

## Core descriptions by R. M. Phillips 7-6-45

Rec.

- #1  
628-638 10' 10' Interbedded Fine Sand & Argillaceous Siltstone:  
Sand is light grey with greenish cast, fine, silty, rather well graded but dirty, micaceous and carbonaceous with local abundance of same in thin laminae, quartzose with common fine black and green grains, firm, easily friable, looks permeable, no stain, no cut with CCl<sub>4</sub>, core had earthy odor when first removed from barrel (marsh gas,), very few bubbles on mud sheath, sand is probably wet. Siltstone is thin bedded and mottled light grey and light chocolate brown, highly micaceous. Carbonaceous, locally very argillaceous and firm, locally friable, no forams noted. Good 14°-19° dips.
- #2  
638-648 10' 10' Interbedded fine sand and argillaceous Siltstone as last described. No flame from barrel.
- #3  
648-658 10' 10' Interbedded fine sand and argillaceous siltstone, as last described. One 2" streak of hard calcareous sandstone with occasional black basalt grits @ 653.
- #4  
730-740 9' 9' Volcanic Breccia mottled light medium grey to dark grey, angular fragments of basalt, light medium grey tuff, white pumice, euhedral black pyroxene, pyrite, dark olive green euhedral olivine? Stringers of calcite in a hard, locally polished, generally dull lustered clayey volcanic matrix. Locally fractured and slickensided. Part light grass green mottlings. Locally oily odor, possibly due to contamination.
- #5  
740-750 2' 2' Volcanic Breccia, as above, badly broken. Oily odor possibly contamination. No cut
- #6  
750-760 Fragmts. Volcanic Breccia, as above, plus few fragments dark bluish grey sandstone with fossil fragments. Oily odor, possibly contamination.
- #7  
760-770 3' 3' Volcanic Breccia, firm, black, highly fractured and polished, angular fragments of basalt and altered basalt in a matrix of comminuted basalt altered to a clayey material. Matrix can be scratched with finger nail. Scattered white secondary calcite. Occasional medium grey angular tuff fragments.

## Core descriptions by R. M. Phillips 7-6-45

| Core #                  | Rec. |     |   |
|-------------------------|------|-----|---|
| <u>#8</u><br>770-780    | 3'   | 3'  | <u>Volcanic Breccia</u> , black, as last described  |
| <u>#9</u><br>1005-1010  | 1'   | 1'  | <u>Augite Basalt</u> , black, fine, hard xalline with common euhedral augite crystals and occasional euhedral dark olive green glassy mineral (olivine?)  |
| <u>#10</u><br>1143-1154 | 2'   | 2'  | <u>Augite Basalt</u> , as last described  |
| <u>#11</u><br>1154-1155 | 3"   | 3"  | Augite Basalt, ditto  |
| <u>#12</u><br>1227-1237 | 3'   | 3'  | <u>Argillaceous Siltstone to Silty Claystone</u> , medium to dark grey, firm to hard, locally crumbly, massive to irregularly bedded, poor indicated 12° dip, quite micaceous, locally gritty, scattered pyritized and carbonized plant remains, common fossil fragments, both pelec. pods and gastropods, scattered forams including cyclammina, dentalium, occasional reed fragments and fish scales. No flash from barrel, no odor, no oil stain, few tiny bubbles from core observable as wet surfaces (nitrogen?). Core was broken in coring. Scattered fragments, white pumice. |
| <u>#13</u><br>1237-1247 | 3½'  | 3½' | <u>Argillaceous Siltstone to Silty Claystone</u> , as last described but locally hard, calcareous and fine sandy. Common to abundant forams and small megofossils. No flash. Poor 16° dip   |
| <u>#14</u><br>1247-1257 | 10'  | 10' | <u>Argillaceous Siltstone and Silty Claystone</u> , ditto, locally slickensided shear planes indicating slight movement @ 10° $\angle$ from horizontal. Locally broken in coring. Massive to poorly bedded. Dip 10-16° - poor   |
| <u>#15</u><br>1257-1267 | 10'  | 10' | <u>Silty Claystone</u> , firm dark grey, massive to poorly bedded, micromicaceous, carbonaceous, common fossil fragments, plant remains, forams. One large crab fragment @ 1265. Occasional slickensided fractures. Locally concentrations of pumice and ash pellets and basalt pebbles. Foram volcanic grits to 2" thick. D&p 18-20°   |
| <u>#16</u><br>1267-1277 | 6'   | 6'  | <u>Argillaceous Siltstone &amp; Silty Claystone</u> . As above, locally fine sandy. Still poorly bedded to massive.   |

Core # Rec.  
#25 - cont'd

scattered fossil fragments, forams, fish remains and pyrite plant remains. Few tiny bubbles from core with rainbow color. Locally fractured and slickensided. Poor 10°  $\angle$  dips

#26

1371-1381 5' 5' Silty Claystone, ditto

#27

1381-1391 2' 2' Silty Claystone, ditto

#28

1391-1401 12' 7' Silty Claystone, ditto but locally gritty with ash, pumice, tuff and lava fragments  
1' Volcanic grit, grits as above in a tuff matrix  
4' Gritty Silty Claystone, as above. (NOTE: This core burned with a 6" blue flame when barrel was opened. First flash test. Mud carried free oil - possibly due to contamination. Very faint cut with acetone.)

#29

1401-1411 3' 3' Gritty silty claystone, ditto

#30

1411-1421 no rec.

#31

1421-1427 4½' 4½' Gritty silty claystone ditto *25° dip*

#32

1427-1438 4' 4' Gritty silty claystone, ditto, locally sandy with abundant black basalt grains

#33

1438-1449 10' 7' Gritty silty claystone, ditto, rests with apparent sharp contact on:  
3' Gritty Siltstone, light grey, firm, massive, tuffaceous, micaceous, with scattered to locally abundant light colored tuff, pumice, basalt and quartz grains to grits. Scattered leached fossil fragments, rare fish remains, common carbonaceous plant remains, occasional forams. Apparent dips 10-15°

#34

1540-1551 10' 10' Gritty Siltstone, as 3' last above. Locally fairly well sorted but fine siltstone and looks tight. Sweetish odor, no petroleum odor, stain or cut.

#35

1551-1562 no rec.

| Core #                  | Rec.    |     |   |
|-------------------------|---------|-----|---|
| <u>#45</u><br>1989-2001 | 3'      | 3'  | <u>Gritty Siltstone</u> , as top 8' of last core but becomes pebbly in basal 1' with basalt pebbles to 1/2", rounded and water worn   |
| <u>#46</u><br>2001-2013 | 12'     | 12' | <u>Tight Conglomerate</u> , as above but sandy and pebbly. Generally tight but few thin streaks are friable and apparently permeable, medium dark grey color, no flash, no odor, no stain, few tiny bubbles from core. Material largely of volcanic origin. Dip 35-53° (poor)   |
| <u>#47</u><br>2013-2025 | 13'     | 13' | <u>Pebbly Sandstone</u> , as above but pebbles less frequent and smaller  |
| <u>#48</u><br>2025-2037 | 8'      | 8'  | <u>Sandstone</u> , fine to medium, medium dark grey, hard, silty and clayey, mostly basalt grains with some tuff, pumice and quartz, occasional calcite veinlets, dip 14-28°  |
| <u>#49</u><br>2037-2049 | no rec. |     |   |
| <u>#50</u><br>2049-2061 | 1"      | 1"  | <u>Sandstone</u> , fine medium, well sorted but silty and clayey, green grey, firm, locally friable, looks tight, no odor, or stains  |
| <u>#51</u><br>2124-2136 | 7'      | 7'  | <u>Sand</u> , light medium grey, fine to very fine, silty, firm, friable, locally loose, locally hard and indurated quartzose with common black grains, common fine to coarse muscovite and biotite, scattered white ash spots. Occasional dark grey gritty micaceous claystone, laminae with common megafossil fragments. Interval is divisible into upper 2' of friable, permeable sand, next 2½' silty to locally clayey, difficulty friable, tight sand with occasional fossil fragments; next 1' of calcareous gritty fossiliferous hard, tight sandstone and bottom 1½' of friable to loose micaceous slightly kaolinitic fine sand. Upper and lower units are permeable, had no odor, no stain, no cut and looks wet. No flash from barrel. All contacts between the above units appear gradational. Good 42° dip but may be crossbedding. |

- #60  
2645-2656 10' 10' Sandstone, ditto, dip 33° - good.
- #61  
2656-2667' 10½' ½' Sandstone, ditto, claystone & lignite streaks at base, grades downward rather abruptly to:  
10' Lignitic Claystone, dark brown with common black lignite seams to 3" thick and abundant carbonized plant remains throughout micromicaceous, silty, firm, locally crumbly well bedded w/good 31° to 39° dips averaging 34°. 3" streaks at 2658' contains common white ash and pumice fragments and grits. 1" bentonite streak at 2665'. Basal 2' somewhat siltier than that above. No forams noted. Slight burn from barrel.
- #62  
2690-2698 8' 8' Sand, lt. gray, fine w/scattered med. grains ~~med.~~ quartzose w/scattered varicolored grains, micac., firm, friable permeable, but probably rather low, bedded w/indicated 20° to 40° dips. No odor, no stain, no cut, looks wet. No flash from band. One 80% calcite filled fracture at 2695'. Gritty at base.
- #63  
2698-2710' 12' 2½' Gritty Sandstone, ditto basal 2" of last core - grits to small pebbles of qtz., chert & volcanic rocks. Hd., calc. lt. med. gray.  
9½' Sand, ditto last core above, locally lignitic. Dips variable, from 26° to 48°, average 30°  $\angle$ .
- #64  
2805-2817 4' 4' Sand & silt, thin bedded, lignitic, firm to hard. Sand is lt. gray, fine to very fine, silty, dirty, micac., loc. permeable, looks wet. Silt is lt. gray, fine, sandy, micac. Occ. irregular streaks silty, brown, lignitic claystone. No forams noted. Brown, claystone prominent in middle portion of core. Good 25° dip. No odor, stain, or cut.
- #65  
2817-2827' 27' 7' Sand & silt., ditto but w/lenses brown claystone & locally gritty w/lt. to dark gray volcanic grits to pebbles. Locally hd. & calc., loc. friable, permeable & looks wet. Most dips 20°  $\angle$ . One 37° dip, probably cross-bedding
- #66  
2827-2839' 5½' 5½' Sand & silt, ditto last core.

| Core #           | Rec.              | Description by R. M. Phillips   |
|------------------|-------------------|---|
| #67<br>2954-2966 | 6' $\frac{1}{2}$  | 6' <u>Sand, silt &amp; claystone, thin-bedded, lignitic, as above but w/more claystone. Gritty &amp; pebbly in upper 2'. Core shows numerous fractures, some w/small displacements. Irregular dips from 36° to 44° average, some 90°.</u>   |
| #68<br>2966-2978 | 4'                | 4' <u>Sand, silt &amp; claystone, as above, good 30° dip.</u>   |
| #69<br>2995-2999 | 3 $\frac{1}{2}$ ' | 3 $\frac{1}{2}$ ' <u>Sand, silt &amp; claystone, ditto, thin bedded, locally slump bedded or reworked, dips 24° to 33°, average 27°.</u>  |
| #70<br>3132-3143 | 9'                | 9' <u>Volcanic Breccia, green when fresh, weather black, basaltic phenocrysts of olivine, augite, natiolite?. Fractures at 50°<math>\frac{1}{2}</math> &amp; also flat through the core. Looks massive. Occ. pyrite clusters. Hd. &amp; dense. Contains local concentration of muddy water on qtz. grains.</u>  |
| #71<br>3143-3150 | 6 $\frac{1}{2}$ ' | 6 $\frac{1}{2}$ ' <u>Volcanic Breccia, as last above. Quartz grains loc. abundant &amp; more common than above w/bedding dipping 24°. Local irregular fractures. Common secondary calcite veinlets.</u>   |
| #72<br>3385-3395 | 9'                | 9' <u>Siltstone, dark gray, locally w/brown cast &amp; quite carbonaceous, very hard, fine sandy, fairly well bedded w/good 20° dip. Scattered masonite, common dark rock grains, loc. quartzose, dense, tight. Scattered mega-fossils (pelecypods), sponge spicules, forams? Occ. calcite filled fractures. No flash from barrel.</u>  |
| #73<br>3395-3401 | 6 $\frac{1}{2}$ ' | 1' <u>Silty claystone, choc. brown to dark gray, hard, thin-bedded, loc. massive, loc. highly carbonaceous, micac., scattered fossil fragments &amp; fish remains, forams? Good 18° to 22° dips averaging 20°. Rests with rather sharp but apparently gradational contact on:</u><br>5 $\frac{1}{2}$ ' <u>Volcanic Breccia, med. to dark greenish gray, loc. lt. gray where filled w/pumice. Common varicolored Euhedral phenocrysts. Massive to vaguely bedded. Fine to coarse grained, very hard. Loc. cut w/calcite veins.</u> |
| #74<br>3804-3816 | 11'               | 11' <u>Volcanic Breccia, as lower 5<math>\frac{1}{2}</math>' of last core above. Common Euhedral phenocrysts &amp; secondary pyrite. Common subangular tuff &amp; lava? Fragments to 1" diameter. Massive, no dips noted. Very hard but locally fractured &amp; driller reported occ. soft streaks 2" to 3" thick. Majority cored rough &amp; slowly. 4 hours cutting time. No flash from barrel.</u>   |

| Core #.           | Rec.          | Description by R. M. Phillips  |
|-------------------|---------------|--|
| #75<br>4335-4345  | 8' 8'         | <u>Volcanic breccia</u> , as above but denser, contains fewer subangular fragments & more Euhedral crystals. Massive, no good dips. One calcite veinlet at 45° (dip?). Still contains scattered to loc. abundant quartz grains. This core looks more like a true flow than anything below 3000'. Euhedral augite, plagioclase, matrolite & other zeolites.   |
| #76<br>4540-4550' | 9½'           | 41/5' <u>Siltstone</u> , dark brown, very hard, clayey, highly micac., carbonaceous, massive, rare fish remains. Scattered black & green min. grains (pyxne). Scattered 45° to 60° fract. planes. Rests with rather sharp gradational contact on:<br>5' <u>Siltstone</u> , dark gray to black, very clayey, very hard, massive. Lower 2' exhibits bisquit like fract. (bedding planes?) at less than 5' upper 3' 45° to 10° calcite filled fracture planes. Slight horizonatal slickensided surfaces micro-micac., highly mic., common black & green grains as above. No forams noted. |
| #77<br>4760-4772' | 4' 4'         | <u>Volcanic Breccia</u> , hard, fractured & slickensided green waxy, clayey? Matrix containing basitic fragments & common euhedral pxne, w/occ. frag. light gray volcanics, frag. angular to subrounded. Grades to 2½', med. gray silty, matrix containing angular basaltic and light gray volcanic frag., very common pxene (euhedral). Common pyrite. Occ. subrounded grains even in lwr. portion.   |
| #78<br>4772-4784' | (No rec. fr.) | <u>Silty volcanic tuff</u> , Similar to lower part of core abv. core brl., ) but finer grained. Hd. med. gray, silty, tuffac, matrix rec. 2' fr.) Common pxne (euhedral). Rare volcanic fragments. bit & D.C.)   |
| #79<br>4858-4870' | 12½'          | 1' <u>Volcanic Breccia</u> , dark, green-gray, dense, slickensided & polished, waxy luster. Pyne euhedra.<br>1' <u>Tuffac Siltstone</u> , med. gray, very thin bedded, platey, breaks to paper thin wafers. Common pyrotene in euhedral xtals & frag. green volcanic, very tuffac, micro-micaceous<br>1' <u>Volcanic Breccia</u> , hd., massive, med. gray, dense, volcanic tuff-breccia. Coarser in lwr. portion.   |

At 4861 - 14° dip; 4861½ - 11° dip; 4864-70 0 to 6° dip

| <u>Core #</u>                          | <u>Rec.</u> | <u>Description by R. M. Phillips</u>   |
|--|-------------|--|
| 4858-4870<br>cont'd                    | 1'          | <u>Tuffac Siltstone</u> , as above at 4060   |
|  | 2'          | <u>Volcanic Breccia</u> , as at 4861   |
|  | 6'          | <u>Tuffac Siltstone</u> , as at 4860 and 4862. Highly tuffac. Partings give a nearly flat dip  |
| #80<br>4870-4882                       | 12          | 12' <u>Tuffac Siltstone</u> , as in core above. Highly tuffad and extremely platy. Partings show nearly flat altitude  |
| #81<br>4882-4887                       | 5'          | 4½' <u>Tuffac Siltstone</u> , as above<br>6" <u>Volcanic Tuff</u> , hard massive silty volcanic (basaltic) tuff. Common pxone euhadra. Calcite and zeolites. Partings in siltstone nearly flat.  |
| #82<br>4887-4891                       | 12'         | 12' <u>Volcanic Tuff to Breccia</u> , green and grey mottled silty with calcite, zeolites (?) and very abundant pxone euhadra. Locally, especially near base, abundant angular fragments green and grey volcanics to 1/2" in diameter. Calcite veinlets. Dis. pyrite   |
| <u>Description by L. J. Regan, Jr.</u> |             |  |
| #83<br>5114-5126                       | 6'          | <u>Sandstone</u> , hard, massive, limey, medium fine, locally firm friable, light grey, locally faint yellowish stamiceaceous, carbonaceous, looks tight but locally may have some perm. Occasional streaks dark grey-brownish grey carbon coarsely micaceous. Fine silty sand especially at base. Dips erratic but between 60° and vertical. Common faults offset silty streaks. No odor. No cut from sand. <u>Silty sand gives light yellow cut with ether after several hours. Also gives faint cloudyness with acetone.</u> Minute bubbles were noted coming from the sand for several minutes after core was removed from barrel. |
| #84<br>5126-5138                       | 8'          | <u>Sandstone and Siltstone</u> , similar to core above but about 40% sandy siltstone and fine silty sand as in core above. Dip varies between 45 & 70°. <u>Siltstone gives weak cut with ether after several hours.</u> Light yellow. No odor. Sand gives no cut.  |
| #85<br>5138-5144                       | 7'          | 1½' <u>Sandstone</u> , as above but harder, limeyer and tighter<br>5½' <u>Siltstone with sandstone streaks</u> , dark brownish grey, clayey, fractured slickensided and highly polished, scly, very micaceous. Streaks Sandstone as at top of core to 3" thick. <u>Siltstone gives faint yellow cut with ether after several hours.</u> dips   |



#86  
5144-5156

- 9' Clayey Siltstone with Sandstone streaks, as lower, 5½' of core above 85% Siltstone somewhat clayier than Calc. above. 15% hard limey fine sandstone in streaks to 3" especially at top. Siltstone gives faint yellow cut with ether. Two hard limey streaks to 3" thick dips on sandstone streaks between 45 & 55°

#87  
5275-5287

- 10' Volcanic Breccia, hard fractured slickensided green, grey, and brown mottled; matrix scly. with very abundant pxene crystals and small angular fragments green and grey volcanics. Calcite seams. loca. fractures slickensided, polished and have bright green wax appearance

#88  
5287-5299

- 8' Volcanic Breccia as above core

Described by R. M. Phillips

#89  
5441-5464

- 7' 3' Sandstone, light grey, fine to medium with common grits of varicolored volcanic rocks and quartz. Silty and ill sorted, diff. friable, low p & p, somewhat calcareous. No odor, no stain, no cut with ether. Includes 2" dark brown claystone interbed. 3" from base. Dip 36° (in sand above claystone) 46° (in claystone and at upper contact). Rests with sharp conformable contact on (dip on lower contact 50°)
- 2½' Siltstone & Claystone, interbedded and thinbedded. Siltstone is tan, fine sandy, micaceous, firm to hard. Claystone is dark brown and light to dark grey, micromicaceous, compact, hard. Numerous small fractures showing some offsetting. Common calcite veinlets. No forams noted. No ether cut. Good dips varying from 46° to 52°. Rests with sharp conformable contact on:
- 1½' Sandstone. As above but hard calcareous. Occ. calcite veinlets. Tight, loc. tan. (not oil stain)

#90  
5454-5461

- 4½' 4½' Sandstone, as last above but containing common large thickshelled pelecypods. Cross sections of these are 1" to 2" high by 1/2" to 1" thick and are symmetrical. The inner portion of the shell is white and the outer portion is light brown. Genus and species unknown. No odor, no stain, no cut with ether. Looks tight. Few paper thin claystone laminae near base with wavy indicat dip of 72-75° scattered mascasite nodules to 1/2" diameter. No flash from barrel.

#97 - cont

- 1' Tuffaceous Claystone, dove grey, fractured, bentonitic, loc. lam. with light grey siltstone. Dip 45 - 50°?
- 3' Siltstone, dark brown, very clayey, fractured and polished in upper 1½'. Lower 1½' is massive, micaceous, hard and contains scattered fish remains and small polecypods. Possible dips of 30° to 40°. No forams noted. No flash from barrel. No cut with ether.

#98

5615-5621

3'

3'

Siltstone, as last above. No flash from barrel. No dips and no forams noted.

- 3' Siltstone, dark brown, Very clayey, similar to upper  $1\frac{1}{2}'$  of core. Is fractured. Lower  $1\frac{1}{2}'$  massive, micaceous, hard and contains fish remains and pelecypods. No forams observed. No flash, cut, odor or pressure on barrel. Possible dip 30-40°. Last  $1\frac{1}{2}'$  unfractured.

9-21-45

#98

#99  
5521-5633

8

- $4\frac{1}{2}'$  Siltstone, brown, very clayey as above but finer grained and could be called silty claystone. Only slightly fractured, dips 34-45°
- 1' Sandstone, medium grey, fine to medium hard, tight, very silty, quartz with common volcanic debris. Common calcite grains. No odor, no stains, no ether cut, no flash or pressure. Dips 42-53°
- $2\frac{1}{2}'$  Silty Claystone, as above. Unfractured and no slickenside No odor, cut or flash

#100  
5633-5644

5'

- 1' Silty Claystone. Slightly fractured. Indicated dips 45-90°, latter possibly being fracture plane
- $2\frac{1}{2}'$  Breccia, volcanic grits and fragments with quartz grains in bentonite clay matrix, questionably tuffaceous. Breccia is depositional.
- $2\frac{1}{2}'$  Silty Claystone, as above, somewhat fractured. No forams noted. Dips 45-50°. Pressure on barrel but no flash, odor or cut. Gas or air would not burn. No bubbles on mud sheath.