

## Appendix F

### Geotechnical Data: Laboratory Report

PTS File No: 361029  
 Client: ENSR

### PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: Tronox Source Area Investigation  
 PROJECT NO: 04020-023-401

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	MOISTURE CONTENT,		DENSITY		POROSITY (2)				TOTAL PORE FLUID (3) SATURATIONS, % Pv	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
			% weight	cm <sup>3</sup> /cm <sup>3</sup>	DRY BULK, g/cm <sup>3</sup>	GRAIN, g/cm <sup>3</sup>	TOTAL, cm <sup>3</sup> /cm <sup>3</sup>	AIR FILLED, cm <sup>3</sup> /cm <sup>3</sup>	WATER FILLED, cm <sup>3</sup> /cm <sup>3</sup>	EFFECTIVE, cm <sup>3</sup> /cm <sup>3</sup>			
SA21-1.5-3.0	1.4	V	13.9	0.228	1.64	2.69	0.388	0.159	0.228	0.250	58.9	2100	2.10E-03
SA8-1.5-3.0	1.4	V	7.9	0.129	1.65	2.70	0.391	0.261	0.129	0.215	33.1	680	6.80E-04

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids, native sample; Effective = drain porosity (3) Water = 0.9996 g/cc; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 361029  
 Client: ENSR

**PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE**

PROJECT NAME: Tronox Source Area Investigator  
 PROJECT NO: 04020-023-401

METHODOLOGY:			API RP40		API RP40 / ASTM D5084		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm <sup>2</sup>
			SA21-1.5-3.0	1.4	V	109	1301
SA8-1.5-3.0	1.4	V	1728	1893	600	5.72E-04	5.92E-09

(1) Sample Orientation: H = horizontal, V = vertical, R = remold (2) Native State = As received with pore fluids in place; (3) Specific = without moisture; (4) Permeability to water and conductivity measured at saturated conditions

PTS File No: 361029  
 Client: ENSR

### PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: Tronox Source Area Investigation  
 PROJECT NO: 04020-023-401

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	METHODODOLOGY: API RP40/ASTM D2216		API RP40		API RP40		ASTM D425M		API RP40		WALKLEY-BLACK	
			MOISTURE CONTENT,		DENSITY		POROSITY (2)				TOTAL PORE FLUID (3) SATURATIONS, % Pv	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g	
			% weight	cm <sup>3</sup> /cm <sup>3</sup>	DRY BULK, g/cm <sup>3</sup>	GRAIN, g/cm <sup>3</sup>	TOTAL, cm <sup>3</sup> /cm <sup>3</sup>	AIR FILLED, cm <sup>3</sup> /cm <sup>3</sup>	WATER FILLED, cm <sup>3</sup> /cm <sup>3</sup>	EFFECTIVE, cm <sup>3</sup> /cm <sup>3</sup>				
SA21-1.5-3.0	1.4	V	13.9	0.228	1.64	2.69	0.388	0.159	0.228	0.250	58.9	2100	2.10E-03	
SA8-1.5-3.0	1.4	V	7.9	0.129	1.65	2.70	0.391	0.261	0.129	0.215	33.1	680	6.80E-04	

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids, native sample; Effective = drain porosity (3) Water = 0.9996 g/cc; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 361029  
 Client: ENSR

**PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE**

PROJECT NAME: Tronox Source Area Investigator  
 PROJECT NO: 04020-023-401

METHODOLOGY:			API RP40		API RP40 / ASTM D5084		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm <sup>2</sup>
			SA21-1.5-3.0	1.4	V	109	1301
SA8-1.5-3.0	1.4	V	1728	1893	600	5.72E-04	5.92E-09

(1) Sample Orientation: H = horizontal, V = vertical, R = remold (2) Native State = As received with pore fluids in place; (3) Specific = without moisture; (4) Permeability to water and conductivity measured at saturated conditions

PTS File No: 361029  
 Client: ENSR

### SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

PROJECT NAME: Tronox Source Area Investigation  
 PROJECT NO: 04020-023-401

SAMPLE ID.	DEPTH, ft.	METHODS: ASTM D4318			ASTM D4318	ASTM D2487	USDA
		ATTERBERG LIMITS			USCS / PLASTICITY CHART SYMBOL (Fines: <#40 Sieve)	USCS CLASSIFICATION, Group Symbol: Name	USDA (2) SOIL TEXTURE SCHEME
		LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX			
SA21-1.5-3.0	1.40	14.6	NP	NP	NON-PLASTIC	SP: Poorly graded sand	Sand
SA8-1.5-3.0	1.40	13.0	NP	NP	NON-PLASTIC	SW: Well-graded sand with gravel	Sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples. (2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.

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## MOISTURE CONTENT

(METHODOLOGY: ASTM D 2216)

PROJECT NAME: Tronox Source Area Investigation

PROJECT NO: 04020-023-401

SAMPLE ID.	ANALYSES DATE	DEPTH, ft.	MATRIX	TARE WEIGHT, grams	WET SAMPLE + TARE WEIGHT, grams	DRY SAMPLE + TARE WEIGHT, grams	MOISTURE CONTENT, percent dry weight
SA1 @ 1700	12/20/06	N/A	SOIL	1.56	127.63	126.65	0.78
SA10 @ 1715	12/20/06	N/A	SOIL	1.63	134.24	133.07	0.89
SA20 @ 0740	12/20/06	N/A	SOIL	1.60	101.78	100.71	1.08
SA19 @ 1110	12/20/06	N/A	SOIL	1.63	168.10	163.20	3.03
SA4 @ 1310	12/20/06	N/A	SOIL	1.49	118.30	117.75	0.47
SA5 @ 1340	12/20/06	N/A	SOIL	1.61	119.76	118.58	1.01
SA6 @ 1340	12/20/06	N/A	SOIL	1.50	154.80	153.79	0.66
SA7 @ 1355	12/20/06	N/A	SOIL	1.49	146.21	144.07	1.50
SA8 @ 1415	12/20/06	N/A	SOIL	1.46	146.15	144.39	1.23
SA13 @ 1440	12/20/06	N/A	SOIL	1.53	150.58	149.51	0.72
SA2 @ 1520	12/20/06	N/A	SOIL	1.43	123.27	119.11	3.54
SA14 @ 0720	12/20/06	N/A	SOIL	1.47	116.02	111.57	4.04
SA15 @ 0740	12/20/06	N/A	SOIL	1.54	119.74	118.22	1.30
SA13 @ 0910	12/20/06	N/A	SOIL	1.59	123.12	116.32	5.93
SA13 @ 1015	12/20/06	N/A	SOIL	1.42	124.90	122.09	2.33
SA17 @ 1500	12/20/06	N/A	SOIL	1.40	116.55	115.31	1.09
SA27 @ 1145	12/20/06	N/A	SOIL	1.51	113.40	111.58	1.65
SA18 @ 1130	12/20/06	N/A	SOIL	1.52	124.00	122.25	1.45
SA9 @ 1110	12/20/06	N/A	SOIL	1.48	121.96	121.80	0.13
SA22 @ 1235	12/20/06	N/A	SOIL	1.61	125.95	123.60	1.93
SA24 @ 1205	12/20/06	N/A	SOIL	1.39	120.23	119.37	0.73

**PARTICLE SIZE SUMMARY**

(METHODOLOGY: ASTM D422)

PROJECT NAME: Tronox Source Area Investigation  
PROJECT NO: 04020-023-401

Sample ID	Depth, ft.	Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
SA1 @ 1700	N/A	Medium sand	1.068	11.83	15.10	54.12	15.50	3.45
SA10 @ 1715	N/A	Medium sand	0.679	16.71	16.44	25.34	28.15	13.35
SA20 @ 0740	N/A	Coarse sand	1.310	21.93	20.02	25.74	23.85	8.46
SA19 @ 1110	N/A	Gravel	4.014	47.13	13.01	16.67	15.89	7.29
SA4 @ 1310	N/A	Medium sand	0.916	11.93	20.46	31.43	24.69	11.49
SA5 @ 1340	N/A	Medium sand	0.626	17.56	15.77	22.96	28.12	15.59
SA6 @ 1340	N/A	Gravel	4.271	46.58	23.77	16.34	9.68	3.63
SA7 @ 1355	N/A	Coarse sand	3.332	42.23	13.73	15.79	16.59	11.66
SA8 @ 1415	N/A	Coarse sand	3.755	43.96	16.29	14.93	17.25	7.57
SA13 @ 1440	N/A	Coarse sand	0.847	24.81	13.63	20.14	23.54	17.87
SA2 @ 1520	N/A	Medium sand	0.983	19.78	17.03	26.02	22.78	14.39
SA14 @ 0720	N/A	Coarse sand	1.301	26.37	15.68	24.79	22.33	10.82
SA15 @ 0740	N/A	Coarse sand	0.864	22.29	12.76	26.65	24.17	14.13
SA13 @ 0910	N/A	Gravel	3.465	45.75	10.64	13.57	19.32	10.72

(1) based on Mean from Trask



**PARTICLE SIZE SUMMARY**

(METHODOLOGY: ASTM D422)

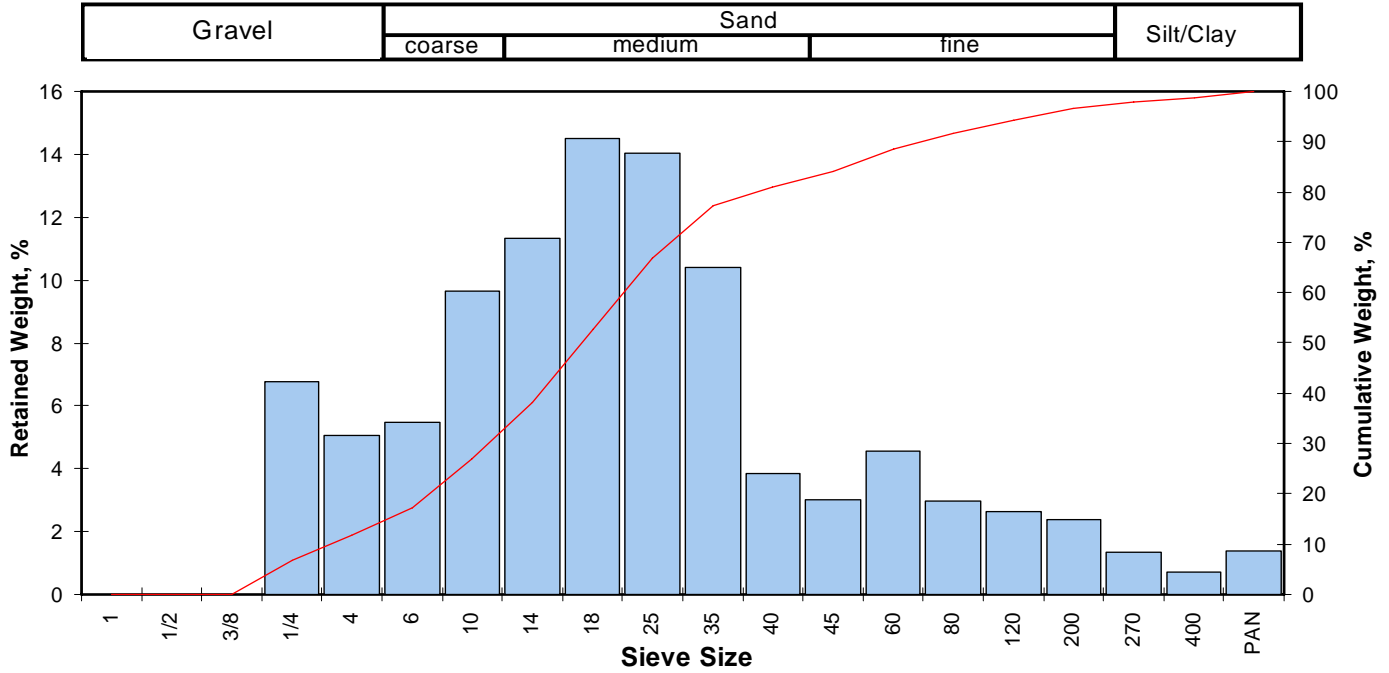
PROJECT NAME: Tronox Source Area Investigation  
PROJECT NO: 04020-023-401

Sample ID	Depth, ft.	Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
SA13 @ 1015	N/A	Medium sand	0.530	8.20	18.03	28.21	31.20	14.35
SA17 @ 1500	N/A	Medium sand	0.481	6.35	19.04	27.00	32.91	14.70
SA27 @ 1145	N/A	Medium sand	0.567	16.21	16.60	21.63	23.49	22.07
SA18 @ 1130	N/A	Medium sand	0.560	12.04	18.26	24.67	29.99	15.03
SA9 @ 1110	N/A	Medium sand	0.468	15.68	13.36	22.63	32.03	16.30
SA22 @ 1235	N/A	Medium sand	0.259	0.72	8.77	29.70	38.47	22.33
SA24 @ 1205	N/A	Medium sand	0.756	10.94	19.71	31.42	27.32	10.61
SA21-1.5-3.0	1.5-3.0	Coarse sand	2.284	9.44	49.01	40.20	0.87	0.48
SA8-1.5-3.0	1.5-3.0	Coarse sand	2.461	33.40	22.03	40.73	2.55	1.29

(1) based on Mean from Trask

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA1 @ 1700  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	4.12	6.77	6.77
0.1873	4.757	-2.25	4	3.08	5.06	11.83
0.1324	3.364	-1.75	6	3.33	5.47	17.30
0.0787	2.000	-1.00	10	5.86	9.63	26.94
0.0557	1.414	-0.50	14	6.88	11.31	38.24
0.0394	1.000	0.00	18	8.83	14.51	52.75
0.0278	0.707	0.50	25	8.53	14.02	66.77
0.0197	0.500	1.00	35	6.34	10.42	77.19
0.0166	0.420	1.25	40	2.35	3.86	81.05
0.0139	0.354	1.50	45	1.83	3.01	84.06
0.0098	0.250	2.00	60	2.76	4.54	88.59
0.0070	0.177	2.50	80	1.80	2.96	91.55
0.0049	0.125	3.00	120	1.59	2.61	94.17
0.0029	0.074	3.75	200	1.45	2.38	96.55
0.0021	0.053	4.25	270	0.82	1.35	97.90
0.0015	0.037	4.75	400	0.44	0.72	98.62
			PAN	0.84	1.38	100.00
<b>TOTALS</b>				60.85	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.82	0.2778	7.056
10	-2.40	0.2079	5.282
16	-1.87	0.1438	3.653
25	-1.15	0.0874	2.220
40	-0.44	0.0534	1.356
50	-0.09	0.0420	1.068
60	0.26	0.0329	0.836
75	0.89	0.0212	0.538
84	1.50	0.0140	0.355
90	2.24	0.0083	0.212
95	3.26	0.0041	0.104

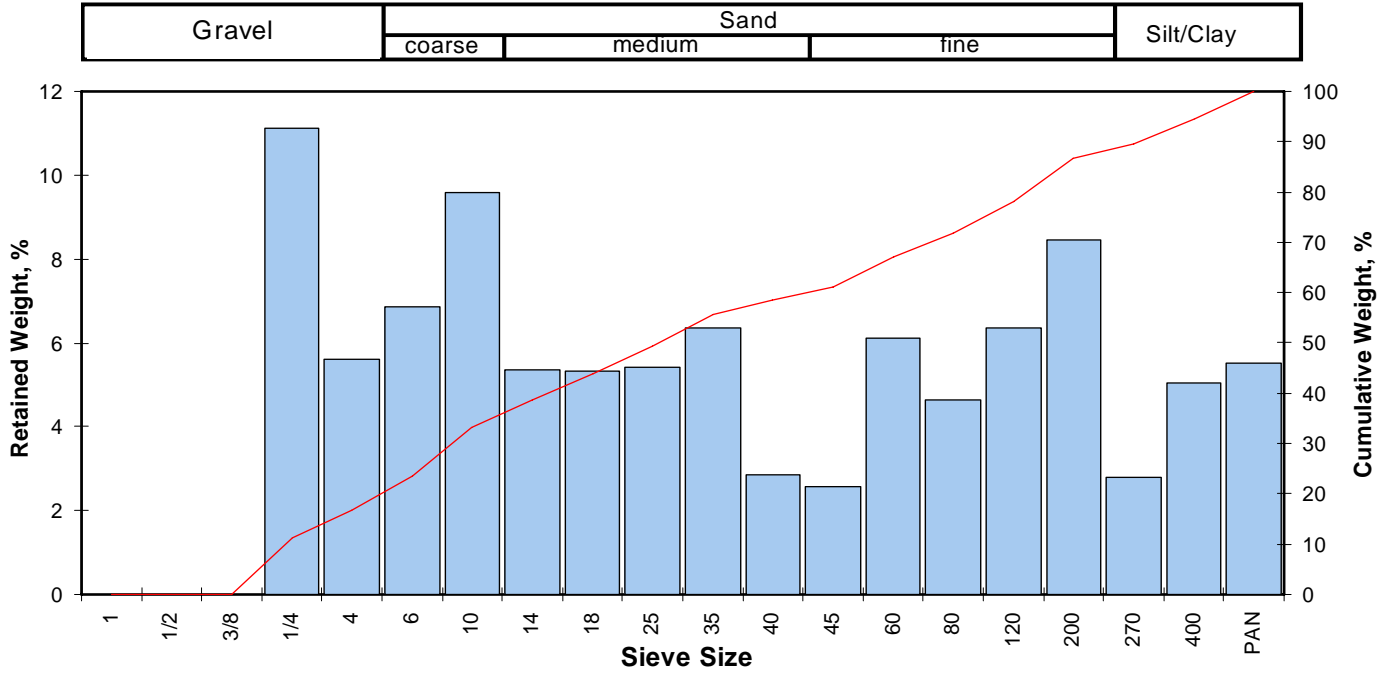
Measure	Trask	Inman	Folk-Ward
Median, phi	-0.09	-0.09	-0.09
Median, in.	0.0420	0.0420	0.0420
Median, mm	1.068	1.068	1.068
Mean, phi	-0.46	-0.19	-0.16
Mean, in.	0.0543	0.0448	0.0439
Mean, mm	1.379	1.138	1.114
Sorting	2.032	1.682	1.763
Skewness	1.023	-0.055	0.025
Kurtosis	0.166	0.808	1.218

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	11.83
Coarse Sand	10	15.10
Medium Sand	40	54.12
Fine Sand	200	15.50
Silt/Clay	<200	3.45
<b>Total</b>		<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA10 @ 1715  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	7.34	11.11	11.11
0.1873	4.757	-2.25	4	3.70	5.60	16.71
0.1324	3.364	-1.75	6	4.53	6.86	23.57
0.0787	2.000	-1.00	10	6.33	9.58	33.16
0.0557	1.414	-0.50	14	3.54	5.36	38.52
0.0394	1.000	0.00	18	3.51	5.31	43.83
0.0278	0.707	0.50	25	3.59	5.44	49.27
0.0197	0.500	1.00	35	4.21	6.37	55.64
0.0166	0.420	1.25	40	1.89	2.86	58.50
0.0139	0.354	1.50	45	1.70	2.57	61.07
0.0098	0.250	2.00	60	4.04	6.12	67.19
0.0070	0.177	2.50	80	3.07	4.65	71.84
0.0049	0.125	3.00	120	4.20	6.36	78.20
0.0029	0.074	3.75	200	5.58	8.45	86.65
0.0021	0.053	4.25	270	1.85	2.80	89.45
0.0015	0.037	4.75	400	3.33	5.04	94.49
			PAN	3.64	5.51	100.00
<b>TOTALS</b>				66.05	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.99	0.3120	7.926
10	-2.73	0.2603	6.612
16	-2.30	0.1943	4.935
25	-1.64	0.1226	3.113
40	-0.36	0.0505	1.284
50	0.56	0.0267	0.679
60	1.40	0.0150	0.380
75	2.75	0.0059	0.149
84	3.52	0.0034	0.087
90	4.30	0.0020	0.051
95	4.31	0.0020	0.050

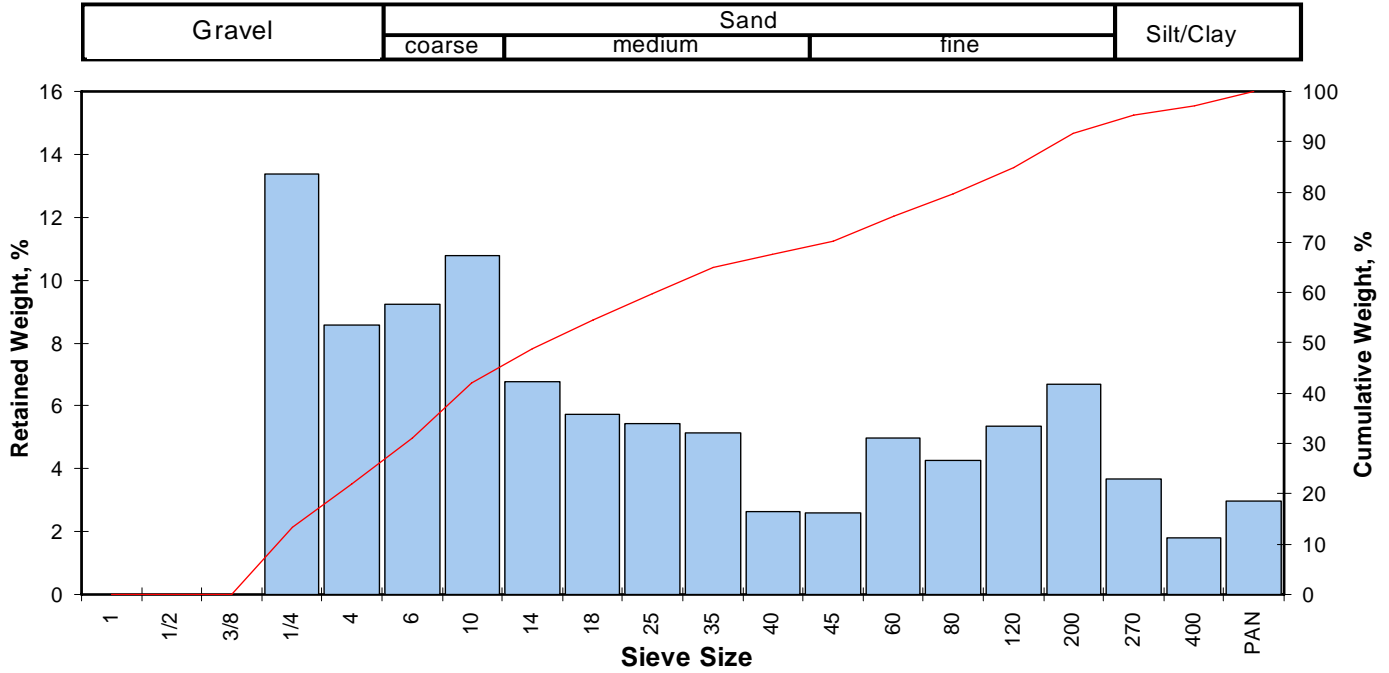
Measure	Trask	Inman	Folk-Ward
Median, phi	0.56	0.56	0.56
Median, in.	0.0267	0.0267	0.0267
Median, mm	0.679	0.679	0.679
Mean, phi	-0.71	0.61	0.59
Mean, in.	0.0642	0.0259	0.0262
Mean, mm	1.631	0.657	0.664
Sorting	4.574	2.909	2.560
Skewness	1.002	0.017	0.023
Kurtosis	0.226	0.254	0.682

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	16.71
Coarse Sand	10	16.44
Medium Sand	40	25.34
Fine Sand	200	28.15
Silt/Clay	<200	13.35
<b>Total</b>		<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA20 @ 0740  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	6.55	13.35	13.35
0.1873	4.757	-2.25	4	4.21	8.58	21.93
0.1324	3.364	-1.75	6	4.53	9.23	31.17
0.0787	2.000	-1.00	10	5.29	10.78	41.95
0.0557	1.414	-0.50	14	3.33	6.79	48.74
0.0394	1.000	0.00	18	2.81	5.73	54.46
0.0278	0.707	0.50	25	2.66	5.42	59.89
0.0197	0.500	1.00	35	2.53	5.16	65.04
0.0166	0.420	1.25	40	1.30	2.65	67.69
0.0139	0.354	1.50	45	1.28	2.61	70.30
0.0098	0.250	2.00	60	2.43	4.95	75.25
0.0070	0.177	2.50	80	2.10	4.28	79.54
0.0049	0.125	3.00	120	2.62	5.34	84.88
0.0029	0.074	3.75	200	3.27	6.67	91.54
0.0021	0.053	4.25	270	1.81	3.69	95.23
0.0015	0.037	4.75	400	0.88	1.79	97.02
			PAN	1.46	2.98	100.00
<b>TOTALS</b>				49.06	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.03	0.3217	8.170
10	-2.81	0.2766	7.027
16	-2.54	0.2287	5.809
25	-2.08	0.1669	4.239
40	-1.14	0.0865	2.197
50	-0.39	0.0516	1.310
60	0.51	0.0276	0.702
75	1.97	0.0100	0.254
84	2.92	0.0052	0.132
90	3.58	0.0033	0.084
95	4.22	0.0021	0.054

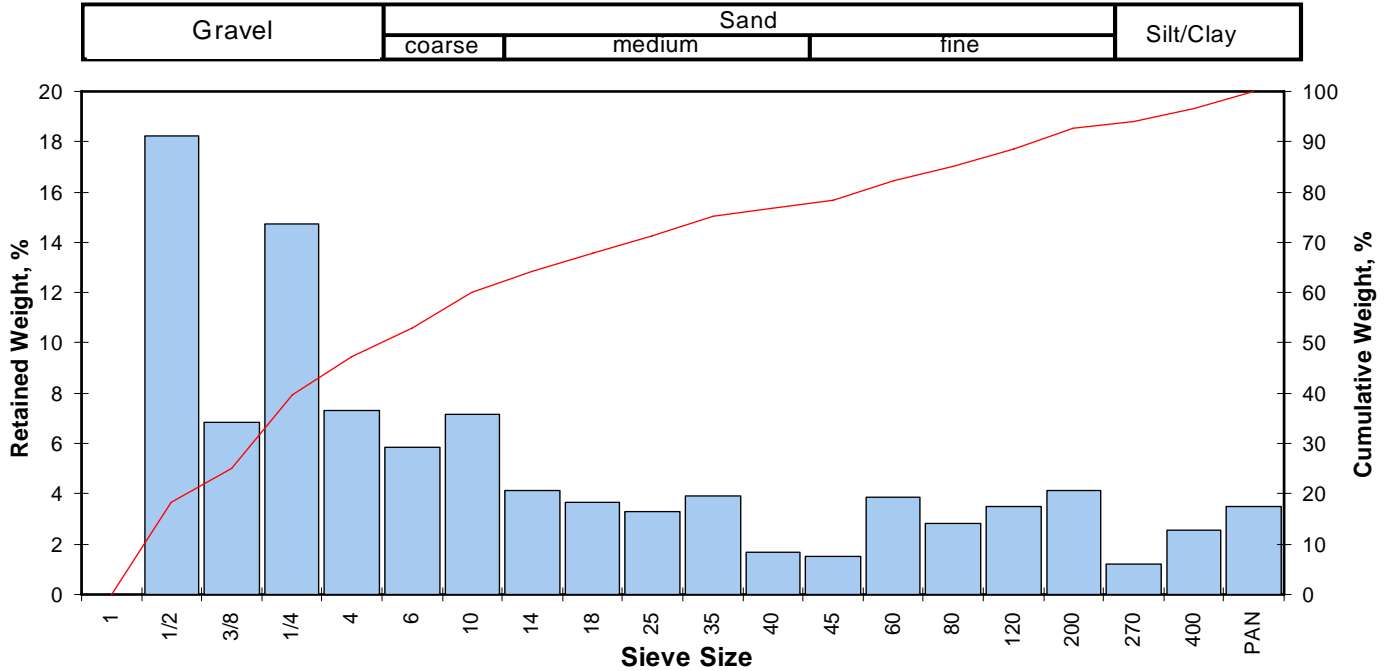
Measure	Trask	Inman	Folk-Ward
Median, phi	-0.39	-0.39	-0.39
Median, in.	0.0516	0.0516	0.0516
Median, mm	1.310	1.310	1.310
Mean, phi	-1.17	0.19	0.00
Mean, in.	0.0885	0.0345	0.0395
Mean, mm	2.247	0.877	1.002
Sorting	4.081	2.728	2.462
Skewness	0.793	0.212	0.242
Kurtosis	0.287	0.329	0.732

**Grain Size Description** (ASTM-USCS Scale) Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	21.93
Coarse Sand	10	20.02
Medium Sand	40	25.74
Fine Sand	200	23.85
Silt/Clay	<200	8.46
<b>Total</b>		<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA19 @ 1110  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	12.30	18.23	18.23
0.3740	9.500	-3.25	3/8	4.60	6.82	25.05
0.2500	6.351	-2.67	1/4	9.95	14.75	39.80
0.1873	4.757	-2.25	4	4.95	7.34	47.13
0.1324	3.364	-1.75	6	3.95	5.85	52.99
0.0787	2.000	-1.00	10	4.83	7.16	60.15
0.0557	1.414	-0.50	14	2.79	4.14	64.28
0.0394	1.000	0.00	18	2.47	3.66	67.94
0.0278	0.707	0.50	25	2.22	3.29	71.23
0.0197	0.500	1.00	35	2.64	3.91	75.14
0.0166	0.420	1.25	40	1.13	1.67	76.82
0.0139	0.354	1.50	45	1.02	1.51	78.33
0.0098	0.250	2.00	60	2.61	3.87	82.20
0.0070	0.177	2.50	80	1.92	2.85	85.05
0.0049	0.125	3.00	120	2.37	3.51	88.56
0.0029	0.074	3.75	200	2.80	4.15	92.71
0.0021	0.053	4.25	270	0.81	1.20	93.91
0.0015	0.037	4.75	400	1.74	2.58	96.49
			PAN	2.37	3.51	100.00
<b>TOTALS</b>				67.47	100.00	100.00

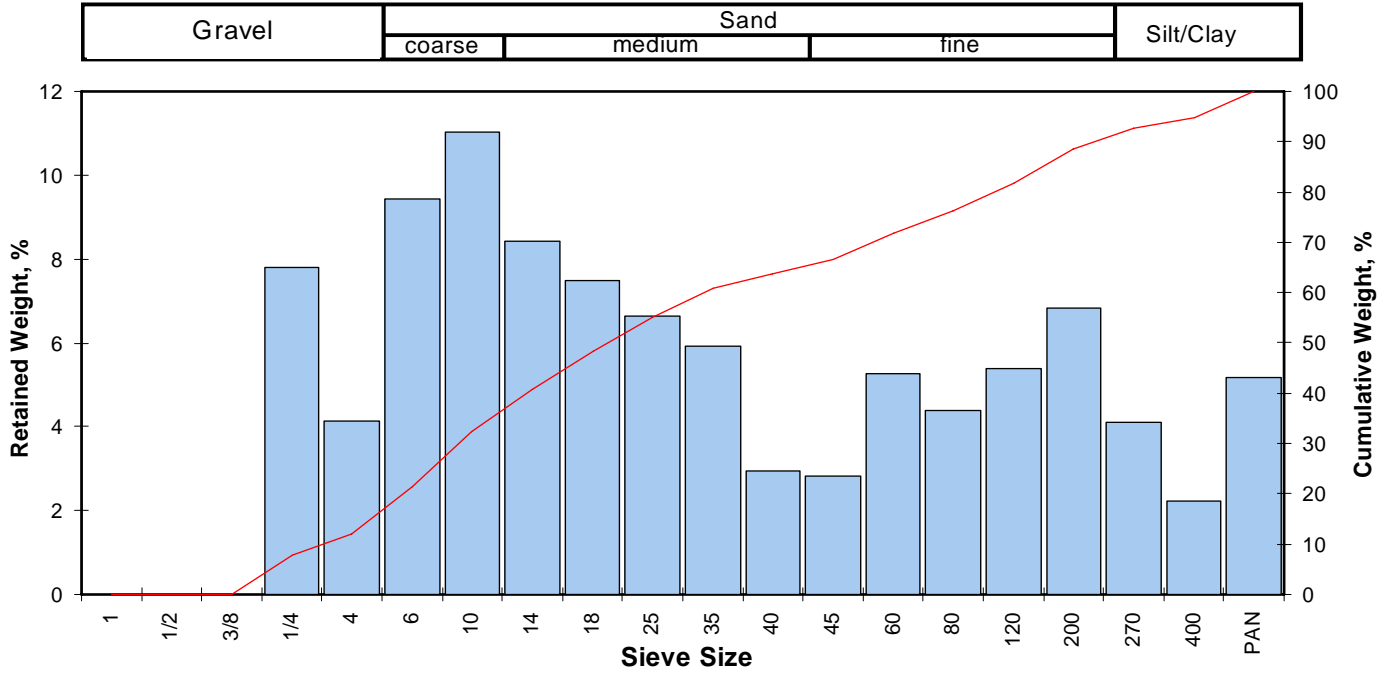
Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-4.37	0.8139	20.674
10	-4.10	0.6730	17.095
16	-3.77	0.5357	13.608
25	-3.25	0.3748	9.519
40	-2.66	0.2480	6.300
50	-2.01	0.1580	4.014
60	-1.02	0.0796	2.021
75	0.98	0.0199	0.506
84	2.32	0.0079	0.201
90	3.26	0.0041	0.104
95	4.46	0.0018	0.045

Measure	Trask	Inman	Folk-Ward
Median, phi	-2.01	-2.01	-2.01
Median, in.	0.1580	0.1580	0.1580
Median, mm	4.014	4.014	4.014
Mean, phi	-2.33	-0.72	-1.15
Mean, in.	0.1973	0.0651	0.0875
Mean, mm	5.013	1.653	2.222
Sorting	4.335	3.041	2.859
Skewness	0.547	0.421	0.443
Kurtosis	0.265	0.452	0.855
<b>Grain Size Description (ASTM-USCS Scale)</b>		Gravel (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	47.13
Coarse Sand	10	13.01
Medium Sand	40	16.67
Fine Sand	200	15.89
Silt/Clay	<200	7.29
<b>Total</b>		100

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA4 @ 1310  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	4.61	7.79	7.79
0.1873	4.757	-2.25	4	2.45	4.14	11.93
0.1324	3.364	-1.75	6	5.59	9.45	21.38
0.0787	2.000	-1.00	10	6.52	11.02	32.39
0.0557	1.414	-0.50	14	4.99	8.43	40.82
0.0394	1.000	0.00	18	4.43	7.49	48.31
0.0278	0.707	0.50	25	3.94	6.66	54.97
0.0197	0.500	1.00	35	3.50	5.91	60.88
0.0166	0.420	1.25	40	1.74	2.94	63.82
0.0139	0.354	1.50	45	1.67	2.82	66.64
0.0098	0.250	2.00	60	3.11	5.26	71.90
0.0070	0.177	2.50	80	2.59	4.38	76.28
0.0049	0.125	3.00	120	3.19	5.39	81.67
0.0029	0.074	3.75	200	4.05	6.84	88.51
0.0021	0.053	4.25	270	2.42	4.09	92.60
0.0015	0.037	4.75	400	1.32	2.23	94.83
			PAN	3.06	5.17	100.00
<b>TOTALS</b>				59.18	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.88	0.2888	7.336
10	-2.44	0.2143	5.443
16	-2.03	0.1613	4.097
25	-1.50	0.1116	2.835
40	-0.55	0.0576	1.463
50	0.13	0.0361	0.916
60	0.93	0.0207	0.527
75	2.35	0.0077	0.196
84	3.26	0.0041	0.105
90	3.93	0.0026	0.066
95	4.59	0.0016	0.041

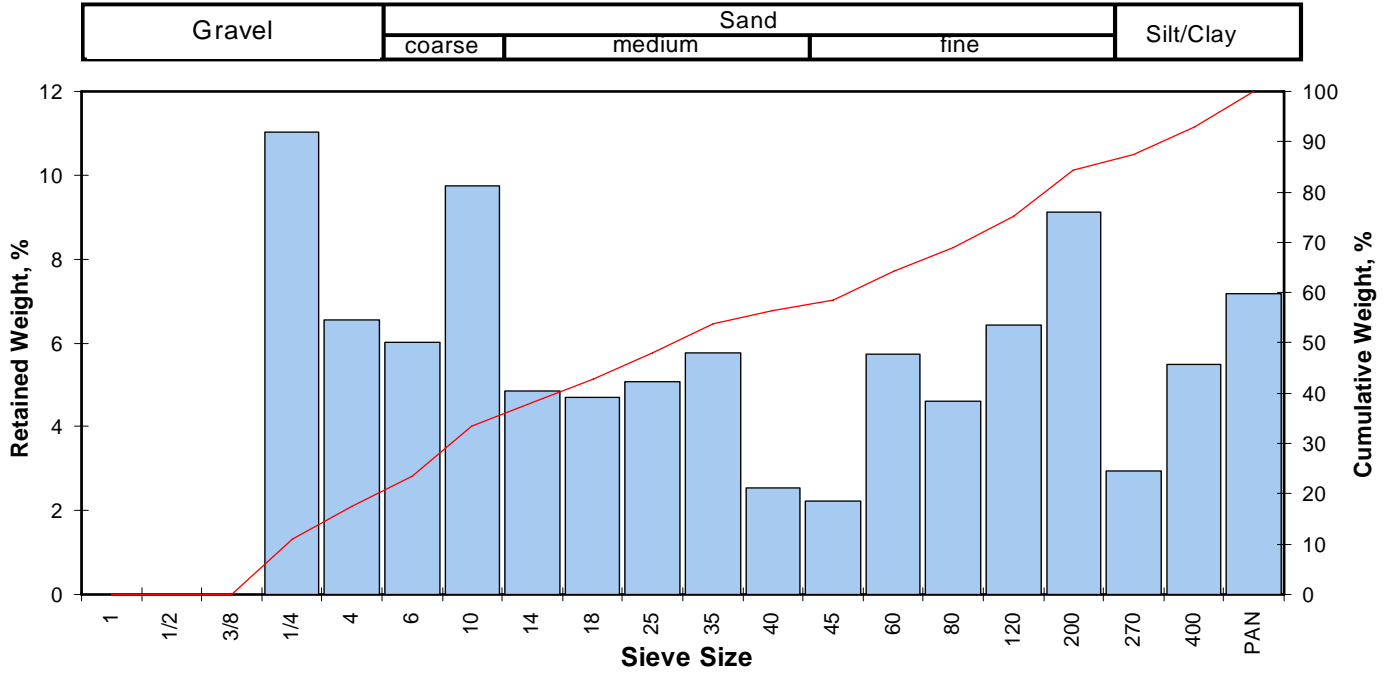
Measure	Trask	Inman	Folk-Ward
Median, phi	0.13	0.13	0.13
Median, in.	0.0361	0.0361	0.0361
Median, mm	0.916	0.916	0.916
Mean, phi	-0.60	0.61	0.45
Mean, in.	0.0597	0.0258	0.0288
Mean, mm	1.515	0.655	0.732
Sorting	3.807	2.645	2.454
Skewness	0.813	0.183	0.189
Kurtosis	0.245	0.412	0.793

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	11.93
Coarse Sand	10	20.46
Medium Sand	40	31.43
Fine Sand	200	24.69
Silt/Clay	<200	11.49
<b>Total</b>		<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA5 @ 1315  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	6.11	11.03	11.03
0.1873	4.757	-2.25	4	3.62	6.53	17.56
0.1324	3.364	-1.75	6	3.34	6.03	23.59
0.0787	2.000	-1.00	10	5.40	9.75	33.33
0.0557	1.414	-0.50	14	2.69	4.85	38.19
0.0394	1.000	0.00	18	2.61	4.71	42.90
0.0278	0.707	0.50	25	2.81	5.07	47.97
0.0197	0.500	1.00	35	3.20	5.78	53.74
0.0166	0.420	1.25	40	1.41	2.54	56.29
0.0139	0.354	1.50	45	1.24	2.24	58.53
0.0098	0.250	2.00	60	3.17	5.72	64.25
0.0070	0.177	2.50	80	2.56	4.62	68.87
0.0049	0.125	3.00	120	3.56	6.42	75.29
0.0029	0.074	3.75	200	5.05	9.11	84.41
0.0021	0.053	4.25	270	1.64	2.96	87.37
0.0015	0.037	4.75	400	3.03	5.47	92.84
			PAN	3.97	7.16	100.00
<b>TOTALS</b>				55.41	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.98	0.3116	7.915
10	-2.72	0.2596	6.594
16	-2.35	0.2007	5.097
25	-1.64	0.1228	3.120
40	-0.31	0.0487	1.238
50	0.68	0.0246	0.626
60	1.63	0.0127	0.323
75	2.98	0.0050	0.127
84	3.72	0.0030	0.076
90	4.49	0.0018	0.044
95	3.31	0.0040	0.100

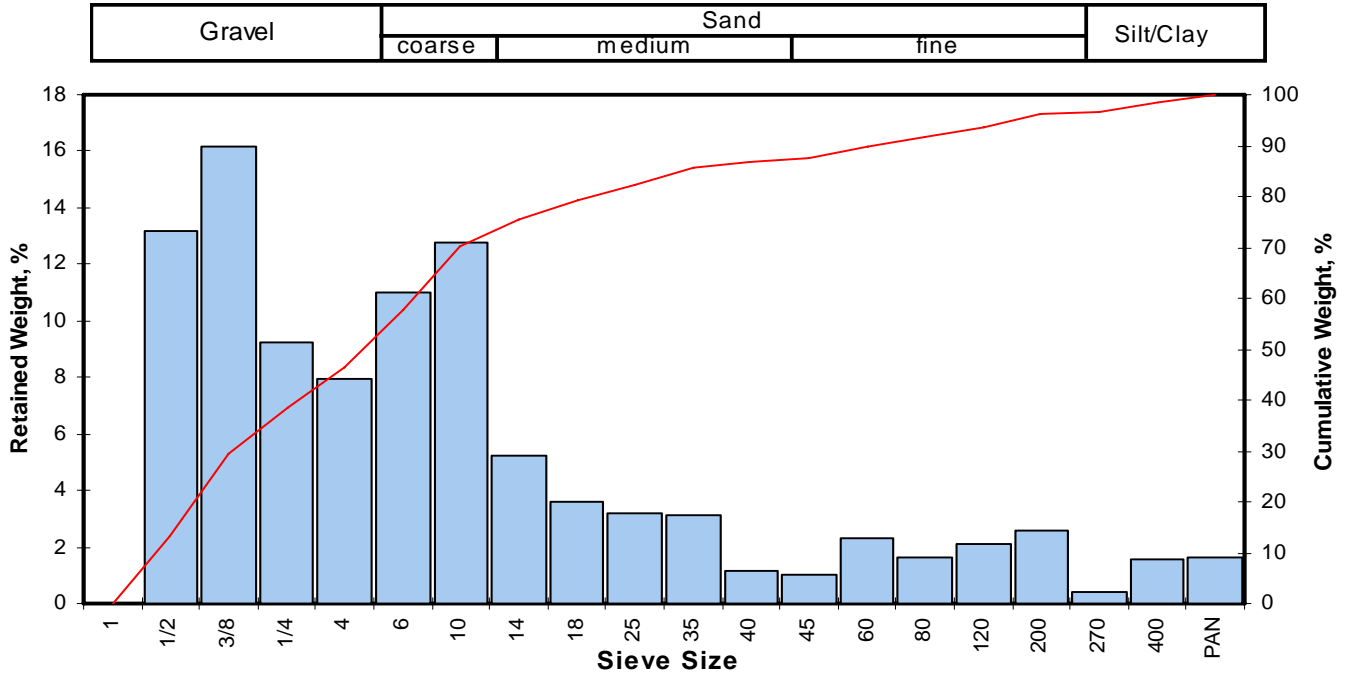
Measure	Trask	Inman	Folk-Ward
Median, phi	0.68	0.68	0.68
Median, in.	0.0246	0.0246	0.0246
Median, mm	0.626	0.626	0.626
Mean, phi	-0.70	0.68	0.68
Mean, in.	0.0639	0.0245	0.0246
Mean, mm	1.623	0.623	0.624
Sorting	4.956	3.033	2.471
Skewness	1.005	0.003	-0.080
Kurtosis	0.228	0.038	0.559

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	17.56
Coarse Sand	10	15.77
Medium Sand	40	22.96
Fine Sand	200	28.12
Silt/Clay	<200	15.59
<b>TOTALS</b>	<b>Total</b>	<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA6 @ 1340  
 Depth, ft: N/A

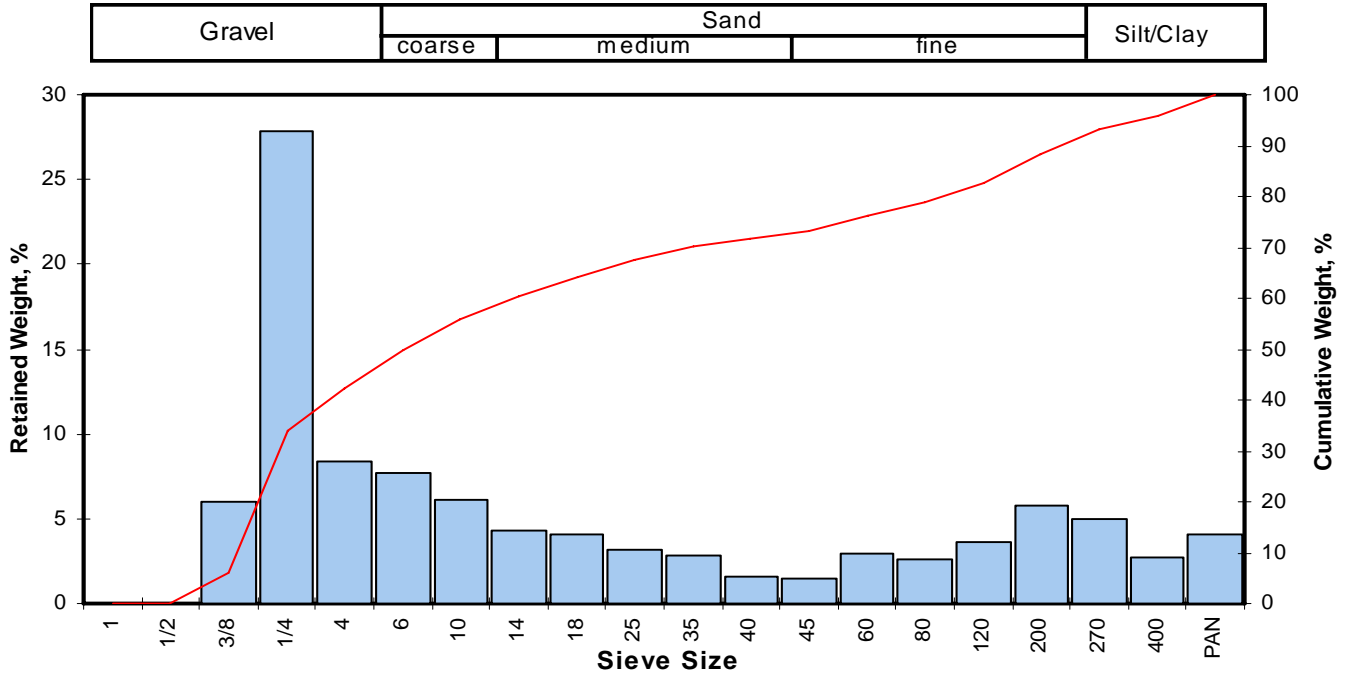


Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than				
Inches	Millimeters						Weight percent	Phi Value	Particle Size		
								Inches	Millimeters		
0.9844	25.002	-4.64	1	0.00	0.00	0.00	5	-4.26	0.7569	19.225	
0.4922	12.501	-3.64	1/2	10.60	13.19	13.19	10	-3.89	0.5820	14.782	
0.3740	9.500	-3.25	3/8	13.00	16.18	29.36	16	-3.58	0.4692	11.919	
0.2500	6.351	-2.67	1/4	7.45	9.27	38.63	25	-3.35	0.4028	10.231	
0.1873	4.757	-2.25	4	6.39	7.95	46.58	40	-2.60	0.2379	6.043	
0.1324	3.364	-1.75	6	8.84	11.00	57.58	50	-2.09	0.1682	4.271	
0.0787	2.000	-1.00	10	10.26	12.77	70.35	60	-1.61	0.1200	3.048	
0.0557	1.414	-0.50	14	4.18	5.20	75.55	75	-0.55	0.0578	1.467	
0.0394	1.000	0.00	18	2.92	3.63	79.18	84	0.76	0.0233	0.592	
0.0278	0.707	0.50	25	2.57	3.20	82.38	90	2.00	0.0098	0.250	
0.0197	0.500	1.00	35	2.53	3.15	85.53	95	3.36	0.0038	0.098	
0.0166	0.420	1.25	40	0.93	1.16	86.69					
0.0139	0.354	1.50	45	0.80	1.00	87.68					
0.0098	0.250	2.00	60	1.86	2.31	90.00					
0.0070	0.177	2.50	80	1.32	1.64	91.64					
0.0049	0.125	3.00	120	1.71	2.13	93.77					
0.0029	0.074	3.75	200	2.09	2.60	96.37					
0.0021	0.053	4.25	270	0.34	0.42	96.79					
0.0015	0.037	4.75	400	1.28	1.59	98.38					
			PAN	1.30	1.62	100.00					
								Measure	Trask	Inman	Folk-Ward
								Median, phi	-2.09	-2.09	-2.09
								Median, in.	0.1682	0.1682	0.1682
								Median, mm	4.271	4.271	4.271
								Mean, phi	-2.55	-1.41	-1.64
								Mean, in.	0.2303	0.1046	0.1225
								Mean, mm	5.849	2.656	3.112
								Sorting	2.641	2.166	2.238
								Skewness	0.907	0.317	0.374
								Kurtosis	0.302	0.759	1.115
								Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)		
								Description	Retained on Sieve #	Weight Percent	
								Gravel	4	46.58	
								Coarse Sand	10	23.77	
								Medium Sand	40	16.34	
								Fine Sand	200	9.68	
								Silt/Clay	<200	3.63	
								TOTALS	Total	100	



**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA7 @ 1355  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
Inches	Millimeters						Weight percent	Phi Value	Particle Size	
								Inches	Millimeters	
0.9844	25.002	-4.64	1	0.00	0.00	0.00				
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00				
0.3740	9.500	-3.25	3/8	4.60	5.99	5.99				
0.2500	6.351	-2.67	1/4	21.39	27.87	33.86				
0.1873	4.757	-2.25	4	6.42	8.36	42.23				
0.1324	3.364	-1.75	6	5.88	7.66	49.89				
0.0787	2.000	-1.00	10	4.66	6.07	55.96				
0.0557	1.414	-0.50	14	3.26	4.25	60.21				
0.0394	1.000	0.00	18	3.15	4.10	64.31				
0.0278	0.707	0.50	25	2.40	3.13	67.44				
0.0197	0.500	1.00	35	2.13	2.78	70.21				
0.0166	0.420	1.25	40	1.18	1.54	71.75				
0.0139	0.354	1.50	45	1.14	1.49	73.24				
0.0098	0.250	2.00	60	2.30	3.00	76.23				
0.0070	0.177	2.50	80	2.01	2.62	78.85				
0.0049	0.125	3.00	120	2.81	3.66	82.51				
0.0029	0.074	3.75	200	4.47	5.82	88.34				
0.0021	0.053	4.25	270	3.79	4.94	93.28				
0.0015	0.037	4.75	400	2.05	2.67	95.95				
			PAN	3.11	4.05	100.00				

Measure	Trask	Inman	Folk-Ward
Median, phi	-1.74	-1.74	-1.74
Median, in.	0.1312	0.1312	0.1312
Median, mm	3.332	3.332	3.332
Mean, phi	-1.91	0.08	-0.53
Mean, in.	0.1478	0.0374	0.0568
Mean, mm	3.754	0.949	1.442
Sorting	5.003	3.115	2.753
Skewness	0.433	0.582	0.591
Kurtosis	0.389	0.266	0.696

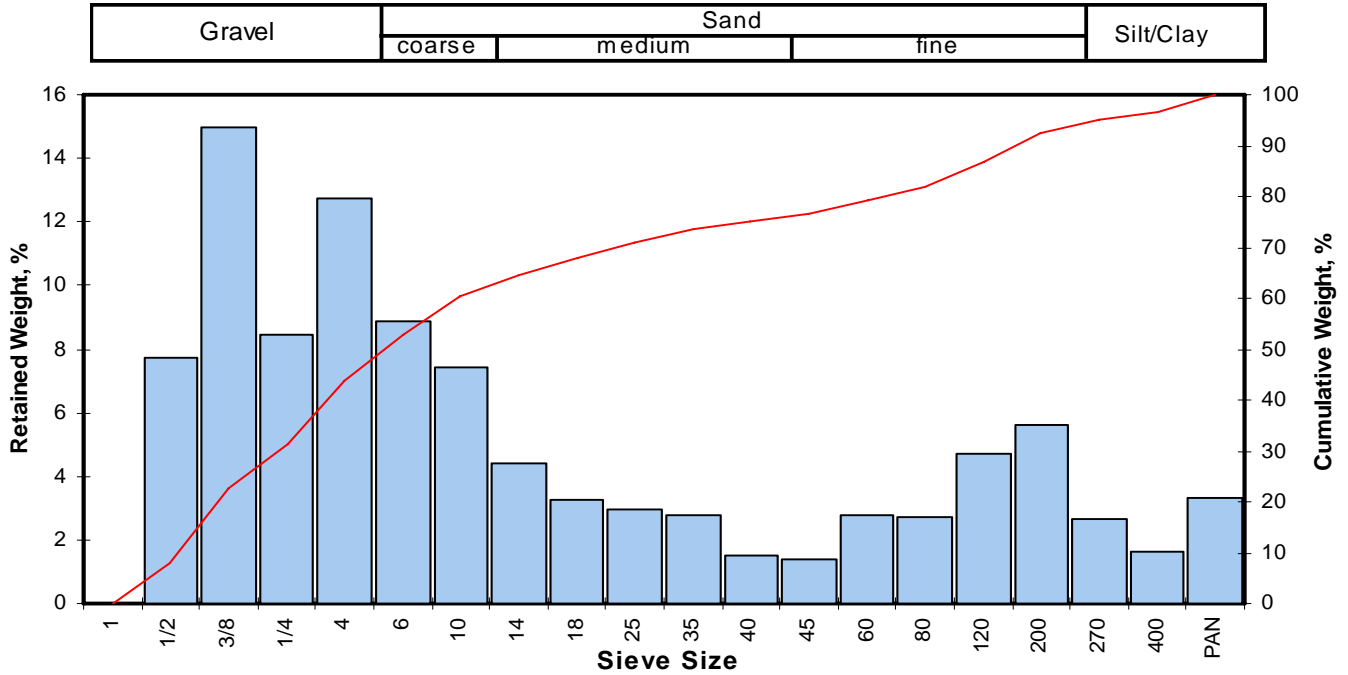
Grain Size Description (ASTM-USCS Scale)	Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	42.23
Coarse Sand	10	13.73
Medium Sand	40	15.79
Fine Sand	200	16.59
Silt/Clay	<200	11.66
<b>TOTALS</b>	<b>Total</b>	<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA8 @ 1415  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
Inches	Millimeters						Weight percent	Phi Value	Particle Size	
						Inches	Millimeters			
0.9844	25.002	-4.64	1	0.00	0.00	0.00				
0.4922	12.501	-3.64	1/2	5.11	7.74	7.74				
0.3740	9.500	-3.25	3/8	9.90	14.99	22.73				
0.2500	6.351	-2.67	1/4	5.60	8.48	31.21				
0.1873	4.757	-2.25	4	8.42	12.75	43.96				
0.1324	3.364	-1.75	6	5.85	8.86	52.82				
0.0787	2.000	-1.00	10	4.91	7.43	60.25				
0.0557	1.414	-0.50	14	2.91	4.41	64.66				
0.0394	1.000	0.00	18	2.16	3.27	67.93				
0.0278	0.707	0.50	25	1.97	2.98	70.91				
0.0197	0.500	1.00	35	1.84	2.79	73.70				
0.0166	0.420	1.25	40	0.98	1.48	75.18				
0.0139	0.354	1.50	45	0.91	1.38	76.56				
0.0098	0.250	2.00	60	1.85	2.80	79.36				
0.0070	0.177	2.50	80	1.78	2.70	82.06				
0.0049	0.125	3.00	120	3.13	4.74	86.80				
0.0029	0.074	3.75	200	3.72	5.63	92.43				
0.0021	0.053	4.25	270	1.75	2.65	95.08				
0.0015	0.037	4.75	400	1.07	1.62	96.70				
			PAN	2.18	3.30	100.00				
<b>TOTALS</b>							66.04	100.00	100.00	

Measure	Trask	Inman	Folk-Ward
Median, phi	-1.91	-1.91	-1.91
Median, in.	0.1479	0.1479	0.1479
Median, mm	3.755	3.755	3.755
Mean, phi	-2.16	-0.36	-0.88
Mean, in.	0.1763	0.0505	0.0723
Mean, mm	4.479	1.284	1.836
Sorting	4.456	3.065	2.780
Skewness	0.510	0.505	0.499
Kurtosis	0.340	0.343	0.783

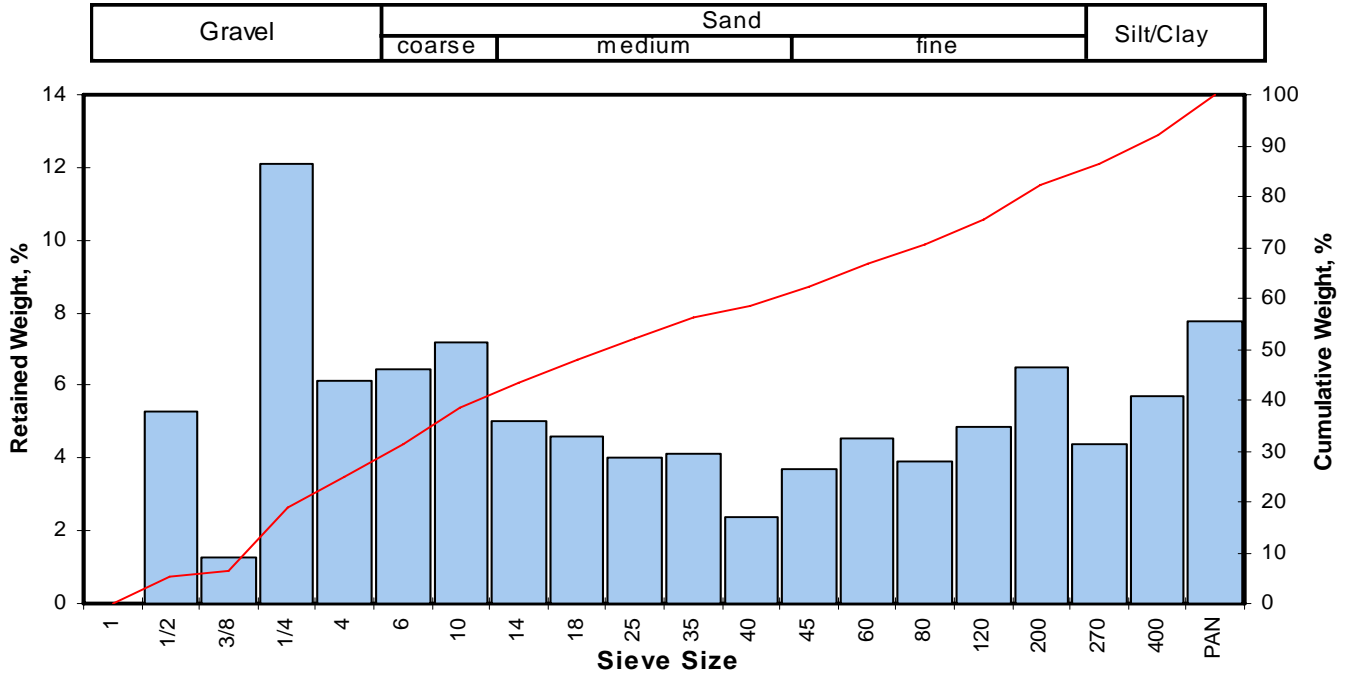
Grain Size Description (ASTM-USCS Scale)	Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	43.96
Coarse Sand	10	16.29
Medium Sand	40	14.93
Fine Sand	200	17.25
Silt/Clay	<200	7.57
<b>Total</b>		<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA13 @ 1440  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
Inches	Millimeters						Weight percent	Phi Value	Particle Size	
								Inches	Millimeters	
0.9844	25.002	-4.64	1	0.00	0.00	0.00	5	0.5107	12.972	
0.4922	12.501	-3.64	1/2	3.70	5.28	5.28	10	0.3337	8.476	
0.3740	9.500	-3.25	3/8	0.90	1.28	6.57	16	0.2734	6.944	
0.2500	6.351	-2.67	1/4	8.49	12.12	18.69	25	0.1854	4.709	
0.1873	4.757	-2.25	4	4.29	6.12	24.81	40	0.0707	1.797	
0.1324	3.364	-1.75	6	4.50	6.42	31.23	50	0.0334	0.847	
0.0787	2.000	-1.00	10	5.05	7.21	38.44	60	0.0155	0.394	
0.0557	1.414	-0.50	14	3.53	5.04	43.48	75	0.0051	0.130	
0.0394	1.000	0.00	18	3.21	4.58	48.07	84	0.0025	0.064	
0.0278	0.707	0.50	25	2.83	4.04	52.11	90	0.0017	0.043	
0.0197	0.500	1.00	35	2.88	4.11	56.22	95	0.0047	0.120	
0.0166	0.420	1.25	40	1.66	2.37	58.59				
0.0139	0.354	1.50	45	2.59	3.70	62.28				
0.0098	0.250	2.00	60	3.18	4.54	66.82				
0.0070	0.177	2.50	80	2.74	3.91	70.74				
0.0049	0.125	3.00	120	3.41	4.87	75.60				
0.0029	0.074	3.75	200	4.57	6.52	82.13				
0.0021	0.053	4.25	270	3.08	4.40	86.52				
0.0015	0.037	4.75	400	4.00	5.71	92.23				
			PAN	5.44	7.77	100.00				

Measure	Trask	Inman	Folk-Ward
Median, phi	0.24	0.24	0.24
Median, in.	0.0334	0.0334	0.0334
Median, mm	0.847	0.847	0.847
Mean, phi	-1.27	0.58	0.47
Mean, in.	0.0953	0.0263	0.0284
Mean, mm	2.420	0.667	0.723
Sorting	6.007	3.379	2.713
Skewness	0.925	0.102	-0.032
Kurtosis	0.271	0.000	0.535

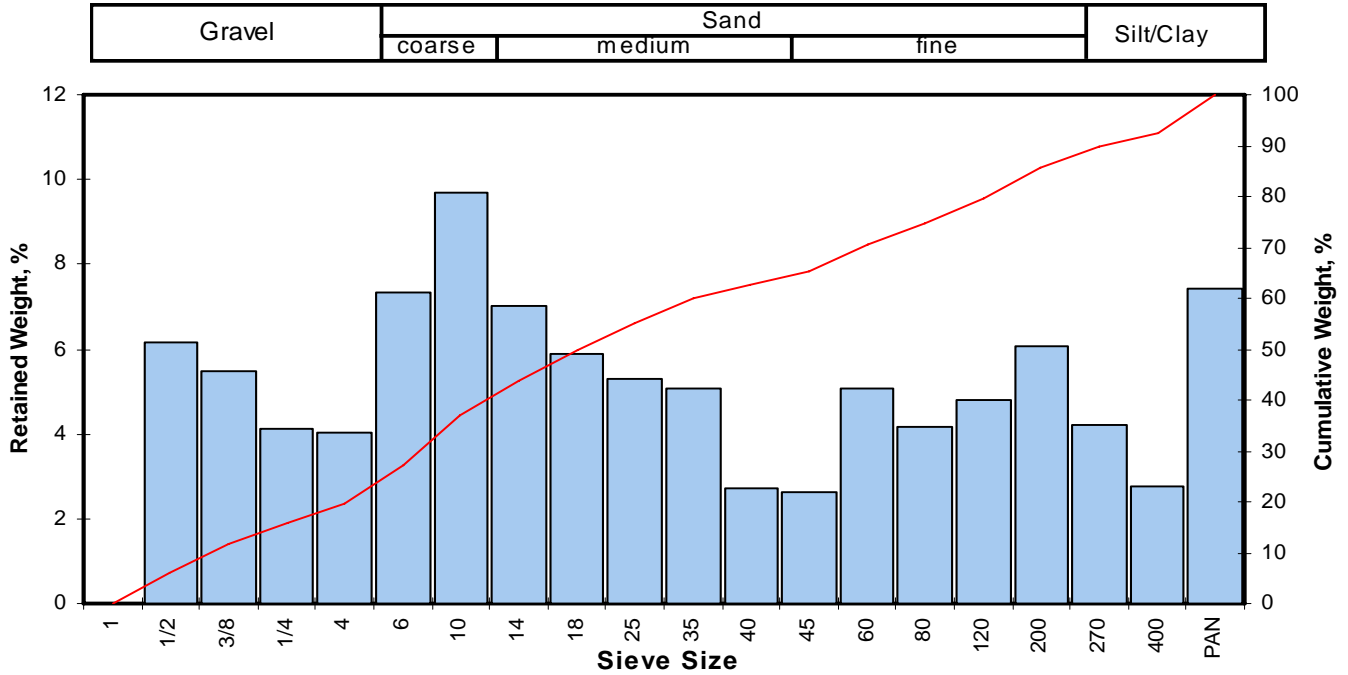
Grain Size Description (ASTM-USCS Scale)	Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	24.81
Coarse Sand	10	13.63
Medium Sand	40	20.14
Fine Sand	200	23.54
Silt/Clay	<200	17.87
<b>TOTALS</b>	<b>Total</b>	<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA2 @ 1520  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	3.70	6.17	6.17
0.3740	9.500	-3.25	3/8	3.28	5.47	11.64
0.2500	6.351	-2.67	1/4	2.46	4.10	15.74
0.1873	4.757	-2.25	4	2.42	4.04	19.78
0.1324	3.364	-1.75	6	4.39	7.32	27.10
0.0787	2.000	-1.00	10	5.82	9.71	36.81
0.0557	1.414	-0.50	14	4.22	7.04	43.85
0.0394	1.000	0.00	18	3.53	5.89	49.73
0.0278	0.707	0.50	25	3.19	5.32	55.05
0.0197	0.500	1.00	35	3.03	5.05	60.11
0.0166	0.420	1.25	40	1.63	2.72	62.83
0.0139	0.354	1.50	45	1.58	2.64	65.46
0.0098	0.250	2.00	60	3.04	5.07	70.53
0.0070	0.177	2.50	80	2.51	4.19	74.72
0.0049	0.125	3.00	120	2.89	4.82	79.54
0.0029	0.074	3.75	200	3.64	6.07	85.61
0.0021	0.053	4.25	270	2.52	4.20	89.81
0.0015	0.037	4.75	400	1.66	2.77	92.58
			PAN	4.45	7.42	100.00
<b>TOTALS</b>				59.96	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.83	0.5614	14.258
10	-3.37	0.4061	10.316
16	-2.64	0.2455	6.236
25	-1.89	0.1463	3.715
40	-0.77	0.0673	1.709
50	0.03	0.0387	0.983
60	0.99	0.0198	0.504
75	2.53	0.0068	0.173
84	3.55	0.0034	0.085
90	4.28	0.0020	0.051
95	3.20	0.0043	0.109

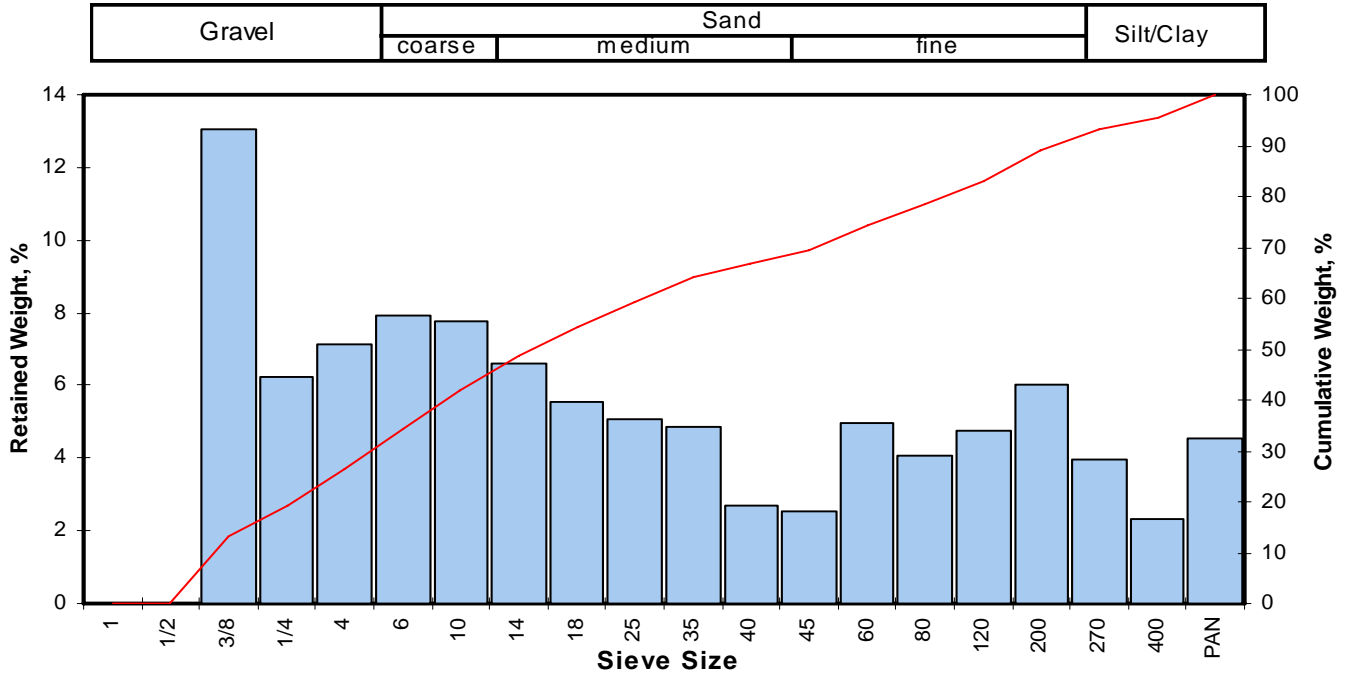
Measure	Trask	Inman	Folk-Ward
Median, phi	0.03	0.03	0.03
Median, in.	0.0387	0.0387	0.0387
Median, mm	0.983	0.983	0.983
Mean, phi	-0.96	0.46	0.31
Mean, in.	0.0765	0.0287	0.0317
Mean, mm	1.944	0.729	0.806
Sorting	4.631	3.096	2.614
Skewness	0.816	0.139	0.021
Kurtosis	0.173	0.136	0.652

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	19.78
Coarse Sand	10	17.03
Medium Sand	40	26.02
Fine Sand	200	22.78
Silt/Clay	<200	14.39
<b>Total</b>		<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA14 @ 0720  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	8.10	13.04	13.04
0.2500	6.351	-2.67	1/4	3.86	6.21	19.26
0.1873	4.757	-2.25	4	4.42	7.12	26.37
0.1324	3.364	-1.75	6	4.91	7.91	34.28
0.0787	2.000	-1.00	10	4.83	7.78	42.05
0.0557	1.414	-0.50	14	4.11	6.62	48.67
0.0394	1.000	0.00	18	3.43	5.52	54.19
0.0278	0.707	0.50	25	3.16	5.09	59.28
0.0197	0.500	1.00	35	3.02	4.86	64.14
0.0166	0.420	1.25	40	1.68	2.70	66.85
0.0139	0.354	1.50	45	1.58	2.54	69.39
0.0098	0.250	2.00	60	3.07	4.94	74.34
0.0070	0.177	2.50	80	2.53	4.07	78.41
0.0049	0.125	3.00	120	2.96	4.77	83.18
0.0029	0.074	3.75	200	3.73	6.01	89.18
0.0021	0.053	4.25	270	2.47	3.98	93.16
0.0015	0.037	4.75	400	1.44	2.32	95.48
			PAN	2.81	4.52	100.00
<b>TOTALS</b>				62.11	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.49	0.4430	11.253
10	-3.34	0.3988	10.129
16	-2.97	0.3088	7.843
25	-2.33	0.1980	5.030
40	-1.20	0.0903	2.294
50	-0.38	0.0512	1.301
60	0.57	0.0264	0.672
75	2.08	0.0093	0.236
84	3.10	0.0046	0.116
90	3.85	0.0027	0.069
95	4.65	0.0016	0.040

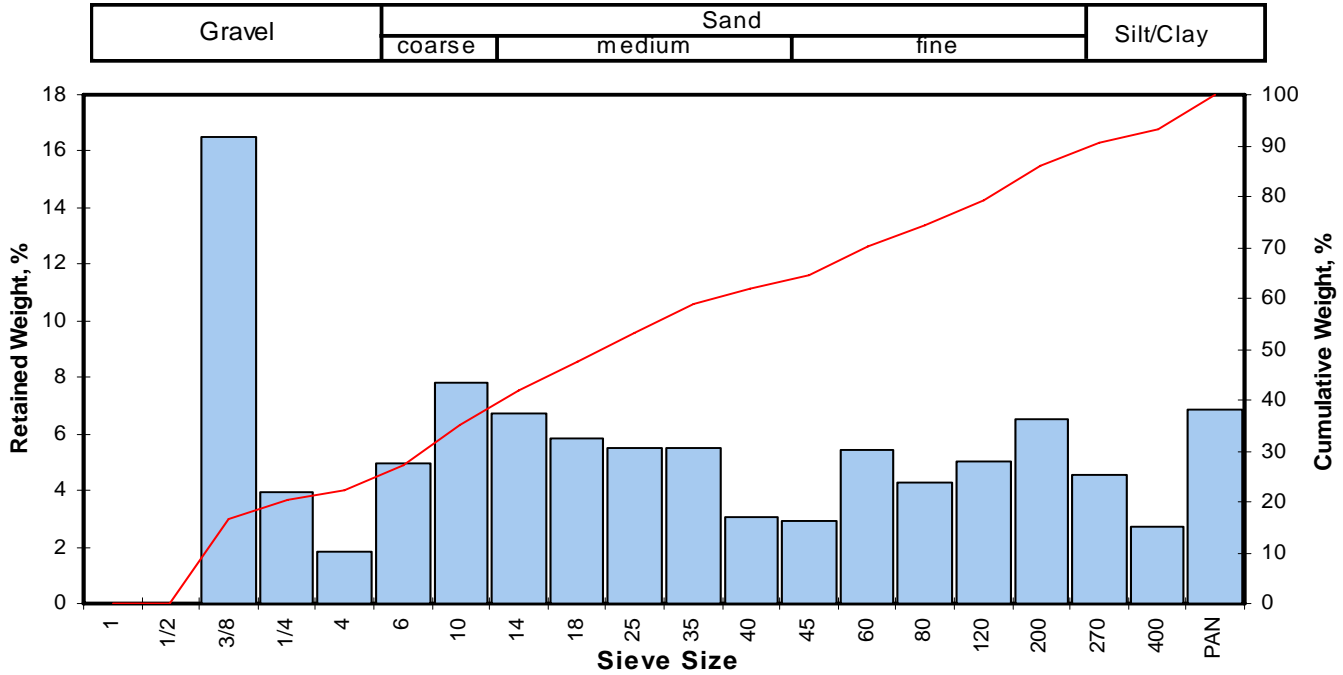
Measure	Trask	Inman	Folk-Ward
Median, phi	-0.38	-0.38	-0.38
Median, in.	0.0512	0.0512	0.0512
Median, mm	1.301	1.301	1.301
Mean, phi	-1.40	0.07	-0.08
Mean, in.	0.1037	0.0376	0.0417
Mean, mm	2.633	0.955	1.059
Sorting	4.614	3.037	2.752
Skewness	0.838	0.147	0.191
Kurtosis	0.238	0.340	0.756

**Grain Size Description** (ASTM-USCS Scale) Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	26.37
Coarse Sand	10	15.68
Medium Sand	40	24.79
Fine Sand	200	22.33
Silt/Clay	<200	10.82
<b>Total</b>		<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No.:** 04020-023-401

**PTS File No.:** 361029  
**Sample ID:** SA15 @ 0740  
**Depth, ft.:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	9.70	16.51	16.51
0.2500	6.351	-2.67	1/4	2.32	3.95	20.46
0.1873	4.757	-2.25	4	1.08	1.84	22.29
0.1324	3.364	-1.75	6	2.90	4.94	27.23
0.0787	2.000	-1.00	10	4.60	7.83	35.06
0.0557	1.414	-0.50	14	3.96	6.74	41.80
0.0394	1.000	0.00	18	3.45	5.87	47.67
0.0278	0.707	0.50	25	3.24	5.51	53.18
0.0197	0.500	1.00	35	3.23	5.50	58.68
0.0166	0.420	1.25	40	1.78	3.03	61.71
0.0139	0.354	1.50	45	1.71	2.91	64.62
0.0098	0.250	2.00	60	3.20	5.45	70.06
0.0070	0.177	2.50	80	2.53	4.31	74.37
0.0049	0.125	3.00	120	2.94	5.00	79.37
0.0029	0.074	3.75	200	3.82	6.50	85.87
0.0021	0.053	4.25	270	2.68	4.56	90.44
0.0015	0.037	4.75	400	1.60	2.72	93.16
			PAN	4.02	6.84	100.00
<b>TOTALS</b>				58.76	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.52	0.4529	11.504
10	-3.40	0.4168	10.586
16	-3.26	0.3772	9.581
25	-1.98	0.1549	3.934
40	-0.63	0.0611	1.551
50	0.21	0.0340	0.864
60	1.11	0.0183	0.464
75	2.56	0.0067	0.169
84	3.53	0.0034	0.086
90	4.20	0.0021	0.054
95	3.47	0.0035	0.090

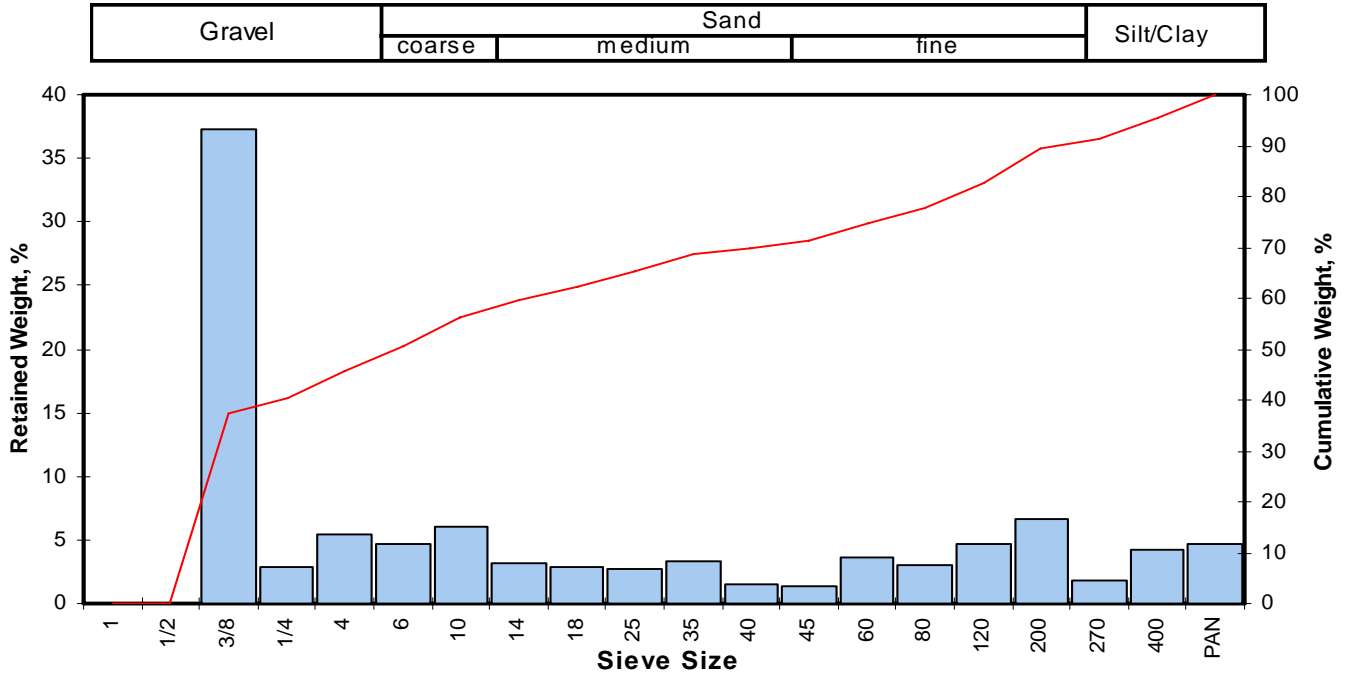
Measure	Trask	Inman	Folk-Ward
Median, phi	0.21	0.21	0.21
Median, in.	0.0340	0.0340	0.0340
Median, mm	0.864	0.864	0.864
Mean, phi	-1.04	0.14	0.16
Mean, in.	0.0808	0.0358	0.0352
Mean, mm	2.051	0.910	0.894
Sorting	4.821	3.397	2.758
Skewness	0.945	-0.022	-0.045
Kurtosis	0.179	0.030	0.632

**Grain Size Description** (ASTM-USCS Scale) Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	22.29
Coarse Sand	10	12.76
Medium Sand	40	26.65
Fine Sand	200	24.17
Silt/Clay	<200	14.13
<b>Total</b>		<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA13 @ 0910  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
Inches	Millimeters						Weight percent	Phi Value	Particle Size	
								Inches	Millimeters	
0.9844	25.002	-4.64	1	0.00	0.00	0.00	5	0.4744	12.050	
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00	10	0.4573	11.615	
0.3740	9.500	-3.25	3/8	32.80	37.35	37.35	16	0.4376	11.114	
0.2500	6.351	-2.67	1/4	2.58	2.94	40.29	25	0.4096	10.403	
0.1873	4.757	-2.25	4	4.80	5.47	45.75	40	0.2601	6.606	
0.1324	3.364	-1.75	6	4.08	4.65	50.40	50	0.1364	3.465	
0.0787	2.000	-1.00	10	5.26	5.99	56.39	60	0.0526	1.336	
0.0557	1.414	-0.50	14	2.77	3.15	59.54	75	2.02	0.0097	
0.0394	1.000	0.00	18	2.46	2.80	62.34	84	3.16	0.0044	
0.0278	0.707	0.50	25	2.42	2.76	65.10	90	3.94	0.0026	
0.0197	0.500	1.00	35	2.98	3.39	68.49	95	4.71	0.0015	
0.0166	0.420	1.25	40	1.29	1.47	69.96				
0.0139	0.354	1.50	45	1.16	1.32	71.28				
0.0098	0.250	2.00	60	3.15	3.59	74.87				
0.0070	0.177	2.50	80	2.65	3.02	77.89				
0.0049	0.125	3.00	120	4.14	4.71	82.60				
0.0029	0.074	3.75	200	5.87	6.68	89.28				
0.0021	0.053	4.25	270	1.64	1.87	91.15				
0.0015	0.037	4.75	400	3.70	4.21	95.37				
			PAN	4.07	4.63	100.00				

Measure	Trask	Inman	Folk-Ward
Median, phi	-1.79	-1.79	-1.79
Median, in.	0.1364	0.1364	0.1364
Median, mm	3.465	3.465	3.465
Mean, phi	-2.41	-0.16	-0.70
Mean, in.	0.2096	0.0439	0.0641
Mean, mm	5.325	1.116	1.628
Sorting	6.499	3.316	2.915
Skewness	0.462	0.493	0.530
Kurtosis	0.440	0.251	0.630

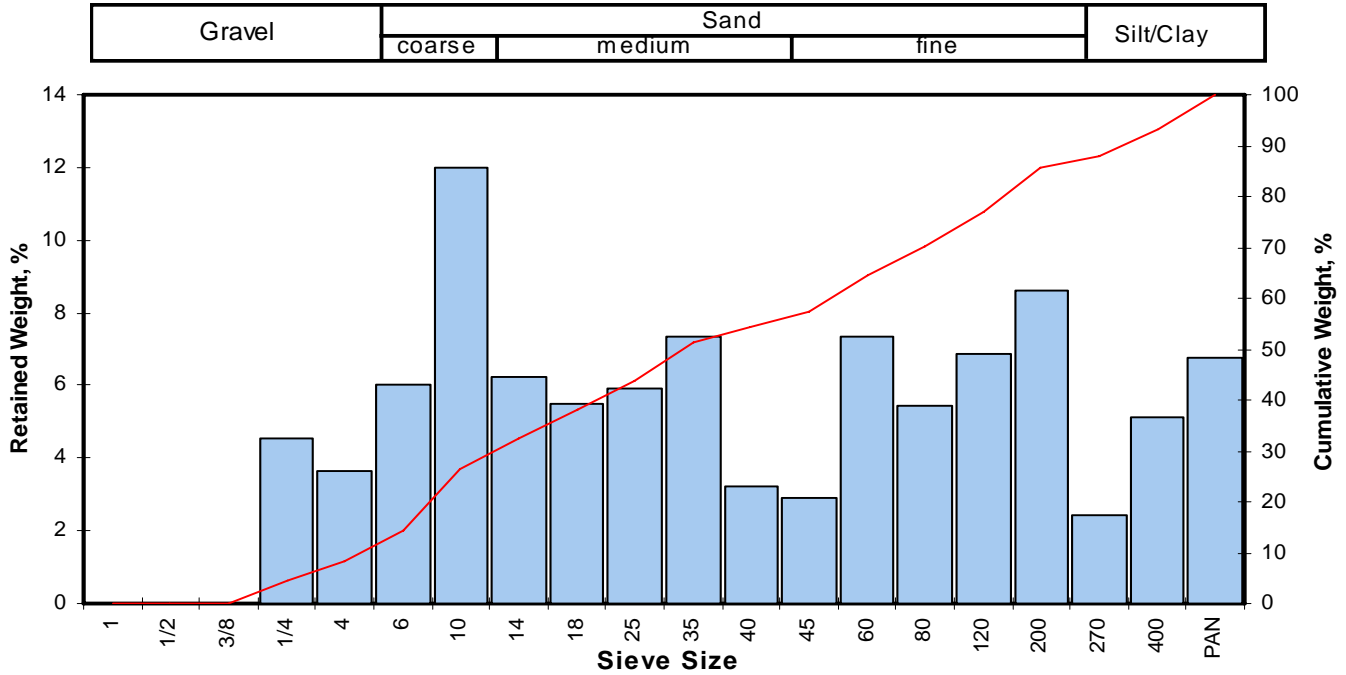
Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	45.75
Coarse Sand	10	10.64
Medium Sand	40	13.57
Fine Sand	200	19.32
Silt/Clay	<200	10.72
<b>TOTALS</b>	<b>Total</b>	<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA13 @ 1015  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
Inches	Millimeters						Weight percent	Phi Value	Particle Size	
								Inches	Millimeters	
0.9844	25.002	-4.64	1	0.00	0.00	0.00	5	0.2411	6.123	
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00	10	0.1688	4.288	
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00	16	0.1226	3.114	
0.2500	6.351	-2.67	1/4	2.38	4.54	4.54	25	0.0830	2.109	
0.1873	4.757	-2.25	4	1.92	3.66	8.20	40	0.0350	0.888	
0.1324	3.364	-1.75	6	3.16	6.02	14.22	50	0.0209	0.530	
0.0787	2.000	-1.00	10	6.30	12.01	26.23	60	0.0123	0.312	
0.0557	1.414	-0.50	14	3.28	6.25	32.48	75	0.0055	0.138	
0.0394	1.000	0.00	18	2.88	5.49	37.97	84	0.0032	0.082	
0.0278	0.707	0.50	25	3.11	5.93	43.90	90	0.0018	0.046	
0.0197	0.500	1.00	35	3.85	7.34	51.24	95	0.0035	0.088	
0.0166	0.420	1.25	40	1.68	3.20	54.44				
0.0139	0.354	1.50	45	1.53	2.92	57.36				
0.0098	0.250	2.00	60	3.86	7.36	64.72				
0.0070	0.177	2.50	80	2.86	5.45	70.17				
0.0049	0.125	3.00	120	3.60	6.86	77.03				
0.0029	0.074	3.75	200	4.52	8.62	85.65				
0.0021	0.053	4.25	270	1.27	2.42	88.07				
0.0015	0.037	4.75	400	2.70	5.15	93.21				
			PAN	3.56	6.79	100.00				

Measure	Trask	Inman	Folk-Ward
Median, phi	0.92	0.92	0.92
Median, in.	0.0209	0.0209	0.0209
Median, mm	0.530	0.530	0.530
Mean, phi	-0.17	0.98	0.96
Mean, in.	0.0442	0.0199	0.0202
Mean, mm	1.124	0.506	0.514
Sorting	3.903	2.623	2.238
Skewness	1.020	0.026	-0.064
Kurtosis	0.232	0.166	0.638

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)
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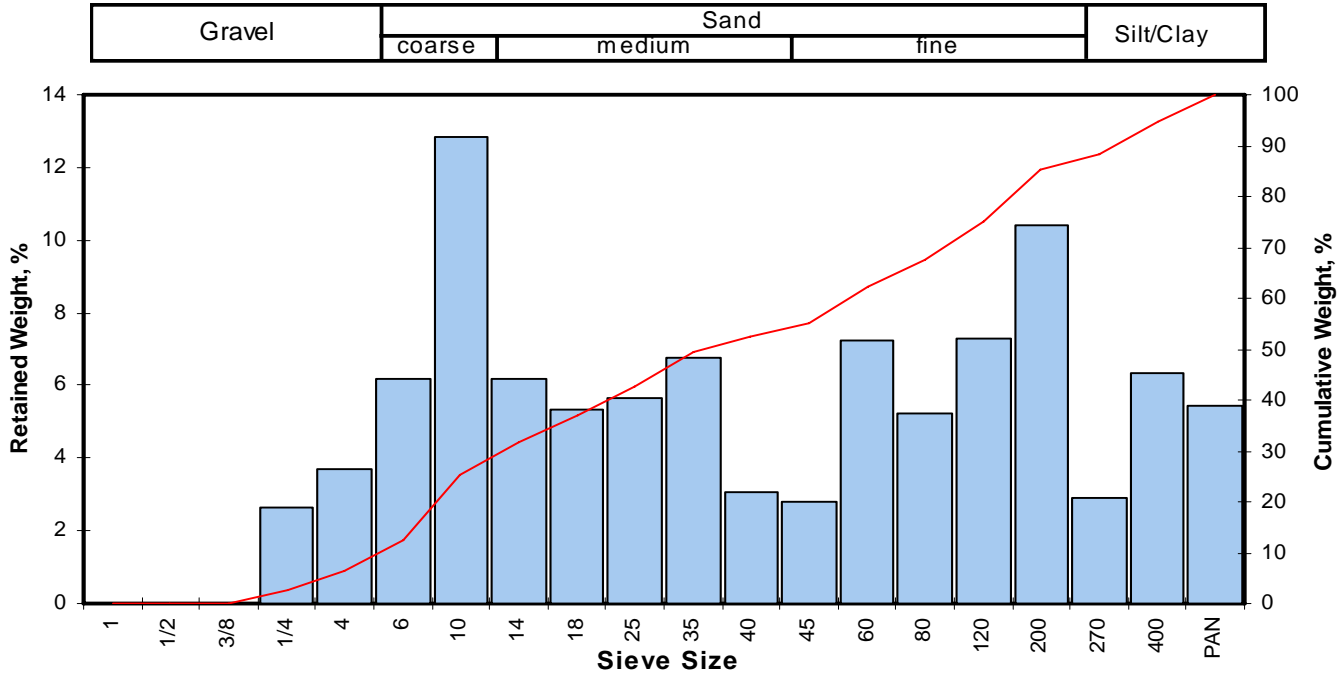
  

Description	Retained on Sieve #	Weight Percent
Gravel	4	8.20
Coarse Sand	10	18.03
Medium Sand	40	28.21
Fine Sand	200	31.20
Silt/Clay	<200	14.35
<b>TOTALS</b>	<b>Total</b>	<b>100</b>



**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA17 @ 1500  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	1.40	2.63	2.63
0.1873	4.757	-2.25	4	1.98	3.72	6.35
0.1324	3.364	-1.75	6	3.29	6.18	12.52
0.0787	2.000	-1.00	10	6.85	12.86	25.38
0.0557	1.414	-0.50	14	3.30	6.20	31.58
0.0394	1.000	0.00	18	2.84	5.33	36.91
0.0278	0.707	0.50	25	3.00	5.63	42.55
0.0197	0.500	1.00	35	3.60	6.76	49.31
0.0166	0.420	1.25	40	1.64	3.08	52.38
0.0139	0.354	1.50	45	1.50	2.82	55.20
0.0098	0.250	2.00	60	3.85	7.23	62.43
0.0070	0.177	2.50	80	2.78	5.22	67.65
0.0049	0.125	3.00	120	3.87	7.27	74.92
0.0029	0.074	3.75	200	5.53	10.38	85.30
0.0021	0.053	4.25	270	1.56	2.93	88.23
0.0015	0.037	4.75	400	3.37	6.33	94.56
			PAN	2.90	5.44	100.00
<b>TOTALS</b>				53.26	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.40	0.2079	5.282
10	-1.95	0.1526	3.875
16	-1.55	0.1151	2.923
25	-1.02	0.0800	2.031
40	0.27	0.0326	0.827
50	1.06	0.0189	0.481
60	1.83	0.0111	0.281
75	3.01	0.0049	0.124
84	3.66	0.0031	0.079
90	4.39	0.0019	0.048
95	4.36	0.0019	0.049

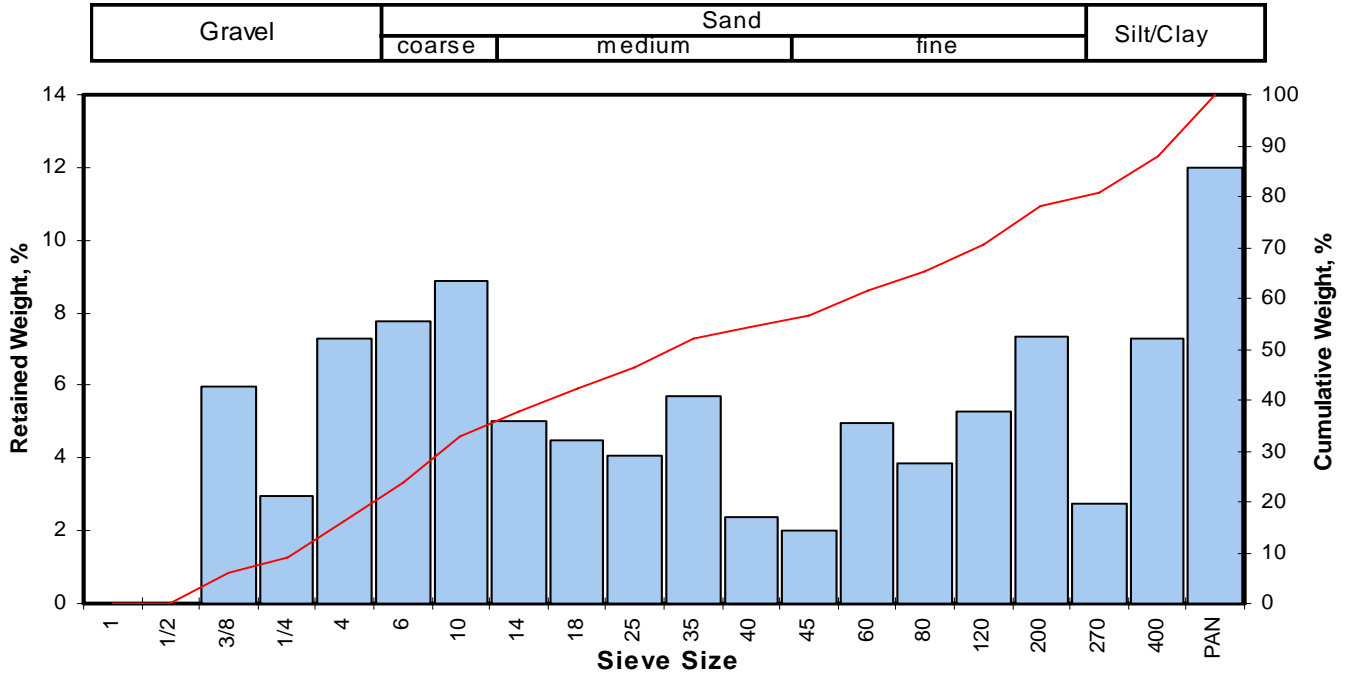
Measure	Trask	Inman	Folk-Ward
Median, phi	1.06	1.06	1.06
Median, in.	0.0189	0.0189	0.0189
Median, mm	0.481	0.481	0.481
Mean, phi	-0.11	1.05	1.06
Mean, in.	0.0424	0.0190	0.0189
Mean, mm	1.078	0.481	0.481
Sorting	4.040	2.602	2.326
Skewness	1.046	-0.001	-0.012
Kurtosis	0.249	0.300	0.688

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	6.35
Coarse Sand	10	19.04
Medium Sand	40	27.00
Fine Sand	200	32.91
Silt/Clay	<200	14.70
<b>Total</b>		<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA27 @ 1145  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	3.40	5.96	5.96
0.2500	6.351	-2.67	1/4	1.70	2.98	8.94
0.1873	4.757	-2.25	4	4.15	7.27	16.21
0.1324	3.364	-1.75	6	4.42	7.75	23.96
0.0787	2.000	-1.00	10	5.05	8.85	32.81
0.0557	1.414	-0.50	14	2.85	5.00	37.81
0.0394	1.000	0.00	18	2.56	4.49	42.30
0.0278	0.707	0.50	25	2.33	4.08	46.38
0.0197	0.500	1.00	35	3.25	5.70	52.08
0.0166	0.420	1.25	40	1.35	2.37	54.44
0.0139	0.354	1.50	45	1.15	2.02	56.46
0.0098	0.250	2.00	60	2.84	4.98	61.44
0.0070	0.177	2.50	80	2.21	3.87	65.31
0.0049	0.125	3.00	120	3.02	5.29	70.60
0.0029	0.074	3.75	200	4.18	7.33	77.93
0.0021	0.053	4.25	270	1.57	2.75	80.68
0.0015	0.037	4.75	400	4.17	7.31	87.99
			PAN	6.85	12.01	100.00
<b>TOTALS</b>				57.05	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.31	0.3909	9.930
10	-2.61	0.2397	6.089
16	-2.26	0.1889	4.797
25	-1.66	0.1246	3.165
40	-0.26	0.0470	1.194
50	0.82	0.0223	0.567
60	1.86	0.0109	0.276
75	3.45	0.0036	0.092
84	4.48	0.0018	0.045
90	3.96	0.0025	0.064
95	1.98	0.0100	0.254

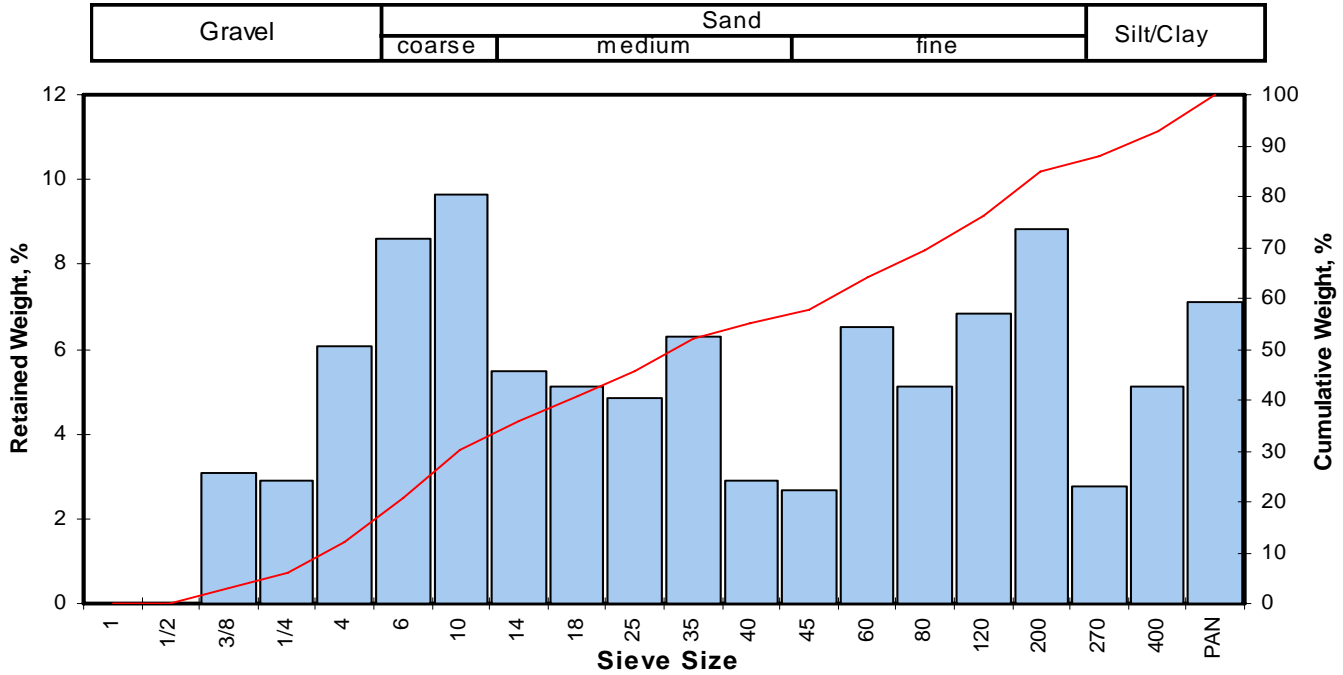
Measure	Trask	Inman	Folk-Ward
Median, phi	0.82	0.82	0.82
Median, in.	0.0223	0.0223	0.0223
Median, mm	0.567	0.567	0.567
Mean, phi	-0.70	1.11	1.01
Mean, in.	0.0641	0.0183	0.0195
Mean, mm	1.628	0.464	0.496
Sorting	5.881	3.370	2.486
Skewness	0.949	0.086	-0.238
Kurtosis	0.255	-0.215	0.424

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	16.21
Coarse Sand	10	16.60
Medium Sand	40	21.63
Fine Sand	200	23.49
Silt/Clay	<200	22.07
<b>Total</b>		<b>100</b>

Client: ENSR  
 Project: Tronox Source Area Investigation  
 Project No: 04020-023-401

PTS File No: 361029  
 Sample ID: SA18 @ 1130  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
Inches	Millimeters						Weight percent	Phi Value	Particle Size	
								Inches	Millimeters	
0.9844	25.002	-4.64	1	0.00	0.00	0.00	5	0.2871	7.292	
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00	10	0.2065	5.245	
0.3740	9.500	-3.25	3/8	1.80	3.09	3.09	16	0.1597	4.057	
0.2500	6.351	-2.67	1/4	1.69	2.90	6.00	25	0.1048	2.662	
0.1873	4.757	-2.25	4	3.52	6.05	12.04	40	0.0418	1.063	
0.1324	3.364	-1.75	6	5.02	8.62	20.67	50	0.0220	0.560	
0.0787	2.000	-1.00	10	5.61	9.64	30.30	60	0.0123	0.312	
0.0557	1.414	-0.50	14	3.18	5.46	35.77	75	0.0052	0.133	
0.0394	1.000	0.00	18	2.99	5.14	40.90	84	0.0031	0.079	
0.0278	0.707	0.50	25	2.82	4.84	45.75	90	0.0018	0.045	
0.0197	0.500	1.00	35	3.67	6.30	52.05	95	0.0039	0.099	
0.0166	0.420	1.25	40	1.70	2.92	54.97				
0.0139	0.354	1.50	45	1.55	2.66	57.64				
0.0098	0.250	2.00	60	3.80	6.53	64.16				
0.0070	0.177	2.50	80	2.99	5.14	69.30				
0.0049	0.125	3.00	120	3.99	6.85	76.16				
0.0029	0.074	3.75	200	5.13	8.81	84.97				
0.0021	0.053	4.25	270	1.62	2.78	87.75				
0.0015	0.037	4.75	400	2.99	5.14	92.89				
			PAN	4.14	7.11	100.00				
<b>TOTALS</b>							58.21	100.00	100.00	

Measure	Trask	Inman	Folk-Ward
Median, phi	0.84	0.84	0.84
Median, in.	0.0220	0.0220	0.0220
Median, mm	0.560	0.560	0.560
Mean, phi	-0.48	0.82	0.83
Mean, in.	0.0550	0.0222	0.0222
Mean, mm	1.397	0.565	0.563
Sorting	4.482	2.844	2.362
Skewness	1.061	-0.005	-0.099
Kurtosis	0.243	0.091	0.588

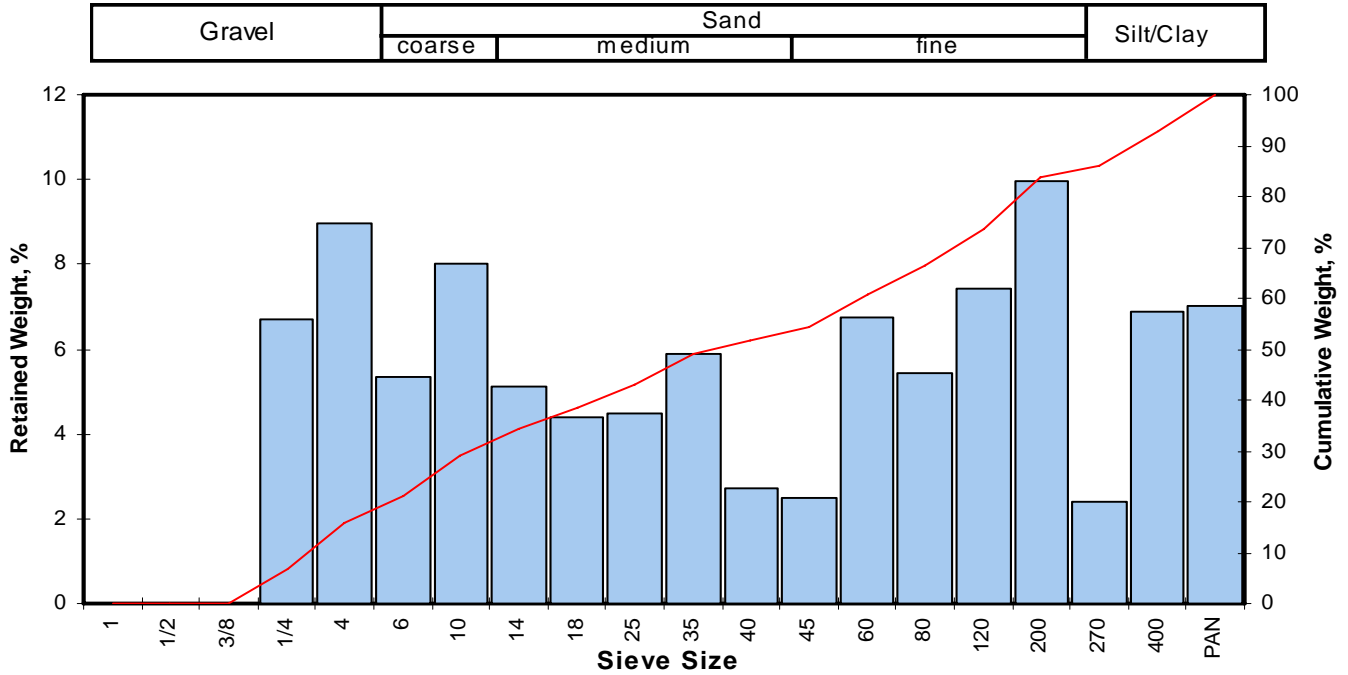
Description	Retained on Sieve #	Weight Percent
Gravel	4	12.04
Coarse Sand	10	18.26
Medium Sand	40	24.67
Fine Sand	200	29.99
Silt/Clay	<200	15.03
<b>Total</b>		<b>100</b>

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA9 @ 1110  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	3.59	6.71	6.71
0.1873	4.757	-2.25	4	4.80	8.97	15.68
0.1324	3.364	-1.75	6	2.86	5.34	21.02
0.0787	2.000	-1.00	10	4.29	8.02	29.04
0.0557	1.414	-0.50	14	2.75	5.14	34.18
0.0394	1.000	0.00	18	2.36	4.41	38.59
0.0278	0.707	0.50	25	2.41	4.50	43.09
0.0197	0.500	1.00	35	3.14	5.87	48.96
0.0166	0.420	1.25	40	1.45	2.71	51.67
0.0139	0.354	1.50	45	1.33	2.49	54.16
0.0098	0.250	2.00	60	3.62	6.77	60.92
0.0070	0.177	2.50	80	2.90	5.42	66.34
0.0049	0.125	3.00	120	3.97	7.42	73.76
0.0029	0.074	3.75	200	5.32	9.94	83.70
0.0021	0.053	4.25	270	1.29	2.41	86.11
0.0015	0.037	4.75	400	3.68	6.88	92.99
			PAN	3.75	7.01	100.00
<b>TOTALS</b>				53.51	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.82	0.2771	7.037
10	-2.51	0.2249	5.712
16	-2.22	0.1834	4.659
25	-1.38	0.1023	2.599
40	0.16	0.0353	0.897
50	1.10	0.0184	0.468
60	1.93	0.0103	0.262
75	3.09	0.0046	0.117
84	3.81	0.0028	0.071
90	4.53	0.0017	0.043
95	3.39	0.0038	0.095

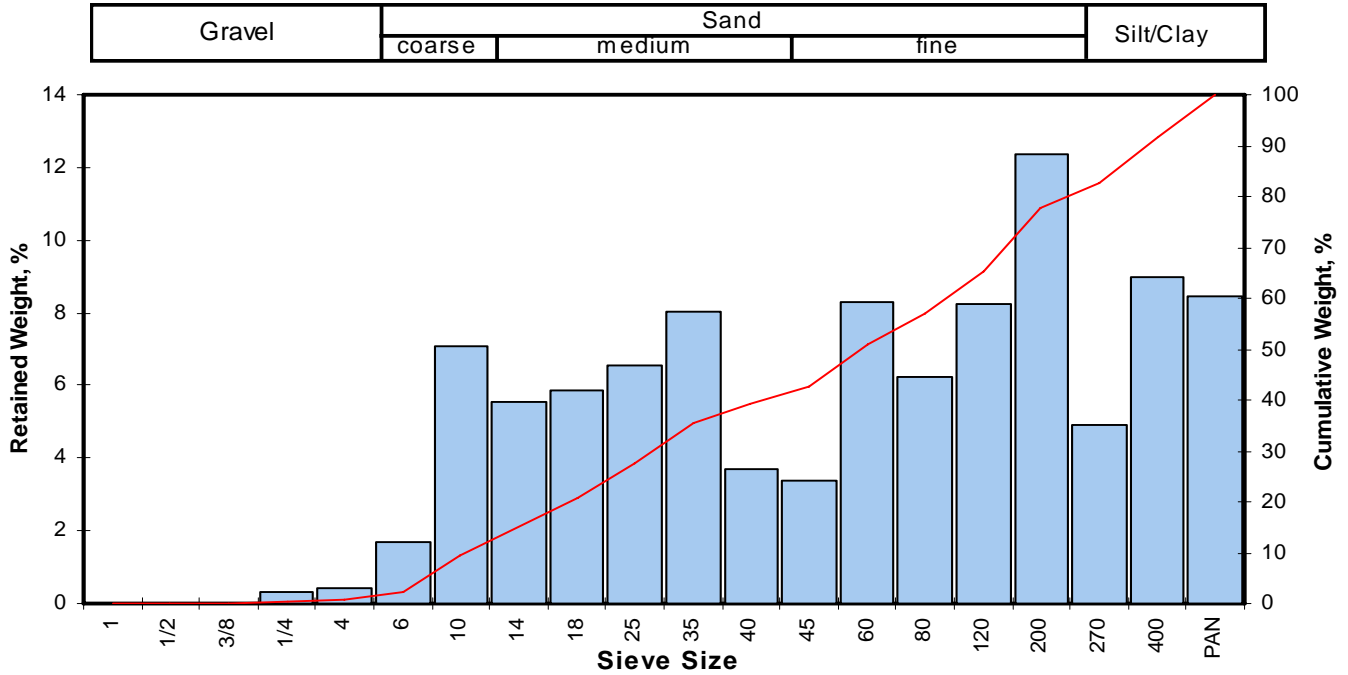
Measure	Trask	Inman	Folk-Ward
Median, phi	1.10	1.10	1.10
Median, in.	0.0184	0.0184	0.0184
Median, mm	0.468	0.468	0.468
Mean, phi	-0.44	0.80	0.90
Mean, in.	0.0535	0.0227	0.0212
Mean, mm	1.358	0.576	0.537
Sorting	4.710	3.016	2.448
Skewness	1.179	-0.099	-0.180
Kurtosis	0.219	0.029	0.569

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	15.68
Coarse Sand	10	13.36
Medium Sand	40	22.63
Fine Sand	200	32.03
Silt/Clay	<200	16.30
<b>TOTALS</b>	<b>Total</b>	<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA22 @ 1235  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.19	0.33	0.33
0.1873	4.757	-2.25	4	0.23	0.40	0.72
0.1324	3.364	-1.75	6	0.99	1.71	2.43
0.0787	2.000	-1.00	10	4.09	7.06	9.49
0.0557	1.414	-0.50	14	3.20	5.52	15.02
0.0394	1.000	0.00	18	3.40	5.87	20.88
0.0278	0.707	0.50	25	3.81	6.58	27.46
0.0197	0.500	1.00	35	4.66	8.04	35.50
0.0166	0.420	1.25	40	2.14	3.69	39.20
0.0139	0.354	1.50	45	1.95	3.37	42.56
0.0098	0.250	2.00	60	4.81	8.30	50.86
0.0070	0.177	2.50	80	3.60	6.21	57.08
0.0049	0.125	3.00	120	4.77	8.23	65.31
0.0029	0.074	3.75	200	7.16	12.36	77.67
0.0021	0.053	4.25	270	2.84	4.90	82.57
0.0015	0.037	4.75	400	5.21	8.99	91.56
			PAN	4.89	8.44	100.00
<b>TOTALS</b>				57.94	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-1.48	0.1096	2.784
10	-0.95	0.0763	1.937
16	-0.42	0.0525	1.334
25	0.31	0.0317	0.805
40	1.31	0.0159	0.403
50	1.95	0.0102	0.259
60	2.68	0.0062	0.156
75	3.59	0.0033	0.083
84	4.33	0.0020	0.050
90	4.66	0.0016	0.039
95	2.81	0.0056	0.142

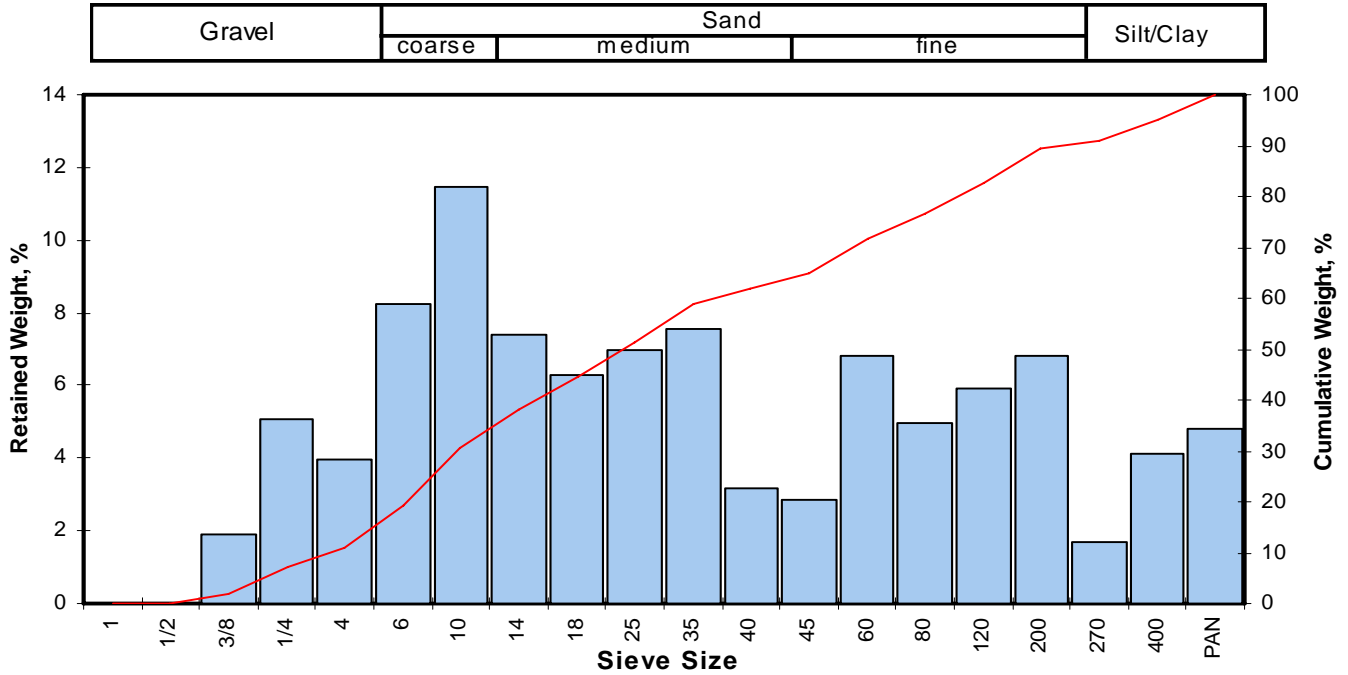
Measure	Trask	Inman	Folk-Ward
Median, phi	1.95	1.95	1.95
Median, in.	0.0102	0.0102	0.0102
Median, mm	0.259	0.259	0.259
Mean, phi	1.17	1.96	1.95
Mean, in.	0.0175	0.0101	0.0102
Mean, mm	0.444	0.258	0.258
Sorting	3.111	2.373	1.837
Skewness	0.998	0.004	-0.296
Kurtosis	0.190	-0.096	0.537

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.72
Coarse Sand	10	8.77
Medium Sand	40	29.70
Fine Sand	200	38.47
Silt/Clay	<200	22.33
<b>Total</b>		<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA24 @ 1205  
**Depth, ft:** N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	1.10	1.92	1.92
0.2500	6.351	-2.67	1/4	2.91	5.08	7.00
0.1873	4.757	-2.25	4	2.26	3.94	10.94
0.1324	3.364	-1.75	6	4.73	8.26	19.20
0.0787	2.000	-1.00	10	6.56	11.45	30.65
0.0557	1.414	-0.50	14	4.24	7.40	38.05
0.0394	1.000	0.00	18	3.61	6.30	44.35
0.0278	0.707	0.50	25	4.00	6.98	51.34
0.0197	0.500	1.00	35	4.33	7.56	58.89
0.0166	0.420	1.25	40	1.82	3.18	62.07
0.0139	0.354	1.50	45	1.63	2.85	64.92
0.0098	0.250	2.00	60	3.89	6.79	71.71
0.0070	0.177	2.50	80	2.85	4.97	76.68
0.0049	0.125	3.00	120	3.38	5.90	82.58
0.0029	0.074	3.75	200	3.90	6.81	89.39
0.0021	0.053	4.25	270	0.96	1.68	91.06
0.0015	0.037	4.75	400	2.36	4.12	95.18
			PAN	2.76	4.82	100.00
<b>TOTALS</b>				57.29	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.90	0.2930	7.442
10	-2.35	0.2007	5.098
16	-1.94	0.1515	3.847
25	-1.37	0.1018	2.585
40	-0.35	0.0500	1.271
50	0.40	0.0297	0.756
60	1.09	0.0185	0.471
75	2.33	0.0078	0.199
84	3.16	0.0044	0.112
90	3.93	0.0026	0.065
95	4.73	0.0015	0.038

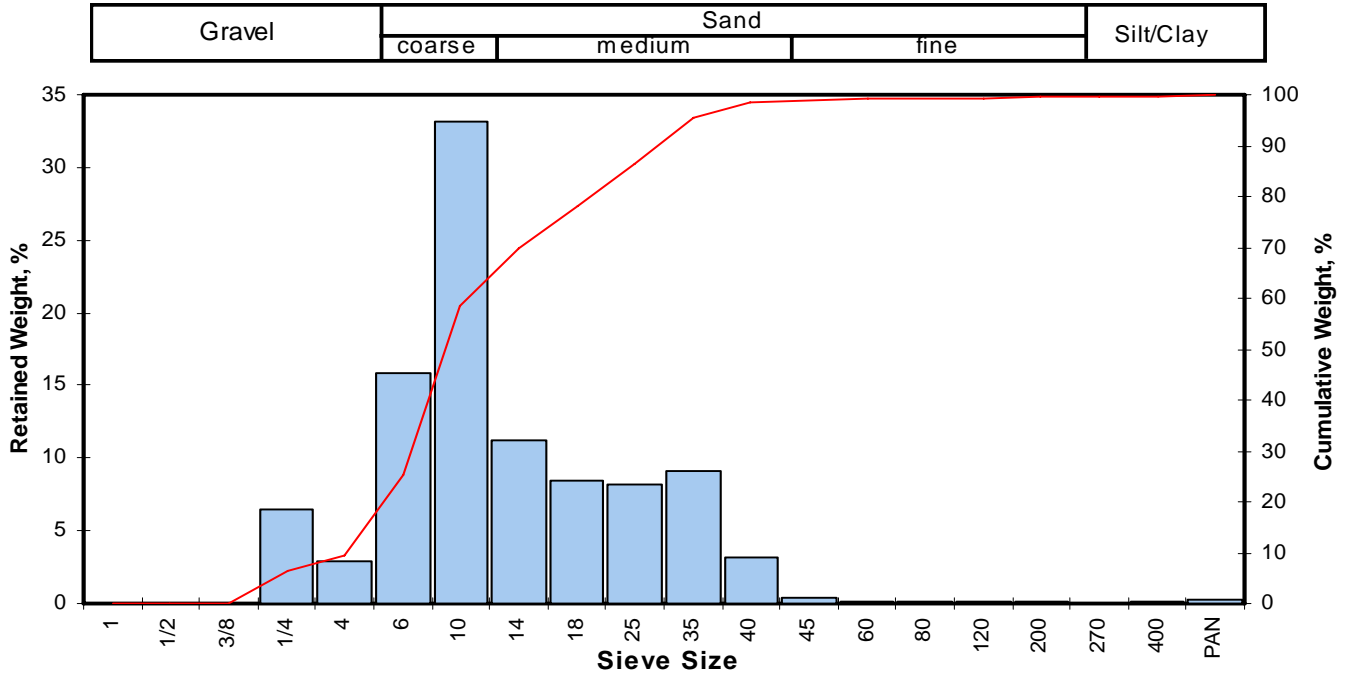
Measure	Trask	Inman	Folk-Ward
Median, phi	0.40	0.40	0.40
Median, in.	0.0297	0.0297	0.0297
Median, mm	0.756	0.756	0.756
Mean, phi	-0.48	0.61	0.54
Mean, in.	0.0548	0.0259	0.0271
Mean, mm	1.392	0.657	0.688
Sorting	3.607	2.550	2.430
Skewness	0.949	0.079	0.107
Kurtosis	0.237	0.495	0.844

**Grain Size Description** (ASTM-USCS Scale) Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	10.94
Coarse Sand	10	19.71
Medium Sand	40	31.42
Fine Sand	200	27.32
Silt/Clay	<200	10.61
<b>Total</b>		<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA21-1.5-3.0  
**Depth, ft:** 1.5-3.0



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	2.99	6.52	6.52
0.1873	4.757	-2.25	4	1.34	2.92	9.44
0.1324	3.364	-1.75	6	7.30	15.91	25.35
0.0787	2.000	-1.00	10	15.18	33.09	58.45
0.0557	1.414	-0.50	14	5.14	11.21	69.65
0.0394	1.000	0.00	18	3.90	8.50	78.16
0.0278	0.707	0.50	25	3.76	8.20	86.35
0.0197	0.500	1.00	35	4.16	9.07	95.42
0.0166	0.420	1.25	40	1.48	3.23	98.65
0.0139	0.354	1.50	45	0.17	0.37	99.02
0.0098	0.250	2.00	60	0.08	0.17	99.19
0.0070	0.177	2.50	80	0.04	0.09	99.28
0.0049	0.125	3.00	120	0.05	0.11	99.39
0.0029	0.074	3.75	200	0.06	0.13	99.52
0.0021	0.053	4.25	270	0.02	0.04	99.56
0.0015	0.037	4.75	400	0.06	0.13	99.69
			PAN	0.14	0.31	100.00
<b>TOTALS</b>				45.87	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-2.80	0.2746	6.976
10	-2.23	0.1850	4.699
16	-2.04	0.1623	4.124
25	-1.76	0.1335	3.390
40	-1.42	0.1052	2.672
50	-1.19	0.0899	2.284
60	-0.93	0.0750	1.906
75	-0.19	0.0448	1.137
84	0.36	0.0308	0.781
90	0.70	0.0242	0.615
95	0.98	0.0200	0.508

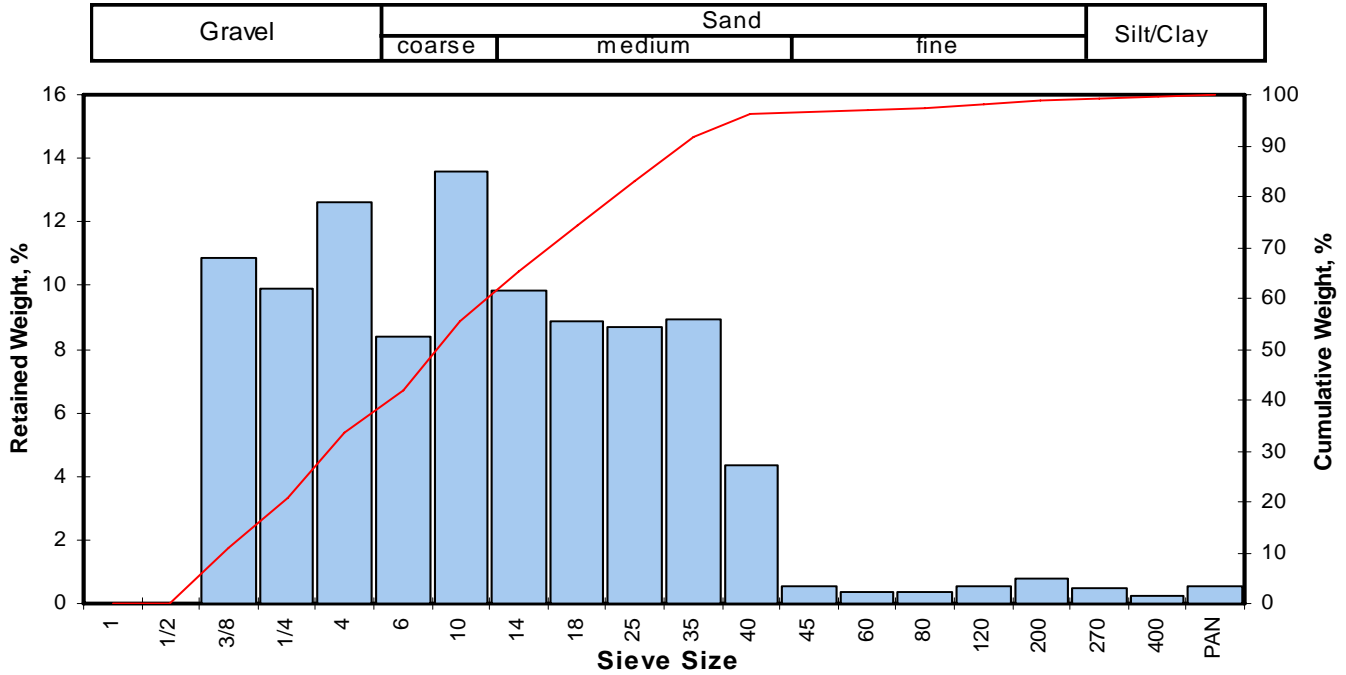
Measure	Trask	Inman	Folk-Ward
Median, phi	-1.19	-1.19	-1.19
Median, in.	0.0899	0.0899	0.0899
Median, mm	2.284	2.284	2.284
Mean, phi	-1.18	-0.84	-0.96
Mean, in.	0.0891	0.0707	0.0766
Mean, mm	2.263	1.795	1.945
Sorting	1.726	1.200	1.173
Skewness	0.860	0.290	0.219
Kurtosis	0.276	0.574	0.983

**Grain Size Description** (ASTM-USCS Scale) Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	9.44
Coarse Sand	10	49.01
Medium Sand	40	40.20
Fine Sand	200	0.87
Silt/Clay	<200	0.48
<b>Total</b>		<b>100</b>

**Client:** ENSR  
**Project:** Tronox Source Area Investigation  
**Project No:** 04020-023-401

**PTS File No:** 361029  
**Sample ID:** SA8-1.5-3.0  
**Depth, ft:** 1.5-3.0



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	5.30	10.88	10.88
0.2500	6.351	-2.67	1/4	4.81	9.87	20.76
0.1873	4.757	-2.25	4	6.16	12.65	33.40
0.1324	3.364	-1.75	6	4.10	8.42	41.82
0.0787	2.000	-1.00	10	6.63	13.61	55.43
0.0557	1.414	-0.50	14	4.80	9.85	65.28
0.0394	1.000	0.00	18	4.32	8.87	74.15
0.0278	0.707	0.50	25	4.23	8.68	82.84
0.0197	0.500	1.00	35	4.36	8.95	91.79
0.0166	0.420	1.25	40	2.13	4.37	96.16
0.0139	0.354	1.50	45	0.26	0.53	96.69
0.0098	0.250	2.00	60	0.17	0.35	97.04
0.0070	0.177	2.50	80	0.18	0.37	97.41
0.0049	0.125	3.00	120	0.25	0.51	97.93
0.0029	0.074	3.75	200	0.38	0.78	98.71
0.0021	0.053	4.25	270	0.23	0.47	99.18
0.0015	0.037	4.75	400	0.13	0.27	99.45
			PAN	0.27	0.55	100.00
<b>TOTALS</b>				48.71	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.46	0.4339	11.020
10	-3.28	0.3824	9.714
16	-2.95	0.3036	7.710
25	-2.53	0.2269	5.764
40	-1.86	0.1427	3.625
50	-1.30	0.0969	2.461
60	-0.77	0.0670	1.703
75	0.05	0.0381	0.967
84	0.56	0.0266	0.676
90	0.90	0.0211	0.536
95	1.18	0.0173	0.440

Measure	Trask	Inman	Folk-Ward
Median, phi	-1.30	-1.30	-1.30
Median, in.	0.0969	0.0969	0.0969
Median, mm	2.461	2.461	2.461
Mean, phi	-1.75	-1.19	-1.23
Mean, in.	0.1325	0.0899	0.0922
Mean, mm	3.365	2.283	2.341
Sorting	2.442	1.756	1.582
Skewness	0.959	0.062	0.065
Kurtosis	0.261	0.323	0.739

**Grain Size Description** (ASTM-USCS Scale) Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	33.40
Coarse Sand	10	22.03
Medium Sand	40	40.73
Fine Sand	200	2.55
Silt/Clay	<200	1.29
<b>Total</b>		<b>100</b>

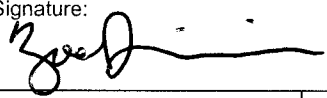
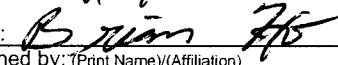




Client/Project Name: <b>Source Area Investigation</b>		Project Location: <b>Henderson, NV</b>		Analysis Requested				Container Type P - Plastic A - Amber Glass G - Clear Glass V - VOA Vial O - Other E - Encore	Preservation 1 - HCl, 4° 2 - H2SO4, 4° 3 - HNO3, 4° 4 - NaOH, 4° 5 - NaOH/ZnAc, 4° 6 - Na2S2O3, 4° 7 - 4°
Project Number: <b>04020-023-401</b>		Field Logbook No.:		Asbestos EPA/540/R-97/028 Moisture content ASTM D2216 Grain size sieve + laser ASTM D422 + D4464				Matrix Codes:	
Sampler (Print Name)/(Affiliation): <b>ZOE DIERMIER/ENSR</b>		Client Contact: <b>Robert Kennedy 2 Technology Park Dr Westford, MA 01886-3140</b>						Send Results/Report to: <b>Robert Kennedy rkennedy@ensr.aecom.com</b>	

Field Sample No./Identification	Date	Time	C O M P	G R A B	Sample Container (Size/Mat'l)	Matrix	Preserv.	Field Filtered	Asbestos EPA/540/R-97/028	Moisture content ASTM D2216	Grain size sieve + laser ASTM D422 + D4464	Lab I.D.	Remarks
SA1	12-5-06	1700				S				X	X		
SA10	12-5-06	1715				S				X	X		
SA20	12-7-06	0740				S				X	X		
SA19	12-7-06	1110				S				X	X		
SA4	12-7-06	1310				S				X	X		
SA5	12-7-06	1315				S				X	X		
SA6	12-7-06	1340				S				X	X		100ft +
SA7	12-7-06	1355				S				X	X		
SA8	12-7-06	1415				S				X	X		100ft +
SA13	12-7-06	1440				S				X	X		
SA2	12-7-06	1520				S				X	X		100ft +
SA14	12-8-06	0720				S				X	X		

Relinquished by: (Print Name)/(Affiliation) <b>Brian Ho/ENSR</b>	Date: <b>12/8/06</b>	Received by: (Print Name)/(Affiliation)	Date:	Analytical Laboratory (Destination):
Signature: <i>Brian Ho</i>	Time: <b>13:05</b>	Signature:	Time:	<del>EMSL Analytical, Inc. Attn: Sample Receiving 107 Haddon Avenue Westmont, NJ 08108</del> <b>PTS Geolabs Inc. 8100 Secura Way Santa Fe Springs, CA 90670</b>
Relinquished by: (Print Name)/(Affiliation)	Date:	Received by: (Print Name)/(Affiliation)	Date:	800-220-3675
Signature:	Time:	Signature:	Time:	Sample Shipped Via:
Relinquished by: (Print Name)/(Affiliation)	Date:	Received by: (Print Name)/(Affiliation)	Date:	UPS <b>FedEx</b> Courier Other
Signature:	Time:	Signature:	Time:	Temp blank Yes <b>No</b>

Client/Project Name: <b>Source Area Investigation</b>			Project Location: <b>Henderson, NV</b>			Analysis Requested					Container Type		Preservation									
Project Number: <b>04020-023-401</b>			Field Logbook No.:								P - Plastic		1 - HCl, 4°									
Sampler (Print Name)/(Affiliation): <b>ZOE DIERMIER/ENSR</b>			Client Contact: <b>Robert Kennedy 2 Technology Park Dr Westford, MA 01886-3140</b>			Send Results/Report to: <b>Robert Kennedy rkennedy@ensr.aecom.com</b>		TAT: <b>3 weeks</b>		Matrix Codes:		2 - H2SO4, 4°		3 - HNO3, 4°								
Signature: 			Asbestos EPA/5401R-97/028			Moisture content		ASTM D2216		Grain size sieve + laser		4 - NaOH, 4°		5 - NaOH/ZnAc, 4°								
Field Sample No./Identification			Date		Time		C O M P		G R A B		Sample Container (Size/Mat'l)		Matrix		Preserv.		Field Filtered		Lab I.D.		Remarks	
13 SA15			12-8-06		0740								S								100 ft +	
14 SA13			12-8-06		0910								S								100 ft +	
15 SA13			12-8-06		1015								S								100 ft +	
16 SA17			12-7-06		1500								S									
17 SA27			12-2-06		1145								S									
18 SA18			12-2-06		1130								S									
19 SA18D			12-2-06		-								S								Not Received	
20 SA9			12-2-06		1110								S									
21 SA22			12-2-06		1235								S									
22 SA24			12-2-06		1205								S									
Relinquished by: (Print Name)/(Affiliation) <b>Brian Ho / ENSR</b>			Date: <b>12/9/06</b>			Received by: (Print Name)/(Affiliation)			Date:			Analytical Laboratory (Destination):										
Signature: 			Time: <b>13:05</b>			Signature:			Time:			<del>EMSL Analytical, Inc</del> <b>PTS Geolabs Inc.</b>										
Relinquished by: (Print Name)/(Affiliation)			Date:			Received by: (Print Name)/(Affiliation)			Date:			<del>107 Haddon Avenue</del> <b>8100 Secura Way</b>										
Signature:			Time:			Signature:			Time:			<del>Westmont, NJ 08108</del> <b>Santa Fe Springs, CA</b>										
Relinquished by: (Print Name)/(Affiliation)			Date:			Received by: (Print Name)/(Affiliation)			Date:			<del>800-220-3675</del> <b>90670</b>										
Signature:			Time:			Signature:			Time:			Sample Shipped Via: Temp blank										
Signature:			Time:			Signature:			Time:			UPS <u>FedEx</u> Courier Other Yes <u>No</u>										