

HYDRAULICS DIVISION
TECHNICAL NOTE



DATE: March 1983

REPORT NO: 83-12

TITLE: Particle Size Data Report - Ottawa River

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REASON FOR REPORT: This report responds to a request for particle size data from John Merriman, Monitoring and Surveys Section, Water Quality Branch.

CORRESPONDENCE FILE NO: Study 83-302

1.0 INTRODUCTION

This report provides the results of particle size analysis and sediments from the Ottawa River. John Merriman, WQB, submitted 37 samples requesting gravel, sand, silt, and clay percentages. The samples were analyzed, using standard procedures (Duncan and LaHaie 1979) and the unused portion returned to J. Merriman.

2.0 PROCEDURES

1) Sieve analysis which provides gravel, sand and silt/clay percentages was used to analyze one sample. Briefly the procedure consists of:

1. Splitting the sample to 100-200 g.
2. Sieving the split at 1/2 or 1/4 PHI intervals.
3. Processing the results with SIZDIST: a FORTRAN IV computer program (Sandilands and Duncan, 1980).

2) The Sieve and Sedigraph Method which provides sand, silt, and clay percentages was used to analyze 35 samples. Briefly the procedure consists of:

1. Splitting the sample to 2g.
2. Removing particles large enough to block Sedigraph Suction Tube (0.88 mm).
3. Dispersing sample in a Calgon suspension.
4. Automatic analysis with the Sedigraph.
5. Processing the results with SIZDIST: a FORTRAN IV computer program (Sandilands and Duncan, 1980).

NOTE: 17 samples were analyzed by obtaining one sieve point to determined percentage sand.
18 samples had detail sieve analysis for sand and gravel.

- 3) The remaining sample (12110) was not analyzed and is recorded in the output as a comment only.

3.0 RESULTS

- 1) For the Sieve Method, the output consists of:
 1. A histogram of the frequency distribution.
 2. The percentage and cumulative percentage of the material occurring within 1/2 PHI unit.
 3. Moment measures (Krumbein and Pettijohn, 1938) and graphic (Folk and Ward, 1957) statistics.
 4. Percentiles.
 5. Percent gravel, sand and silt/clay.
 6. Ratios used to plot Folk's Ternary Classification.
 7. Shepard (1954) and Fold (1974) Ternary Classification.

- 2) For the Sieve and Sedigraph Method, the output consists of:
 1. A histogram of the frequency distribution.
 2. The percentage and cumulative percentages of the material occurring within each 1/2 PHI unit.
 3. Moment measures (Krumbein and Pettijohn, 1938) and graphic (Folk and Ward, 1957) statistics.
 4. Percentiles.
 5. Percent gravel, sand, silt and clay.
 6. Ratios used to plot Folk's Ternary Classification.
 7. Shepard (1954) and Fold (1974) Ternary Classifications.

PHI CONVERSION

The results of samples analyzed in the Sedimentology Lab are presented using the PHI scale (Krumbein, 1934). The conversion from this PHI equation, $\phi = -\log_2 \xi$ (where ξ is the diameter in millimeters) to the Wentworth scale is listed below.

PHI (ϕ)	Millimeters	Microns	Wentworth Size Class
-5.0	32		
-4.5	24		
-4.0	16		Pebble (-2 to -6 ϕ)
-3.5	12		
-3.0	8		
-2.5	6		
-2.0	4		
-1.5	2.83		Granule
-1.0	2.00		
-0.5	1.41		Very coarse sand
0.0	1.00		
0.5	0.71		Coarse sand
1.0	0.51	500	
1.5	0.35	350	Medium sand
2.0	0.25	250	
2.5	0.177	177	Fine sand
3.0	0.125	125	
3.5	0.088	88	Very fine sand
4.0	0.0625	62.5	
8.0	0.0039	3.9	Silt+ Clay+

4.0 REFERENCES

- Duncan, G.A. AND LaHaie, G.G. 1979. Size Analysis Procedures used in the Sedimentology Laboratory, NWRI. NWRI, CCIW, Hydraulic Division Manual, September 1979.
- Folk, R.L. 1968. Petrology of Sedimentary Rocks. Hemphill Publishing Co., Austin, Texas, 182 p.
- Folk, R.L. and Ward W.C. 1957. Brazos River Bar: A Study in the Significance of Grain Size Parameters. Jour. Sed. Petrology, V. 27, pp 3-26.
- Krumbein, W.C. and Pettijohn, F.J. 1938. Manual of Sedimentary Petrography. Appleton-Century-Crofts, New York, 549 p.
- Sandilands, R.G. and Duncan, G.A. 1980. SIZDIST - A Computer Program for Size Analysis. NWRI, CCIW, Hydraulics Division Technical Note, Report No. 80-08.
- Shepard, F.P. 1954. Nomenclature Based on Sand-Silt Ratios. Jour. Sed. Petrology, V. 24, pp. 151-158.

05/17/83

PHI	PCT. CUMFCT.	
-2.50		****
-2.00	4.07	
-1.50	0.00	4.07
-1.00	1.32	4.07
-0.50	1.45	5.39
0.00	0.51	6.84
0.50	0.57	7.35
1.00	0.45	7.92
1.50	0.76	8.37
2.00	1.29	9.13
2.50	1.88	10.41
3.00	2.31	12.29
3.50	3.60	14.60
4.00	3.33	18.21
4.50	0.78	21.54
5.00	2.15	22.32
5.50	3.51	24.47
6.00	3.50	27.98
6.50	4.88	31.88
7.00	5.47	36.76
7.50	7.81	42.23
8.00	7.83	50.03
8.50	7.61	57.06
9.00	6.78	64.67
9.50	6.48	73.46
10.00	4.54	79.94
10.50	3.51	84.78
11.00	2.73	88.29
11.50	2.73	91.02
12.00	0.78	93.75
****	5.47	94.53
		100.00

MEAN ST.DEV. SKEWNESS KUFTOSIS

6.47 3.46 .49 .36 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE -2.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	7.50	5TH	-1.15	16TH	3.19	25TH	5.08
			75TH	6.12	84TH	9.92	95TH	*****
PCT. GRAVEL	5.39	SAND	16.15	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	

(SEMIGRAPH) 35.52

(SEMIGRAPH) 42.94

GRAVEL+SAND 21.5- SILT/(SILT+CLAY) 43.27%OT.GRAV+SAND/SILT+CLAY .27

LABELS SHEPARD -SAN SIL CLY FOLK(GMS)-GRAVELLY MUD (SCS)-

05/17/83

PHI PCT. CUMPCT.

1.00			
1.50	.01	.01	
2.00	.04	.05	
2.50	.07	.12	
3.00	.32	.44	
3.50	.44	.87	
4.00	.15	1.02	*
4.50	.75	1.77	*
5.00	.75	2.51	**
5.50	2.19	5.00	**
6.00	5.97	10.97	*****
6.50	7.46	18.43	*****
7.00	7.96	26.39	*****
7.50	11.91	38.33	*****
8.00	6.95	47.28	*****
8.50	7.96	55.24	*****
9.00	9.45	64.69	*****
9.50	7.71	72.40	****
10.00	4.48	76.87	****
10.50	5.22	82.09	****
11.00	4.48	86.57	****
11.50	4.48	91.05	****
12.00	2.49	93.53	**
****	6.47	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.10 1.82 .01 -.34

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.5 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	8.17	5TH	5.50	16TH	6.34	25TH	6.91
			75TH	9.79	84TH	10.71	95TH	*****

PCT. GRAVEL	0.00	SAND	1.02	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	46.26	(SEDIGRAPH)	52.72

GRAVEL+SAND 1.02 SILT/(SILT+CLAY) 46.73 PCT. GRAV+SAND/SILT+CLAY .01

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MUD (SCS)-MUD

05/17/83

PHI	PCT.	CUMFCT.	
.50			
1.00	.10	.10	
1.50	.17	.26	
2.00	.62	.89	*
2.50	.74	1.62	*
3.00	.69	2.31	*
3.50	.70	3.01	*
4.00	.47	3.48	
4.50	.24	3.72	
5.00	2.90	6.62	***
5.50	6.27	12.89	*****
6.00	7.00	19.89	*****
6.50	8.20	28.09	*****
7.00	7.99	35.09	*****
7.50	9.41	44.50	*****
8.00	7.72	52.22	*****
8.50	7.72	59.94	*****
9.00	8.69	68.63	*****
9.50	7.24	75.87	*****
10.00	4.83	80.70	*****
10.50	4.34	85.04	*****
11.00	3.38	88.42	***
11.50	2.17	91.80	**
12.00	6.03	93.97	*****
*****		100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

7.68 2.06 .12 .01

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	7.86	5TH	4.72	15TH	5.72	25TH	6.31
			75TH	9.44	84TH	10.38	95TH	*****

PCT. GRAVEL	0.00	SAND	3.48	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	48.74	(SEDIGRAPH)	47.73

GRAVEL+SAND 3.48 SILT/(SILT+CLAY) 50.50 PCT. GRAV+SAND/SILT+CLAY .04

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SGS)-MUD

05/17/83

PHI	FCT.	CUMFCT.	
.50			
1.00	.30	.30	
1.50	.25	.55	
2.00	.33	.88	
2.50	.41	1.29	
3.00	1.94	3.23	**
3.50	2.57	5.80	***
4.00	8.92	14.72	*****
4.50	3.64	18.36	****
5.00	14.36	32.72	*****
5.50	18.21	50.93	*****
6.00	13.93	64.86	*****
6.50	8.57	73.43	*****
7.00	3.21	77.29	***
7.50	3.21	80.50	***
8.00	1.71	83.72	**
8.50	2.14	85.43	**
9.00	2.79	87.57	***
9.50	1.50	90.36	*
10.00	2.14	91.86	**
10.50	1.71	94.00	**
11.00	1.50	95.71	*
11.50	2.57	97.21	***
12.00	.21	99.79	
*****		100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

5.98 2.13 .49 .71 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

5.91 2.11 .38 1.55 FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARE, 1957

PERCENTILES MEDIAN 5.47 5TH 3.34 16TH 4.18 25TH 4.73
75TH 6.70 84TH 8.08 95TH 10.79

PCT. GRAVEL 0.00 SAND 14.72 SILT (PIPETTE) 0.00 CLAY (PIPETTE) 0.00
(SEDIGRAPH) 69.00 (SEDIGRAPH) 16.23

GRAVEL+SAND 14.72 SILT/(SILT+CLAY) 80.90 PCT. GRAV+SAND/SILT+CLAY .17

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

12096 B OTTAWA P.

SIEVE, SH. PIP., SEDIGRAPH SAMPLE WT.= 2.3520

05/17/83

PHI FCT. CUMFCT.

.50	.00	.00	
1.00	.01	.01	
1.50	.00	.01	
2.00	.11	.02	
2.50	.29	.13	
3.00	3.12	.42	***
3.50	1.55	3.54	**
4.00	9.00	5.09	
4.50	20.41	5.09	*****
5.00	19.90	25.50	*****
5.50	13.52	45.40	*****
6.00	9.18	58.92	*****
6.50	3.32	68.11	***
7.00	2.30	71.42	**
7.50	2.81	73.72	***
8.00	2.04	76.53	**
8.50	2.55	73.57	***
9.00	2.55	81.12	***
9.50	2.04	83.67	**
10.00	2.55	85.71	***
10.50	2.55	88.26	***
11.00	3.06	90.82	***
11.50	2.30	93.88	**
12.00	3.83	96.17	****
*****	100.00		

MEAN ST.DEV. SKEWNESS KURTOSIS

6.36	2.12	.56	.30	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI
6.67	2.38	.59	1.16	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	5.67	5TH	3.97	16TH	4.77	25TH	4.99
			75TH	7.73	84TH	9.53	95TH	11.74

PCT. GRAVEL	0.00	SAND	5.09	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	71.44	(SEDIGRAPH)	23.47

GRAVEL+SAND 5.09 SILT/(SILT+CLAY) 75.27PCT.GRAV+SAND/SILT+CLAY .05

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-SILT

PHI PCT. CUM PCT.

05/17/63

.50			
1.00	.16	.16	
1.50	.04	.22	
2.00	.12	.34	
2.50	.45	.79	
3.00	3.60	4.59	****
3.50	15.20	19.79	*****
4.00	18.19	37.98	*****
4.50	5.32	43.30	****
5.00	9.85	53.15	*****
5.50	10.65	63.80	*****
6.00	6.12	69.92	*****
6.50	4.53	74.45	*****
7.00	2.40	76.84	**
7.50	3.99	80.83	****
8.00	2.66	83.50	***
8.50	1.86	85.36	**
9.00	2.40	87.76	**
9.50	1.06	88.82	*
10.00	2.13	90.95	**
10.50	2.13	93.08	**
11.00	1.60	94.68	**
11.50	1.06	95.74	*
12.00	1.60	97.34	**
****	2.66	100.00	***

MEAN ST.DEV. SKEWNESS KURTOSIS

5.35	2.27	.56	.49	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI
5.45	2.42	.47	1.12	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	4.84	5TH	3.01	16TH	3.38	25TH	3.64
			75TH	6.62	84TH	8.14	95TH	11.15

PCT. GRAVEL	0.00	SAND	37.98	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	45.52	(SEDIGRAPH)	16.50

GRAVEL+SAND 37.98 SILT/(SILT+CLAY) 73.39 PCT. GRAV+SAND/SILT+CLAY .61

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

COMMENTS -
12097 WT. OF ORGANIC C.04 NOT INCL. IN ANALYSIS

05/17/63

PHI	PCT. CUMFCT.
.50	
1.00	.14
1.50	.23
2.00	.45
2.50	.69
3.00	1.14
3.50	2.31
4.00	5.15
4.50	7.19
5.00	20.71
5.50	40.85
6.00	61.25
6.50	72.46
7.00	80.37
7.50	85.72
8.00	89.55
8.50	91.33
9.00	94.90
9.50	97.45
10.00	98.98
*****	100.00

MEAN ST. DEV. SKEWNESS KURTOSIS

5.95	1.39	.28	.91	KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 10.0 PHI
5.96	1.39	.30	1.33	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN 5.72	5TH 3.97	16TH 4.83	25TH 5.11
		75TH 6.66	84TH 7.34	95TH 9.02
PCT. GRAVEL	0.00	SAND 5.15	SILT (PIPETTE) 0.00	CLAY (PIPETTE) 0.00
			(SEDIGRAPH) 84.39	(SEDIGRAPH) 10.45
GRAVEL+SAND	5.15	SILT/(SILT+CLAY)	83.98	PCT.GRAV+SAND/SILT+CLAY .05
LABELS SHEPARD	-SILT	FOLK(GMS)-MUD		(SCS)-SILT

05/17/83

PHI	PCT. CUMFCT.	
1.50		
2.00	.06	
2.50	.24	
3.00	.61	*
3.50	5.43	*****
4.00	10.37	*****
4.50	16.92	*****
5.00	15.37	*****
5.50	17.03	*****
6.00	11.22	*****
6.50	6.65	*****
7.00	5.40	*****
7.50	2.91	***
8.00	2.91	***
8.50	2.08	**
9.00	2.08	**
9.50	2.08	**
10.00	1.87	**
10.50	2.08	**
11.00	1.45	*
11.50	2.08	**
12.00	1.25	*
*****	2.08	**
	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

5.87	2.85	.55	.68	KRUMBEIN + PETTIJOHN (1936) MOMENT MEASURES FOR SIZE RANGE 2.0 TO 12.0 PHI
5.86	2.25	.40	1.45	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	5.39	5TH	3.36	16TH	3.95	25TH	4.61
			75TH	6.80	84TH	8.25	95TH	11.10
PCT. GRAVEL	0.00	SAND	16.92	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	66.05	(SEDIGRAPH)	17.03	
GRAVEL+SAND	16.92	SILT/(SILT+CLAY)	79.50	PCT.GRAV+SAND/SILT+CLAY			.20	
LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD				(SCS)-SANDY SILT				

05/17/83

PHI	FGT.	CUMPCT.	
.50			
1.00	.09	.09	
1.50	.07	.15	
2.00	.03	.18	
2.50	.24	.43	
3.00	.66	1.29	
3.50	4.22	5.51	****
4.00	7.78	13.29	*****
4.50	7.31	20.60	*****
5.00	22.98	43.58	*****
5.50	18.81	62.39	*****
6.00	10.97	73.36	*****
6.50	5.75	79.10	*****
7.00	1.57	80.67	**
7.50	1.57	82.24	*
8.00	1.04	83.28	*
8.50	2.61	85.90	***
9.00	.52	86.42	*
9.50	1.04	87.46	*
10.00	1.04	88.51	*
10.50	1.04	89.55	*
11.00	1.54	90.60	*
11.50	.26	90.86	*
12.00	.52	91.38	*
*****	8.62	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

5.37 1.62 .79 3.18 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
 FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	5.17	5TH	3.44	16TH	4.19	25TH	4.60
			75TH	6.14	84TH	6.14	95TH	*****

PCT. GRAVEL	0.00	SAND	13.29	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	70.00	(SEDIGRAPH)	16.72

GRAVEL+SAND 13.29 SILT/(SILT+CLAY) 80.72PCT.GRAV+SAND/SILT+CLAY .15

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

COMMENTS -
12099 B .0668G NOT INCL.(ORGANICS)

05/17/83

PHI	PCT. CUMFCT.	
.50		
1.00	.25	
1.50	.41	
2.00	1.15	*
2.50	1.28	*
3.00	1.33	*
3.50	1.67	**
4.00	1.45	*
4.50	1.04	*
5.00	1.57	**
5.50	2.61	***
6.00	2.35	**
6.50	4.70	*****
7.00	4.44	*****
7.50	7.31	*****
8.00	8.36	*****
8.50	9.92	*****
9.00	16.45	*****
9.50	8.36	*****
10.00	7.05	*****
10.50	5.48	*****
11.00	4.18	****
11.50	4.18	****
12.00	3.13	***
****	7.31	*****
	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

7.99 2.32 -.46 .45 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN 8.51	5TH 3.17	16TH 6.09	25TH 7.05
		75TH 9.95	84TH 10.84	95TH*****
PCT. GRAVEL	0.00	SAND 7.55	SILT (PIPETTE) 0.00	CLAY (PIPETTE) 0.00
			(SEDIGRAPH) 32.38	(SEDIGRAPH) 60.06
GRAVEL+SAND	7.55	SILT/(SILT+CLAY)	35.03PCT.GRAV+SAND/SILT+CLAY	.08
LABELS SHEPARD	-SILTY CLAY	FOLK(GMS)-MUD		(SCS)-MUD

12101 OTTAWA P.

SIEVE, SH. PIP., SEDIGRAPH SAMPLE WT.= 2.2718

05/17/63

PHI PCT. CUMPCT.

.50			
1.00	.12	.12	
1.50	.15	.27	
2.00	.53	.80	*
2.50	.81	1.61	*
3.00	1.61	2.62	*
3.50	.86	3.48	**
4.00	1.67	5.15	**
4.50	1.90	7.04	****
5.00	4.51	11.55	*****
5.50	8.30	19.85	*****
6.00	9.96	29.81	*****
6.50	11.38	41.19	*****
7.00	8.54	49.73	*****
7.50	10.43	60.16	*****
8.00	9.01	69.17	*****
8.50	6.17	75.34	*****
9.00	6.17	81.50	*****
9.50	4.27	85.77	*****
10.00	3.08	88.85	*****
10.50	2.37	91.23	*****
11.00	2.13	93.36	*****
11.50	1.42	94.78	*****
12.00	1.19	95.97	*****
****	4.03	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

6.99	1.94	.03	.14
7.19	2.16	.17	1.15

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	7.01	5TH	3.96	15TH	5.27	25TH	5.76
			75TH	8.47	84TH	9.29	95TH	11.59

PCT. GRAVEL	0.00	SAND	5.15	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	64.03	(SEDIGRAPH)	30.83

GRAVEL+SAND	5.15	SILT/(SILT+CLAY)	67.50	PCT.GRAV+SAND/SILT+CLAY	.05
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LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-SILT

05/17/83

PHI	PCT. CUMFCT.	
.50		
1.00	.63	.03
1.50	.05	.08
2.00	.10	.18
2.50	.17	.35
3.00	.41	.76
3.50	2.58	3.34
4.00	.18	3.52
4.50	1.71	5.23
5.00	7.33	12.55
5.50	6.35	18.90
6.00	3.91	22.81
6.50	4.40	27.21
7.00	5.25	32.36
7.50	6.58	38.93
8.00	4.40	43.33
8.50	5.62	48.95
9.00	5.62	54.57
9.50	5.62	60.18
10.00	6.35	65.80
10.50	5.37	72.15
11.00	5.62	77.53
11.50	3.66	83.15
12.00	13.19	86.81
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

7.88 2.38 -.88 -.99

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	8.59	5TH	4.43	16TH	5.27	25TH	6.25
			75TH	16.76	84TH	11.62	95TH	*****
PCT. GRAVEL	0.00	SAND	3.52	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	39.82	(SEDIGRAPH)	56.67	
GRAVEL+SAND	3.52	SILT/(SILT+CLAY)	41.27	PCT.GRAV+SAND/SILT+CLAY			.04	
LABELS SHEPARD	-SILTY CLAY	FOLK(GMS)-MUD		(SCS)-MUD				

05/17/83

PHI PCT. CUMPCT.

3.50 ASSUMED UPPER LIMIT

4.00	3.72	3.72	****
4.50	2.65	6.37	***
5.00	4.57	10.94	*****
5.50	7.22	18.16	*****
6.00	9.63	27.79	*****
6.50	7.70	35.49	*****
7.00	10.35	45.84	*****
7.50	9.87	55.71	*****
8.00	6.74	62.45	*****
8.50	8.67	71.12	*****
9.00	6.98	78.10	*****
9.50	4.57	82.67	*****
10.00	3.37	86.04	***
10.50	2.89	88.93	***
11.00	2.89	91.82	**
11.50	2.41	94.22	**
*****	5.78	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

7.19 1.85 .11 -.59

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	7.21	5TH	4.24	15TH	5.35	25TH	5.86
			75TH	8.78	84TH	9.70	95TH	*****

PCT. GRAVEL	.00	SAND	3.72	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	58.73	(SEDIGRAPH)	37.55

GRAVEL+SAND 3.72 SILT/(SILT+CLAY) 61.00 PCT.GRAV+SAND/SILT+CLAY .04

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

05/17/83

PHI PCT. CUMECT.

3.50 ASSUMED UPPER LIMIT

4.00	4.93	4.93	*
4.50	1.44	6.37	*
5.00	1.44	7.81	****
5.50	3.84	11.65	*****
6.00	5.76	17.41	*****
6.50	6.72	24.14	*****
7.00	10.08	34.22	*****
7.50	9.60	43.82	*****
8.00	9.60	53.43	*****
8.50	10.56	63.99	*****
9.00	8.64	72.63	*****
9.50	6.24	78.87	*****
10.00	4.32	83.19	***
10.50	3.36	86.56	**
11.00	3.36	89.92	*
11.50	2.16	92.08	*
****	7.92	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

7.56 1.81 -.08 -.37

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	7.82	5TH	4.02	16TH	5.68	25TH	6.54
			75TH	9.19	84TH	10.12	95TH	*****

PCT. GRAVEL	.00	SAND	4.93	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	48.49	(SEDIGRAPH)	46.57

GRAVEL+SAND 4.93 SILT/(SILT+CLAY) 51.01 PCT.GRAV+SAND/SILT+CLAY .05

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

05/17/83

PHI	PCT. CUMFCT.	
3.50	ASSUMED UPPER LIMIT	
4.00	4.99	****
4.50	6.18	*
5.00	7.37	*
5.50	10.69	***
6.00	14.49	****
6.50	19.01	*****
7.00	24.00	*****
7.50	29.46	*****
8.00	35.16	*****
8.50	42.52	*****
9.00	49.65	*****
9.50	56.53	*****
10.00	63.90	*****
10.50	69.60	*****
11.00	76.25	*****
11.50	82.90	*****
****	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

6.18 2.12 -.22 -.70

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.83	5TH	4.00	16TH	6.17	25TH	7.09
			75TH	10.91	84TH	*****	95TH	*****

PCT. GRAVEL	.00	SAND	4.99	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	30.16	(SEDIGRAPH)	64.84

GRAVEL+SAND 4.99 SILT/(SILT+CLAY) 31.75 PCT. GRAV+SAND/SILT+CLAY .05

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MUD (SCS)-CLAY

05/17/83

PHI PCT. CUMPCT.
3.50 ASSUMED UPPER LIMIT

4.00	3.96	3.96	
4.50	0.00	3.96	
5.00	.26	4.22	
5.50	1.29	5.51	*
6.00	2.58	8.09	***
6.50	3.10	11.19	*****
7.00	5.42	16.61	*****
7.50	4.91	21.52	*****
8.00	6.71	28.23	*****
8.50	7.23	35.46	*****
9.00	7.49	42.94	*****
9.50	5.94	48.88	*****
10.00	7.23	56.11	*****
10.50	7.23	63.34	*****
11.00	7.23	70.57	*****
11.50	4.65	75.22	*****
****	24.78	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.45 1.93 -.32 -.13

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES MEDIAN 9.58 5TH 5.30 16TH 6.94 25TH 7.76
75TH 11.48 84TH***** 95TH*****

PCT. GRAVEL .00 SAND 3.96 SILT (PIPETTE) 0.00 CLAY (PIPETTE) 0.00
(SEDIGRAPH) 24.27 (SEDIGRAPH) 71.77

GRAVEL+SAND 3.96 SILT/(SILT+CLAY) 25.27 PCT.GRAV+SAND/SILT+CLAY .04

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MUD (SCS)-CLAY

05/17/53

PHI	PCT. CUMFCT.	
3.50	ASSUMED UPPER LIMIT	
4.00	1.43	*
4.50	1.95	
5.00	2.22	**
5.50	4.04	****
6.00	6.21	****
6.50	10.82	****
7.00	14.47	****
7.50	18.64	****
8.00	22.82	*****
8.50	30.64	*****
9.00	38.46	*****
9.50	46.51	*****
10.00	55.67	*****
10.50	64.54	*****
11.00	72.88	*****
11.50	78.62	*****
*****	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.75 1.81 -.35 -.17

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.68	5TH	5.61	16TH	7.18	25TH	6.14
			75TH	11.18	84TH*****		95TH*****	
PCT. GRAVEL	0.00	SAND	1.43	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	21.38	(SEDIGRAPH)	77.18	
GRAVEL+SAND	1.43	SILT/(SILT+CLAY)	21.69	PCT.GRAV+SAND/SILT+CLAY			.01	
LABELS SHEPARD	-CLAY	FOLK(GMS)-MUD		(SCS)-CLAY				

05/17/83

PHI PCT. CUMFCT.

3.50 ASSUMED UPPER LIMIT

4.00	.82	.82	
4.50	0.00	.82	
5.00	0.00	.82	
5.50	.99	1.82	*
6.00	2.73	4.54	***
6.50	3.22	7.77	****
7.00	3.72	11.49	*****
7.50	5.95	17.44	*****
8.00	5.21	22.64	*****
8.50	7.44	30.08	*****
9.00	7.44	37.52	*****
9.50	6.45	43.97	*****
10.00	6.94	50.91	*****
10.50	6.45	57.35	*****
11.00	5.95	63.31	*****
11.50	4.96	68.26	*****
	31.74	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.68 1.67 -.20 -.38

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.93	5TH	6.07	16TH	7.39	25TH	8.16
			75TH	*****	84TH	*****	95TH	*****
PCT. GRAVEL	.80	SAND	.82	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	21.82	(SEDIGRAPH)	77.36	
GRAVEL+SAND	.82	SILT/(SILT+CLAY)	22.00	PCT.GRAV+SAND/SILT+CLAY			.01	
LABELS SHEPARD	-CLAY		FOLK(GMS)-MUD			(SCS)-CLAY		

05/17/83

PHI	FCT.	CUMFCT.	
.50			
1.00	2.67	2.67	***
1.50	2.50	4.67	**
2.00	1.65	6.32	**
2.50	.85	7.17	*
3.00	2.75	9.92	***
3.50	.38	10.30	
4.00	.08	10.38	
4.50	.45	10.82	
5.00	1.81	14.84	****
5.50	5.80	20.63	*****
6.00	6.69	27.32	*****
6.50	4.68	32.00	****
7.00	5.35	37.35	****
7.50	5.13	42.48	****
8.00	4.90	47.39	****
8.50	5.80	53.18	*****
9.00	7.13	60.32	*****
9.50	6.24	66.56	*****
10.00	5.80	72.36	*****
10.50	5.35	77.71	*****
11.00	3.79	81.50	****
11.50	5.57	87.07	*****
12.00	3.57	90.64	****
*****	9.36	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

7.43 2.84 -.29 -.28 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICAL Y

PERCENTILES	MEDIAN	5TH	16TH	25TH			
	8.23	1.60	5.10	5.83			
		75TH	84TH	95TH			
		10.25	11.22	*****			
PCT. GRAVEL	0.00	SAND	10.38	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	37.01	(SEDIGRAPH)	52.61

GRAVEL+SAND 10.38 SILT/(SILT+CLAY) 41.29 PCT. GRAV+SAND/SILT+CLAY .12

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

COMMENTS -
12110 FIBROUS MATERIAL WITH A SM. AMOUNT OF SAND PART.,
MAINLY QUARTZ AND MICA. NO ANALYSIS.

12111 OTTAWA R.

SIEVE ONLY

SAMPLE WT. = 27.2400

PHI PCT. CUMFCT.

05/17/83

-.75			
-.50	.64	.04	
-.25	.40	.45	
0.00	1.18	1.63	*
.25	2.99	4.62	***
.50	5.46	10.06	*****
.75	14.30	24.39	*****
1.00	17.88	42.27	*****
1.25	21.74	64.00	*****
1.50	15.16	79.17	*****
1.75	9.13	88.30	*****
2.00	5.62	93.92	*****
2.25	1.54	95.47	**
2.50	1.55	97.01	**
2.75	1.51	98.52	**
3.00	.94	99.46	*
3.25	.32	99.78	
3.50	.18	99.96	
3.75	.04	100.00	
4.00	.00	100.00	
*****	.00	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.13	.57	.33	1.33	KRUMBEIN + PETTIGORN (1938) MOMENT MEASURES FOR SIZE RANGE -.5 TO 4.0 PHI
1.11	.55	.10	1.16	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WAPC, 1957

PERCENTILES	MEDIAN	1.09	5TH	.27	16TH	.60	25TH	.76
			75TH	1.43	64TH	1.63	95TH	2.17

PCT. GRAVEL	0.00	SAND	100.00	SILT+CLAY	0.00
GRAVEL+SAND	100.00			GRAV+SAND/SILT+CLAY	99999.99
LABELS SHEPARD -SAND		FOLK(GMS)-SAND		(SCS)-	

05/17/83

PHI	PCT.	CUMFCT.	
.50	.24	.24	
1.00	.23	.47	
1.50	.60	1.08	*
2.00	.32	1.40	
2.50	1.81	2.41	
3.00	4.32	6.73	****
3.50	5.05	11.79	*****
4.00	1.56	13.35	**
4.50	3.34	16.69	***
5.00	4.01	20.70	****
5.50	3.12	23.82	***
6.00	3.12	26.93	***
6.50	3.56	30.50	****
7.00	4.90	35.40	*****
7.50	4.46	39.85	****
8.00	4.90	44.75	*****
8.50	5.79	50.55	*****
9.00	5.79	56.34	*****
9.50	6.24	62.58	*****
10.00	5.79	68.37	*****
10.50	5.35	73.71	*****
11.00	5.79	79.51	*****
11.50	5.79	85.30	*****
12.00	14.70	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

~~7.84 2.73 -.19 -.93~~ KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN 8.95	5TH 3.30	16TH 4.90	25TH 6.19
		75TH 11.11	84TH 11.29	95TH*****
PCT. GRAVEL	0.00	SAND 11.79	SILT (PIPETTE) 0.00	CLAY (PIPETTE) 0.00
		(SEDIGRAPH) 28.07	(SEDIGRAPH) 60.15	
GRAVEL+SAND	11.79	SILT/(SILT+CLAY)	31.82	PCT.GRAV+SAND/SILT+CLAY .13
LABELS SHEPARD	-SILTY CLAY	FOLK(GMS)-SANDY MUD		(SCS)-SANDY CLAY

PHI PCT. CUMFCT.

05/17/83

3.50 ASSUMED UPPER LIMIT

4.00	.41	.41	
4.50	0.00	.41	
5.00	0.00	.41	
5.50	1.99	2.41	**
6.00	2.24	4.65	**
6.50	3.73	8.38	****
7.00	4.98	13.36	*****
7.50	5.48	18.84	*****
8.00	6.97	25.81	*****
8.50	9.46	35.27	*****
9.00	10.46	45.73	*****
9.50	10.46	56.18	*****
10.00	10.95	67.14	*****
10.50	7.97	75.10	*****
11.00	6.97	82.07	*****
11.50	5.48	87.55	*****
****	12.45	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.76 1.56 -.22 -.34

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.20	5TH	6.05	16TH	7.24	25TH	7.94
			75TH	10.49	84TH	11.18	95TH	*****
PCT. GRAVEL	.00	SAND	.41	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	25.39	(SEDIGRAPH)	74.19	
GRAVEL+SAND	.41	SILT/(SILT+CLAY)	25.50	PCT.GRAV+SAND/SILT+CLAY			.00	
LABELS SHEPARD	-SILTY CLAY	FOLK(GMS)-MUD		(SCS)-CLAY				

05/17/83

PHI	PCT. CUMFCT.		
3.50	ASSUMED UPPER LIMIT		
4.00	1.43	1.43	
4.50	.25	1.68	
5.00	.50	2.18	**
5.50	2.48	4.66	***
6.00	2.98	7.64	****
6.50	4.22	11.86	*****
7.00	4.97	16.83	*****
7.50	6.21	23.03	*****
8.00	5.46	28.49	*****
8.50	6.94	37.43	*****
9.00	7.95	45.38	*****
9.50	7.95	53.32	*****
10.00	8.94	62.26	*****
10.50	7.95	70.21	*****
11.00	8.95	77.16	*****
11.50	4.97	82.12	*****
****	17.00	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.55 1.77 -.25 -.38

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.29	5TH	5.56	16TH	6.92	25TH	7.68
			75TH	10.84	84TH	*****	95TH	*****
PCT. GRAVEL	.00	SAND	1.43	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	27.06	(SEDIGRAPH)	71.51	
GRAVEL+SAND	1.43	SILT/(SILT+CLAY)	27.46	PCT.GRAV+SAND/SILT+CLAY			.01	
LABELS SHEPARD	-SILTY CLAY	FOLK(GMS)-MUD		(SCS)-CLAY				

05/17/63

PHI PCT. CURFCT.

3.50 ASSUMED UPPER LIMIT

4.00	3.50	
4.50	1.45	*
5.00	1.21	*
5.50	1.93	**
6.00	2.90	***
6.50	2.90	***
7.00	4.84	*****
7.50	4.84	*****
8.00	5.80	*****
8.50	10.16	*****
9.00	10.40	*****
9.50	9.92	*****
10.00	11.13	*****
10.50	7.74	*****
11.00	6.77	*****
11.50	3.87	****
*****	10.64	*****
	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

8.43 1.88 -.38 .02

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.00	5TH	4.52	16TH	6.72	25TH	7.62
			75TH	10.26	84TH	10.69	95TH	*****

PCT. GRAVEL	.30	SAND	3.50	SILT (PIPETTE)	6.00	CLAY (PIPETTE)	6.00
				(SEDIGRAPH)	25.88	(SEDIGRAPH)	70.62

GRAVEL+SAND 3.50 SILT/(SILT+CLAY) 26.82 PCT.GRAV+SAND/SILT+CLAY .04

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MUD (SCS)-CLAY

12116 OTTAWA B.

SIEVE, SH. PIP., SEDIGRAPH SAMPLE WT. = 1.8910

PHI FCT. CUMFCT.

05/17/83

.50

1.00 .46 .48

1.50 .47 .95

2.00 1.09 2.04

2.50 1.18 3.22

3.00 1.28 4.41

3.50 2.89 7.30

4.00 .67 7.37

4.50 1.47 8.84

5.00 4.41 13.25

5.50 4.41 17.66

6.00 4.41 22.07

6.50 4.41 26.48

7.00 4.41 30.89

7.50 6.62 37.51

8.00 4.41 41.92

8.50 4.41 46.33

9.00 5.88 52.21

9.50 4.41 56.62

10.00 5.15 61.77

10.50 5.88 67.65

11.00 5.15 72.80

11.50 4.41 77.21

12.00 5.15 82.36

***** 17.64 100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

7.75 2.66 -.20 -.58 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES MEDIAN 8.81 5TH 3.10 16TH 5.31 25TH 6.33

75TH 11.25 84TH ***** 95TH *****

PCT. GRAVEL 0.00 SAND 7.37 SILT (PIPETTE) 0.00 CLAY (PIPETTE) 0.00 (SEDIGRAPH) 34.95 (SEDIGRAPH) 58.08

GRAVEL+SAND 7.37 SILT/(SILT+CLAY) 37.30 PCT.GRAV+SAND/SILT+CLAY .08

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MUD (SCS)-MUD

COMMENTS - 12116 .1562G NOT INCL.(ORGANIC)

05/17/83

PHI	PCT. CUMFCT.	
.50		
1.00	.05	
1.50	.05	
2.00	.06	
2.50	.11	
3.00	.37	
3.50	1.34	*
4.00	4.49	*****
4.50	.47	
5.00	2.81	***
5.50	3.74	****
6.00	5.14	*****
6.50	4.68	*****
7.00	4.21	*****
7.50	4.68	*****
8.00	4.68	*****
8.50	5.61	*****
9.00	2.34	*
9.50	13.09	*****
10.00	6.06	*****
10.50	7.01	*****
11.00	3.74	*****
11.50	2.81	***
12.00	1.87	**
****	20.57	*****
****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

7.90 2.26 .20 .75 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN 9.20	5TH 3.84	15TH 5.74	25TH 6.70
		75TH 11.04	84TH*****	95TH*****

PCT. GRAVEL	0.00	SAND 6.48	SILT (PIPETTE) 0.00	CLAY (PIPETTE) 0.00
			(SEDIGRAPH) 30.39	(SEDIGRAPH) 63.13

GRAVEL+SAND 6.48 SILT/(SILT+CLAY) 32.50 PCT.GRAV+SAND/SILT+CLAY .07

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MUD (SCS)-CLAY

COMMENTS -
12117 .17936 NOT INCL.(ORGANIC)

05/17/83

PHI FCT. CUMFCT.

3.50 ASSUMED UPPER LIMIT

4.00	2.59	2.59	**
4.50	1.64	4.23	***
5.00	3.27	7.50	**
5.50	2.46	9.96	*****
6.00	1.00	14.05	*****
6.50	4.09	18.14	*****
7.00	7.37	25.51	*****
7.50	6.14	31.65	*****
8.00	7.75	39.43	*****
8.50	8.19	47.61	*****
9.00	7.37	54.98	*****
9.50	6.55	61.53	*****
10.00	5.73	67.26	*****
10.50	6.55	73.81	*****
11.00	11.46	85.27	*****
11.50	7.37	92.63	*****
*****	7.37	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

6.32 2.06 -.18 -.76

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	6.66	5TH	4.62	16TH	6.24	25TH	6.97
			75TH	10.55	84TH	10.94	95TH	*****
PCT. GRAVEL	.00	SAND	2.59	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	36.84	(SEDIGRAPH)	60.57	
GRAVEL+SAND	2.59	SILT/(SILT+CLAY)	37.82	PCT. GRAV+SAND/SILT+CLAY			.03	
LABELS SHEPARD	-SILTY CLAY	FOLK (GMS)-MUD		(SCS)-MUD				

COMMENTS

12118 .0356 NOT INCL. (ORGANIC)

05/17/33

PHI PCT. COMPCT.

3.50 ASSUMED UPPER LIMIT

4.00	1.21	1.21	
4.50	1.21	1.21	**
5.00	2.85	2.85	*****
5.50	7.79	7.79	*****
6.00	13.56	13.56	*****
6.50	20.96	20.96	*****
7.00	30.84	30.84	*****
7.50	41.96	41.96	*****
8.00	51.01	51.01	*****
8.50	62.13	62.13	*****
9.00	69.54	69.54	*****
9.50	75.30	75.30	*****
10.00	81.06	81.06	****
10.50	85.18	85.18	****
11.00	89.30	89.30	**
11.50	91.77	91.77	*****
****	100.00	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

7.80 1.67 .05 -.54 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
 FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	7.94	5TH	5.22	16TH	6.15	25TH	6.70
			75TH	9.47	84TH	10.36	95TH	*****
PCT. GRAVEL	.00	SAND	1.21	SILT (PIPETTE)	9.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	49.81	(SEDIGRAPH)	48.99	
GRAVEL+SAND	1.21	SILT/(SILT+CLAY)	50.42	PCT. GRAV+SAND/SILT+CLAY			.01	

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

COMMENTS

12119 .0956G NOT INCL.(ORGANIC)

*

05/17/63

PHI	FCT.	CUMFCT.	
.50			
1.00	.13	.13	
1.50	.04	.18	
2.00	.32	.50	
2.50	.65	1.15	*
3.00	1.12	2.27	*
3.50	2.09	4.36	**
4.00	3.41	7.77	***
4.50	.35	8.61	*
5.00	3.35	12.00	***
5.50	10.15	22.15	*****
6.00	8.46	30.61	*****
6.50	8.46	39.08	*****
7.00	6.77	45.85	*****
7.50	8.46	54.31	*****
8.00	5.92	60.23	*****
8.50	5.92	66.15	*****
9.00	7.62	73.77	*****
9.50	6.77	80.54	*****
10.00	5.08	85.62	*****
10.50	5.08	90.69	*****
11.00	3.35	94.08	*****
11.50	4.23	98.31	*****
*****	1.69	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

7.28	2.18	-.04	-.63
7.43	2.30	.07	.90

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 1.0 TO 11.5 PHI

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	7.25	5TH	3.59	16TH	5.20	25TH	5.67
			75TH	9.39	84TH	9.84	95TH	11.11
PCT. GRAVEL	0.00	SAND	7.77	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	52.46	(SEDIGRAPH)	39.77	
GRAVEL+SAND	7.77	SILT/(SILT+CLAY)	56.88	PCT.GRAV+SAND/SILT+CLAY	.08			
LABELS SHEPARD	-CLAYEY SILT	FOLK(GMS)-MUD		(SCS)-MUD				

COMMENTS -

12120 .1276 NOT INCL. (ORGANIC)

*

05/17/83

PHI PCT. CUMPCT.

3.50 ASSUMED UPPER LIMIT

4.00	1.19	*
4.50	1.79	*
5.00	2.38	*
5.50	3.58	**
6.00	5.96	***
6.50	8.93	****
7.00	12.50	****
7.50	16.67	****
8.00	21.13	*****
8.50	26.79	*****
9.00	33.34	*****
9.50	40.48	*****
10.00	50.00	*****
10.50	57.74	*****
11.00	66.07	*****
11.50	100.00	*****
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

9.51 1.88 -.50 .21

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

9.56 1.81 -.42 .83

FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES MEDIAN 10.00 5TH 5.80 16TH 7.42 25TH 8.34
75TH 11.13 84TH 11.26 95TH 11.43

PCT. GRAVEL .00 SAND 1.19 SILT (PIPETTE) 0.00 CLAY (PIPETTE) 0.00
(SEDIGRAPH) 19.94 (SEDIGRAPH) 78.87

GRAVEL+SAND 1.19 SILT/(SILT+CLAY) 20.18 PCT. GRAV+SAND/SILT+CLAY .01

LABELS SHEPARD -CLAY FOLK(GMS)-MUD (SCS)-CLAY

PHI PCT. CUMPCT.

05/17/83

3.50 ASSUMED UPPER LIMIT

4.00	.76	
4.50	1.03	*
5.00	2.53	**
5.50	4.52	**
6.00	6.52	**
6.50	9.02	**
7.00	12.02	***
7.50	15.52	***
8.00	19.52	****
8.50	26.52	*****
9.00	34.52	*****
9.50	42.02	*****
10.00	51.01	*****
10.50	60.01	*****
11.00	69.51	*****
11.50	75.51	*****
****	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.90 1.77 -.39 -.03

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.94	5TH	5.62	16TH	7.56	25TH	8.39
			75TH	11.46	84TH	*****	95TH	*****
PCT. GRAVEL	.00	SAND	.78	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	16.75	(SEDIGRAPH)	80.48	
GRAVEL+SAND	.78	SILT/(SILT+CLAY)	18.89	PCT. GRAV+SAND/SILT+CLAY			.01	
LABELS SHEPARD	-CLAY		FOLK(GMS)-MUD			(SCS)-CLAY		

05/17/83

PHI	PCT. CUMFCT.	
3.50	ASSUMED UPPER LIMIT	
3.55	.56	*
3.60	0.00	*
3.65	.65	*
3.65	1.21	*
3.70	.97	*
3.70	2.18	*
3.75	.97	*
3.75	3.15	***
3.80	2.58	***
3.80	5.73	****
3.85	3.87	****
3.85	9.60	****
3.90	3.23	****
3.90	12.83	*****
3.95	5.17	*****
3.95	16.00	*****
4.00	6.46	*****
4.00	24.45	*****
4.05	6.46	*****
4.05	30.91	*****
4.10	7.10	*****
4.10	38.01	*****
4.15	9.04	*****
4.15	47.05	*****
4.20	7.75	*****
4.20	54.80	*****
4.25	9.04	*****
4.25	63.64	*****
4.30	7.10	*****
4.30	70.94	*****
*****	29.06	*****
*****	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

4.05 .17 -.35 -.05 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 3.6 TO 4.3 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	4.17	5TH	3.79	16TH	3.63	25TH	4.00
			75TH	*****	84TH	*****	95TH	*****
PCT. GRAVEL	.00	SAND	.56	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	70.38	(SEDIGRAPH)	0.00	
GRAVEL+SAND	.56	SILT/(SILT+CLAY)	100.00	PCT. GRAV+SAND/SILT+CLAY			.01	
LABELS SHEPARD	-SANDY SILT	FOLK(GMS)-MUD		(SCS)-SILT				

05/17/83

PHI PCT. CUMFCT.

3.50 ASSUMED UPPER LIMIT

4.00	.28	.28	
4.50	1.00	.28	
5.00	.66	.94	*
5.50	.66	1.61	*
6.00	2.66	4.27	***
6.50	.66	4.93	*
7.00	5.32	10.25	*****
7.50	4.65	14.90	*****
8.00	5.32	20.22	*****
8.50	6.65	26.87	*****
9.00	6.65	33.52	*****
9.50	6.65	40.17	*****
10.00	8.64	48.81	*****
10.50	8.64	57.45	*****
11.00	9.31	66.76	*****
11.50	5.98	72.74	*****
*****	27.20	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

8.97 1.63 -.28 -.40

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN 10.07	5TH 6.51	16TH 7.60	25TH 6.36
		75TH*****	84TH*****	95TH*****
PCT. GRAVEL	.00	SAND .28	SILT (PIPETTE) 8.00	CLAY (PIPETTE) 0.00
			(SEDIGRAPH) 19.94	(SEDIGRAPH) 79.78
GRAVEL+SAND	.28	SILT/(SILT+CLAY) 20.00	PCT. GRAV+SAND/SILT+CLAY	.00
LABELS SHEPARD	-CLAY	FOLK(GMS)-MUD	(SCS)-CLAY	

05/17/83

FHI PCT. CUMFCT.

3.50	7.54	7.54	
4.00	.46	7.94	
4.50	1.56	8.01	**
5.00	1.86	9.87	**
5.50	3.72	11.73	****
6.00	4.18	15.44	****
6.50	5.11	19.62	*****
7.00	6.50	24.73	*****
7.50	7.63	31.24	*****
8.00	10.22	38.67	*****
8.50	13.01	48.89	*****
9.00	9.29	61.90	*****
9.50	6.74	71.19	*****
10.00	4.41	77.93	****
10.50	3.72	82.35	****
11.00	3.25	86.06	***
11.50	10.69	89.31	*****
*****		100.00	

NO STATISTICS ARE COMPUTED BECAUSE THE UPPER SIZE LIMIT IS ASSUMED AND THIS AFFECTS MORE THAN 5 PERCENT OF THE SAMPLE

PERCENTILES	MEDIAN	8.54	5TH*****	16TH	6.97	25TH	7.02
			75TH	9.73	84TH	10.72	95TH*****
PCT. GRAVEL	.00	SAND	7.54	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	31.13	(SEDIGRAPH)	61.33
GRAVEL+SAND	7.54	SILT/(SILT+CLAY)	33.67	PCT.GRAV+SAND/SILT+CLAY			.08
LABELS SHEPARD	-SILTY CLAY	FOLK(GMS)-MUD				(SCS)-MUD	

COMMENTS -
12125 .15676 NOT INCL. (ORGANIC)

05/17/83

PHI	PCT.	CUMFCT.	
3.50	ASSUMED UPPER LIMIT		
4.00	1.03	2.19	*
4.50	1.03	3.22	*
5.00	2.06	4.25	**
5.50	2.57	6.31	***
6.00	2.57	8.88	***
6.50	4.12	11.45	****
7.00	4.12	15.57	****
7.50	5.15	19.69	*****
8.00	7.21	24.84	*****
8.50	6.18	32.05	*****
9.00	7.21	38.22	*****
9.50	7.72	45.43	*****
10.00	8.24	53.15	*****
10.50	8.75	61.39	*****
11.00	7.21	70.14	*****
11.50	22.65	77.35	*****
****	100.00		

MEAN ST.DEV. SKEWNESS KURTOSIS

8.69 1.96 -.35 -.26

KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	9.89	5TH	5.18	16TH	7.05	25TH	6.01
			75TH	11.34	84TH	*****	95TH	*****
PCT. GRAVEL	.00	SAND	2.19	SILT (PIPETTE)	6.00	CLAY (PIPETTE)	8.80	
				(SEDIGRAPH)	22.65	(SEDIGRAPH)	75.16	
GRAVEL+SAND	2.19	SILT/(SILT+CLAY)	23.16PCT.GRAV+SAND/SILT+CLAY			.02		
LABELS SHEPARD	-CLAY		FOLK(GMS)-MUD			(SCS)-CLAY		

COMMENTS

12126 .08316 NOT INCL.(ORGANIC)

05/17/83

PHI	PCT. CUMFCT.	
0.00		
.50	.96	
1.00	.53	*
1.50	.22	1.49
2.00	.45	1.71
2.50	.37	2.17
3.00	2.05	3.04
3.50	3.43	5.09
4.00	4.01	6.52
4.50	.44	12.54
5.00	1.76	12.98
5.50	3.52	14.73
6.00	3.74	18.25
6.50	4.18	21.99
7.00	3.52	26.16
7.50	5.27	29.68
8.00	6.15	34.95
8.50	6.59	41.11
9.00	9.01	47.70
9.50	9.45	56.71
10.00	6.59	66.16
10.50	4.53	72.75
11.00	2.64	77.58
11.50	3.30	80.22
12.00	2.42	83.52
****	14.00	85.94
		100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

7.56 2.59 -.34 -.16 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE .5 TO 12.0 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	8.63	5TH	2.98	16TH	5.18	25TH	6.36
			75TH	10.23	84TH	11.60	95TH	*****

PCT. GRAVEL	0.00	SAND	12.54	SILT (PIPETTE)	5.00	CLAY (PIPETTE)	0.00
				(SEDIGRAPH)	28.57	(SEDIGRAPH)	58.89

GRAVEL+SAND 12.54 SILT/(SILT+CLAY) 32.66 PCT. GRAV+SAND/SILT+CLAY .14

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-SANDY MUD (SCS)-SANDY CLAY

COMMENTS
12127 .0863G NOT INCL.(ORGANIC)

23745