

HYDRAULICS DIVISION

Technical Note



DATE:

May 1981

REPORT NO:

81-17

TITLE:

"Particle Size Data Report 81-09"

AUTHOR:

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REASON FOR REPORT:

This report responds to a request for particle size data from Dennis Onn, Water Resources Branch, Ministry of the Environment.

CORRESPONDENCE FILE NO:

5690 (Study 2302)

1.0 INTRODUCTION

Mr. Dennis Onn, Water Resources Branch, MOE, submitted a sample of suspended sediment to the Sedimentology Laboratory for particle size analysis. The sample was analysed by G. Duncan under Hydraulics study 2302.

2.0 PROCEDURE

The Sieve and Sedigraph Method which provides sand, silt, and clay percentages was used to analyse the samples (Duncan and LaHaie, 1979).

Briefly, the procedure consists of:

1. splitting the sample to 2g.
2. removing particles large enough to block Sedigraph Suction Tube (0.088 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).

3.0 RESULTS

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 Folk (1974) Ternary Classifications.

4.0 REFERENCES

Duncan, G. A. and LaHaie, G. G., 1979. "Size Analysis Procedures used in the Sedimentology Laboratory, NWRI." NWRI, CCIW, Hydraulics Division Manual, September 1979.

- Folk, R. L., 1968. "Petrology of Sedimentary Rocks." Hemphill Publishing Co., Austin, Texas, 182 p.
- 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, Vol. 24, pp. 151-158.

APPENDIX 1
SIZDIST OUTPUT

ONN S-9-179-1 300481 SEDIGRAPH ANALYSIS

PHI FCT. CUMFCT.

05/01/81

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	1.00	1.00	
6.50	7.00	8.00	*****
7.00	4.00	12.00	****
7.50	12.00	24.00	*****
8.00	8.00	32.00	*****
8.50	6.00	38.00	*****
9.00	6.00	44.00	*****
9.50	8.00	52.00	*****
10.00	6.00	58.00	*****
10.50	8.00	66.00	*****
11.00	2.00	68.00	**
11.50	4.00	72.00	****
12.00	2.00	74.00	***
****	26.00	100.00	*****

MEAN ST.LEV. SKEWNESS KUFTOSIS

8.54 1.56 .11 -.95

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	9.38	5TH	6.29	16TH	7.17	25TH	7.56
			75TH	*****	84TH	*****	95TH	*****
PCT. GRAVEL	.00	SAND	0.00	SILT (PIPETTE)	0.00	CLAY (PIPETTE)	0.00	
				(SEDIGRAPH)	32.00	(SEDIGRAPH)	68.00	
GRAVEL+SAND	.00	SILT/(SILT+CLAY)	32.00	PCT.GRAV+SAND/SILT+CLAY	.00			
LABELS SHEPARD	-SILTY CLAY	FOLK (GMS)-MUD		(SCS)-CLAY				