PNEUMATIC HAMMER CORE **CORE # G-16**

PROJECT: Galveston Island Beach Replenishment

STATE PLANNING COORDINATES
3343777.44
547319.20

LAT./LONG COORDINATES
29°16.322° N
094°47.041° W

WATER DEPTH
23'3"

DATE
5/12/94

START TIME
1720

END TIME
1724

CORE DIAMETER
3"

LENGTH OF BARREL
20 '

PENETRATION DEPTH
15'9"

LENGTH RECOVERED
14'3"

SUPPORT VESSEL:
R/V Lonestar

POSITIONING:
Trimble Differential GPS

ANALYSIS BY:
M. Hamilton
Rice University

ANALYSIS METHODS:
Visual Logging
Auto. Settling Tube

DEPTH CM.	DEPTH IN.	CONTACT	LITHOLOGY	DESCRIPTION	GRAIN SIZE (PHI) MEAN	%SAND	%MUD
		6		Muddy, very fine sand 5Y5/1	3.16	91.78	7.63
32	12	8		Clayey, very fine sand 5Y4/1			
64	24			Highly laminated, very fine sand; shell lag at base	3.13	94.08	5.92
96	36	37			3.02	60.38	17.05
128	48			Clay with muddy laminae near upper contact 5Y3/1	3.07	14.32	84.69
160	60	53		Muddy sand; abundant laminae partially destroyed by bioturbation.			
		66					
192	72			Interbedded to interlaminated clayey sand, clay, and sandy clay.	3.15	53.71	46.23
224	84	84		Very muddy sand with heavy bioturbation and destroyed laminae 5Y4/1			
256	96						
288	108	104		Interlaminated clayey sand and sandy clay S:C=10:90			
320	120						
352	132						
384	144						
416	156	162					
448	168						
480	180						
	192						

SAND
MUDDY SAND
MUDDY SAND/CLAY INTERLAM.
MUDDY SAND/CLAY INTERBEDS
CLAYEY SAND
SANDY CLAY
SHELLY SAND
SHELL HASH
CLAY
MUD

File	c	t24016.dat	Date	06-28-1994	
Sample name	g-16-5"				
Data collected on	6/27/94				
Total settling time (min)	8.066667				
Settling distance (cm)	140				
Water temperature (degrees C)	21				
	CUMULATIVE WEIGHT %		INDIVIDUAL WEIGHT %		
PHI	TIME(SEC)	% VALUE	RANGE		% VALUE
-0.9987372	5.159447	1.9			
-0.8747199	5.517604	1.9	-1	-0.875	0
-0.7490318	5.914483	1.9	-0.875	-0.75	0
-0.6245047	6.345241	1.9	-0.75	-0.625	0
-0.4995278	6.819561	1.9	-0.625	-0.5	0
-0.3742583	7.342282	1.9	-0.5	-0.375	0
-0.2499682	7.913404	1.9	-0.375	-0.25	0
-0.1248957	8.547447	1.9	-0.25	-0.125	0
3.00E-04	9.249241	1.9	-0.125	0	0
0.125003	10.02365	1.9	0	0.125	0
0.2506482	10.89001	1.9	0.125	0.25	0
0.3755397	11.84833	1.9	0.25	0.375	0
0.5000237	12.91313	1.9	0.375	0.5	0
0.625097	14.1086	1.9	0.5	0.625	0
0.7502809	15.44929	1.9	0.625	0.75	0
0.8750191	16.94968	5.5	0.75	0.875	3.6
1.000091	18.64364	5.6	0.875	1	0.0999999
1.125097	20.55544	5.6	1	1.125	0
1.250028	22.71868	5.6	1.125	1.25	0
1.375058	25.17768	5.6	1.25	1.375	0
1.500153	27.97997	5.6	1.375	1.5	0
1.625151	31.17932	5.6	1.5	1.625	0
1.750058	34.84326	5.6	1.625	1.75	0
1.875066	39.05887	5.6	1.75	1.875	0
2.00001	43.91824	5.6	1.875	2	0
2.125005	49.54228	5.6	2	2.125	0
2.250048	56.07149	5.6	2.125	2.25	0
2.375071	63.67005	5.6	2.25	2.375	0
2.500061	72.53685	5.6	2.375	2.5	0
2.625054	82.91396	5.6	2.5	2.625	0
2.750031	95.08652	5.6	2.625	2.75	0
2.875004	109.3985	5.6	2.75	2.875	0
3.000021	126.2663	12.7	2.875	3	7.1
3.125024	148.1729	27.8	3	3.125	15.1
3.250015	169.7004	59.3	3.125	3.25	31.5
3.37502	197.5495	86.7	3.25	3.375	27.4
3.500002	230.539	88.9	3.375	3.5	2.200005
3.625007	269.6655	94.4	3.5	3.625	5.5
3.750002	316.0908	94.4	3.625	3.75	0
3.875004	371.2139	94.4	3.75	3.875	0
4.000007	436.6891	99.5	3.875	4	5.099998

SEDIDAT STATISTICS

GROUPED MOMENT MEASURES (McBride, 1971)

	.125 CHI	.125 PHI
Mean	6.769621	3.161117
Standard deviation	0.747622	0.5124684
Skewness	-3.036721	-3.421783
Kurtosis	14.72243	16.93887

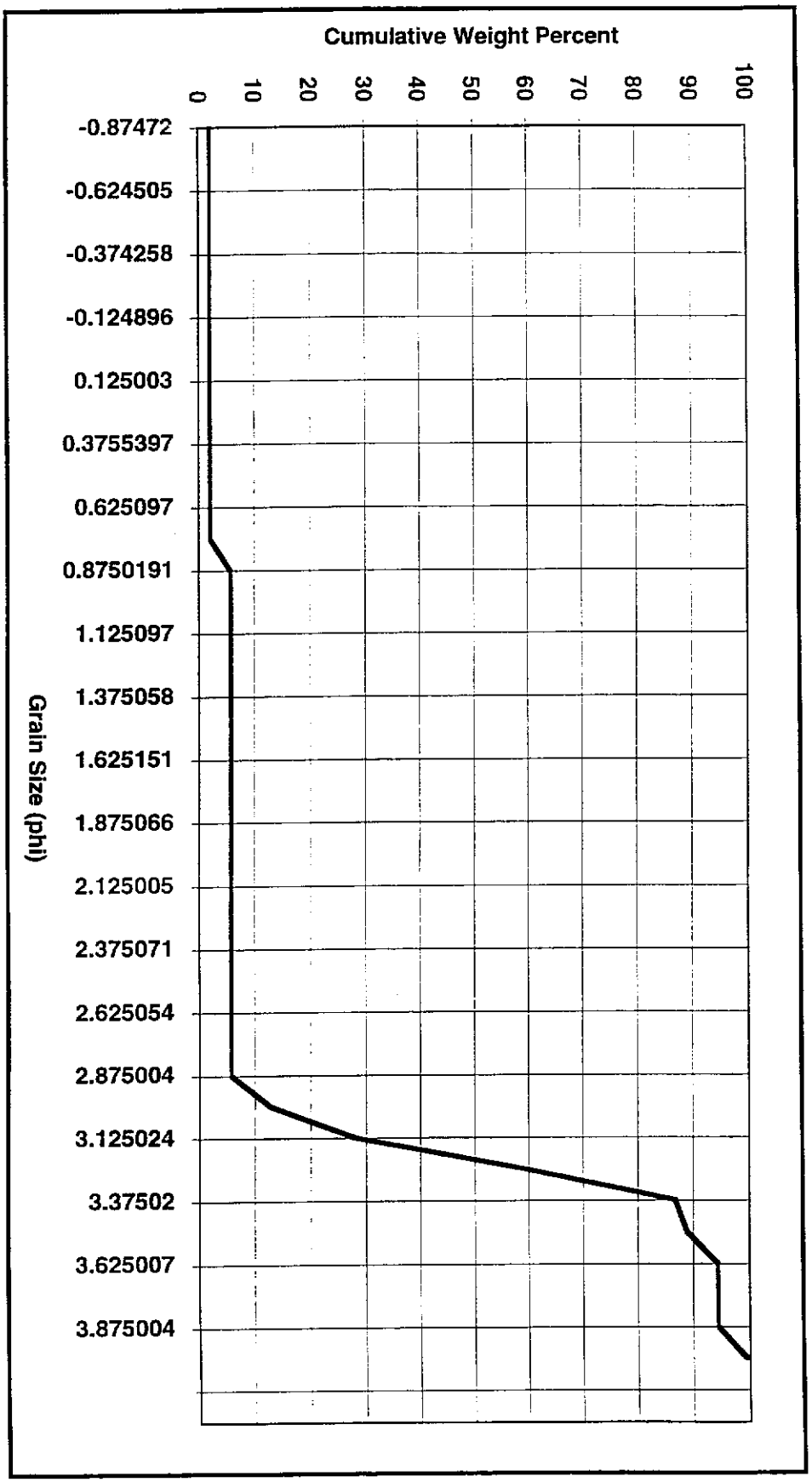
GRAPHIC MEASURES (Folk and Ward, 1957)

	.125 CHI	.125 PHI
Mean	6.793633	3.173818
Standard deviation	0.7618721	0.5074961
Skewness	-1.26207	-1.627192
Kurtosis	3.590216	4.296277

MODES

Number	Velocity	CHI	PHI	Freq. %
1	0.9515007	6.71558	3.130575	2.777788
2	0.7734123	7.014546	3.30338	2.777786
3	0.573921	7.444932	3.545249	2.777771
4	0.8532631	6.872794	3.221989	2.777771
5	0.5056927	7.627523	3.645802	1.85186

PARAMETERS USED				
Number of data points	1000			
Gibbs eq. constants	0.055804	0.003114	4.5	8.71E-03
Dynamic viscosity (poises)	0.01			
Acceleration of gravity (cm/s)	979.21			
Fluid density (g/ml)	0.998			
Particle density (g/cm3)	2.65			
Size conversion using Komar FORAM correction, RD	0.9859			


Cumulative Weight Percent
0
10
20
30
40
50
60
70
80
90
100
Grain Size (phi)
-0.87472
-0.624505
-0.374258
-0.124896
0.125003
0.3755397
0.625097
0.8750191
1.125097
1.375058
1.625151
1.875066
2.125005
2.375071
2.625054
2.875004
3.125024
3.37502
3.625007
3.875004

24016

File	c	t25016.dat	Date	06-28-1994	
Sample name	g-16-2'				
Data collected on	6/27/94				
Total settling time (min)	8.083333				
Settling distance (cm)	140				
Water temperature (degrees C)	21				
	CUMULATIVE WEIGHT %				INDIVIDUAL WEIGHT %
PHI	TIME(SEC)	% VALUE	RANGE		% VALUE
-0.9983899	5.160407	3.8			
-0.8741565	5.519304	3.8	-1	-0.875	0
-0.7497373	5.912152	3.8	-0.875	-0.75	0
-0.6249025	6.343801	3.8	-0.75	-0.625	0
-0.4996436	6.819101	3.8	-0.625	-0.5	0
-0.3741167	7.342902	3.8	-0.5	-0.375	0
-0.2495951	7.915204	3.8	-0.375	-0.25	0
-0.1243118	8.550557	3.8	-0.25	-0.125	0
2.51E-04	9.248951	3.8	-0.125	0	0
0.1252035	10.02496	3.8	0	0.125	0
0.2504074	10.88826	5.7	0.125	0.25	1.9
0.3755682	11.84856	5.7	0.25	0.375	0
0.5002926	12.91556	5.7	0.375	0.5	0
0.6251016	14.10865	5.7	0.5	0.625	0
0.7501019	15.44726	5.7	0.625	0.75	0
0.8750971	16.95067	5.7	0.75	0.875	0
1.000072	18.64336	5.7	0.875	1	0
1.125025	20.55427	5.7	1	1.125	0
1.250206	22.72218	5.7	1.125	1.25	0
1.375222	25.18113	5.7	1.25	1.375	0
1.500138	27.9796	5.7	1.375	1.5	0
1.625023	31.17583	5.7	1.5	1.625	0
1.750034	34.84249	5.7	1.625	1.75	0
1.875017	39.05711	5.7	1.75	1.875	0
2.000092	43.92166	5.7	1.875	2	0
2.125015	49.54277	5.7	2	2.125	0
2.250037	56.07092	5.7	2.125	2.25	0
2.375007	63.66588	5.7	2.25	2.375	0
2.500056	72.53645	5.7	2.375	2.5	0
2.625015	82.9105	5.7	2.5	2.625	0
2.750009	95.08424	5.7	2.625	2.75	0
2.875026	109.4013	7.5	2.75	2.875	1.8
3.000012	126.2851	20.1	2.875	3	12.6
3.125005	146.1695	37.7	3	3.125	17.6
3.250022	169.7019	68.1	3.125	3.25	30.4
3.375003	197.5455	86.8	3.25	3.375	18.7
3.500006	230.5401	93.7	3.375	3.5	6.899994
3.625005	269.8649	93.7	3.5	3.625	0
3.75001	316.0943	93.7	3.625	3.75	0
3.875005	371.2144	98.5	3.75	3.875	4.800003
4.000007	436.6894	98.5	3.875	4	0

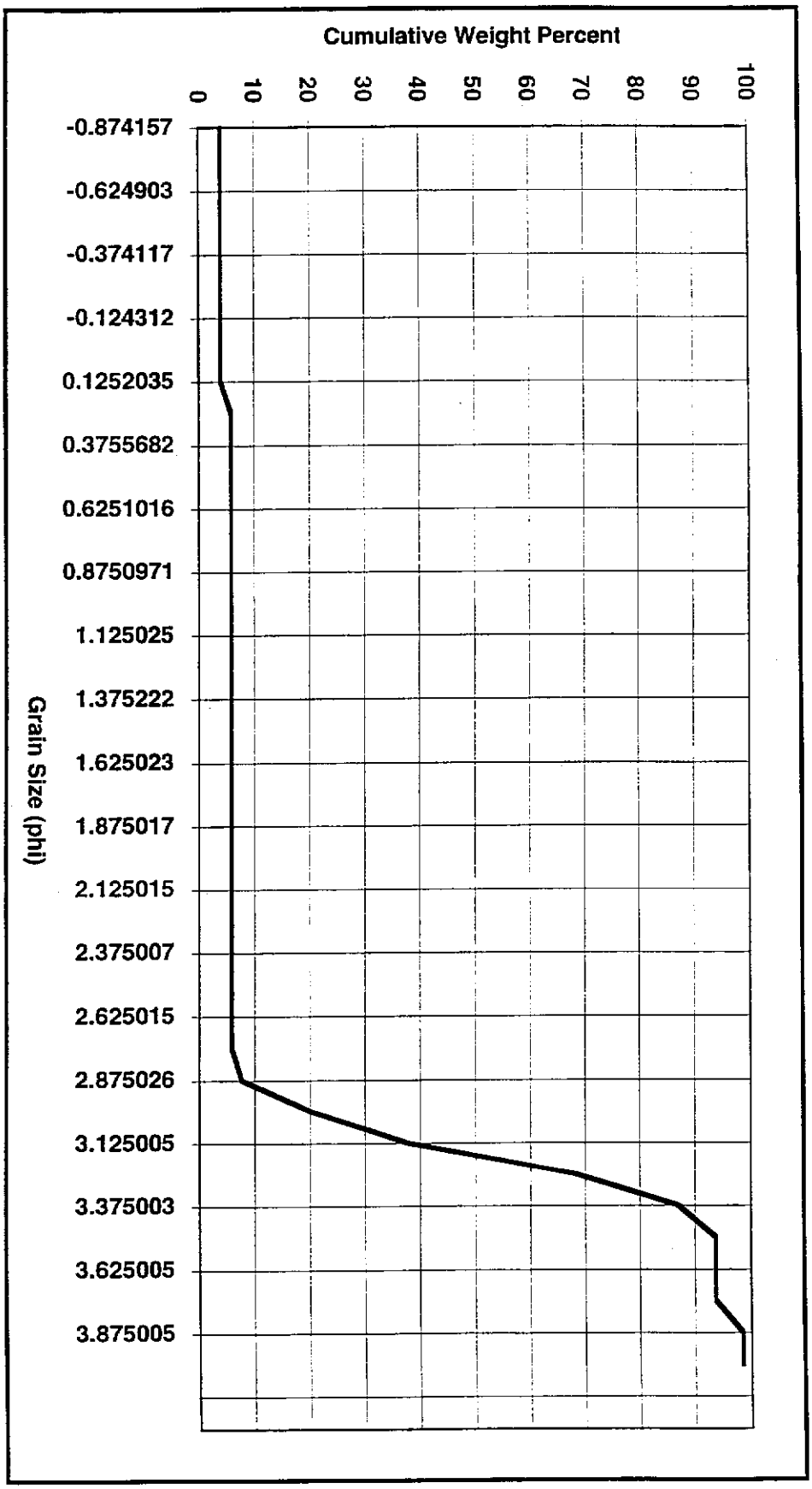
SEDIDAT STATISTICS

GROUPED MOMENT MEASURES (McBride, 1971)		
	.125 CHI	.125 PHI
Mean	6.72051	3.138265
Standard deviation	0.6399336	0.4684858
Skewness	-4.39902	-4.85038
Kurtosis	28.19794	31.81984

GRAPHIC MEASURES (Folk and Ward, 1957)		
	.125 CHI	.125 PHI
Mean	6.766404	3.15818
Standard deviation	0.8574233	0.6068211
Skewness	-1.642435	-2.268485
Kurtosis	4.655955	5.887432

MODES				
Number	Velocity	CHI	PHI	Freq. %
1	0.4400302	7.828182	3.755104	3.773582
2	0.6115673	7.353273	3.49434	2.8302
3	0.5091001	7.617835	3.640493	2.830185
4	0.8342769	6.905258	3.240713	2.830181
5	0.8909253	6.81048	3.185905	2.830181

PARAMETERS USED				
Number of data points	1000			
Gibbs eq. constants	0.055804	0.003114	4.5	8.71E-03
Dynamic viscosity (poises)	0.01			
Acceleration of gravity (cm/s)	979.21			
Fluid density (g/ml)	0.998			
Particle density (g/cm3)	2.65			
Size conversion using Komar FORAM correction, RD	0.9859			


Cumulative Weight Percent
0
10
20
30
40
50
60
70
80
90
100
Grain Size (phi)
-0.874157
-0.624903
-0.374117
-0.124312
0.1252035
0.3755682
0.6251016
0.8750971
1.125025
1.375222
1.625023
1.875017
2.125015
2.375007
2.625015
2.875026
3.125005
3.375003
3.625005
3.875005

25016

File	e	t26016.dat	Date	06-28-1994	
Sample name	g-16-3'				
Data collected on	6/18/94				
Total settling time (min)	8.083333				
Settling distance (cm)	140				
Water temperature (degrees C)	21				
	CUMULATIVE WEIGHT %				**INDIVIDUAL WEIGHT %**
PHI	**TIME(SEC)**	**% VALUE**	**RANGE**		**% VALUE**
-0.9983899	5.160407	7.9			
-0.8741565	5.519304	7.9	-1	-0.875	0
-0.7497373	5.912152	7.9	-0.875	-0.75	0
-0.6249025	6.343801	7.9	-0.75	-0.625	0
-0.4996436	6.819101	7.9	-0.625	-0.5	0
-0.3741167	7.342902	8.4	-0.5	-0.375	0.4999995
-0.2495951	7.915204	8.4	-0.375	-0.25	0
-0.1243118	8.550557	8.4	-0.25	-0.125	0
2.51E-04	9.248951	8.4	-0.125	0	0
0.1252035	10.02496	8.4	0	0.125	0
0.2504074	10.88826	8.4	0.125	0.25	0
0.3755682	11.84856	8.4	0.25	0.375	0
0.5002926	12.91556	8.4	0.375	0.5	0
0.6251016	14.10865	8.4	0.5	0.625	0
0.7501019	15.44726	8.4	0.625	0.75	0
0.8750971	16.95067	8.4	0.75	0.875	0
1.000072	18.64336	8.4	0.875	1	0
1.125025	20.55427	8.4	1	1.125	0
1.250206	22.72218	8.7	1.125	1.25	0.3000002
1.375222	25.18113	8.7	1.25	1.375	0
1.500138	27.9796	8.7	1.375	1.5	0
1.625023	31.17583	8.7	1.5	1.625	0
1.750034	34.84249	8.7	1.625	1.75	0
1.875017	39.05711	8.7	1.75	1.875	0
2.000092	43.92166	8.7	1.875	2	0
2.125015	49.54277	8.7	2	2.125	0
2.250037	56.07092	8.7	2.125	2.25	0
2.375007	63.66588	8.7	2.25	2.375	0
2.500056	72.53645	8.7	2.375	2.5	0
2.625015	82.9105	13	2.5	2.625	4.3
2.750009	95.08424	13	2.625	2.75	0
2.875026	109.4013	19.6	2.75	2.875	6.6
3.000012	126.2651	36.2	2.875	3	16.6
3.125005	146.1695	80.4	3	3.125	44.2
3.250022	169.7019	87	3.125	3.25	6.599998
3.375003	197.5455	91.3	3.25	3.375	4.300003
3.500006	230.5401	93.5	3.375	3.5	2.199997
3.625005	269.6649	93.5	3.5	3.625	0
3.75001	316.0943	93.5	3.625	3.75	0
3.875005	371.2144	93.5	3.75	3.875	0
4.000007	436.6894	95.7	3.875	4	2.199997

SEDIDAT STATISTICS

GROUPED MOMENT MEASURES (McBride, 1971)

	.125 CHI	.125 PHI
Mean	6.52448	3.022209
Standard deviation	0.5819702	0.3563551
Skewness	-4.87247	-5.301504
Kurtosis	44.84607	54.29831

GRAPHIC MEASURES (Folk and Ward, 1957)

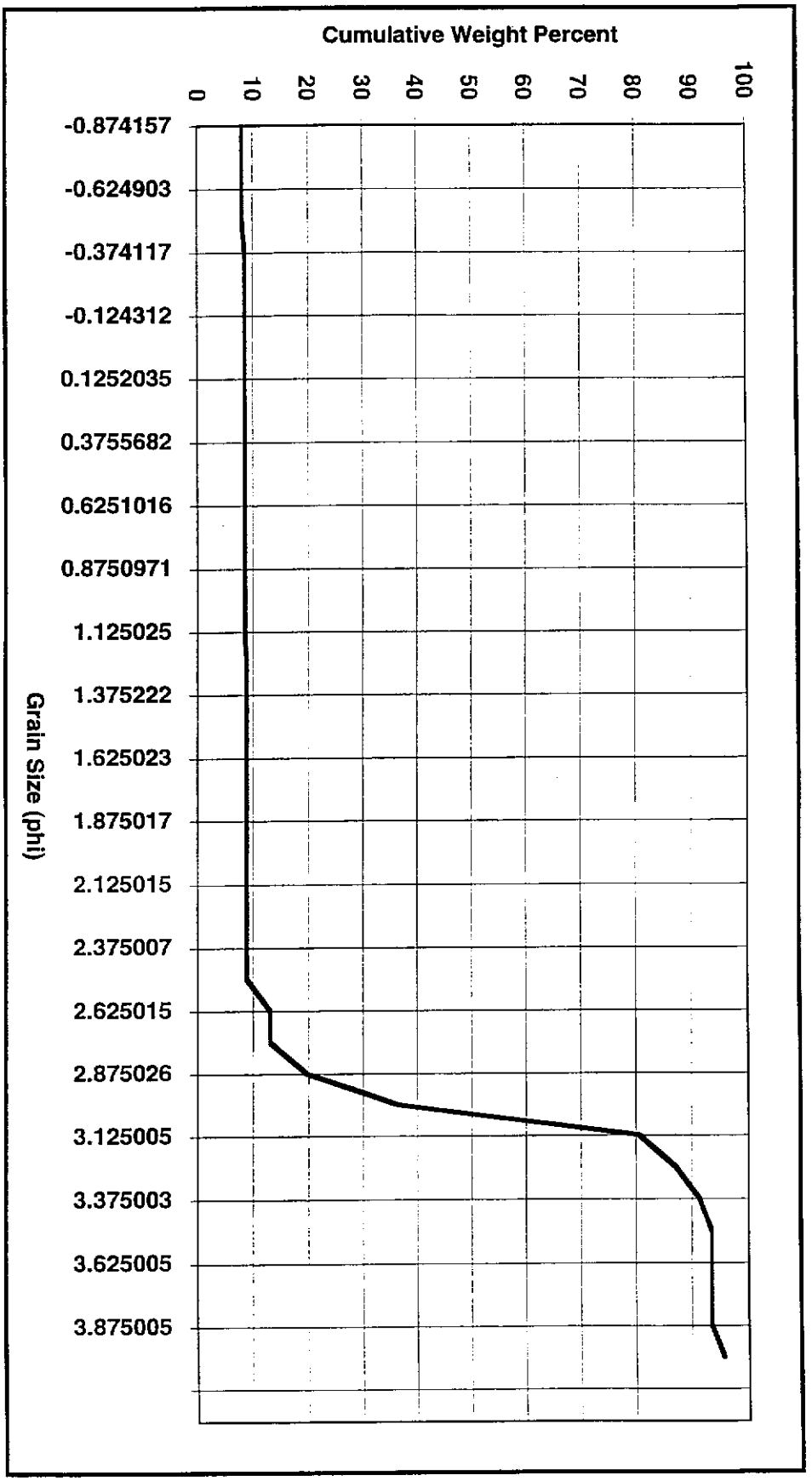
	.125 CHI	.125 PHI
Mean	6.4911	2.99666
Standard deviation	1.522344	1.847535
Skewness	-4.009305	-8.446375
Kurtosis	14.30325	30.19578

MODES

Number	Velocity	CHI	PHI	
			PHI	Freq. %
1	1.0093	6.630501	3.080565	5.434784
2	0.3395998	8.201949	3.955828	3.260883
3	0.7886879	6.98633	3.287252	3.26088
4	0.8489994	6.880021	3.226161	3.26086
5	0.31342	8.317687	4.017328	2.173923

PARAMETERS USED

Number of data points	1000			
Gibbs eq. constants	*0.055804*	*0.003114*	4.5	8.71E-03
Dynamic viscosity (poises)	*0.01*			
Acceleration of gravity (cm/s)	*979.21*			
Fluid density (g/ml)	*0.998*			
Particle density (g/cm3)	*2.65*			
Size conversion using Komar FORAM correction, RD	*0.9859*			


Cumulative Weight Percent
0
10
20
30
40
50
60
70
80
90
100
Grain Size (phi)
-0.874157
-0.624903
-0.374117
-0.124312
0.1252035
0.3755682
0.6251016
0.8750971
1.125025
1.375222
1.625023
1.875017
2.125015
2.375007
2.625015
2.875026
3.125005
3.375003
3.625005
3.875005

File	c	t27016.dat	Date	06-15-1994	
Sample name	g-16-4'4"				
Date collected on	6/15/94				
Total settling time (min)	8.083333				
Settling distance (cm)	140				
Water temperature (degrees C)	21				
	CUMULATIVE WEIGHT %				INDIVIDUAL WEIGHT %
PHI	TIME(SEC)	% VALUE	RANGE		% VALUE
-0.9983899	5.160407	4.5			
-0.8741565	5.519304	5.7	-1	-0.875	1.2
-0.7497373	5.912152	7.2	-0.875	-0.75	1.5
-0.6249025	6.343801	7.5	-0.75	-0.625	0.3000002
-0.4998436	6.819101	7.5	-0.625	-0.5	0
-0.3741167	7.342902	7.5	-0.5	-0.375	0
-0.2495951	7.915204	7.5	-0.375	-0.25	0
-0.1243118	8.550557	7.5	-0.25	-0.125	0
2.51E-04	9.248951	7.5	-0.125	0	0
0.1252035	10.02496	7.5	0	0.125	0
0.2504074	10.88828	7.5	0.125	0.25	0
0.3755682	11.84856	7.5	0.25	0.375	0
0.5002926	12.91556	7.5	0.375	0.5	0
0.6251016	14.10865	7.5	0.5	0.625	0
0.7501019	15.44728	7.5	0.625	0.75	0
0.8750971	16.95067	7.5	0.75	0.875	0
1.000072	18.64336	7.5	0.875	1	0
1.125025	20.55427	9.4	1	1.125	1.9
1.250206	22.72218	9.7	1.125	1.25	0.3000002
1.375222	25.18113	9.7	1.25	1.375	0
1.500138	27.9796	9.7	1.375	1.5	0
1.625023	31.17583	9.7	1.5	1.625	0
1.750034	34.84249	9.7	1.625	1.75	0
1.875017	39.05711	9.7	1.75	1.875	0
2.000092	43.92166	9.7	1.875	2	0
2.125015	49.54277	9.7	2	2.125	0
2.250037	56.07092	9.7	2.125	2.25	0
2.375007	63.66588	9.7	2.25	2.375	0
2.500056	72.53645	9.7	2.375	2.5	0
2.625015	82.9105	9.7	2.5	2.625	0
2.750009	95.08424	9.7	2.625	2.75	0
2.875026	109.4013	10.2	2.75	2.875	0.5
3.000012	126.2651	11.3	2.875	3	1.1
3.125005	146.1695	33.2	3	3.125	21.9
3.250022	169.7019	54.7	3.125	3.25	21.5
3.375003	197.5455	67.9	3.25	3.375	13.2
3.500006	230.5401	94.3	3.375	3.5	26.4
3.625005	269.6649	94.3	3.5	3.625	0
3.75001	316.0943	94.3	3.625	3.75	0
3.875005	371.2144	94.3	3.75	3.875	0
4.000007	436.6894	96.2	3.875	4	1.899994

SEDIDAT STATISTICS

GROUPED MOMENT MEASURES (McBride, 1971)

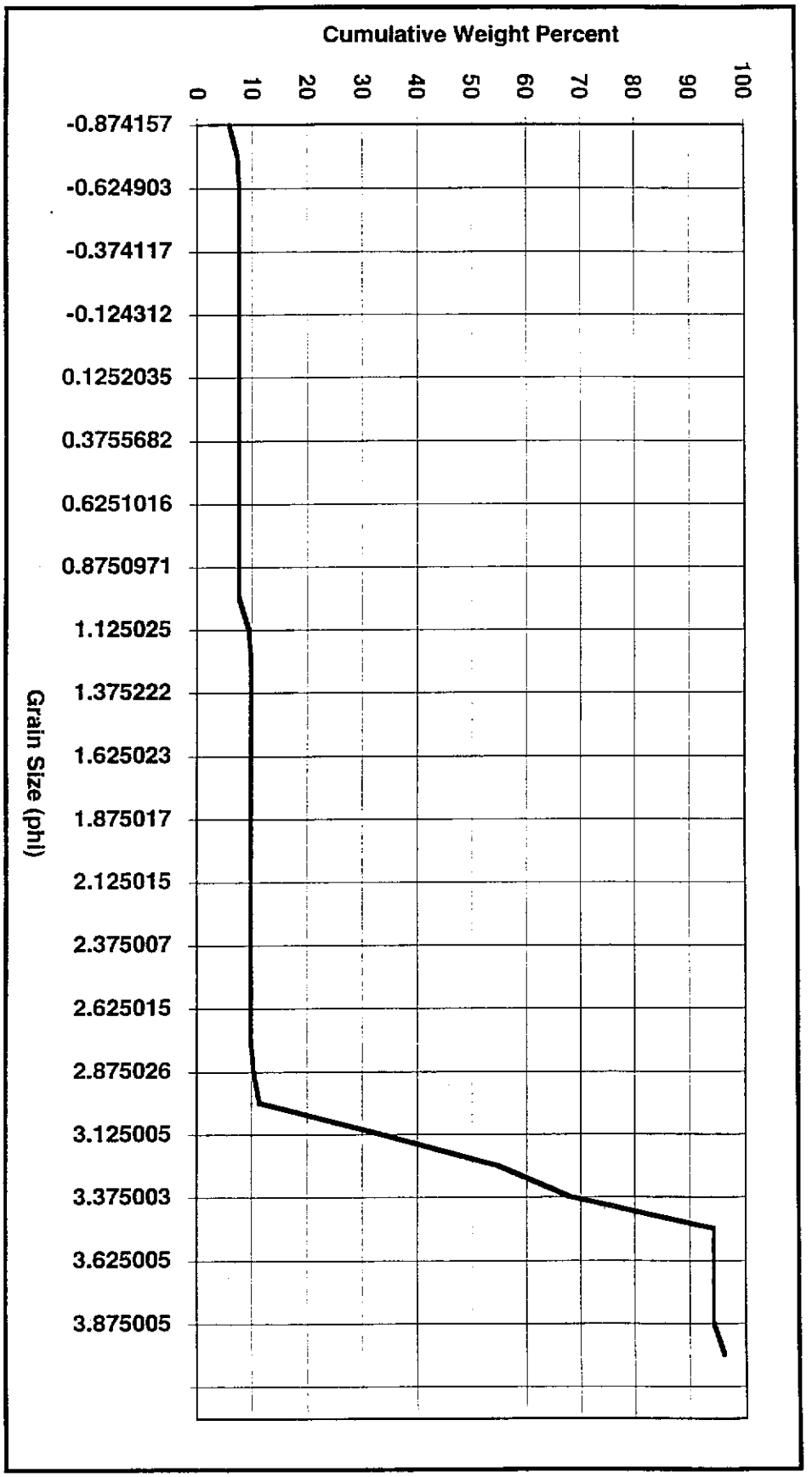
	.125 CHI	.125 PHI
Mean	6.421445	3.07545
Standard deviation	1.559126	0.8153251
Skewness	-2.480131	-3.954496
Kurtosis	7.674708	18.52442

GRAPHIC MEASURES (Folk and Ward, 1957)

	.125 CHI	.125 PHI
Mean	6.866404	3.216377
Standard deviation	1.014451	0.7875232
Skewness	-0.6398512	-0.8488796
Kurtosis	4.382287	6.228562

MODES Number	Velocity	CHI	PHI
1	0.6808014	7.19855	3.407693 3.773582 :
2	0.9621993	6.699449	3.121123 2.830201 :
3	0.8591065	6.862947	3.2163 2.830198 :
4	1.093408	6.515024	3.012042 2.830182 :
5	3.356509	4.896894	1.945453 2.830182 :

PARAMETERS USED				
Number of data points	1000			
Gibbs eq. constants	0.055804	0.003114	4.5	8.71E-03
Dynamic viscosity (poises)	0.01			
Acceleration of gravity (cm/s)	979.21			
Fluid density (g/ml)	0.998			
Particle density (g/cm3)	2.65			
Size conversion using Komar FORAM correction, RD	0.9859			


Cumulative Weight Percent
0
10
20
30
40
50
60
70
80
90
100
Grain Size (phi)
-0.874157
-0.624903
-0.374117
-0.124312
0.1252035
0.3755682
0.6251016
0.8750971
1.125025
1.375222
1.625023
1.875017
2.125015
2.375007
2.625015
2.875026
3.125005
3.375003
3.625005
3.875005

27016

File	c	t28016.dat	Date	06-28-1994	
Sample name	g-16-7'				
Data collected on	6/18/94				
Total settling time (min)	8.083333				
Setting distance (cm)	140				
Water temperature (degrees C)	21				
	CUMULATIVE WEIGHT %		INDIVIDUAL WEIGHT %		
PHI	TIME(SEC)	% VALUE	RANGE		% VALUE
-0.9983899	5.160407	6.1			
-0.8741565	5.519304	7.3	-1	-0.875	1.2
-0.7497373	5.912152	8.7	-0.875	-0.75	1.4
-0.6249025	6.343801	9.1	-0.75	-0.625	0.4000006
-0.4996436	6.819101	9.1	-0.625	-0.5	0
-0.3741167	7.342902	9.1	-0.5	-0.375	0
-0.2495951	7.915204	9.1	-0.375	-0.25	0
-0.1243118	8.550557	9.1	-0.25	-0.125	0
2.51E-04	9.248951	9.1	-0.125	0	0
0.1252035	10.02496	9.1	0	0.125	0
0.2504074	10.88826	9.1	0.125	0.25	0
0.3755682	11.84856	9.1	0.25	0.375	0
0.5002926	12.91556	9.1	0.375	0.5	0
0.6251016	14.10865	9.1	0.5	0.625	0
0.7501019	15.44726	9.1	0.625	0.75	0
0.8750971	16.95067	9.1	0.75	0.875	0
1.000072	18.64336	9.1	0.875	1	0
1.125025	20.55427	9.1	1	1.125	0
1.250206	22.72218	9.1	1.125	1.25	0
1.375222	25.18113	9.1	1.25	1.375	0
1.500138	27.9796	9.1	1.375	1.5	0
1.625023	31.17583	9.1	1.5	1.625	0
1.750034	34.84249	9.1	1.625	1.75	0
1.875017	39.05711	9.1	1.75	1.875	0
2.000092	43.92166	9.1	1.875	2	0
2.125015	49.54277	9.1	2	2.125	0
2.250037	56.07092	9.1	2.125	2.25	0
2.375007	63.66588	9.1	2.25	2.375	0
2.500056	72.53645	9.1	2.375	2.5	0
2.625015	82.9105	9.1	2.5	2.625	0
2.750009	95.08424	9.1	2.625	2.75	0
2.875026	109.4013	9.1	2.75	2.875	0
3.000012	126.2651	12.7	2.875	3	3.599999
3.125005	146.1695	23.6	3	3.125	10.9
3.250022	169.7019	52.7	3.125	3.25	29.1
3.375003	197.5455	72.7	3.25	3.375	20
3.500006	230.5401	86.1	3.375	3.5	13.4
3.625005	269.6649	87.3	3.5	3.625	1.200005
3.75001	316.0943	91.9	3.625	3.75	4.599998
3.875005	371.2144	96.4	3.75	3.875	4.5
4.000007	436.8894	96.4	3.875	4	0

SEDIDAT STATISTICS

GROUPED MOMENT MEASURES (McBride, 1971)		
	.125 CHI	.125 PHI
Mean	6.733265	3.154831
Standard deviation	1.150867	0.7686435
Skewness	-3.708704	-4.632375
Kurtosis	16.25814	24.49024

GRAPHIC MEASURES (Folk and Ward, 1957)		
	.125 CHI	.125 PHI
Mean	6.934306	3.255425
Standard deviation	1.61476	1.751433
Skewness	-1.100493	-2.399922
Kurtosis	9.187395	18.36257

MODES				
Number	Velocity	CHI	PHI	Freq. %
1	0.4867787	7.682518	3.675877	3.63636
2	0.8565573	6.867235	3.218778	2.727274
3	0.8992516	6.79706	3.178109	2.727274
4	0.9402599	6.732725	3.140606	2.727274
5	1.630846	5.938235	2.657033	2.727274

PARAMETERS USED				
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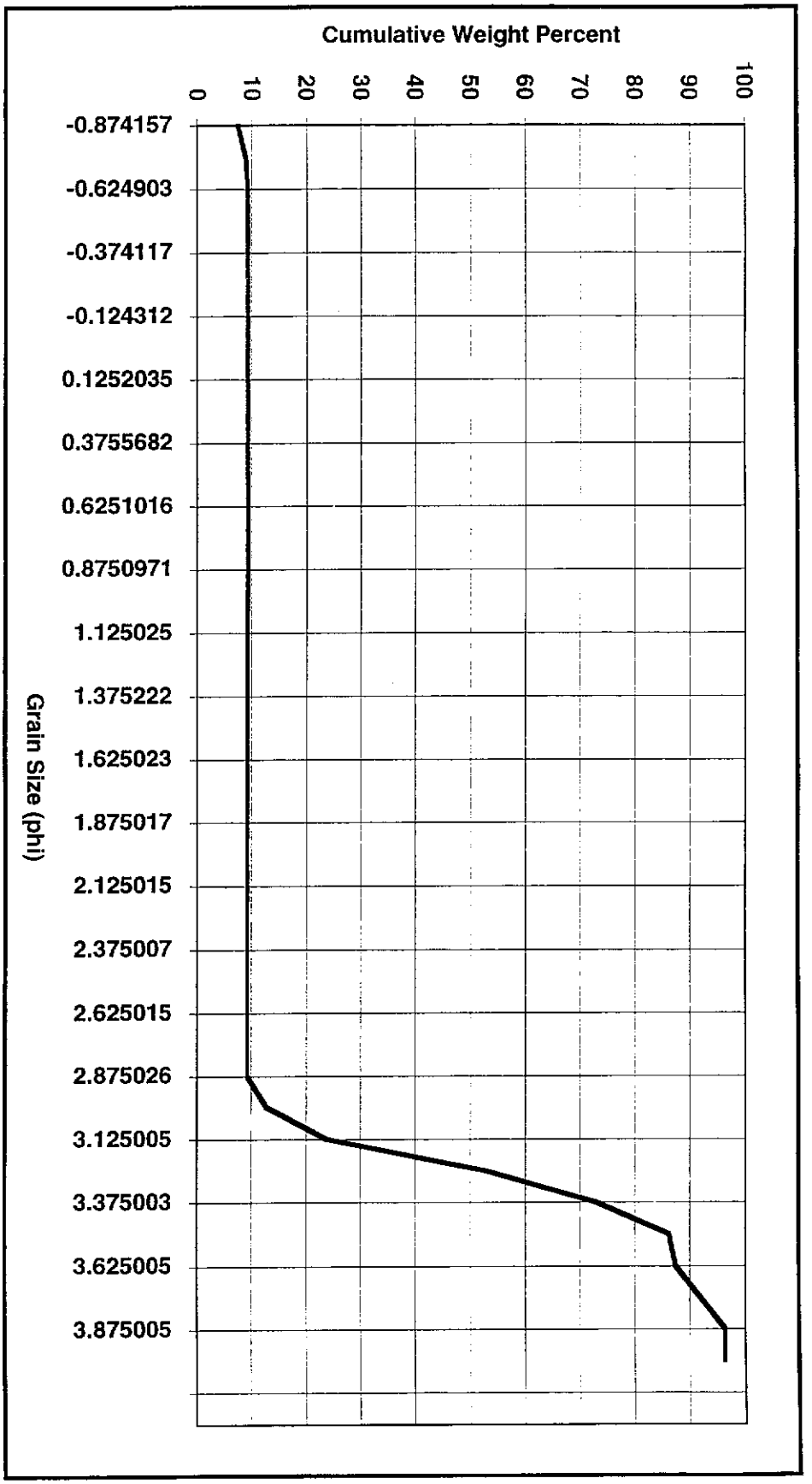
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2.125015
2.375007
2.625015
2.875026
3.125005
3.375003
3.625005
3.875005

28016

G-16

1/3 2/3 3/3