local green serpentinized surface, green asbestiform fragments. Magnetic.

9790-9800 Basalts as above; sl. increase in serpentine. Tr. calcite.

9800-9810 Basalts as above and black basalt, v. dense, sub-xln. w/green augite phenocrysts, some altered to serpentine coming in. Augite xls. grade upward to coarse xls.

9810-9820 Pred. basalt, black, v. dense, sub-xln, w/green augite as above. Serpentine and asbestiforms and altered basalts as above.

9820-9830 Basalts as above.

9830-9840 Basalts, dark gray, dense w/augite phenocrysts w/some lighter gray, f. xln basalts. Loose and imbedded ang. and rounded zeolite fgmts; some reddish altered basalts. Local serpentinization; green asbestiform fragments; magnetic. Tr. calcite xls.

9840-9850 Basalts as above w/apparent sl. increase of serpentinization and alteration.

9850-9860 Basalts as above. Much serpentinization.

9860-9870 Basalts as above. Pred. v.f. xln to sub-xln, dark gray dense.

9870-9880 Basalts as above.

9880-9890 Basalt, dark gray, dense, sub-xln to f. xln and w/phenocrysts f.-c.g. of augite and augite altered to serpentine. Loose and embedded ang. and rounded zeolites. Some reddish to maroon altered basalts. Increase of serpentine and asbestiforms noted at 9886. Tr. calcite. Tr. pyrite.

9890-9900 Basalt as above. Further increase of serpentine and asbestiforms noted at 9896-9900.

9900-9910 Spl. after trip. Pred. basalt, dark gray to black, sub-xln to f. xln w/f.-c.g. augite phenocrysts, some altered to serpentine. Some red to maroon altered basalts. Loose and embedded ang. and rounded zeolites. Serpentine and asbestiforms as above.

9910-9920	As above. Augite xls pred. f.-c. xln, not as many altered to serpentine.
9920-9930	As above. Augite xls not as pronounced. 1 lgr. ang. clear frag. quartz and tr. light gray sil. tuff?
9930-9940	As above, w/calcite and tr. pyrite. Augite xls not as pronounced. Tr. lt. gray sil. tuff? w/attached calcite xls.
9940-9950	As above. Tr. pyrite. Tr. light gray and white banded sil. tuff?
9950-9960	Basalt, dark gray dense, sub-xln to f. xln, w/augite phenocrysts (f.-c.), some altered to serpentine; w/some light gray sub-xln. basalts. Some red to maroon altered basalts. Some loose and embedded ang. and rounded zeolites. Serpentine and asbestiform fgmts. as before. Increase of serpentine noted 9954-9964. Rare calcite.
9960-9970	Basalt as above. Tr. light gray sil. tuff.
9970-9980	Basalt as above. Increased serpentine 9978-9984.
9980-9990	Basalt as above. Groundmass is denser and sub-xln.
9990-10,000	Basalt as above. V. dense, sub-xln.
10,010-10,020	Basalt as above. Pred. v. dense, sub-xln. Augite xls less common and not as often altered. Serpentine not as abundant. Some calcite xls.
10,020-10,030	Basalt, lt. to dark gray, dense, v.f. to sub-xln w/some m.-sized phenocrysts, some sl. altered to serpentine, and basalt, black, dense w/some augite phenocrysts. Some red to maroon altered basalts; some serpentine and asbestiforms. Some ang. to rounded zeolites. Some c. xls. free augite.
10,030-10,040	Basalt as above. Augite phenocrysts not as prominent.
10,040-10,050	Basalt as above. Augite xls more prominent, c.-c. xls, some altering to serpentine; w/lt. gray f.-xln softer basalt. Calcite xls and stringers.
10,050-10,060	Basalts as in sample above (10,040-10,050).
10,060-10,070	Basalts as in 10,040-10,050.
10,070-10,080	Basalts, gray to dark gray to black, dense, and as in 10,020-10,030.
10,080-10,090	Basalts as described above. Approx. equal % of gray granular basalts; dark gray dense basalts w/augite phenocrysts, and black dense basalts. Some reddish altered basalt fgmts; serpentine and asbestiform fragments; some zeolites and loose (sp.) augite xtals and fgmts.

10,090-10,100 Basalts as above.

10,100-10,110 Basalts as above.

10,110-10,120 Basalts as above. Sl. decr. in augite.

10,120-10,130 Basalt, dark gray black dense w/augite and gray granular basalt to diabase. Traces altered basalt and basalt porphry. Some green asbestiform min. - serpentine. Tr. finely diss. pyrite.

10,130-10,140 Basalt types as above. Subordinate serpentine and altered basalt as above. Some zeolite fgmts. Loose augite xtals.

10,140-10,150 As above throughout.

10,150-10,160 As above throughout.

10,160-10,170 As above. Trace basalt porphry.

10,170-10,180 Basalts as above.

10,180-10,190 Basalts, dark gray dense w/augite xtals and black sub-xln or v. dense basalts. Some granular basalts to diabase. Reddish altered basalts. Some zeolites. Some dark basalt porphry. Loose augite.

10,190-10,200 Basalt types as above. Sl. inc. gray granular basalts.

10,200-10,210 Basalt types as above. Some sl. incr. in reddish altered basalts.

10,210-10,220 Basalts, types as above. Some fragments amygdaloidal basalt. Zeolite traces. Tr. serpentine.

10,220-10,230 Basalts w/subordinate types as above.

10,230-10,240 Basalts as above.

10,240-10,250 Basalts as above.

10,250-10,260 Basalts as above, dark gray dense to gray-black dense w/augite phenocrysts and gray granular basalts. Altered phases of types above. Some zeolite fgmts. Some serpentine.

10,260-10,270 Basalts as above.

10,270-10,280 Basalts as above. Loose augite phenocrysts.

10,280-10,290 Basalts as above.

10,290-10,300 Basalts as above. Increase gray granular basalt.

10,300-10,310 Basalts as above. Tr. serpentine. Softer light gray altered granular basalts.

10,310-10,320 Basalts as above. Some zeolite fgmts. Sl. incr. altered basalts.

10,320-10,330 Basalts, pronounced increase in altered phases, reddish and lt. gray granular. Soft altered lt. gray granular basalt. (Questionable ash.) Asbestiform mineral. Softer zone suggested 10,330-10,336.

10,330-10,340 Basalts w/lessened softer altered basalts as above, prin. dark gray, v. dense, augite to gray black; some firm granular basalts. Tr. serpentine veining.

10,340-10,350 Basalts, dark gray dense augite bearing, loc. w/considerable alteration and lt. gray gramular basalts to diabase; also somewhat altered and softer. Some serpentine fgmts. Zeolite fgmts. Loose augite.

10,350-10,360 Basalts as above.

10,360-10,370 Basalts as above.

10,370-10,380 Basalts as above.

10,380-10,390 Basalts as above.

10,390-10,400 Basalts as above.

10,400-10,410 Basalts, dark gray dense w/augite and lessened gray granular basalts; reddish altered basalts and some partially altered basalts; zeolite fgmts. Tr. pyrite. Basalt porphry.

10,410-10,420 Basalt, types as above. Sl. increase gray diabase and gray granular basalt. Reddish altered basalt fgmts.

10,420-10,430 Basalts as above throughout.

10,430-10,440 Basalts, dark gray dense w/augite and gray granular basalts to diabase. Loose augite, serpentine fgmts. Altered basalts, gray and red. Tr. ash?

10,440-10,450 Basalts as above. Accessory types as above.

10,450-10,460 As above throughout. Tr. basalt breccia? Sl. incr. fibrous serpentine. Tr. ash?

10,460-10,470 Basalts as above. Abd. altered and partially altered basalts. Prominent augite xtals. Some zeolites.

10,470-10,480 As above.

10,480-10,490 As above w/tr. of ill-sorted impure ash? or altered soft gramular basalts.

10,490-10,500 Basalts as above. Sl. increase asbestiform mineral or serpentines.

10,500-10,510 As above.

10,510-10,520 Basalts as above.

10,520-10,530 Basalts as above w/reddish and gray altered basalts. Serpentine fragments. Partially altered basalts. Some zeolites. Basalt porphry.

10,530-10,540 As above.

10,540-10,550 As above. Tr. amygdaloidal basalts.

10,550-10,560 As above.

10,560-10,570 As above. Altered augite fgmts.

10,570-10,580 As above.

10,580-10,590 As above.

10,590-10,600 As above.

10,600-10,610 Basalts, predom. augite bearing, dense, dark gray w/some gramular basalts, loc, diabase. Some altered basalts, reddish; and partially altered basalts. Serpentine and asbestiform fgmts. Some zeolites. Loose augite. Alteration - hematite.

10,610-10,620 Basalts as above. Sl. incr. zeolite fgmts.

10,620-10,630 Basalts as above.

10,630-10,640 Basalts as above. Trace ash?

10,640-10,650 Basalts as above. Increase zeolites. Hematite - pipescale on new pipe?

10,650-10,660 Basalts as above. Pipe scale.

10,660-10,670 Basalts as above. Tr. pyrite.

10,670-10,680 Basalts as above. Traces ash?? White and pinkish zeolite fgmts.

10,680-10,690 Basalts as above. Prominent serpentine to asbestiform fgmts. Zeolites. Lessened altered basalts. Traces basalt with prominent thin plagioclase (diabasic variation?). Pyrite.

10,690-10,700 Basalts as above.

10,700-10,710 Basalts as above w/some reddish altered basalts. Sample is chiefly dense dark gray augite bearing basalt. Loose augite. Tr. zeolites.

10,710-10,720 Basalts as above, w/tr. gramular to diabasic types. Some partially altered basalts. Tr. serpentine.

10,720-10,730 Basalts as above.

10,730-10,740 Basalts as above.

10,740-10,750 Basalts as above.

10,750-10,760 Basalt, dark gray, dense augite bearing as before. Tr. granular basalts. Reddish to maroon augite bearing altered basalts and partially altered basalts. Some serpentine. Loose augite. Tr. zeolite.

10,760-10,770 Basalts as above. Increased reddish altered basalts. Calcite (alt. zeolites?).

10,770-10,780 Basalts as above.

10,780-10,790 Basalts as above.

10,790-10,800 Basalts as above.

10,800-10,810 Basalts as above. Tr. only quartz (geode lining). Tr. asbestos.

10,810-10,820 Basalts as above w/some reddish altered basalts. Tr. gray gramular basalts to diabase. Asbestos fragments, serpentine fgmts., loose augite. Sp. tr. zeolite fgmts.

10,820-10,830 Basalts as above w/reddish altered basalts. Tr. ash.

10,830-10,840 As above. No ash noted.

10,840-10,850 Basalts as above.

10,850-10,860 Basalts as above, predom. dark gray, dense, augite w/lessened reddish altered basalts.

10,860-10,870 Basalts as above; again w/some reddish altered basalts, serpentine and asbestiform green minerals.

10,870-10,880 Basalts as above, dark gray dense, augite bearing w/altered and partially altered basalts as above. Serpentine, tr. zeolites. Loose augite.

10,880-10,890 Basalts as above.

10,890-10,900 Basalts as above.

10,900-10,910 Basalts, dark gray dense and w/green augite, some gray granular basalts and some altered basalts. Some serpentine.

10,910-10,920 Basalts as above with reddish altered basalts.

10,920-10,923 See Core Description below also.

Core No. 6 - 10,923 to 10,928'. Recovery 3½ ft.

0.1' Basalt, dark gray to gray slightly altered, fairly dense and even-textured w/prominent green augite phenocrysts. Some altered reddish to rust-colored feldspars. Calcic altered zeolite areas.

3.4' Altered basalt, vesicular-amygdaloidal. Gray-brown in general cast with soft altered rust or copper colored feldspars. Amygdaloidal fillings are secondary, calcite and zeolites. Filled amygdules are prominent locally to 5-6 mm. in size. Products of hydrothermal alteration, soft, almost rotten. Numerous fine calcite veinlets. Also prominent augite. Has reddish flecked appearance due to altered feldspars. Calcite altered amygdules are white to pale green to pale bluish in color; are ellipsoidal in cross-section, i.e. zeolites elongated normal to axis of hole. The soft altered rust or copper colored feldspar is from iron solutions percolated between cleavage faces. Possible submarine flow. Possible weathered phase of a flow. Magnetic. Olivene?? Some faint speckled mineral fluorescence.

10,928-10,930 Largely as in core above. Altered basalts w/calcic vesic. filled fragments and gray augite bearing basalts. Partially altered basalts also w/augite.

10,930-10,940 Basalt types as above. Altered reddish basalts and partially altered basalts predominating. Calcite filled vesicles as before. Rare to absent serpentine. Also dark gray augite bearing basalt.

10,940-10,950 Basalts as above.

10,950-10,960 Basalts as above.

10,960-10,970 Basalts as above.

10,970-10,980 Basalts as above with proportion of reddish altered basalts somewhat lessened and gray augite basalts slightly increased. Calcite as above.

10,980-10,990 Basalts as above w/altered and gray augite bearing basalts as above. Amygdaloidal w/calcic replacement as above. Partially altered basalts. Reddish altered basalts are predominant. Tr. serpentine.

10,990-11,000 Basalt types as above, both gray dense augite bearing and partially altered and altered basalts as above, the latter predominating. Loose augite. Calcic altered zeolites as above.

11,000-11,010 Basalt types as above. Abd. augite. Some non-calc. zeolites. in vesicles.

11,010-11,020 Basalt types as above. Altered reddish basalts not preponderant.

11,020-11,030 Basalts as above.

11,030-11,040 Basalt types as above, reddish altered basalts w/some reddish altered. Zeolitic basalts, slightly to non-calc. Also partially altered basalts with at least 30% of dark gray dense augite bearing basalts. Traces serpentine. Tr. diabase. Loose augite xtals.

11,040-11,050 Basalts as above.

11,050-11,060 Basalts as above. Tr. rounded loose zeolites. Tr. serpentine.

11,060-11,070 Basalts as above. Pron. reddish altered basalt fgmts.

11,070-11,080 Basalts as above. Altered, partially altered and dark gray dense augite bearing basalts. Tr. amygdaloidal basalts. Loose augite, loose zeolite fgmts. Tr. serpentine.

11,080-11,090 Basalts as above. Zeolite filling in amygdaloidal basalt non-calc.

11,090-11,100 Basalts as above.

11,100-11,110 Basalts as above.

11,110-11,120 Basalts as above. Pred. reddish altered basalts. Some amygdaloidal basalts. Trace of diabase. Calcite reaction in altered replaced zeolites. Tr. calcite veinlets. Augite phenocrysts.

11,120-11,130 Basalts as above.

11,130-11,140 Basalts. Reddish altered basalt and partially altered basalts pred. Large prominent loose augite xtals. Zeolites altered to calcite. Phases as in Core 6 above.

11,140-11,150 Basalts and altered basalts as above.

11,150-11,160 Basalts as above. Tr. diabase. Tr. serpentine.

11,160-11,170 Basalts as above. Some reddish altered amygdaloidal basalt. Bright red alteration. Calcite fgmts. Hornblende??

11,176-11,178 Circulated Sample. Basalts and highly altered basalts as above. Drilling time break 11,176 to 11,178 believed due to softer phase in reddish altered basalts.

11,170-11,180 Basalts as above. Reddish (Fe) altered feldspars.

11,180-11,190 Basalts as above. Somewhat lessened altered basalts. Tr. calcite veinlets. Dark gray dense basalts w/augite phenocrysts.

11,190-11,200 Basalts as above.

11,200-11,210 Basalts as above.

11,210-11,220 Basalts as above.

11,220-11,230 Basalts as above.

11,230-11,240 Basalt types as above. Increased reddish to greenish-gray altered basalts.

11,240-11,242 Basalts and altered basalts. See descr. Core No. 7 below.

Core No. 7 - 11,242 to 11,246'. Recovery 3 feet.

0.2' Basalt, dark gray, dense, exhibiting slight alteration, almost glassy or w/abd. augite.

0.3' Basalt, v. dense and even-textured, dark gray calcite veined, magnetic. Phasing and grading to--

2.0' Basalt, highly veined with calcite high angle veining. Abd. calcite pockets and feldspars altered to calcite. Large augite xtals. Is progressively more highly altered downward, reddish in cast, zeolitic in part w/some altered zeolites.

0.5' Basalt, highly altered, almost rotten, broken fragmentary recovery, v. similar to phases of Core No. 6. Groundmass dark, red altered feldspars, abd. augite. Vertical fractures. Large augite phenocrysts show alteration. Serpentinized planes. Note: No core analysis made.

11,240-11,250 Basalts as above.

11,250-11,260 Basalts as above. Altered, partially altered and unaltered, dark gray basalts. Some reddish zeolitic basalts w/augite. Calcite veinlets. Calcite fragments. Zeolite fragments. Blue-green alt. products. Abd. augite.

11,260-11,270 Basalts as above.

11,270-11,280 Basalts as above.

11,280-11,290 Basalts as above.

11,290-11,300 Basalts as above. Tr. granular basalts.

11,300-11,310 Basalts as above.

11,310-11,320 Basalts as above.

11,320-11,330 Basalts as above but w/diminished reddish altered basalts. Prominent augite. Some partially altered reddish basalts.

11,330-11,340 As above. Some zeolites, amygdaloidal basalt. Olivene? Some altered (?) zeolites.

11,340-11,350 Basalts as above.

11,350-11,360 Basalts as above. Prob. sl. incr. in red altered basalts.

11,360-11,370 and 11,370-11,380 Damaging slide at location. Baroid truck put out of commission and sample of these intervals obtained from the cloth sack collected by the rig crews. Basalt as before.

11,380-11,390 Basalts as above.

11,390-11,400 Basalts as above; some zeolite and calcite fgmts. Sample pred. dark gray basalt. Some serpentine. Tr. bluish olivene (?)

11,400-11,410 Basalts as above. Minor reddish altered basalts; pred. dark gray basalts. Some bluish-green alteration minerals.

11,410-11,420 Basalts as above.

11,420-11,430 Basalts as above. Increasing serpentine. Tr. pyrite.

11,430-11,440 Basalts as above. Prominent serpentine. Some calcite veining. Tr. v. dense gray to black basalt.

11,440-11,450 Basalts as above.

11,450-11,460 Basalts as above. Some reddish altered basalts; pred. gray basalts, some dense, some amygdaloidal calcite, lessened serpentine. Zeolite fgmts.

11,460-11,470 Basalts as above.

11,470-11,480 Basalts as above.

11,480-11,490 Basalts as above. Increase in serpentine-asbestiform fgmts.

11,490-11,500 Basalts as above.

11,500-11,510 Basalts, pred. dark gray dense, augite bearing; minor reddish altered basalts. Zeolite fgmts. Tr. spheroidal zeolites.

11,510-11,520 Basalts as above. Increase in serpentine. Partially altered basalts. Serpentine fgmts.

11,520-11,530 Basalts as above. Abd. zeolite fgmts.

11,530-11,540 Basalts as above.

11,540-11,550 Basalts as above.

11,550-11,560 Basalts, pred. dark gray unaltered to partially altered. V. minor reddish altered basalts, some zeolites, some serpentine.

11,560-11,570 Basalts as above. Dark gray, fresh. Prominent augite. Tr. sph. zeolites.

11,570-11,580 Basalts as above. Dark gray fresh.

11,580-11,590 Basalts as above.

11,590-11,600 Basalts as above. Calcite veinlets.

11,600-11,610 Basalts, pred. dark gray unaltered to slightly altered dense basalt. Some altered basalts, augite - olivene, serpentine, zeolites, calcite, calcite veinlets.

11,610-11,620 Basalts as above.

11,620-11,630 Basalts as above.

11,630-11,640 Basalts as above.

11,640-11,650 Basalts as above. Sl. increase in sl. altered basalts. Pred. dark gray.

11,650-11,660 Basalts as above.

11,660-11,670 Basalts as above.

11,670-11,680 Basalts as above. Prin. dark gray dense. Comp. minor alteration products. Tr. only ash? fgmt. or highly altered feldspar (kaolinite?). (Trip sample.)

11,680-11,690 Basalts as above. Prin. dark gray w/some bl. and bl.-grn. alteration products. Zeolite fgmts. common.

11,690-11,700 Basalts as above.

11,700-11,710 Basalts as above.

11,710-11,720 Basalts as above w/v. slight incr. in reddish altered basalts. Augite, some zeolites.

11,720-11,730 Basalts as above. Pred. dark gray. Some altered basalts and amygdaloidal basalts. Serpentine fgmts., loose augite. Calcite veinlets.

11,730-11,740 Basalts as above.

11,740-11,750 Basalts as above.

11,750-11,760 Basalts as above.

11,760-11,770 Basalts as above. Incr. of asbestiform and serpentine fgmts.

11,770-11,780 Basalt, principally dark gray dense w/prominent augite; some, but minor reddish altered basalts; zeolite fgmts., tr. serpentine altered feldspars. Prominent augite fgmts. Olivene trace.

11,780-11,790 Basalts as above.

11,790-11,800 Basalts as above.

11,800-11,810 Basalts as above. Sl. incr. in serpentine fgmts.

11,810-11,820 Basalts as above. Sl. incr. in asbestiform and serpentine fgmts. V. sl. incr. in altered basalts.

11,820-11,830 Basalts as above. V. large augite xl noted (±3 mm long). Est. 30% alt. basalt.

11,830-11,840 Basalts as above. Est. 30% altered basalts. Calcite veinlets. Altered reddish basalts and greenish gray alteration products.

11,840-11,850 Basalts, dark gray as above w/incr. reddish altered basalts. Slight incr. in serpentine fgmts.

Note: While drilling lost ±75 bbls. mud at 11,851, started out of hole and losses stopped when 2/3 out of hole. Sample from 11,850 to 11,852 gray basalts and altered basalts as above w/some increase in serpentine fgmts. Fracture or vein system probably cause of lost circulation.

11,850-11,860 Basalts as above w/reddish altered basalts and serpentine fgmts. as above. Poss. sl. decrease in altered basalts.

11,860-11,870 Basalts as above. Dark gray dense and reddish altered basalts.

11,870-11,880 Basalts as above.

11,880-11,890 Basalts as above. Increasing reddish altered basalts.

11,890-11,900 Basalts as above. Proportion of reddish and brownish altered basalts, est. 40% (non-magnetic).

11,900-11,910 Basalts as above.

11,910-11,920 Basalts as above. Proportion of reddish altered basalts as above. Tr. spheroidal zeolites.

11,920-11,930 Basalts as above. Sl. incr. in zeolite fgmts.

11,930-11,940 Basalts as above.

11,940-11,950 Basalts as above.

11,950-11,960 Basalts as above.

11,960-11,970 Basalts as above. Sl. incr. in serpentine fgmts.

11,970-11,980 Basalts. Continued reddish and brownish altered basalts as above. Prominent zeolite fgmts. Some serpentine.

11,980-11,990 Basalts. Somewhat lessoned altered basalts.

11,990-12,000 Basalts as above.

12,000-12,010 Basalts as above. Increasing dark gray basalts and lessened altered reddish basalts. Some zeolite fgmts. Traces greenish serpentine. Abd. augite.

12,010-12,020 Basalt as above.

12,020-12,030 Basalts as above. Est. 20% reddish altered basalts.

12,030-12,040 Basalts as above. Abd. augite.

12,040-12,050 Basalts as above.

Descriptions following by H.W.D.

12,050-12,060 Basalt as above. Magnetic.

12,060-12,070 Basalt as above. Magnetic.

12,070-12,080 Basalt, dark gray to black, dense, v.f. to sub-xln, w/some reddish altered basalts, some zeolite fgmts; tr. grn. serpentine; abundant augite xls, m.-c., some altering to chlorite. Magnetic. Calcite xls.

12,080-12,090 Basalt as above. Sl. increase of altered basalts.

12,090-12,100 Basalt as above. Trip spl. Increase of altered basalts, serpentine. Tr. calcite.

12,100-12,110 Basalt as above. Sl. increase of serpentine.

12,110-12,120 Basalt as above. Mainly sub-xln.

12,120-12,130 Basalt as above. Mainly sub-xln. Sl. increase in calcite.

12,130-12,140 Basalt as above. Mainly sub-xln. Sl. increase in calcite. Tr. chalcedony in pinpoint vugs.

12,140-12,150 Basalt as above. Sl. increase in altered basalt and serpentine.

12,150-12,160 Basalts as above.

12,160-12,170 Basalts as above. Increase of serpentine and altered basalts. Greater chloritization.

12,170-12,180 Basalts as above. Increase of calcite fillings and veining, alteration, chloritization, serpentinization. Serpentine increase noted 12,172-74.

12,180-12,190 Basalts as above. Sl. less altered.

12,190-12,200 Basalts as above.

12,200-12,210 Basalts as above. Much serpentine, reddish altered basalts and calcite.

12,210-12,220 Basalts as above.

12,220-12,230 Basalts (sub-xln, augite basalt porphyry and amygdaloidal) as above. Much altered basalt.

12,230-12,240 Basalts as above.

12,240-12,250 Basalts as above.

12,250-12,260 Basalts as above.

12,260-12,270 Basalts as above.

12,270-12,280 Basalts as above.

12,280-12,290 Basalts as above (basalt, augite basalt porphyry and amygdaloidal basalt). Abundmt m.g. augite xls; less altered basalts.

12,290-12,300 Basalts as 12,280-90.

12,300-12,310 Basalts as 12,280-90.

12,310-12,320 Basalts as above.

12,320-12,330 Basalts as above, pred. augite basalt porphyry, dark gray to black, with altered reddish basalts as above. Increase to 20% of spl. starting @ 12,322' of serpentine, compact, granular, dull to waxy luster, splintery fracture, has remains of augite embedded, and zeolites and rd. iron mineral masses. Some round, v. small white zeolites embedded in granular serpentine. Augite xls in basalt also much altered to chlorite giving over-all greenish appearance.

12,330-12,340 Basalts as above. Pred. gray to black augite basalt porphyry, with reddish altered basalts. Some mass. serpentine and granular serpentine as noted above, but much less than spl. above. With calcite in amygdules as before. Some white zeolites. Some free augite xls up to 2 mm. long - some embedded in gran. grn. masses as in spl. above.

12,340-12,350 Basalts as above. Pred. augite basalt porphyry.

12,350-12,360 Basalts as above.

12,360-12,370 Basalts as above. Increase of serpentine noted 64-70 on faster drilling time.

12,370-12,380 Basalts as above. Much augite altered to chlorite. Serpentine, mass. and granular varieties, = 10% spl. Over-all appearance of spl. is dark gray w/greenish overtones.

12,380-12,390 As in spl. 12,370-80, w/some alt. feldspar.

12,390-12,400 Basalts as above.

12,400-12,410 Basalts as above. Sl. increase in zeolites in basalt.

12,410-12,420 Basalts as above.

12,420-12,430 Basalts as above w/increase in serpentine.

12,430-12,440 Basalts as above w/much serpentine. Much red alt. basalts and calcite.

12,440-12,450 Basalts as above, finer textured but still w/f.-m.g. augite xls., w/much serpentine. Much red alt. basalts and calcite.

12,450-12,460 Basalts as above. Some med.-gray types. Chloritized augites as before. Reddish alt. basalts and serpentine as before.

12,460-12,470 Basalts as before w/increased serpentine noted 12,462-66 by Baroid and increase rd. alt. basalts noted 12,468-70. Over-all spl. has increased calcite in free cuttings and fillings in basalt; also increased wh. zeolites as fillings. Augite xls again prominent in basalt - to 2 mm.

12,470-12,480 Basalts as above. Calcite and zeolites in amygdules, free calcite.

12,480-12,490 Basalts as above.

12,490-12,500 Basalts as above. Becoming sub-xln w/fewer augite xls. Increase of serpentine and sl. inc. alt. basalts. One xl natrolite (a zeolite).

12,500-12,510 Basalts as above. Much sub-xln., dense groundmass w/augite xls. w/serpentine and alt. basalts. One xl natrolite (a zeolite).

12,510-12,520 Basalts as above w/serp. and alt. basalts as above.

12,520-12,530 Basalts as above w/serp. and alt. basalts as above.

12,530-12,540 Basalts as above w/inc. augite phenocrysts. Inc. alt. basalts and serpentine noted by Baroid 12,530-34.

12,540-12,550 Basalts as above. Decrease in augite xls. Much serpentine and altered basalts.

Twisted off @ 12,566 ft. w/214 ft. of drill collars and bit in hole. Hooked fish. Stuck. Spotted 83 bbl. oil. Rec. fish.

12,550-12,560 Spl. while circ. around fish. Two trips made prior to catching spls. Spls. caught before spotting oil.

Basalts as above w/inc. alt. basalts and serpentine.

12,560-12,564 Spl. caught prior to spotting oil, as above.

Basalts as above, much serpentine as in spl. above, and w/altered basalts. Much alt. basalt 62-64.

12,564-12,570 Basalts as above w/20% yel.-brn. clay to clayey siltst. containing v.f.-f. biotite, muscovite, feldspar and quartz? gr. Biotite flakes show lineation and ang. feldspar grains are badly weathered. Color is limonite staining. Sediments topped @ 12,566 ft. Alt. basalt 64-66.

12,570-12,580 As above.

12,580-12,590 As above.

12,590-12,600 As above. Less sediment (10%). Basalt appears more amygdaloidal. No sed. below 12,594.

Note: Interval 12,566-94 (28') showed no marked change in drlg. time. Sediments are believed to be in thin stringers throughout this interval. They probably represent a hiatus in the basalt flows during which time erosion and weathering of the then existing basalts flows took place. The lineation of mica indicates reworking by water, but ang. feldspar grains suggest the source was not far removed. These sediments indicate two things:

1) We are dealing w/a series of basalt flows.

2) At one time in the period of basalt deposition, the area of the well was at sea level or just below, while another area, probably to the ? east, was undergoing at least a short erosion cycle.

12,600-12,610 Basalts as above. Pred. dark gray to black, dense, sub-xln. basalt w/augite phenocrysts. (Augite basalt porphyry.) Much reddish alt. basalt and some serp. and calcite. Some chloritized augite xls.

12,610-12,620 Basalts as in 12,600-10.

12,620-12,630 Basalts as in 12,600-10 w/inc. reddish alt. basalts and serp.

12,630-12,640 Basalts as in 12,600-10, finer textured w/some gray basalts.

12,640-12,650 Basalts as above w/much altered basalts and serpentine. Serpentine is of mass, fib., and gran. varieties. Augite xls are unaltered to chloritized to serpentinized. W/calcite and zeolites.

Twist off discovered on new bit change.

12,650-12,656 Spl. caught while circ. for fish.
Basalts as above.

12,656-12,658 No sample.

12,658-12,663 Spl. caught while circ. for fsh.
Basalts as above.

12,663-12,670 Basalts as above. Much serpentine and alt. basalt. Spl. after trip.

12,670-12,680 Basalts as above. Pred. gray augite basalt porphyry; much serp. and alt. basalt, zeolites.

12,680-12,690 Basalt as above. Inc. dense basalts topped @ 12,682 (Baroid). Pred. augite basalt porphyry. Some augite xls. alt. to chlorite.

12,690-12,700 Same as spl. above. Increase alt. basalt and 12,696-98 (inter-flow marker?)

12,700-12,710 Basalts as above. Pred. gray augite basalt porphyry.

12,710-12,720 Basalts as above. Pred. gray augite basalt porphyry.

12,720-12,721 (Caught at cutting core #8 below). Basalts as above.

Core #8 - 12,721-26 (rec. 3').

Top 6" - dark gray-black porphyritic basalt, common glassy green and black phenocrysts of pyroxene (pigeonite?) and rare phenocrysts of feldspar in very fine grained aphanatic groundmass. Some pyroxenes altering to antigorite? and chlorite? - grades into 18" of same basalt with common amygdules of zeolites and calcite. Slickensided surfaces coated with iron oxide dip 60°. Common red iron staining and alteration of pyroxenes. Grades into 1' of basalt as described at top with common zeolites. Bottom two feet has calcite-filled cross-frac. dipping 75°. Core has isolated areas of oriented amygdules, but areas do not parallel each other.

Spls. 12,722-12,726, incl., are ditch spls. from cored interval.

12,722 Basalts as above. Much alt. bas. serp. calcite, zeolites.

12,723 Same. Tr. red-brown silt.

12,724 Same.

12,725 Same. Tr. red-brown silt.

12,726 Same. Tr. red-brown silt.

12,726-12,730 Spls. after trip. As above; pred. basalt types as found in core #8 above, w/serpentine, calcite and zeolites. Tr. silt as above.

12,730-12,740 Same. Tr. silt as above.

12,740-12,750 Same.

12,750-12,760 Same.

12,760-12,761 Same.

Following samples originally examined by C. D. Johnson, and notes on said sample appear on sample envelope. Said notes are supplied below in parenthesis. Where no notes exist, a brief description is supplied for the samples, said description not in parenthesis.

12,761-12,764 Basalt, generally fresh w/some altered basalts; and fairly abd. serpentine fragments. Traces of light-colored tuff(?) or tuffaceous siltstone. Tr. vein quartz. Zeolite fgmts.

12,764-12,766 Basalt, generally unaltered as above. Accessory types as above. Tr. only reddish-gray v.f.g. to silty graywacke type sd.

12,766-12,771 (Sample obtained from flushing core bbl.) after retrieving Core No. 9 - Large amount of pipescale. Fragments of lt. gray to tannish siltstone and trace med. gr. ang. graywacke type ss. w/some ang. qtz. grains. C. D. Johnson reports a carbonized wood and reed-type plant fragment.

Core No. 9 - 12,766 to 12,771 - Recovery 4.2'.

4.1 Basalt, gray to slightly reddish gray, amygdaloidal w/some rare partially lined vesicles. Filled amygdules vary widely in size and shape (to 1½" in diameter.) Minor calcite veining.

0.1 Green-gray amygdaloidal (fine) porphyritic basalt. Prominent augite phenocrysts.

12,770-12,780 Basalt, dark gray, pred. fresh w/abd. loose augite phenocrysts, zeolite fgmts., etc.

12,778-12,780 (Slight increase in tan, brown and gray siltstone. Trace of V.V.F. grained white quartz mica ss.)

12,780-12,790 (Particles of white quartz sand w/mica (biotite) and gray micaceous siltstone. Note: This is first sample caught ahead of shaker.)

12,790-12,800 (Volcanics only.) Sample pred. fresh basalt, minor zeolite fgmts.

12,800-12,810 (Volcanics and few fragments of dark gray siltstone.)

12,810-12,820 (Altered basalt w/some siltstone.)

12,820-12,830 (Fragments of gray fine-grained ss. and siltstone.)

12,830-12,840 Basalt.

12,840-12,850 Basalt, predom. dark gray, unaltered, abd. loose augite fragments; minor reddish altered basalt. Zeolite fragments. Some amygdaloidal basalts.

12,850-12,860 (Fresh unaltered basalt - xtalline - few zeolites.)

12,860-12,870 (Volcanics w/little red shale.)

12,870-12,880 T.D. (Volcanics with zeolites.)