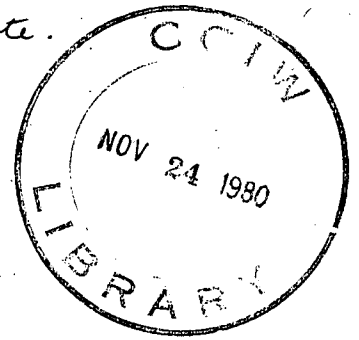


*National Water Research Institute.
Hydraulics Research Division. Technical Note.*

HYDRAULICS DIVISION

Technical Note



DATE:

November 1980

REPORT NO: 80-32

TITLE:

Particle Size Data Report 80-05

AUTHOR:

G. G. LaHaie

REASON FOR REPORT:

This report responds to a request for particle size data from Mr. Dennis Onn, Water Resources Branch, MOE.

CORRESPONDENCE FILE NO:

2242-1 (H79 005)

1.0 INTRODUCTION

Mr. Dennis Onn, Water Resources Branch, MOE, submitted ten samples to the Sedimentology Laboratory for particle size analysis on October 7, 1980. The samples were analyzed on October 27, 28, 1980 by G. G. LaHaie. The unused portion of the samples was returned to Mr. Dennis Onn following the analysis.

2.0 PROCEDURE

All ten samples were analyzed using the Sedigraph Procedure (Duncan and LaHaie, 1979).

2.1 Sedigraph Procedure

The Sedigraph Procedure measures particle size in the silt-clay range by recording the amount of X-rays absorbed by a small prism of sedimenting suspension and converting it to particle size data. The particle size data is plotted on a chart recorder as a cumulative frequency distribution.

Briefly, the procedure consists of:

- 1) Splitting the sample to 2 to 3 g.
- 2) Dispersing the sample in 25 ml of Calgon solution (5g/l) and mixing it for 20 minutes.
- 3) Automatic analysis by sedigraph.
- 4) Processing the results with SIZDIST: a FORTRAN IV computer program (Sandilands and Duncan, 1980).

3.0 RESULTS

Appendix 1 lists the size analysis results for each sample. The output consists of:

- 1) A histogram of the frequency distribution.
- 2) The percentage and cumulative percentage of the material occurring within each 1/2 PHI unit.
- 3) Moment measure (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 Folk (1974) Ternary Classifications.

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.

APPENDIX I
Size Analysis Results

S-9-92-1

281080 SEDIGRAPH ANALYSIS

10/28/80

PHI PCT. CUMPCT.

3.50 ASSUMED UPPER LIMIT

| | | | |
|-------|-------|--------|-------|
| 4.00 | .99 | .99 | * |
| 4.50 | 0.00 | .99 | |
| 5.00 | 0.00 | .99 | |
| 5.50 | 1.98 | 2.97 | ** |
| 6.00 | 6.44 | 9.41 | ***** |
| 6.50 | 9.41 | 18.81 | ***** |
| 7.00 | 13.37 | 32.18 | ***** |
| 7.50 | 19.80 | 51.98 | ***** |
| 8.00 | 12.38 | 64.36 | ***** |
| 8.50 | 10.89 | 75.25 | ***** |
| 9.00 | 6.93 | 82.18 | ***** |
| 9.50 | 3.96 | 86.14 | **** |
| 10.00 | 2.97 | 89.11 | *** |
| 10.50 | 2.97 | 92.08 | *** |
| 11.00 | 1.49 | 93.56 | * |
| 11.50 | 1.49 | 95.05 | * |
| **** | 4.95 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

7.56 1.34 .22 .49 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

7.68 1.60 .31 1.36 FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARC, 1957

PERCENTILES MEDIAN 7.45 5TH 5.66 16TH 6.35 25TH 6.73 75TH 8.49 84TH 9.23 95TH 11.48

PCT. GRAVEL .00 SAND .99 SILT (PIPETTE) 0.00 CLAY (PIPETTE) 0.00 (SEDIGRAPH) 63.37 (SEDIGRAPH) 35.64

GRAVEL+SAND .99 SILT/(SILT+CLAY) 64.00 PCT.GRAV+SAND/SILT+CLAY .01

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

S-9-34-1

281080 SEDIGRAPH ANALYSIS

PHI PCT. CUMFCT.

10/28/80

| | | | |
|-------|-------|--------|-------|
| 3.50 | | | |
| 4.00 | 0.00 | 0.00 | |
| 4.50 | 0.00 | 0.00 | |
| 5.00 | 0.00 | 0.00 | |
| 5.50 | 0.00 | 0.00 | |
| 6.00 | 0.00 | 0.00 | |
| 6.50 | .50 | .50 | |
| 7.00 | 4.00 | 4.50 | **** |
| 7.50 | 10.50 | 15.00 | ***** |
| 8.00 | 16.50 | 31.50 | ***** |
| 8.50 | 16.00 | 47.50 | ***** |
| 9.00 | 14.50 | 62.00 | ***** |
| 9.50 | 8.50 | 70.50 | ***** |
| 10.00 | 9.50 | 80.00 | ***** |
| 10.50 | 6.00 | 86.00 | ***** |
| 11.00 | 3.00 | 89.00 | *** |
| 11.50 | 3.00 | 92.00 | *** |
| **** | 8.00 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

0.61 1.13 .22 -.46 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 | 8.59 | 5TH | 7.02 | 16TH | 7.53 | 25TH | 7.80 |
| | | | 75TH | 9.74 | 84TH | 10.33 | 95TH | ***** |

| | | | | | | | |
|-------------|-----|------|------|----------------|-------|----------------|-------|
| PCT. GRAVEL | .00 | SAND | 0.00 | SILT (PIPETTE) | 0.00 | CLAY (PIPETTE) | 0.00 |
| | | | | (SEDIGRAPH) | 31.50 | (SEDIGRAPH) | 68.50 |

GRAVEL+SAND .00 SILT/(SILT+CLAY) 31.50 PCT. GRAV+SAND/SILT+CLAY .00

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

S-9-34-2

271080 SEDIGRAPH ANALYSIS

10/28/80

| PHI | PCT. | CUMFCT. | |
|-------|-------|---------|-------|
| 3.50 | | | |
| 4.00 | 0.00 | 0.00 | |
| 4.50 | 0.00 | 0.00 | |
| 5.00 | 0.00 | 0.00 | |
| 5.50 | 0.00 | 0.00 | |
| 6.00 | 2.00 | 2.00 | ** |
| 6.50 | 3.00 | 5.00 | *** |
| 7.00 | 7.00 | 12.00 | ***** |
| 7.50 | 11.20 | 23.20 | ***** |
| 8.00 | 11.80 | 35.00 | ***** |
| 8.50 | 13.00 | 48.00 | ***** |
| 9.00 | 13.00 | 61.00 | ***** |
| 9.50 | 11.00 | 72.00 | ***** |
| 10.00 | 7.00 | 79.00 | ***** |
| 10.50 | 5.50 | 84.50 | ***** |
| 11.00 | 2.50 | 87.00 | ** |
| 11.50 | 3.50 | 90.50 | *** |
| 12.00 | 2.50 | 93.00 | ** |
| ***** | 7.00 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

8.53 1.38 .16 -.35 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 12.0 PHI

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

| | | | | | | | | |
|----------------|-------------|------------------|-------|-------------------------|-------|----------------|-------|-------|
| PERCENTILES | MEDIAN | 8.58 | 5TH | 6.50 | 16TH | 7.18 | 25TH | 7.58 |
| | | | 75TH | 9.71 | 84TH | 10.45 | 95TH | ***** |
| PCT. GRAVEL | .00 | SAND | 0.00 | SILT (PIPETTE) | 0.00 | CLAY (PIPETTE) | 0.00 | |
| | | | | (SEDIGRAPH) | 35.00 | (SEDIGRAPH) | 65.00 | |
| GRAVEL+SAND | .00 | SILT/(SILT+CLAY) | 35.00 | PCT.GRAV+SAND/SILT+CLAY | | | .00 | |
| LABELS SHEPARD | -SILTY CLAY | FOLK(GMS)-MUD | | | | (SCS)-MUD | | |

S-9-34-3

281080 SEDIGRAPH ANALYSIS

10/28/80

| PHI | PCT. | CUMPCT. | |
|-------|-------|---------|-------|
| 3.50 | | | |
| 4.00 | 0.00 | 0.00 | |
| 4.50 | 0.00 | 0.00 | |
| 5.00 | 1.00 | 1.00 | * |
| 5.50 | 5.50 | 6.50 | ***** |
| 6.00 | 7.50 | | ***** |
| 6.50 | 11.00 | 14.00 | ***** |
| 7.00 | 13.50 | 25.00 | ***** |
| 7.50 | 18.00 | 38.50 | ***** |
| 8.00 | 5.50 | 56.50 | ***** |
| 8.50 | 18.50 | 62.00 | ***** |
| 9.00 | 5.50 | 80.50 | ***** |
| 9.50 | 3.50 | 86.00 | *** |
| 10.00 | 2.50 | 89.50 | ** |
| 10.50 | 2.00 | 92.00 | ** |
| 11.00 | 1.00 | 94.00 | * |
| 11.50 | 1.00 | 95.00 | * |
| **** | 4.00 | 96.00 | **** |
| **** | | 100.00 | |

MEAN ST.DEV. SKEWNESS KURTOSIS

7.39 1.31 .22 .04 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI

7.41 1.54 .20 1.25 FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES MEDIAN 7.32 5TH 5.36 16TH 6.09 25TH 6.50 75TH 8.35 84TH 8.82 95TH 11.00

PCT. GRAVEL .00 SAND 0.00 SILT (PIPETTE) 0.00 CLAY (PIPETTE) 0.00 (SEDIGRAPH) 62.00 (SEDIGRAPH) 38.00

GRAVEL+SAND .00 SILT/(SILT+CLAY) 62.00 PCT.GRAV+SAND/SILT+CLAY .00

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

S-9-34-4

281080 SEDIGRAPH ANALYSIS

PHI PCT. CUMFCT.

10/28/80

3.50 ASSUMED UPPER LIMIT

| | | | |
|-------|-------|--------|-------|
| 4.00 | 1.00 | 1.00 | * |
| 4.50 | 0.00 | 1.00 | |
| 5.00 | 1.00 | 2.00 | * |
| 5.50 | 3.00 | 5.00 | *** |
| 6.00 | 6.50 | 11.50 | ***** |
| 6.50 | 8.00 | 19.50 | ***** |
| 7.00 | 10.00 | 29.50 | ***** |
| 7.50 | 14.50 | 44.00 | ***** |
| 8.00 | 11.50 | 55.50 | ***** |
| 8.50 | 10.50 | 66.00 | ***** |
| 9.00 | 10.00 | 76.00 | ***** |
| 9.50 | 7.00 | 83.00 | ***** |
| 10.00 | 4.00 | 87.00 | **** |
| 10.50 | 3.50 | 90.50 | *** |
| 11.00 | 2.00 | 92.50 | ** |
| 11.50 | 1.50 | 94.00 | * |
| ***** | 6.00 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

7.72 1.47 .05 -.18

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 | 7.76 | 5TH | 5.50 | 16TH | 6.28 | 25TH | 6.78 |
| | | | 75TH | 8.95 | 84TH | 9.63 | 95TH | ***** |
| PCT. GRAVEL | .00 | SAND | 1.00 | SILT (PIPETTE) | 0.00 | CLAY (PIPETTE) | 0.00 | |
| | | | | (SEDIGRAPH) | 54.50 | (SEDIGRAPH) | 44.50 | |
| GRAVEL+SAND | 1.00 | SILT/(SILT+CLAY) | 55.05 | PCT.GRAV+SAND/SILT+CLAY | | | .01 | |
| LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD | | | | (SCS)-MUD | | | | |

S-9-34-5

281080 SEDIGRAPH ANALYSIS

10/28/80

PHI PCT. CUMFCT.

3.50

| | | | |
|-------|-------|--------|-------|
| 4.00 | 0.00 | 0.00 | * |
| 4.50 | .99 | .99 | ** |
| 5.00 | 1.98 | 2.97 | ***** |
| 5.50 | 5.45 | 8.42 | ***** |
| 6.00 | 9.90 | 18.32 | ***** |
| 6.50 | 10.89 | 29.21 | ***** |
| 7.00 | 8.91 | 38.12 | ***** |
| 7.50 | 10.89 | 49.01 | ***** |
| 8.00 | 8.42 | 57.43 | ***** |
| 8.50 | 6.44 | 63.86 | ***** |
| 9.00 | 8.91 | 72.77 | ***** |
| 9.50 | 4.46 | 77.23 | ***** |
| 10.00 | 5.45 | 82.67 | ***** |
| 10.50 | 2.97 | 85.64 | *** |
| 11.00 | 1.98 | 87.62 | ** |
| 11.50 | 2.48 | 90.10 | ** |
| ***** | 9.90 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

7.51 1.64 .18 -.62

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 | 7.56 | 5TH | 5.19 | 16TH | 5.88 | 25TH | 6.31 |
| | | | 75TH | 9.25 | 84TH | 10.22 | 95TH | ***** |
| PCT. GRAVEL | .00 | SAND | 0.00 | SILT (PIPETTE) | 0.00 | CLAY (PIPETTE) | 0.00 | |
| | | | | (SEDIGRAPH) | 57.43 | (SEDIGRAPH) | 42.57 | |
| GRAVEL+SAND | .00 | SILT/(SILT+CLAY) | 57.43PCT.GRAV+SAND/SILT+CLAY | | | | .00 | |
| LABELS SHEPARD | -CLAYEY | SILT FOLK(GMS)-MUD | | | | (SCS)-MUD | | |

S-9-34-6

281080 SEDIGRAPH ANALYSIS

10/28/80

PHI PCT. CUMPCT.

| | | | |
|-------|-------|--------|-------|
| 3.50 | | | |
| 4.00 | 0.00 | 0.00 | |
| 4.50 | 0.00 | 0.00 | |
| 5.00 | 0.00 | 0.00 | |
| 5.50 | 2.00 | 2.00 | ** |
| 6.00 | 2.50 | 4.50 | ** |
| 6.50 | 4.00 | 8.50 | **** |
| 7.00 | 4.00 | 12.50 | **** |
| 7.50 | 9.00 | 21.50 | ***** |
| 8.00 | 8.50 | 30.00 | ***** |
| 8.50 | 11.00 | 41.00 | ***** |
| 9.00 | 12.50 | 53.50 | ***** |
| 9.50 | 11.50 | 65.00 | ***** |
| 10.00 | 8.50 | 73.50 | ***** |
| 10.50 | 7.50 | 81.00 | ***** |
| 11.00 | 5.00 | 86.00 | ***** |
| 11.50 | 4.50 | 90.50 | **** |
| **** | 9.50 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

8.60 1.46 -.10 -.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 | 8.86 | 5TH | 6.06 | 16TH | 7.19 | 25TH | 7.71 |
| | | | 75TH | 10.10 | 84TH | 10.80 | 95TH | ***** |
| PCT. GRAVEL | .00 | SAND | 0.00 | SILT (PIPETTE) | 0.00 | CLAY (PIPETTE) | 0.00 | |
| | | | | (SEDIGRAPH) | 30.00 | (SEDIGRAPH) | 70.00 | |
| GRAVEL+SAND | .00 | SILT/(SILT+CLAY) | 30.00 | PCT.GRAV+SAND/SILT+CLAY | | | .00 | |
| LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MUD | | | | (SCS)-CLAY | | | | |

S-9-101-1

281080 SEDIGRAPH ANALYSIS

10/28/80

PHI PCT. CUMFCT.

| | | | |
|-------|-------|--------|-------|
| 3.50 | | | |
| 4.00 | 0.00 | 0.00 | |
| 4.50 | 0.00 | 0.00 | |
| 5.00 | .50 | .50 | |
| 5.50 | .50 | 1.00 | |
| 6.00 | 2.00 | 3.00 | ** |
| 6.50 | 2.00 | 5.00 | ** |
| 7.00 | 4.00 | 9.00 | **** |
| 7.50 | 8.00 | 17.00 | ***** |
| 8.00 | 9.00 | 26.00 | ***** |
| 8.50 | 11.00 | 37.00 | ***** |
| 9.00 | 14.50 | 51.50 | ***** |
| 9.50 | 12.00 | 63.50 | ***** |
| 10.00 | 10.00 | 73.50 | ***** |
| 10.50 | 8.50 | 82.00 | ***** |
| 11.00 | 5.00 | 87.00 | ***** |
| 11.50 | 6.00 | 93.00 | ***** |
| **** | 7.00 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

8.80 1.39 -.12 -.31

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 | 8.95 | 5TH | 6.50 | 16TH | 7.44 | 25TH | 7.94 |
| | | | 75TH | 10.09 | 84TH | 10.70 | 95TH | ***** |

| | | | | | | | |
|-------------|-----|------|------|----------------|-------|----------------|-------|
| PCT. GRAVEL | .00 | SAND | 0.00 | SILT (PIPETTE) | 0.00 | CLAY (PIPETTE) | 0.00 |
| | | | | (SEDIGRAPH) | 26.00 | (SEDIGRAPH) | 74.00 |

GRAVEL+SAND .00 SILT/(SILT+CLAY) 26.00 PCT.GRAV+SAND/SILT+CLAY .00

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

S-9-101-2

271080 SEDIGRAPH ANALYSIS

10/28/80

PHI PCT. CUMPCT.

3.50 ASSUMED UPPER LIMIT

| | | | |
|-------|-------|--------|-------|
| 4.00 | 1.00 | 1.00 | * |
| 4.50 | 0.00 | 1.00 | |
| 5.00 | 1.00 | 2.00 | * |
| 5.50 | 1.00 | 3.00 | |
| 6.00 | 4.00 | 7.00 | **** |
| 6.50 | 10.00 | 17.00 | ***** |
| 7.00 | 13.50 | 30.50 | ***** |
| 7.50 | 18.00 | 48.50 | ***** |
| 8.00 | 12.50 | 61.00 | ***** |
| 8.50 | 9.50 | 70.50 | ***** |
| 9.00 | 8.00 | 78.50 | ***** |
| 9.50 | 5.50 | 84.00 | ***** |
| 10.00 | 4.50 | 88.50 | **** |
| 10.50 | 3.50 | 92.00 | *** |
| 11.00 | 3.00 | 95.00 | *** |
| 11.50 | 2.50 | 97.50 | ** |
| **** | 2.50 | 100.00 | ** |

MEAN ST.DEV. SKEWNESS KURTOSIS

| | | | | |
|------|------|-----|------|---|
| 7.77 | 1.46 | .18 | .07 | KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 11.5 PHI |
| 7.84 | 1.56 | .29 | 1.08 | FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957 |

| | | | | | | | | |
|-------------|--------|------|------|------|------|------|------|-------|
| PERCENTILES | MEDIAN | 7.56 | 5TH | 5.75 | 16TH | 6.45 | 25TH | 6.80 |
| | | | 75TH | 8.78 | 84TH | 9.50 | 95TH | 11.00 |

| | | | | | | | |
|-------------|-----|------|------|----------------|-------|----------------|-------|
| PCT. GRAVEL | .00 | SAND | 1.00 | SILT (PIPETTE) | 0.00 | CLAY (PIPETTE) | 0.00 |
| | | | | (SEDIGRAPH) | 60.00 | (SEDIGRAPH) | 39.00 |

| | | | | |
|---|------|------------------|------------------------------|-----|
| GRAVEL+SAND | 1.00 | SILT/(SILT+CLAY) | 60.61PCT.GRAV+SAND/SILT+CLAY | .01 |
| LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD | | (SCS)-MUD | | |

S-9-101-3 271080 SEDIGRAPH ANALYSIS

10/28/80

| PHI | PCT. CUM PCT. | | |
|-------|---------------|--------|-------|
| 3.50 | | | |
| 4.00 | 0.00 | 0.00 | |
| 4.50 | 1.00 | 1.00 | * |
| 5.00 | 0.00 | 1.00 | |
| 5.50 | 2.00 | 3.00 | ** |
| 6.00 | 2.50 | 5.50 | ** |
| 6.50 | 4.00 | 9.50 | **** |
| 7.00 | 6.50 | 16.00 | ***** |
| 7.50 | 8.00 | 24.00 | ***** |
| 8.00 | 7.00 | 31.00 | ***** |
| 8.50 | 7.00 | 38.00 | ***** |
| 9.00 | 9.00 | 47.00 | ***** |
| 9.50 | 9.00 | 56.00 | ***** |
| 10.00 | 9.00 | 65.00 | ***** |
| 10.50 | 8.00 | 73.00 | ***** |
| 11.00 | 7.50 | 80.50 | ***** |
| 11.50 | 8.00 | 88.50 | ***** |
| 12.00 | 5.50 | 94.00 | ***** |
| ***** | 6.00 | 100.00 | ***** |

MEAN ST.DEV. SKEWNESS KURTOSIS

8.88 1.79 -.13 -.74

KRUMBEIN + PETTICORN (1938) MOMENT MEASURES FOR SIZE RANGE 4.0 TO 12.0 PHI

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

| | | | | |
|----------------|-------------|------------------|------------------------------|---------------------|
| PERCENTILES | MEDIAN 9.17 | 5TH 5.90 | 16TH 7.00 | 25TH 7.57 |
| | | 75TH 10.63 | 84TH 11.22 | 95TH***** |
| PCT. GRAVEL | .00 | SAND 0.00 | SILT (PIPETTE) 0.00 | CLAY (PIPETTE) 0.00 |
| | | | (SEDIGRAPH) 31.00 | (SEDIGRAPH) 69.00 |
| GRAVEL+SAND | .00 | SILT/(SILT+CLAY) | 31.00PCT.GRAV+SAND/SILT+CLAY | .00 |
| LABELS SHEPARD | -SILTY CLAY | FOLK(GMS)-MUD | | (SCS)-CLAY |