

37. LEG 11 GRAIN SIZE ANALYSIS

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In general, only the sand-, silt-, and clay-sized fractions are routinely determined for the *Initial Reports of the Deep Sea Drilling Project*, but for this volume a few detailed analyses by standard sieve and pipette techniques in both distilled water with Calgon and sea water were done at the request of Dr. C. O. Hollister. The results are interpreted and discussed in the Site Reports.

The sand fraction is separated with a 62.5 micron sieve; the fines are processed *via* standard pipette techniques following Stokes settling velocities (Krumbein and Pettijohn, 1938, p. 95-96):

$$\frac{D}{t} = V = \frac{2(d_1 - d_2) gr^2}{9\eta}$$

$$t = \frac{9D\eta}{2gr^2(d_1 - d_2)}$$

where

V = velocity in cm/sec

*t = time in seconds

D = depth pipette is inserted, in centimeters

*g = gravity in cm/sec²

*r = radius of individual particles, in centimeters

5φ = diameter ≈ radius = 0.0015625 cm

6φ = diameter ≈ radius = 0.00078125 cm

7φ = diameter ≈ radius = 0.00039063 cm

8φ = diameter ≈ radius = 0.00019531 cm

9φ = diameter ≈ radius = 0.000097656 cm

10φ = diameter ≈ radius = 0.000048828 cm

*η = viscosity of distilled water in poises at different temperatures (Hodgman *et al.*, 1960, p. 2181).

d₁ = density of solid particles arbitrarily set at 2.675 gm/cc

d₂ = absolute density of distilled water at different temperatures (Hodgman *et al.*, 1960, p. 2129).

Grain diameters and statistical parameters are expressed in millimeters and phi units (Inman, 1952), and the sediment classification is that of Shepard

*The large number of significant figures was used to avoid rounding-off variations.

(1954) based on the Wentworth (1922) scale. For step-by-step procedures, see Volume IV of the *Initial Reports of the Deep Sea Drilling Project*.

The reproducibility of the method, with a single operator using splits of one sample, is as follows:

Sample Splits	% Sand	% Silt	% Clay
(A)	5.20	48.8	46.0
(B)	5.09	48.8	46.1
(C)	5.83	47.2	46.9

However, with different operators and over a long period of time, the results have a wider spread: sand is 5 ± 1 per cent (absolute), and the silt and clay fractions are ± 2.5 per cent (absolute).

SPECIAL DETAILED ANALYSES

A number of detailed pipette grain-size analyses were carried out. Samples were divided approximately in half; one half was dispersed with distilled water with Calgon, while the other was dispersed with sea water. Both were pipetted at the same time in order to maintain similar temperature conditions. Corrections were not made for the density or viscosity of sea water. The distilled water sediment pipette aliquots were dried for 24 hours at 105°C, while the sea water aliquots required 48 hours of drying at 105°C before weighing.

Sand-, silt-, and clay-size fractions as determined in distilled water are reported in Table 1, and the detailed distilled water analyses are reported in Table 2. The distilled water dispersed samples produced good results, but the sea water analyses were not as successful. The major problem was coagulation of the particles during the settling period. Those results for the samples in which coagulation was a problem are not reported. Of the sea water results that are reported, only the sand-, silt-, and clay-size fractions are given (Table 3) because coagulation typically occurred after the silt-sized aliquot was withdrawn.

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TABLE 1
Sand, Silt, and Clay-Sized Fractions from Routine Sieve and Pipette Analysis in Distilled Water (with Calgon)

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
98	1	1	27.0	0.3	12.0	53.1	34.9	Clayey silt
98	1	2	14.0	1.6	21.0	34.5	44.5	Sand-silt-clay
98	1	3	64.0	3.6	5.0	43.7	51.3	Silty clay
98	1	4	46.0	5.0	5.6	40.8	53.6	Silty clay
98	1	5	15.0	6.2	20.4	34.5	45.1	Sand-silt-clay
98	1	6	17.0	7.7	9.5	39.4	51.1	Silty clay
98	2	1	35.0	9.4	5.2	38.1	56.7	Silty clay
98	2	2	9.0	10.6	6.6	38.4	55.0	Silty clay
98	2	3	12.0	12.1	4.8	39.1	56.1	Silty clay
98	2	5	10.0	15.1	6.7	38.9	54.4	Silty clay
98	2	6	23.0	16.7	5.5	35.3	59.2	Silty clay
98	3	1	29.0	18.3	4.7	39.5	55.9	Silty clay
98	3	2	31.0	19.8	4.8	37.3	57.9	Silty clay
98	3	3	23.0	21.2	3.9	41.1	55.0	Silty clay
98	3	4	19.0	22.7	4.5	44.6	50.9	Silty clay
98	3	5	19.0	24.2	3.9	36.3	59.7	Silty clay
98	3	6	14.0	25.6	4.8	46.9	48.3	Silty clay
98	4	1	16.0	55.2	6.5	47.6	45.9	Clayey silt
98	4	2	13.0	56.6	7.8	45.6	46.6	Silty clay
98	4	3	12.0	58.1	7.3	49.3	43.4	Clay silt
98	4	4	13.0	59.6	7.8	40.7	51.4	Silty clay
98	4	5	16.0	61.2	6.6	45.4	48.0	Silty clay
98	4	6	16.0	62.7	6.2	49.7	44.1	Clayey silt
98	5	1	66.0	91.7	7.2	44.1	48.7	Silty clay
98	5	2	23.0	92.7	5.1	45.6	49.3	Silty clay
98	5	3	11.0	94.1	4.3	46.2	49.5	Silty clay
98	5	4	14.0	95.6	5.1	44.0	50.9	Silty clay
98	6	1	13.0	130.1	2.4	59.3	38.3	Clayey silt
98	6	2	18.0	131.7	0.6	62.6	36.9	Clayey silt
98	6	3	6.0	133.1	0.9	64.1	35.0	Clayey silt
98	6	4	9.0	134.6	0.7	60.6	38.7	Clayey silt
98	6	5	18.0	136.2	1.1	62.2	36.7	Clayey silt
98	6	6	17.0	137.7	1.3	57.3	41.5	Clayey silt
98	7	2	22.0	168.7	1.6	63.7	34.7	Clayey silt
98	7	3	17.0	170.2	9.2	57.1	33.6	Clayey silt
98	7	4	15.0	171.6	0.6	70.9	28.5	Clayey silt
98	7	5	11.0	173.1	1.1	63.1	35.8	Clayey silt
98	7	6	11.0	174.6	0.9	63.4	35.7	Clayey silt

TABLE 1 – *Continued*

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
98	8	1	34.0	207.3	3.3	54.0	42.7	Clayey silt
98	8	2	12.0	208.6	3.9	51.7	44.3	Clayey silt
98	8	3	44.0	210.4	5.4	51.1	43.5	Clayey silt
98	9	1	85.0	216.9	3.4	46.8	49.8	Silty clay
98	9	2	9.0	217.6	3.3	50.6	46.1	Clayey silt
98	10	1	87.0	222.9	1.8	59.8	38.4	Clayey silt
98	11	1	113.0	232.1	3.0	46.5	50.5	Silty clay
98	11	2	48.0	233.0	4.1	55.5	40.4	Clayey silt
98	12	1	25.0	240.3	19.9	56.2	24.0	Clayey silt
98	13	1	139.0	273.4	75.7	18.1	6.2	Sand
98	13	2	59.0	274.1	0.8	46.0	53.2	Silty clay
98	14	1	64.0	311.6	0.8	49.2	50.0	Silty clay
98	15	1	80.0	348.8	34.9	34.2	30.9	Sand-silt-clay
99A	1	1	37.0	0.4	13.5	26.1	60.4	Silty clay
99A	1	2	4.0	1.5	7.1	23.0	69.9	Silty clay
99A	1	3	5.0	3.0	11.3	25.9	62.8	Silty clay
99A	1	4	7.0	4.6	25.4	19.6	55.0	Sandy clay
99A	1	5	4.0	6.0	12.3	20.5	67.2	Silty clay
99A	2	1	96.0	16.0	7.2	18.8	74.0	Silty clay
99A	2	2	6.0	16.6	4.2	19.7	76.1	Clay
99A	2	3	34.0	18.3	12.0	21.9	66.1	Silty clay
99A	2	4	10.0	19.6	23.5	19.0	57.5	Sandy clay
99A	2	5	5.0	21.0	14.3	22.0	63.8	Silty clay
99A	2	6	14.0	22.6	17.7	22.9	59.3	Silty clay
99A	8	1	145.0	95.4	0.3	34.7	65.0	Silty clay
99A	9	1	100.0	132.0	0.1	7.2	92.7	Clay
99A	11	2	100.0	200.5	0.4	29.0	70.6	Silty clay
100	1	1	117.0	204.2	0.9	38.9	60.3	Silty clay
100	1	2	7.0	204.6	0.3	28.4	71.3	Silty clay
100	1	3	5.0	206.1	0.1	33.7	66.2	Silty clay
100	1	4	17.0	207.7	20.2	28.7	51.1	Sand-silt-clay
100	1	5	15.0	209.1	0.1	33.5	66.4	Silty clay
100	6	1	60.0	267.6	1.4	33.0	65.6	Silty clay
100	8	1	138.0	287.4	0.5	23.0	76.5	Clay
100	8	2	126.0	288.8	0.2	27.6	72.2	Silty clay
100	8	3	30.0	289.3	0.7	28.2	71.0	Silty clay
100	9	1	75.0	302.8	0.2	21.0	78.8	Clay
100	9	2	58.0	304.1	0.7	21.5	77.9	Clay
100	10	1	68.0	311.7	0.1	21.2	78.7	Clay
100	10	2	45.0	313.0	0.2	26.8	73.0	Silty clay
101	1	1	5.0	32.0	2.4	27.7	69.9	Silty clay
101	1	2	60.0	34.1	0.2	29.0	70.8	Silty clay
101	1	4	18.0	36.7	0.8	35.9	63.3	Silty clay
101	1	5	18.0	38.2	0.3	32.7	67.0	Silty clay
101	1	6	14.0	39.6	2.0	35.1	62.9	Silty clay
101	2	1	90.0	67.9	0.5	33.0	66.5	Silty clay
101	2	2	19.0	68.7	0.1	36.3	63.6	Silty clay
101	2	3	20.0	70.2	0.4	31.9	67.7	Silty clay
101	2	4	10.0	71.6	0.9	34.4	64.8	Silty clay

TABLE 1 – *Continued*

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
101	2	5	15.0	73.2	0.3	38.4	61.3	Silty clay
101A	1	1	84.0	115.8	1.0	35.7	63.3	Silty clay
101A	1	2	28.0	116.8	3.2	34.4	62.4	Silty clay
101A	1	3	18.0	118.2	0.2	35.2	64.7	Silty clay
101A	1	3	24.0	118.2	0.2	29.8	70.0	Silty clay
101A	2	1	20.0	156.2	0.2	38.6	61.2	Silty clay
101A	2	2	16.0	157.7	0.2	36.3	63.5	Silty clay
101A	2	3	20.0	159.2	0.8	28.4	70.8	Silty clay
101A	2	4	20.0	160.7	0.0	34.6	65.4	Silty clay
101A	2	5	10.0	162.1	20.3	29.6	50.1	Sand-silt-clay
101A	2	6	20.0	163.7	0.2	35.8	64.0	Silty clay
101A	3	1	130.0	195.3	0.4	45.2	54.5	Silty clay
101A	3	2	13.0	195.6	0.4	44.7	54.9	Silty clay
101A	4	1	30.0	250.3	0.0	23.0	77.0	Clay
101A	5	1	115.0	309.1	0.1	32.8	67.1	Silty clay
101A	5	2	43.0	309.9	0.1	31.3	68.7	Silty clay
101A	5	2	80.0	310.3	0.1	33.7	66.3	Silty clay
101A	7	1	85.0	460.9	0.0	18.7	81.3	Clay
101A	7	1	141.0	461.4	0.0	16.0	84.0	Clay
101A	8	1	42.0	534.4	0.4	16.5	83.1	Clay
101A	8	1	128.0	535.3	0.0	14.8	85.2	Clay
101A	8	2	23.0	535.7	0.0	15.4	84.6	Clay
101A	8	2	108.0	536.6	0.0	16.7	83.3	Clay
102	1	1	10.0	0.1	5.1	31.2	63.7	Silty clay
102	1	2	10.0	1.6	1.8	30.6	67.6	Silty clay
102	1	3	10.0	3.1	0.1	22.9	77.0	Clay
102	1	4	10.0	4.6	0.0	87.6	12.4	Silt
102	1	5	10.0	6.1	0.6	37.0	62.4	Silty clay
102	1	6	10.0	7.6	0.4	35.2	64.5	Silty clay
102	2	1	14.0	18.1	0.4	27.8	71.7	Silty clay
102	2	1	50.0	18.5	1.7	26.6	71.7	Silty clay
102	2	4	10.0	22.6	0.1	24.4	75.6	Clay
102	2	5	10.0	24.1	0.3	26.9	72.9	Silty clay
102	4	2	10.0	97.6	0.7	21.3	78.0	Clay
102	4	3	10.0	99.1	0.2	21.8	78.1	Clay
102	5	2	20.0	134.7	0.5	25.4	74.2	Silty clay
102	5	3	52.0	136.5	0.7	21.2	78.1	Clay
102	5	4	27.0	137.8	1.5	20.1	78.4	Clay
102	5	5	13.0	139.1	3.2	18.7	78.1	Clay
102	6	2	10.0	173.6	0.8	37.5	61.6	Silty clay
102	6	3	3.0	175.0	1.8	22.7	75.4	Clay
102	6	5	15.0	178.1	0.4	29.9	69.7	Silty clay
102	6	6	10.0	179.6	0.3	31.2	68.5	Silty clay
102	7	1	10.0	181.1	0.9	33.8	65.3	Silty clay
102	7	3	10.0	184.1	0.3	35.2	64.5	Silty clay
102	7	4	10.0	185.6	0.3	35.5	64.1	Silty clay
102	7	5	10.0	187.1	1.4	23.8	74.9	Silty clay
102	8	3	73.0	222.7	0.6	28.2	71.2	Silty clay
102	8	4	22.0	223.7	0.7	29.7	69.6	Silty clay

TABLE 1 – *Continued*

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
102	9	2	10.0	267.6	1.5	27.7	70.9	Silty clay
102	9	3	10.0	269.1	1.3	27.1	71.6	Silty clay
102	9	4	20.0	270.7	1.5	25.3	73.3	Silty clay
102	9	5	8.0	272.1	1.1	26.3	72.6	Silty clay
102	10	2	10.0	307.6	1.0	28.8	70.2	Silty clay
102	10	3	10.0	309.1	1.1	23.1	75.8	Clay
102	10	4	5.0	310.5	1.3	30.1	68.6	Silty clay
102	10	5	6.0	312.1	1.1	23.1	75.8	Clay
102	11	2	43.0	354.9	0.5	29.8	69.6	Silty clay
102	12	2	15.0	420.6	0.8	28.5	70.8	Silty clay
102	12	3	8.0	422.1	0.5	35.4	64.1	Silty clay
102	13	2	10.0	474.6	0.4	28.1	71.5	Silty clay
102	13	3	10.0	476.1	0.3	33.2	66.5	Silty clay
102	18	2	6.0	635.6	0.3	22.4	77.2	Clay
102	18	3	8.0	637.1	0.1	27.7	72.1	Silty clay
103	1	1	8.0	0.1	19.7	33.3	47.0	Silty clay
103	1	2	14.0	1.6	5.2	34.4	60.3	Silty clay
103	1	3	9.0	3.1	9.8	57.9	32.3	Clayey silt
103	1	3	40.0	3.4	2.0	34.1	63.9	Silty clay
103	1	4	10.0	4.6	1.6	34.4	64.0	Silty clay
103	1	5	10.0	6.1	0.7	26.6	72.7	Silty clay
103	1	6	10.0	7.6	1.8	35.5	62.8	Silty clay
103	2	1	10.0	39.1	1.2	24.9	73.9	Silty clay
103	2	2	10.0	40.6	0.4	21.5	78.1	Clay
103	2	3	10.0	42.1	0.6	22.4	77.0	Clay
103	2	4	10.0	43.6	1.0	28.3	70.7	Silty clay
103	2	5	12.0	45.1	0.9	27.4	71.8	Silty clay
103	2	6	10.0	46.6	0.2	72.4	27.4	Clayey silt
103	3	1	10.0	94.1	0.2	27.5	72.4	Silty clay
103	3	2	10.0	95.6	0.3	35.4	64.3	Silty clay
103	3	3	13.0	97.1	0.2	35.2	64.6	Silty clay
103	3	4	8.0	98.6	0.1	30.4	69.5	Silty clay
103	3	5	10.0	100.1	0.2	32.9	66.9	Silty clay
103	3	6	8.0	101.6	0.1	36.8	63.0	Silty clay
103	4	2	5.0	171.6	0.4	35.5	64.1	Silty clay
103	4	3	21.0	173.2	0.6	36.6	62.7	Silty clay
103	4	4	8.0	174.6	0.6	35.4	64.0	Silty clay
103	4	5	10.0	176.1	0.8	38.9	60.3	Silty clay
103	5	1	120.0	248.2	0.9	24.4	74.7	Silty clay
103	5	2	8.0	248.6	0.7	27.1	72.2	Silty clay
103	5	3	10.0	250.1	0.4	29.6	70.1	Silty clay
103	6	6	10.0	350.6	0.1	41.7	58.3	Silty clay
104	1	1	10.0	0.1	44.5	25.8	29.7	Sand-silt-clay
104	1	2	10.0	1.6	3.8	43.9	52.4	Silty clay
104	1	4	32.0	4.8	4.5	42.1	53.3	Silty clay
104	1	5	10.0	6.1	0.6	48.0	51.5	Silty clay
104	1	6	10.0	7.6	0.0	79.8	20.1	Silt
104	2	1	63.0	36.6	0.9	42.9	56.3	Silty clay
104	2	2	10.0	37.6	0.6	36.2	63.3	Silty clay

TABLE 1 – *Continued*

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
104	2	3	10.0	39.1	1.1	32.5	66.4	Silty clay
104	2	4	10.0	40.6	1.1	38.7	60.2	Silty clay
104	2	5	10.0	42.1	1.0	30.2	68.8	Silty clay
104	2	6	10.0	43.6	1.2	28.4	70.5	Silty clay
104	3	1	10.0	62.1	0.0	5.2	94.7	Clay
104	3	2	10.0	63.6	0.0	4.5	95.5	Clay
104	3	3	25.0	65.3	0.0	4.1	95.9	Clay
104	3	4	10.0	66.6	0.0	5.1	94.8	Clay
104	3	5	10.0	68.1	0.0	5.9	94.0	Clay
104	3	6	10.0	69.6	0.0	5.4	94.6	Clay
104	4	1	102.0	134.0	0.0	3.3	96.7	Clay
104	4	2	10.0	134.6	0.0	5.1	94.9	Clay
104	4	3	10.0	136.1	0.0	4.4	95.5	Clay
104	4	4	8.0	137.6	0.0	5.1	94.8	Clay
104	4	5	10.0	139.1	0.0	4.1	95.9	Clay
104	6	1	10.0	219.1	0.0	4.8	95.1	Clay
104	6	2	3.0	220.5	0.0	4.1	95.9	Clay
104	6	3	24.0	222.2	0.0	5.5	94.5	Clay
104	6	4	10.0	223.6	0.0	4.7	95.2	Clay
104	6	5	10.0	225.1	0.0	4.5	95.4	Clay
104	6	6	10.0	226.6	0.0	5.2	94.8	Clay
104	7	1	10.0	306.1	0.1	35.2	64.7	Silty clay
104	7	2	6.0	307.6	0.1	35.7	64.2	Silty clay
104	7	3	46.0	309.5	0.1	30.7	69.2	Silty clay
104	7	4	10.0	310.6	0.1	37.0	62.9	Silty clay
104	8	2	8.0	402.6	0.1	37.0	62.9	Silty clay
104	8	3	34.0	404.3	0.0	37.6	62.3	Silty clay
104	8	4	113.0	406.6	0.1	35.4	64.5	Silty clay
104	8	5	10.0	407.1	0.1	35.8	64.2	Silty clay
104	9	1	13.0	495.1	0.1	34.3	65.6	Silty clay
104	9	2	20.0	496.7	0.1	25.6	74.3	Silty clay
104	9	3	3.0	498.0	0.0	33.0	66.9	Silty clay
105	2	1	10.0	31.1	1.5	60.2	38.3	Clayey silt
105	2	2	15.0	32.7	0.6	25.8	73.6	Silty clay
105	2	3	10.0	34.1	13.9	48.0	38.2	Clayey silt
105	3	1	10.0	91.1	0.0	22.5	77.5	Clay
105	3	2	10.0	92.6	0.0	21.6	78.3	Clay
105	3	3	10.0	94.1	0.0	20.4	79.6	Clay
105	3	4	10.0	95.6	0.0	21.2	78.8	Clay
105	4	1	10.0	184.1	0.2	41.8	58.0	Silty clay
105	4	2	10.0	185.6	0.5	36.7	62.8	Silty clay
105	4	3	10.0	187.1	0.8	35.2	63.9	Silty clay
105	4	4	10.0	188.6	1.0	39.5	59.5	Silty clay
105	4	5	10.0	190.1	0.0	30.0	70.0	Silty clay
105	4	6	10.0	191.6	0.2	34.0	65.8	Silty clay
105	5	1	72.0	241.7	2.1	19.9	78.0	Clay
105	5	2	10.0	242.6	1.9	18.9	79.2	Clay
105	5	3	10.0	244.1	0.2	30.1	69.8	Silty clay
105	6	1	68.0	250.7	0.3	32.1	67.6	Silty clay

TABLE 1 — *Continued*

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
105	6	2	10.0	251.6	0.1	16.9	83.0	Clay
105	7	1	90.0	259.9	2.9	21.5	75.7	Clay
105	7	2	10.0	260.6	1.0	20.1	78.9	Clay
105	7	3	10.0	262.1	1.4	22.3	76.4	Clay
105	7	4	10.0	263.6	0.9	25.4	73.7	Silty clay
105	7	5	10.0	265.1	2.0	24.2	73.8	Silty clay
105	7	6	3.0	266.5	0.1	25.5	74.3	Silty clay
105	8	1	10.0	268.1	6.4	22.9	70.7	Silty clay
105	8	2	6.0	269.6	0.8	67.0	32.2	Clayey silt
105	8	2	20.0	269.7	0.1	25.2	74.7	Silty clay
105	8	3	10.0	271.1	0.0	19.5	80.5	Clay
105	8	4	10.0	272.6	0.0	20.3	79.7	Clay
105	8	5	22.0	274.2	0.1	16.0	83.9	Clay
105	8	6	14.0	275.6	0.5	69.5	30.0	Clayey silt
105	9	1	10.0	286.1	3.6	28.7	67.7	Silty clay
105	9	2	13.0	287.6	0.0	17.8	82.2	Clay
105	9	3	2.0	289.0	0.0	13.2	86.8	Clay
105	9	4	3.0	290.5	0.1	59.4	40.5	Clayey silt
105	9	5	5.0	292.0	0.1	61.4	38.5	Clayey silt
105	9	6	2.0	293.5	0.1	17.1	82.8	Clay
105	10	1	34.0	295.3	0.0	26.3	73.7	Silty clay
105	10	2	8.0	296.6	0.0	22.5	77.5	Clay
105	11	1	13.0	304.1	0.0	25.3	74.7	Silty clay
105	11	2	5.0	305.5	0.1	27.5	72.4	Silty clay
105	11	3	10.0	307.1	0.1	37.9	62.1	Silty clay
105	11	4	10.0	308.6	0.2	40.5	59.3	Silty clay
105	11	5	8.0	310.1	0.5	41.2	58.3	Silty clay
105	12	1	69.0	313.7	1.1	36.3	62.6	Silty clay
105	12	2	10.0	314.6	0.6	37.1	62.2	Silty clay
105	12	3	14.0	316.1	0.0	42.4	57.6	Silty clay
105	12	4	8.0	317.6	1.8	45.7	52.5	Silty clay
105	13	1	10.0	322.1	2.9	31.1	66.1	Silty clay
105	13	2	3.0	323.5	1.5	36.7	61.8	Silty clay
105	13	3	6.0	325.1	1.9	37.4	60.7	Silty clay
105	13	4	8.0	326.6	1.5	34.3	64.2	Silty clay
105	13	5	46.0	328.5	1.7	33.7	64.7	Silty clay
105	13	6	100.0	330.5	1.6	33.4	65.1	Silty clay
105	14	1	98.0	349.0	0.6	42.0	57.4	Silty clay
105	15	1	140.0	267.4	1.0	38.3	60.7	Silty clay
105	15	2	10.0	267.6	1.0	34.1	64.9	Silty clay
105	15	4	10.0	270.6	0.6	36.5	62.9	Silty clay
105	15	5	10.0	272.1	0.9	36.9	62.2	Silty clay
105	15	6	10.0	273.6	2.0	33.3	64.7	Silty clay
105	16	1	86.0	385.9	0.5	36.2	63.3	Silty clay
105	16	2	10.0	386.6	0.2	46.0	53.8	Silty clay
105	17	2	1.0	404.5	0.1	36.2	63.7	Silty clay
105	18	3	3.0	424.0	0.9	25.1	74.0	Silty clay
105	18	4	10.0	425.6	0.3	32.3	67.4	Silty clay
105	18	5	20.0	427.2	0.0	29.0	70.9	Silty clay

TABLE 1 – *Continued*

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
105	19	2	56.0	432.1	0.7	31.2	68.1	Silty clay
105	19	3	120.0	434.2	0.4	38.2	61.4	Silty clay
105	19	4	134.0	435.8	3.0	35.0	62.0	Silty clay
105	20	1	93.0	439.9	0.4	22.0	77.6	Clay
105	21	1	42.0	448.4	1.5	22.9	75.6	Clay
105	23	2	5.0	467.5	0.4	23.3	76.2	Clay
105	31	3	107.0	544.1	2.0	28.0	70.0	Silty clay
105	35	1	110.0	577.1	0.6	30.4	69.1	Silty clay
106	1	2	10.0	1.6	0.6	27.7	71.7	Silty clay
106	1	3	10.0	3.1	0.7	39.8	59.5	Silty clay
106	1	4	6.0	4.6	10.8	33.5	55.7	Silty clay
106	3	1	10.0	110.1	69.6	16.5	14.0	Silty sand
106	3	3	10.0	113.1	10.0	35.6	54.4	Silty clay
106	3	4	17.0	114.7	75.0	13.0	12.0	Silty sand
106	3	5	7.0	116.1	51.4	24.8	23.7	Sand-silt-clay
106	3	6	112.0	118.6	49.3	29.7	21.0	Sand-silt-clay
106	5	2	8.0	264.6	1.6	42.6	55.8	Silty clay
106	6	2	11.0	341.6	0.5	42.2	57.4	Silty clay
106B	1	2	28.0	367.8	0.5	28.2	71.3	Silty clay
106B	2	2	3.0	452.5	0.3	35.0	64.8	Silty clay
106B	2	3	17.0	454.2	0.2	23.9	75.9	Clay
106B	3	2	25.0	554.8	0.1	19.8	80.1	Clay
106B	3	3	9.0	556.1	0.1	17.8	82.0	Clay
106B	3	4	20.0	557.7	0.3	21.4	78.3	Clay
106B	3	5	52.0	559.5	0.1	16.8	83.2	Clay
106B	4	2	10.0	755.6	0.1	27.6	72.2	Silty clay
106B	4	3	10.0	757.1	0.2	25.7	74.1	Silty clay
106B	5	2	8.0	936.6	0.1	34.1	65.8	Silty clay
106B	5	3	0.0	938.0	0.1	39.2	60.7	Silty clay
106B	5	4	0.0	939.5	0.3	43.7	56.0	Silty clay
106B	5	5	0.0	941.0	0.6	46.5	52.9	Silty clay
106B	6	2	1.0	955.5	0.1	39.5	60.4	Silty clay
108	1	1	0.0	39.0	0.6	42.5	56.9	Silty clay
108	1	2	34.0	40.8	2.0	40.4	57.6	Silty clay
108	1	3	92.0	42.9	1.3	37.4	61.3	Silty clay
108	1	4	4.0	43.5	1.8	41.2	57.0	Silty clay
108	1	5	41.0	45.4	2.3	40.2	57.4	Silty clay
108	2	1	4.0	57.0	17.6	38.2	44.2	Silty clay

TABLE 2
Detailed Grain Size Analyses in Distilled Water (with Calgon)

Site/Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent of Sample at Phi Units								% Sand -4	% Silt 4-8	% Clay +8	Classification
					-4	4-5	5-6	6-7	7-8	8-9	9-10	+10				
102	2	3	10.0	21.10	0.2	1.0	2.6	7.2	14.5	15.0	16.4	43.2	0.2	25.2	74.6	Silty clay
102	2	6	10.0	25.60	0.2	0.4	4.0	9.6	12.8	16.4	13.2	43.4	0.2	26.9	73.0	Silty clay
102	3	2	10.0	59.60	0.6	0.2	6.6	15.2	15.9	16.6	10.7	34.3	0.6	37.9	61.5	Silty clay
102	4	1	100.0	97.00	2.4	0.1	5.0	6.1	11.5	16.2	19.0	39.6	2.4	22.7	74.9	Silty clay
102	4	4	10.0	100.60	0.2	4.4	0.9	8.5	12.7	17.1	14.2	41.9	0.2	26.6	73.2	Silty clay
102	5	1	10.0	133.10	1.5	3.8	3.9	6.9	11.1	18.0	17.0	37.8	1.4	25.7	72.8	Silty clay
102	5	6	15.0	140.65	1.9	0.5	3.0	5.9	12.6	20.5	13.1	42.4	1.9	22.1	76.0	Clay
102	6	1	30.0	172.30	0.9	0.3	5.1	7.7	14.2	17.3	15.2	39.3	0.9	27.2	71.8	Silty clay
102	6	4	6.0	176.56	0.9	3.2	3.5	9.1	12.0	15.7	19.7	35.9	0.9	27.7	71.4	Silty clay
102	7	2	10.0	182.60	0.6	2.8	3.4	7.5	14.2	15.4	17.5	38.7	0.6	27.9	71.6	Silty clay
102	7	6	8.0	188.58	0.2	0.9	2.0	8.3	10.8	16.8	21.8	39.2	0.2	22.1	77.8	Clay
102	8	1	6.0	219.06	0.5	1.7	3.5	10.3	16.1	17.7	15.1	35.1	0.5	31.6	67.9	Silty clay
102	8	5	16.0	225.16	1.3	2.6	1.8	10.7	15.8	18.7	14.4	34.7	1.3	30.9	67.8	Silty clay
102	9	1	11.0	266.11	1.2	3.0	4.2	6.9	13.0	16.8	17.9	37.0	1.2	27.1	71.7	Silty clay
102	9	6	10.0	273.60	3.5	1.6	8.6	13.6	12.3	12.6	11.2	36.6	3.5	36.1	60.4	Silty clay
102	10	1	58.0	306.58	1.2	0.3	2.9	7.2	11.6	17.9	12.3	46.6	1.2	22.0	76.8	Clay
102	10	6	10.0	313.60	0.4	1.7	3.7	6.1	13.1	17.3	14.6	43.1	0.4	24.5	75.0	Clay
102	11	1	50.0	353.50	0.6	3.1	3.8	6.8	12.1	18.7	14.6	40.4	0.6	25.7	73.7	Silty clay
102	11	3	6.0	356.06	0.4	1.0	4.0	6.0	14.7	16.6	16.0	41.3	0.4	25.7	73.9	Silty clay
102	12	1	14.0	419.14	0.6	0.3	5.1	8.1	11.9	14.2	16.8	43.0	0.6	25.4	73.9	Silty clay
102	12	4	10.0	423.60	0.6	1.1	3.8	6.7	13.0	14.1	16.6	44.2	0.6	24.6	74.9	Silty clay
102	13	1	3.0	473.03	0.4	2.1	7.2	5.6	12.5	13.9	18.0	40.4	0.4	27.3	72.3	Silty clay
102	13	4	1.0	477.51	0.4	1.3	4.5	5.0	13.5	16.4	15.3	43.7	0.4	24.2	75.4	Clay
102	14	1	40.0	512.40	0.1	1.3	3.8	10.1	11.4	17.2	15.2	40.8	0.1	26.6	73.2	Silty clay
102	15	1	42.0	548.42	0.2	0.1	7.4	8.4	12.7	17.0	15.7	38.4	0.2	28.7	71.1	Silty clay
102	16	1	8.5	584.09	0.3	2.6	6.0	7.2	13.9	17.7	15.0	37.4	0.3	29.6	70.1	Silty clay
102	17	1	18.0	618.18	0.2	1.7	4.4	7.7	14.5	16.5	14.6	40.4	0.2	28.3	71.5	Silty clay
102	18	1	28.0	634.28	0.6	1.2	3.1	14.1	17.4	17.7	16.3	29.6	0.6	35.8	63.6	Silty clay
102	18	4	10.0	638.60	0.1	0.0	5.0	8.3	5.7	24.3	14.3	42.3	0.1	19.0	80.8	Clay
102	19	1	10.0	659.10	0.5	0.9	2.2	6.0	12.1	17.3	19.6	41.4	0.5	21.2	78.3	Clay
106	1	1	81.0	0.81	2.9	3.3	10.7	13.1	17.4	11.1	14.4	27.2	2.9	44.4	52.7	Silty clay
106	1	5	10.0	6.10	0.5	0.7	0.0	6.5	14.1	13.8	13.5	50.9	0.5	21.3	78.2	Clay
106	2	1	103.0	46.03	11.7	8.1	8.2	10.3	11.9	9.2	12.7	28.0	11.7	38.5	49.9	Silty clay

TABLE 2 - *Continued*

Site/Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent of Sample at Phi Units								% Sand -4	% Silt 4-8	% Clay +8	Classification
					-4	4-5	5-6	6-7	7-8	8-9	9-10	+10				
106	3	2	110.0	112.60	14.9	7.0	7.9	7.6	10.1	10.7	14.1	27.6	14.9	32.6	52.5	Silty clay
106	3	4	1.0	114.51	29.6	9.9	7.9	5.8	8.4	7.2	11.0	20.1	29.6	32.1	38.3	Sand-silt-clay
106	5	1	60.0	263.60	0.0	2.2	3.0	11.1	15.8	17.7	13.8	36.3	0.0	32.1	67.8	Silty clay
106	5	3	26.0	266.26	0.4	0.4	0.8	5.4	12.1	18.9	14.1	47.9	0.4	18.7	80.9	Clay
106	6	1	4.0	340.04	2.6	3.8	9.6	13.3	15.3	15.6	10.9	29.0	2.6	42.0	55.5	Silty clay
106	6	3	30.0	343.30	1.0	0.8	2.2	4.8	10.5	18.9	15.4	46.4	1.0	18.4	80.6	Clay
106/B	1	1	29.0	366.29	0.4	1.4	4.3	2.7	11.9	15.5	15.3	48.5	0.4	20.3	79.3	Clay
106/B	1	3	0.0	366.00	0.3	1.5	2.6	7.7	10.8	12.7	14.6	49.8	0.3	22.7	77.1	Clay
106/B	2	1	86.0	451.86	0.6	1.2	4.6	7.5	13.5	12.1	12.9	57.4	0.6	26.8	72.6	Silty clay
106/B	2	4	21.0	455.71	0.0	0.9	0.0	6.1	12.1	13.6	17.6	49.7	0.0	19.1	80.8	Clay
106/B	3	1	14.0	553.14	0.0	1.0	1.6	6.3	10.6	17.2	16.3	47.0	0.0	19.5	80.5	Clay
106/B	3	6	0.0	560.50	0.1	0.4	2.8	6.8	7.6	15.1	16.8	50.4	0.1	17.7	82.2	Clay
106/B	4	1	109.0	755.09	0.4	0.0	3.8	6.6	12.3	14.6	18.2	44.2	0.4	22.7	76.9	Clay
106/B	4	4	53.0	759.03	0.2	0.6	3.8	8.9	13.2	13.7	16.2	43.4	0.2	26.5	73.3	Silty clay
106/B	5	1	10.0	935.10	0.0	0.1	4.2	10.5	15.7	18.9	16.4	34.2	0.0	30.4	69.5	Silty clay
106/B	5	6	0.0	942.50	0.2	2.3	9.4	15.2	23.0	11.7	10.6	27.7	0.2	49.9	49.9	Clayey silt
106/B	6	1	0.0	954.00	0.1	2.3	8.3	14.3	17.2	16.6	13.3	27.9	0.1	42.1	57.8	Silty clay
106/B	6	3	3.0	957.03	0.0	1.0	7.0	13.2	16.6	17.2	14.7	30.3	0.0	37.9	62.1	Silty clay
106/B	7	1	5.0	1120.05	0.6	3.7	16.4	16.0	16.9	16.5	9.5	20.3	0.6	53.0	46.4	Clayey silt

TABLE 3
Sand, Silt, and Clay-Size Fractions from Special Pipette Analyses in Sea Water

Hole	Core	Section	Depth in Section Top Interval (cm)	Depth Below Sea Floor (m)	Per Cent Sand	Per Cent Silt	Per Cent Clay	Classification
102	4	4	10.0	100.60	0.1	76.2	23.7	Silt
102	5	1	10.0	133.10	1.6	57.6	40.8	Clayey silt
102	5	6	15.0	140.65	1.7	34.0	64.3	Silty clay
102	6	1	30.0	172.30	0.7	81.6	17.8	Silt
102	6	4	6.0	176.56	0.4	85.3	14.3	Silt
102	8	5	16.0	225.16	1.5	90.4	8.1	Silt
102	9	6	10.0	273.60	2.4	89.9	7.7	Silt
102	11	3	6.0	356.06	0.7	97.5	1.8	Silt
102	13	1	3.0	473.03	0.4	80.4	19.2	Silt
102	14	1	40.0	512.40	0.0	66.1	33.9	Clayey silt
102	17	1	18.0	618.18	0.2	83.7	16.1	Silt
102	19	1	10.0	659.10	0.7	94.0	5.3	Silt
106	1	1	81.0	0.81	0.0	25.8	74.2	Silty clay
106	1	5	10.0	6.10	1.0	93.6	5.4	Silt
106	2	1	103.0	46.03	2.3	95.7	2.0	Silt
106	5	1	60.0	263.60	0.3	89.6	10.1	Silt
106	5	3	26.0	266.26	0.2	83.8	16.1	Silt
106	6	3	30.0	343.30	0.7	91.1	8.2	Silt
106B	1	3	0.0	366.00	0.3	79.8	19.9	Silt
106B	2	1	86.0	451.86	0.6	79.1	20.2	Silt
106B	2	4	21.0	455.71	0.1	78.9	21.0	Silt
106B	3	1	14.0	553.14	0.4	80.0	19.7	Silt
106B	4	4	53.0	759.03	0.4	93.1	6.6	Silt
106B	5	1	11.0	935.10	0.3	85.3	14.4	Silt
106B	6	1	0.0	954.00	0.0	85.6	14.3	Silt
106B	6	3	3.0	957.03	0.0	82.3	17.7	Silt
106B	7	1	5.0	1120.05	2.4	85.3	12.3	Silt