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Transmittal

TO:

Delaney Peterson

Anchor QEA, LLC

720 Olive Way, Suite 1900

Seattle, WA 98101

DATE: 11/20/2019	GTX NO: 310685
RE: Gasco PDI	

COPIES	DATE	DESCRIPTION
	11/20/2019	**November 2019 Laboratory Test Report**

REMARKS:

SIGNED:

Barbara Sanchez, Assistant Laboratory Manager

CC:

APPROVED BY :

Jonathan Campbell, Laboratory Manager

GeoTesting EXPRESS

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November 20, 2019

Delaney Peterson
Anchor QEA, LLC
720 Olive Way, Suite 1900
Seattle, WA 98101

RE: Gasco PDI (GTX-310685)

Dear Delaney:

Enclosed are the test results you requested for the above referenced project. GeoTesting Express, Inc. (GTX) received 90 samples from you between 9/26/2019 and 10/18/2019.

GTX performed the following tests on these samples:

81 ASTM D2216 - Moisture Content
81 ASTM D854 - Specific Gravity
9 ASTM D6913 - Sieve Analysis
81 ASTM D6913/D7928 - Grain Size Analysis - Sieve and Hydrometer
81 ASTM D4318 - Atterberg Limits

A copy of your test request is attached.

The results presented in this report apply only to the items tested. This report shall not be reproduced except in full, without written approval from GeoTesting Express. The remainder of these samples will be retained for a period of sixty (60) days and will then be discarded unless otherwise notified by you. Please call me if you have any questions or require additional information. Thank you for allowing GeoTesting Express the opportunity of providing you with testing services. We look forward to working with you again in the future.

Respectfully yours,

Barbara Sanchez
Assistant Laboratory Manager

GeoTesting EXPRESS

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Geotechnical Test Report **11/20/2019**

GTX-310685
Gasco PDI

Prepared for:

Anchor QEA, LLC

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/07/19	Checked By:	bfs
Depth :	---	Test Id:	525985		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-18SC-A-06-07-19092	---	Moist, very dark gray silt	77.1
---	PDI-8SC-A-08-09-1909	---	Moist, very dark gray sand	23.3
---	PDI-1SC-B-7.7-9.7-1909	---	Moist, very dark gray sand with silt	13.0
---	PDI-4SC-B-10-12.1-1909	---	Moist, very dark gray sand with silt	38.1
---	PDI-6SC-B-4.2-6.2-1909	---	Moist, very dark gray sand	14.3
---	PDI-64SC-B-04-06-19092	---	Moist, very dark gray silt with sand	66.1

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/11/19	Checked By:	bfs
Depth :	---	Test Id:	526423		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-6SC-B-9.8-11.8-1910	---	Moist, very dark gray silty sand	23.8
---	PDI-71SC-B-08-10-19100	---	Wet, very dark gray silty sand	42.8
---	PDI-9SC-B-7.8-9.8-1909	---	Moist, very dark gray sand with silt	40.3
---	PDI-8SC-10.7-12.7-1910	---	Moist, very dark gray sand	14.7
---	PDI-81SC-B-08-10-19100	---	Wet, dark grayish olive silt with sand	64.1

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527613		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-16SC-B-06-08-19100	---	Moist, dark grayish brown silty sand	34.6
---	PDI-7SC-B-11-13.5-1910	---	Moist, dark gray sand	19.1
---	PDI-3SC-B-8.7-10.7-1910	---	Moist, dark grayish brown sand	17.8
---	PDI-8SC-B-7.1-9.1-1910	---	Moist, dark gray sand with silt	20.4
---	PDI-SC-B-8.2-10.2-1910	---	Moist, dark grayish brown sand	28.6
---	PDI-49SC-B-06-08-19101	---	Moist, dark grayish brown silty sand	31.8
---	PDI-2SC-B-06-08-1910	---	Moist, dark grayish brown silty sand	45.4
---	PDI-66SC-B-06-08-19101	---	Moist, dark olive brown silt	67.8
---	PDI-67SC-B-02-04-19101	---	Wet, dark olive brown silt	74.4
---	PDI-77SC-B-04-06-19101	---	Wet, dark olive brown silt	81.4

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527633		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-79SC-B-06-08-19101	---	Wet, dark grayish brown silt	114.7
---	PDI-90SC-B-06-08-19101	---	Moist, dark olive brown silt	81.9
---	PDI-07SPT-00-04-19092	---	Wet, dark olive brown silt	107.7
---	PDI-07SPT-04-09-19092	---	Wet, dark olive brown silt	84.4
---	PDI-07SPT-17-18-19092	---	Moist, dark gray silty sand	42.3
---	PDI-07SPT-62-64-19092	---	Moist, dark olive brown silty sand	27.3
---	PDI-08SPT-00-6.4-19100	---	Wet, olive brown silt with sand	94.8
---	PDI-8SPT-14-33.5-1910	---	Moist, dark olive brown sand	39.5
---	PDI-8SPT-33.5-66.5-1910	---	Moist, dark gray sand with silt	29.8
---	PDI-09SPT-00-6.5-19100	---	Wet, very dark olive silt	92.7

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527643		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-9SPT-16.5-18.1-1910	---	Moist, dark olive brown silt	80.2
---	PDI-09SPT-22-30-19100	---	Moist, olive brown sand with silt	34.5
---	PDI-9SPT-35.5-48.3-1910	---	Moist, olive brown sand with silt	25.9
---	PDI-9SPT-48.3-51-1910	---	Moist, dark olive brown silt with sand	47.9
---	PDI- 110 B-54-64.5-191015	---	Moist, black sand with silt	18.0
---	PDI-10SPT-21-32-19101	---	Moist, dark gray sand	23.5
---	PDI-10SPT-32-45-19101	---	Moist, black sand	28.2
---	PDI-12SPT-00-6.5-19100	---	Moist, dark brown silt	76.7
---	PDI-2SPT-07-11.5-1910	---	Moist, dark gray sandy silt	53.2
---	PDI-2SPT-11.5-26.5-1910	---	Moist, dark gray silty sand	36.6

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527653		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-2SPT-37.5-58-1910	---	Moist, very dark olive gray silty sand	19.1
---	PDI-13SPT-06-16-19101	---	Wet, dark grayish brown silt	42.8
---	PDI-13SPT-16-22-19101	---	Moist, dark grayish brown sand with silt	36.9
---	PDI-3SPT-22-25.2-1910	---	Wet, dark grayish brown silt with sand	61.0
---	PDI-3SPT-31.9-39.4-1910	---	Moist, dark gray silty sand	33.2
---	PDI-14SPT-00-7.5-19100	---	Wet, olive brown silt	72.9
---	PDI-4SPT-25.5-28-1910	---	Moist, dark olive brown silty sand	30.9
---	PDI-4SPT-42-50.5-1910	---	Wet, olive brown sandy silt	49.6
---	PDI-4SPT-50.5-55-1910	---	Moist, dark gray silty sand	37.2
---	PDI-4SPT-7.5-12.5-1910	---	Moist, olive brown silt with sand	64.8

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527663		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-15SPT-06-11-19100	---	Moist, very dark gray silty sand	17.4
---	PDI-5SPT-18.6-20.6-1910	---	Moist, dark olive brown silt with sand	71.7
---	PDI-5SPT-23-28.1-1910	---	Moist, very dark olive brown sand with silt	27.8
---	PDI-5SPT-41.5-49.3-1910	---	Moist, olive brown silty sand	38.8
---	PDI-16SPT-00-4.5-19092	---	Wet, olive brown silt	82.8
---	PDI-6SPT-20-26.7-1909	---	Moist, dark gray silty sand	26.2
---	PDI-6SPT-26.7-28.6-1909	---	Wet, grayish brown silt	64.0
---	PDI-6SPT-51.5-54.2-1909	---	Moist, olive brown silty sand	27.4
---	PDI-7SPT-11-29.1-1910	---	Moist, dark gray sand	37.6
---	PDI-7SPT-29.1-32-1910	---	Moist, dark gray silty sand	45.0

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527673		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-7SPT-44.1-53.5-1910	---	Moist, dark gray silty sand	45.6
---	PDI-7SPT-53.5-63.5-1910	---	Wet, dark grayish brown silt with sand	83.1
---	PDI-18SPT-00-4.5-19101	---	Wet, dark grayish brown silt	112.9
---	PDI-18SPT-4.5-15-19101	---	Moist, dark grayish brown silt with sand	70.1
---	PDI-8SPT-46.5-61-1910	---	Wet, dark grayish brown silty sand	62.1
---	PDI-19SPT-00-4.5-19100	---	Moist, dark grayish brown silt with sand	76.8
---	PDI-9SPT-18.3-31-1910	---	Moist, dark gray silty sand	30.4
---	PDI-19SPT-47-52-19100	---	Moist, dark grayish brown silty sand	33.5
---	PDI-9SPT-9.5-18.3-1910	---	Moist, dark grayish brown sand with silt	37.5
---	PDI-21SPT-00-06-19093	---	Moist, olive brown silt	75.8

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527619		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	PDI-1SPT-11-20.7-1909	---	Moist, dark olive brown silt	59.6
---	PDI-21SPT-21-38-19093	---	Moist, dark olive gray silty sand	43.0
---	PDI-1SPT-49.4-54-1909	---	Moist, dark grayish brown silty sand	44.7
---	PDI-22SPT-04-09-19092	---	Wet, olive brown silt	79.7
---	PDI-2SPT-16.6-24-1909	---	Moist, dark olive brown silty sand	48.8
---	PDI-22SPT-61-66-19092	---	Wet, olive brown silty sand	41.8
---	PDI-23SPT-00-4.5-19092	---	Wet, dark olive silt with sand	71.5
---	PDI-3SPT-25.5-30.5-1909	---	Moist, dark gray silty sand	18.8
---	PDI-3SPT-63.2-65.5-1909	---	Moist, dark olive brown silt with sand	48.0
---	PDI-9SC-B-05-07-19100	---	Moist, dark olive brown sandy silt	60.6

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/10/19	Checked By:	bfs
Depth :	---	Test Id:	525994		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-SC-A-06-07-190	---	Moist, very dark gray silt	2.53	
---	PDI-SC-A-08-09-190	---	Moist, very dark gray sand	2.73	
---	PDI-SC-B-7.7-9.7-190	---	Moist, very dark gray sand with silt	2.73	
---	PDI-SC-B-10-12.1-19	---	Moist, very dark gray sand with silt	2.76	
---	PDI-SC-B-4.2-6.2-190	---	Moist, very dark gray sand	2.76	
---	PDI-SC-B-04-06-190	---	Moist, very dark gray silt with sand	2.63	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/14/19	Checked By:	bfs
Depth :	---	Test Id:	526425		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-C-B-9.8-11.8-19	---	Moist, very dark gray silty sand	2.77	
---	PDI-SC-B-08-10-191	---	Wet, very dark gray silty sand	2.67	
---	PDI-SC-B-7.8-9.8-190	---	Moist, very dark gray sand with silt	2.72	
---	PDI-SC-10.7-12.7-19	---	Moist, very dark gray sand	2.79	
---	PDI-SC-B-08-10-191	---	Wet, dark grayish olive silt with sand	2.72	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	11/08/19	Checked By:	bfs
Depth :	---	Test Id:	527683		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-SC-B-06-08-191	---	Moist, dark grayish brown silty sand	2.71	
---	PDI-SC-B-1 1-13.5-19	---	Moist, dark gray sand	2.74	
---	PDI-C-B-8.7-10.7-19	---	Moist, dark grayish brown sand	2.73	
---	PDI-SC-B-7.1-9.1-191	---	Moist, dark gray sand with silt	2.69	
---	PDI-C-B-8.2-10.2-19	---	Moist, dark grayish brown sand	2.77	
---	PDI-SC-B-06-08-191	---	Moist, dark grayish brown silty sand	2.75	
---	PDI-SC-B-06-08-191	---	Moist, dark grayish brown silty sand	2.68	
---	PDI-SC-B-06-08-191	---	Moist, dark olive brown silt	2.56	
---	PDI-SC-B-02-04-191	---	Wet, dark olive brown silt	2.65	
---	PDI-SC-B-04-06-191	---	Wet, dark olive brown silt	2.68	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	11/07/19	Checked By:	bfs
Depth :	---	Test Id:	527704		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-SC-B-06-08-191	---	Moist, dark olive brown silt	2.60	
---	PDI-7SPT-00-04-1909	---	Wet, dark olive brown silt	2.65	
---	PDI-7SPT-04-09-1909	---	Wet, dark olive brown silt	2.58	
---	PDI-7SPT-17-18-1909	---	Moist, dark gray silty sand	2.76	
---	PDI-7SPT-62-64-1909	---	Moist, dark olive brown silty sand	2.76	
---	PDI-SPT-00-6.4-191	---	Wet, olive brown silt with sand	2.55	
---	PDI-SPT-14-33.5-191	---	Moist, dark olive brown sand	2.74	
---	PDI-PT-33.5-66.5-19	---	Moist, dark gray sand with silt	2.75	
---	PDI-SPT-00-6.5-191	---	Wet, very dark olive silt	2.54	
---	PDI-PT-16.5-18.1-19	---	Moist, dark olive brown silt	2.55	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527714		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-9SPT-22-30-1910	---	Moist, olive brown sand with silt	2.72	
---	PDI-PT-35.5-48.3-19	---	Moist, olive brown sand with silt	2.75	
---	PDI-SPT-48.3-51-191	---	Moist, dark olive brown silt with sand	2.62	
---	PDI- 110-54-64.5-19101	---	Moist, black sand with silt	2.75	
---	PDI-0SPT-21-32-1910	---	Moist, dark gray sand	2.79	
---	PDI-0SPT-32-45-1910	---	Moist, black sand	2.76	
---	PDI-SPT-00-6.5-191	---	Moist, dark brown silt	2.60	
---	PDI-SPT-07-11.5-191	---	Moist, dark gray sandy silt	2.64	
---	PDI-PT-11.5-26.5-19	---	Moist, dark gray silty sand	2.75	
---	PDI-SPT-37.5-58-191	---	Moist, very dark olive gray silty sand	2.75	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	11/07/19	Checked By:	bfs
Depth :	---	Test Id:	527724		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-3SPT-06-16-1910	---	Wet, dark grayish brown silt	2.73	
---	PDI-3SPT-16-22-1910	---	Moist, dark grayish brown sand with silt	2.77	
---	PDI-SPT-22-25.2-191	---	Wet, dark grayish brown silt with sand	2.66	
---	PDI-PT-31.9-39.4-19	---	Moist, dark gray silty sand	2.44	
---	PDI-SPT-00-7.5-191	---	Wet, olive brown silt	2.62	
---	PDI-SPT-25.5-28-191	---	Moist, dark olive brown silty sand	2.75	
---	PDI-SPT-42-50.5-191	---	Wet, olive brown sandy silt	2.77	
---	PDI-SPT-50.5-55-191	---	Moist, dark gray silty sand	2.77	
---	PDI-SPT-7.5-12.5-191	---	Moist, olive brown silt with sand	2.66	
---	PDI-5SPT-06-11-1910	---	Moist, very dark gray silty sand	2.77	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	11/08/19	Checked By:	bfs
Depth :	---	Test Id:	527734		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-PT-18.6-20.6-19	---	Moist, dark olive brown silt with sand	2.54	
---	PDI-SPT-23-28.1-191	---	Moist, very dark olive brown sand with silt	2.75	
---	PDI-PT-41.5-49.3-19	---	Moist, olive brown silty sand	2.76	
---	PDI-SPT-00-4.5-190	---	Wet, olive brown silt	2.67	
---	PDI-SPT-20-26.7-190	---	Moist, dark gray silty sand	2.77	
---	PDI-PT-26.7-28.6-19	---	Wet, grayish brown silt	2.69	
---	PDI-PT-51.5-54.2-19	---	Moist, olive brown silty sand	2.76	
---	PDI-SPT-11-29.1-191	---	Moist, dark gray sand	2.75	
---	PDI-SPT-29.1-32-191	---	Moist, dark gray silty sand	2.73	
---	PDI-PT-44.1-53.5-19	---	Moist, dark gray silty sand	2.71	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527744		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-PT-53.5-63.5-19	---	Wet, dark grayish brown silt with sand	2.66	
---	PDI-SPT-00-4.5-191	---	Wet, dark grayish brown silt	2.65	
---	PDI-SPT-4.5-15-191	---	Moist, dark grayish brown silt with sand	2.53	
---	PDI-SPT-46.5-61-191	---	Wet, dark grayish brown silty sand	2.71	
---	PDI-SPT-00-4.5-191	---	Moist, dark grayish brown silt with sand	2.62	
---	PDI-SPT-18.3-31-191	---	Moist, dark gray silty sand	2.70	
---	PDI-9SPT-47-52-1910	---	Moist, dark grayish brown silty sand	2.78	
---	PDI-SPT-9.5-18.3-191	---	Moist, dark grayish brown sand with silt	2.73	
---	PDI-1SPT-00-06-1909	---	Moist, olive brown silt	2.59	
---	PDI-SPT-11-20.7-190	---	Moist, dark olive brown silt	2.67	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	11/08/19	Checked By:	bfs
Depth :	---	Test Id:	527689		

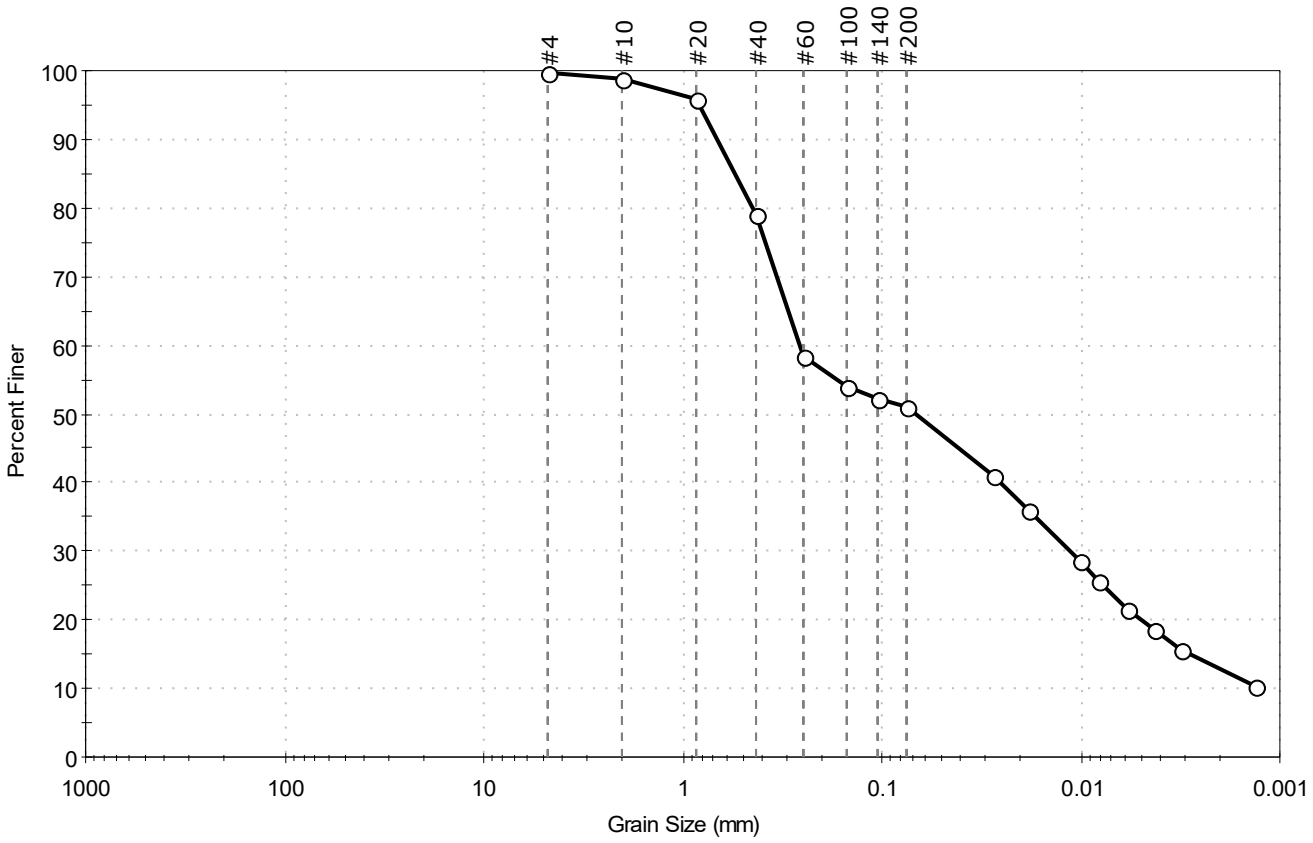
Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-1SPT-21-38-1909	---	Moist, dark olive gray silty sand	2.73	
---	PDI-SPT-49.4-54-190	---	Moist, dark grayish brown silty sand	2.70	
---	PDI-2SPT-04-09-1909	---	Wet, olive brown silt	2.71	
---	PDI-SPT-16.6-24-190	---	Moist, dark olive brown silty sand	2.71	
---	PDI-2SPT-61-66-1909	---	Wet, olive brown silty sand	2.74	
---	PDI-SPT-00-4.5-190	---	Wet, dark olive silt with sand	2.66	
---	PDI-PT-25.5-30.5-19	---	Moist, dark gray silty sand	2.77	
---	PDI-PT-63.2-65.5-19	---	Moist, dark olive brown silt with sand	2.67	
---	PDI-SC-B-05-07-1910	---	Moist, dark olive brown sandy silt	2.67	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-014SG-00-0.99-1909	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525297		
Test Comment:	---				
Visual Description:	Moist, very dark gray sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.2	48.9	50.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	96		
#40	0.42	79		
#60	0.25	58		
#100	0.15	54		
#140	0.11	52		
#200	0.075	51		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0276	41		
---	0.0182	36		
---	0.0101	29		
---	0.0081	26		
---	0.0059	22		
---	0.0043	19		
---	0.0032	16		
---	0.0013	10		

Coefficients

D_{85} = 0.5444 mm	D_{30} = 0.0112 mm
D_{60} = 0.2601 mm	D_{15} = 0.0029 mm
D_{50} = 0.0681 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

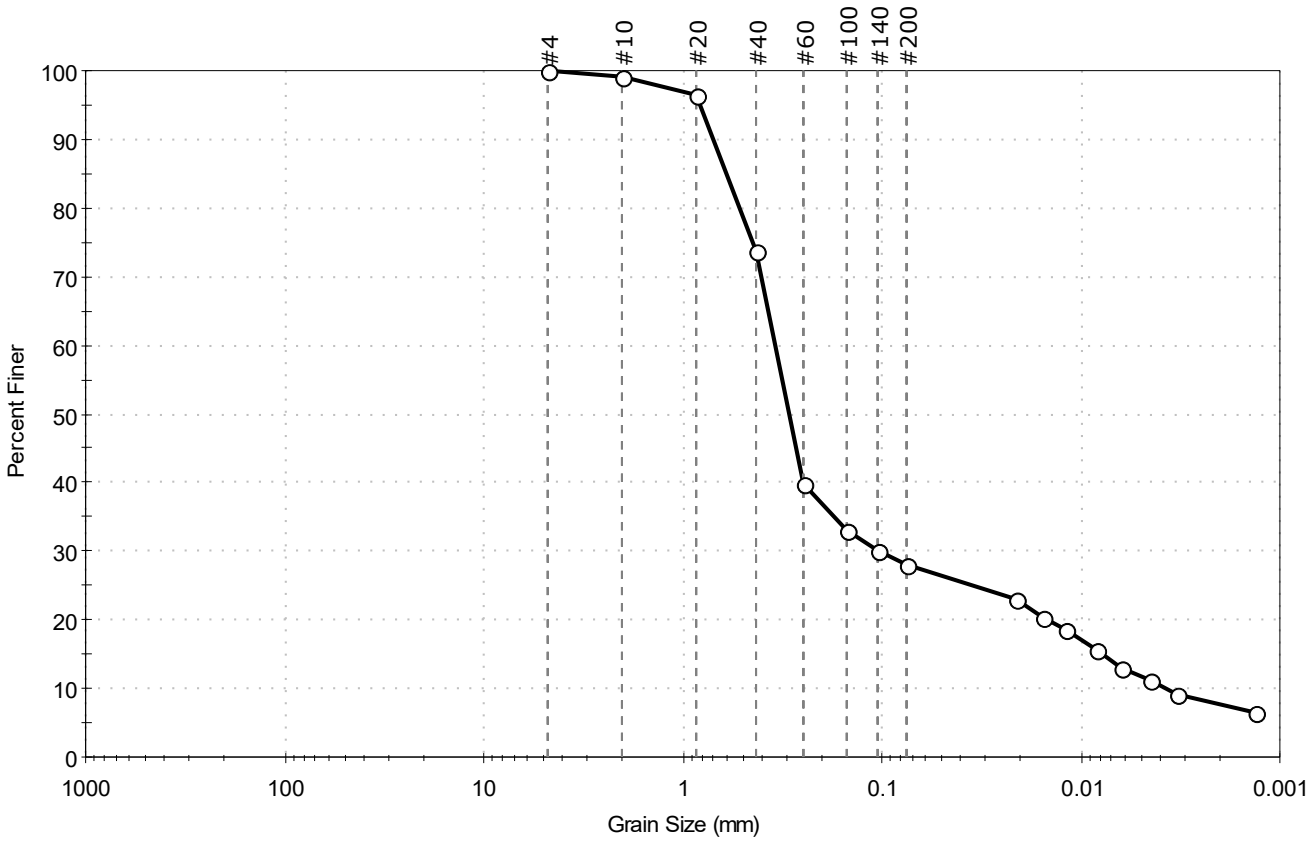
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-015SG-00-0.87-1909	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525298		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.1	71.9	28.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	97		
#40	0.42	74		
#60	0.25	40		
#100	0.15	33		
#140	0.11	30		
#200	0.075	28		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0210	23		
---	0.0157	20		
---	0.0120	18		
---	0.0084	16		
---	0.0063	13		
---	0.0045	11		
---	0.0033	9		
---	0.0013	6		

Coefficients

D_{85} = 0.5984 mm	D_{30} = 0.1051 mm
D_{60} = 0.3429 mm	D_{15} = 0.0078 mm
D_{50} = 0.2934 mm	D_{10} = 0.0037 mm
C_u = 92.676	C_c = 8.706

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

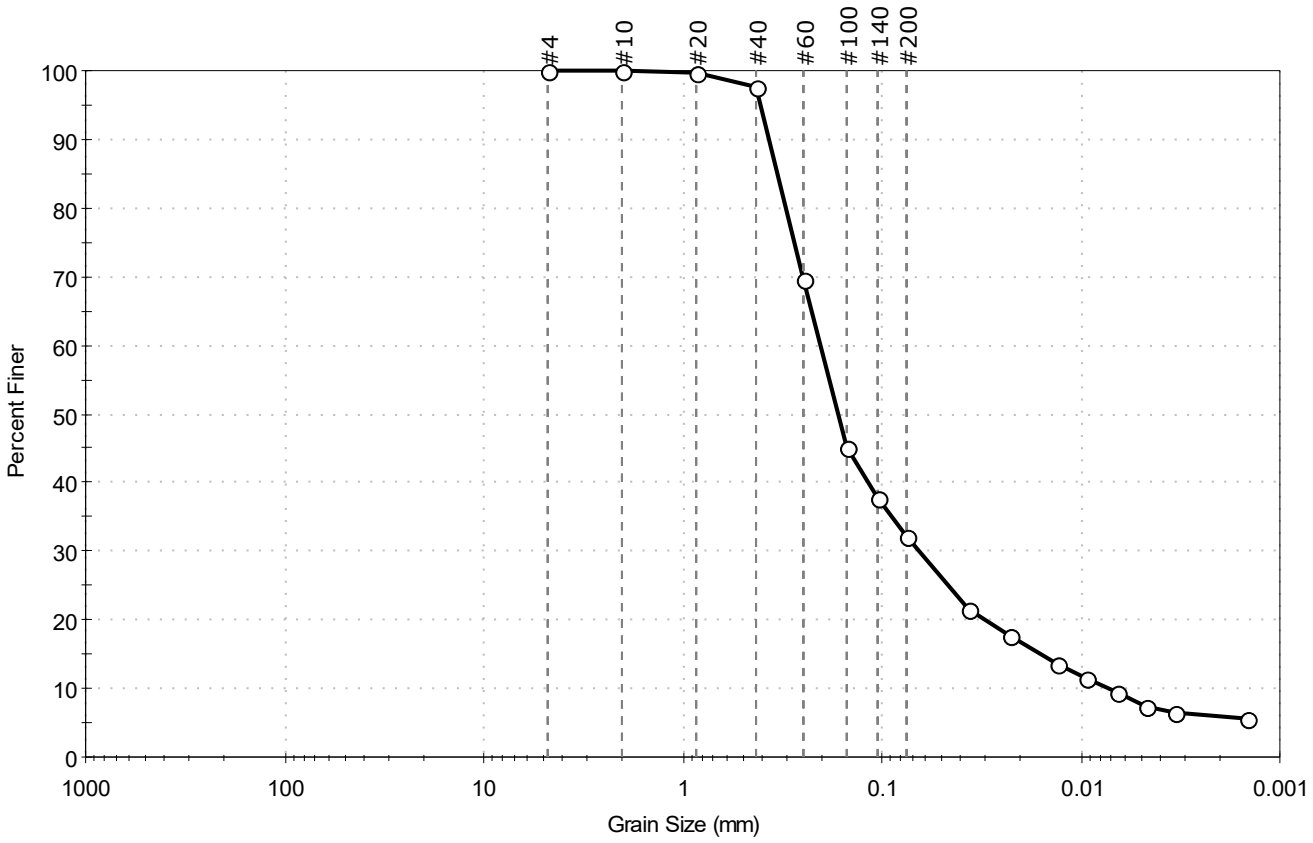
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-016SC-B-06-08-1910	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527547		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	68.0	32.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	98		
#60	0.25	70		
#100	0.15	45		
#140	0.11	38		
#200	0.075	32		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0364	22		
---	0.0229	18		
---	0.0132	14		
---	0.0094	12		
---	0.0066	10		
---	0.0047	7		
---	0.0034	6		
---	0.0015	5		

Coefficients

D_{85} =0.3339 mm	D_{30} =0.0651 mm
D_{60} =0.2042 mm	D_{15} =0.0161 mm
D_{50} =0.1659 mm	D_{10} =0.0072 mm
C_u =28.361	C_c =2.883

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

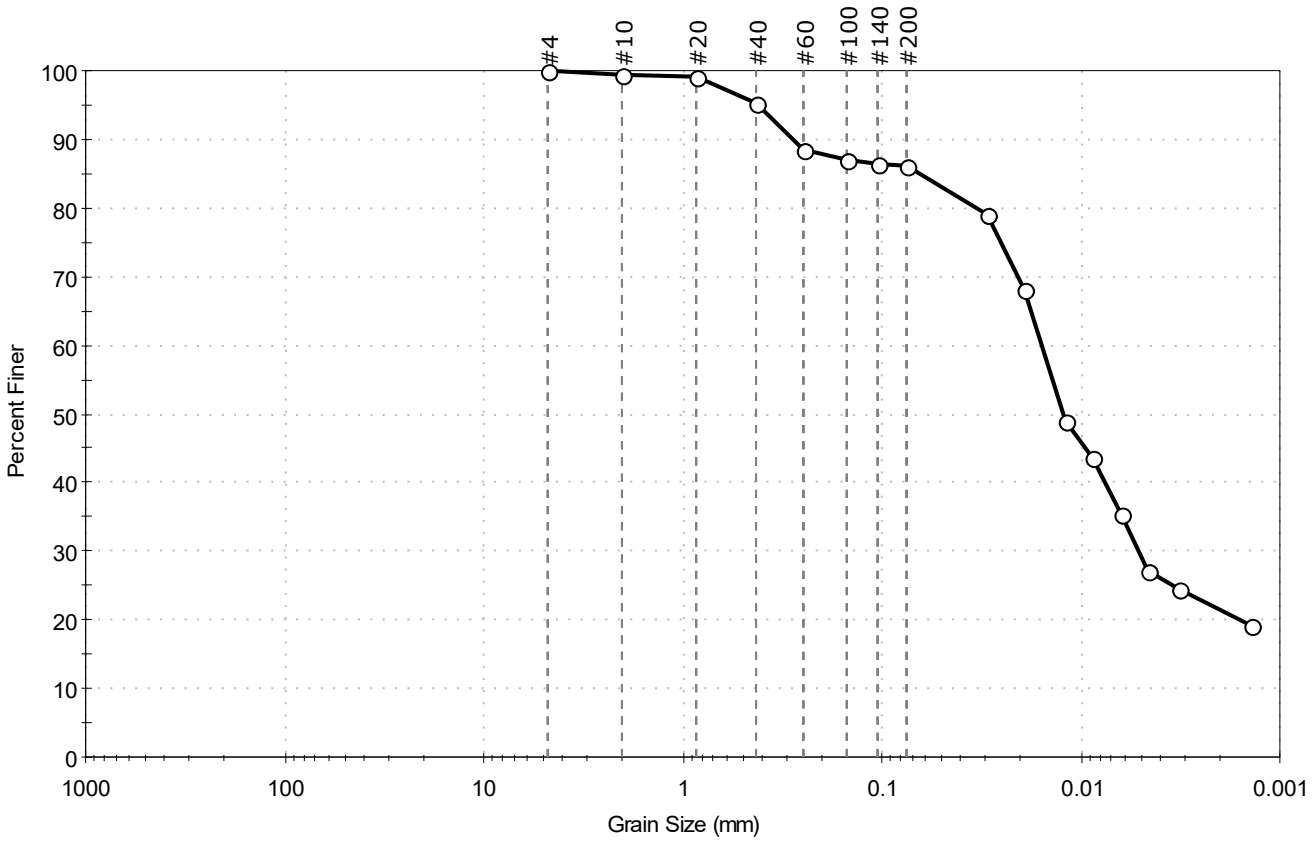
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-018SC-A-06-07-1909	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525971		

Test Comment: ---
Visual Description: Moist, very dark gray silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	13.9	86.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	95		
#60	0.25	89		
#100	0.15	87		
#140	0.11	87		
#200	0.075	86		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0294	79		
---	0.0194	68		
---	0.0120	49		
---	0.0088	44		
---	0.0063	35		
---	0.0046	27		
---	0.0032	25		
---	0.0014	19		

Coefficients

D_{85} = 0.0652 mm	D_{30} = 0.0051 mm
D_{60} = 0.0158 mm	D_{15} = N/A
D_{50} = 0.0123 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (47))

Sample/Test Description

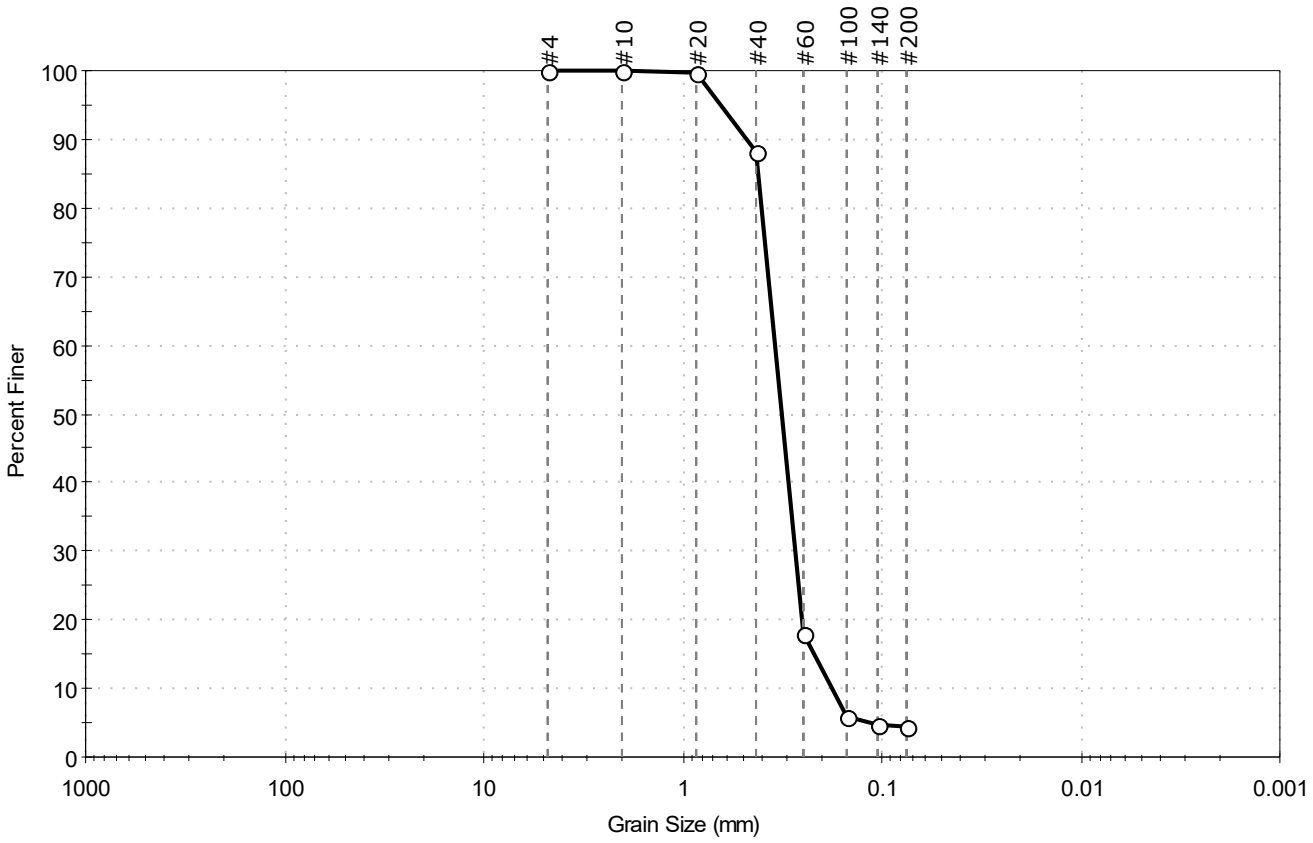
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-018SC-A-08-09-1909	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525972		

Test Comment: ---
Visual Description: Moist, very dark gray sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	95.7	4.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	88		
#60	0.25	18		
#100	0.15	6		
#140	0.11	5		
#200	0.075	4.3		

Coefficients

D_{85} = 0.4149 mm D_{30} = 0.2738 mm
D_{60} = 0.3434 mm D_{15} = 0.2203 mm
D_{50} = 0.3184 mm D_{10} = 0.1781 mm
C_u = 1.928 C_c = 1.226

Classification

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---

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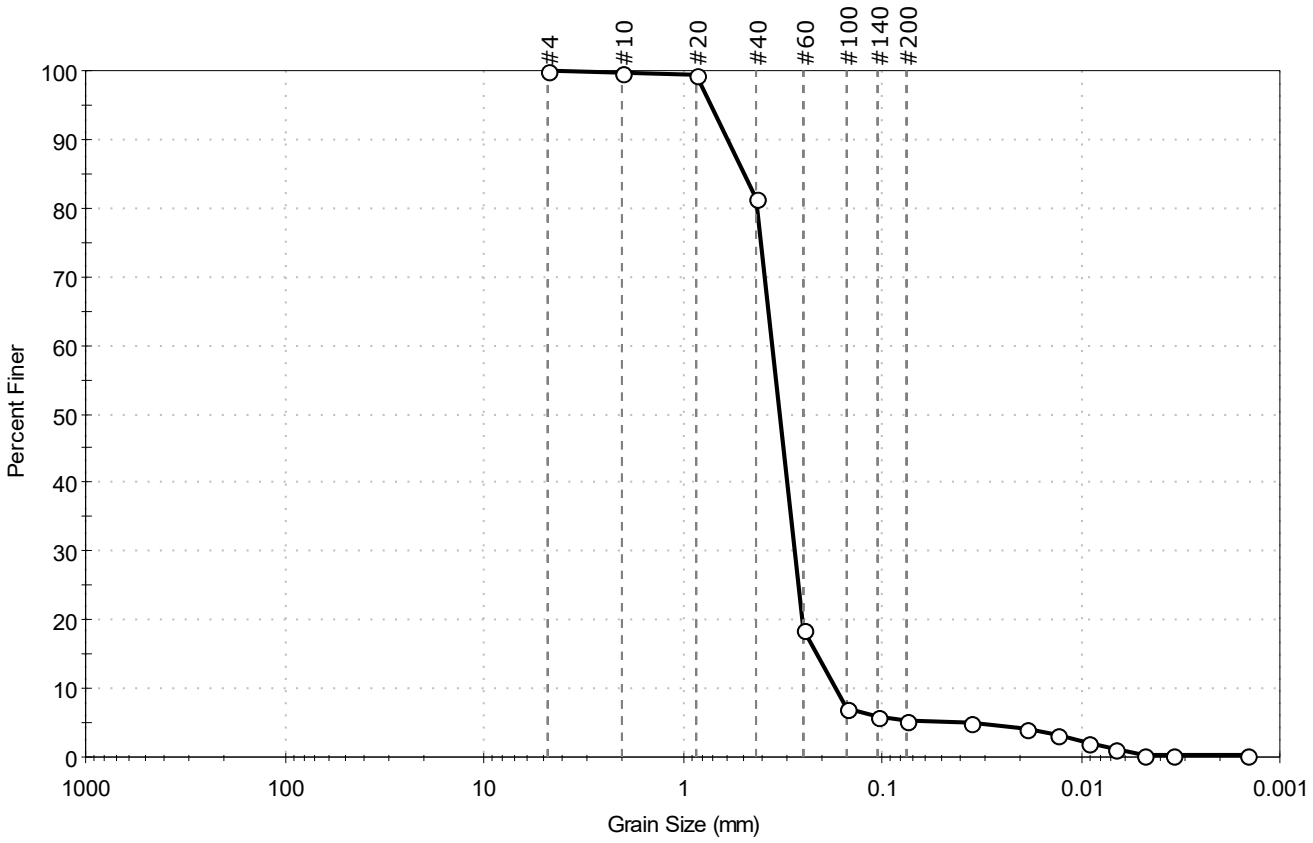
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-021SC-B-7.7-9.7-190	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525973		

Test Comment: ---
Visual Description: Moist, very dark gray sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	94.6	5.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	82		
#60	0.25	18		
#100	0.15	7		
#140	0.11	6		
#200	0.075	5.3		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0360	5		
---	0.0190	4		
---	0.0132	3		
---	0.0092	2		
---	0.0067	1		
---	0.0049	0		
---	0.0034	0		
---	0.0015	0		

Coefficients

D_{85} = 0.4863 mm	D_{30} = 0.2754 mm
D_{60} = 0.3546 mm	D_{15} = 0.2140 mm
D_{50} = 0.3260 mm	D_{10} = 0.1714 mm
C_u = 2.069	C_c = 1.248

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

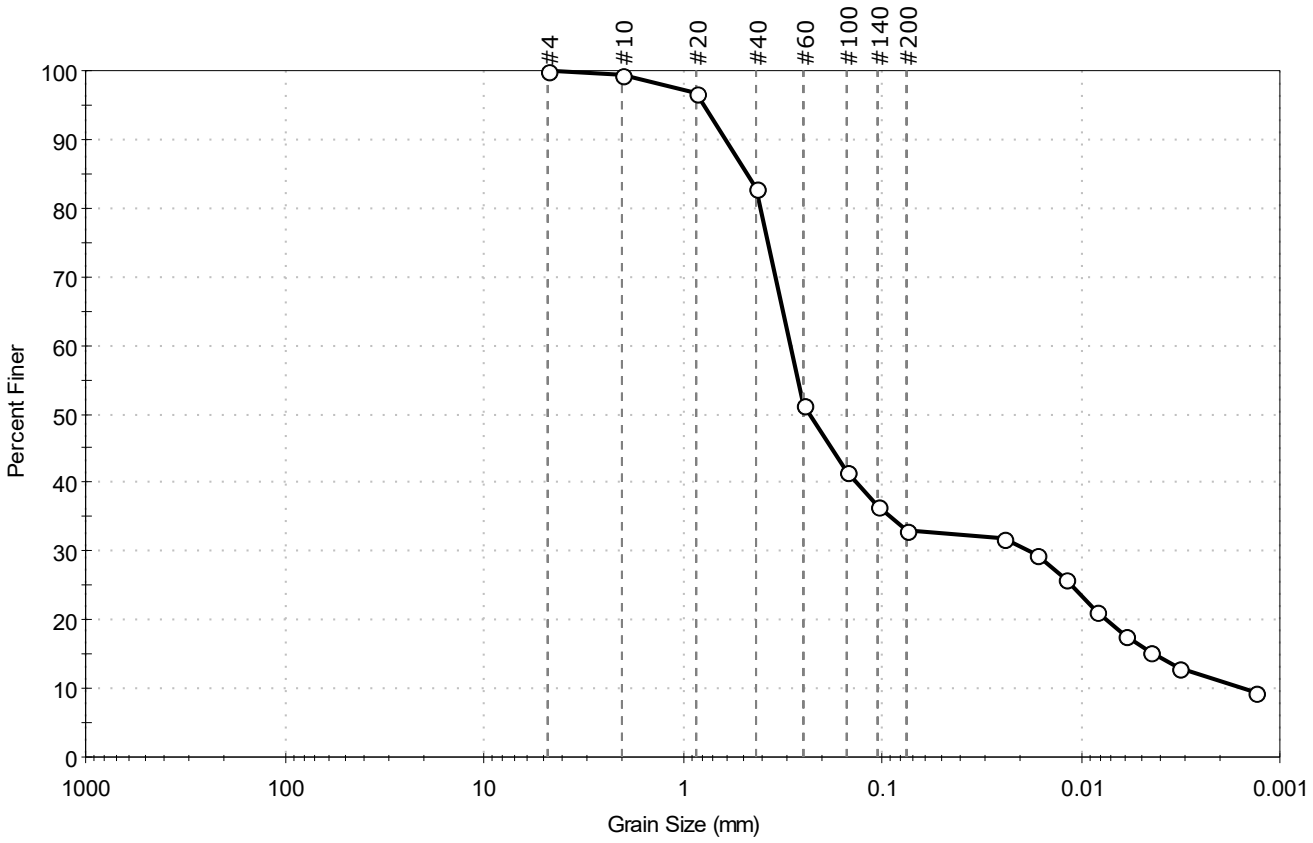
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-022SG-00-01-190924	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525299		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	66.9	33.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	97		
#40	0.42	83		
#60	0.25	51		
#100	0.15	42		
#140	0.11	37		
#200	0.075	33		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0242	32		
---	0.0168	29		
---	0.0119	26		
---	0.0084	21		
---	0.0060	18		
---	0.0045	15		
---	0.0032	13		
---	0.0013	9		

Coefficients

D_{85} =0.4712 mm	D_{30} =0.0185 mm
D_{60} =0.2896 mm	D_{15} =0.0043 mm
D_{50} =0.2342 mm	D_{10} =0.0016 mm
C_u =181.000	C_c =0.739

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

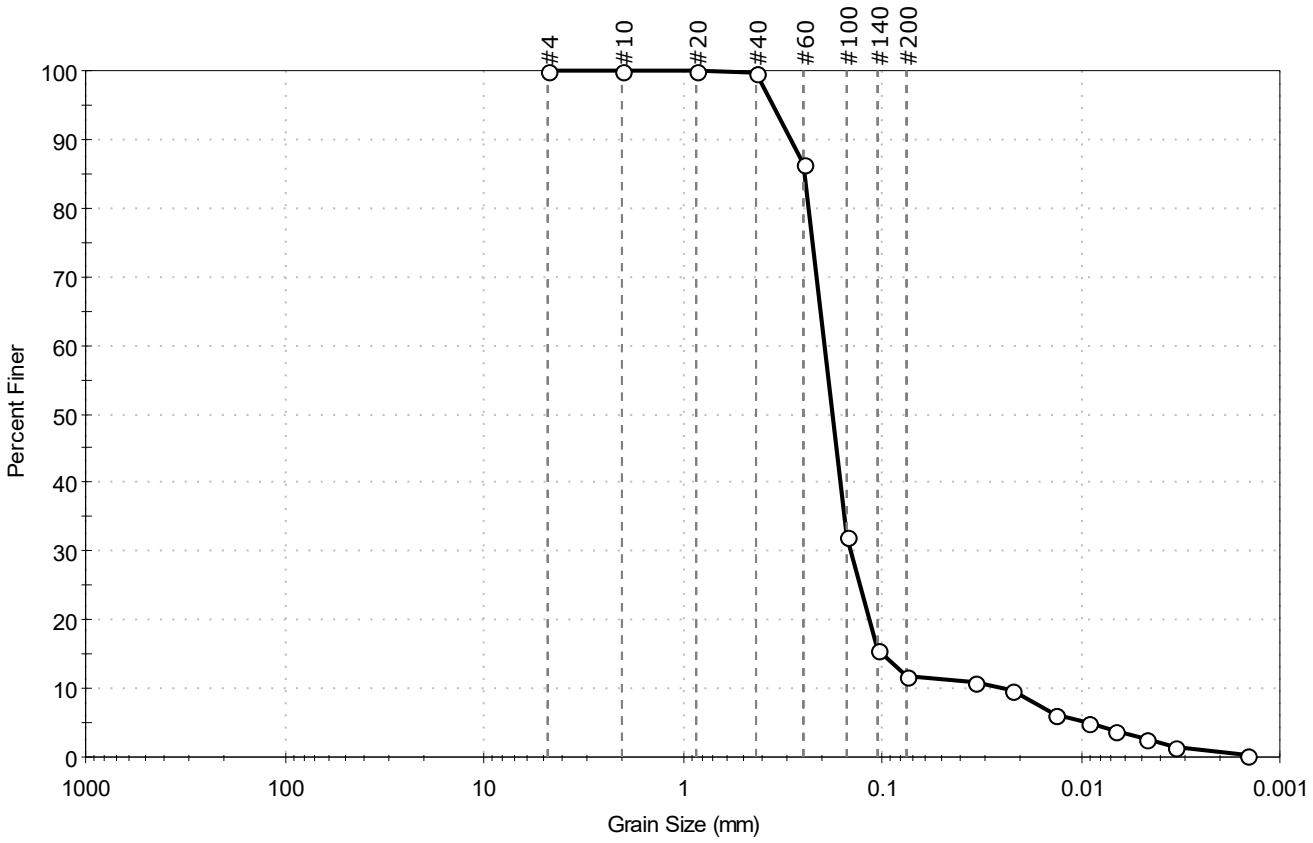
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-024SC-B-10-12.1-19(	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525974		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	88.2	11.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	86		
#100	0.15	32		
#140	0.11	16		
#200	0.075	12		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0344	11		
---	0.0222	10		
---	0.0134	6		
---	0.0091	5		
---	0.0067	4		
---	0.0047	3		
---	0.0034	2		
---	0.0015	0		

Coefficients

D_{85} =0.2465 mm	D_{30} =0.1434 mm
D_{60} =0.1949 mm	D_{15} =0.0998 mm
D_{50} =0.1774 mm	D_{10} =0.0234 mm
C_u =8.329	C_c =4.509

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

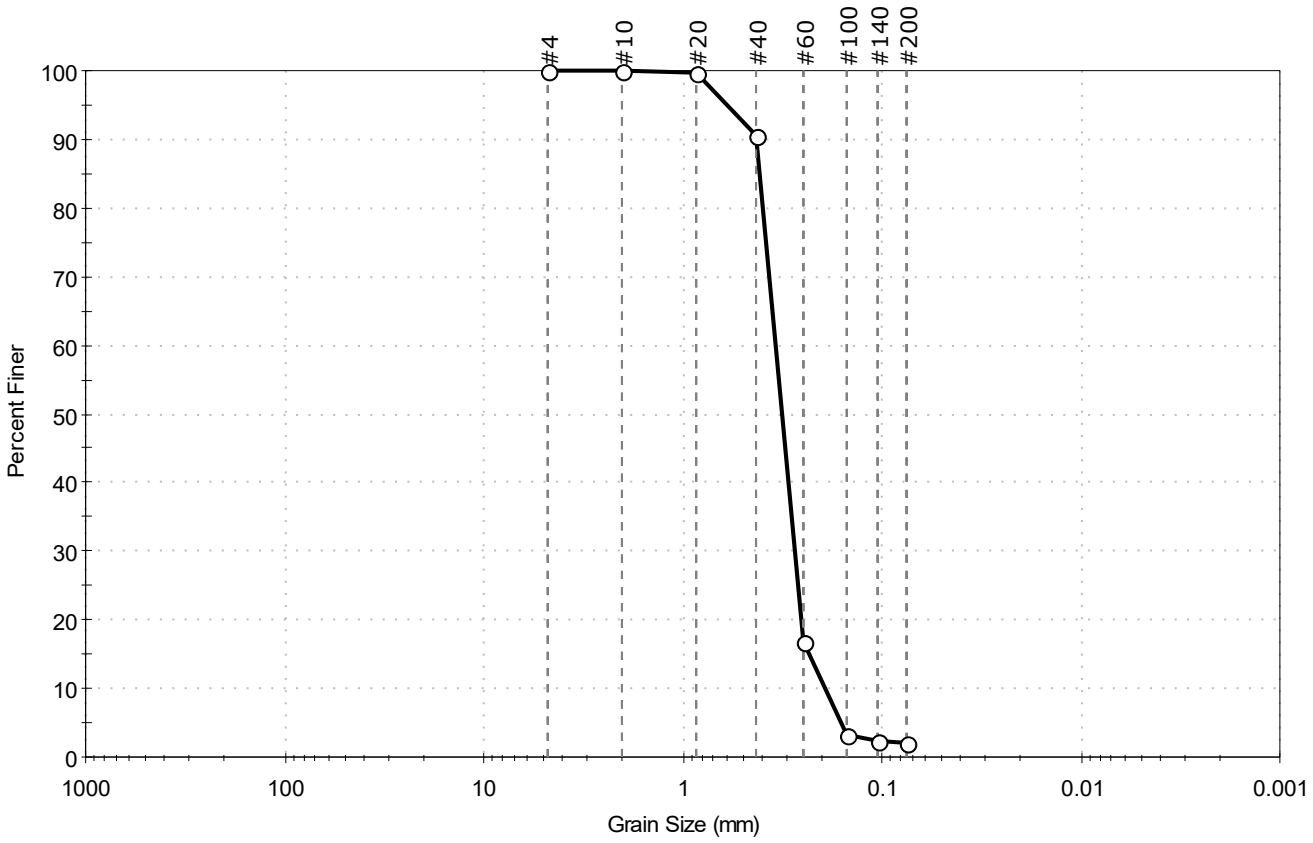
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-027SC-B-11-13.5-19	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527551		
Test Comment:	---				
Visual Description:	Moist, dark gray sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.1	97.9	2.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	91		
#60	0.25	17		
#100	0.15	3		
#140	0.11	2		
#200	0.075	2.0		

Coefficients

D_{85} = 0.4084 mm	D_{30} = 0.2747 mm
D_{60} = 0.3411 mm	D_{15} = 0.2327 mm
D_{50} = 0.3173 mm	D_{10} = 0.1931 mm
C_u = 1.766	C_c = 1.146

Classification

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

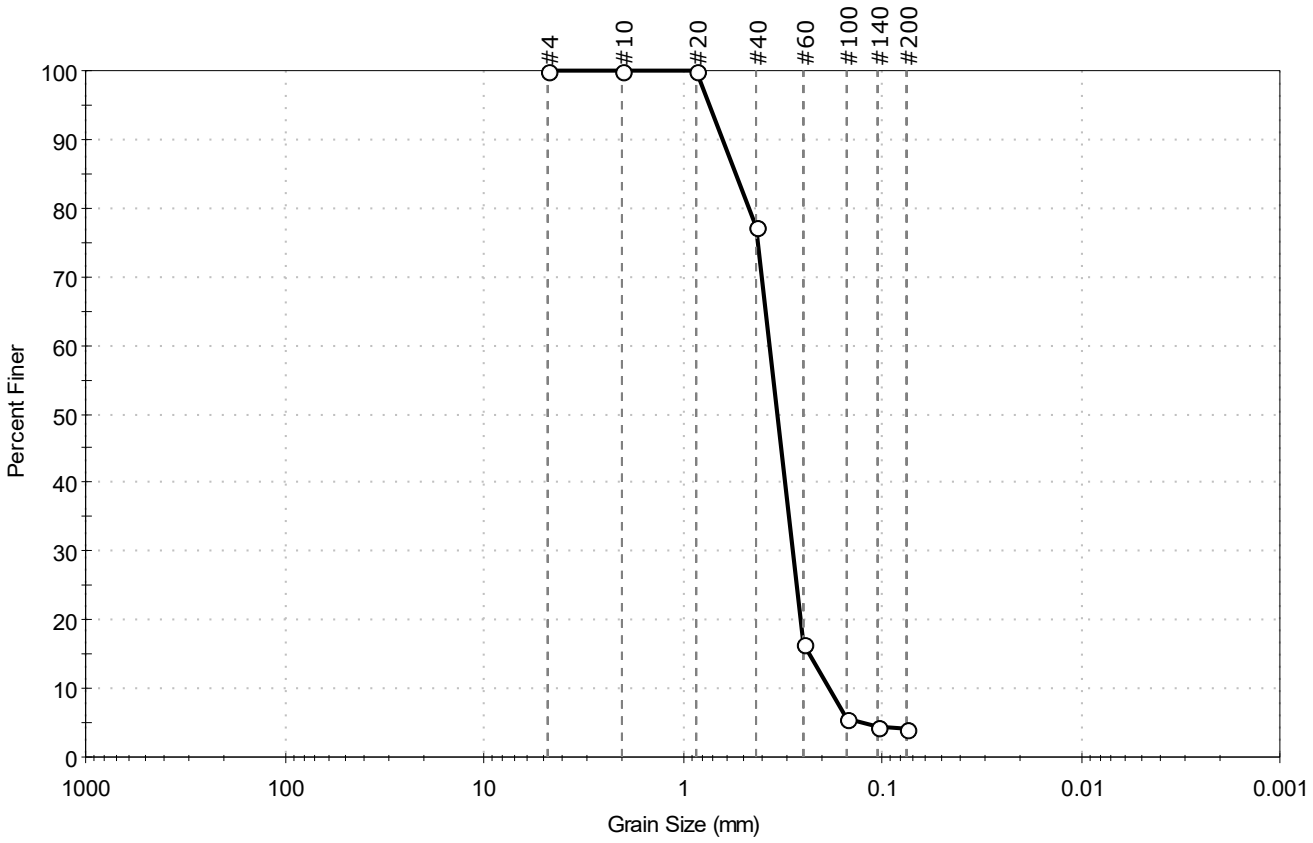
Sand/Gravel Hardness : ---

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-028SC-10.7-12.7-191	Test Date:	10/14/19	Checked By:	bfs
Depth :	---	Test Id:	526420		

Test Comment: ---
Visual Description: Moist, very dark gray sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	96.0	4.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	77		
#60	0.25	17		
#100	0.15	6		
#140	0.11	5		
#200	0.075	4.0		

Coefficients

D_{85} = 0.5384 mm D_{30} = 0.2810 mm
D_{60} = 0.3654 mm D_{15} = 0.2321 mm
D_{50} = 0.3348 mm D_{10} = 0.1843 mm
C_u = 1.983 C_c = 1.173

Classification

ASTM Poorly graded SAND (SP)

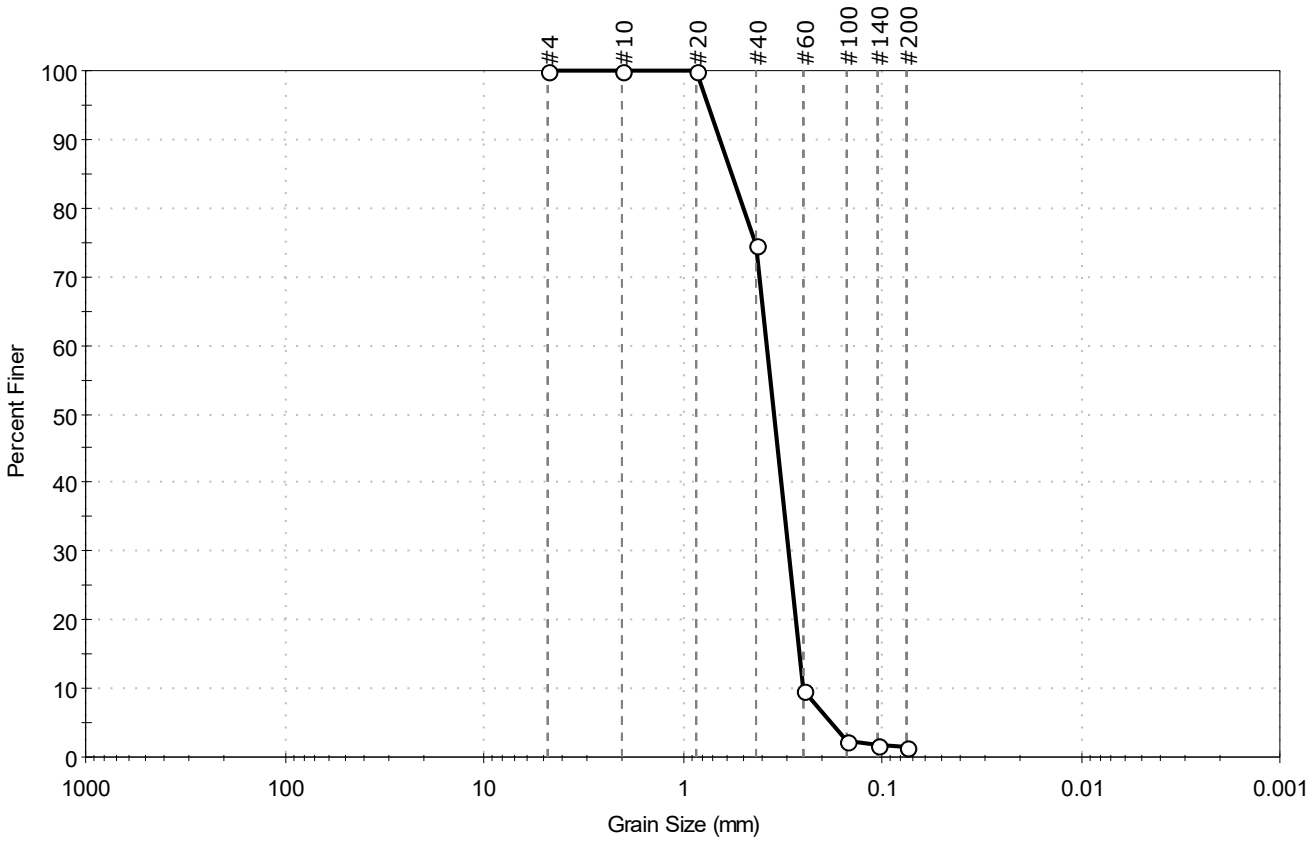
AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-033SC-B-8.7-10.7-19	Test Date:	11/05/19	Checked By:	bfs
Depth :	---	Test Id:	527550		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	98.5	1.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	75		
#60	0.25	10		
#100	0.15	2		
#140	0.11	2		
#200	0.075	1.5		

Coefficients

D_{85} = 0.5635 mm	D_{30} = 0.2948 mm
D_{60} = 0.3767 mm	D_{15} = 0.2608 mm
D_{50} = 0.3471 mm	D_{10} = 0.2503 mm
C_u = 1.505	C_c = 0.922

Classification

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

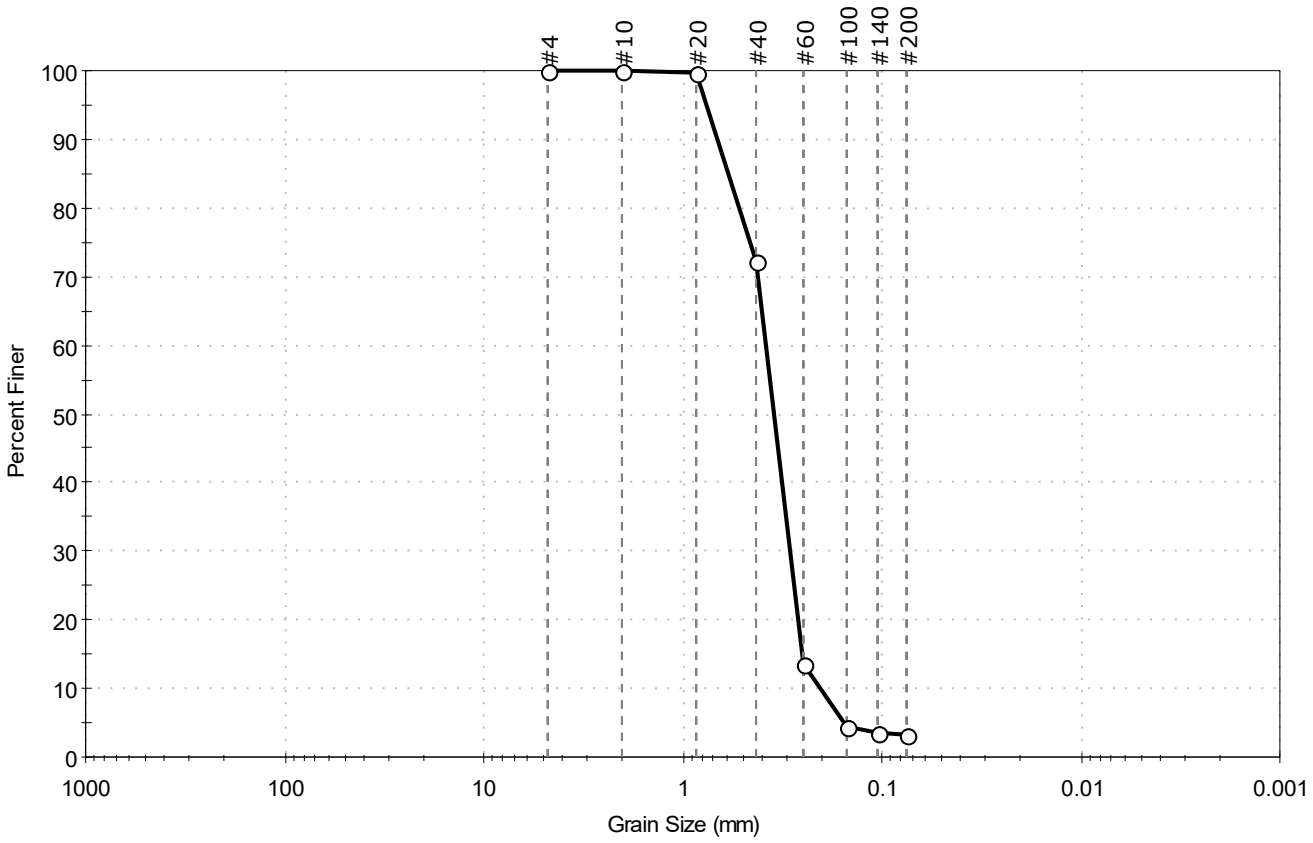
Sand/Gravel Hardness : ---

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-036SC-B-4.2-6.2-190	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525975		

Test Comment: ---
Visual Description: Moist, very dark gray sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	96.8	3.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	72		
#60	0.25	13		
#100	0.15	4		
#140	0.11	4		
#200	0.075	3.2		

Coefficients

D_{85} = 0.5876 mm	D_{30} = 0.2903 mm
D_{60} = 0.3806 mm	D_{15} = 0.2536 mm
D_{50} = 0.3478 mm	D_{10} = 0.2060 mm
C_u = 1.848	C_c = 1.075

Classification

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

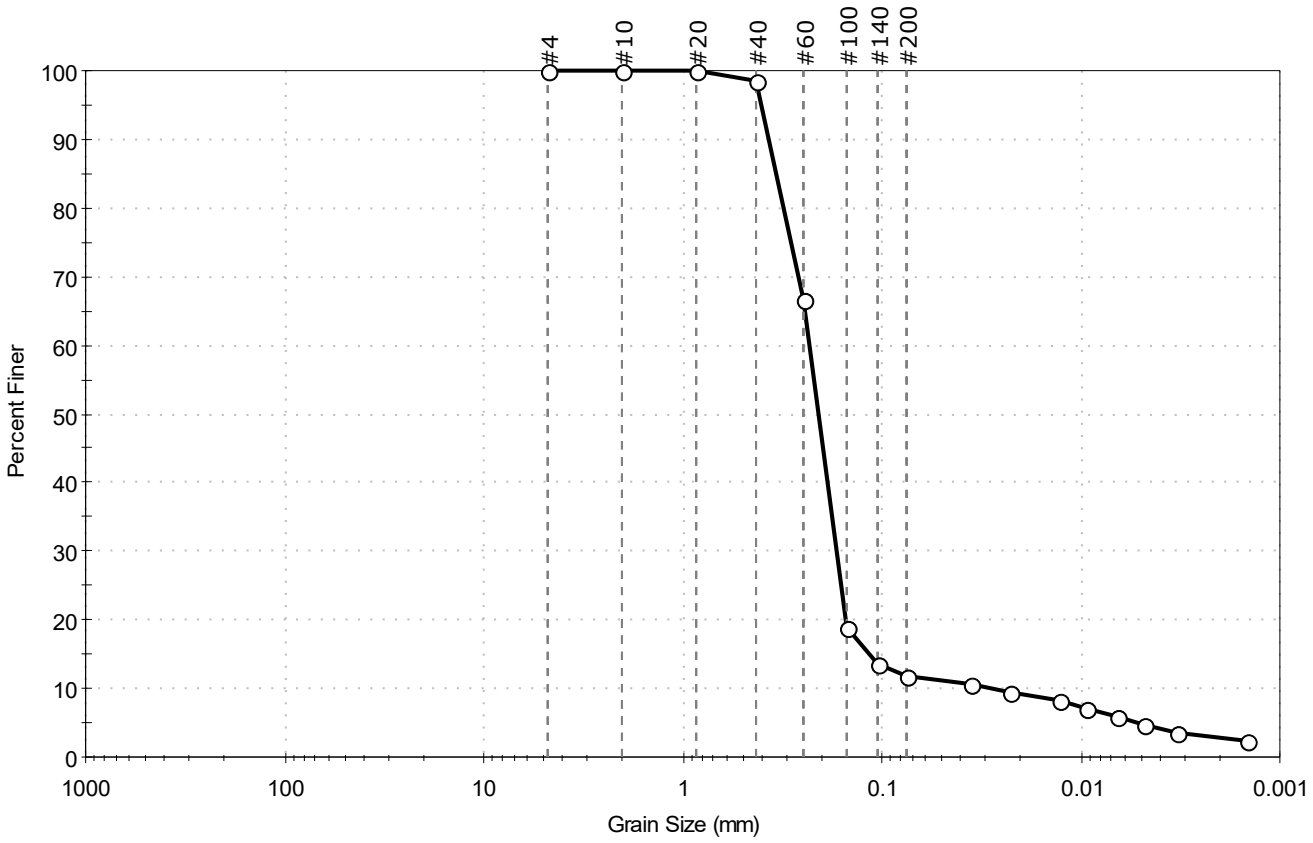
Sample/Test Description

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-039SC-B-7.8-9.8-190	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525979		

Test Comment: ---
Visual Description: Moist, very dark gray sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	88.2	11.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	67		
#100	0.15	19		
#140	0.11	13		
#200	0.075	12		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0361	11		
---	0.0226	9		
---	0.0130	8		
---	0.0094	7		
---	0.0066	6		
---	0.0048	5		
---	0.0033	4		
---	0.0014	2		

Coefficients

D_{85} = 0.3391 mm	D_{30} = 0.1688 mm
D_{60} = 0.2326 mm	D_{15} = 0.1169 mm
D_{50} = 0.2090 mm	D_{10} = 0.0286 mm
C_u = 8.133	C_c = 4.283

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

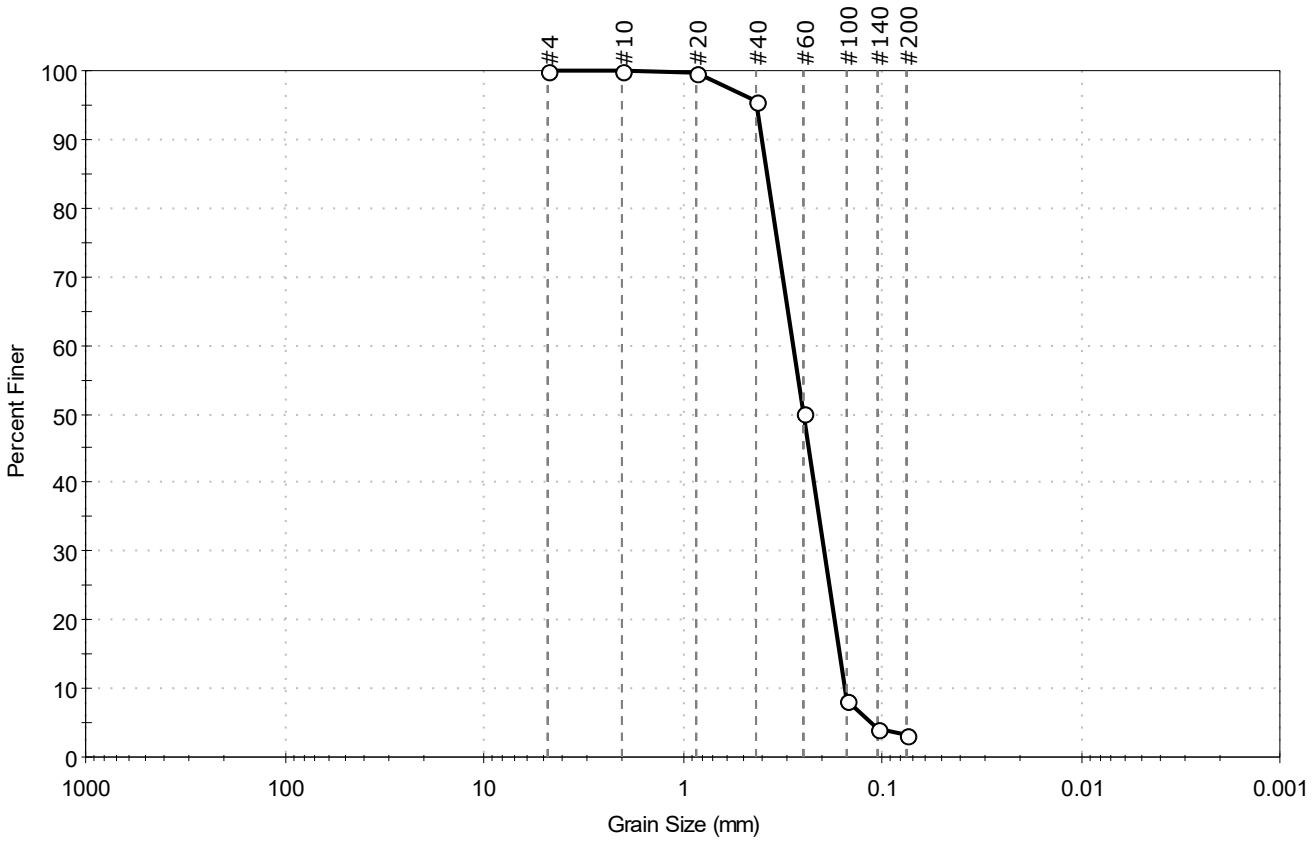
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-041SC-B-8.2-10.2-19	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527545		

Test Comment: ---
Visual Description: Moist, dark grayish brown sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	96.6	3.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	96		
#60	0.25	50		
#100	0.15	8		
#140	0.11	4		
#200	0.075	3.4		

Coefficients

D_{85} = 0.3758 mm
D_{30} = 0.1957 mm
D_{60} = 0.2808 mm
D_{15} = 0.1629 mm
D_{50} = 0.2500 mm
D_{10} = 0.1532 mm
C_u = 1.833
C_c = 0.890

Classification

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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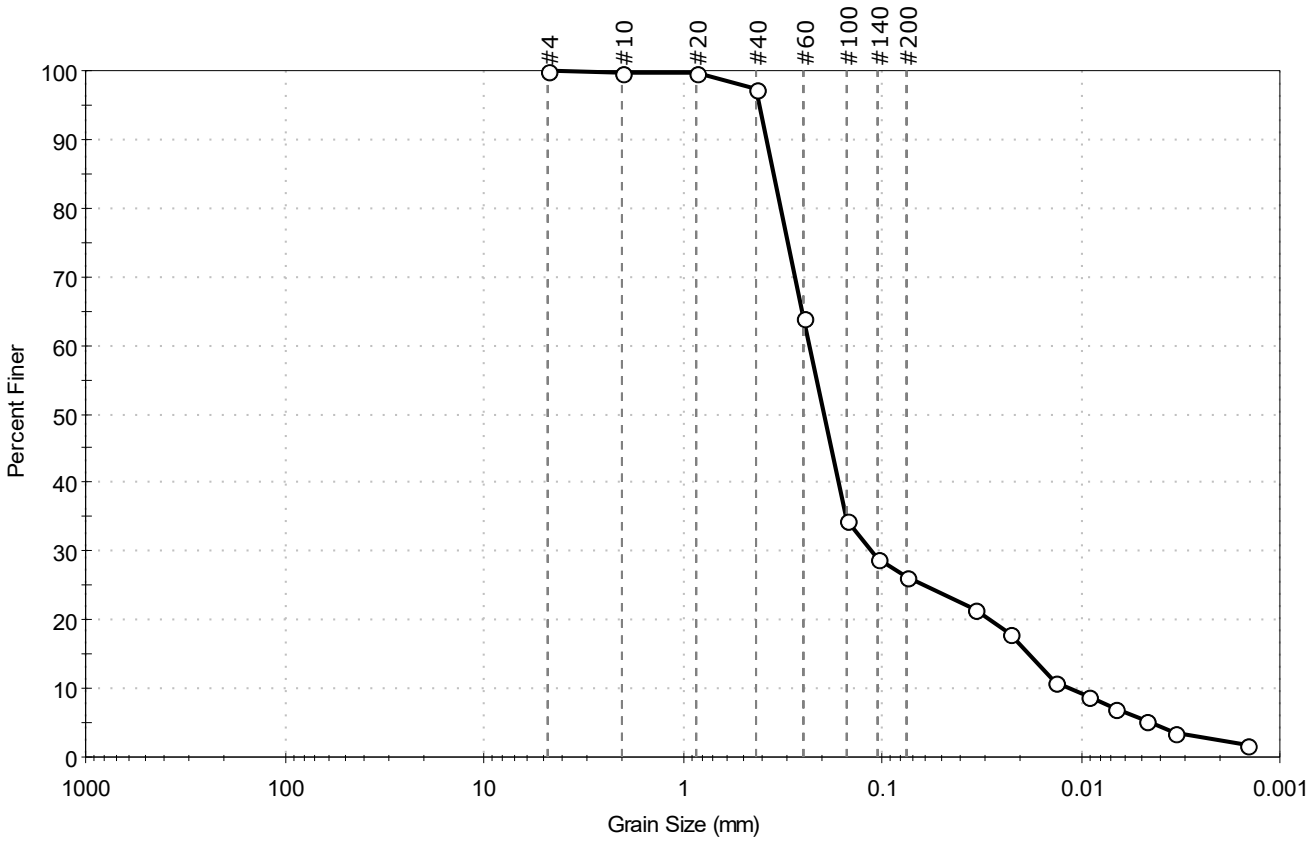
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-046SC-B-9.8-11.8-19	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525977		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	73.9	26.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	97		
#60	0.25	64		
#100	0.15	34		
#140	0.11	29		
#200	0.075	26		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0340	22		
---	0.0227	18		
---	0.0134	11		
---	0.0093	9		
---	0.0067	7		
---	0.0048	5		
---	0.0034	4		
---	0.0015	2		

Coefficients

D_{85} =0.3497 mm	D_{30} =0.1135 mm
D_{60} =0.2334 mm	D_{15} =0.0182 mm
D_{50} =0.1963 mm	D_{10} =0.0114 mm
C_u =20.474	C_c =4.842

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

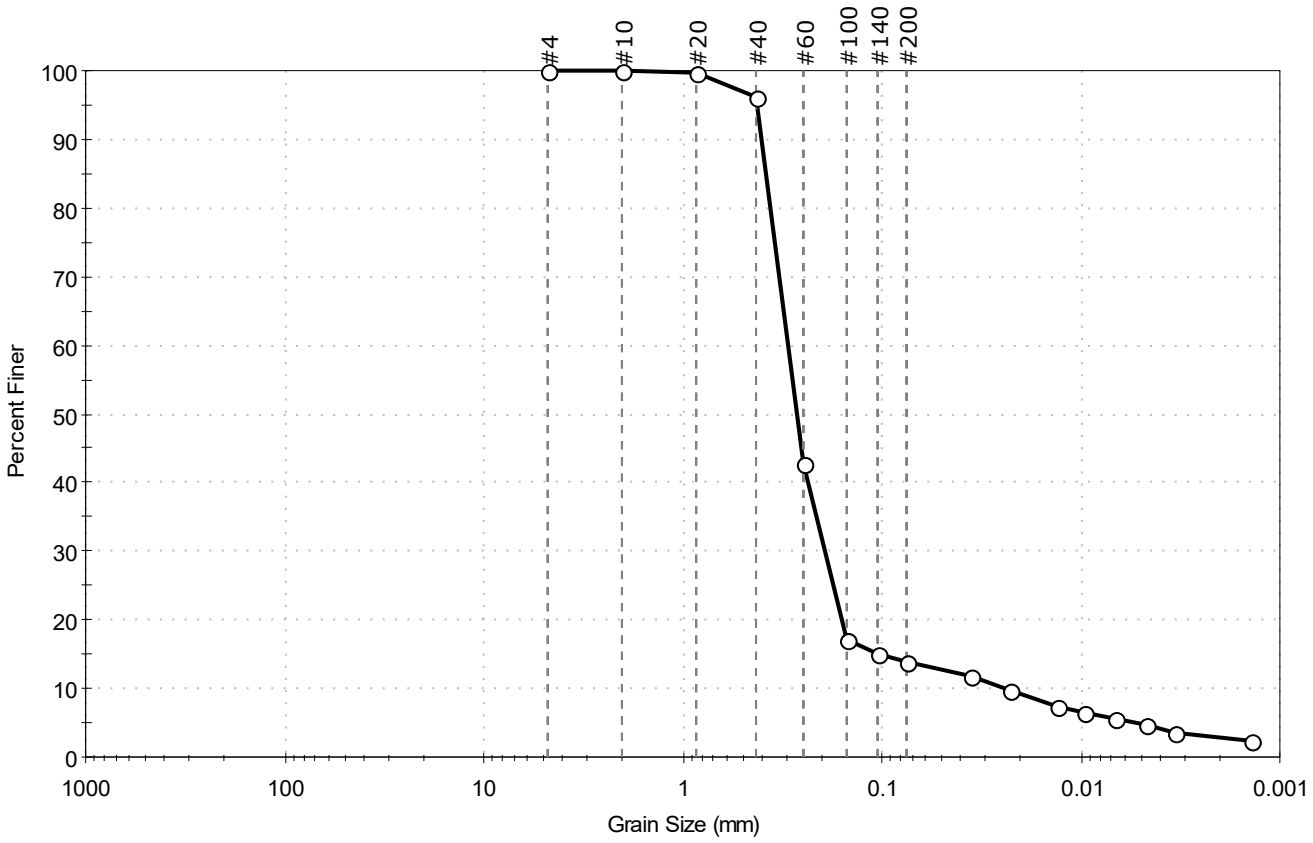
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-049SC-B-06-08-1910	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527554		

Test Comment: ---
Visual Description: Moist, dark grayish brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	86.0	14.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	96		
#60	0.25	43		
#100	0.15	17		
#140	0.11	15		
#200	0.075	14		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0361	12		
---	0.0230	10		
---	0.0131	7		
---	0.0095	6		
---	0.0068	5		
---	0.0048	5		
---	0.0034	4		
---	0.0014	2		

Coefficients

D_{85} = 0.3801 mm	D_{30} = 0.1941 mm
D_{60} = 0.2968 mm	D_{15} = 0.1066 mm
D_{50} = 0.2688 mm	D_{10} = 0.0249 mm
C_u = 11.920	C_c = 5.098

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

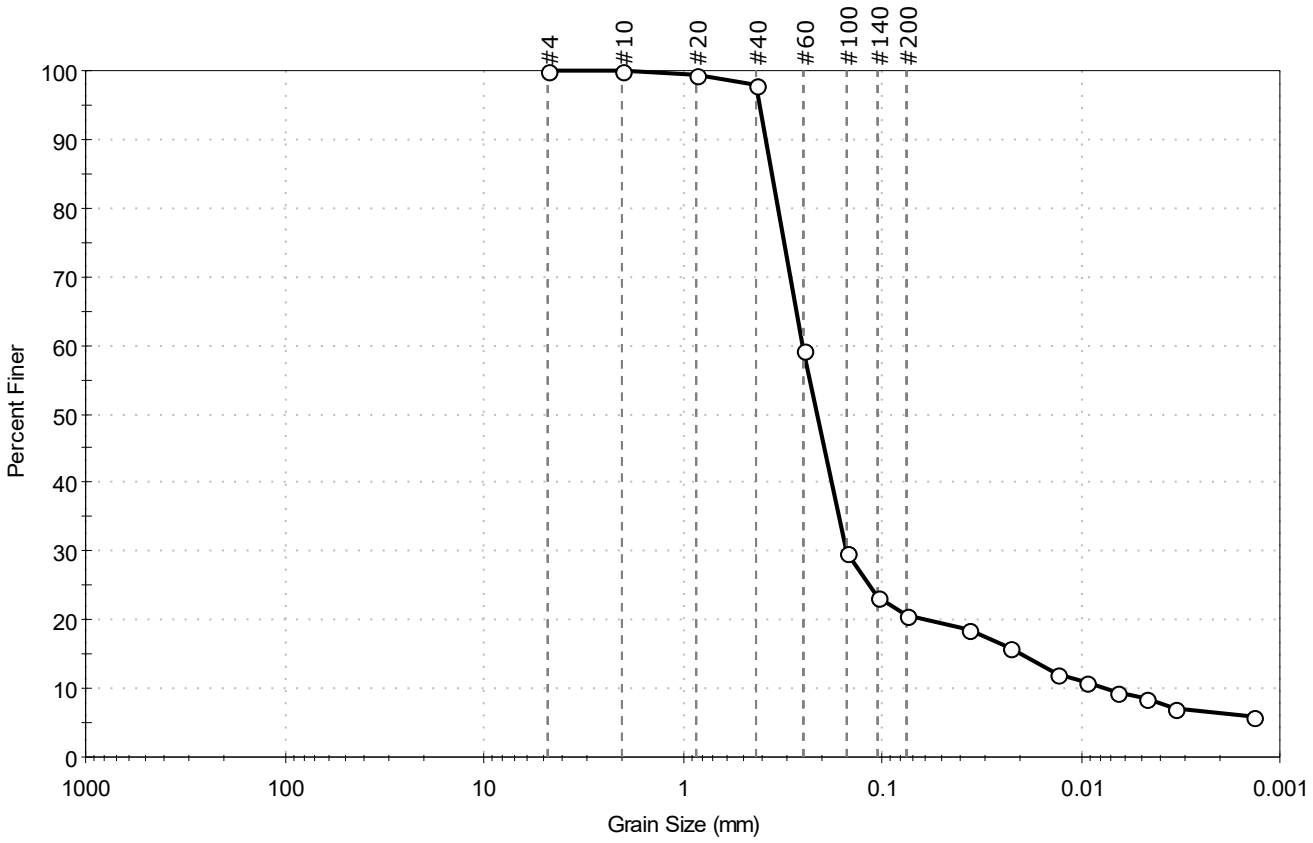
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-052SC-B-06-08-1910	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527555		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	79.3	20.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	98		
#60	0.25	59		
#100	0.15	30		
#140	0.11	23		
#200	0.075	21		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0365	19		
---	0.0229	16		
---	0.0131	12		
---	0.0094	11		
---	0.0067	10		
---	0.0047	8		
---	0.0034	7		
---	0.0014	6		

Coefficients

D_{85} = 0.3554 mm	D_{30} = 0.1505 mm
D_{60} = 0.2521 mm	D_{15} = 0.0198 mm
D_{50} = 0.2126 mm	D_{10} = 0.0075 mm
C_u = 33.613	C_c = 11.980

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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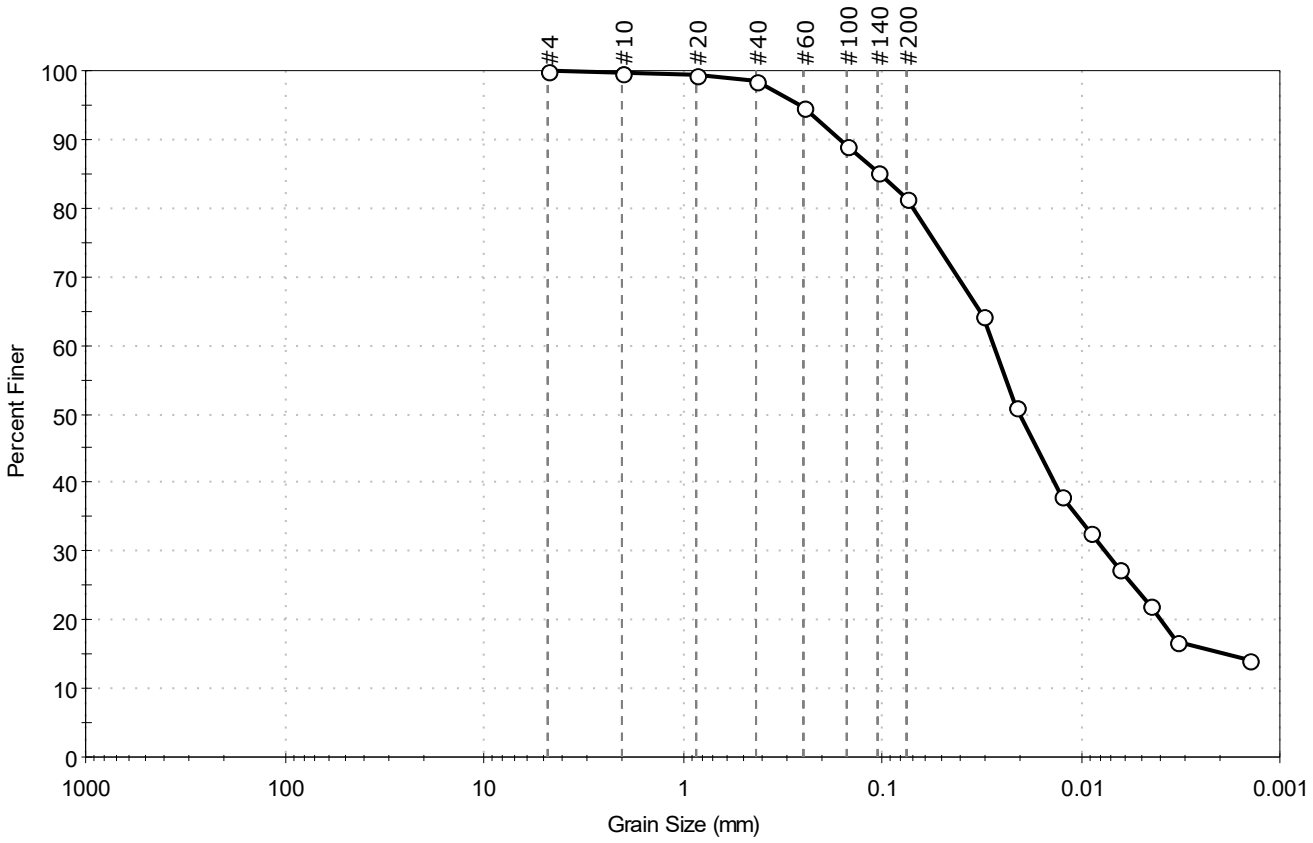
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-064SC-B-04-06-1909	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525976		

Test Comment: ---
Visual Description: Moist, very dark gray silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	18.5	81.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	95		
#100	0.15	89		
#140	0.11	85		
#200	0.075	81		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0313	64		
---	0.0212	51		
---	0.0124	38		
---	0.0090	33		
---	0.0065	27		
---	0.0045	22		
---	0.0033	17		
---	0.0014	14		

Coefficients

D_{85} = 0.1044 mm D_{30} = 0.0076 mm
D_{60} = 0.0275 mm D_{15} = 0.0019 mm
D_{50} = 0.0202 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (29))

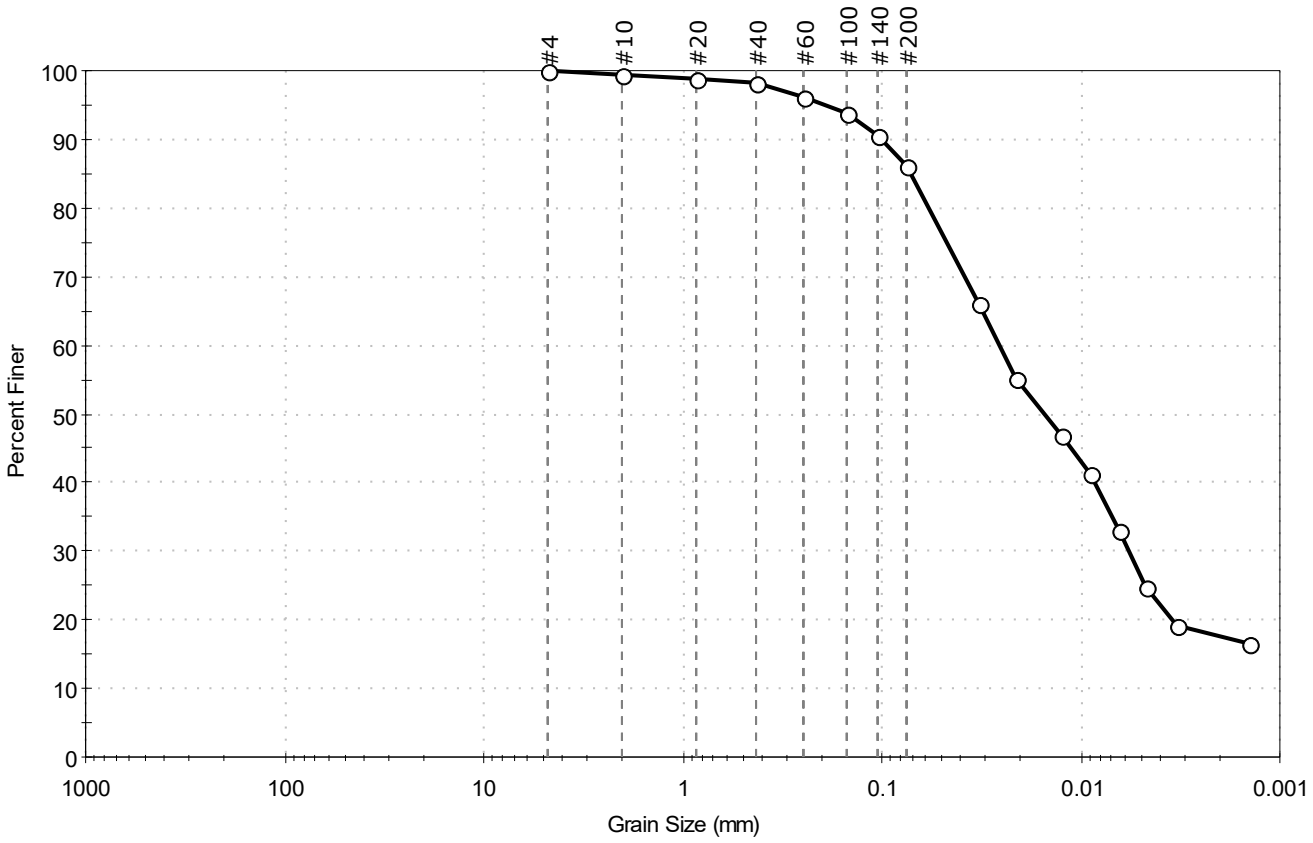
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-066SC-B-06-08-1910	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527552		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt				
Sample Comment:	Sample contains organics				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	13.9	86.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	96		
#100	0.15	94		
#140	0.11	90		
#200	0.075	86		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0324	66		
---	0.0213	55		
---	0.0126	47		
---	0.0090	41		
---	0.0065	33		
---	0.0047	25		
---	0.0033	19		
---	0.0014	17		

Coefficients

D_{85} = 0.0716 mm	D_{30} = 0.0057 mm
D_{60} = 0.0257 mm	D_{15} = N/A
D_{50} = 0.0155 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (42))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

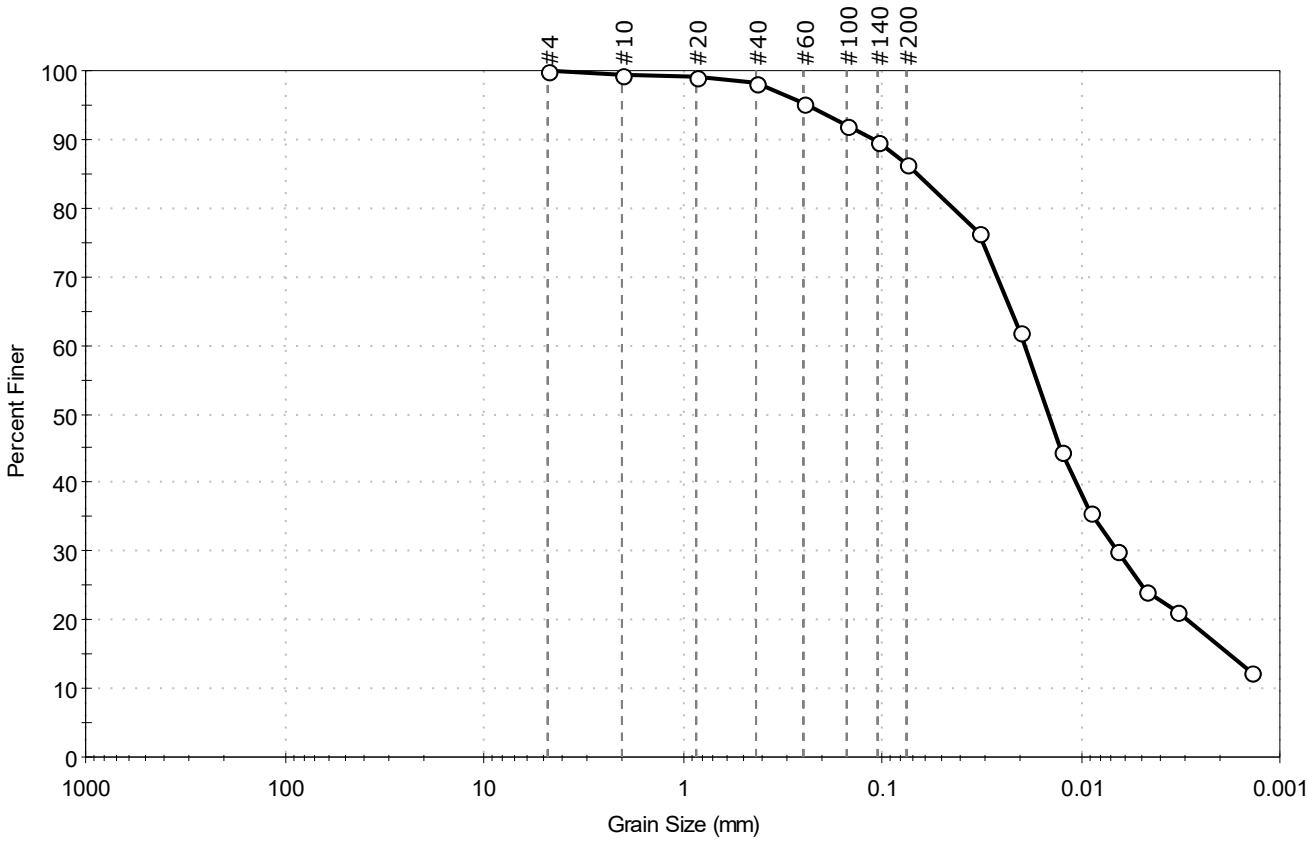
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-067SC-B-02-04-1910	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527546		
Test Comment:	---				
Visual Description:	Wet, dark olive brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	13.5	86.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	95		
#100	0.15	92		
#140	0.11	90		
#200	0.075	86		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0328	76		
---	0.0202	62		
---	0.0126	44		
---	0.0091	36		
---	0.0065	30		
---	0.0047	24		
---	0.0033	21		
---	0.0014	13		

Coefficients

D_{85} = 0.0663 mm	D_{30} = 0.0065 mm
D_{60} = 0.0192 mm	D_{15} = 0.0018 mm
D_{50} = 0.0146 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (32))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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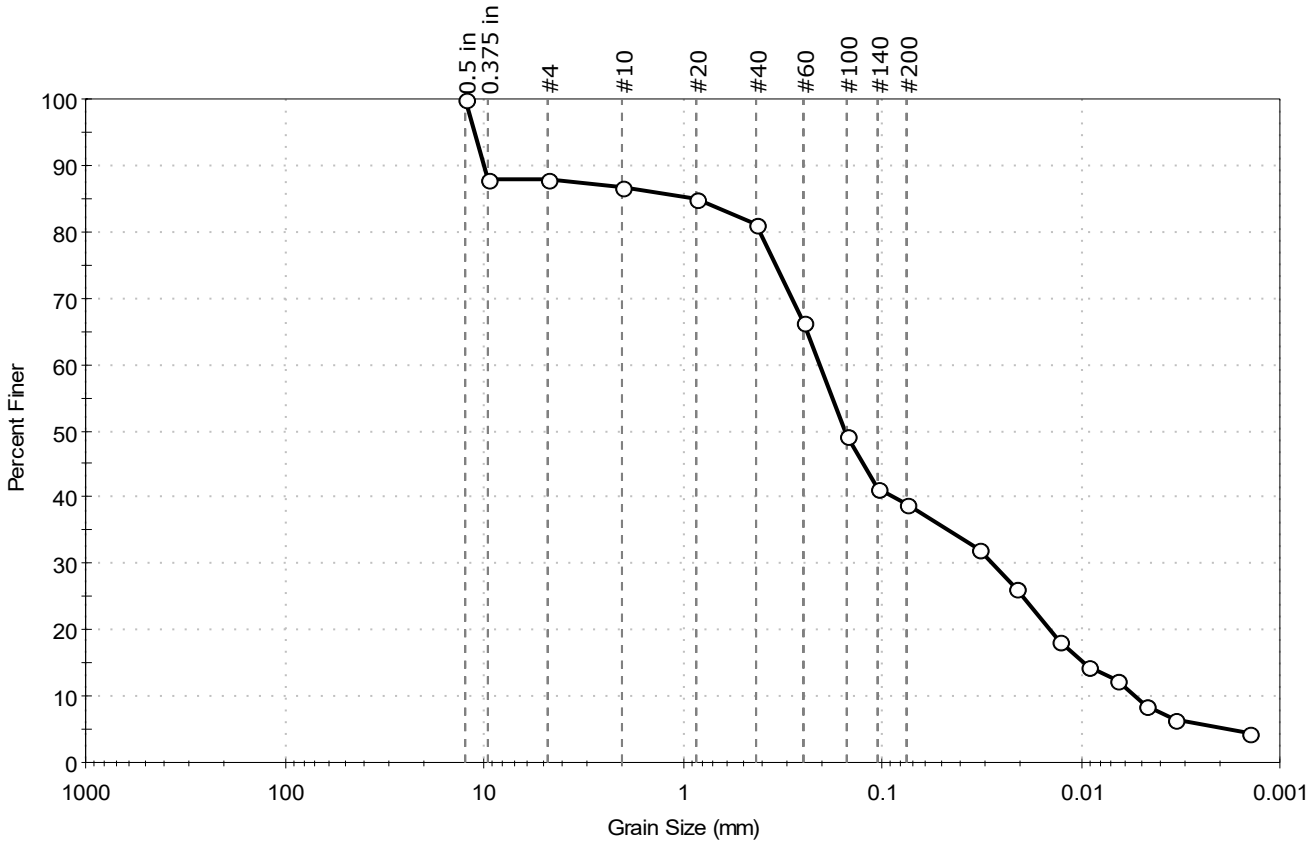
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-071SC-B-08-10-1910	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525978		

Test Comment: ---
Visual Description: Wet, very dark gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	12.0	48.9	39.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	88		
#4	4.75	88		
#10	2.00	87		
#20	0.85	85		
#40	0.42	81		
#60	0.25	66		
#100	0.15	49		
#140	0.11	41		
#200	0.075	39		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0328	32		
---	0.0212	26		
---	0.0129	18		
---	0.0093	14		
---	0.0067	12		
---	0.0047	9		
---	0.0033	7		
---	0.0014	5		

Coefficients

D_{85} = 0.8858 mm	D_{30} = 0.0279 mm
D_{60} = 0.2068 mm	D_{15} = 0.0097 mm
D_{50} = 0.1534 mm	D_{10} = 0.0054 mm
C_u = 38.296	C_c = 0.697

Classification

ASTM Silty SAND (SM)

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

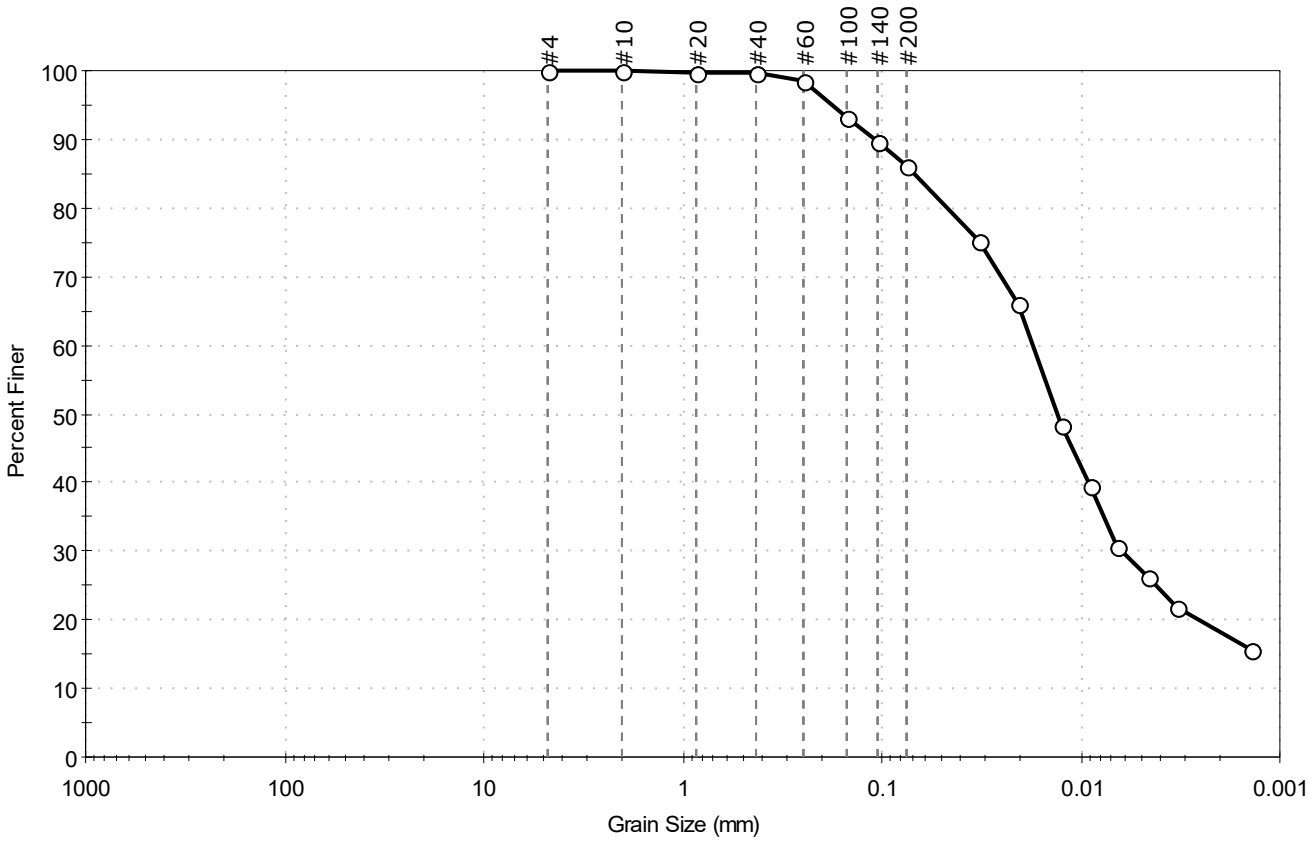
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-077SC-B-04-06-1910	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527543		

Test Comment: ---
Visual Description: Wet, dark olive brown silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	13.7	86.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	93		
#140	0.11	90		
#200	0.075	86		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0326	75		
---	0.0208	66		
---	0.0126	48		
---	0.0090	39		
---	0.0065	31		
---	0.0046	26		
---	0.0033	22		
---	0.0014	16		

Coefficients

D_{85} = 0.0682 mm D_{30} = 0.0062 mm
D_{60} = 0.0175 mm D_{15} = N/A
D_{50} = 0.0132 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM Elastic SILT (MH)

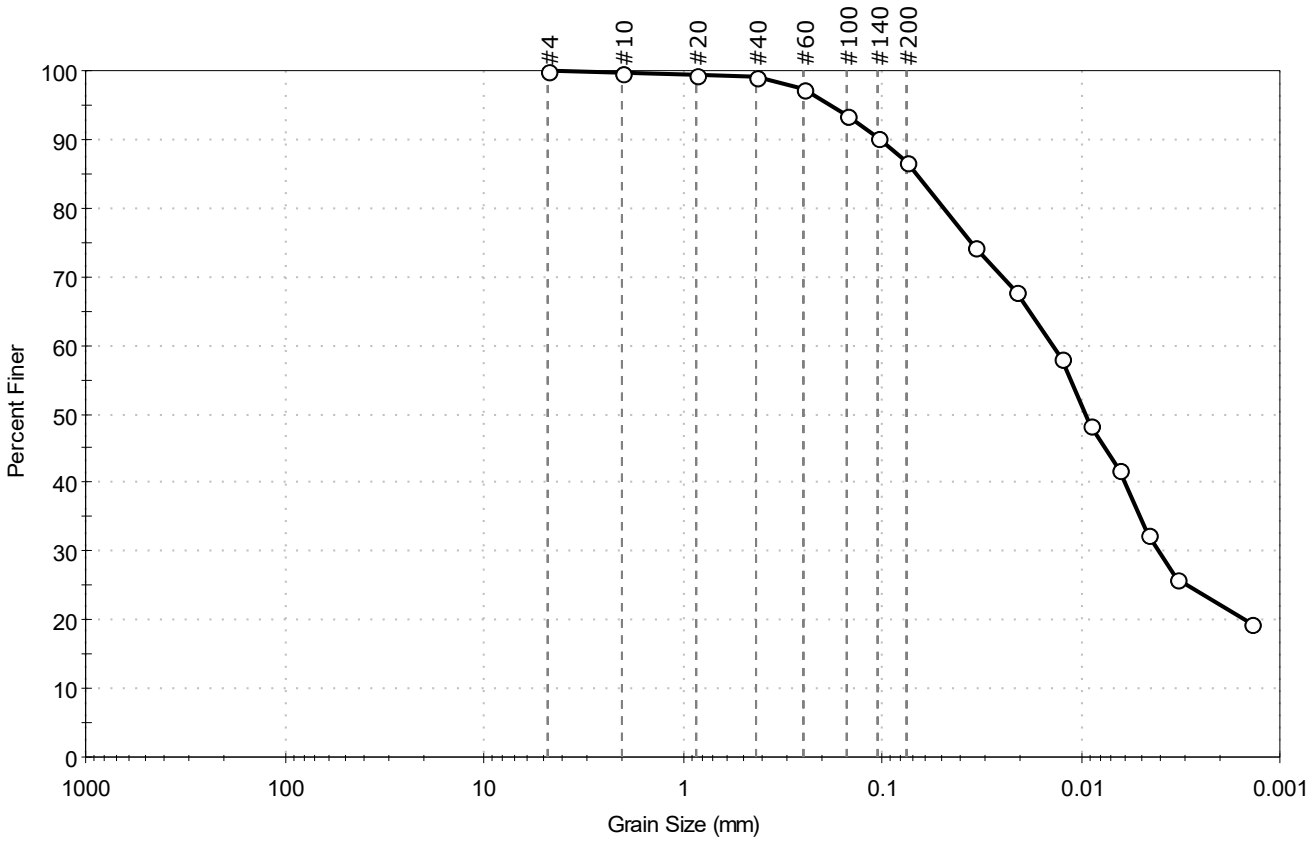
AASHTO Clayey Soils (A-7-5 (29))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-079SC-B-06-08-1910	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527544		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	13.4	86.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	97		
#100	0.15	94		
#140	0.11	90		
#200	0.075	87		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0341	74		
---	0.0213	68		
---	0.0125	58		
---	0.0090	48		
---	0.0064	42		
---	0.0046	32		
---	0.0033	26		
---	0.0014	19		

Coefficients

D_{85} = 0.0677 mm	D_{30} = 0.0041 mm
D_{60} = 0.0138 mm	D_{15} = N/A
D_{50} = 0.0095 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (24))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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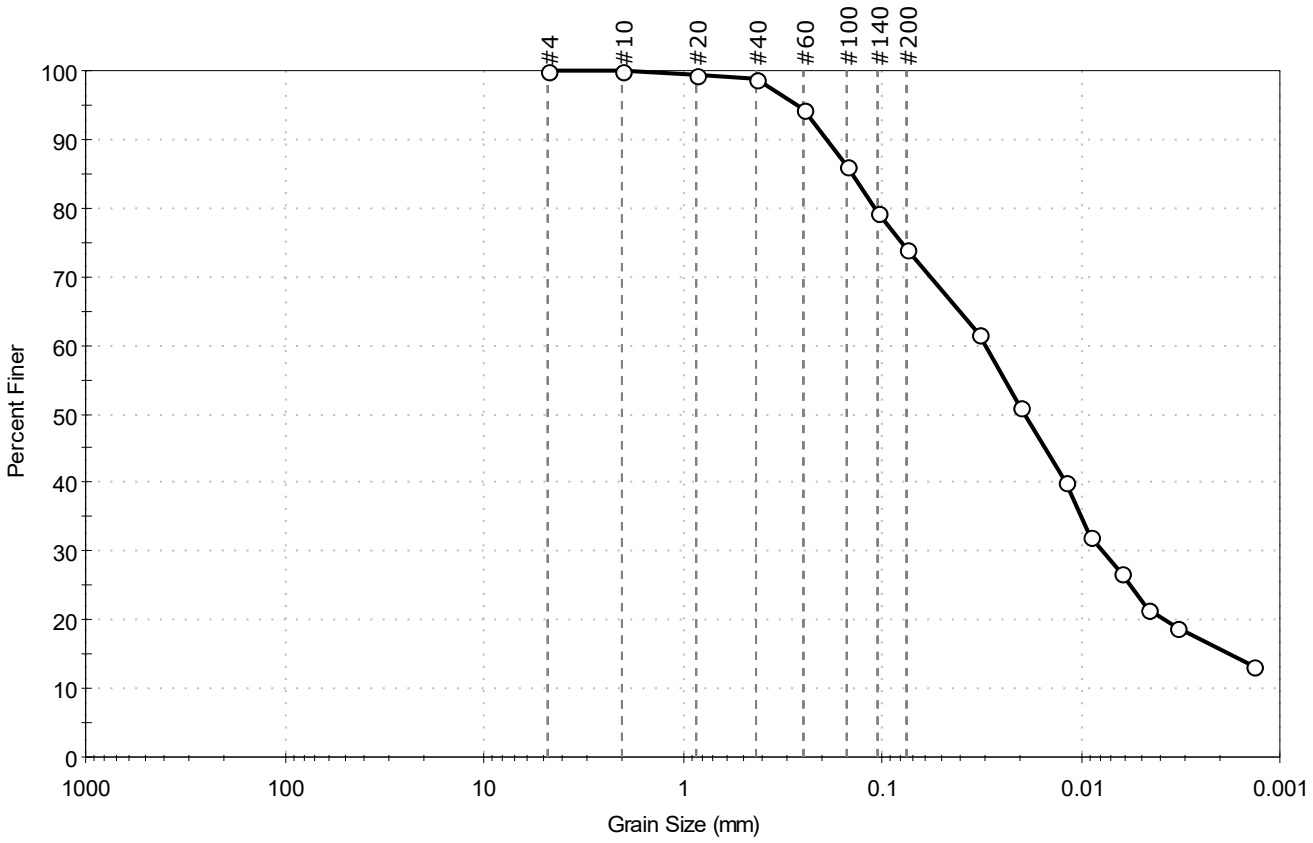
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-081SC-B-08-10-1910	Test Date:	10/14/19	Checked By:	bfs
Depth :	---	Test Id:	526421		

Test Comment: ---
Visual Description: Wet, dark grayish olive silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	26.0	73.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	94		
#100	0.15	86		
#140	0.11	79		
#200	0.075	74		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0325	62		
---	0.0204	51		
---	0.0121	40		
---	0.0089	32		
---	0.0063	27		
---	0.0046	21		
---	0.0033	19		
---	0.0014	13		

Coefficients

D_{85} = 0.1414 mm
D_{30} = 0.0078 mm
D_{60} = 0.0301 mm
D_{15} = 0.0018 mm
D_{50} = 0.0194 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (17))

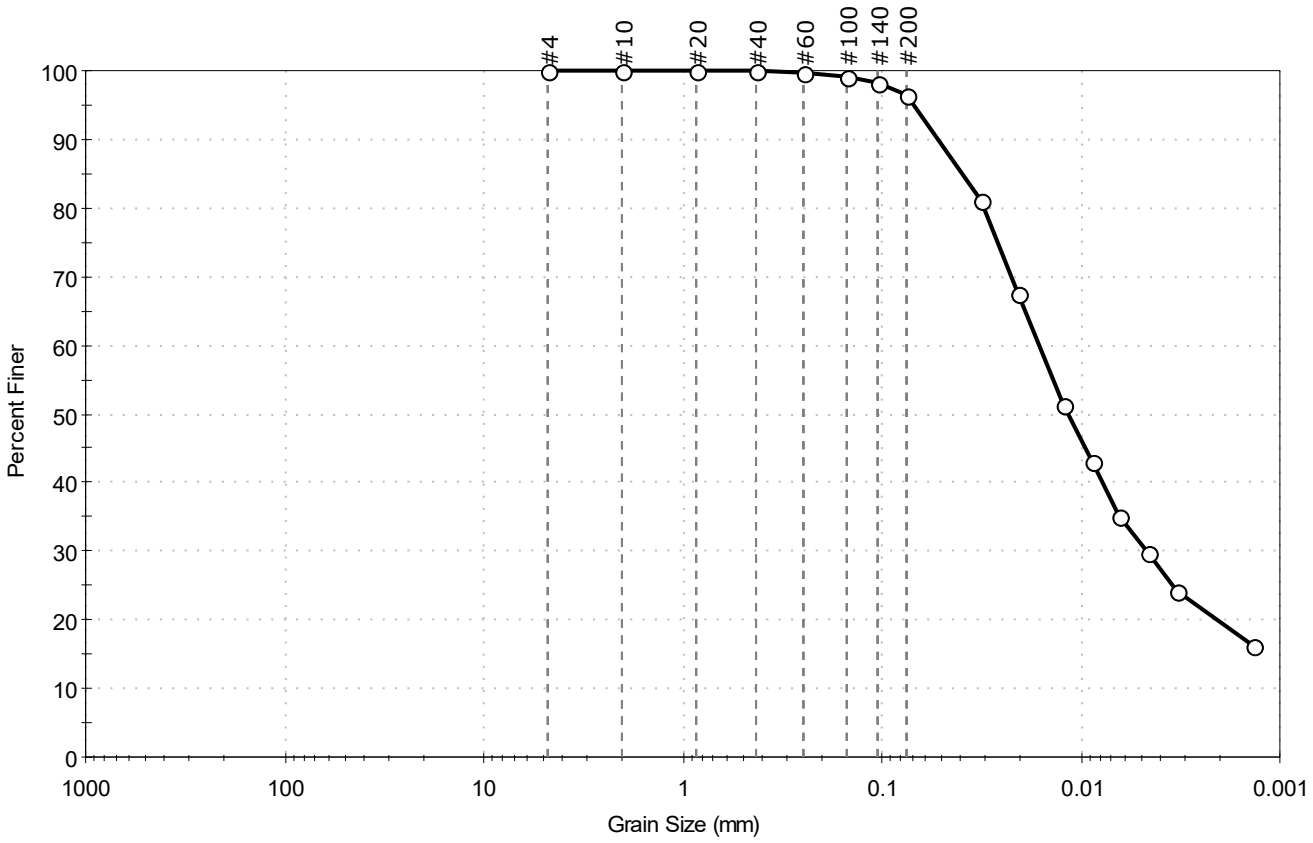
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-090SC-B-06-08-1910	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527553		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt				
Sample Comment:	Sample contains organics				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	3.4	96.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	99		
#140	0.11	98		
#200	0.075	97		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0322	81		
---	0.0207	68		
---	0.0123	51		
---	0.0089	43		
---	0.0064	35		
---	0.0046	30		
---	0.0033	24		
---	0.0014	16		

Coefficients

D_{85} = 0.0400 mm	D_{30} = 0.0047 mm
D_{60} = 0.0163 mm	D_{15} = N/A
D_{50} = 0.0117 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (51))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

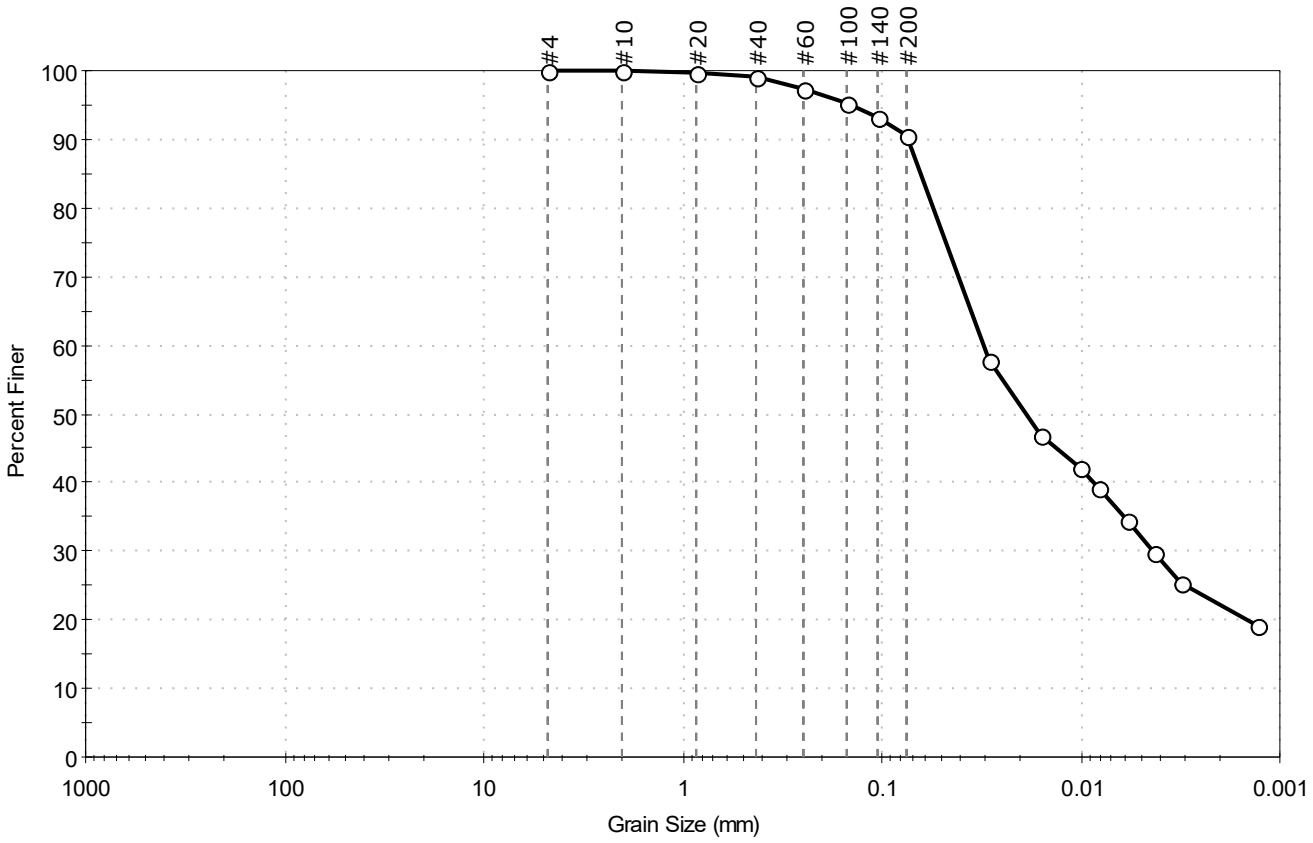
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-101SG-00-01-190924	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525300		
Test Comment:	---				
Visual Description:	Moist, very dark gray silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	9.4	90.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	97		
#100	0.15	95		
#140	0.11	93		
#200	0.075	91		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0289	58		
---	0.0160	47		
---	0.0101	42		
---	0.0082	39		
---	0.0058	35		
---	0.0043	30		
---	0.0031	25		
---	0.0013	19		

Coefficients

D_{85} = 0.0637 mm	D_{30} = 0.0043 mm
D_{60} = 0.0308 mm	D_{15} = N/A
D_{50} = 0.0189 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

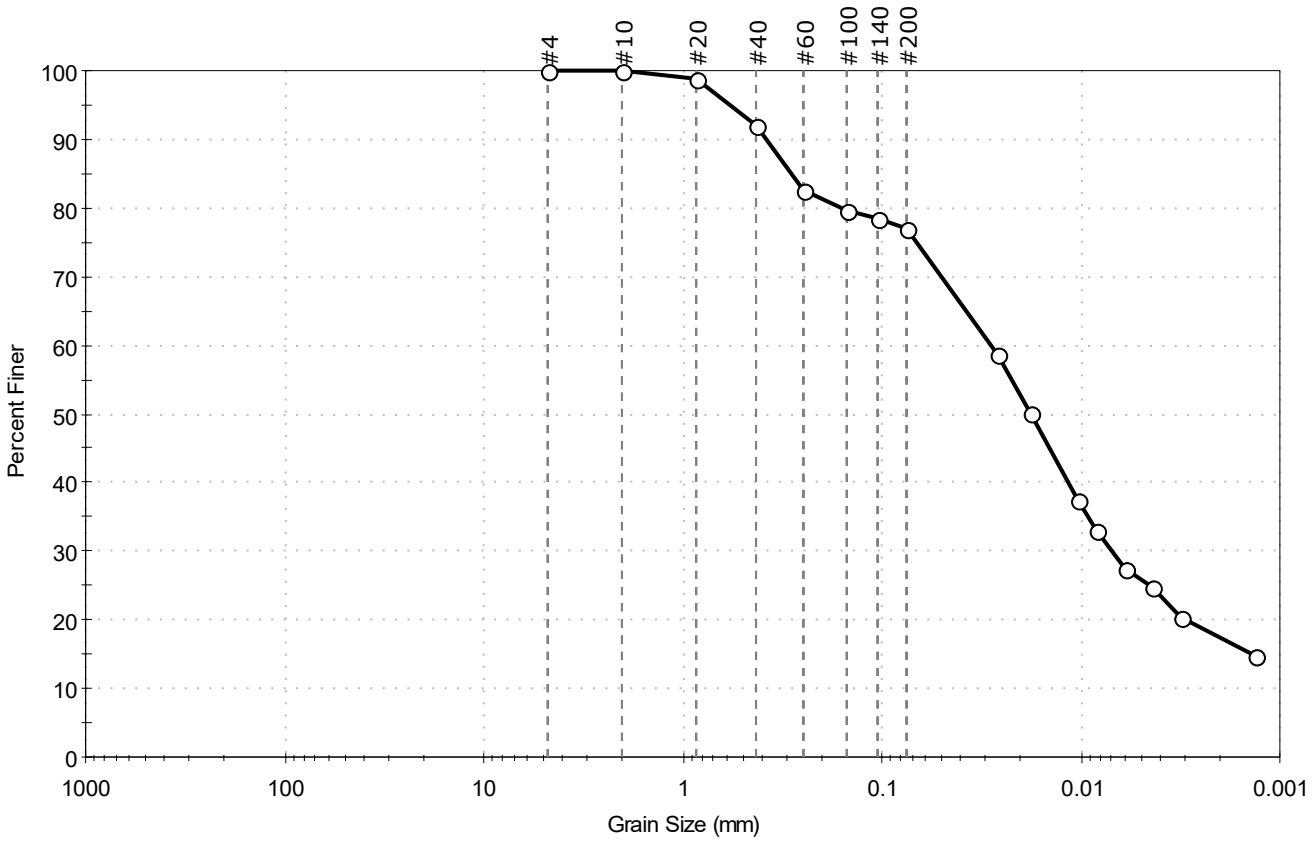
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-102SG-00-01-190924	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525301		

Test Comment: ---
Visual Description: Moist, very dark gray silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	23.1	76.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	92		
#60	0.25	83		
#100	0.15	80		
#140	0.11	78		
#200	0.075	77		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0264	59		
---	0.0179	50		
---	0.0104	37		
---	0.0083	33		
---	0.0059	27		
---	0.0044	25		
---	0.0032	20		
---	0.0013	15		

Coefficients

D_{85} = 0.2852 mm D_{30} = 0.0069 mm
D_{60} = 0.0283 mm D_{15} = 0.0014 mm
D_{50} = 0.0177 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

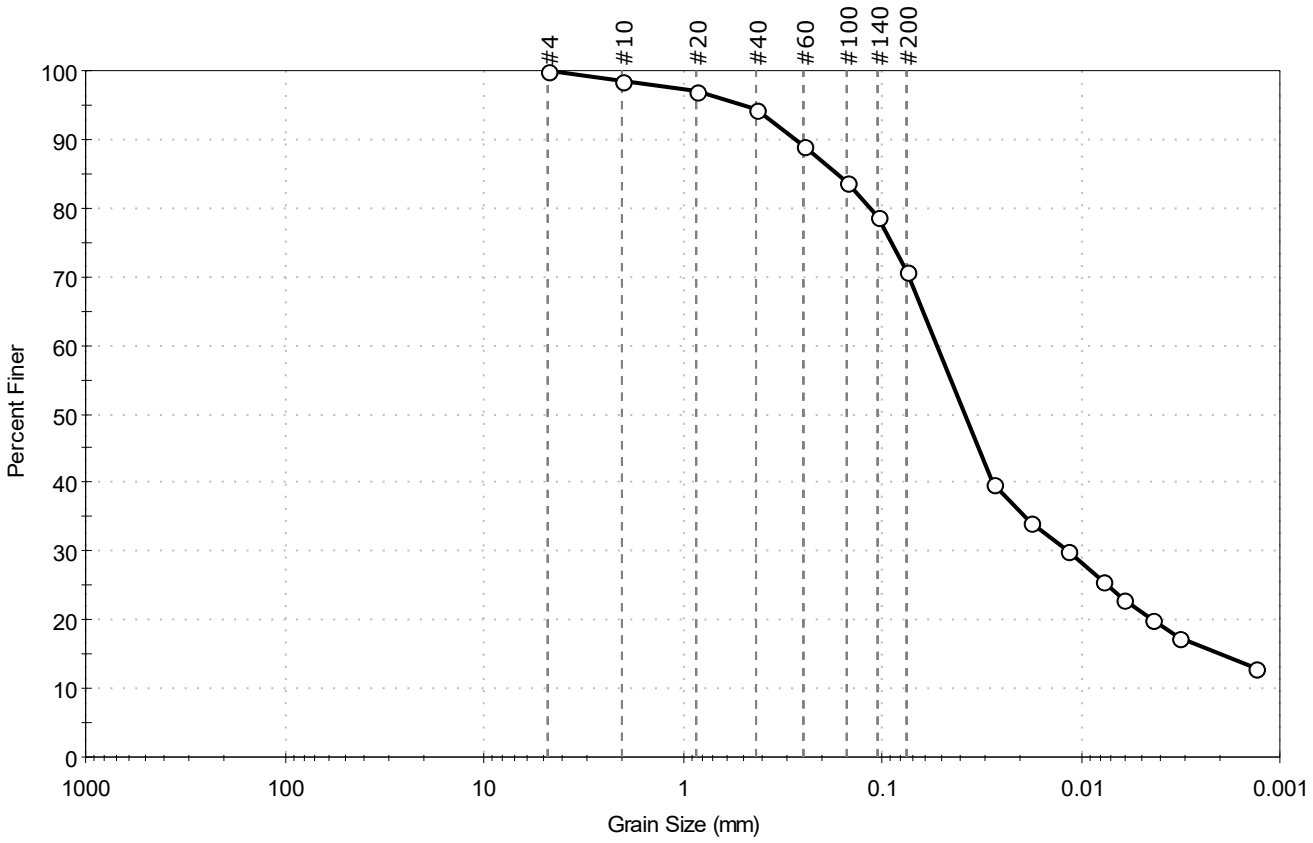
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-103SG-00-01-190924	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525302		

Test Comment: ---
Visual Description: Moist, very dark gray silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	29.2	70.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	97		
#40	0.42	94		
#60	0.25	89		
#100	0.15	84		
#140	0.11	79		
#200	0.075	71		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0277	40		
---	0.0179	34		
---	0.0117	30		
---	0.0078	26		
---	0.0061	23		
---	0.0044	20		
---	0.0032	17		
---	0.0013	13		

Coefficients

D_{85} = 0.1678 mm
D_{30} = 0.0116 mm
D_{60} = 0.0531 mm
D_{15} = 0.0020 mm
D_{50} = 0.0384 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

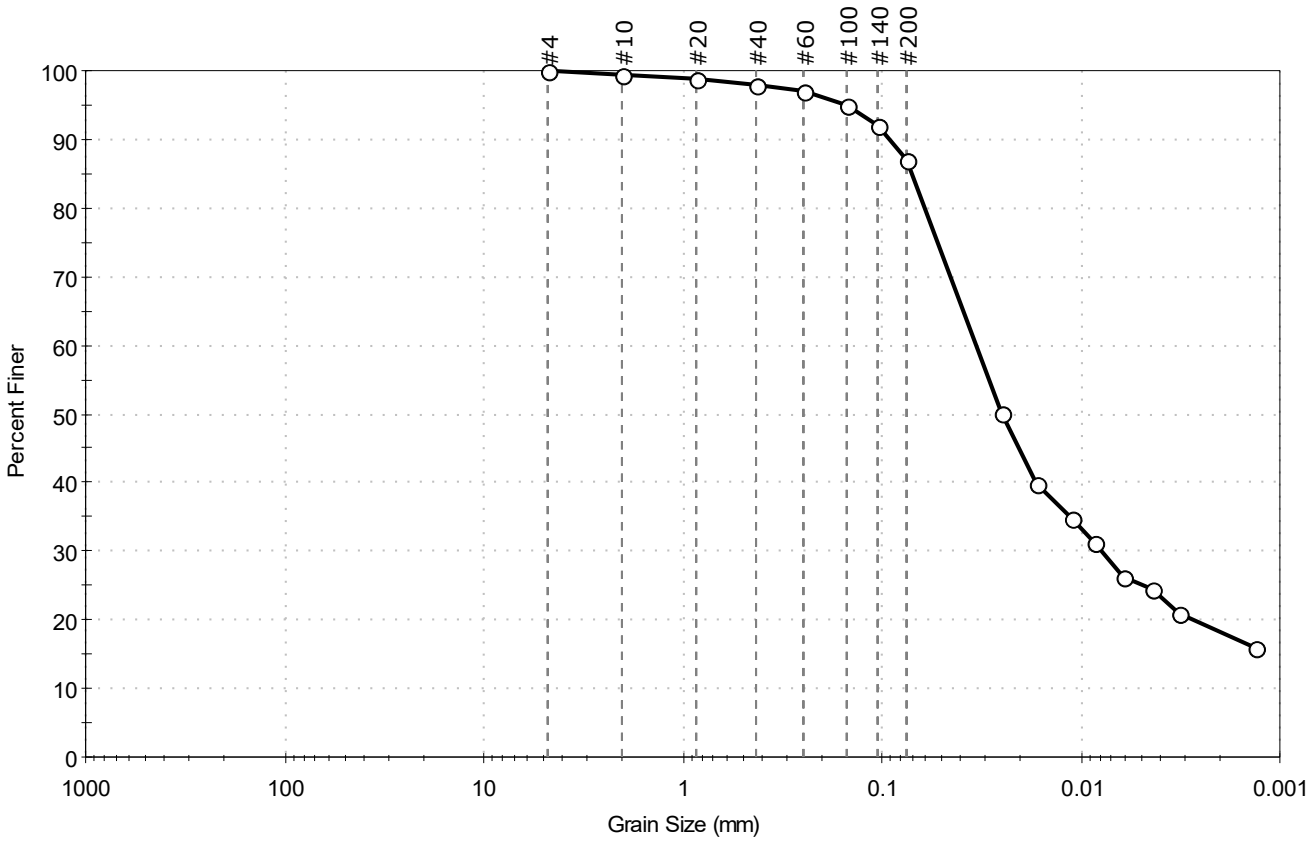
AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-104SG-00-01-190924	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525303		
Test Comment:	---				
Visual Description:	Moist, very dark gray silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	13.0	86.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	95		
#140	0.11	92		
#200	0.075	87		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0253	50		
---	0.0167	40		
---	0.0111	35		
---	0.0086	31		
---	0.0061	26		
---	0.0044	24		
---	0.0032	21		
---	0.0013	16		

Coefficients

D_{85} = 0.0709 mm D_{30} = 0.0079 mm
D_{60} = 0.0339 mm D_{15} = N/A
D_{50} = 0.0252 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

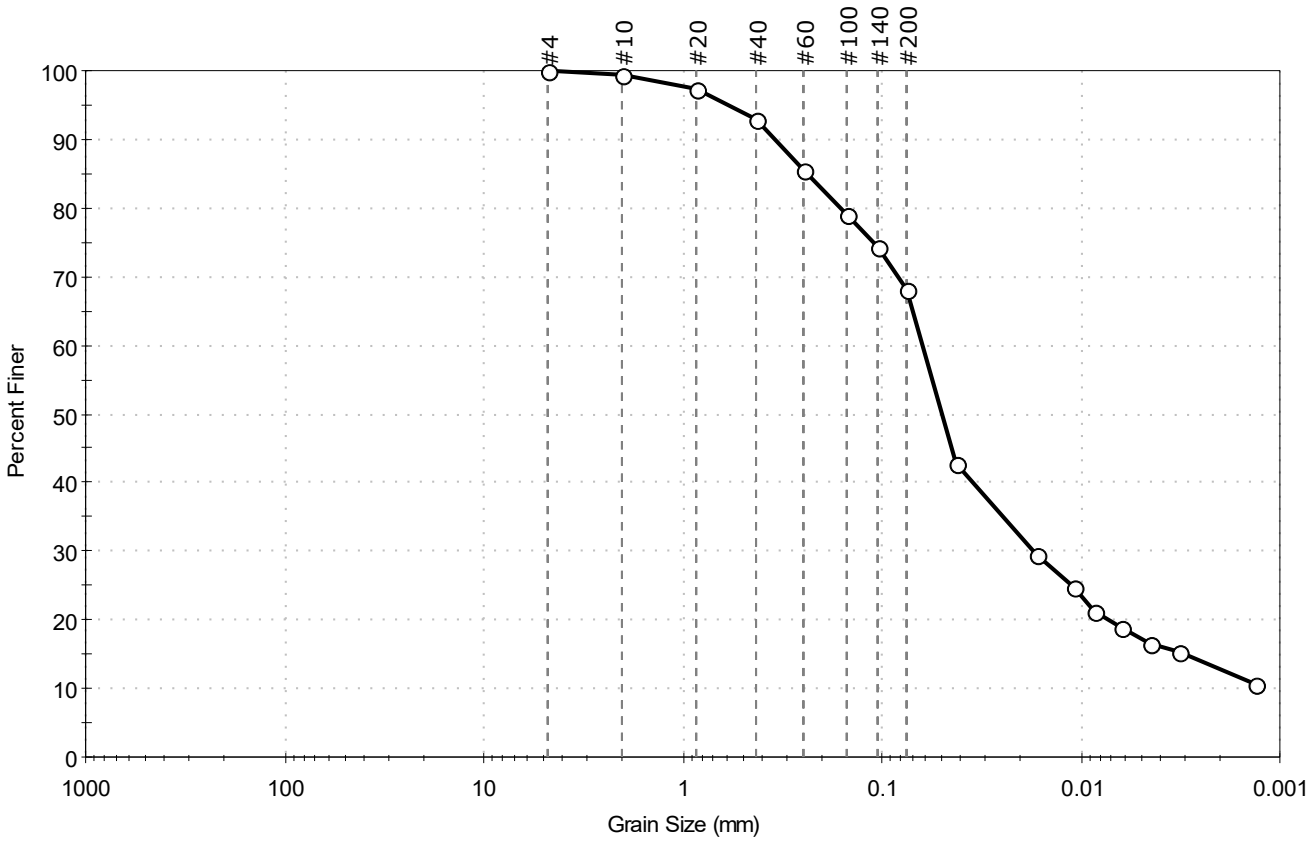
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-105SG-00-0.99-1909	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525304		

Test Comment: ---
Visual Description: Moist, very dark gray sandy silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	31.8	68.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	97		
#40	0.42	93		
#60	0.25	85		
#100	0.15	79		
#140	0.11	74		
#200	0.075	68		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0425	43		
---	0.0169	30		
---	0.0109	25		
---	0.0085	21		
---	0.0062	19		
---	0.0045	17		
---	0.0032	15		
---	0.0013	11		

Coefficients

D_{85} = 0.2406 mm
D_{30} = 0.0174 mm
D_{60} = 0.0625 mm
D_{15} = 0.0030 mm
D_{50} = 0.0501 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

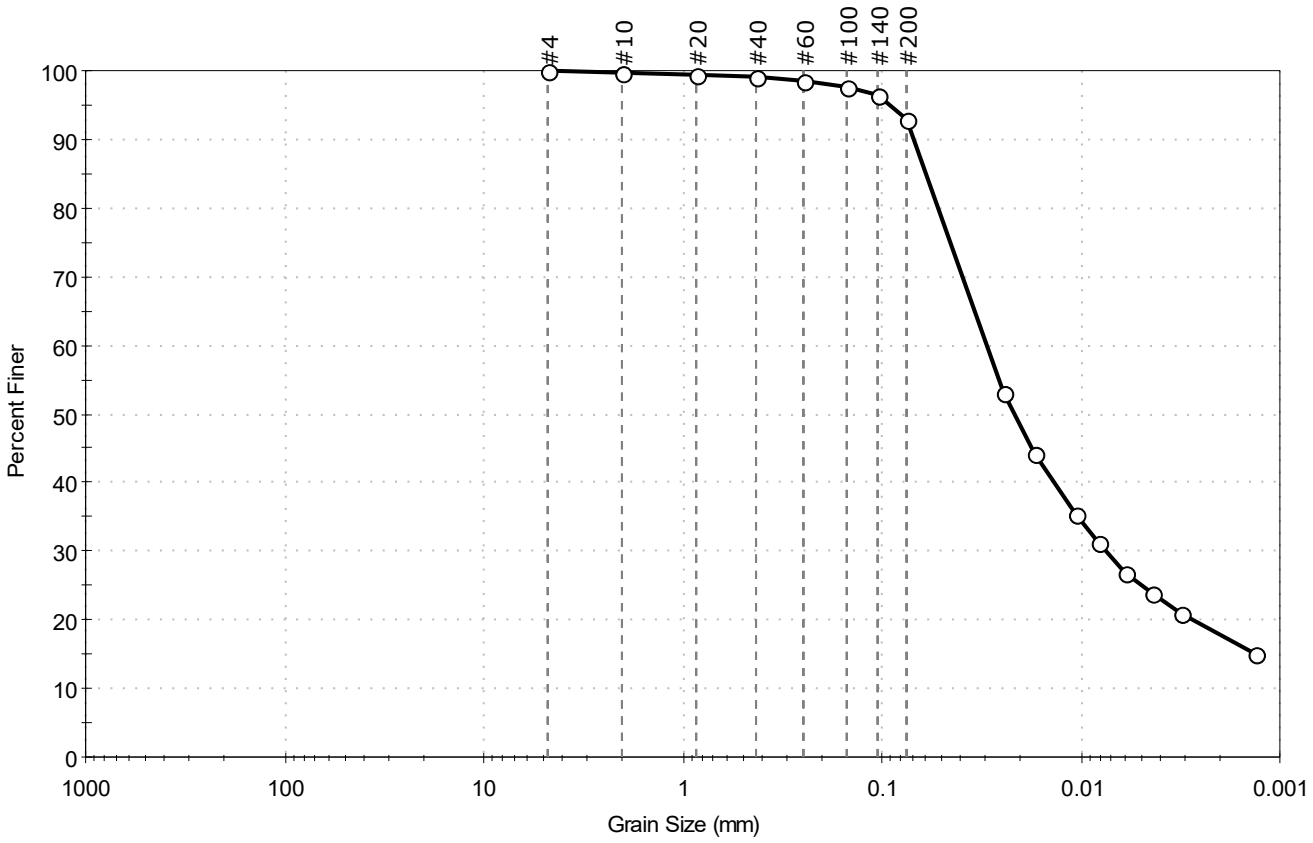
AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-106SG-00-01-190924	Test Date:	10/02/19	Checked By:	jsc
Depth :	---	Test Id:	525305		
Test Comment:	---				
Visual Description:	Moist, very dark gray silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	6.9	93.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0243	53		
---	0.0173	44		
---	0.0106	36		
---	0.0082	31		
---	0.0060	27		
---	0.0044	24		
---	0.0032	21		
---	0.0013	15		

Coefficients

D_{85} = 0.0598 mm	D_{30} = 0.0075 mm
D_{60} = 0.0295 mm	D_{15} = N/A
D_{50} = 0.0216 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

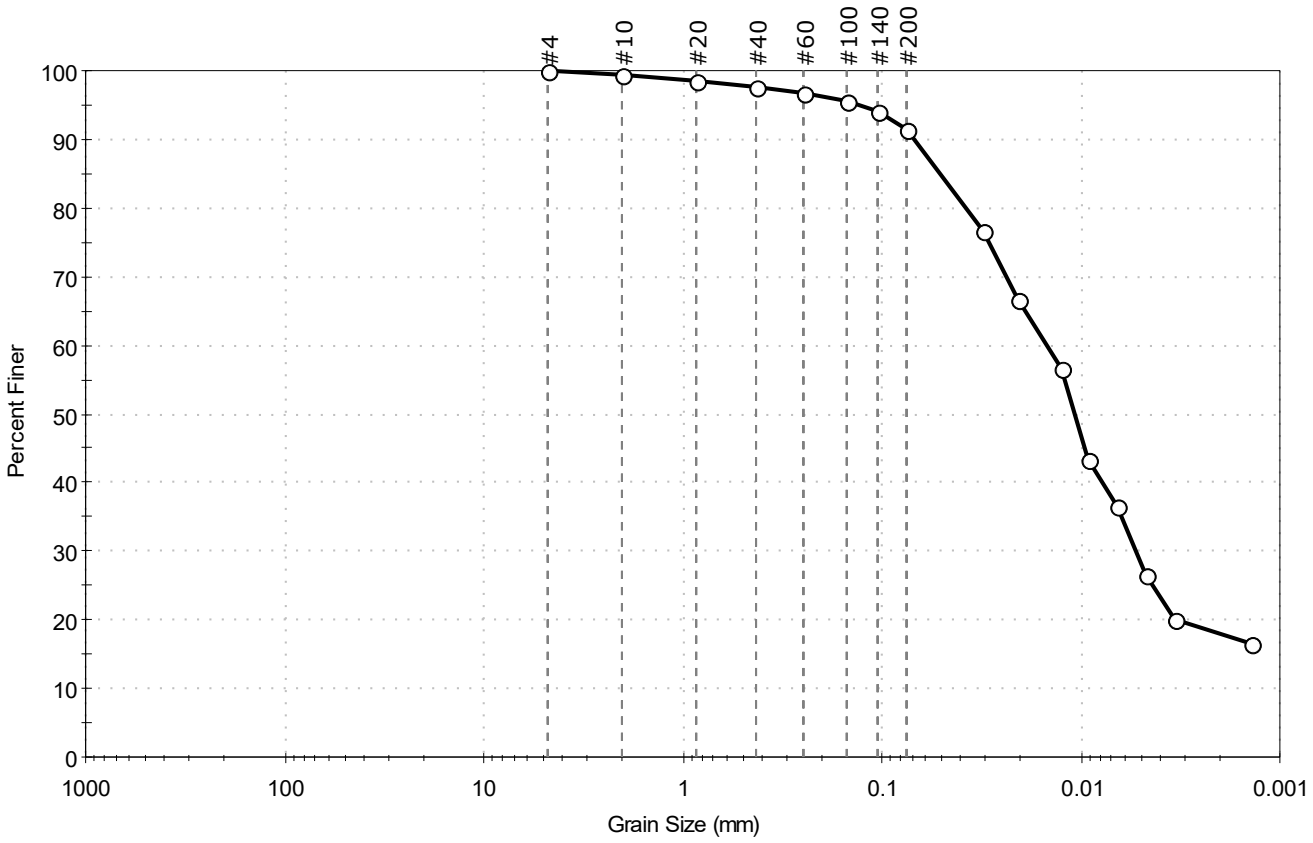
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-107SPT-00-04-19092	Test Date:	11/06/19	Checked By:	bfs
Depth :	---	Test Id:	527556		
Test Comment:	---				
Visual Description:	Wet, dark olive brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	8.5	91.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	96		
#140	0.11	94		
#200	0.075	91		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0308	77		
---	0.0208	67		
---	0.0125	57		
---	0.0091	43		
---	0.0065	37		
---	0.0047	27		
---	0.0033	20		
---	0.0014	17		

Coefficients

D_{85} = 0.0509 mm	D_{30} = 0.0052 mm
D_{60} = 0.0149 mm	D_{15} = N/A
D_{50} = 0.0107 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (53))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

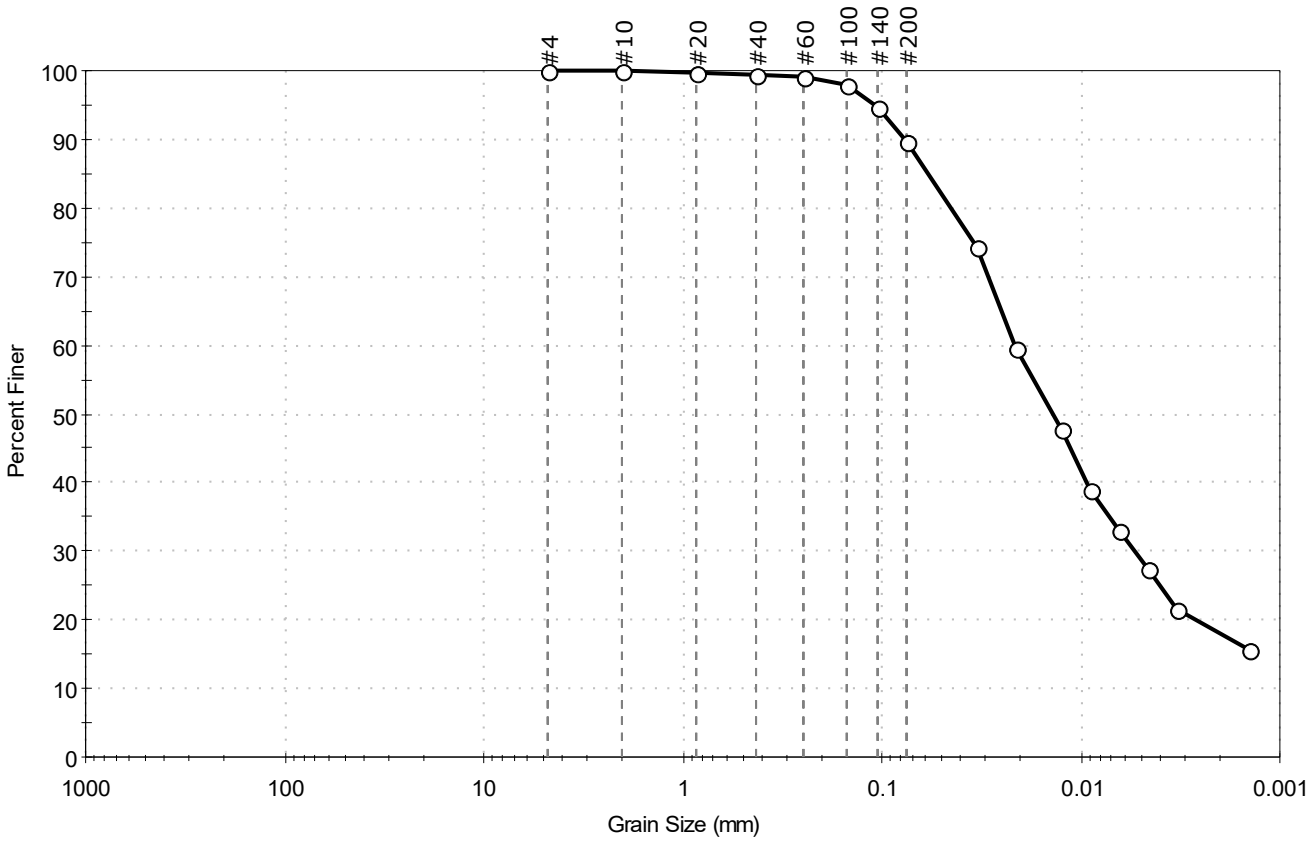
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-107SPT-04-09-19092	Test Date:	11/06/19	Checked By:	bfs
Depth :	---	Test Id:	527557		
Test Comment:	---				
Visual Description:	Wet, dark olive brown silt				
Sample Comment:	Sample contains organics				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	10.2	89.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	98		
#140	0.11	95		
#200	0.075	90		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0330	74		
---	0.0213	60		
---	0.0126	48		
---	0.0091	39		
---	0.0065	33		
---	0.0046	27		
---	0.0033	21		
---	0.0014	16		

Coefficients

D_{85} = 0.0583 mm	D_{30} = 0.0054 mm
D_{60} = 0.0216 mm	D_{15} = N/A
D_{50} = 0.0138 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (30))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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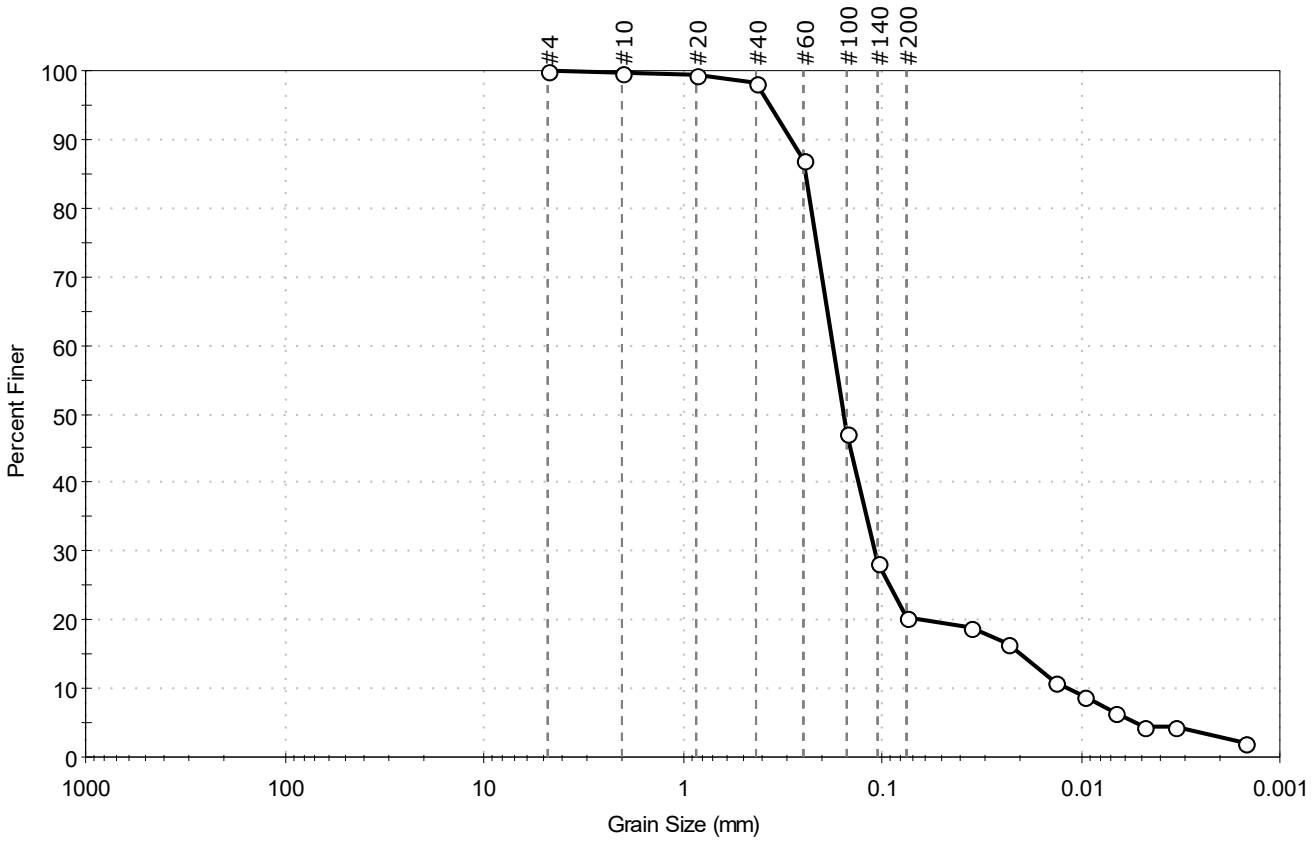
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-107SPT-17-18-19092	Test Date:	11/06/19	Checked By:	bfs
Depth :	---	Test Id:	527558		

Test Comment: ---
Visual Description: Moist, dark gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	79.6	20.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	98		
#60	0.25	87		
#100	0.15	47		
#140	0.11	28		
#200	0.075	20		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0355	19		
---	0.0233	17		
---	0.0135	11		
---	0.0096	9		
---	0.0068	7		
---	0.0048	4		
---	0.0034	4		
---	0.0015	2		

Coefficients

D_{85} = 0.2437 mm D_{30} = 0.1094 mm
D_{60} = 0.1767 mm D_{15} = 0.0199 mm
D_{50} = 0.1554 mm D_{10} = 0.0114 mm
C_u = 15.500 C_c = 5.941

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

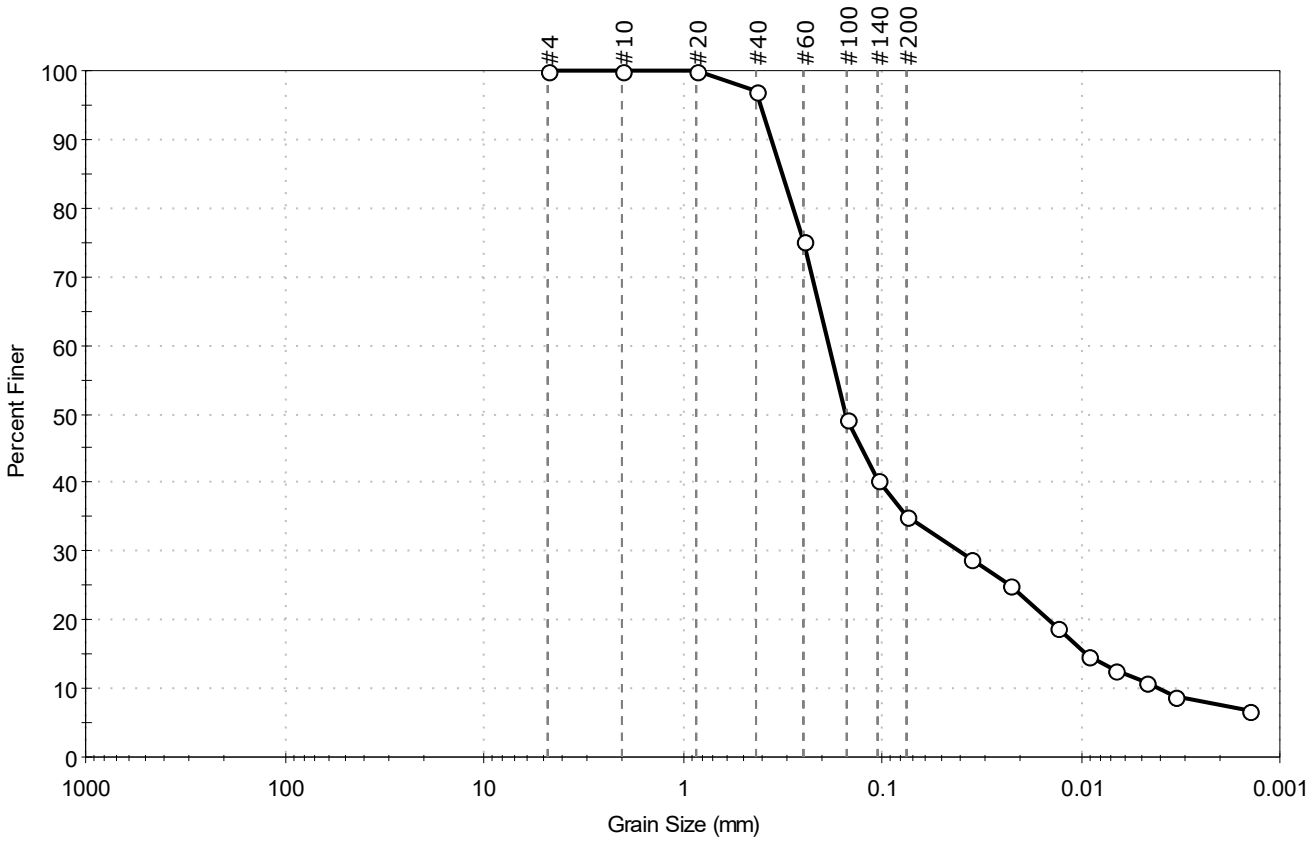
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-107SPT-62-64-19092	Test Date:	11/06/19	Checked By:	bfs
Depth :	---	Test Id:	527559		

Test Comment: ---
Visual Description: Moist, dark olive brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	64.8	35.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	97		
#60	0.25	75		
#100	0.15	49		
#140	0.11	40		
#200	0.075	35		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0357	29		
---	0.0225	25		
---	0.0131	19		
---	0.0093	15		
---	0.0067	13		
---	0.0047	11		
---	0.0034	9		
---	0.0014	7		

Coefficients

D_{85} = 0.3165 mm D_{30} = 0.0401 mm
D_{60} = 0.1854 mm D_{15} = 0.0094 mm
D_{50} = 0.1524 mm D_{10} = 0.0042 mm
C_u = 44.143 C_c = 2.065

Classification

ASTM Silty SAND (SM)

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

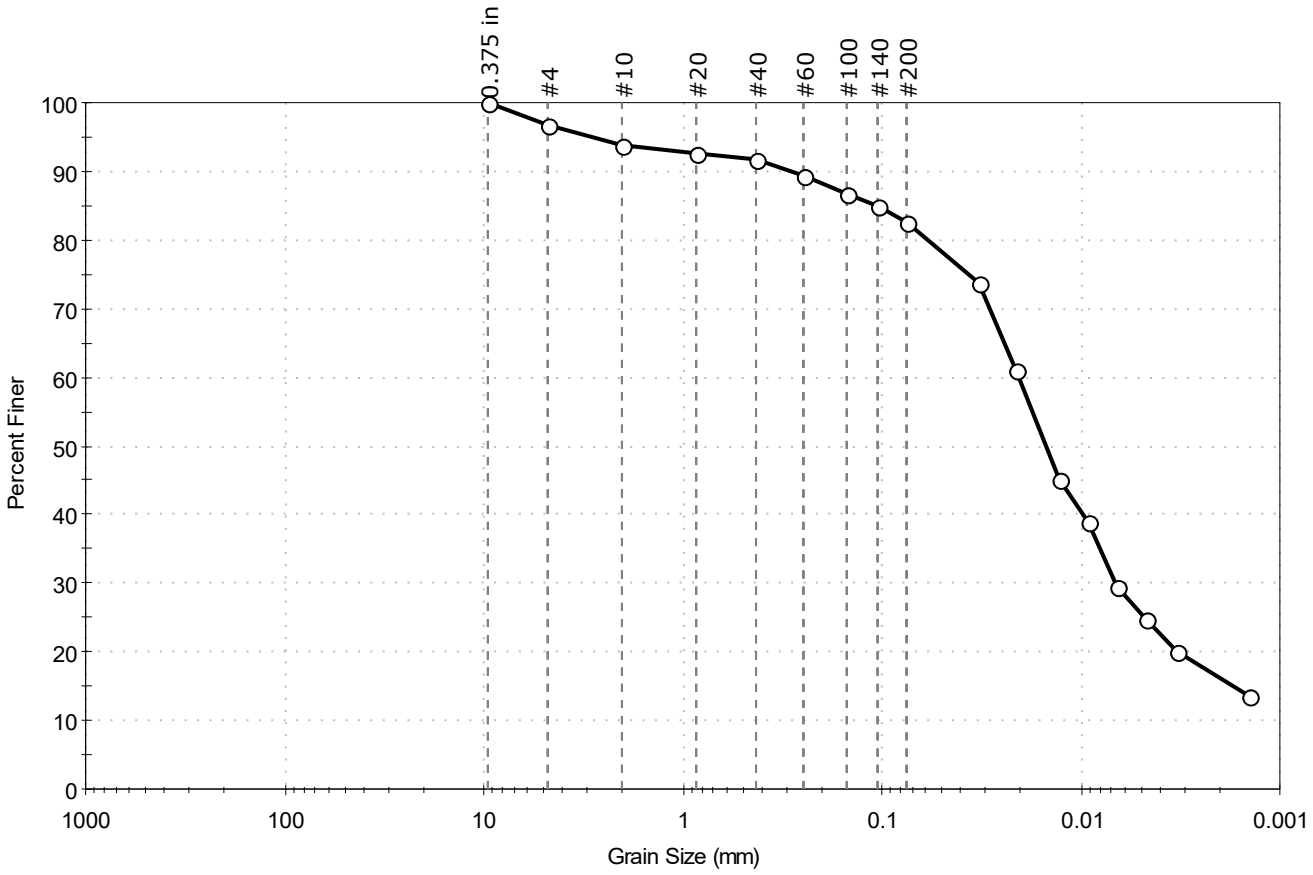
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-108SPT-00-6.4-1910	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527560		

Test Comment: ---
Visual Description: Wet, olive brown silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.3	14.2	82.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	97		
#10	2.00	94		
#20	0.85	93		
#40	0.42	92		
#60	0.25	89		
#100	0.15	87		
#140	0.11	85		
#200	0.075	82		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0328	74		
---	0.0213	61		
---	0.0127	45		
---	0.0091	39		
---	0.0066	29		
---	0.0047	25		
---	0.0033	20		
---	0.0014	14		

Coefficients

D_{85} = 0.1081 mm D_{30} = 0.0067 mm
D_{60} = 0.0206 mm D_{15} = 0.0017 mm
D_{50} = 0.0149 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (41))

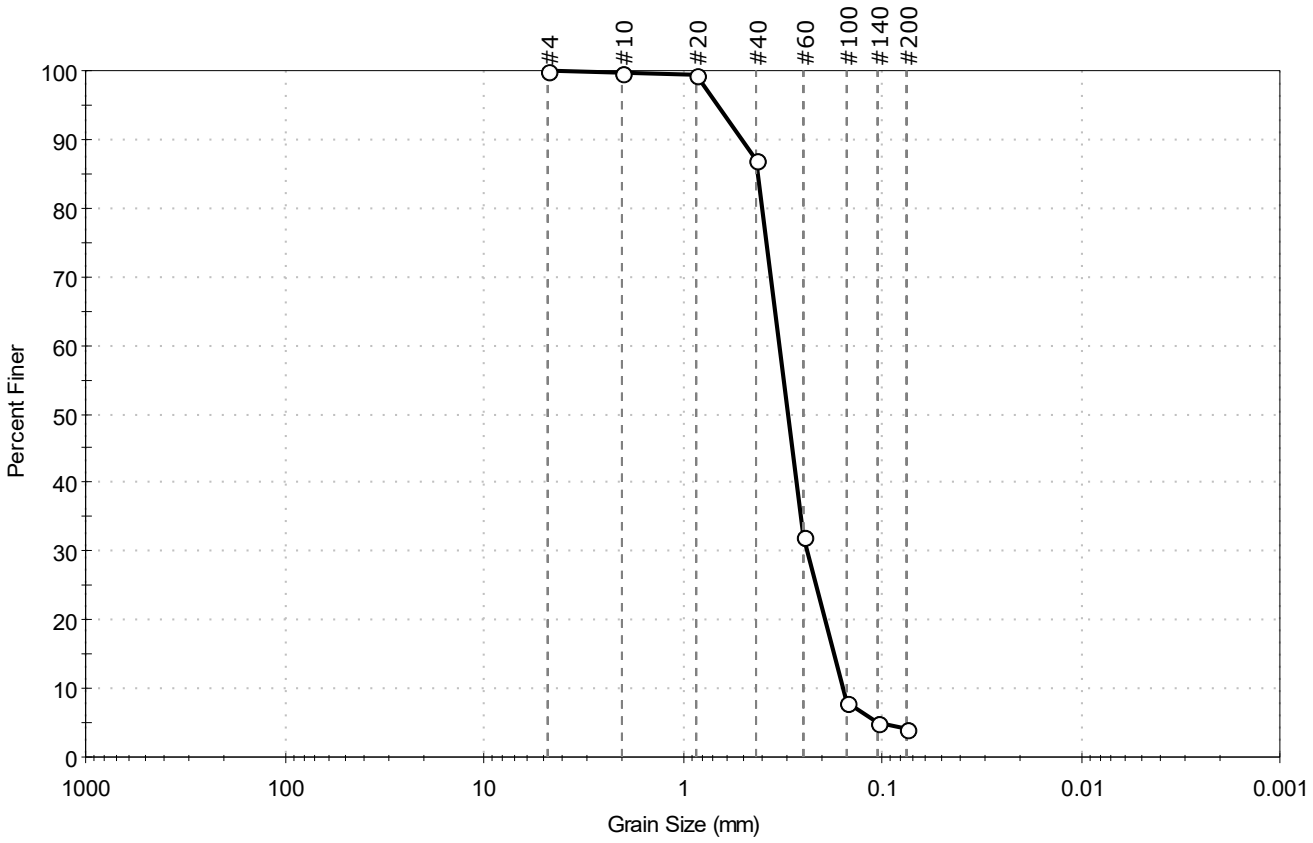
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-108SPT-14-33.5-191(	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527561		
Test Comment:	---				
Visual Description:	Moist, dark olive brown sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	95.9	4.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	87		
#60	0.25	32		
#100	0.15	8		
#140	0.11	5		
#200	0.075	4.1		

Coefficients

D_{85} = 0.4167 mm	D_{30} = 0.2394 mm
D_{60} = 0.3274 mm	D_{15} = 0.1743 mm
D_{50} = 0.2973 mm	D_{10} = 0.1568 mm
C_u = 2.088	C_c = 1.116

Classification

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

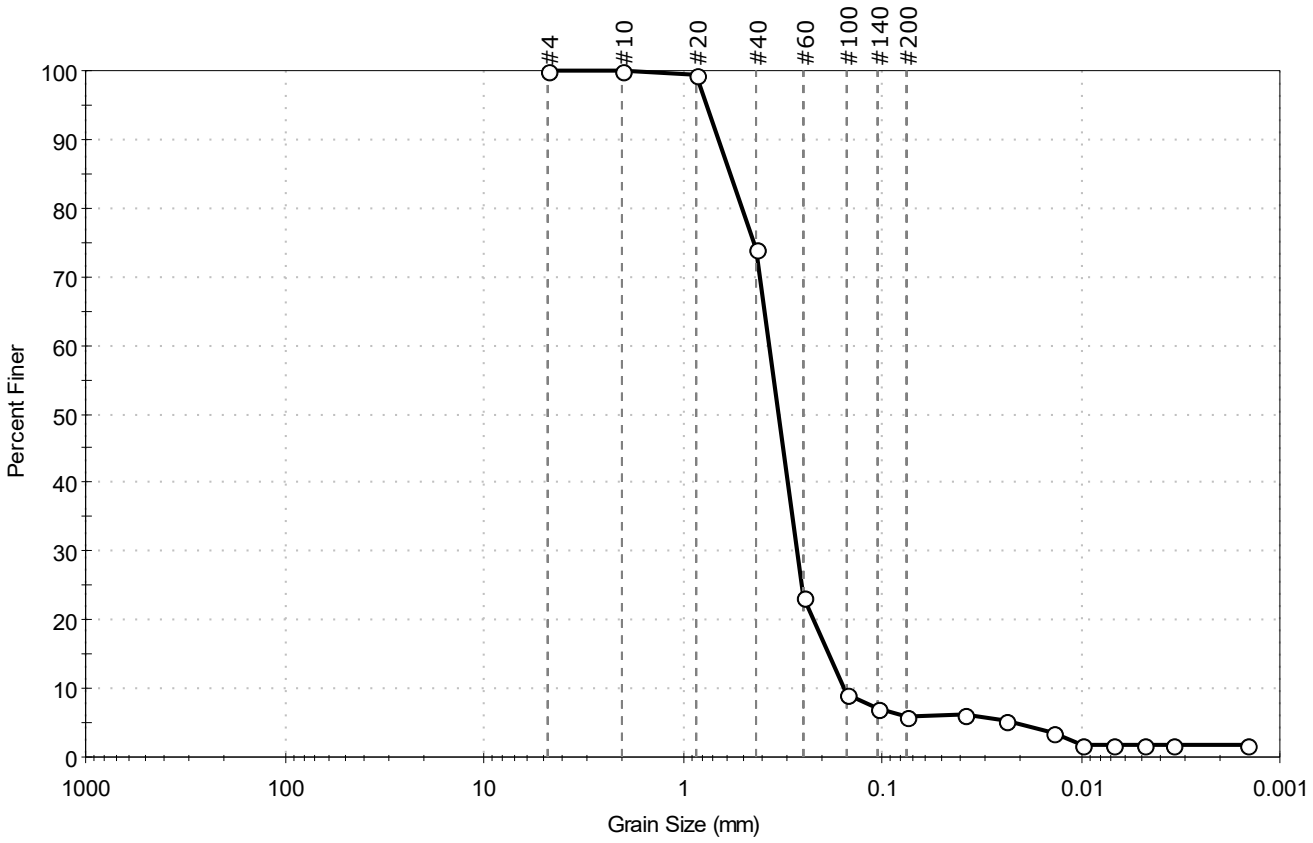
Sand/Gravel Hardness : ---

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-108SPT-33.5-66.5-19	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527562		

Test Comment: ---
Visual Description: Moist, dark gray sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	94.0	6.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	74		
#60	0.25	23		
#100	0.15	9		
#140	0.11	7		
#200	0.075	6.0		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0385	6		
---	0.0237	5		
---	0.0137	4		
---	0.0098	2		
---	0.0069	2		
---	0.0049	2		
---	0.0034	2		
---	0.0015	2		

Coefficients

D_{85} = 0.5740 mm D_{30} = 0.2682 mm
D_{60} = 0.3670 mm D_{15} = 0.1849 mm
D_{50} = 0.3306 mm D_{10} = 0.1541 mm
C_u = 2.382 C_c = 1.272

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

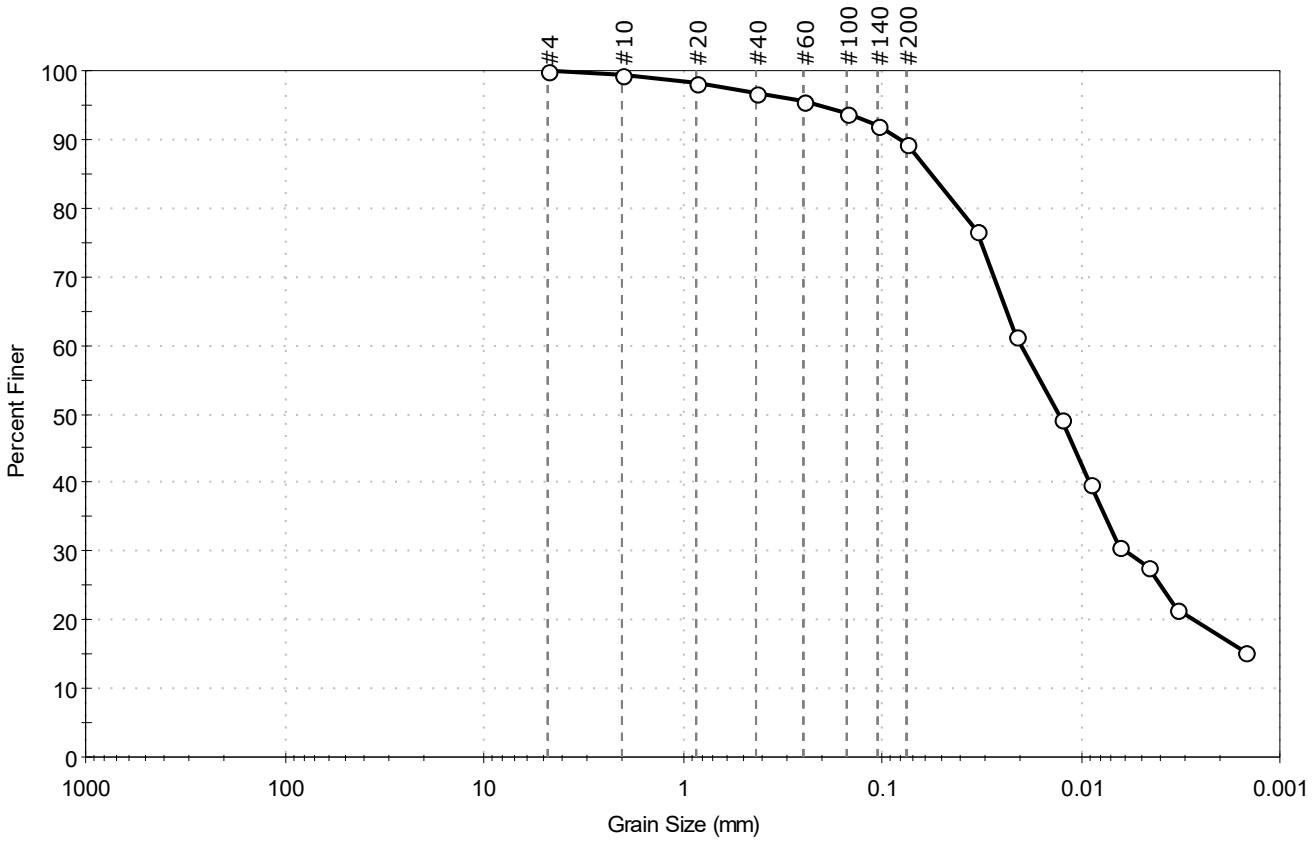
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-109SPT-00-6.5-1910	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527563		
Test Comment:	---				
Visual Description:	Wet, very dark olive silt				
Sample Comment:	Sample contains organics				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	10.6	89.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	97		
#60	0.25	96		
#100	0.15	94		
#140	0.11	92		
#200	0.075	89		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0332	77		
---	0.0211	61		
---	0.0125	49		
---	0.0090	40		
---	0.0065	31		
---	0.0046	28		
---	0.0033	22		
---	0.0015	15		

Coefficients

D_{85} = 0.0563 mm	D_{30} = 0.0060 mm
D_{60} = 0.0199 mm	D_{15} = N/A
D_{50} = 0.0130 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (48))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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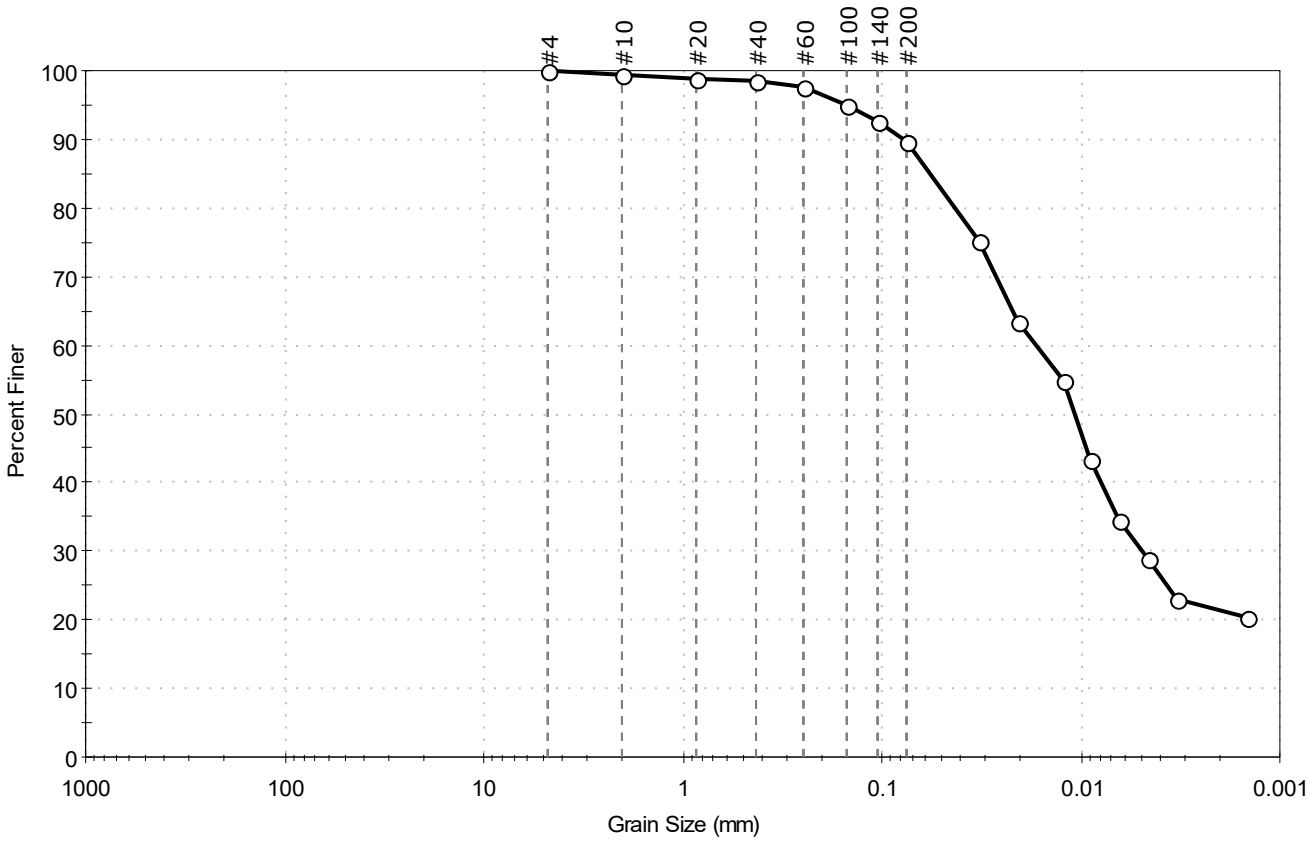
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-109SPT-16.5-18.1-19	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527564		

Test Comment: ---
Visual Description: Moist, dark olive brown silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	10.4	89.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	98		
#100	0.15	95		
#140	0.11	93		
#200	0.075	90		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0329	75		
---	0.0209	64		
---	0.0123	55		
---	0.0089	43		
---	0.0064	35		
---	0.0046	29		
---	0.0033	23		
---	0.0015	20		

Coefficients

D_{85} = 0.0578 mm	D_{30} = 0.0049 mm
D_{60} = 0.0168 mm	D_{15} = N/A
D_{50} = 0.0107 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (38))

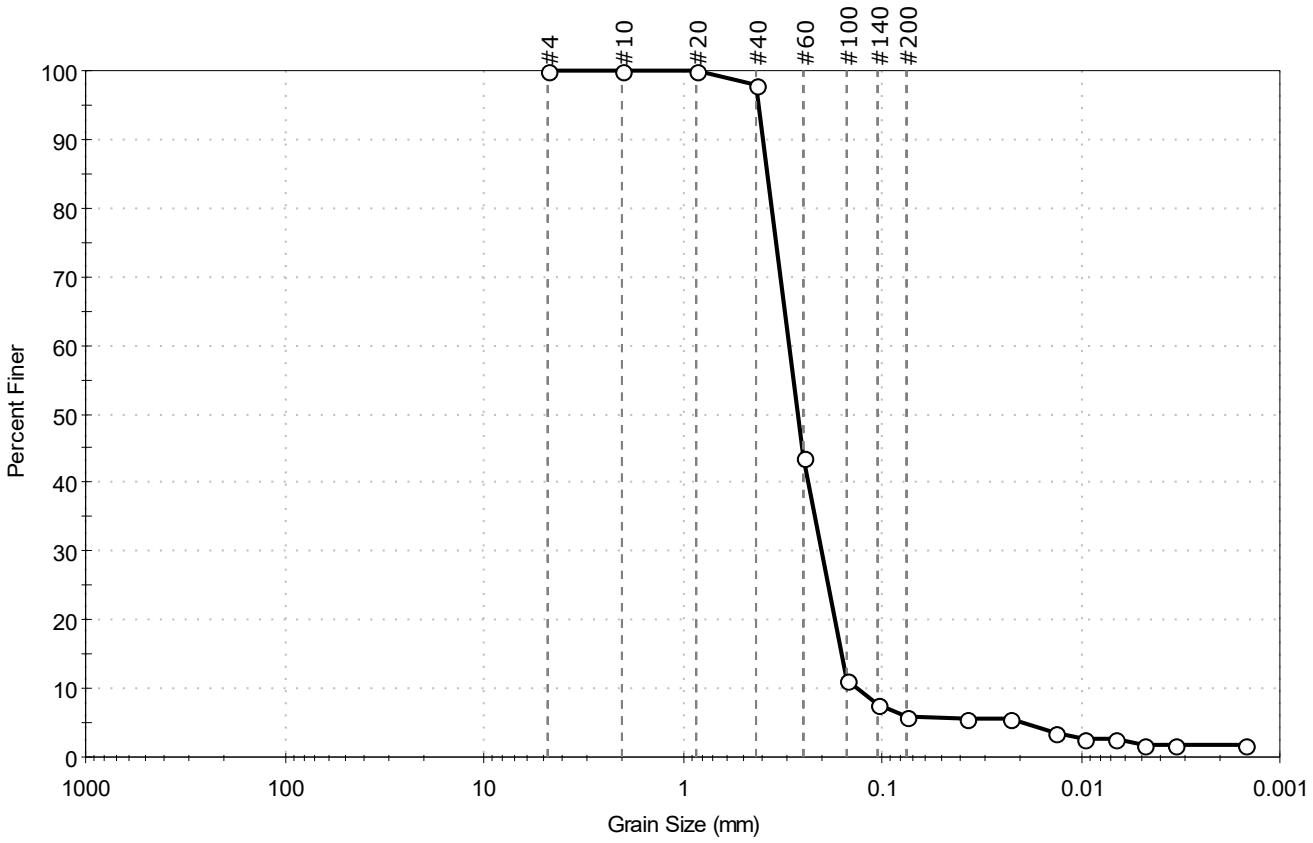
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-109SPT-22-30-19100	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527565		
Test Comment:	---				
Visual Description:	Moist, olive brown sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	94.0	6.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	98		
#60	0.25	44		
#100	0.15	11		
#140	0.11	8		
#200	0.075	6.0		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0374	5		
---	0.0229	5		
---	0.0134	4		
---	0.0095	3		
---	0.0067	3		
---	0.0048	2		
---	0.0034	2		
---	0.0015	2		

Coefficients

D_{85} = 0.3747 mm	D_{30} = 0.2015 mm
D_{60} = 0.2933 mm	D_{15} = 0.1592 mm
D_{50} = 0.2659 mm	D_{10} = 0.1336 mm
C_u = 2.195	C_c = 1.036

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

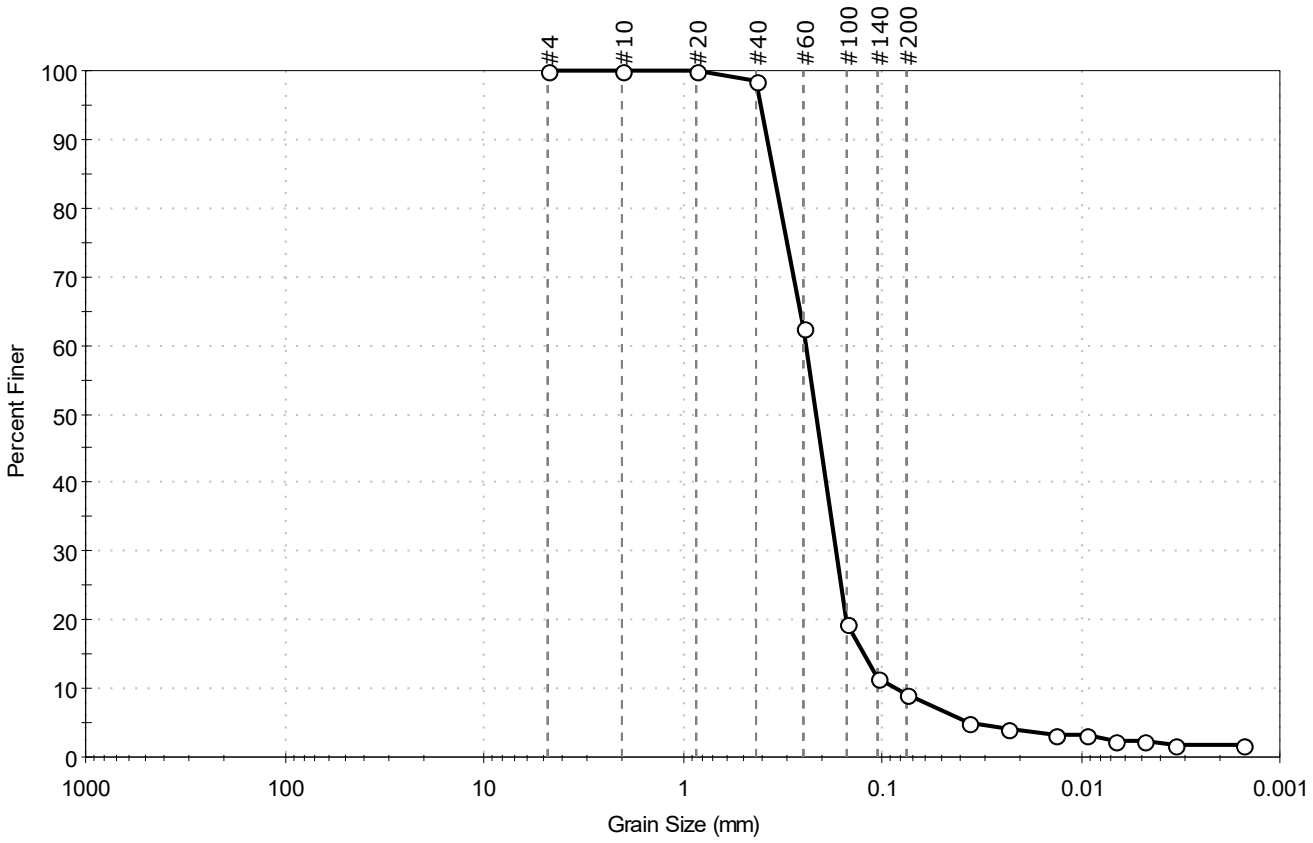
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-109SPT-35.5-48.3-19	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527566		
Test Comment:	---				
Visual Description:	Moist, olive brown sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	90.8	9.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	98		
#60	0.25	63		
#100	0.15	20		
#140	0.11	11		
#200	0.075	9.2		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0365	5		
---	0.0233	4		
---	0.0133	3		
---	0.0095	3		
---	0.0067	2		
---	0.0048	2		
---	0.0034	2		
---	0.0015	2		

Coefficients

D_{85} = 0.3483 mm	D_{30} = 0.1699 mm
D_{60} = 0.2426 mm	D_{15} = 0.1233 mm
D_{50} = 0.2154 mm	D_{10} = 0.0849 mm
C_u = 2.857	C_c = 1.401

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

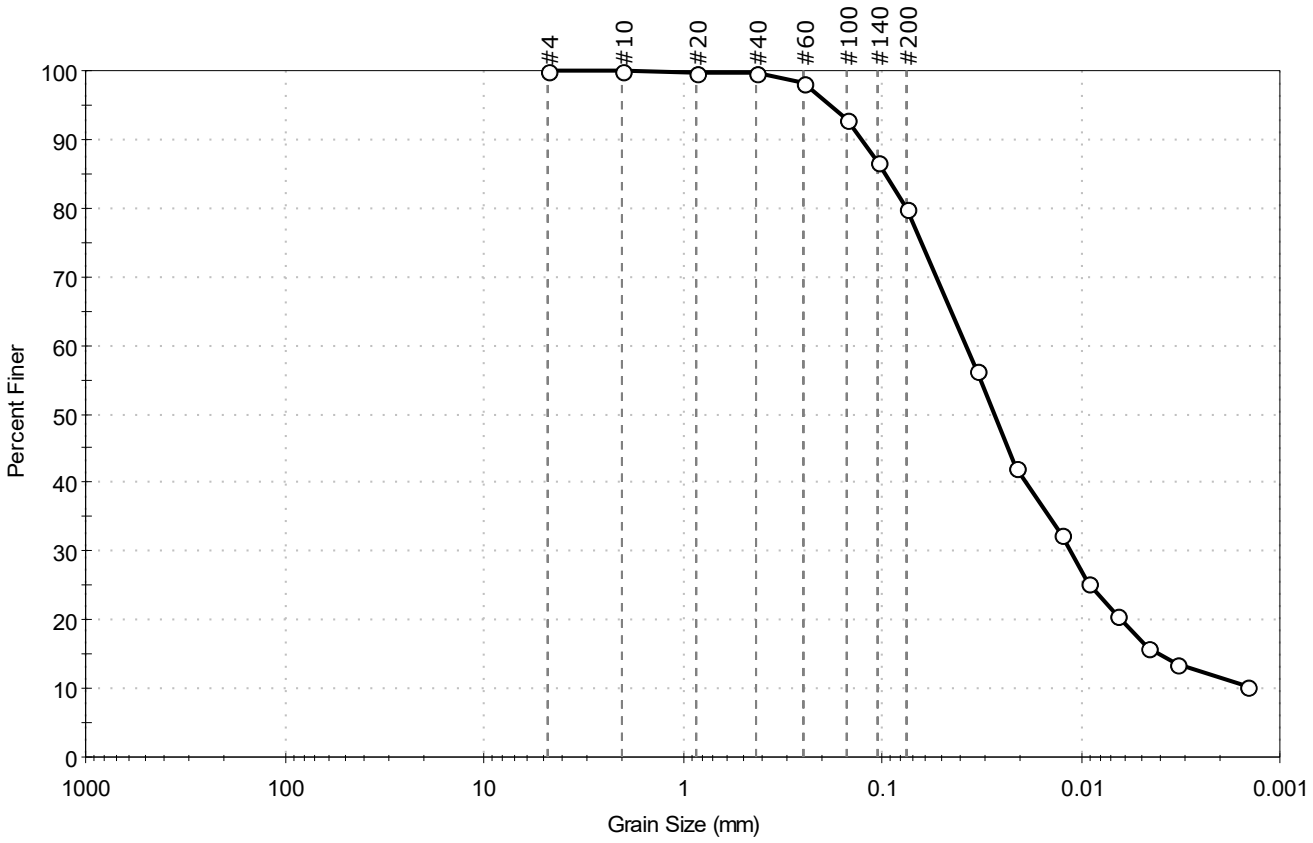
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-109SPT-48.3-51-191(	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527567		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	20.1	79.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	98		
#100	0.15	93		
#140	0.11	87		
#200	0.075	80		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0335	56		
---	0.0210	42		
---	0.0126	33		
---	0.0091	25		
---	0.0065	21		
---	0.0046	16		
---	0.0033	14		
---	0.0015	10		

Coefficients

D_{85} = 0.0976 mm	D_{30} = 0.0112 mm
D_{60} = 0.0380 mm	D_{15} = 0.0041 mm
D_{50} = 0.0273 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM SILT with Sand (ML)

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

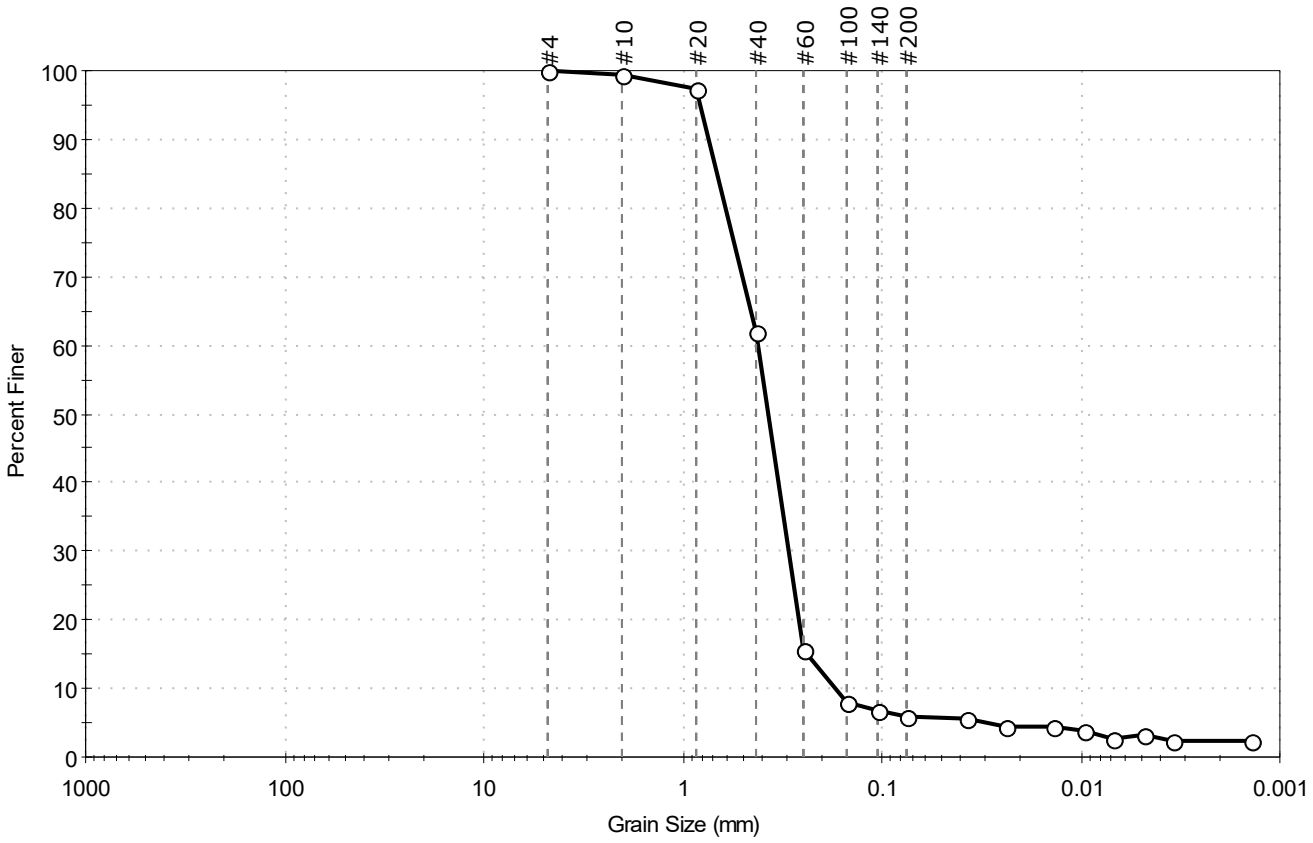
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-110 B-54-64.5-19101	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527568		
Test Comment:	---				
Visual Description:	Moist, black sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	94.0	6.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	97		
#40	0.42	62		
#60	0.25	16		
#100	0.15	8		
#140	0.11	7		
#200	0.075	6.0		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0375	6		
---	0.0237	4		
---	0.0137	4		
---	0.0096	4		
---	0.0068	3		
---	0.0048	3		
---	0.0034	2		
---	0.0014	2		

Coefficients

D_{85} = 0.6681 mm	D_{30} = 0.2948 mm
D_{60} = 0.4158 mm	D_{15} = 0.2399 mm
D_{50} = 0.3707 mm	D_{10} = 0.1717 mm
C_u = 2.422	C_c = 1.217

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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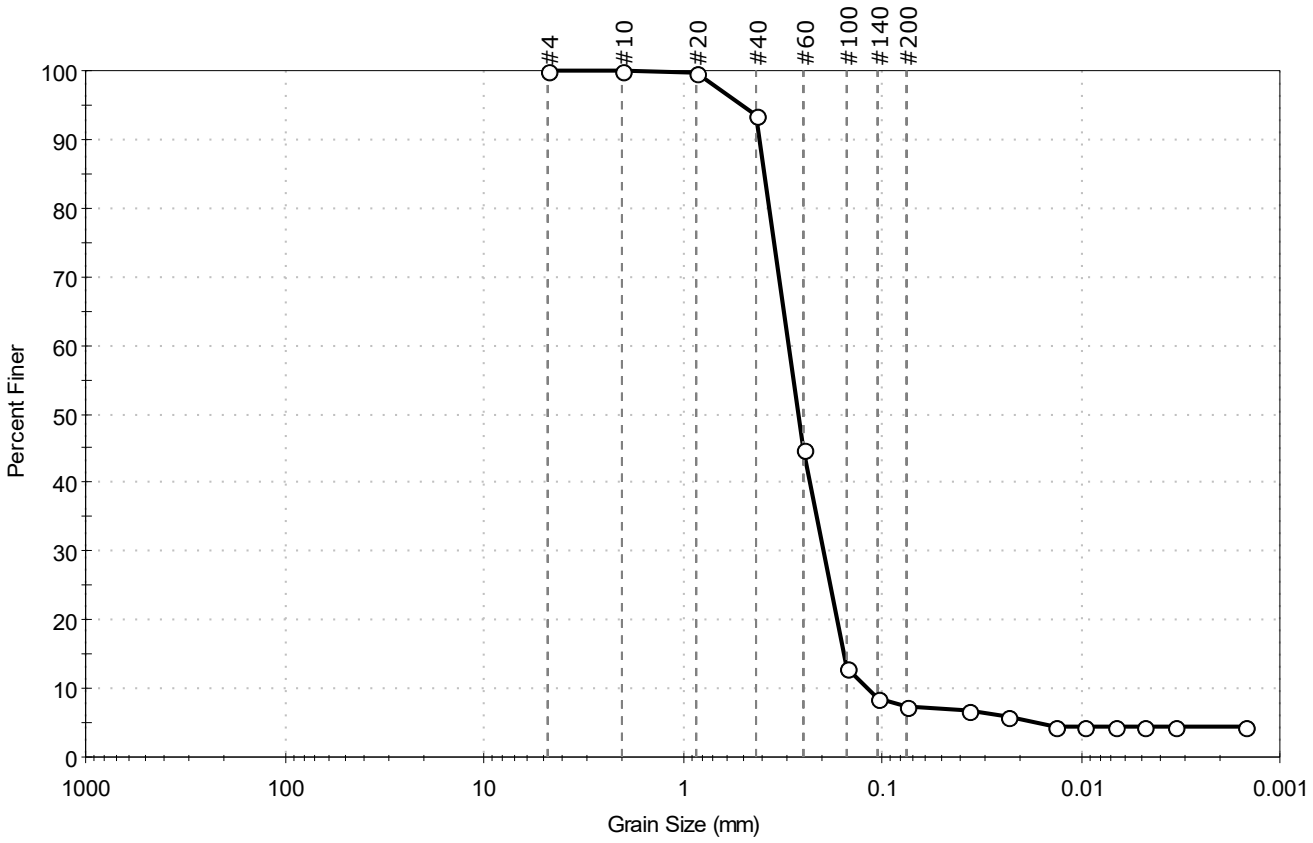
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-110SPT-21-32-19101	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527569		
Test Comment:	---				
Visual Description:	Moist, dark gray sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	92.7	7.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	94		
#60	0.25	45		
#100	0.15	13		
#140	0.11	9		
#200	0.075	7.3		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0368	7		
---	0.0232	6		
---	0.0135	5		
---	0.0096	5		
---	0.0068	5		
---	0.0048	5		
---	0.0034	5		
---	0.0015	5		

Coefficients

D_{85} = 0.3872 mm	D_{30} = 0.1973 mm
D_{60} = 0.2950 mm	D_{15} = 0.1552 mm
D_{50} = 0.2646 mm	D_{10} = 0.1184 mm
C_u = 2.492	C_c = 1.115

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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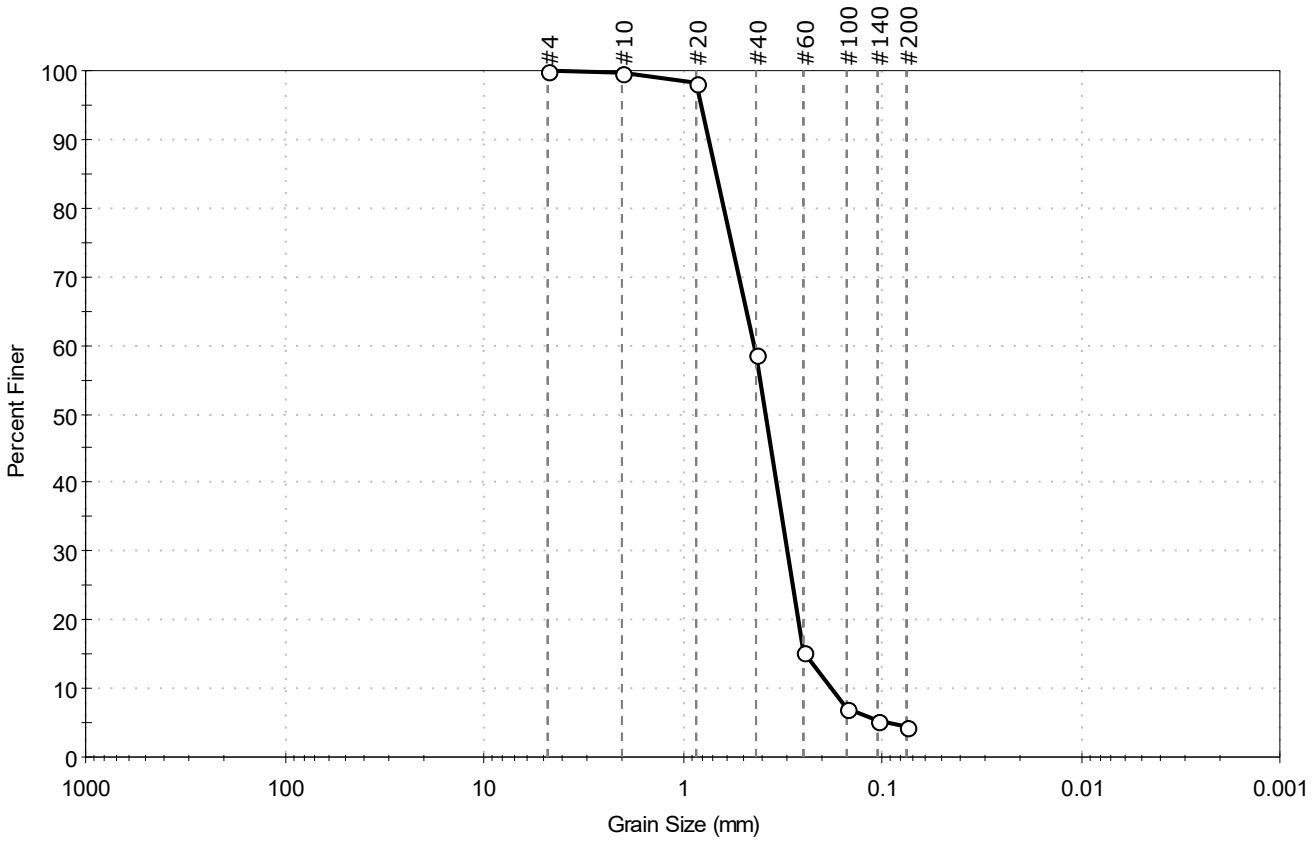
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-110SPT-32-45-19101	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527570		
Test Comment:	---				
Visual Description:	Moist, black sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.1	95.6	4.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	98		
#40	0.42	59		
#60	0.25	15		
#100	0.15	7		
#140	0.11	5		
#200	0.075	4.3		

Coefficients

D_{85} = 0.6746 mm	D_{30} = 0.2994 mm
D_{60} = 0.4347 mm	D_{15} = 0.2464 mm
D_{50} = 0.3821 mm	D_{10} = 0.1799 mm
C_u = 2.416	C_c = 1.146

Classification

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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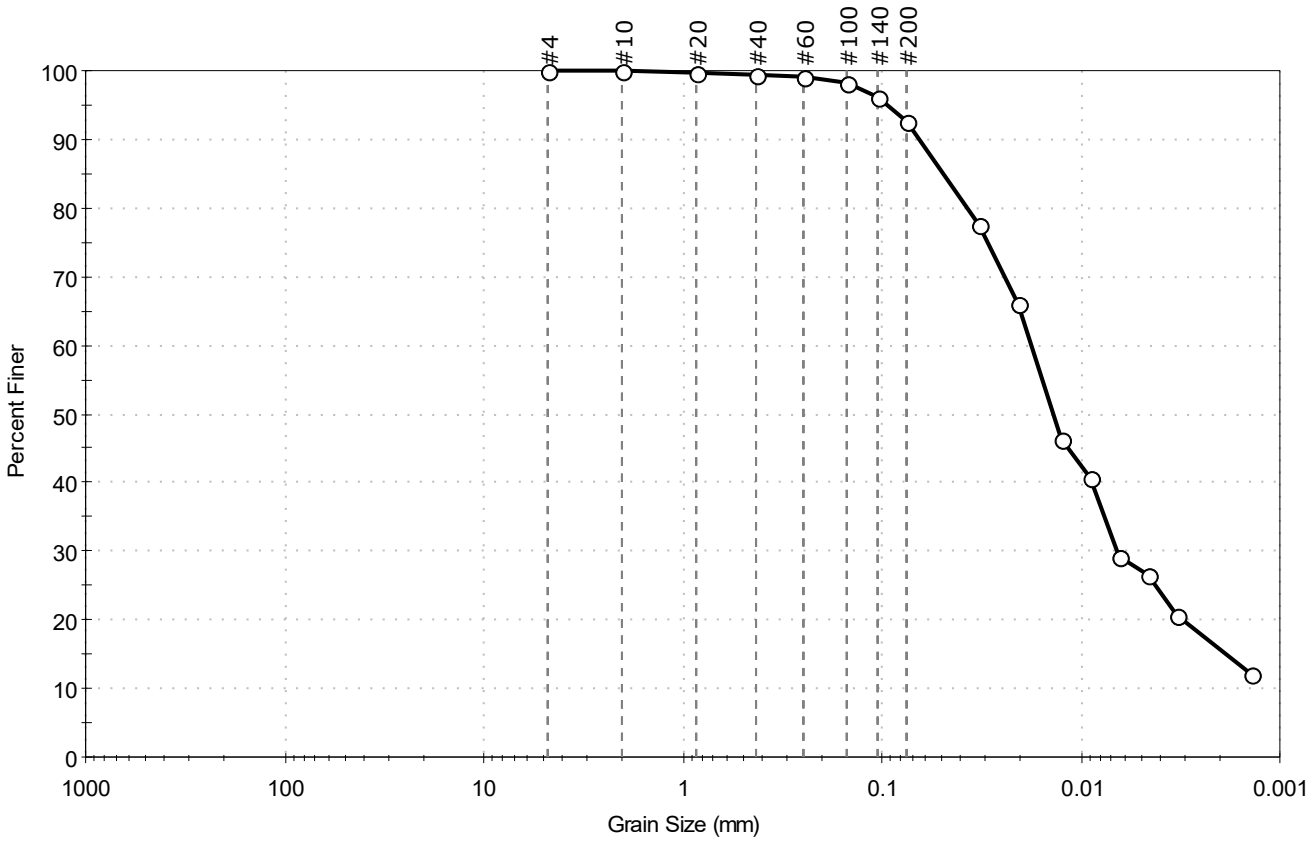
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-112SPT-00-6.5-1910	Test Date:	11/05/19	Checked By:	bfs
Depth :	---	Test Id:	527571		
Test Comment:	---				
Visual Description:	Moist, dark brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	7.2	92.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0323	78		
---	0.0208	66		
---	0.0126	46		
---	0.0090	41		
---	0.0065	29		
---	0.0046	26		
---	0.0033	21		
---	0.0014	12		

Coefficients

D_{85} = 0.0488 mm	D_{30} = 0.0066 mm
D_{60} = 0.0178 mm	D_{15} = 0.0018 mm
D_{50} = 0.0138 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (45))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

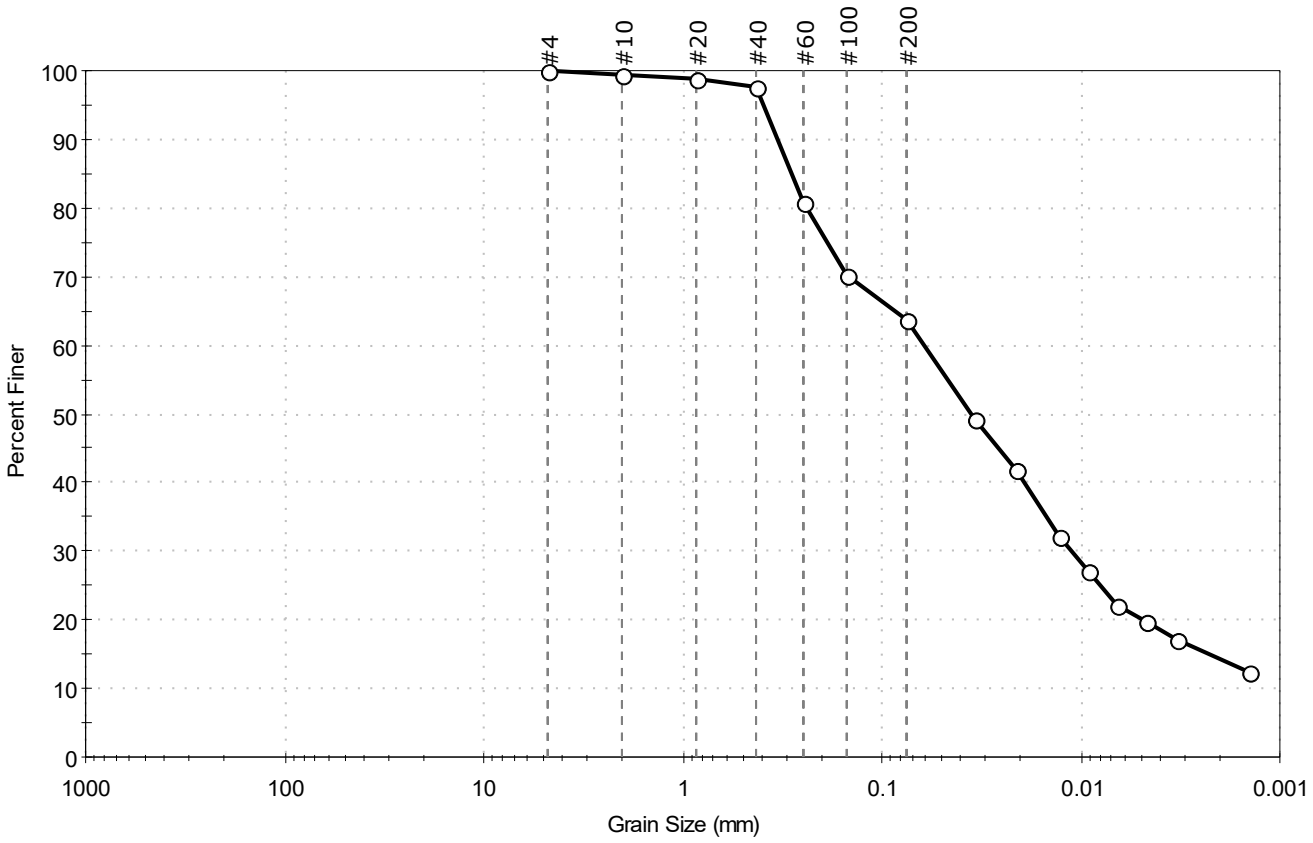
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-112SPT-07-11.5-191(	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527572		
Test Comment:	---				
Visual Description:	Moist, dark gray sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	36.3	63.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	81		
#100	0.15	70		
#200	0.075	64		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0344	49		
---	0.0211	42		
---	0.0129	32		
---	0.0092	27		
---	0.0066	22		
---	0.0047	20		
---	0.0033	17		
---	0.0014	12		

Coefficients

D_{85} =0.2849 mm	D_{30} =0.0112 mm
D_{60} =0.0615 mm	D_{15} =0.0023 mm
D_{50} =0.0357 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM Sandy Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (11))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

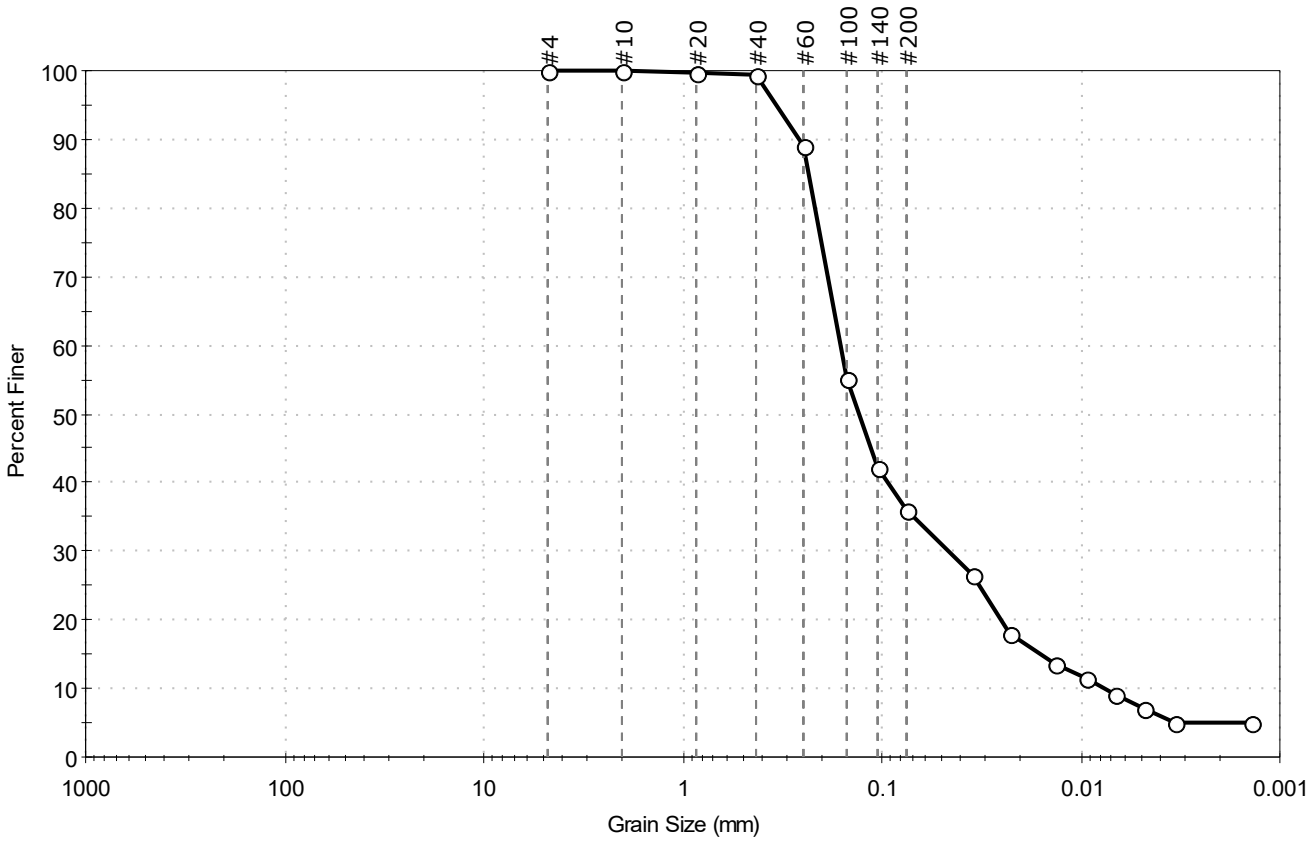
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-112SPT-11.5-26.5-19	Test Date:	10/31/19	Checked By:	bfs
Depth :	---	Test Id:	527573		

Test Comment: ---
Visual Description: Moist, dark gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	64.1	35.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	89		
#100	0.15	55		
#140	0.11	42		
#200	0.075	36		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0351	27		
---	0.0225	18		
---	0.0134	14		
---	0.0094	11		
---	0.0067	9		
---	0.0048	7		
---	0.0034	5		
---	0.0014	5		

Coefficients

D_{85} = 0.2350 mm D_{30} = 0.0465 mm
D_{60} = 0.1614 mm D_{15} = 0.0159 mm
D_{50} = 0.1309 mm D_{10} = 0.0075 mm
C_u = 21.520 C_c = 1.786

Classification

ASTM Silty SAND (SM)

AASHTO Silty Soils (A-4 (0))

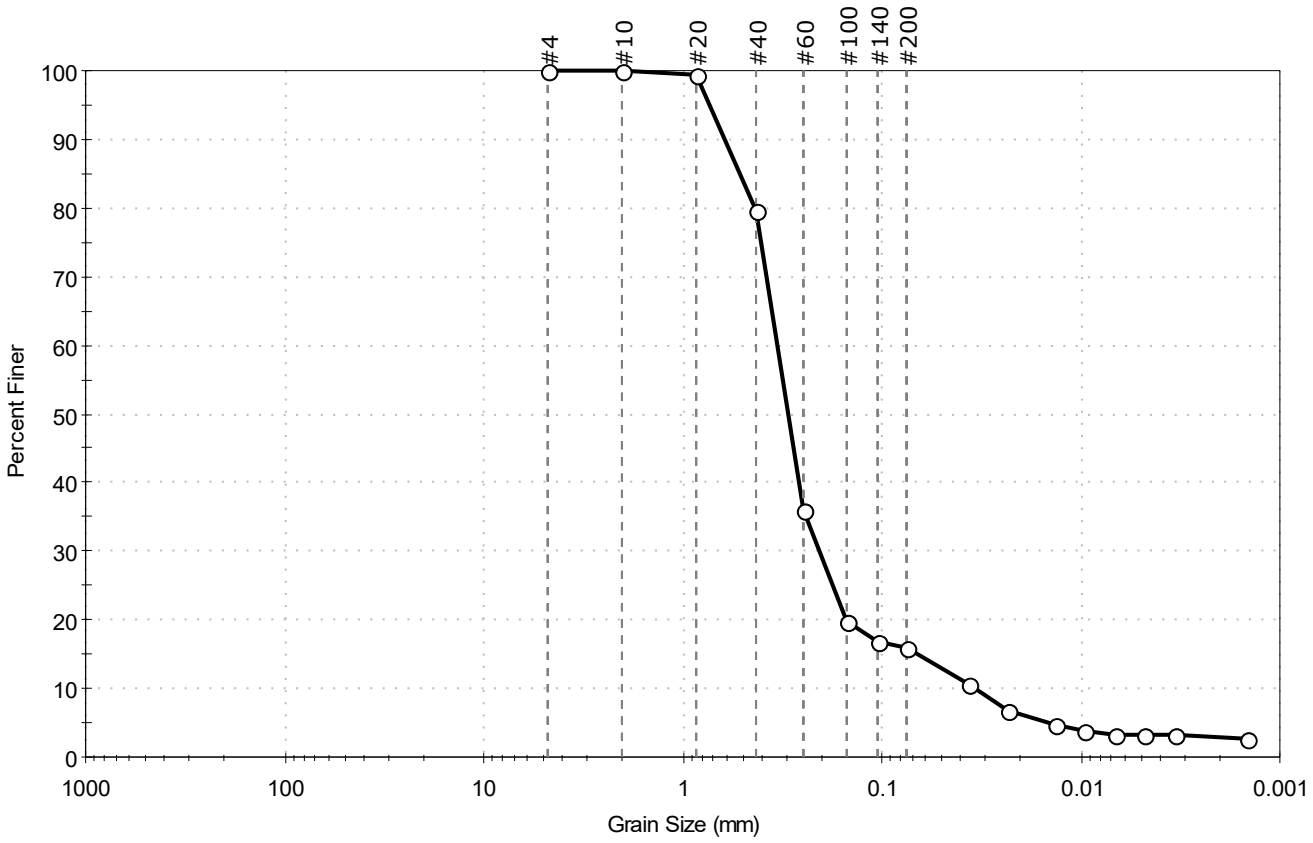
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-112SPT-37.5-58-191(	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527574		
Test Comment:	---				
Visual Description:	Moist, very dark olive gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	84.2	15.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	80		
#60	0.25	36		
#100	0.15	20		
#140	0.11	17		
#200	0.075	16		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0367	11		
---	0.0234	7		
---	0.0136	5		
---	0.0096	4		
---	0.0068	3		
---	0.0048	3		
---	0.0034	3		
---	0.0014	3		

Coefficients

D_{85} = 0.5121 mm	D_{30} = 0.2062 mm
D_{60} = 0.3344 mm	D_{15} = 0.0671 mm
D_{50} = 0.2961 mm	D_{10} = 0.0339 mm
C_u = 9.864	C_c = 3.751

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

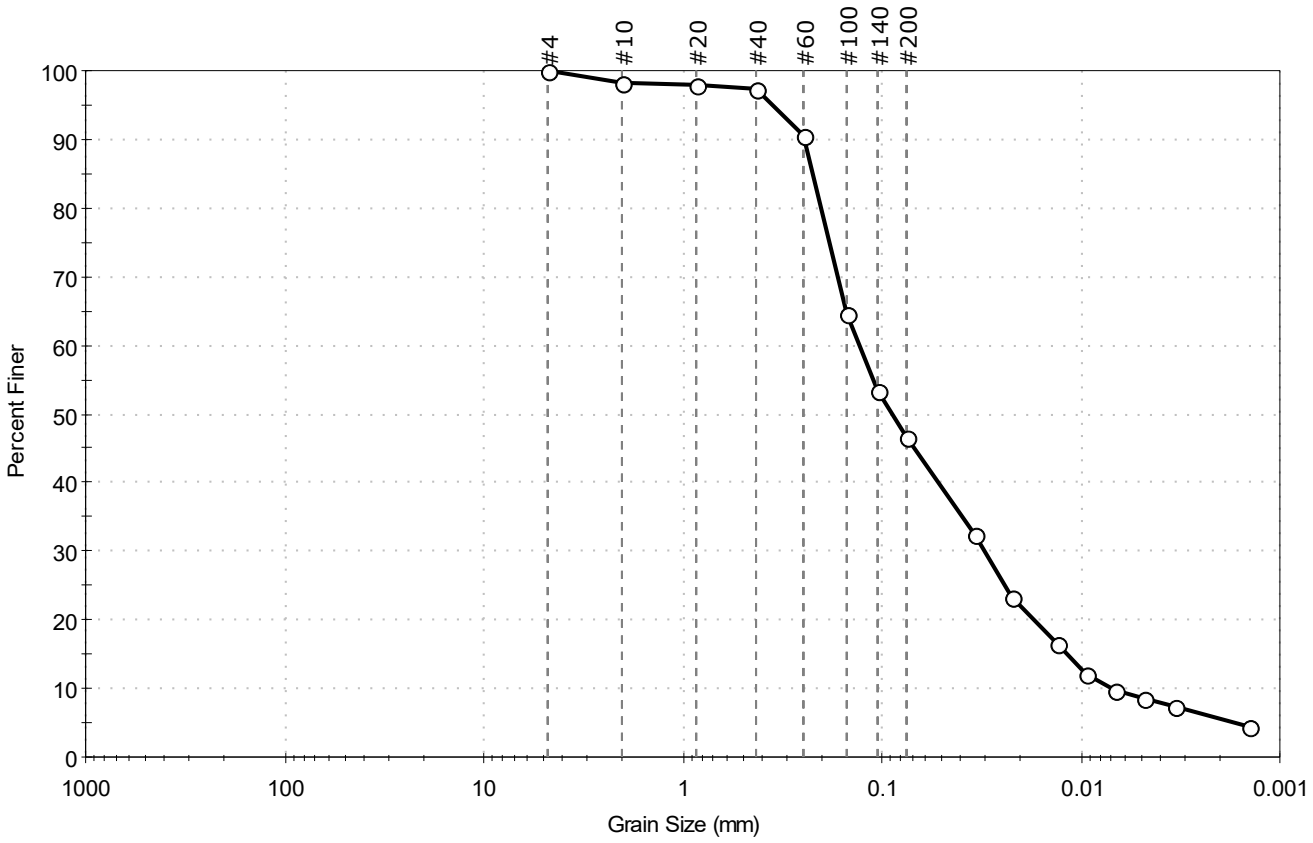
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-113SPT-06-16-19101	Test Date:	11/05/19	Checked By:	bfs
Depth :	---	Test Id:	527575		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	53.3	46.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	98		
#20	0.85	98		
#40	0.42	97		
#60	0.25	90		
#100	0.15	65		
#140	0.11	53		
#200	0.075	47		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0341	32		
---	0.0224	23		
---	0.0130	17		
---	0.0095	12		
---	0.0067	10		
---	0.0048	9		
---	0.0034	7		
---	0.0014	5		

Coefficients

D_{85} =0.2243 mm	D_{30} =0.0305 mm
D_{60} =0.1298 mm	D_{15} =0.0117 mm
D_{50} =0.0888 mm	D_{10} =0.0070 mm
C_u =18.543	C_c =1.024

Classification

ASTM Silty SAND (SM)

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

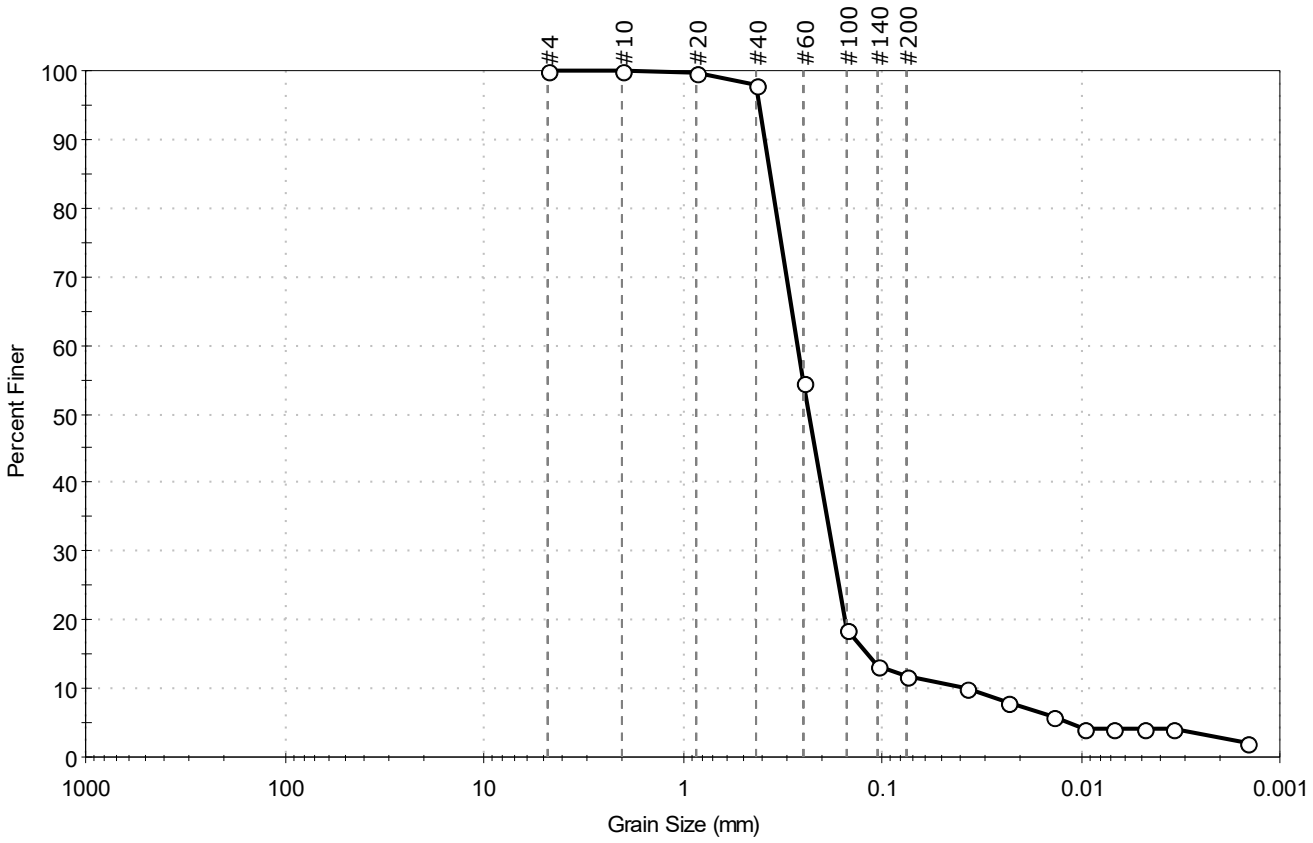
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-113SPT-16-22-19101	Test Date:	10/31/19	Checked By:	bfs
Depth :	---	Test Id:	527576		

Test Comment: ---
Visual Description: Moist, dark grayish brown sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	88.1	11.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	98		
#60	0.25	54		
#100	0.15	19		
#140	0.11	13		
#200	0.075	12		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0379	10		
---	0.0232	8		
---	0.0137	6		
---	0.0097	4		
---	0.0069	4		
---	0.0048	4		
---	0.0034	4		
---	0.0015	2		

Coefficients

D_{85} = 0.3627 mm	D_{30} = 0.1766 mm
D_{60} = 0.2675 mm	D_{15} = 0.1182 mm
D_{50} = 0.2347 mm	D_{10} = 0.0377 mm
C_u = 7.095	C_c = 3.093

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

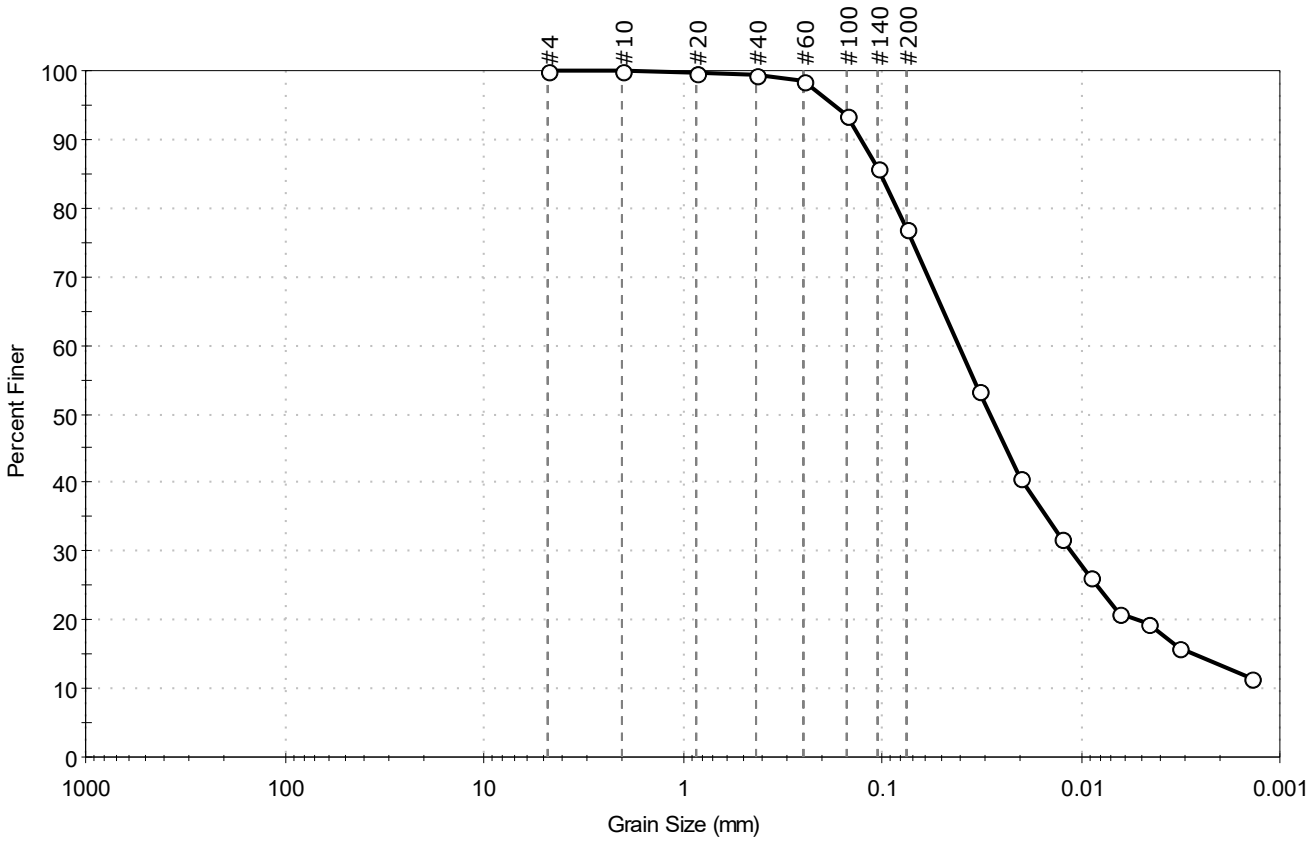
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-113SPT-22-25.2-191(	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527577		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	23.0	77.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	94		
#140	0.11	86		
#200	0.075	77		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0322	54		
---	0.0201	41		
---	0.0124	32		
---	0.0089	26		
---	0.0064	21		
---	0.0046	19		
---	0.0033	16		
---	0.0014	11		

Coefficients

D_{85} =0.1025 mm	D_{30} =0.0111 mm
D_{60} =0.0407 mm	D_{15} =0.0028 mm
D_{50} =0.0283 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (18))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

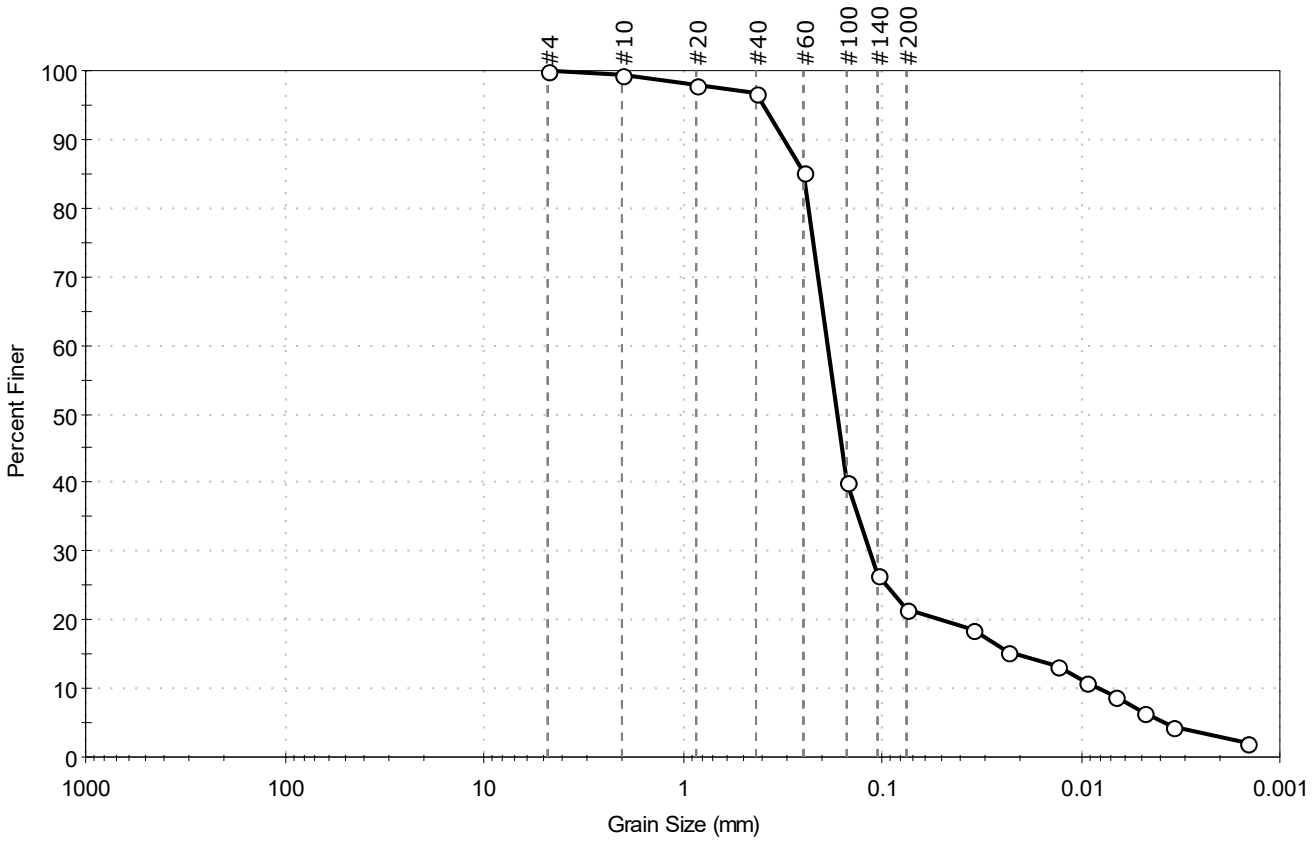
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-113SPT-31.9-39.4-19	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527578		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	78.5	21.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	97		
#60	0.25	85		
#100	0.15	40		
#140	0.11	27		
#200	0.075	21		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0353	19		
---	0.0231	15		
---	0.0133	13		
---	0.0095	11		
---	0.0068	9		
---	0.0048	7		
---	0.0034	4		
---	0.0015	2		

Coefficients

D_{85} = 0.2492 mm D_{30} = 0.1158 mm
D_{60} = 0.1879 mm D_{15} = 0.0208 mm
D_{50} = 0.1679 mm D_{10} = 0.0081 mm
C_u = 23.198 C_c = 8.811

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

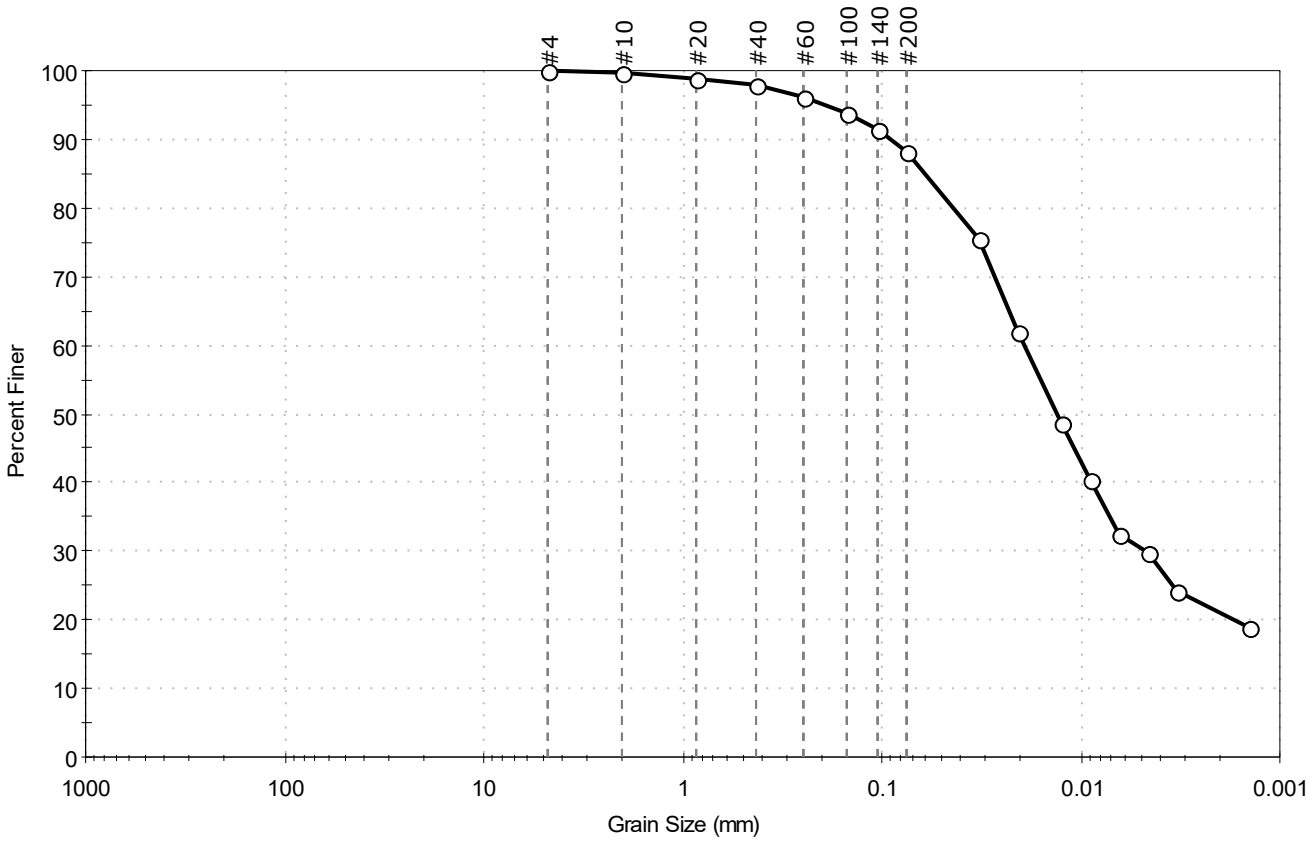
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-114SPT-00-7.5-1910	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527579		

Test Comment: ---
Visual Description: Wet, olive brown silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	11.9	88.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	96		
#100	0.15	94		
#140	0.11	92		
#200	0.075	88		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0324	76		
---	0.0208	62		
---	0.0125	49		
---	0.0090	40		
---	0.0065	32		
---	0.0046	30		
---	0.0033	24		
---	0.0014	19		

Coefficients

D_{85} = 0.0610 mm D_{30} = 0.0048 mm
D_{60} = 0.0193 mm D_{15} = N/A
D_{50} = 0.0132 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM Elastic SILT (MH)

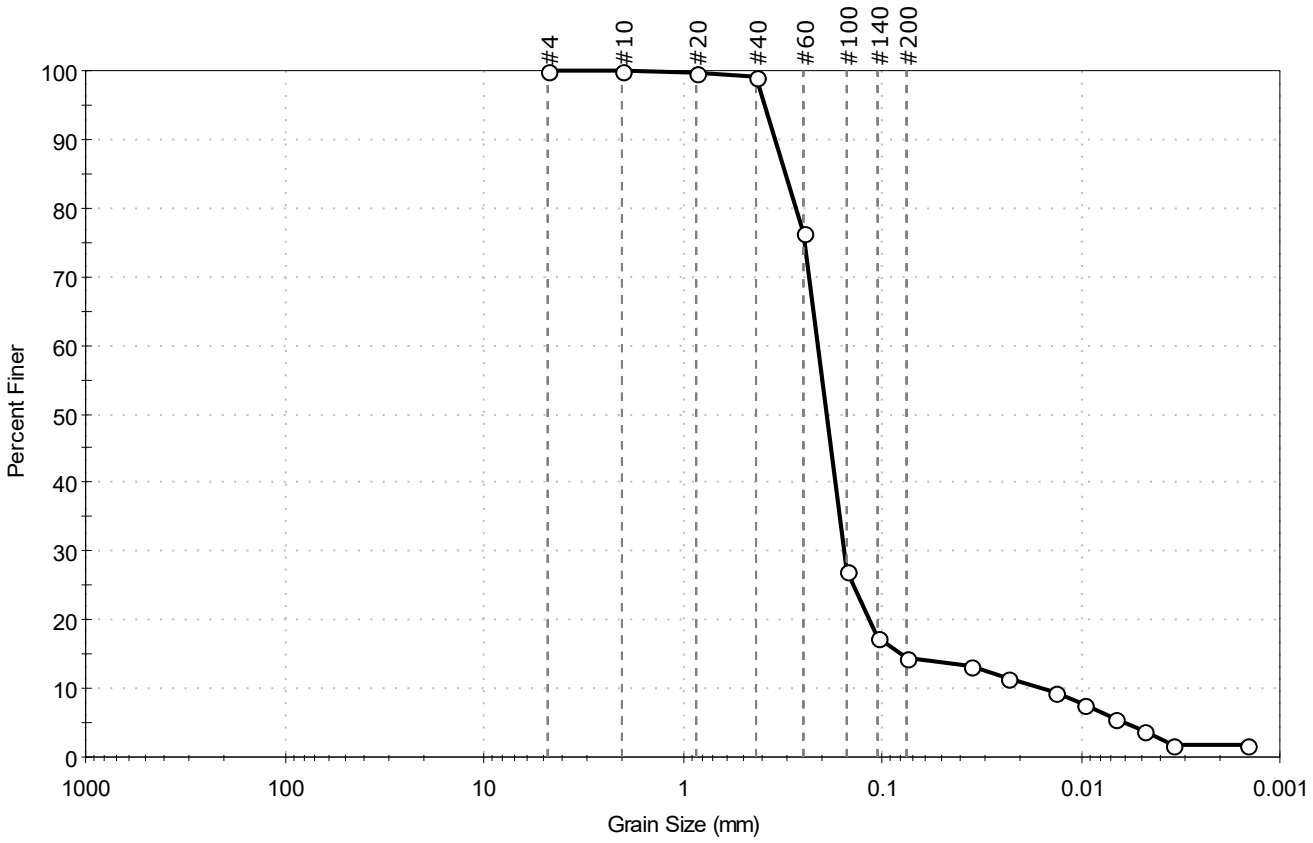
AASHTO Clayey Soils (A-7-5 (29))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-114SPT-25.5-28-191(	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527580		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	85.6	14.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	76		
#100	0.15	27		
#140	0.11	17		
#200	0.075	14		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0359	13		
---	0.0236	11		
---	0.0135	9		
---	0.0096	8		
---	0.0068	6		
---	0.0048	4		
---	0.0034	2		
---	0.0015	2		

Coefficients

D_{85} =0.3059 mm	D_{30} =0.1547 mm
D_{60} =0.2111 mm	D_{15} =0.0809 mm
D_{50} =0.1903 mm	D_{10} =0.0157 mm
C_u =13.446	C_c =7.221

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

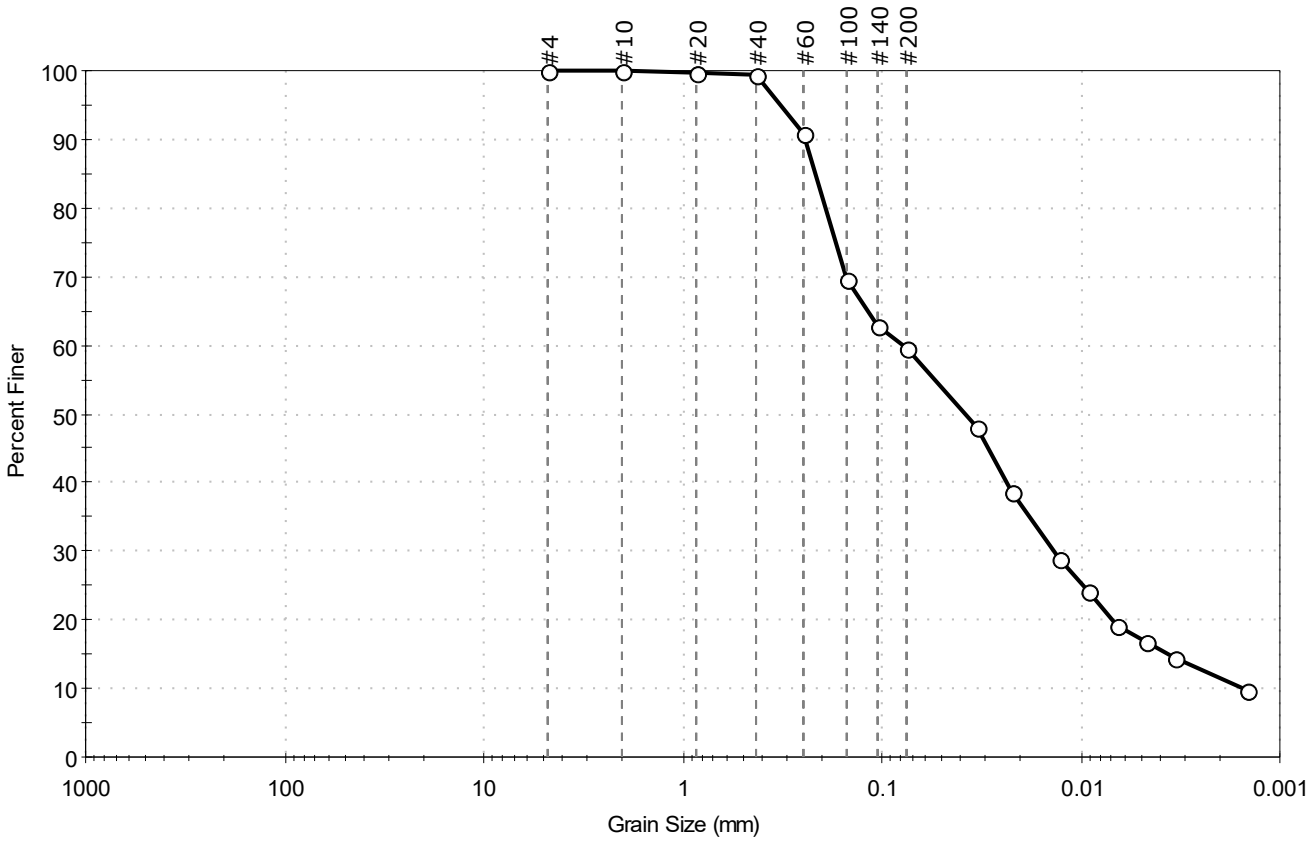
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-114SPT-42-50.5-191	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527581		

Test Comment: ---
Visual Description: Wet, olive brown sandy silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	40.4	59.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	91		
#100	0.15	70		
#140	0.11	63		
#200	0.075	60		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0337	48		
---	0.0221	39		
---	0.0130	29		
---	0.0093	24		
---	0.0066	19		
---	0.0047	17		
---	0.0034	14		
---	0.0014	10		

Coefficients

D_{85} =0.2166 mm	D_{30} =0.0138 mm
D_{60} =0.0786 mm	D_{15} =0.0036 mm
D_{50} =0.0384 mm	D_{10} =0.0015 mm
C_u =52.400	C_c =1.615

Classification

ASTM Sandy SILT (ML)

AASHTO Silty Soils (A-5 (5))

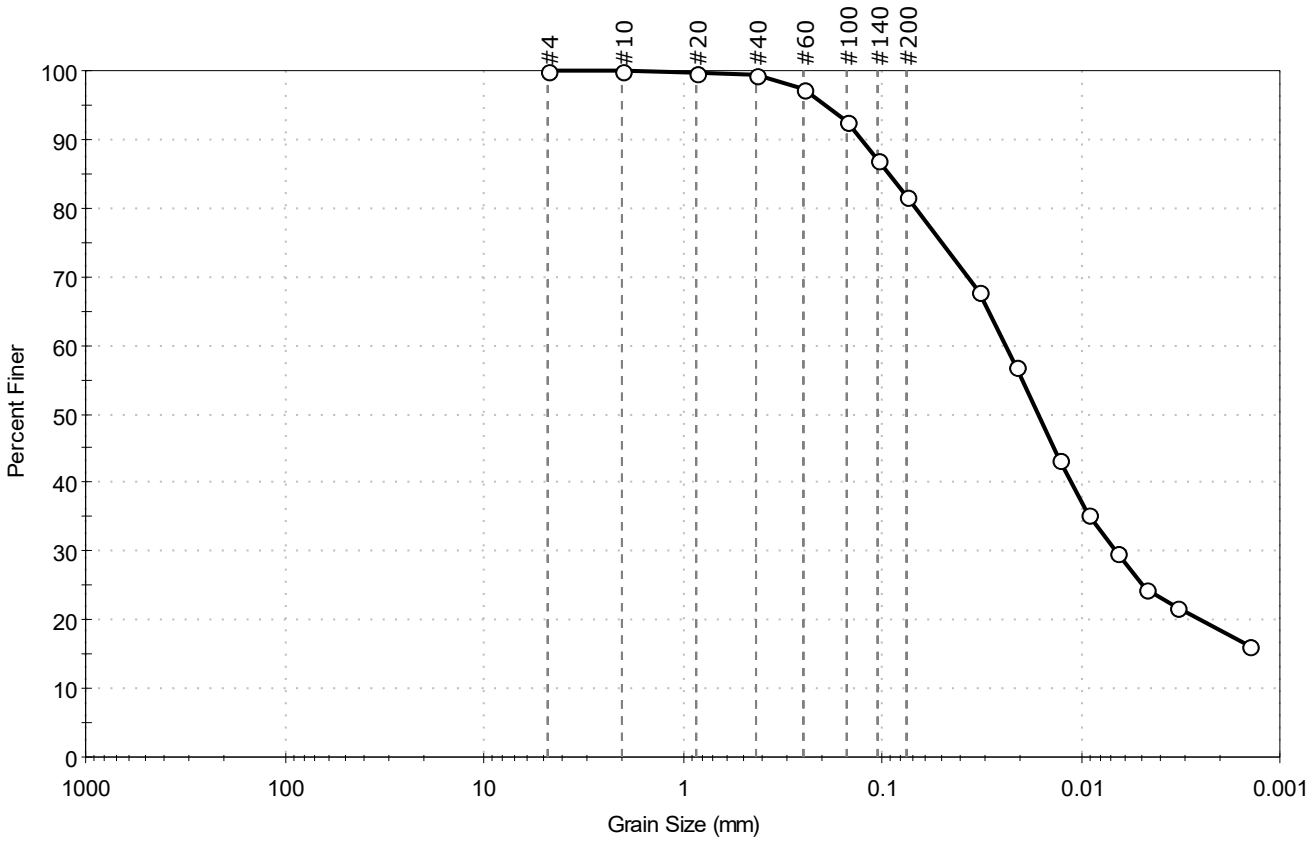
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-114SPT-7.5-12.5-191	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527583		
Test Comment:	---				
Visual Description:	Moist, olive brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	18.3	81.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	97		
#100	0.15	93		
#140	0.11	87		
#200	0.075	82		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0324	68		
---	0.0213	57		
---	0.0127	43		
---	0.0091	35		
---	0.0065	30		
---	0.0047	24		
---	0.0033	22		
---	0.0014	16		

Coefficients

D_{85} = 0.0928 mm	D_{30} = 0.0066 mm
D_{60} = 0.0239 mm	D_{15} = N/A
D_{50} = 0.0163 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (24))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

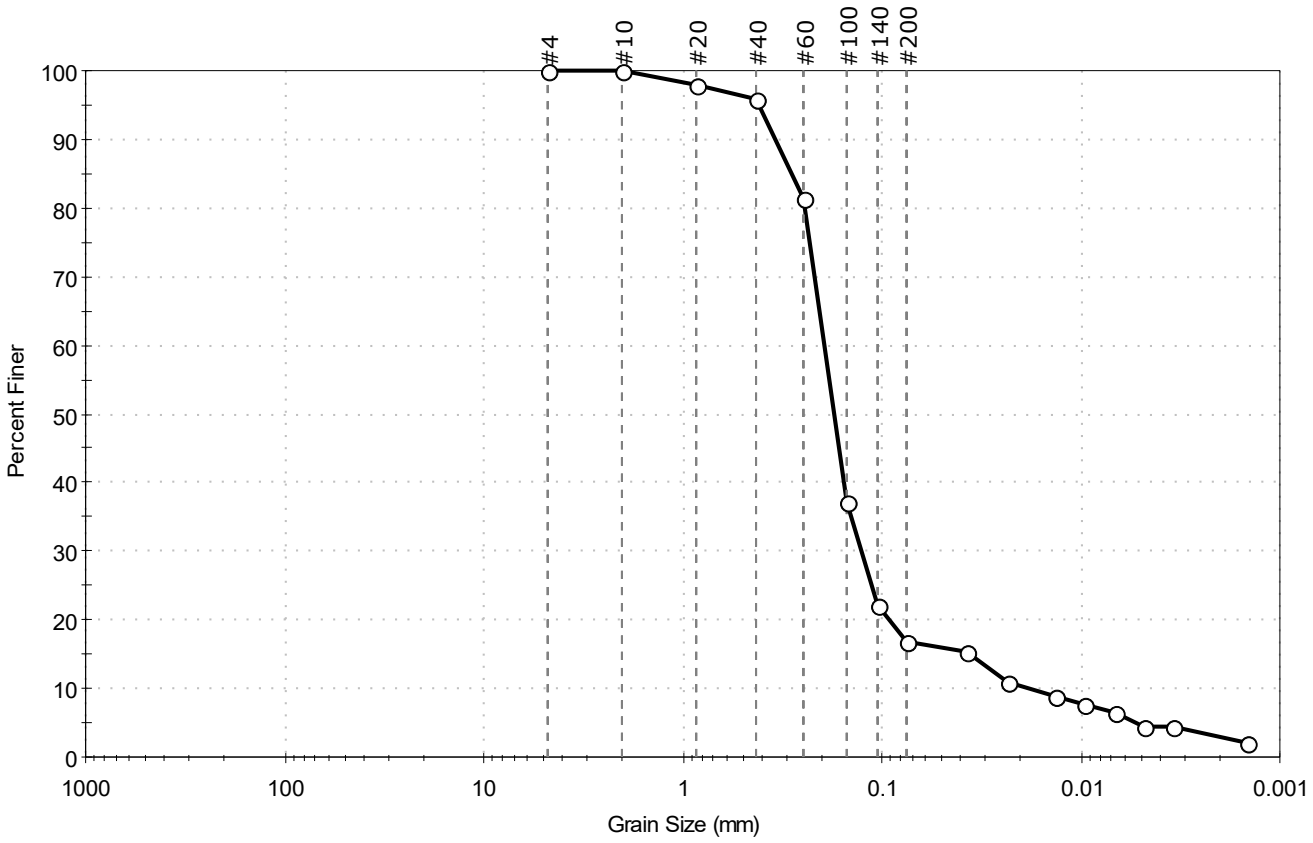
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-114SPT-50.5-55-191(	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527582		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	83.2	16.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	98		
#40	0.42	96		
#60	0.25	81		
#100	0.15	37		
#140	0.11	22		
#200	0.075	17		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0377	15		
---	0.0236	11		
---	0.0136	9		
---	0.0096	8		
---	0.0068	7		
---	0.0048	4		
---	0.0034	4		
---	0.0015	2		

Coefficients

D_{85} =0.2851 mm	D_{30} =0.1275 mm
D_{60} =0.1953 mm	D_{15} =0.0358 mm
D_{50} =0.1741 mm	D_{10} =0.0181 mm
C_u =10.790	C_c =4.599

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

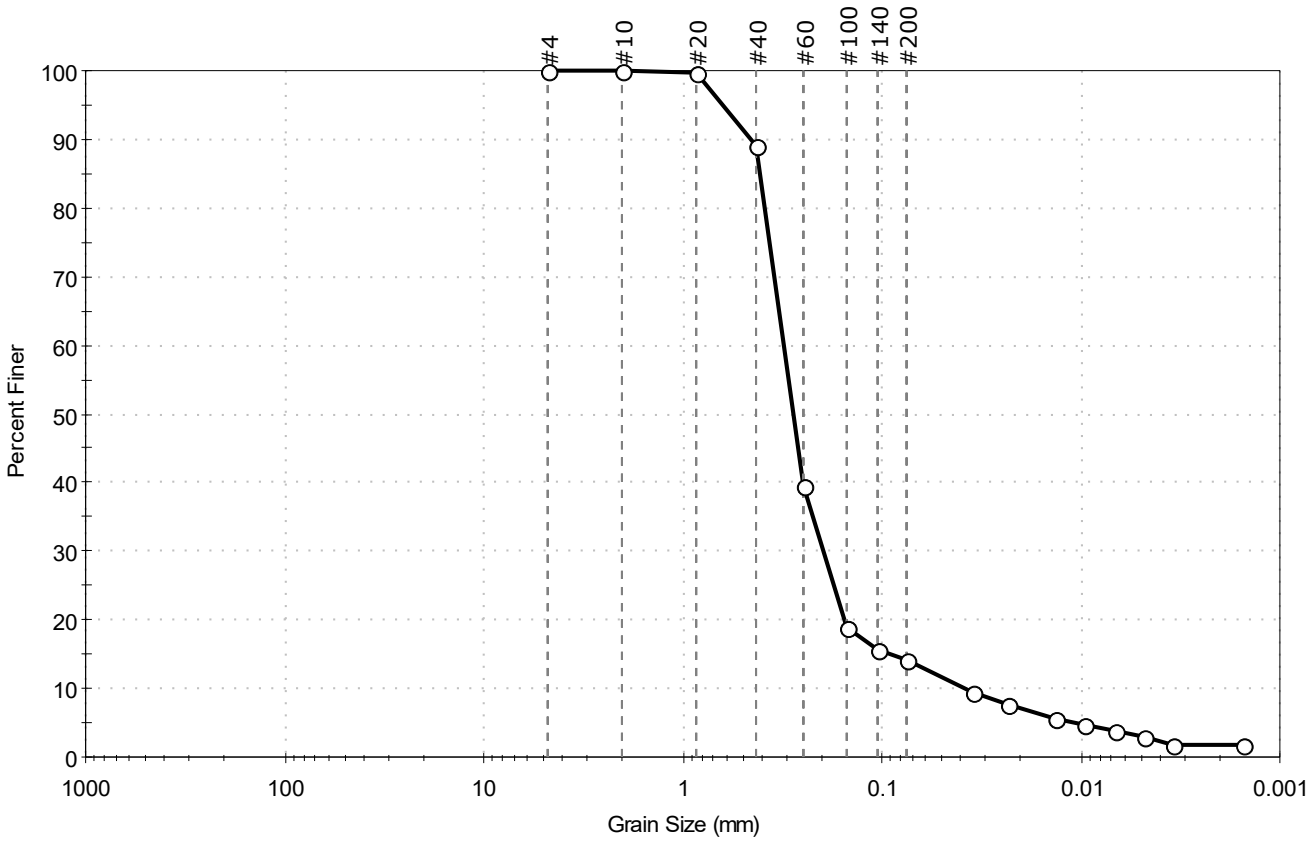
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-115SPT-06-11-19100	Test Date:	11/07/19	Checked By:	bfs
Depth :	---	Test Id:	527584		

Test Comment: ---
Visual Description: Moist, very dark gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	85.8	14.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	89		
#60	0.25	40		
#100	0.15	19		
#140	0.11	16		
#200	0.075	14		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0349	9		
---	0.0235	8		
---	0.0135	6		
---	0.0096	5		
---	0.0068	4		
---	0.0048	3		
---	0.0034	2		
---	0.0015	2		

Coefficients

D_{85} = 0.4072 mm D_{30} = 0.1974 mm
D_{60} = 0.3113 mm D_{15} = 0.0918 mm
D_{50} = 0.2796 mm D_{10} = 0.0380 mm
C_u = 8.192 C_c = 3.294

Classification

ASTM Silty SAND (SM)

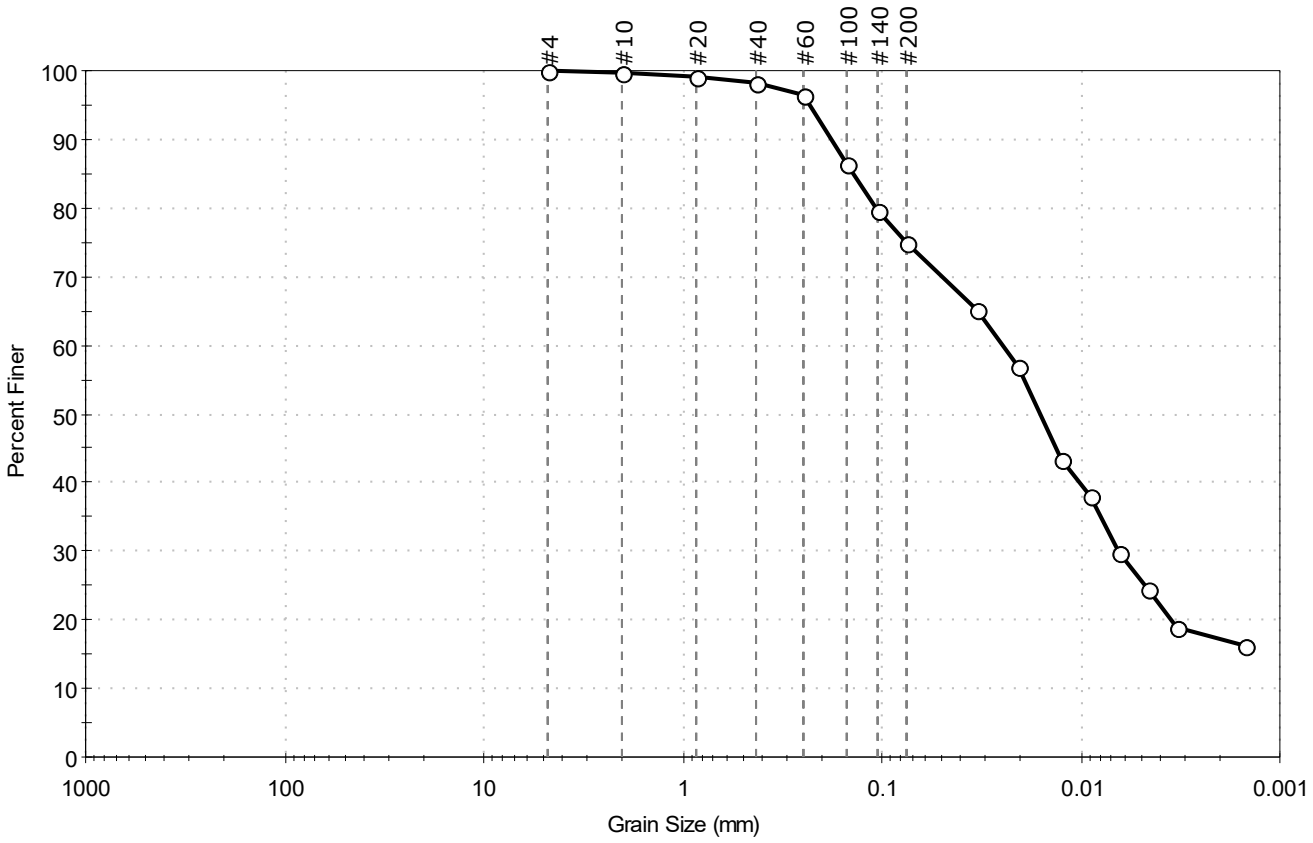
AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-115SPT-18.6-20.6-19	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527585		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	24.9	75.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	96		
#100	0.15	87		
#140	0.11	80		
#200	0.075	75		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0335	65		
---	0.0209	57		
---	0.0125	43		
---	0.0089	38		
---	0.0064	30		
---	0.0046	24		
---	0.0033	19		
---	0.0015	16		

Coefficients

D_{85} = 0.1387 mm	D_{30} = 0.0065 mm
D_{60} = 0.0249 mm	D_{15} = N/A
D_{50} = 0.0160 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (22))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

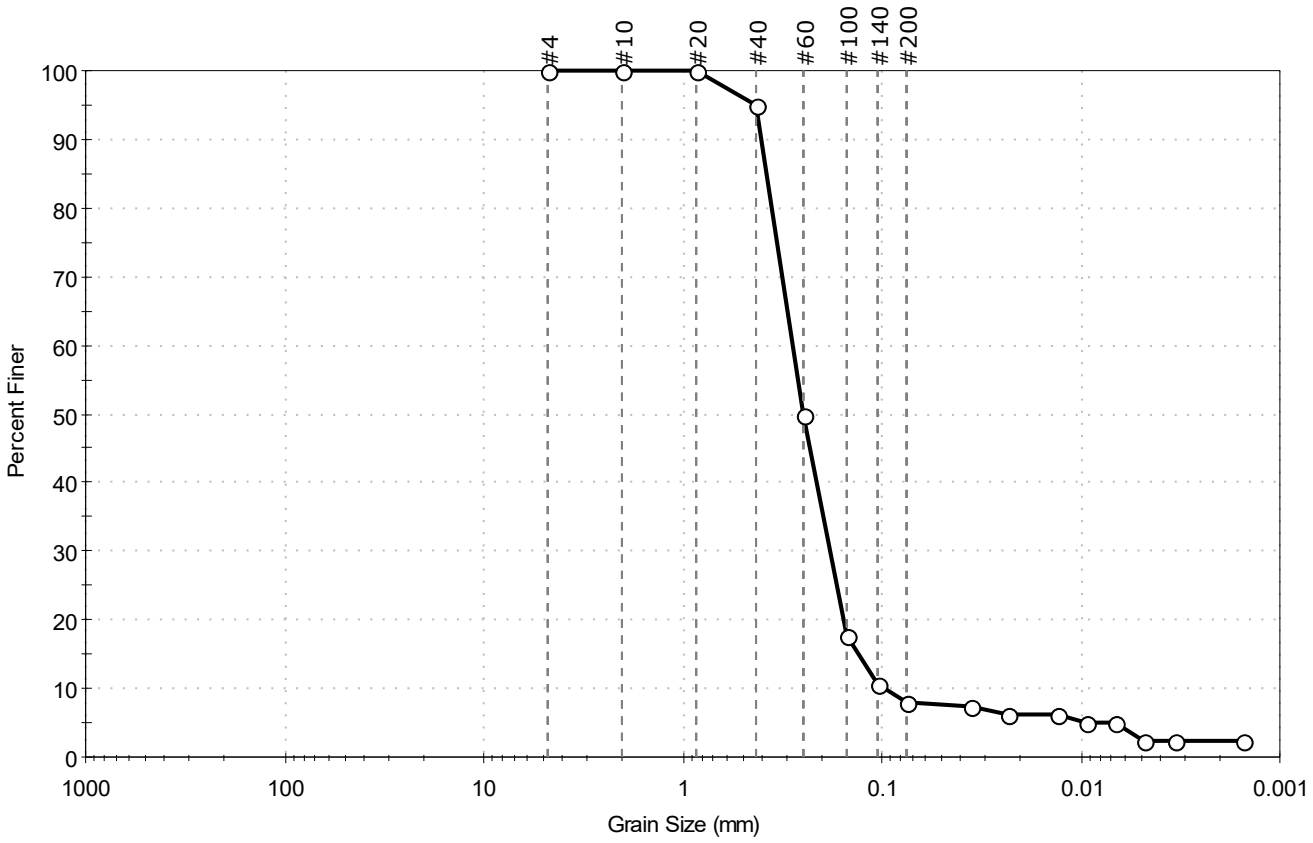
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-115SPT-23-28.1-191(	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527586		

Test Comment: ---
Visual Description: Moist, very dark olive brown sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	92.0	8.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	95		
#60	0.25	50		
#100	0.15	18		
#140	0.11	11		
#200	0.075	8.0		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0360	7		
---	0.0233	6		
---	0.0133	6		
---	0.0095	5		
---	0.0067	5		
---	0.0048	2		
---	0.0034	2		
---	0.0015	2		

Coefficients

D_{85} = 0.3780 mm	D_{30} = 0.1827 mm
D_{60} = 0.2820 mm	D_{15} = 0.1316 mm
D_{50} = 0.2508 mm	D_{10} = 0.0970 mm
C_u = 2.907	C_c = 1.220

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

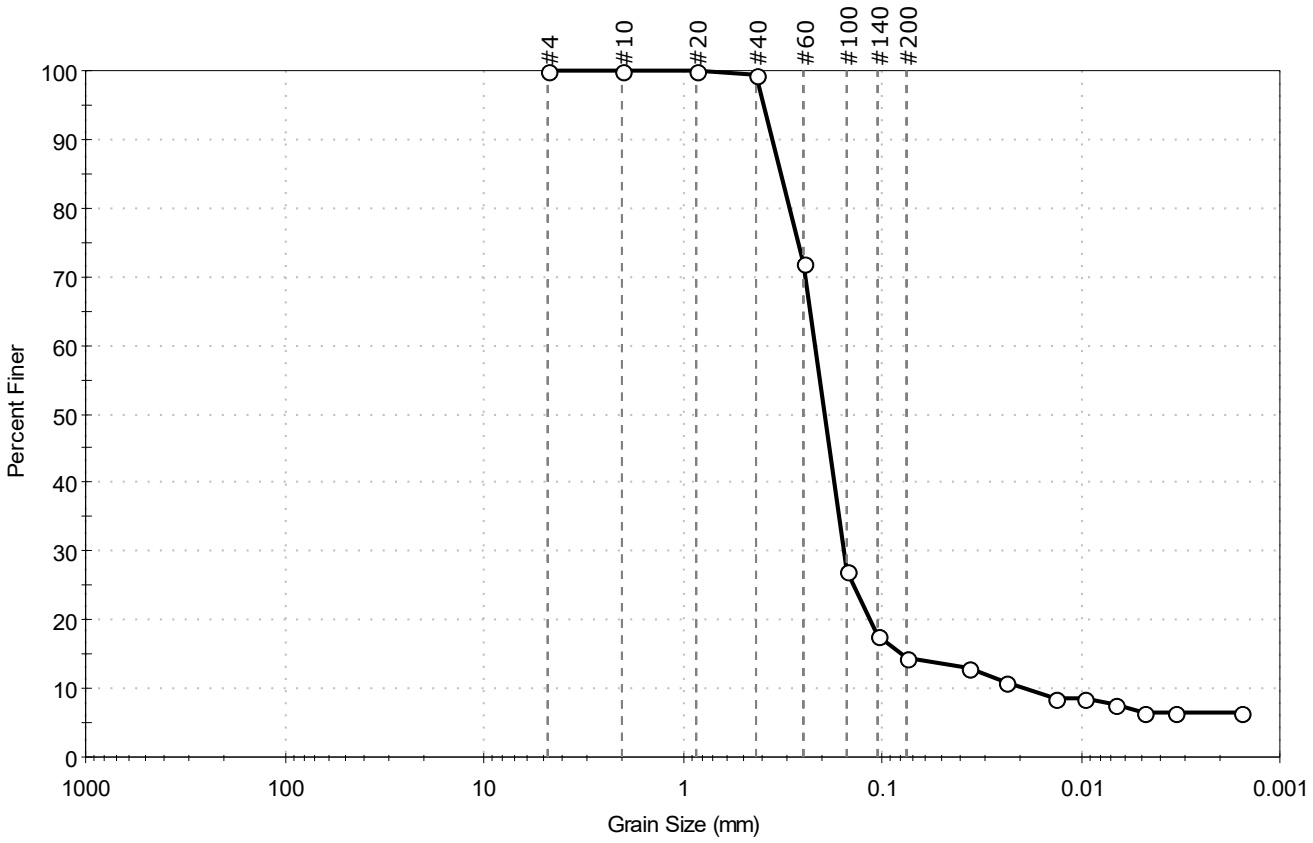
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-115SPT-41.5-49.3-19	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527587		

Test Comment: ---
Visual Description: Moist, olive brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	85.6	14.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	72		
#100	0.15	27		
#140	0.11	18		
#200	0.075	14		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0370	13		
---	0.0237	11		
---	0.0136	9		
---	0.0096	9		
---	0.0068	8		
---	0.0048	6		
---	0.0034	6		
---	0.0016	6		

Coefficients

D_{85} = 0.3216 mm D_{30} = 0.1552 mm
D_{60} = 0.2181 mm D_{15} = 0.0799 mm
D_{50} = 0.1947 mm D_{10} = 0.0193 mm
C_u = 11.301 C_c = 5.722

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

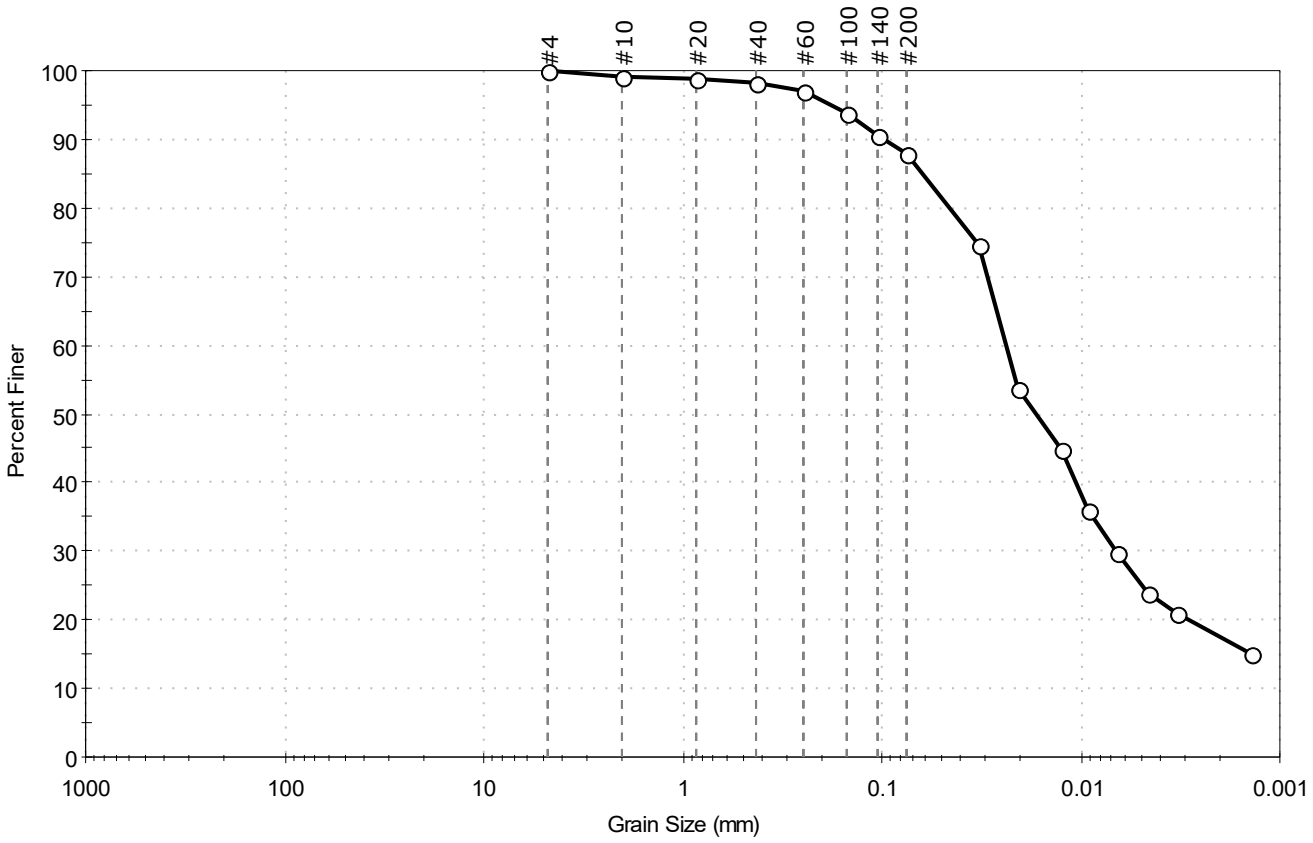
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-116SPT-00-4.5-19092	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527588		
Test Comment:	---				
Visual Description:	Wet, olive brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	12.2	87.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	94		
#140	0.11	91		
#200	0.075	88		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0322	75		
---	0.0209	54		
---	0.0127	45		
---	0.0091	36		
---	0.0065	30		
---	0.0047	24		
---	0.0033	21		
---	0.0014	15		

Coefficients

D_{85} = 0.0627 mm D_{30} = 0.0066 mm
D_{60} = 0.0238 mm D_{15} = 0.0014 mm
D_{50} = 0.0169 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (40))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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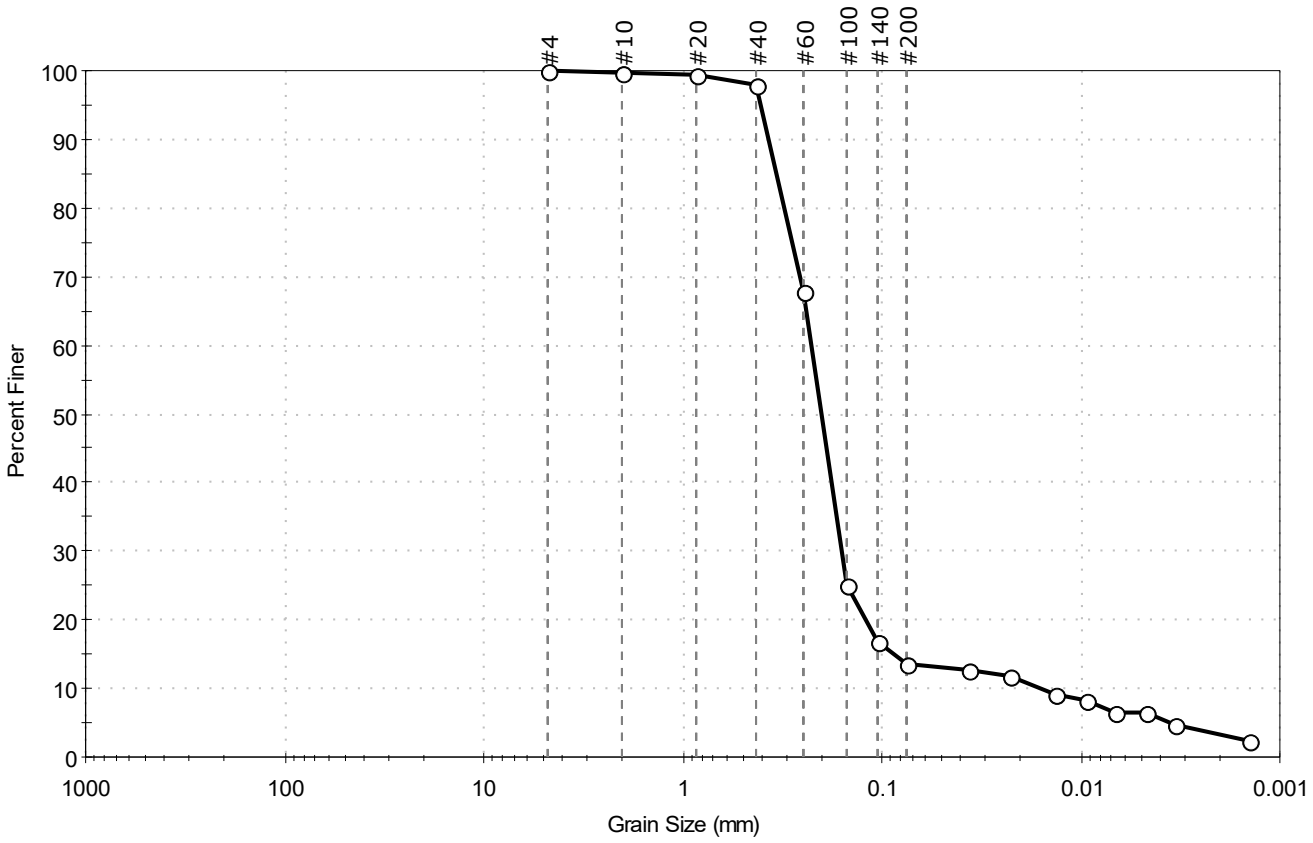
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-116SPT-20-26.7-190	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527589		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	86.4	13.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	68		
#100	0.15	25		
#140	0.11	17		
#200	0.075	14		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0368	13		
---	0.0227	12		
---	0.0134	9		
---	0.0095	8		
---	0.0067	6		
---	0.0048	6		
---	0.0034	5		
---	0.0014	2		

Coefficients

D_{85} = 0.3380 mm	D_{30} = 0.1591 mm
D_{60} = 0.2276 mm	D_{15} = 0.0881 mm
D_{50} = 0.2020 mm	D_{10} = 0.0157 mm
C_u = 14.497	C_c = 7.084

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

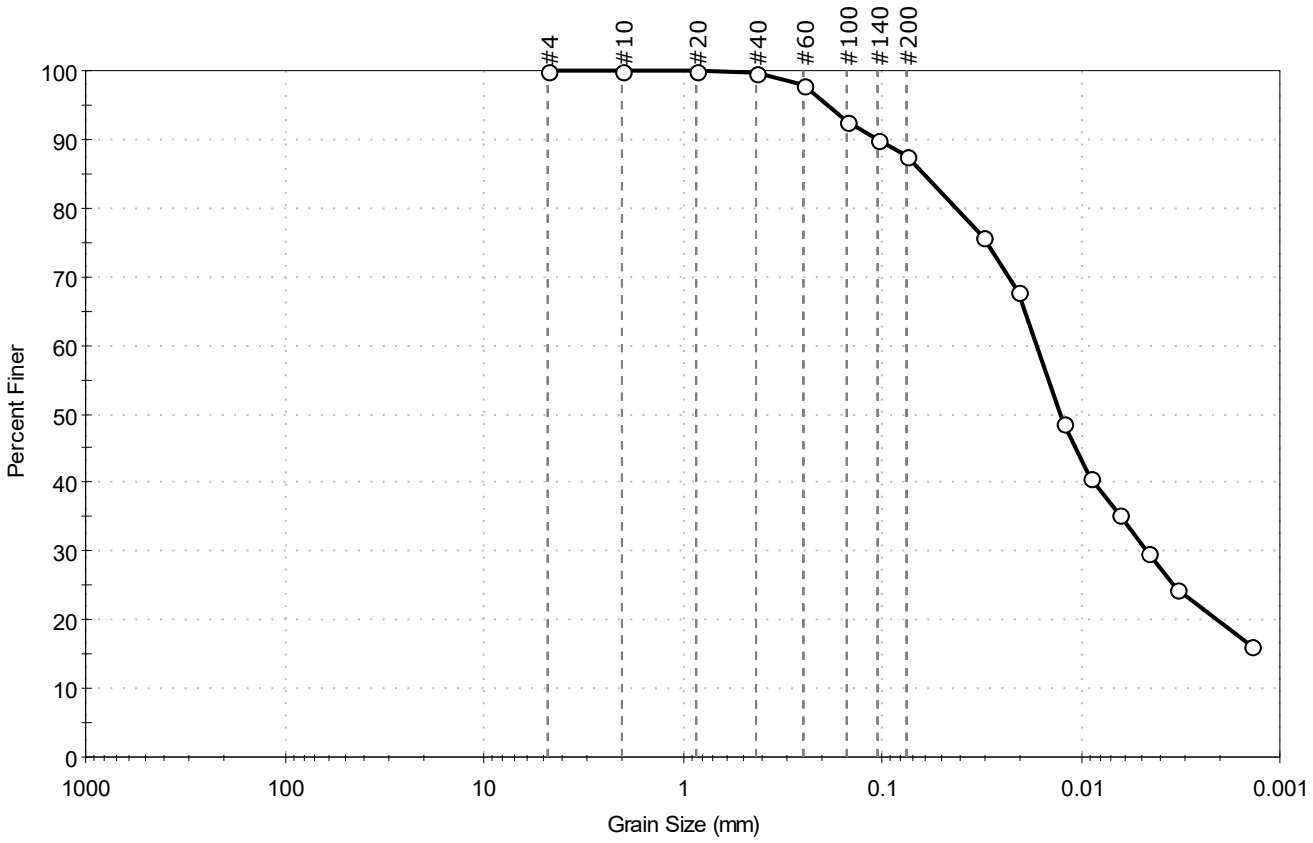
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-116SPT-26.7-28.6-19	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527590		
Test Comment:	---				
Visual Description:	Wet, grayish brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	12.5	87.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	98		
#100	0.15	93		
#140	0.11	90		
#200	0.075	87		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0310	76		
---	0.0206	68		
---	0.0124	49		
---	0.0090	41		
---	0.0064	35		
---	0.0046	30		
---	0.0033	24		
---	0.0014	16		

Coefficients

D_{85} = 0.0620 mm	D_{30} = 0.0046 mm
D_{60} = 0.0167 mm	D_{15} = N/A
D_{50} = 0.0128 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (15))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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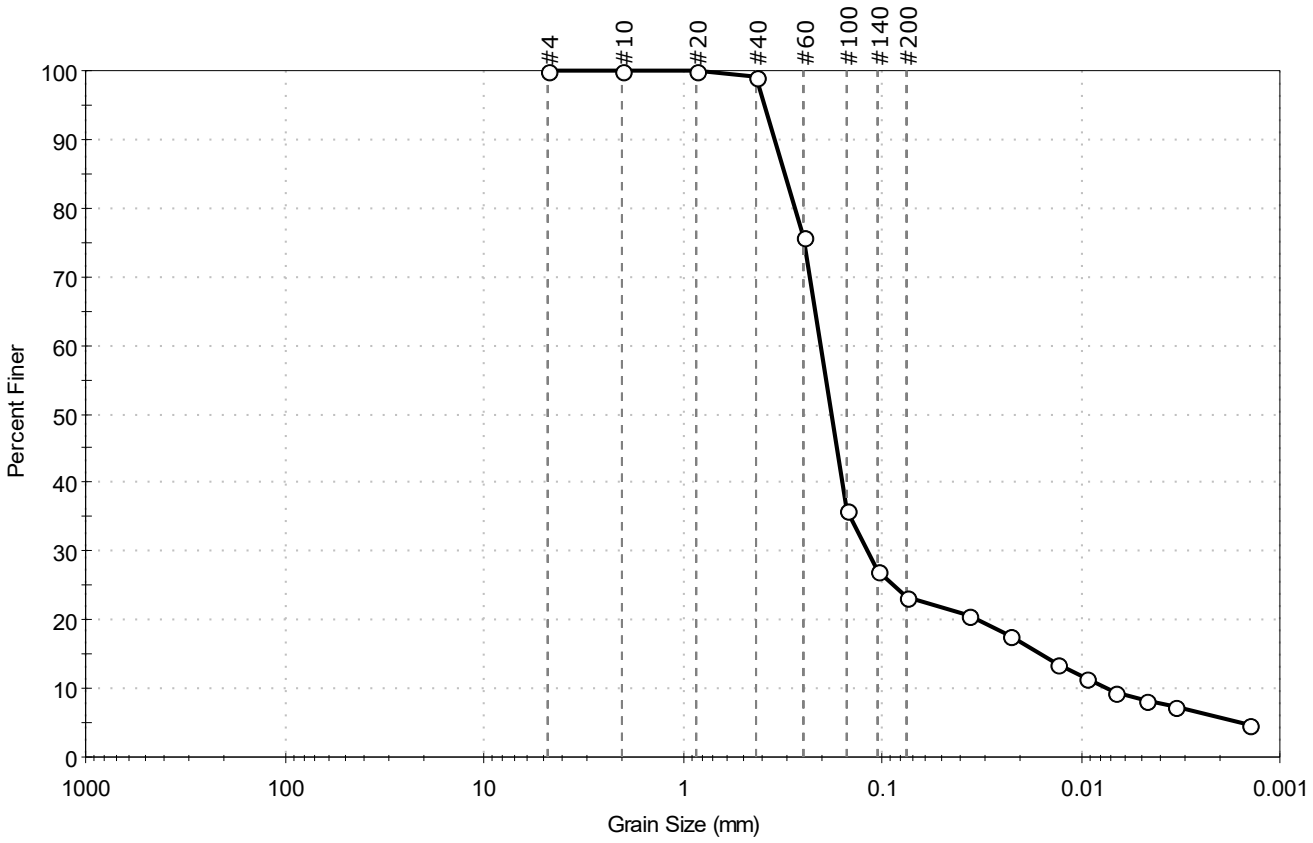
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-116SPT-51.5-54.2-19	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527591		

Test Comment: ---
Visual Description: Moist, olive brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	76.6	23.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	76		
#100	0.15	36		
#140	0.11	27		
#200	0.075	23		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0368	21		
---	0.0228	18		
---	0.0133	13		
---	0.0094	11		
---	0.0067	9		
---	0.0048	8		
---	0.0034	7		
---	0.0014	5		

Coefficients

D_{85} = 0.3086 mm
D_{30} = 0.1182 mm
D_{60} = 0.2041 mm
D_{15} = 0.0163 mm
D_{50} = 0.1794 mm
D_{10} = 0.0075 mm
C_u = 27.213
C_c = 9.127

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

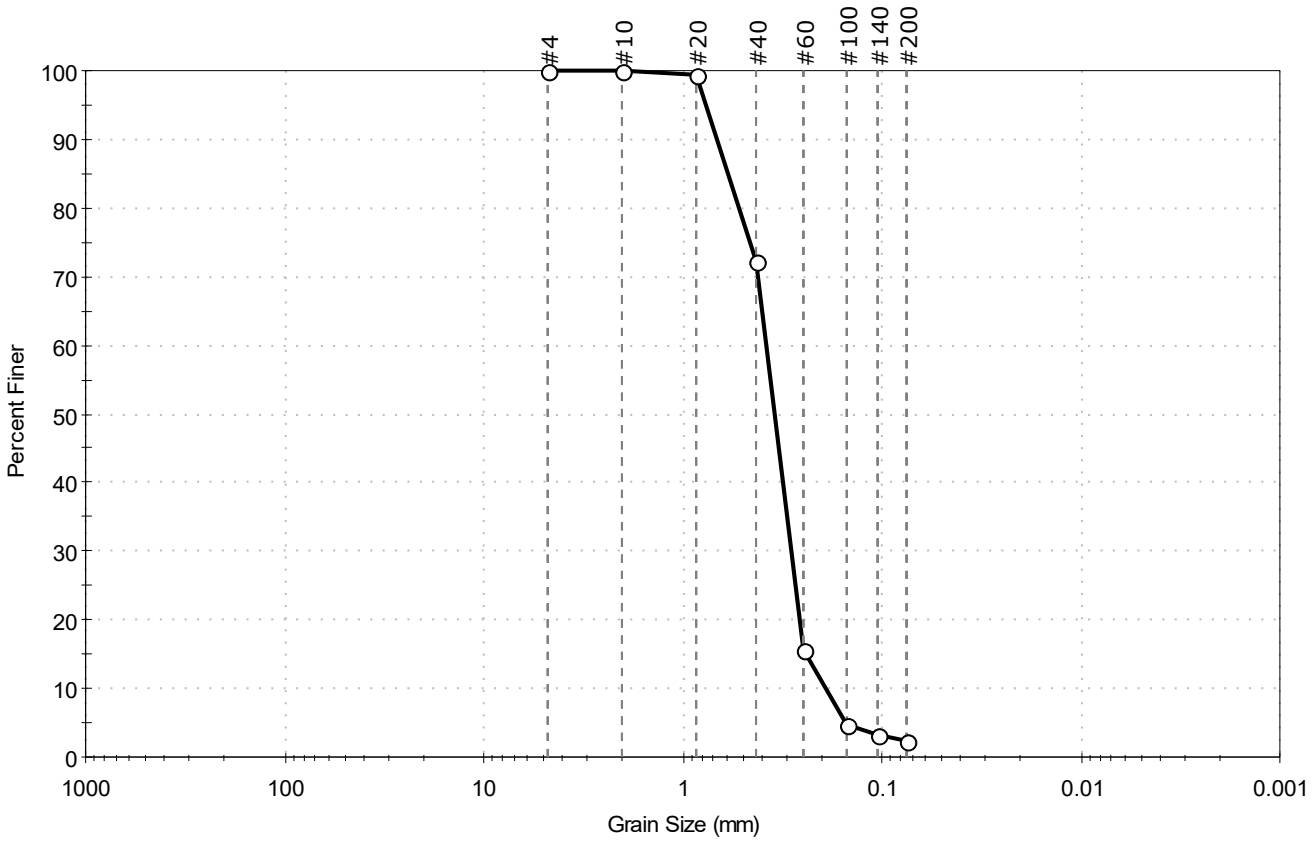
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-117SPT-11-29.1-191	Test Date:	10/31/19	Checked By:	bfs
Depth :	---	Test Id:	527592		

Test Comment: ---
Visual Description: Moist, dark gray sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	97.6	2.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	72		
#60	0.25	16		
#100	0.15	5		
#140	0.11	3		
#200	0.075	2.4		

Coefficients

D_{85} = 0.5889 mm
D_{30} = 0.2860 mm
D_{60} = 0.3791 mm
D_{15} = 0.2421 mm
D_{50} = 0.3451 mm
D_{10} = 0.1922 mm
C_u = 1.972
C_c = 1.123

Classification

ASTM Poorly graded SAND (SP)

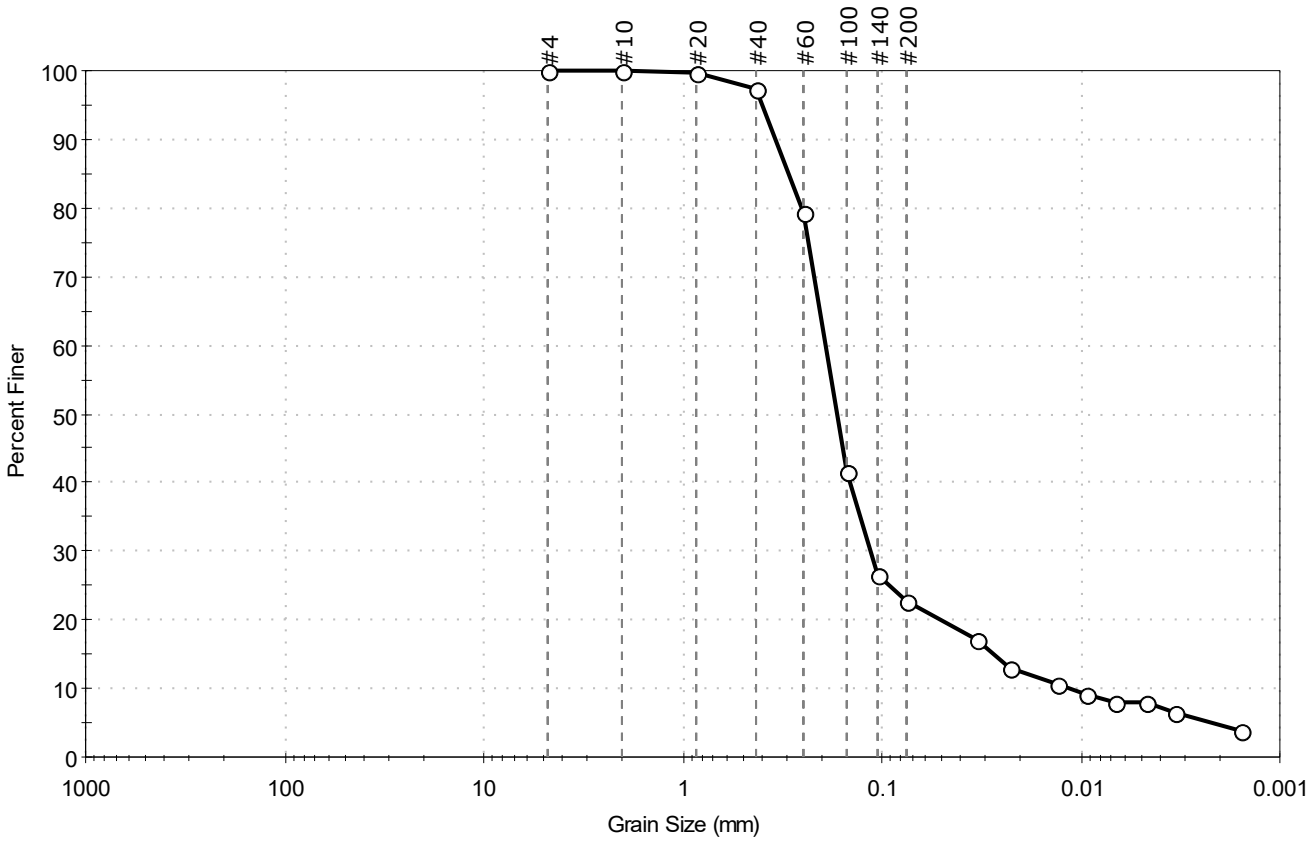
AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-117SPT-29.1-32-191(	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527593		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	77.3	22.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	97		
#60	0.25	79		
#100	0.15	42		
#140	0.11	27		
#200	0.075	23		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0331	17		
---	0.0225	13		
---	0.0132	10		
---	0.0094	9		
---	0.0067	8		
---	0.0047	8		
---	0.0034	7		
---	0.0016	4		

Coefficients

D_{85} = 0.2955 mm
D_{30} = 0.1146 mm
D_{60} = 0.1923 mm
D_{15} = 0.0271 mm
D_{50} = 0.1680 mm
D_{10} = 0.0117 mm
C_u = 16.436
C_c = 5.837

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

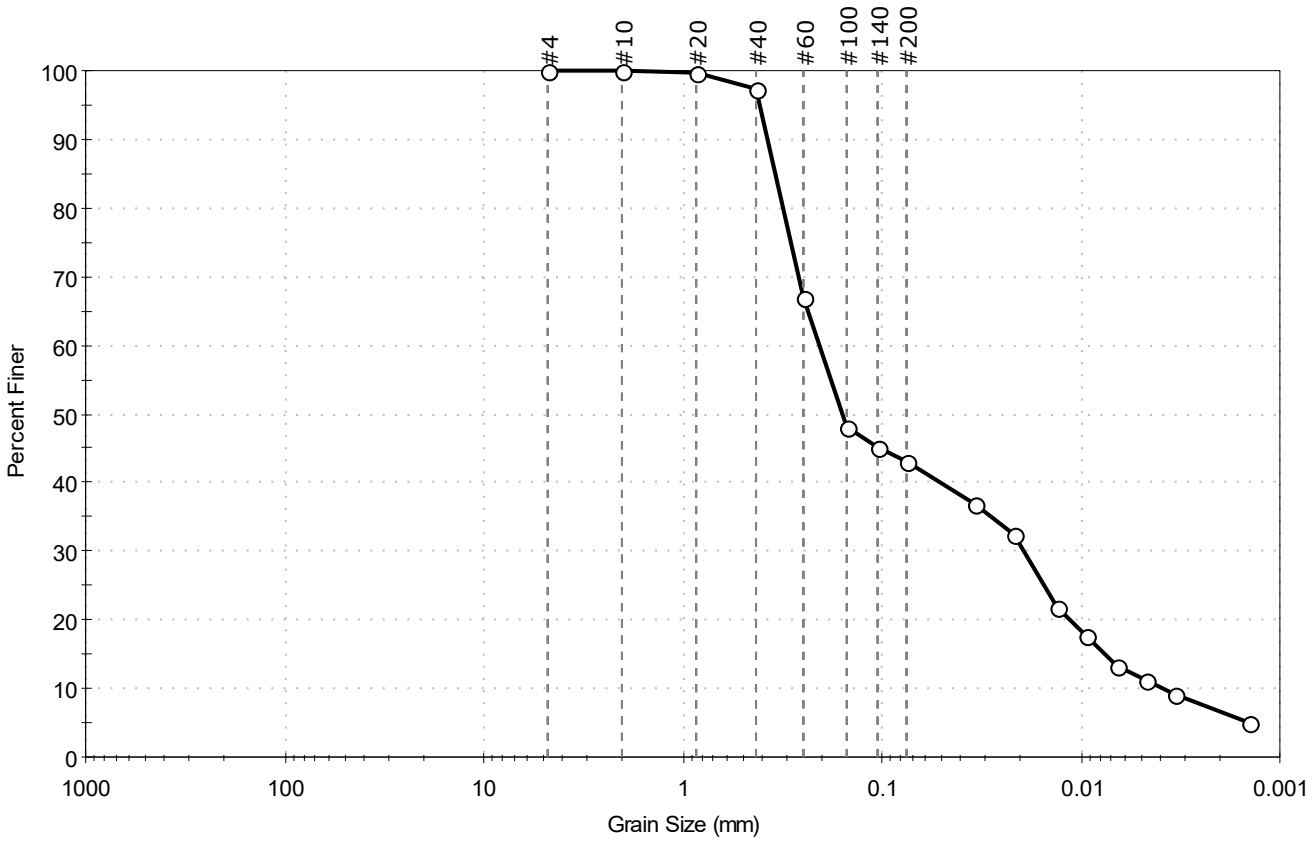
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-117SPT-44.1-53.5-19	Test Date:	10/31/19	Checked By:	bfs
Depth :	---	Test Id:	527594		

Test Comment: ---
Visual Description: Moist, dark gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	56.9	43.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	97		
#60	0.25	67		
#100	0.15	48		
#140	0.11	45		
#200	0.075	43		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0340	37		
---	0.0218	33		
---	0.0131	22		
---	0.0093	18		
---	0.0067	13		
---	0.0047	11		
---	0.0034	9		
---	0.0014	5		

Coefficients

D_{85} = 0.3430 mm D_{30} = 0.0193 mm
D_{60} = 0.2072 mm D_{15} = 0.0076 mm
D_{50} = 0.1576 mm D_{10} = 0.0039 mm
C_u = 53.128 C_c = 0.461

Classification

ASTM Silty SAND (SM)

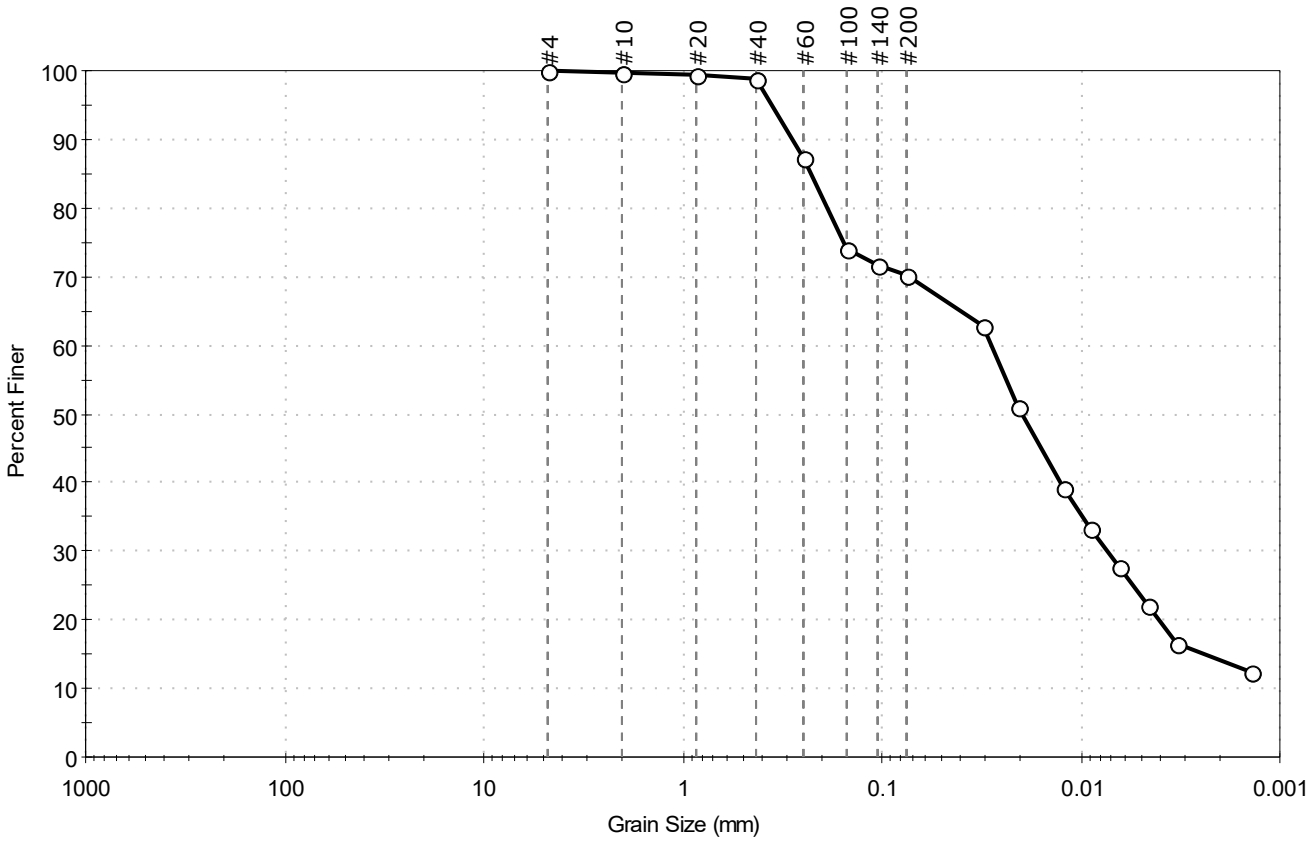
AASHTO Clayey Soils (A-7-6 (3))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-117SPT-53.5-63.5-19	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527595		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	29.8	70.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	87		
#100	0.15	74		
#140	0.11	72		
#200	0.075	70		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0310	63		
---	0.0205	51		
---	0.0123	39		
---	0.0089	33		
---	0.0064	28		
---	0.0046	22		
---	0.0033	17		
---	0.0014	12		

Coefficients

D_{85} = 0.2293 mm	D_{30} = 0.0073 mm
D_{60} = 0.0281 mm	D_{15} = 0.0024 mm
D_{50} = 0.0196 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM SILT with Sand (ML)

AASHTO Clayey Soils (A-7-5 (9))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

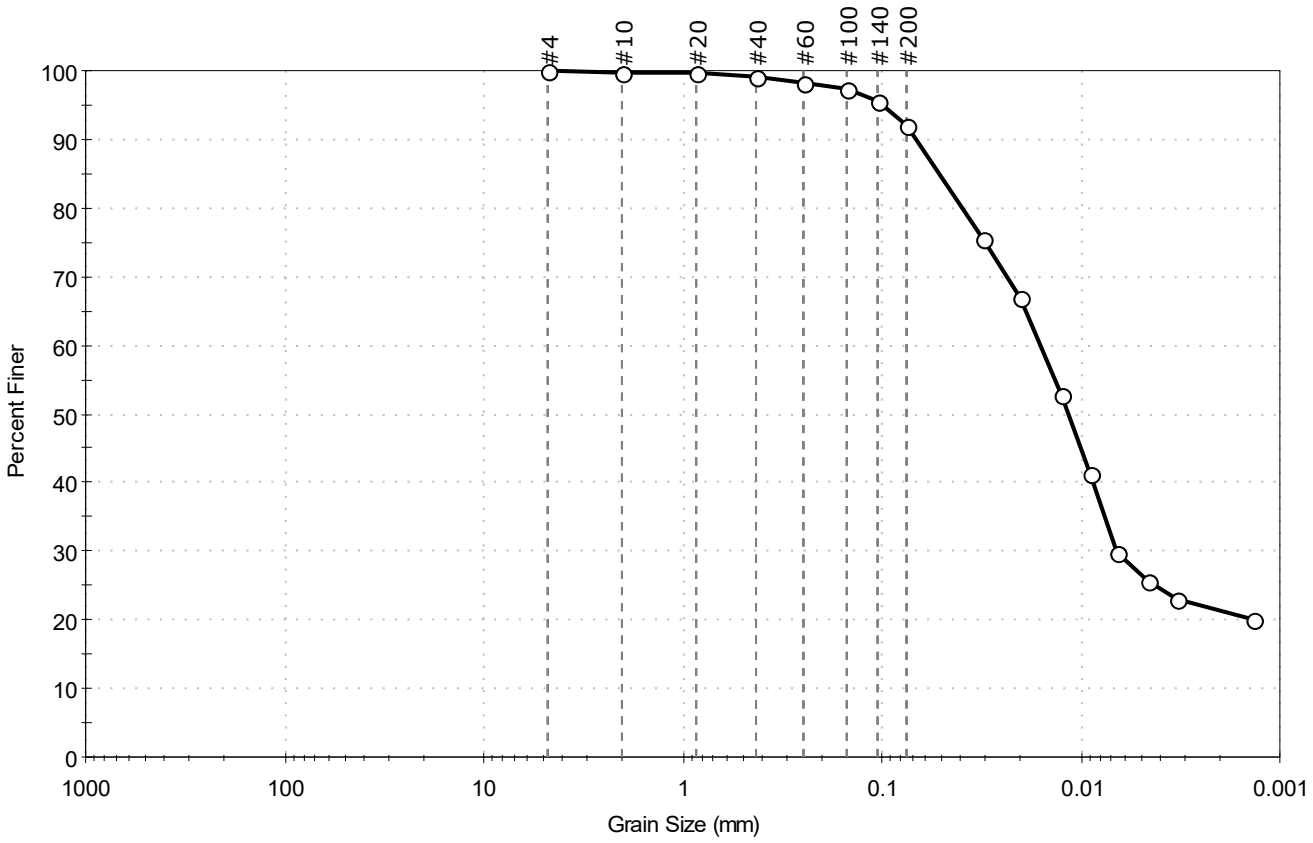
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-118SPT-00-4.5-1910	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527596		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	8.0	91.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	98		
#100	0.15	97		
#140	0.11	95		
#200	0.075	92		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0313	76		
---	0.0204	67		
---	0.0125	53		
---	0.0091	41		
---	0.0065	30		
---	0.0047	26		
---	0.0033	23		
---	0.0014	20		

Coefficients

D_{85} = 0.0518 mm	D_{30} = 0.0066 mm
D_{60} = 0.0161 mm	D_{15} = N/A
D_{50} = 0.0116 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (37))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

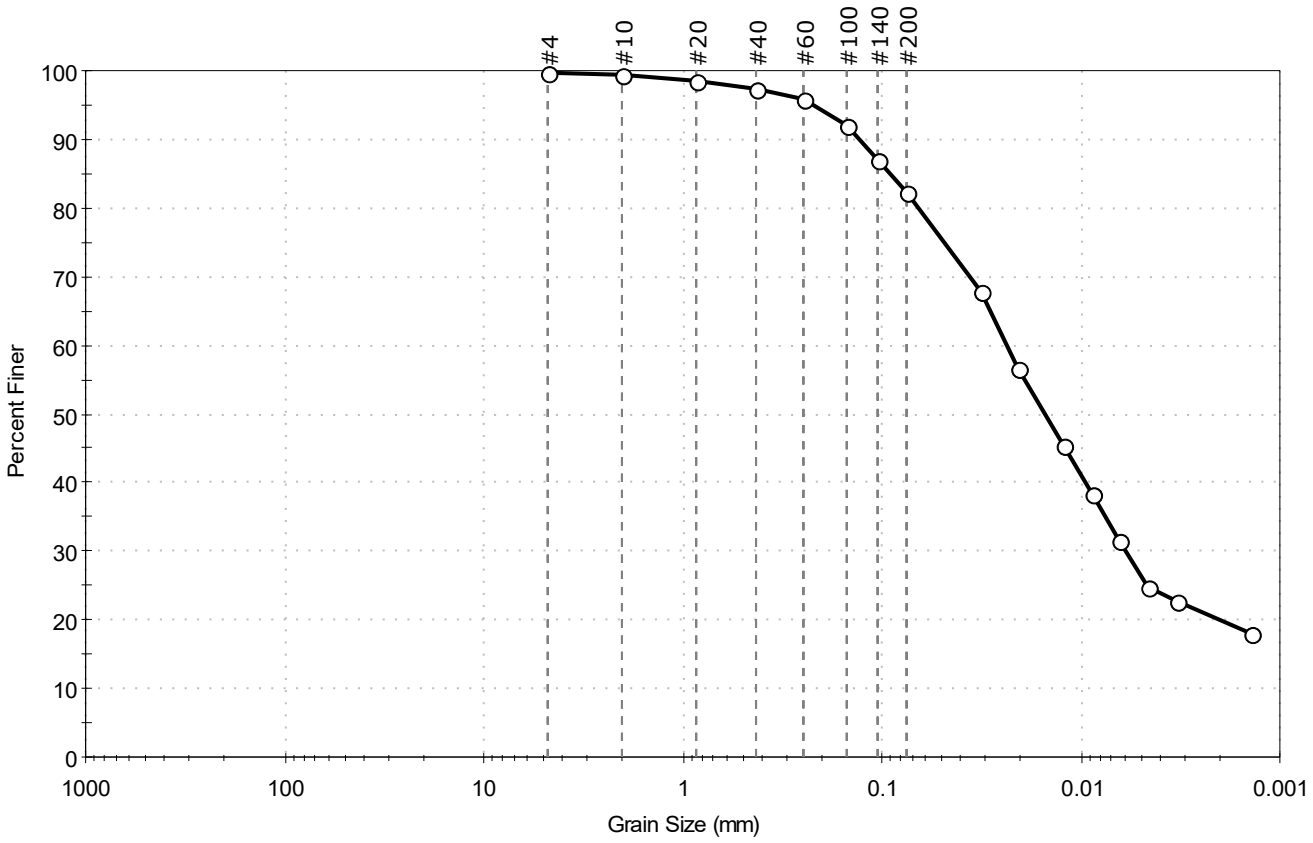
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-118SPT-4.5-15-1910	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527597		

Test Comment: ---
Visual Description: Moist, dark grayish brown silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.3	17.4	82.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	97		
#60	0.25	96		
#100	0.15	92		
#140	0.11	87		
#200	0.075	82		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0316	68		
---	0.0206	57		
---	0.0123	45		
---	0.0088	38		
---	0.0064	32		
---	0.0046	25		
---	0.0033	23		
---	0.0014	18		

Coefficients

D_{85} = 0.0914 mm	D_{30} = 0.0059 mm
D_{60} = 0.0234 mm	D_{15} = N/A
D_{50} = 0.0152 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (34))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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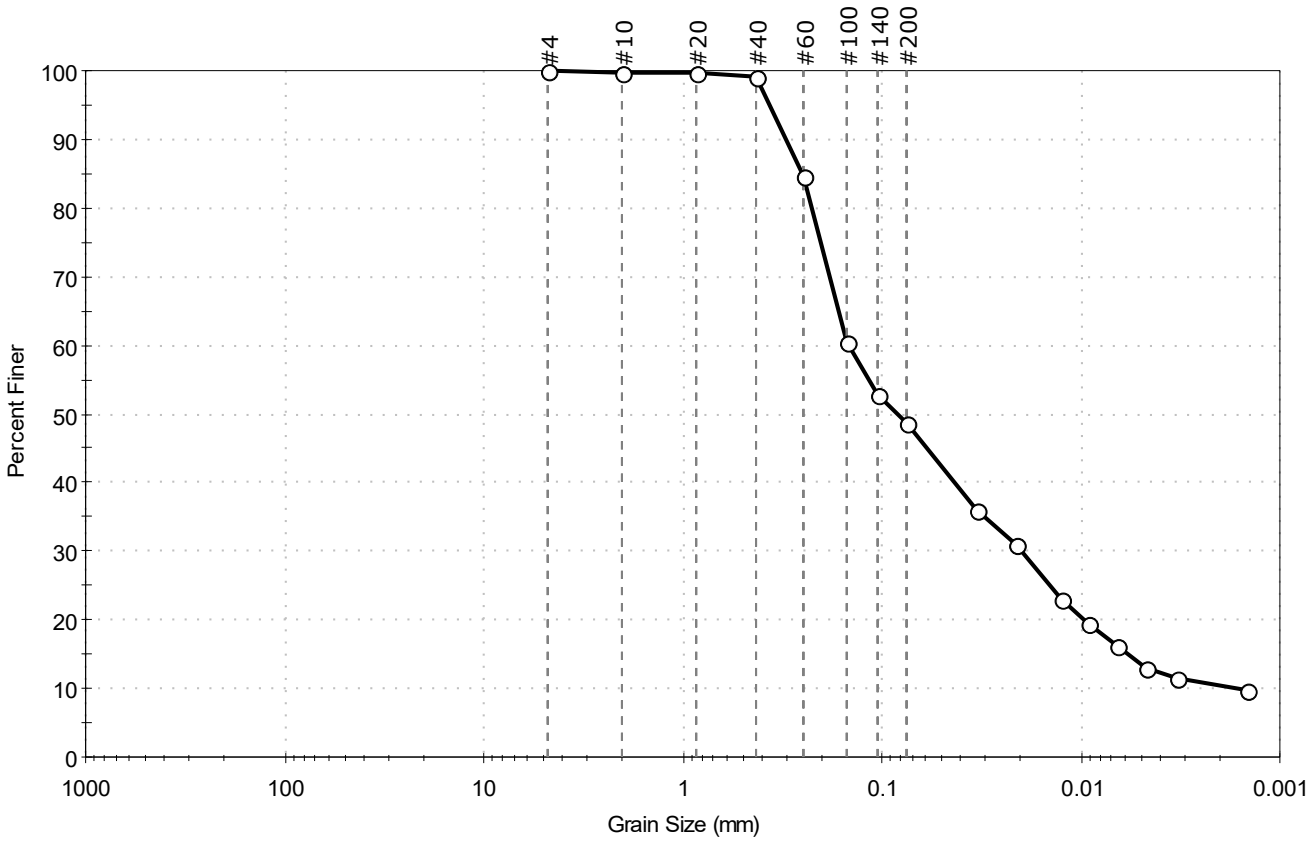
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-118SPT-46.5-61-191(	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527598		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	51.1	48.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	85		
#100	0.15	60		
#140	0.11	53		
#200	0.075	49		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0337	36		
---	0.0210	31		
---	0.0127	23		
---	0.0092	20		
---	0.0065	16		
---	0.0047	13		
---	0.0033	11		
---	0.0015	10		

Coefficients

D_{85} =0.2537 mm	D_{30} =0.0197 mm
D_{60} =0.1474 mm	D_{15} =0.0057 mm
D_{50} =0.0832 mm	D_{10} =0.0016 mm
C_u =92.125	C_c =1.646

Classification

ASTM Silty SAND (SM)

AASHTO Silty Soils (A-4 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

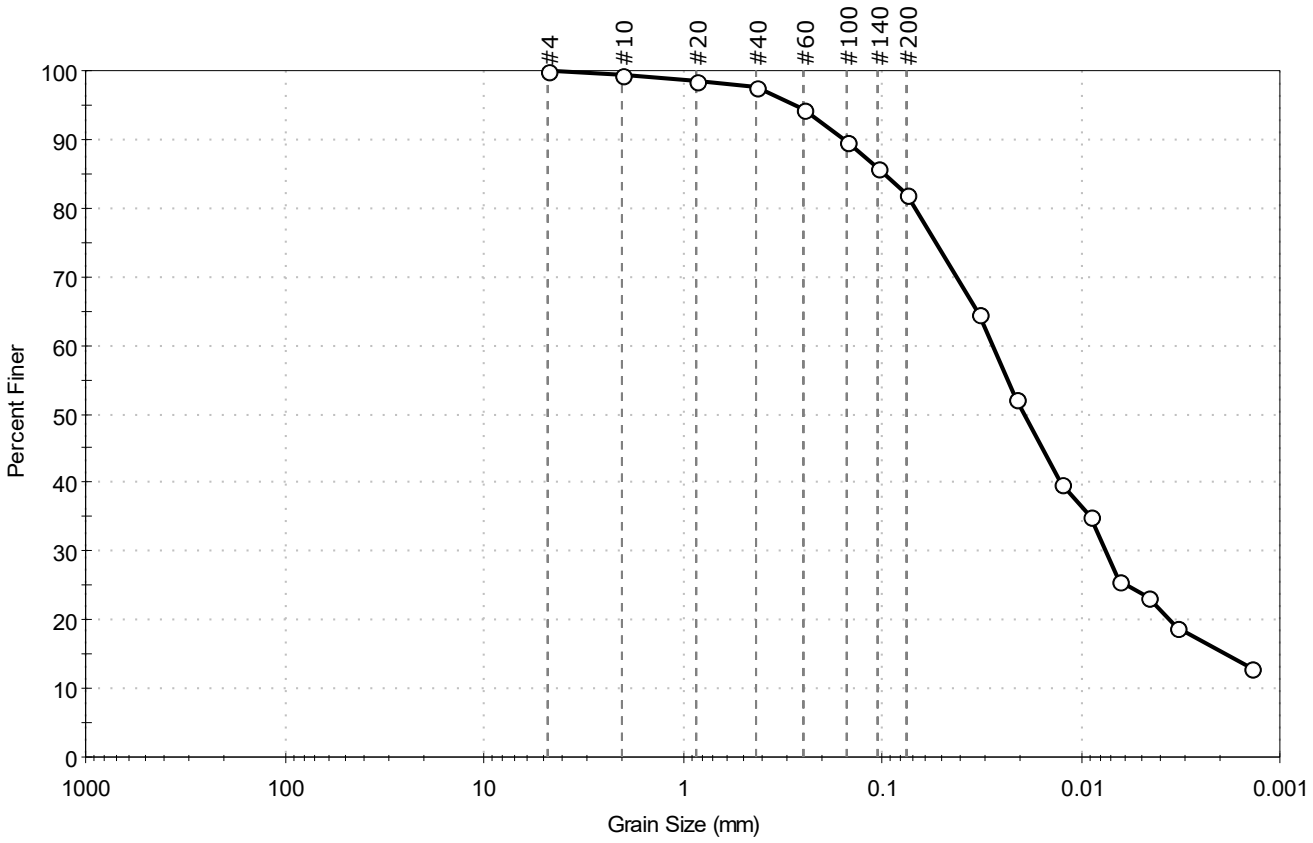
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-119SPT-00-4.5-1910	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527599		

Test Comment: ---
Visual Description: Moist, dark grayish brown silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	18.1	81.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	98		
#60	0.25	95		
#100	0.15	90		
#140	0.11	86		
#200	0.075	82		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0329	64		
---	0.0210	52		
---	0.0126	40		
---	0.0090	35		
---	0.0065	26		
---	0.0046	23		
---	0.0033	19		
---	0.0014	13		

Coefficients

D_{85} = 0.0981 mm
D_{30} = 0.0075 mm
D_{60} = 0.0279 mm
D_{15} = 0.0019 mm
D_{50} = 0.0191 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

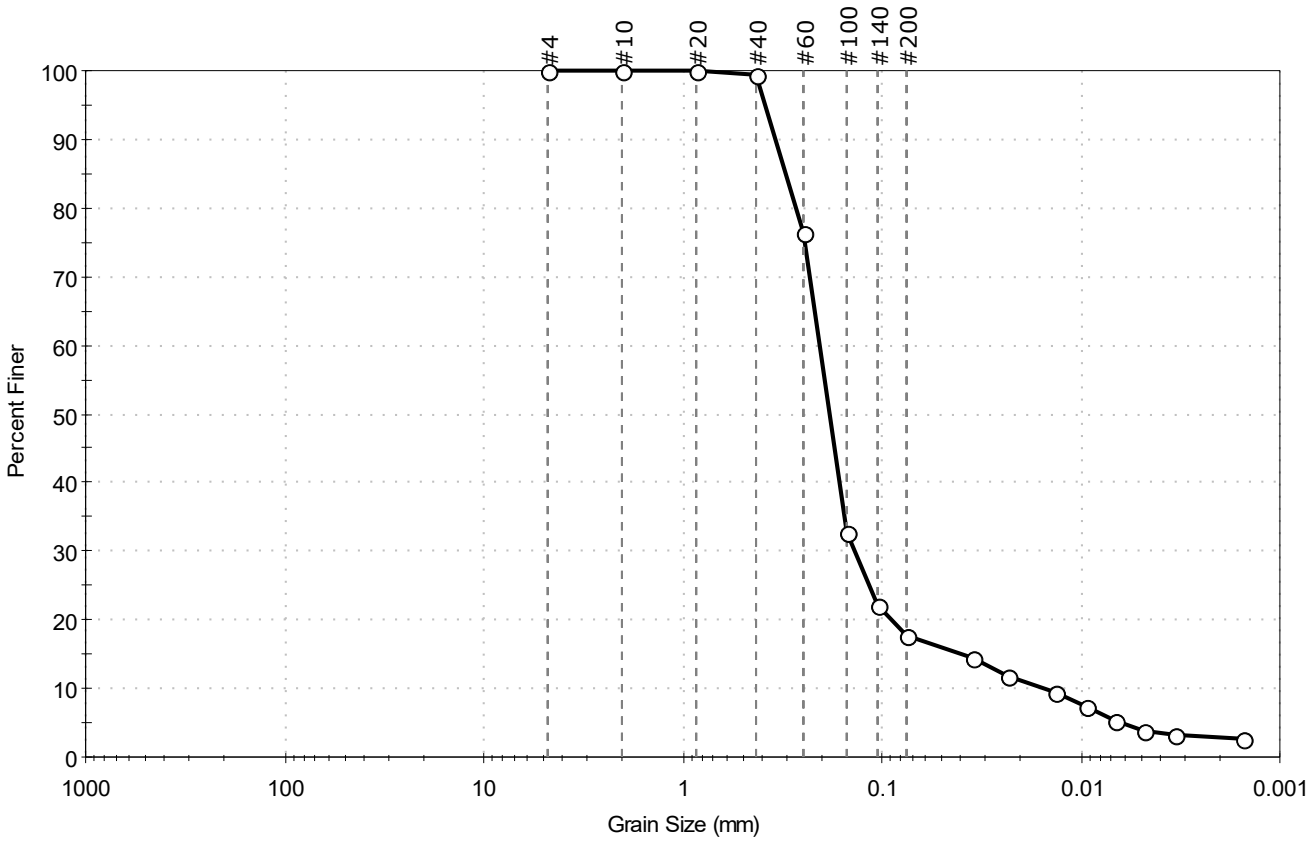
AASHTO Clayey Soils (A-7-5 (37))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-119SPT-18.3-31-191(	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527600		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	82.3	17.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	76		
#100	0.15	33		
#140	0.11	22		
#200	0.075	18		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0350	15		
---	0.0231	12		
---	0.0134	10		
---	0.0095	7		
---	0.0067	5		
---	0.0048	4		
---	0.0034	3		
---	0.0015	3		

Coefficients

D_{85} =0.3051 mm	D_{30} =0.1369 mm
D_{60} =0.2063 mm	D_{15} =0.0393 mm
D_{50} =0.1835 mm	D_{10} =0.0149 mm
C_u =13.846	C_c =6.097

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

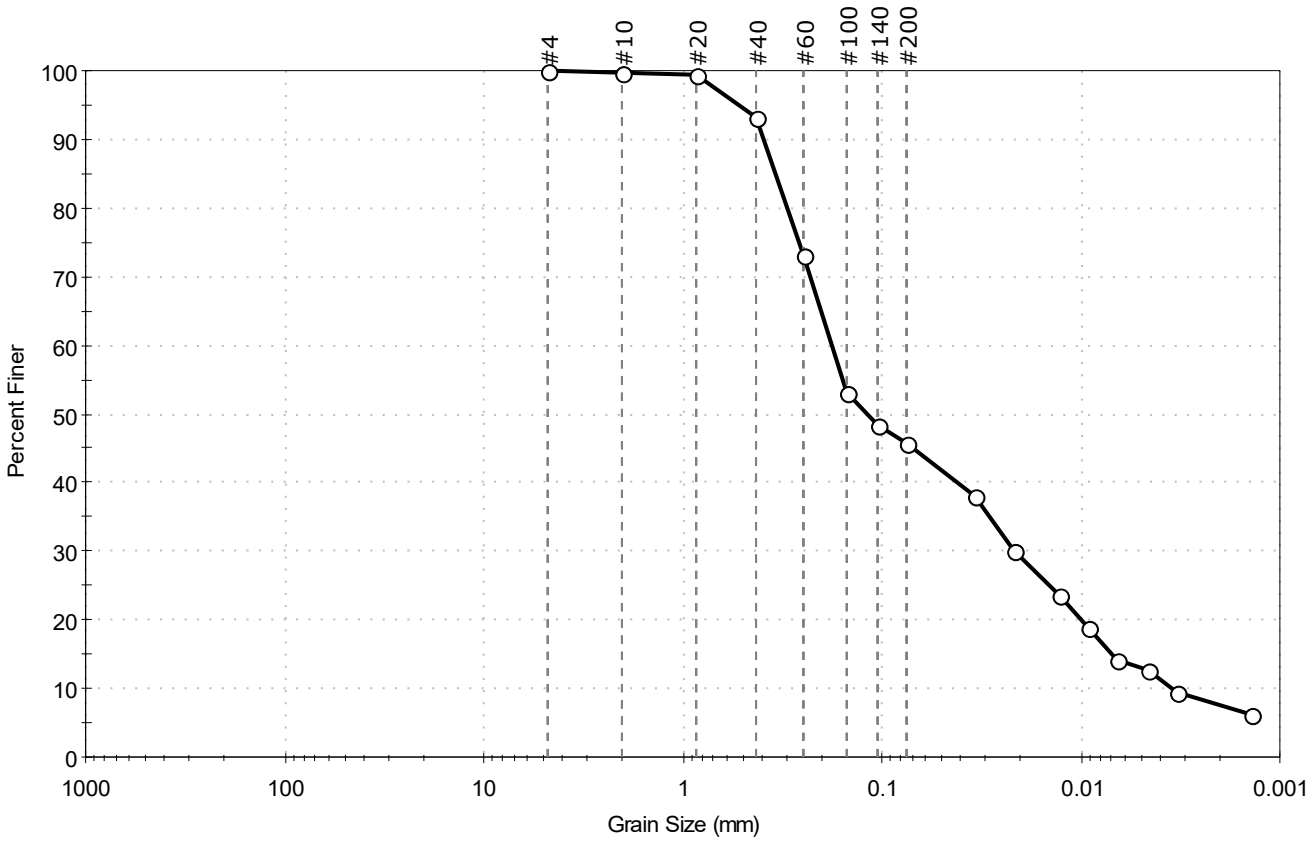
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-119SPT-47-52-19100	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527601		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	54.2	45.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	93		
#60	0.25	73		
#100	0.15	53		
#140	0.11	48		
#200	0.075	46		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0339	38		
---	0.0216	30		
---	0.0127	24		
---	0.0092	19		
---	0.0066	14		
---	0.0047	13		
---	0.0033	9		
---	0.0014	6		

Coefficients

D_{85} =0.3420 mm	D_{30} =0.0214 mm
D_{60} =0.1784 mm	D_{15} =0.0069 mm
D_{50} =0.1186 mm	D_{10} =0.0035 mm
C_u =50.971	C_c =0.733

Classification

ASTM Silty SAND (SM)

AASHTO Silty Soils (A-4 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

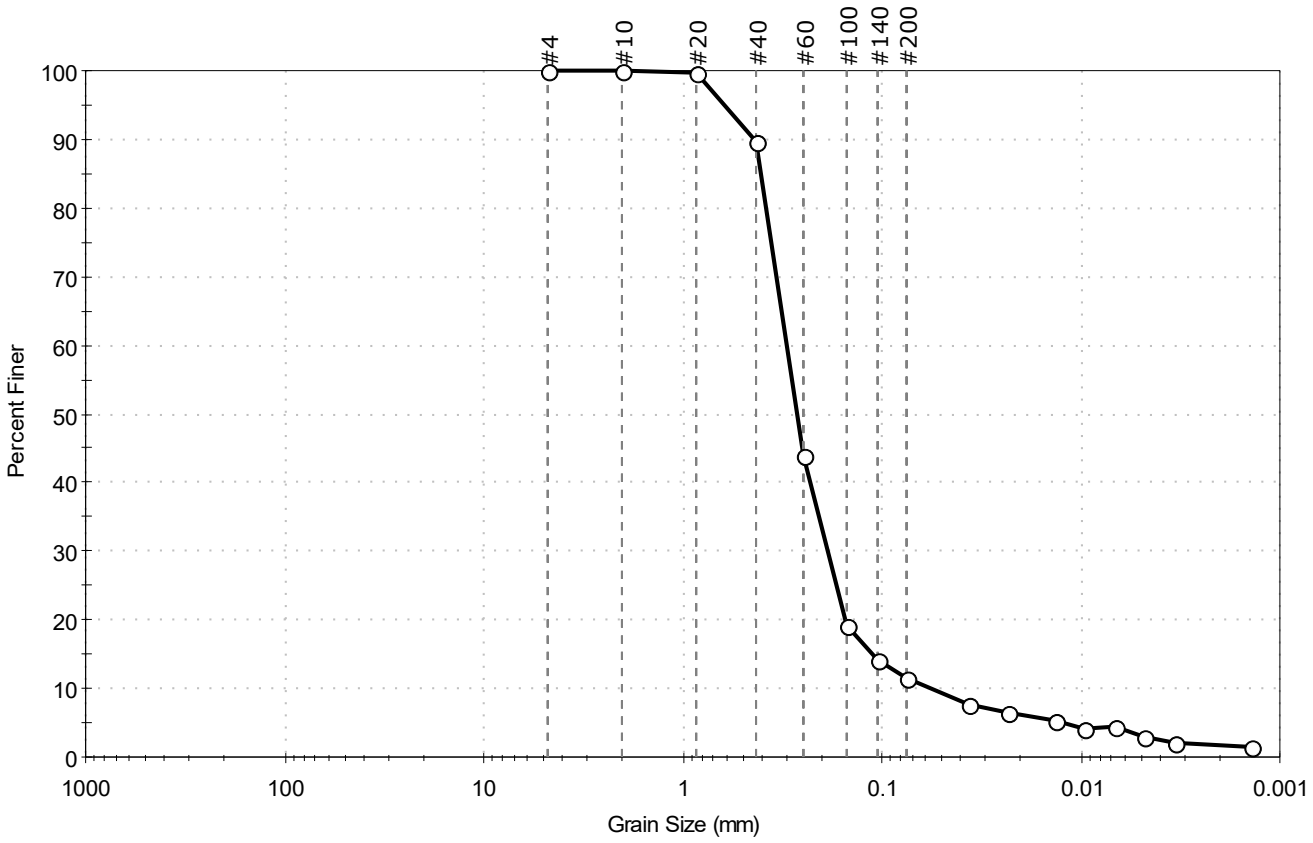
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-119SPT-9.5-18.3-191	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527602		

Test Comment: ---
Visual Description: Moist, dark grayish brown sand with silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	88.4	11.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	90		
#60	0.25	44		
#100	0.15	19		
#140	0.11	14		
#200	0.075	12		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0370	8		
---	0.0233	7		
---	0.0135	5		
---	0.0096	4		
---	0.0067	4		
---	0.0048	3		
---	0.0034	2		
---	0.0014	2		

Coefficients

D_{85} = 0.4029 mm	D_{30} = 0.1875 mm
D_{60} = 0.3010 mm	D_{15} = 0.1128 mm
D_{50} = 0.2679 mm	D_{10} = 0.0555 mm
C_u = 5.423	C_c = 2.104

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

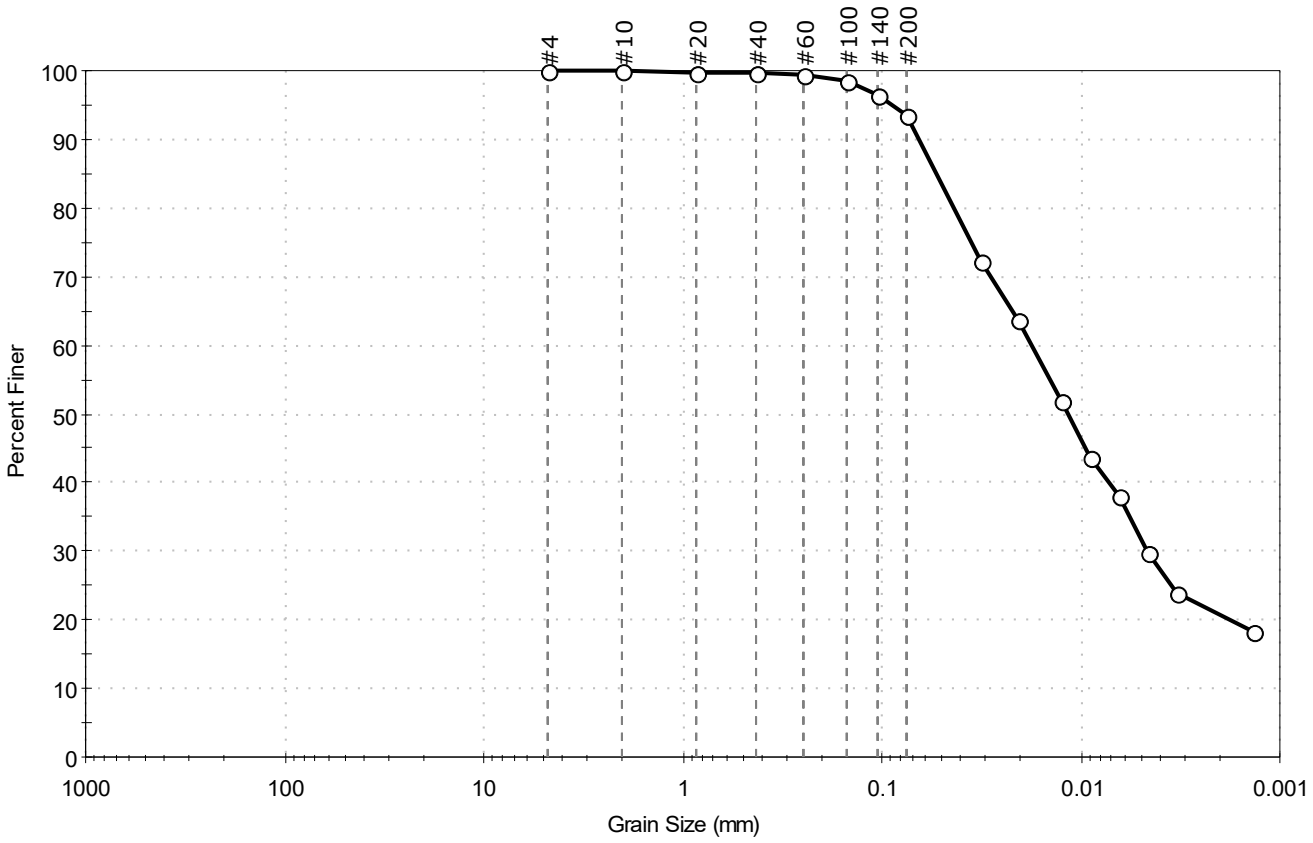
AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-121SPT-00-06-19093	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527603		
Test Comment:	---				
Visual Description:	Moist, olive brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	6.4	93.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	99		
#140	0.11	97		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0319	72		
---	0.0209	64		
---	0.0125	52		
---	0.0090	44		
---	0.0064	38		
---	0.0046	30		
---	0.0033	24		
---	0.0014	18		

Coefficients

D_{85} = 0.0532 mm	D_{30} = 0.0046 mm
D_{60} = 0.0178 mm	D_{15} = N/A
D_{50} = 0.0115 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (38))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

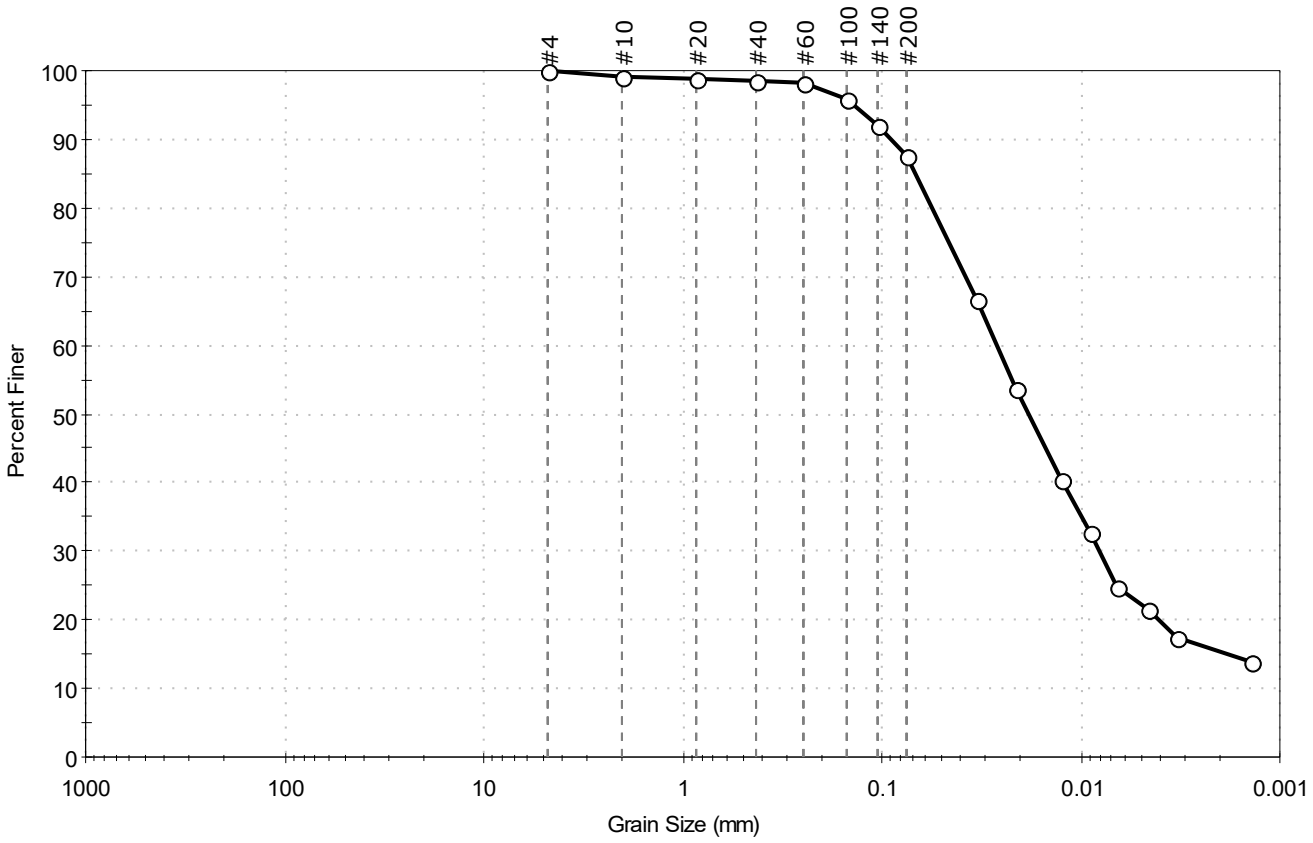
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-121SPT-11-20.7-190	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527604		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.1	12.4	87.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	96		
#140	0.11	92		
#200	0.075	88		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0331	67		
---	0.0212	54		
---	0.0126	41		
---	0.0091	33		
---	0.0065	25		
---	0.0046	21		
---	0.0033	18		
---	0.0014	14		

Coefficients

D_{85} = 0.0679 mm	D_{30} = 0.0081 mm
D_{60} = 0.0264 mm	D_{15} = 0.0018 mm
D_{50} = 0.0184 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (26))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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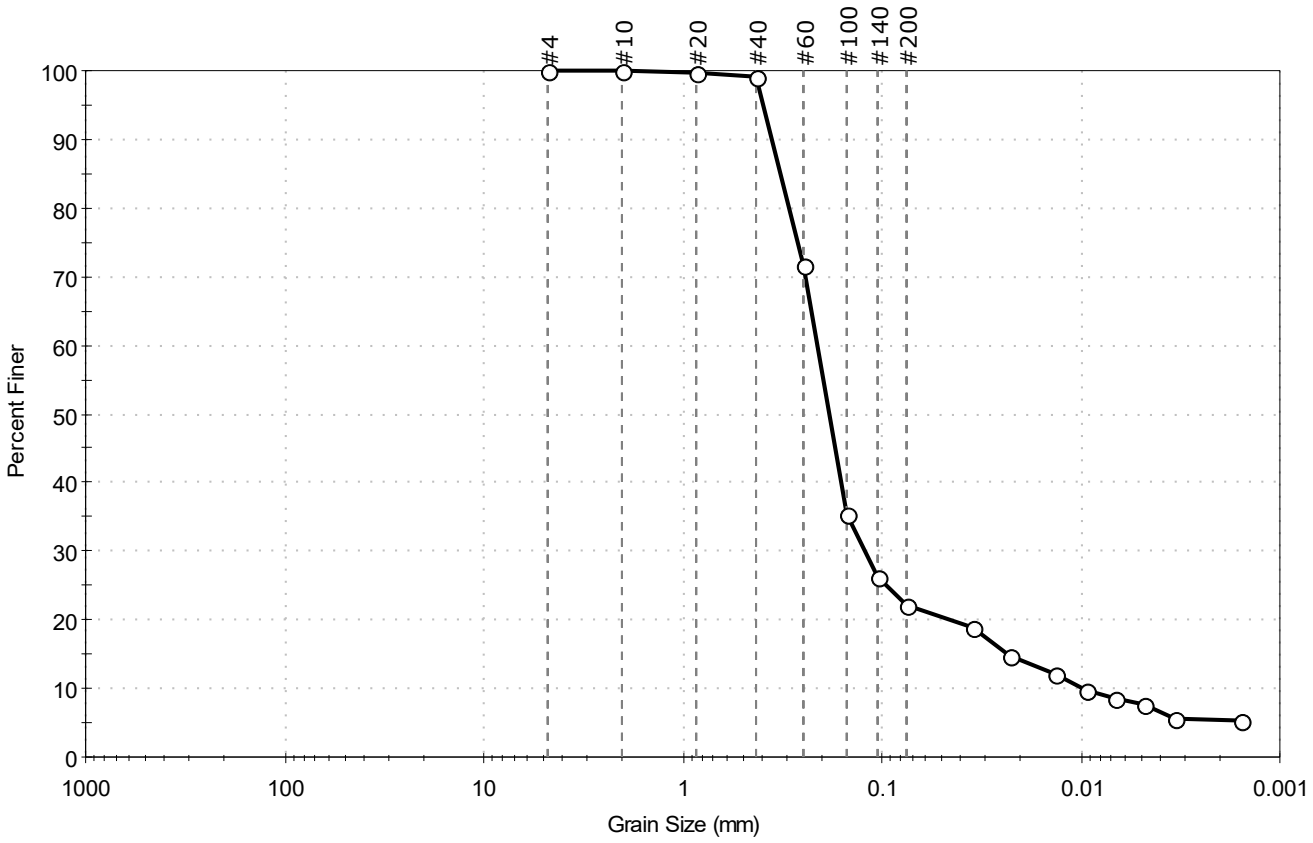
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-121SPT-21-38-19093	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527605		
Test Comment:	---				
Visual Description:	Moist, dark olive gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	77.8	22.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	72		
#100	0.15	35		
#140	0.11	26		
#200	0.075	22		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0352	19		
---	0.0226	15		
---	0.0135	12		
---	0.0095	10		
---	0.0068	9		
---	0.0048	8		
---	0.0034	6		
---	0.0016	5		

Coefficients

D_{85} =0.3231 mm	D_{30} =0.1227 mm
D_{60} =0.2122 mm	D_{15} =0.0231 mm
D_{50} =0.1844 mm	D_{10} =0.0098 mm
C_u =21.653	C_c =7.240

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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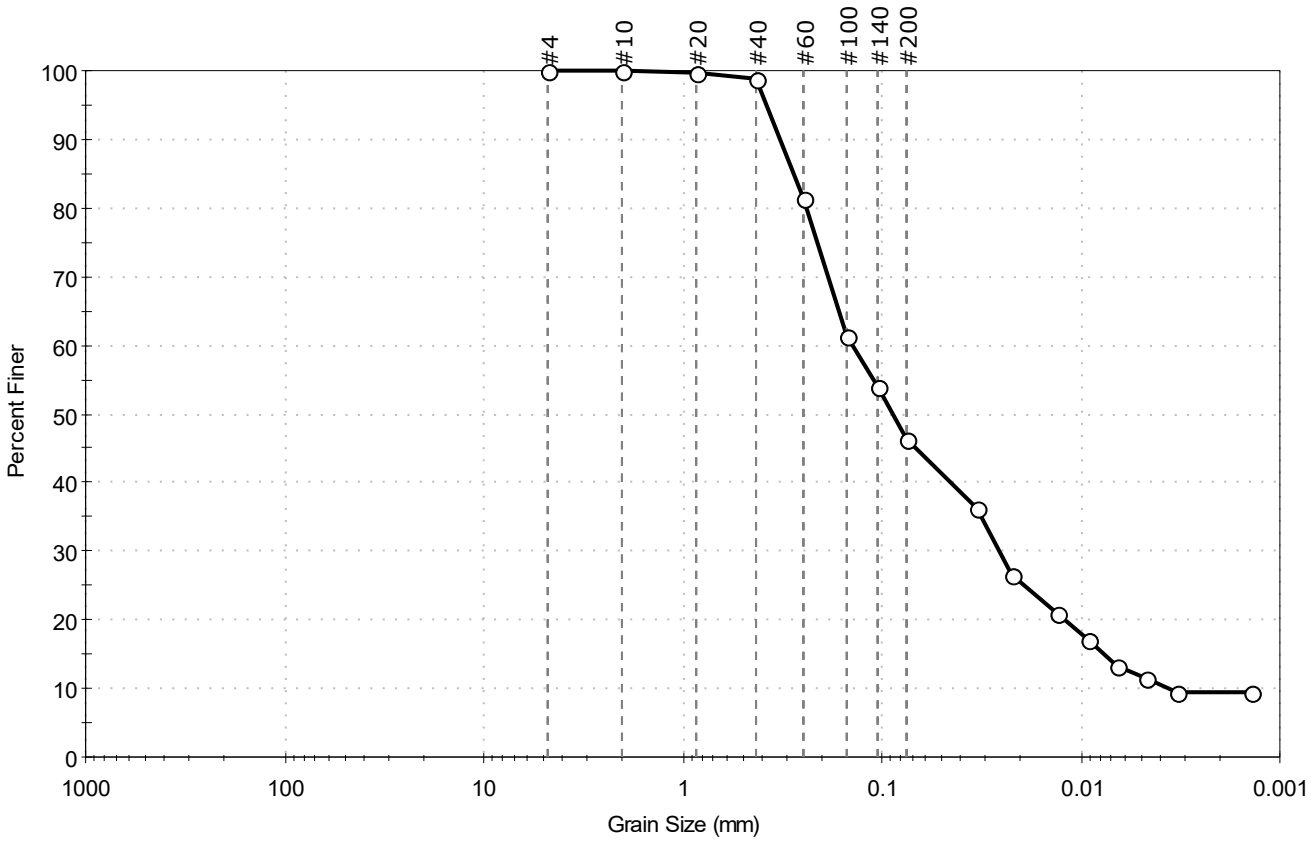
GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-121SPT-49.4-54-1905	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527606		

Test Comment: ---
Visual Description: Moist, dark grayish brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	53.6	46.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	81		
#100	0.15	61		
#140	0.11	54		
#200	0.075	46		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0337	36		
---	0.0220	27		
---	0.0131	21		
---	0.0093	17		
---	0.0066	13		
---	0.0047	11		
---	0.0033	10		
---	0.0014	10		

Coefficients

D_{85} = 0.2788 mm
D_{30} = 0.0256 mm
D_{60} = 0.1404 mm
D_{15} = 0.0077 mm
D_{50} = 0.0886 mm
D_{10} = 0.0036 mm
C_u = 39.000
C_c = 1.297

Classification

ASTM Silty SAND (SM)

AASHTO Clayey Soils (A-7-5 (3))

Sample/Test Description

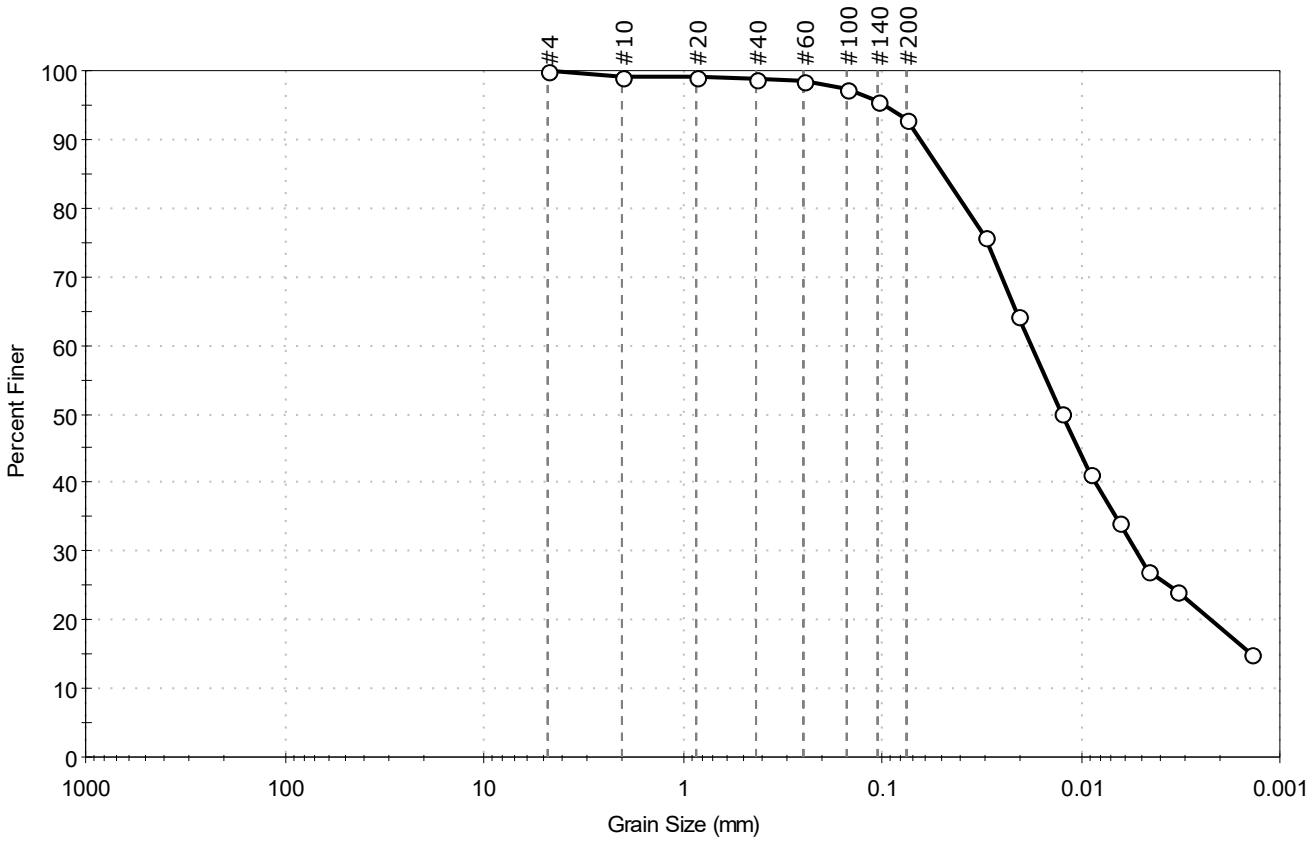
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-122SPT-04-09-19092	Test Date:	11/07/19	Checked By:	bfs
Depth :	---	Test Id:	527607		

Test Comment: ---
Visual Description: Wet, olive brown silt
Sample Comment: Sample contains organics

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	6.9	93.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	97		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0306	76		
---	0.0209	64		
---	0.0124	50		
---	0.0089	41		
---	0.0064	34		
---	0.0046	27		
---	0.0033	24		
---	0.0014	15		

Coefficients

D_{85} = 0.0494 mm	D_{30} = 0.0053 mm
D_{60} = 0.0178 mm	D_{15} = N/A
D_{50} = 0.0124 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (40))

Sample/Test Description

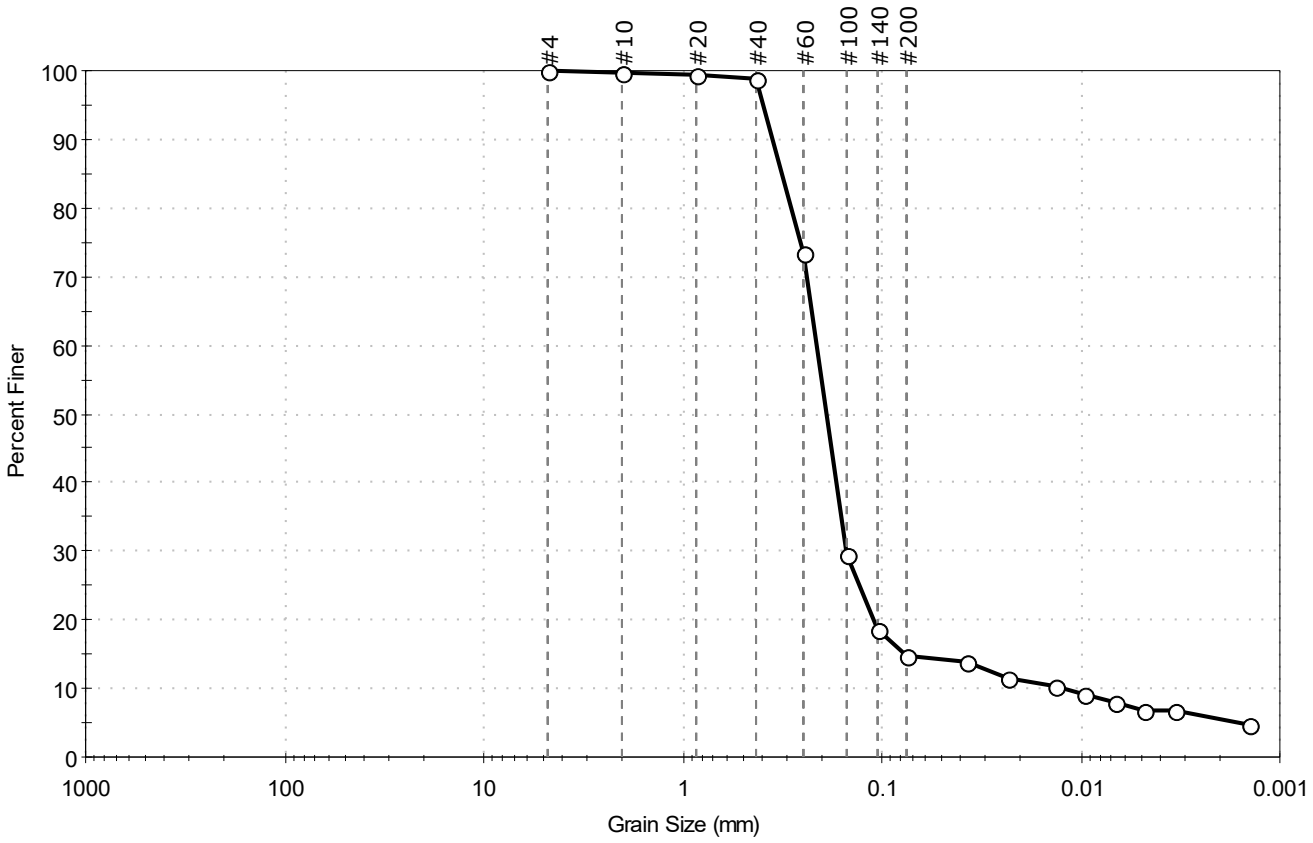
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-122SPT-16.6-24-1905	Test Date:	11/07/19	Checked By:	bfs
Depth :	---	Test Id:	527608		

Test Comment: ---
Visual Description: Moist, dark olive brown silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	85.2	14.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	74		
#100	0.15	30		
#140	0.11	19		
#200	0.075	15		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0377	14		
---	0.0232	12		
---	0.0135	10		
---	0.0095	9		
---	0.0068	8		
---	0.0048	7		
---	0.0034	7		
---	0.0014	5		

Coefficients

D_{85} = 0.3182 mm D_{30} = 0.1506 mm
D_{60} = 0.2136 mm D_{15} = 0.0767 mm
D_{50} = 0.1901 mm D_{10} = 0.0120 mm
C_u = 17.800 C_c = 8.848

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

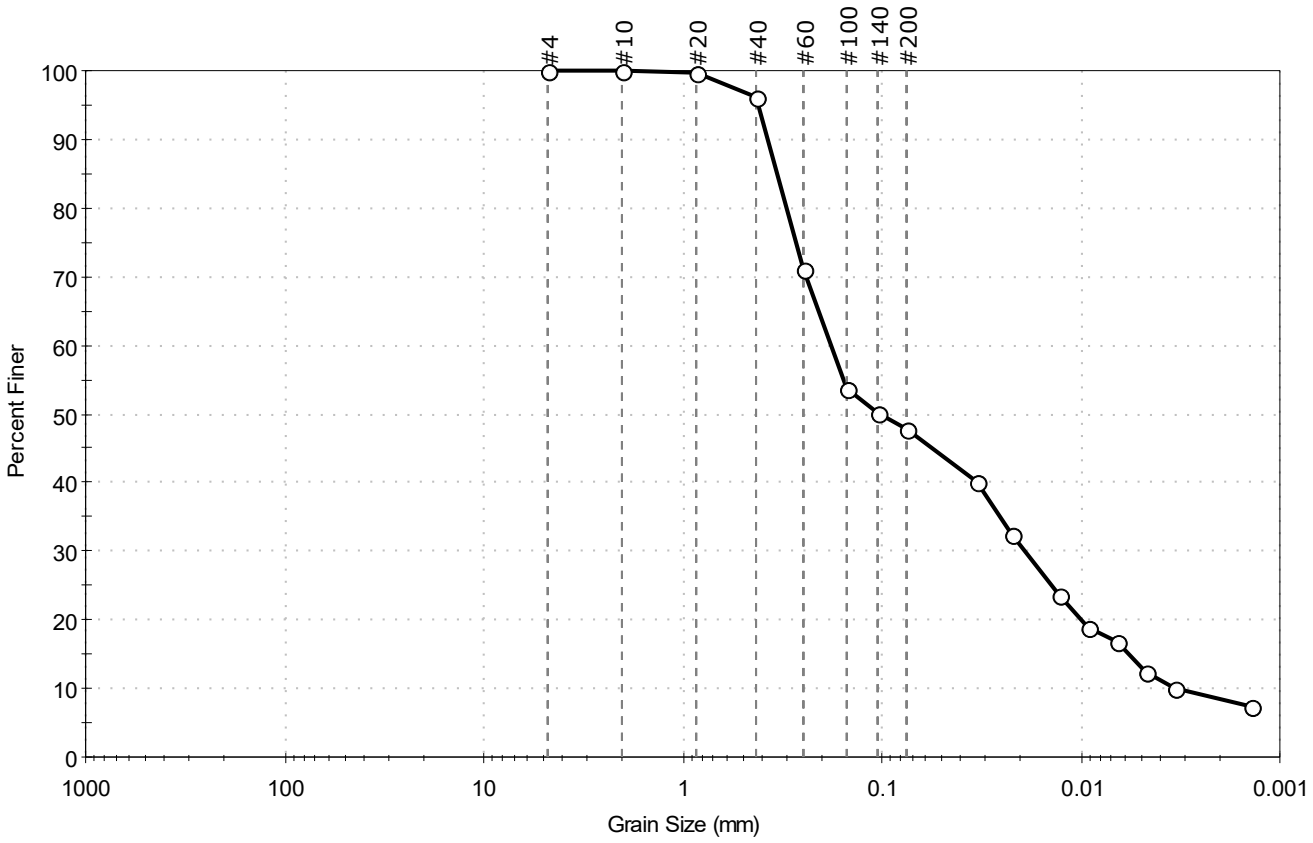
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-122SPT-61-66-19092	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527609		
Test Comment:	---				
Visual Description:	Wet, olive brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	52.2	47.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	96		
#60	0.25	71		
#100	0.15	54		
#140	0.11	50		
#200	0.075	48		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0332	40		
---	0.0222	32		
---	0.0130	23		
---	0.0093	19		
---	0.0066	17		
---	0.0047	12		
---	0.0034	10		
---	0.0014	7		

Coefficients

D_{85} =0.3352 mm	D_{30} =0.0192 mm
D_{60} =0.1803 mm	D_{15} =0.0058 mm
D_{50} =0.1049 mm	D_{10} =0.0033 mm
C_u =54.636	C_c =0.620

Classification

ASTM Silty SAND (SM)

AASHTO Clayey Soils (A-6 (3))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

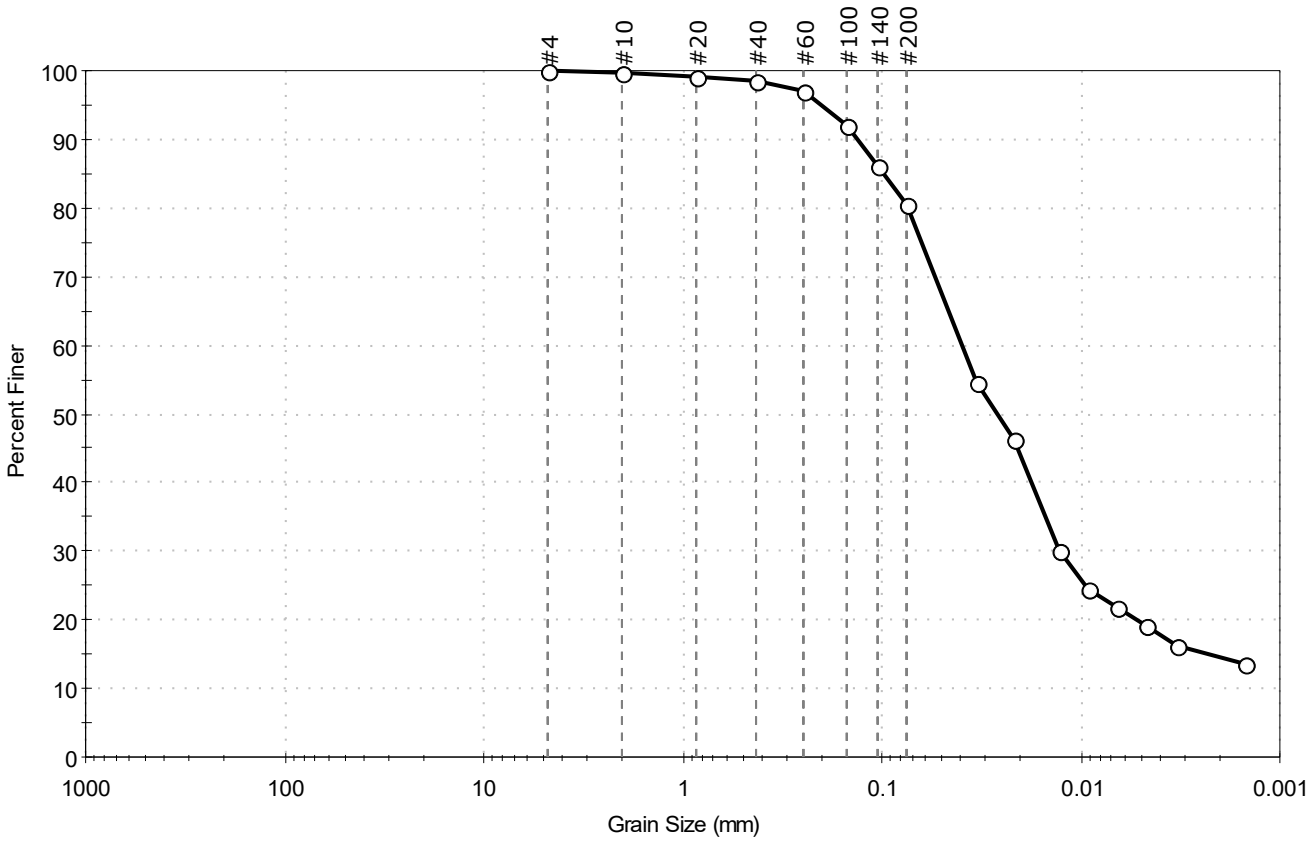
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-123SPT-00-4.5-19092	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527610		

Test Comment: ---
Visual Description: Wet, dark olive silt with sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	19.5	80.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	97		
#100	0.15	92		
#140	0.11	86		
#200	0.075	80		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0335	54		
---	0.0217	46		
---	0.0129	30		
---	0.0092	25		
---	0.0066	22		
---	0.0047	19		
---	0.0033	16		
---	0.0015	14		

Coefficients

D_{85} = 0.0992 mm
D_{30} = 0.0129 mm
D_{60} = 0.0398 mm
D_{15} = 0.0022 mm
D_{50} = 0.0264 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (23))

Sample/Test Description

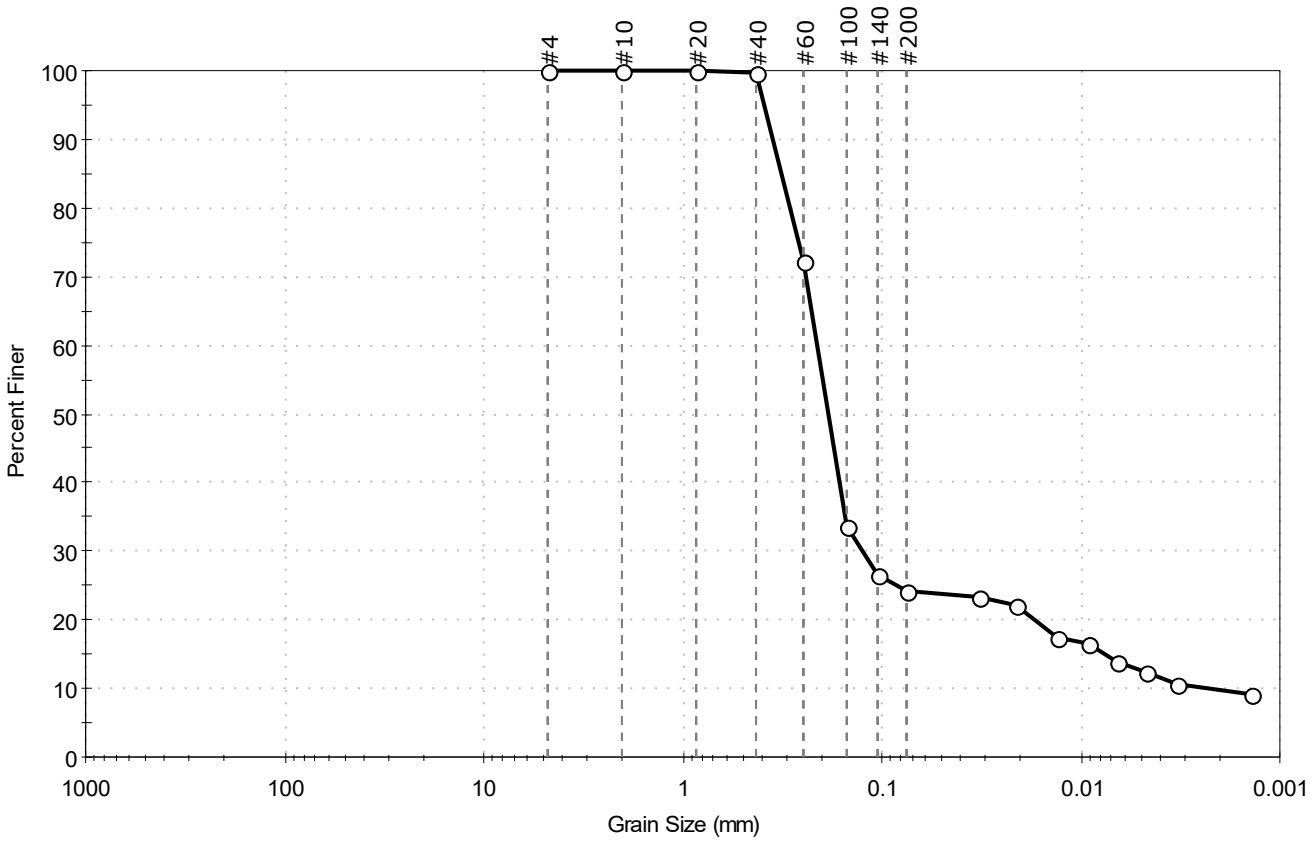
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-123SPT-25.5-30.5-19	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527611		

Test Comment: ---
Visual Description: Moist, dark gray silty sand
Sample Comment: ---

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	75.8	24.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	72		
#100	0.15	34		
#140	0.11	27		
#200	0.075	24		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0326	23		
---	0.0211	22		
---	0.0131	17		
---	0.0093	16		
---	0.0066	14		
---	0.0047	12		
---	0.0033	11		
---	0.0014	9		

Coefficients

D_{85} = 0.3204 mm
D_{30} = 0.1255 mm
D_{60} = 0.2128 mm
D_{15} = 0.0076 mm
D_{50} = 0.1865 mm
D_{10} = 0.0023 mm
C_u = 92.522
C_c = 32.180

Classification

ASTM Silty SAND (SM)

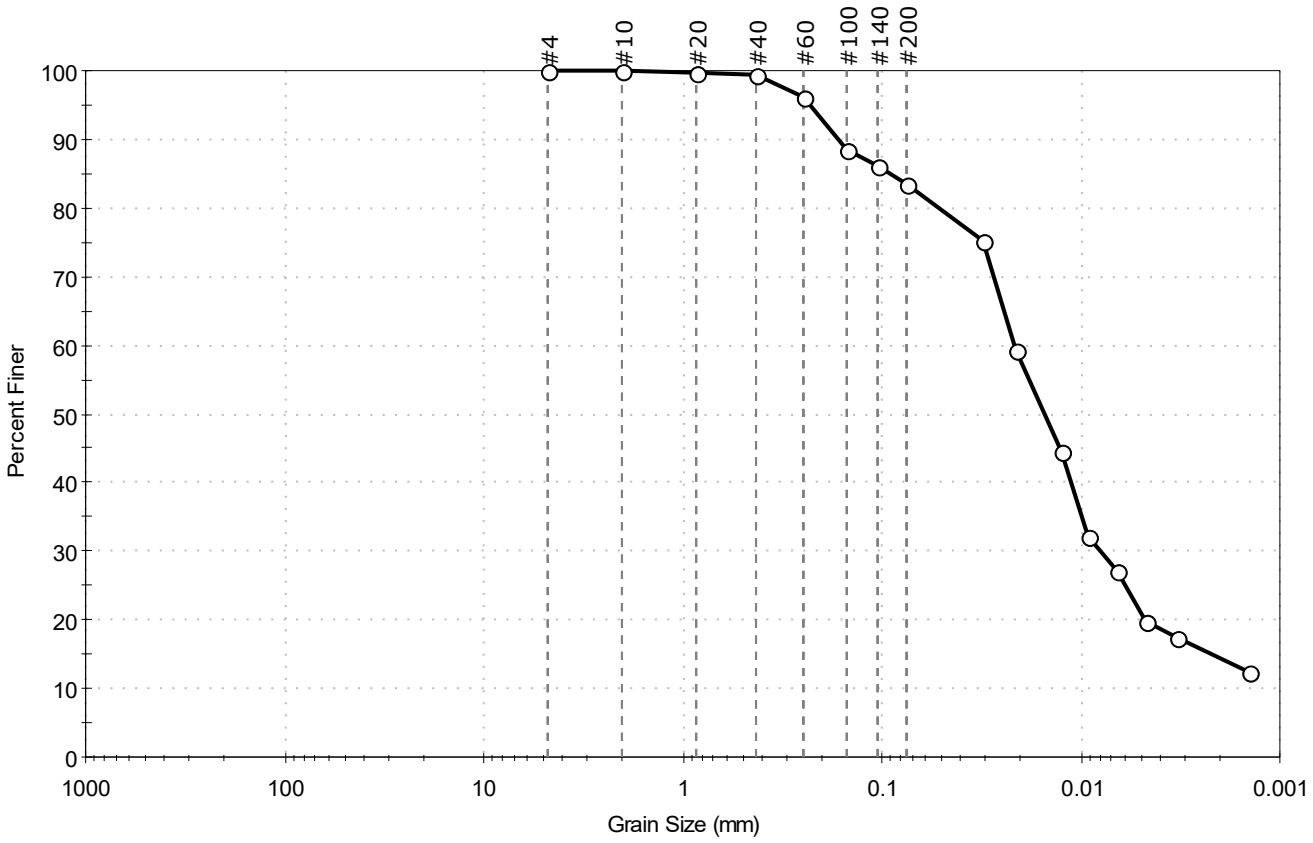
AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-123SPT-63.2-65.5-19	Test Date:	11/05/19	Checked By:	bfs
Depth :	---	Test Id:	527612		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	16.5	83.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	96		
#100	0.15	89		
#140	0.11	86		
#200	0.075	83		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0313	75		
---	0.0210	59		
---	0.0125	44		
---	0.0091	32		
---	0.0065	27		
---	0.0047	20		
---	0.0033	17		
---	0.0014	12		

Coefficients

D_{85} = 0.0911 mm D_{30} = 0.0079 mm
D_{60} = 0.0214 mm D_{15} = 0.0022 mm
D_{50} = 0.0152 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM SILT with Sand (ML)

AASHTO Clayey Soils (A-7-5 (13))

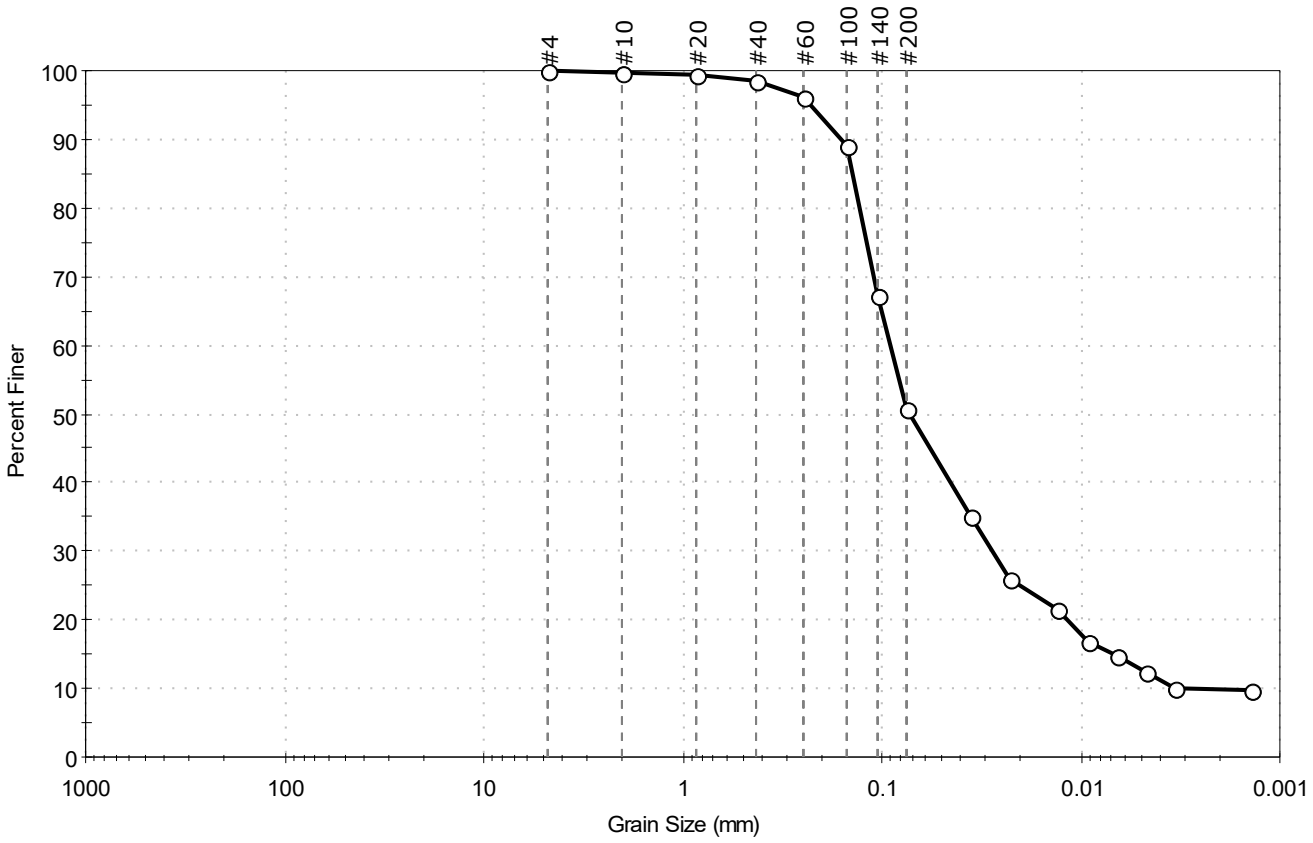
Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	ckg
Sample ID:	PDI-19SC-B-05-07-19100	Test Date:	10/29/19	Checked By:	bfs
Depth :	---	Test Id:	527549		
Test Comment:	---				
Visual Description:	Moist, dark olive brown sandy silt				
Sample Comment:	----				

Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	49.2	50.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	96		
#100	0.15	89		
#140	0.11	67		
#200	0.075	51		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0357	35		
---	0.0226	26		
---	0.0130	21		
---	0.0093	17		
---	0.0066	15		
---	0.0047	12		
---	0.0033	10		
---	0.0014	10		

Coefficients

D_{85} =0.1405 mm	D_{30} =0.0277 mm
D_{60} =0.0909 mm	D_{15} =0.0070 mm
D_{50} =0.0722 mm	D_{10} =0.0024 mm
C_u =37.875	C_c =3.517

Classification

ASTM Sandy SILT (ML)

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Dispersion Device : Apparatus A - Mech Mixer

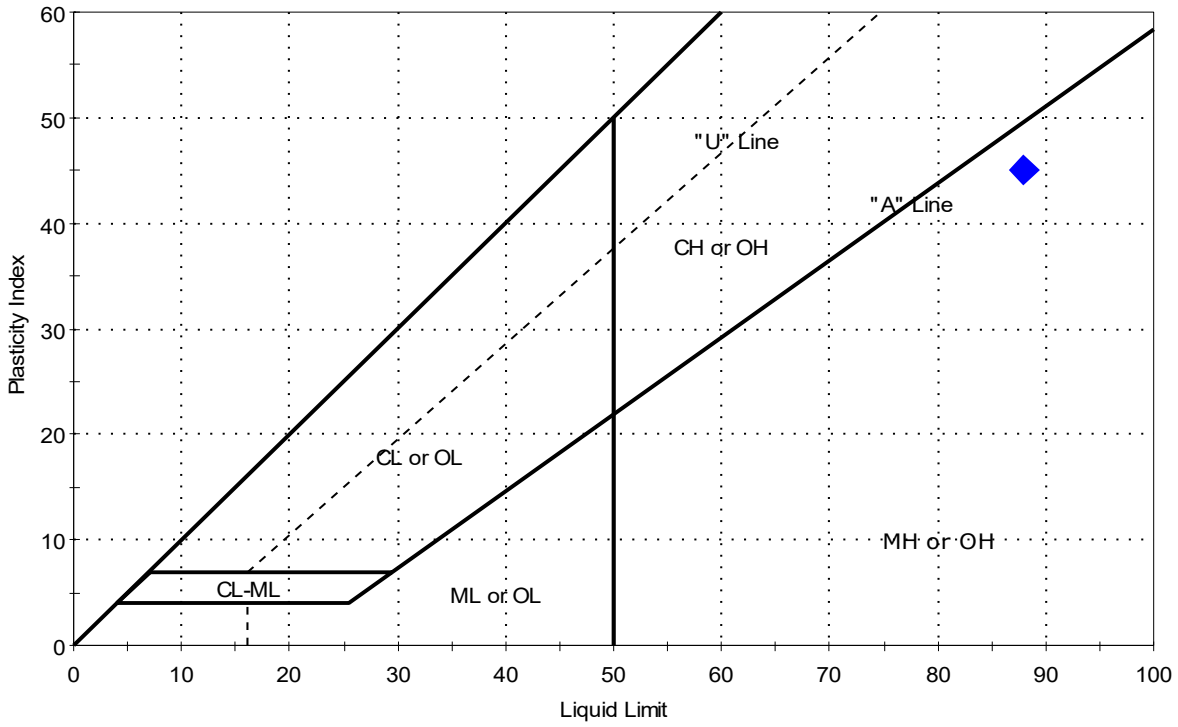
Dispersion Period : 1 minute

Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-018SC-A-06-07-1909	Test Date:	10/08/19	Checked By:	bfs
Depth :	---	Test Id:	525962		
Test Comment:	---				
Visual Description:	Moist, very dark gray silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	018SC-A-06-07-19(	---	---	77	88	43	45	0.8	Elastic SILT (MH)

Sample Prepared using the WET method
5% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-018SC-A-08-09-1909	Test Date:	10/09/19	Checked By:	bfs
Depth :	---	Test Id:	525963		

Test Comment:	---
Visual Description:	Moist, very dark gray sand
Sample Comment:	---

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	)18SC--A-08-09-19	---	---	23	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

12% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-021SC-B-7.7-9.7-190	Test Date:	10/09/19	Checked By:	bfs
Depth :	---	Test Id:	525964		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	21SC-B-7.7-9.7-19	---	---	13	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

18% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-024SC-B-10-12.1-19	Test Date:	10/09/19	Checked By:	bfs
Depth :	---	Test Id:	525965		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	24SC-B-10-12.1-19	---	---	38	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

0% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-028SC-10.7-12.7-191	Test Date:	10/14/19	Checked By:	bfs
Depth :	---	Test Id:	526418		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	28SC-10.7-12.7-19	---	---	15	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

23% Retained on #40 Sieve

Dry Strength: NONE

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-036SC-B-4.2-6.2-190	Test Date:	10/09/19	Checked By:	bfs
Depth :	---	Test Id:	525966		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	36SC-B-4.2-6.2-19	---	---	14	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

28% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-039SC-B-7.8-9.8-190	Test Date:	10/09/19	Checked By:	bfs
Depth :	---	Test Id:	525970		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	39SC-B-7.8-9.8-19	---	---	40	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

1% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-046SC-B-9.8-11.8-19	Test Date:	10/09/19	Checked By:	bfs
Depth :	---	Test Id:	525968		

Test Comment: ---
Visual Description: Moist, very dark gray silty sand
Sample Comment: ---

Atterberg Limits - ASTM D4318

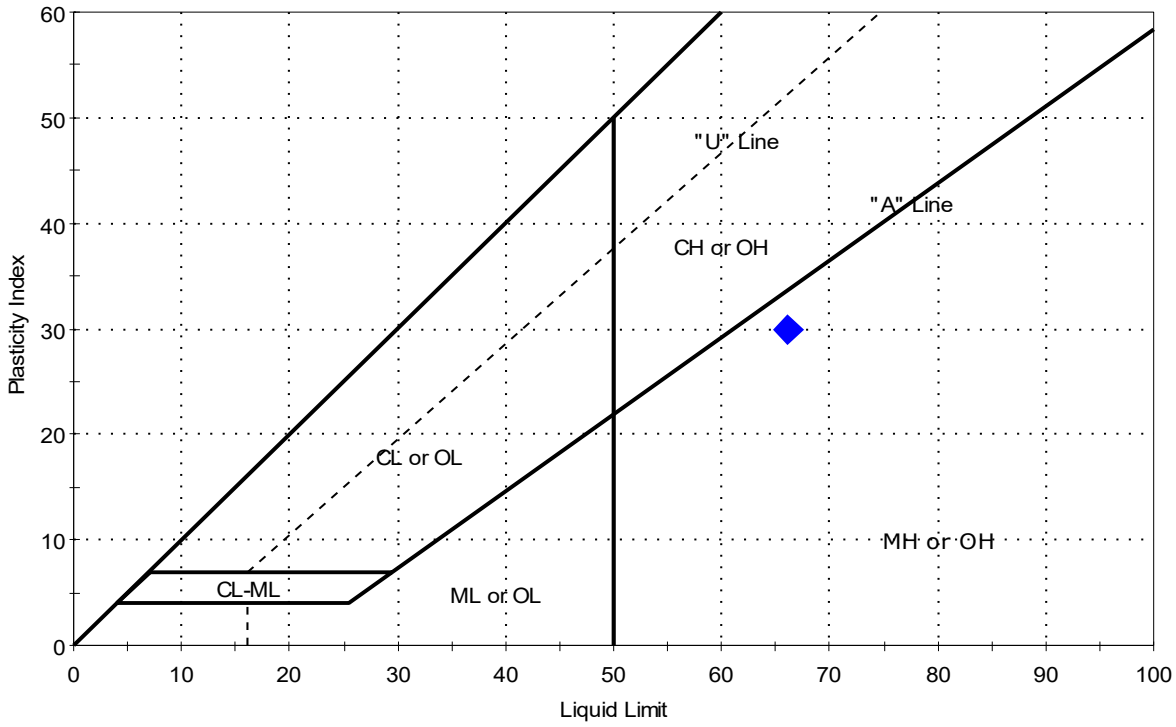
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	46SC-B-9.8-11.8-1	---	---	24	n/a	n/a	n/a	n/a	Silty SAND (SM)

3% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-064SC-B-04-06-1909	Test Date:	10/11/19	Checked By:	bfs
Depth :	---	Test Id:	525967		
Test Comment:	---				
Visual Description:	Moist, very dark gray silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

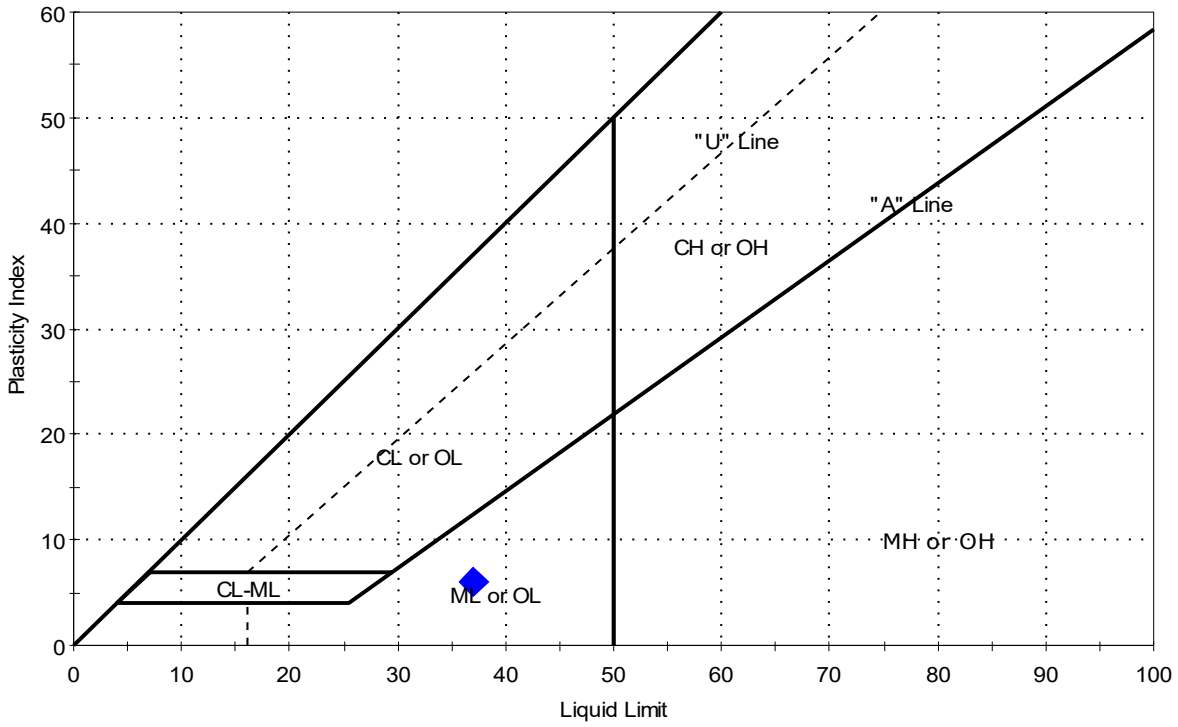


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	)64SC-B-04-06-19	---	---	66	66	36	30	1	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-071SC-B-08-10-1910	Test Date:	10/15/19	Checked By:	bfs
Depth :	---	Test Id:	525969		
Test Comment:	---				
Visual Description:	Wet, very dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



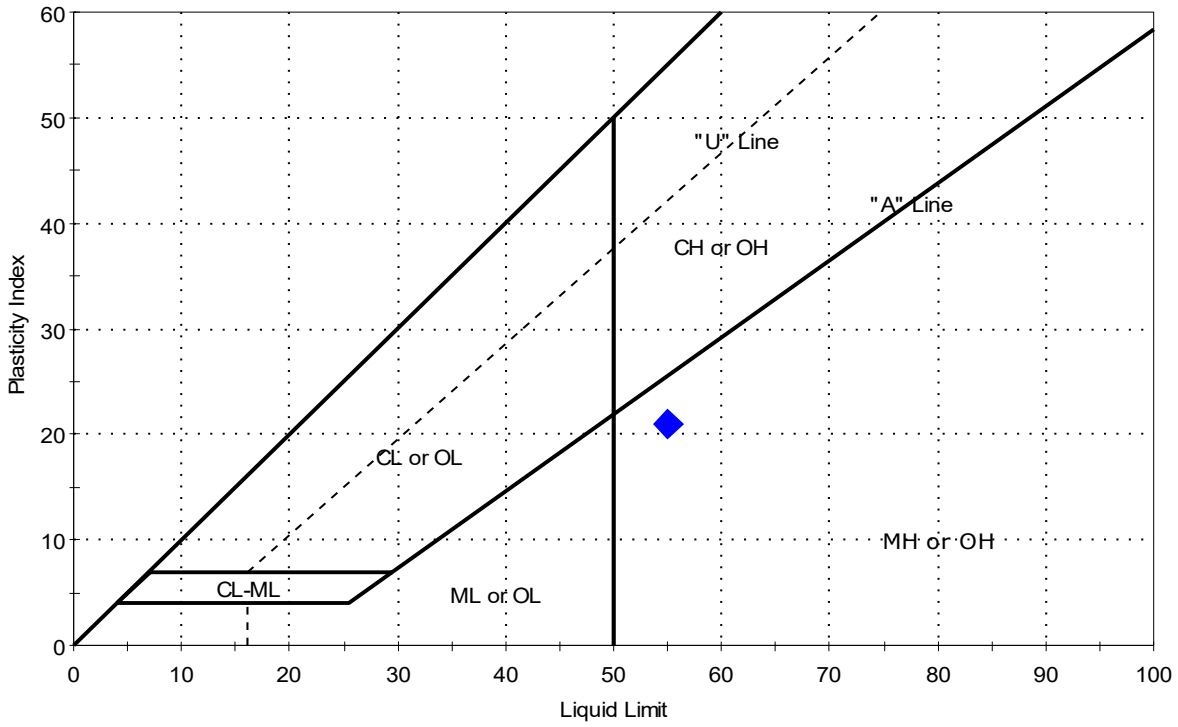
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	071SC-B-08-10-19	---	---	43	37	31	6	2	Silty SAND (SM)

Sample Prepared using the WET method
19% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-081SC-B-08-10-1910	Test Date:	10/14/19	Checked By:	bfs
Depth :	---	Test Id:	526419		
Test Comment:	---				
Visual Description:	Wet, dark grayish olive silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	081SC-B-08-10-19	---	---	64	55	34	21	1.4	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-016SC-B-06-08-1910	Test Date:	11/06/19	Checked By:	bfs
Depth :	---	Test Id:	527477		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	016SC-B-06-08-19	---	---	35	n/a	n/a	n/a	n/a	Silty SAND (SM)

2% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-027SC-B-11-13.5-19	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527481		
Test Comment:	---				
Visual Description:	Moist, dark gray sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	27SC-B-11-13.5-19	---	---	19	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

9% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-033SC-B-8.7-10.7-19	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527480		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	33SC-B-8.7-10.7-1	---	---	18	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

25% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-038SC-B-7.1-9.1-191	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527478		

Test Comment: ---
Visual Description: Moist, dark gray sand with silt
Sample Comment: ---

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	38SC-B-7.1-9.1-19	---	---	20	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

35% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-041SC-B-8.2-10.2-19	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527475		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	41SC-B-8.2-10.2-1	---	---	29	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

4% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-049SC-B-06-08-1910	Test Date:	11/05/19	Checked By:	bfs
Depth :	---	Test Id:	527484		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	049SC-B-06-08-19	---	---	32	n/a	n/a	n/a	n/a	Silty SAND (SM)

4% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-052SC-B-06-08-1910	Test Date:	11/06/19	Checked By:	bfs
Depth :	---	Test Id:	527485		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	052SC-B-06-08-19	---	---	45	n/a	n/a	n/a	n/a	Silty SAND (SM)

2% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

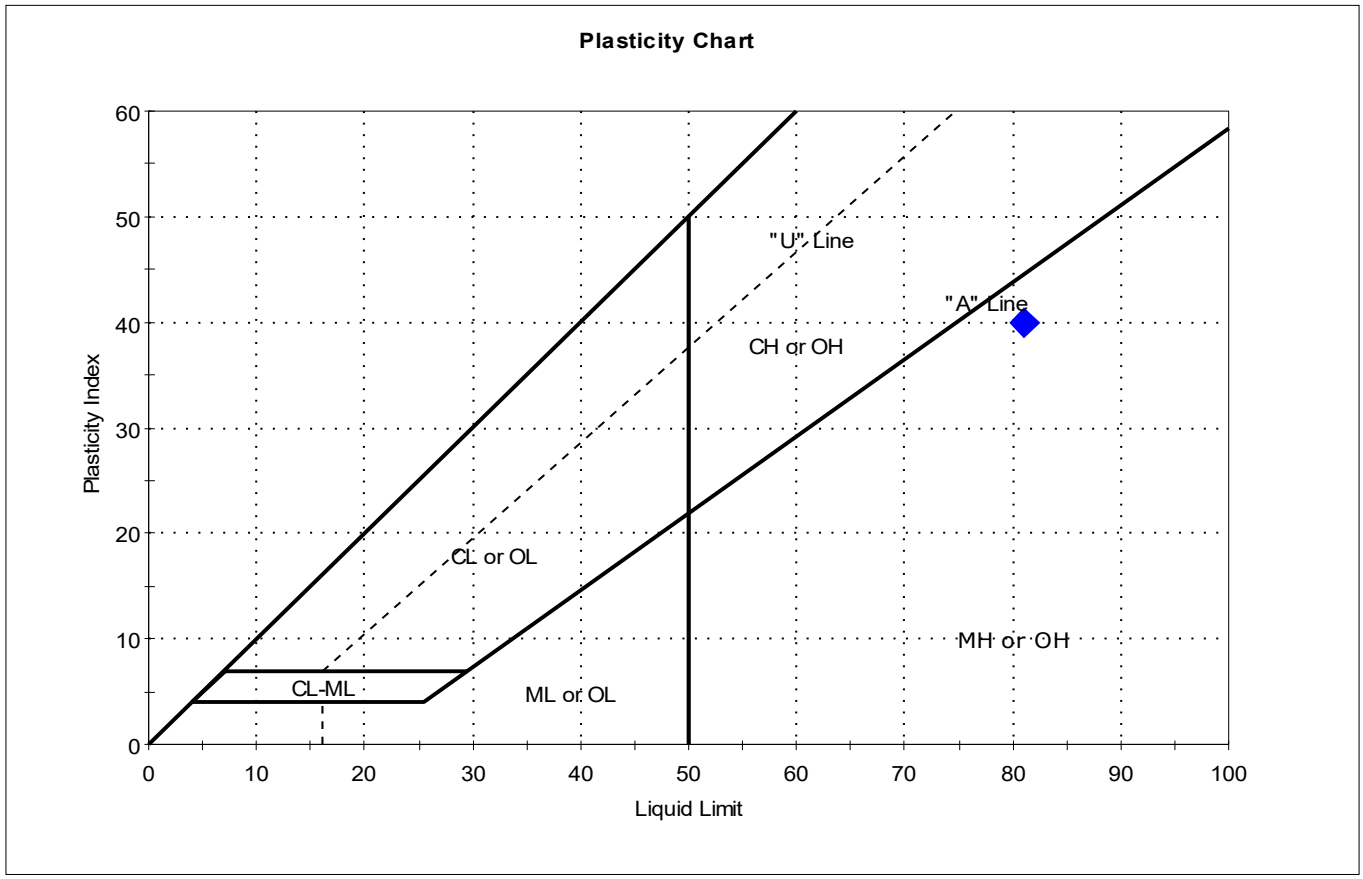
Toughness: n/a

The sample was determined to be Non-Plastic

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-066SC-B-06-08-1910	Test Date:	11/13/19	Checked By:	bfs
Depth :	---	Test Id:	527482		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt				
Sample Comment:	Sample contains organics				

Atterberg Limits - ASTM D4318

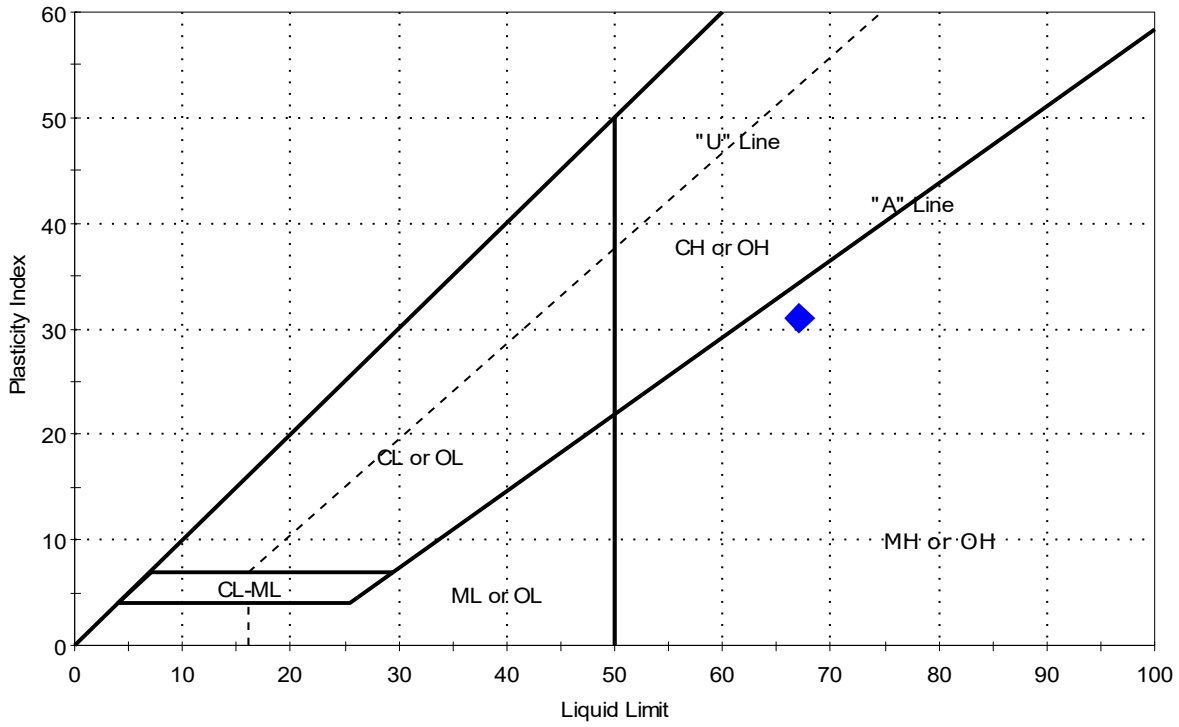


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	066SC-B-06-08-19	---	---	68	81	41	40	0.7	Elastic SILT (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-067SC-B-02-04-1910	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527476		
Test Comment:	---				
Visual Description:	Wet, dark olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



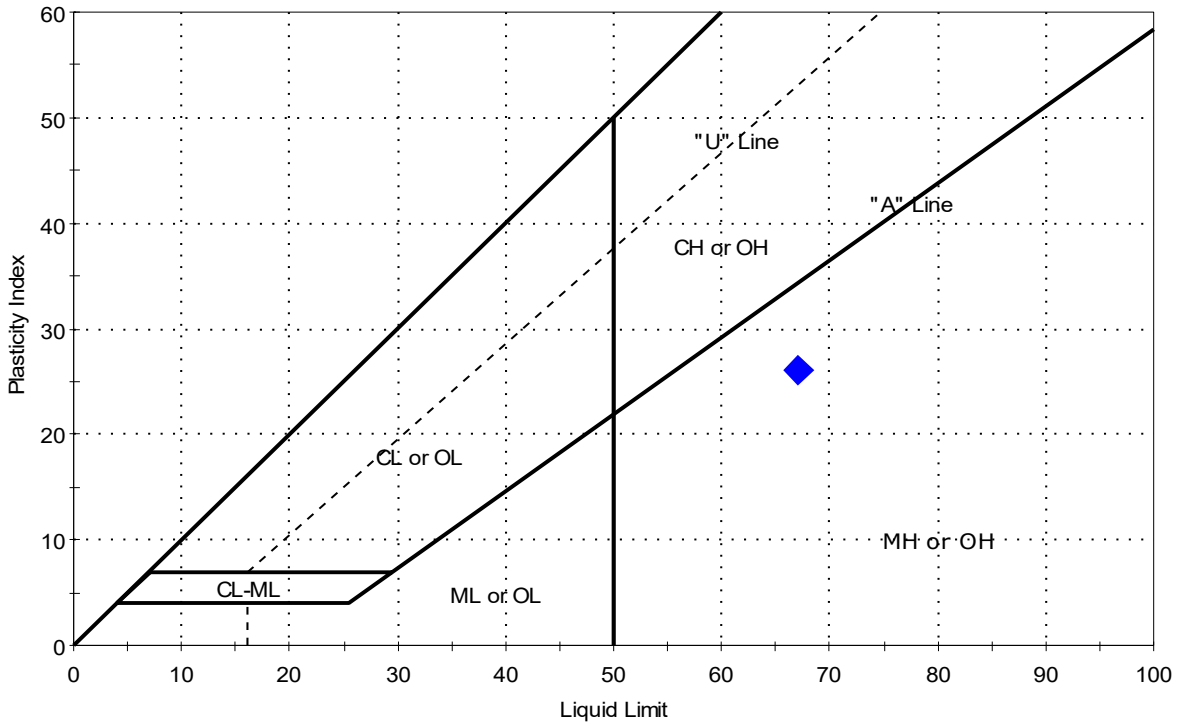
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	067SC-B-02-04-19	---	---	74	67	36	31	1.2	Elastic SILT (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-077SC-B-04-06-1910	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527473		
Test Comment:	---				
Visual Description:	Wet, dark olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

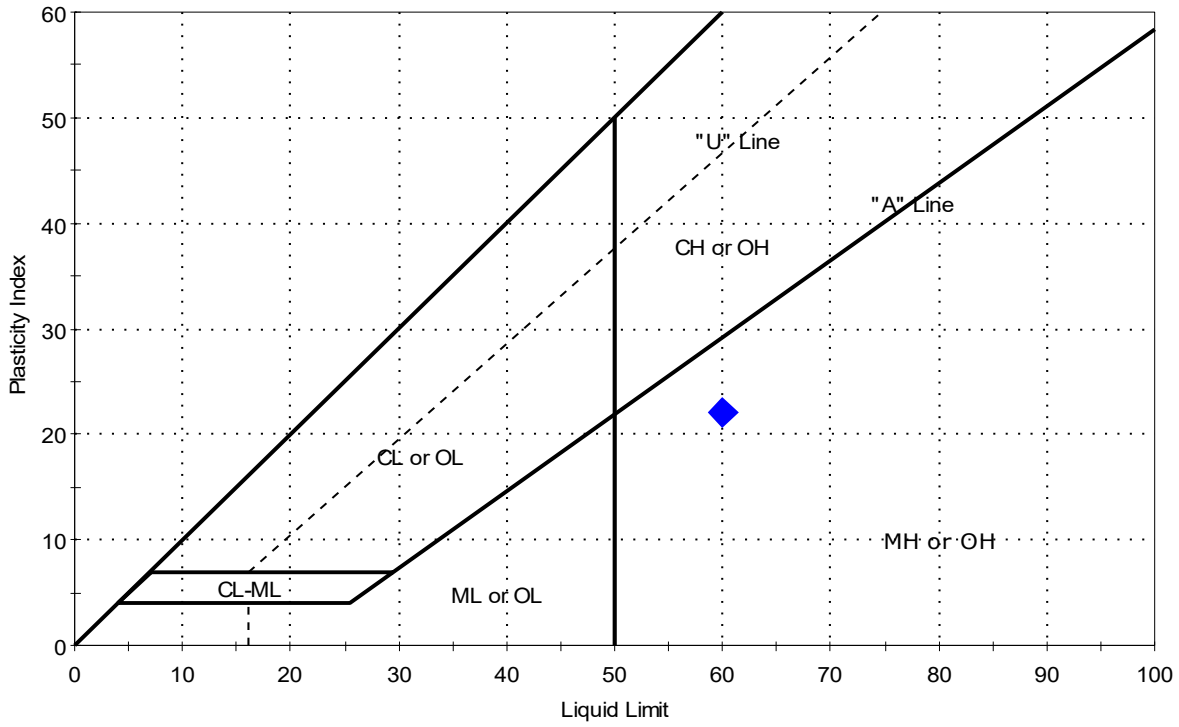


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	077SC-B-04-06-19	---	---	81	67	41	26	1.6	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-079SC-B-06-08-1910	Test Date:	11/18/19	Checked By:	bfs
Depth :	---	Test Id:	527474		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

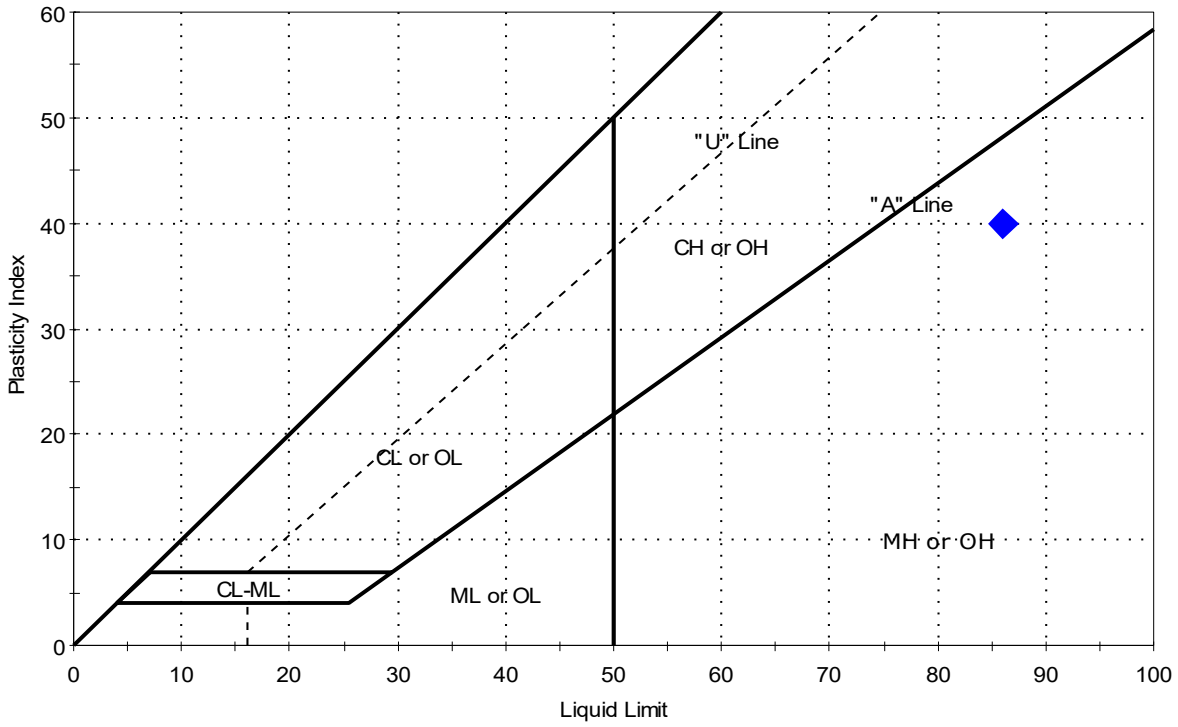


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	079SC-B-06-08-19	---	---	115	60	38	22	3.5	Elastic SILT (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-090SC-B-06-08-1910	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527483		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt				
Sample Comment:	Sample contains organics				

Atterberg Limits - ASTM D4318

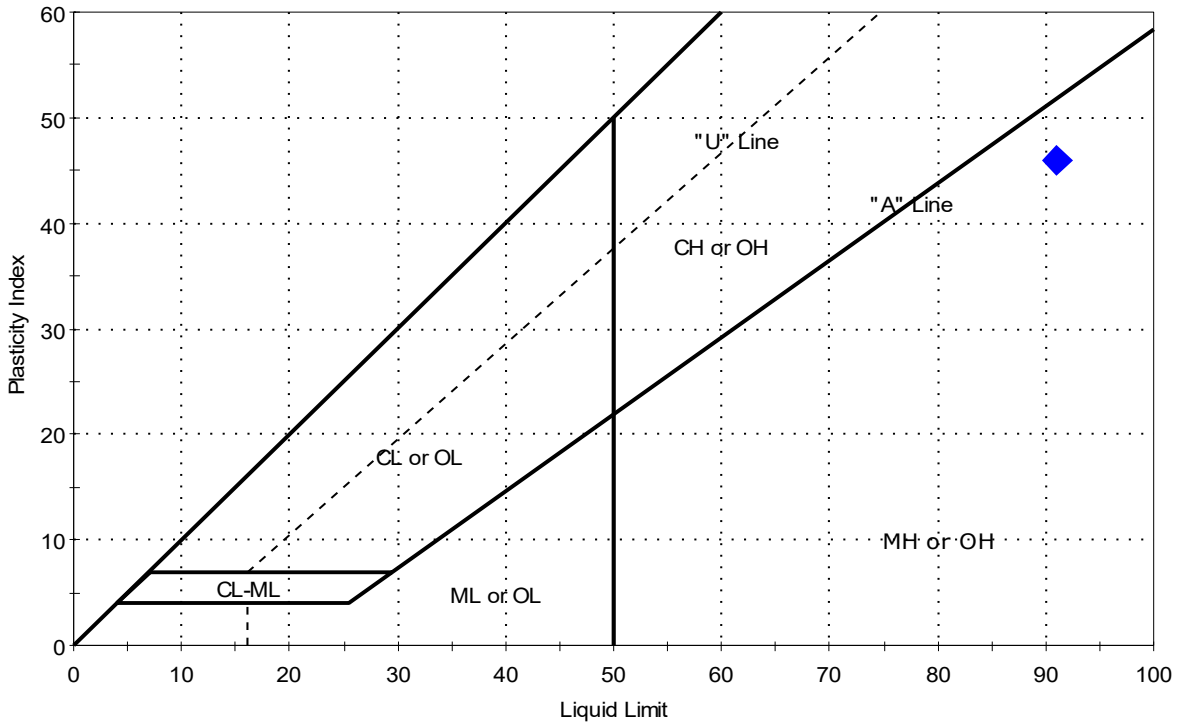


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	090SC-B-06-08-19	---	---	82	86	46	40	0.9	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-107SPT-00-04-19092	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527486		
Test Comment:	---				
Visual Description:	Wet, dark olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

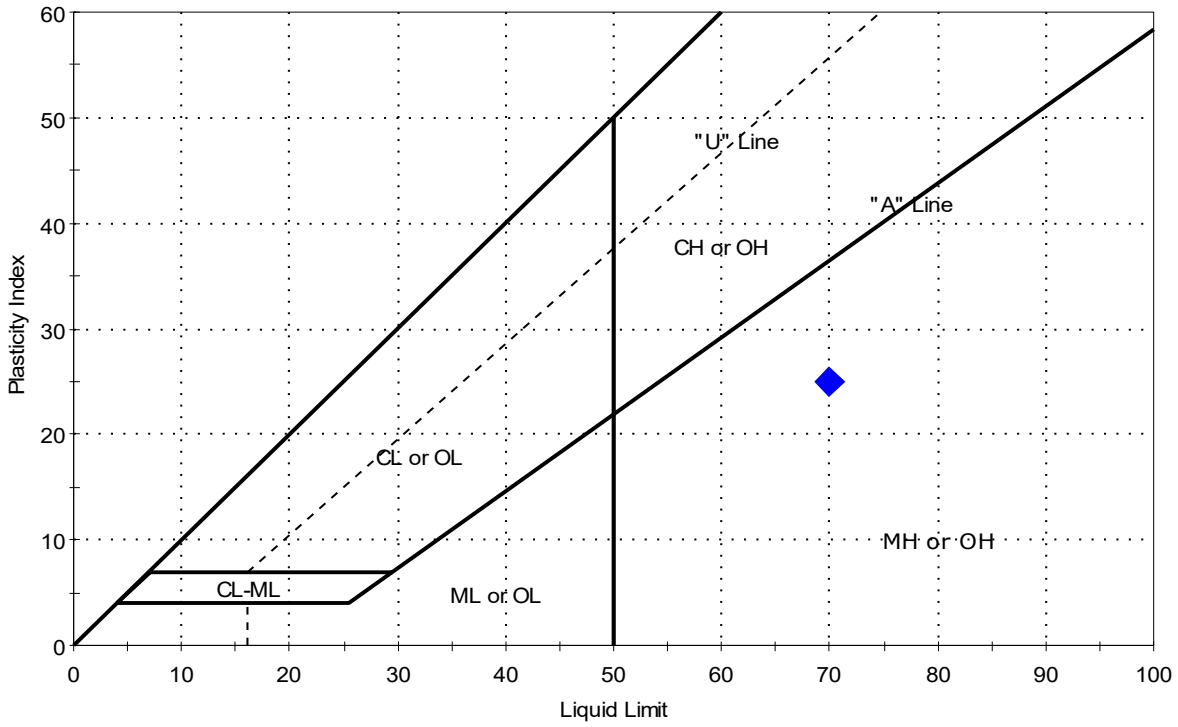


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-00-04-190	---	---	108	91	45	46	1.4	Elastic SILT (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-107SPT-04-09-19092	Test Date:	11/18/19	Checked By:	bfs
Depth :	---	Test Id:	527487		
Test Comment:	---				
Visual Description:	Wet, dark olive brown silt				
Sample Comment:	Sample contains organics				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-04-09-190	---	---	84	70	45	25	1.6	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-107SPT-17-18-19092	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527488		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-17-18-190	---	---	42	n/a	n/a	n/a	n/a	Silty SAND (SM)

2% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-107SPT-62-64-19092	Test Date:	10/28/19	Checked By:	bfs
Depth :	---	Test Id:	527489		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

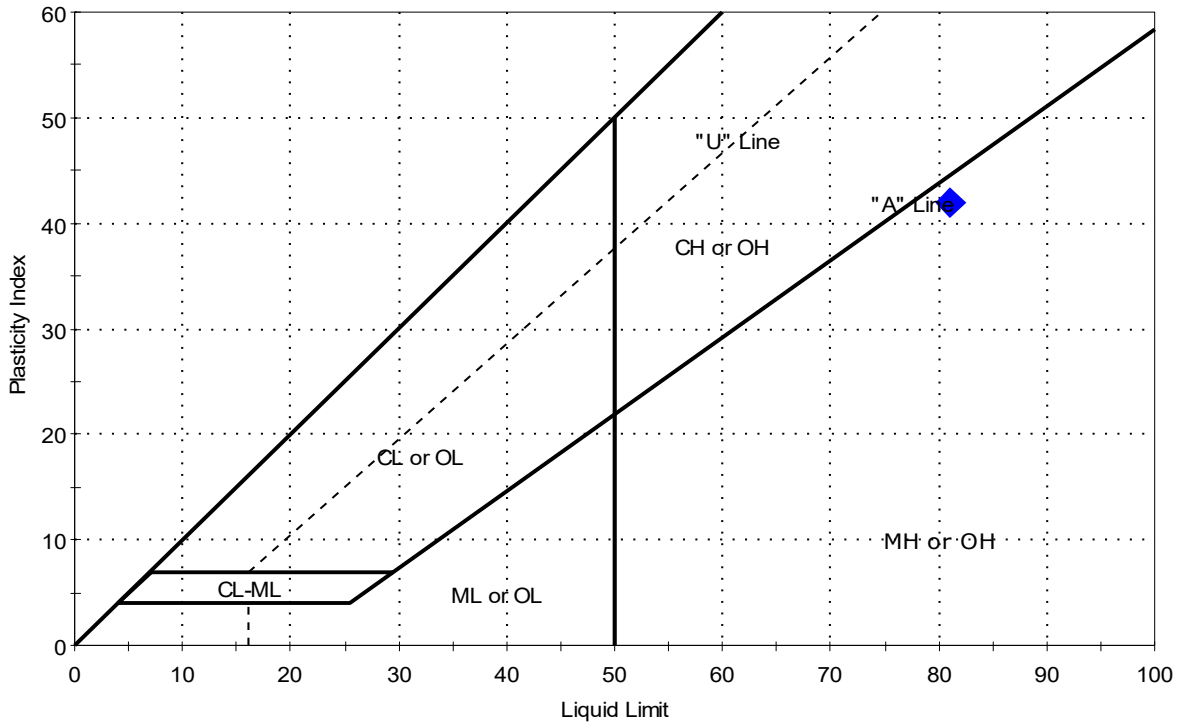
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-62-64-190	---	---	27	n/a	n/a	n/a	n/a	Silty SAND (SM)

3% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-108SPT-00-6.4-1910	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527490		
Test Comment:	---				
Visual Description:	Wet, olive brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	108SPT-00-6.4-19	---	---	95	81	39	42	1.3	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
8% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-108SPT-14-33.5-191(	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527491		
Test Comment:	---				
Visual Description:	Moist, dark olive brown sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.08SPT-14-33.5-19	---	---	39	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

13% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-108SPT-33.5-66.5-19	Test Date:	10/28/19	Checked By:	bfs
Depth :	---	Test Id:	527492		
Test Comment:	---				
Visual Description:	Moist, dark gray sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	08SPT-33.5-66.5-1	---	---	30	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

26% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

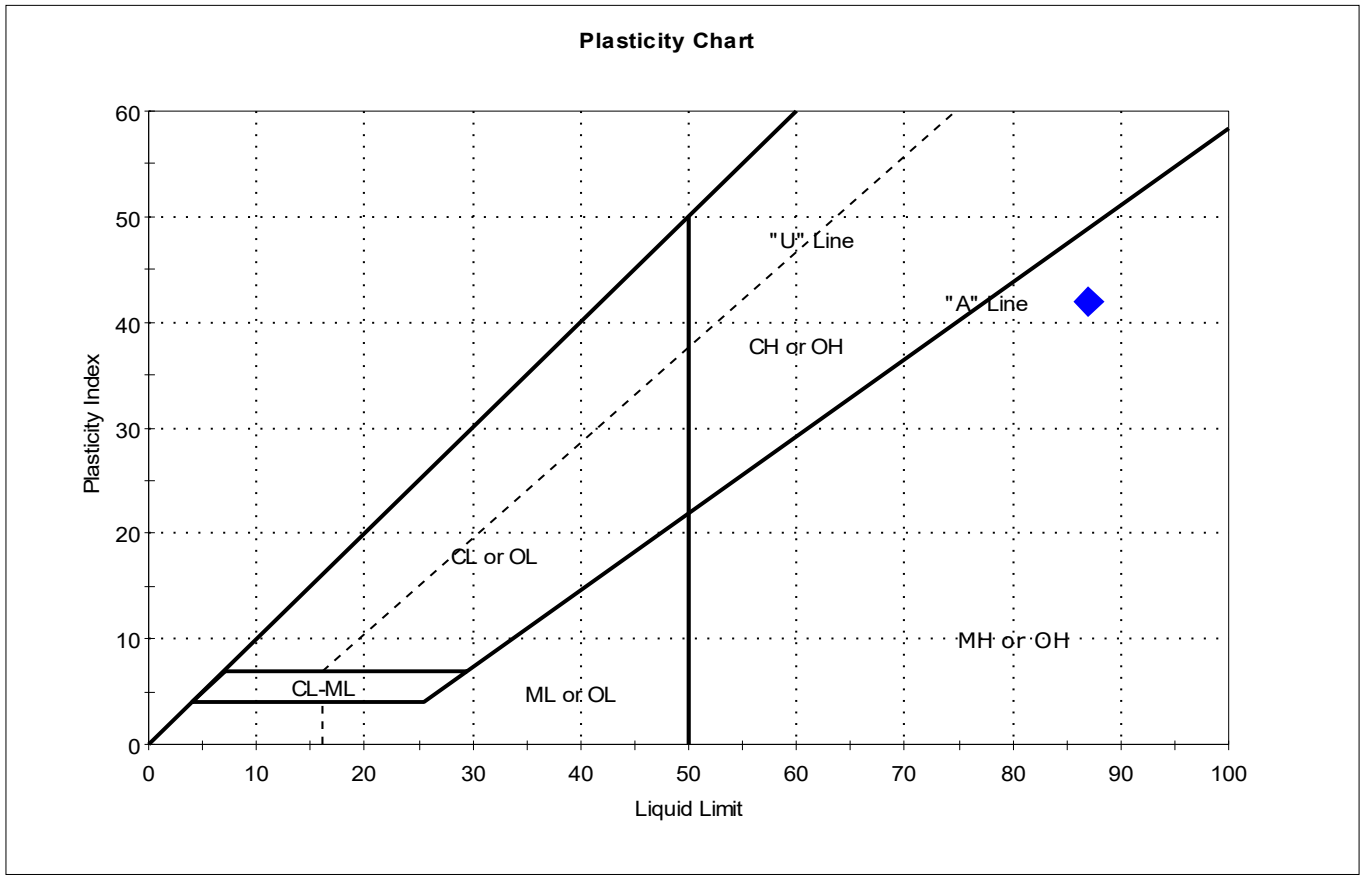
Toughness: n/a

The sample was determined to be Non-Plastic

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-109SPT-00-6.5-1910	Test Date:	11/18/19	Checked By:	n/a
Depth :	---	Test Id:	527493		
Test Comment:	---				
Visual Description:	Wet, very dark olive silt				
Sample Comment:	Sample contains organics				

Atterberg Limits - ASTM D4318

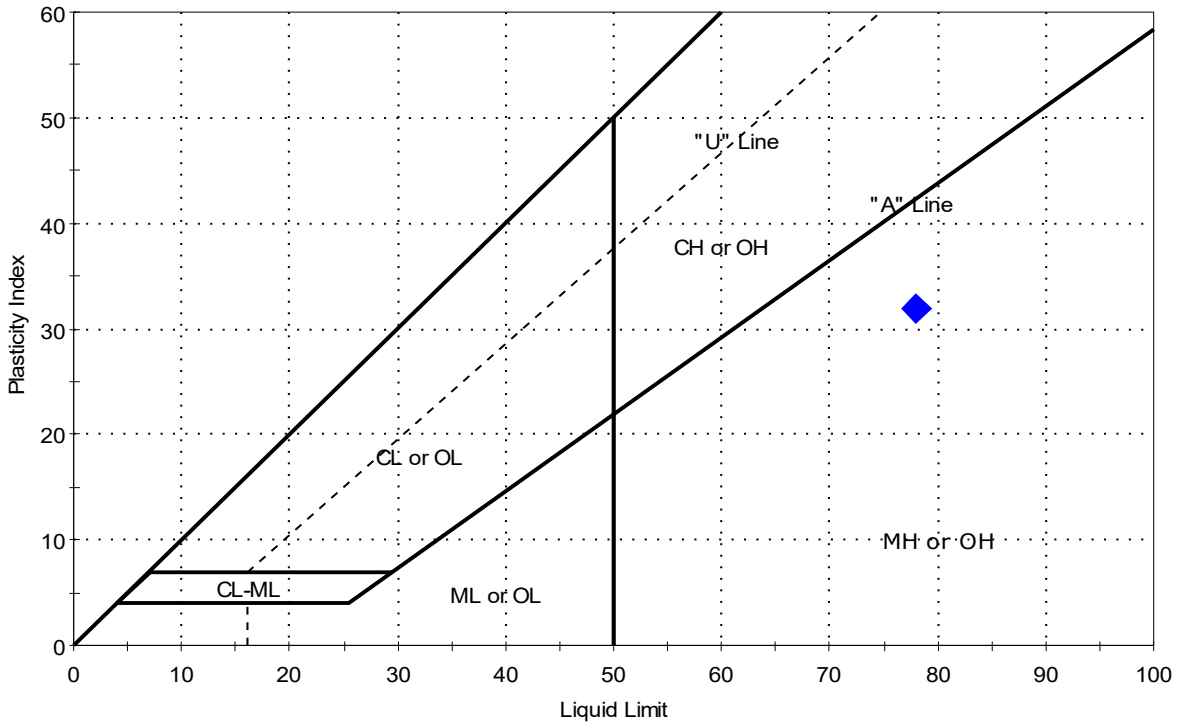


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	109SPT-00-6.5-19	---	---	93	87	45	42	1.1	Elastic SILT (MH)

Sample Prepared using the WET method
3% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-109SPT-16.5-18.1-19	Test Date:	11/18/19	Checked By:	bfs
Depth :	---	Test Id:	527494		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	)9SPT-16.5-18.1-1	---	---	80	78	46	32	1.1	Elastic SILT (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-109SPT-22-30-19100	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527495		
Test Comment:	---				
Visual Description:	Moist, olive brown sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	109SPT-22-30-191	---	---	35	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

2% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-109SPT-35.5-48.3-19	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527496		
Test Comment:	---				
Visual Description:	Moist, olive brown sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	)9SPT-35.5-48.3-1	---	---	26	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

2% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-109SPT-48.3-51-191(	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527497		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.09SPT-48.3-51-19	---	---	48	n/a	n/a	n/a	n/a	SILT with Sand (ML)

0% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-110 B-54-64.5-19101	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527498		
Test Comment:	---				
Visual Description:	Moist, black sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-110 B-54-64.5-191015	---	---	18	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

38% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-110SPT-21-32-19101	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527499		
Test Comment:	---				
Visual Description:	Moist, dark gray sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	110SPT-21-32-191	---	---	24	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

6% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-110SPT-32-45-19101	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527500		
Test Comment:	---				
Visual Description:	Moist, black sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	110SPT-32-45-191	---	---	28	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

41% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

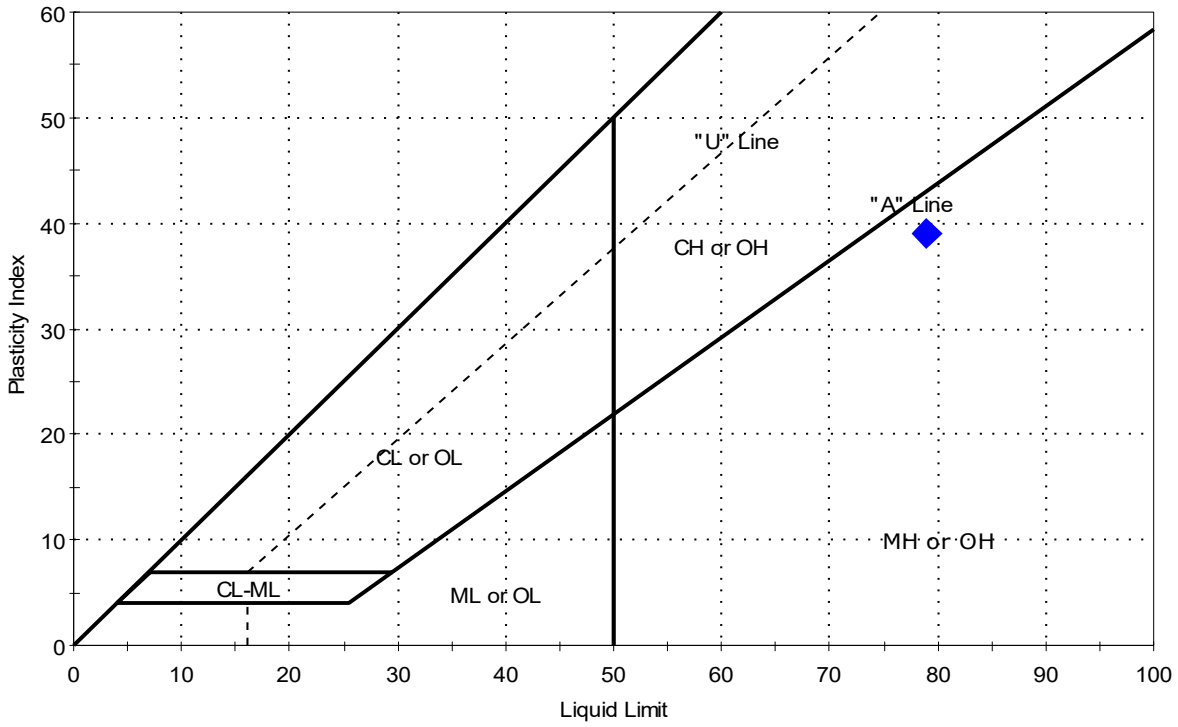
Toughness: n/a

The sample was determined to be Non-Plastic

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-112SPT-00-6.5-1910	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527501		
Test Comment:	---				
Visual Description:	Moist, dark brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	112SPT-00-6.5-19	---	---	77	79	40	39	0.9	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

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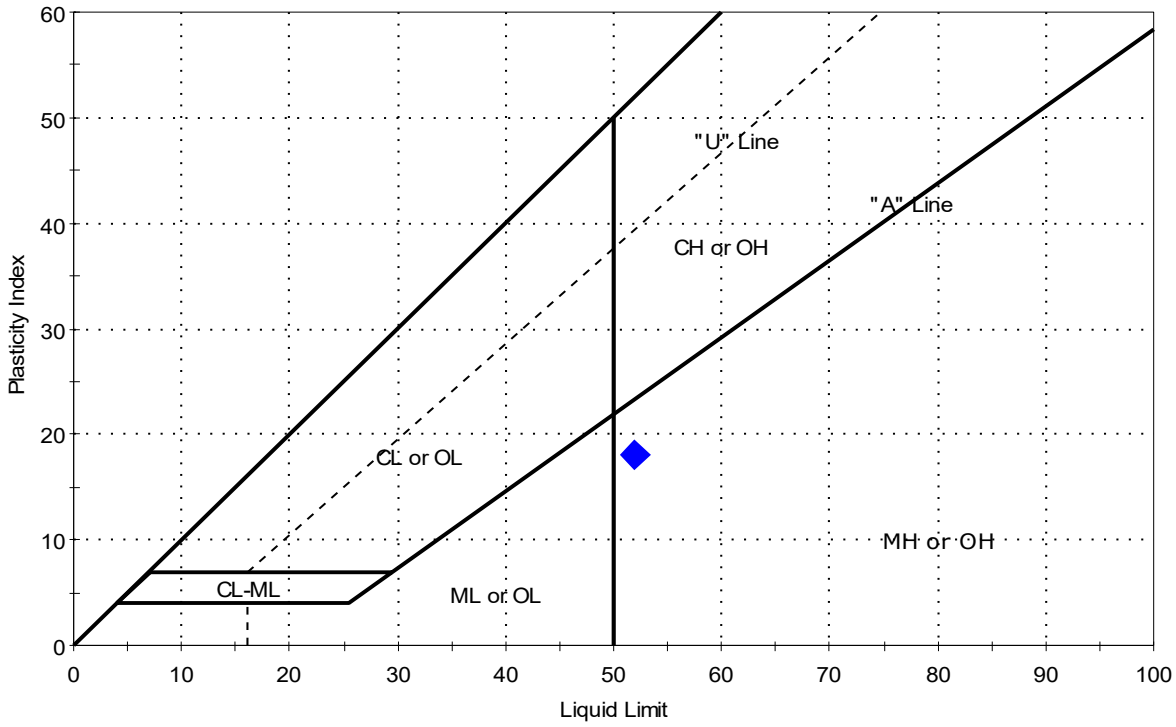
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-112SPT-07-11.5-191(	Test Date:	11/15/19	Checked By:	bfs
Depth :	---	Test Id:	527502		
Test Comment:	---				
Visual Description:	Moist, dark gray sandy silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.12SPT-07-11.5-19	---	---	53	52	34	18	1.1	Sandy Elastic SILT (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-112SPT-11.5-26.5-19	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527503		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	12SPT-11.5-26.5-1	---	---	37	n/a	n/a	n/a	n/a	Silty SAND (SM)

1% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-112SPT-37.5-58-191(	Test Date:	10/28/19	Checked By:	bfs
Depth :	---	Test Id:	527504		
Test Comment:	---				
Visual Description:	Moist, very dark olive gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

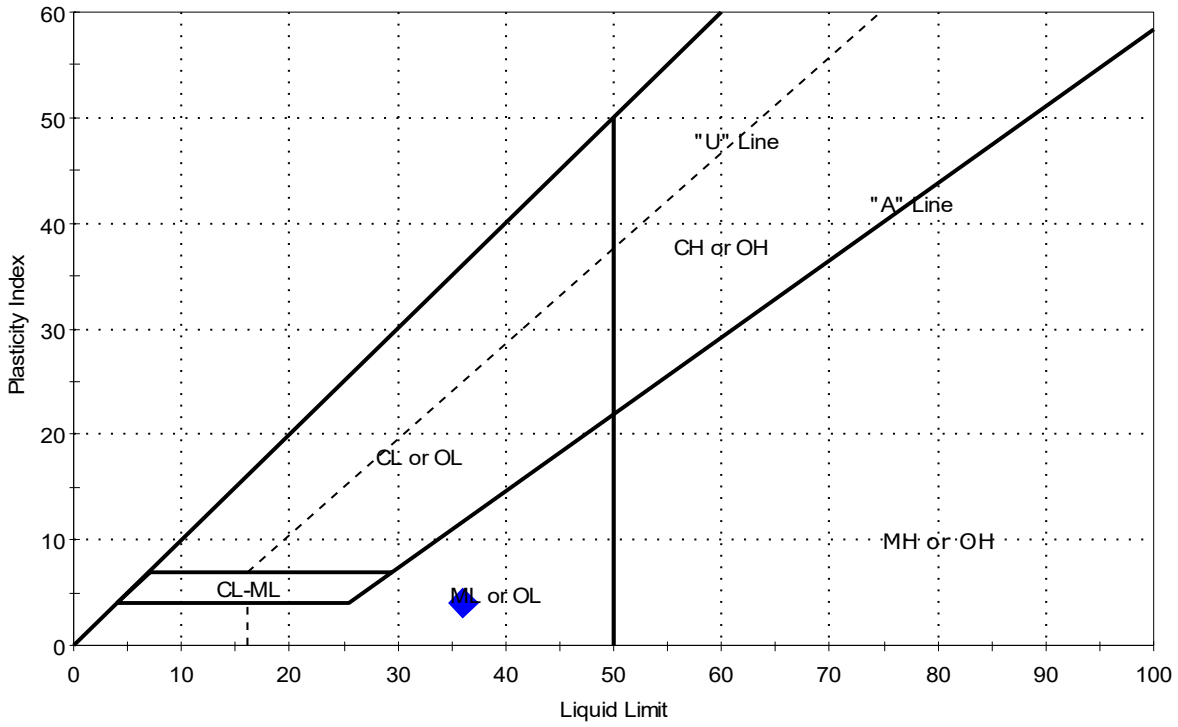
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.12SPT-37.5-58-19	---	---	19	n/a	n/a	n/a	n/a	Silty SAND (SM)

20% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-113SPT-06-16-19101	Test Date:	11/13/19	Checked By:	bfs
Depth :	---	Test Id:	527505		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	113SPT-06-16-191	---	---	43	36	32	4	2.7	Silty SAND (SM)

Sample Prepared using the WET method
3% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-113SPT-16-22-19101	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527506		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	113SPT-16-22-191	---	---	37	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

2% Retained on #40 Sieve

Dry Strength: LOW

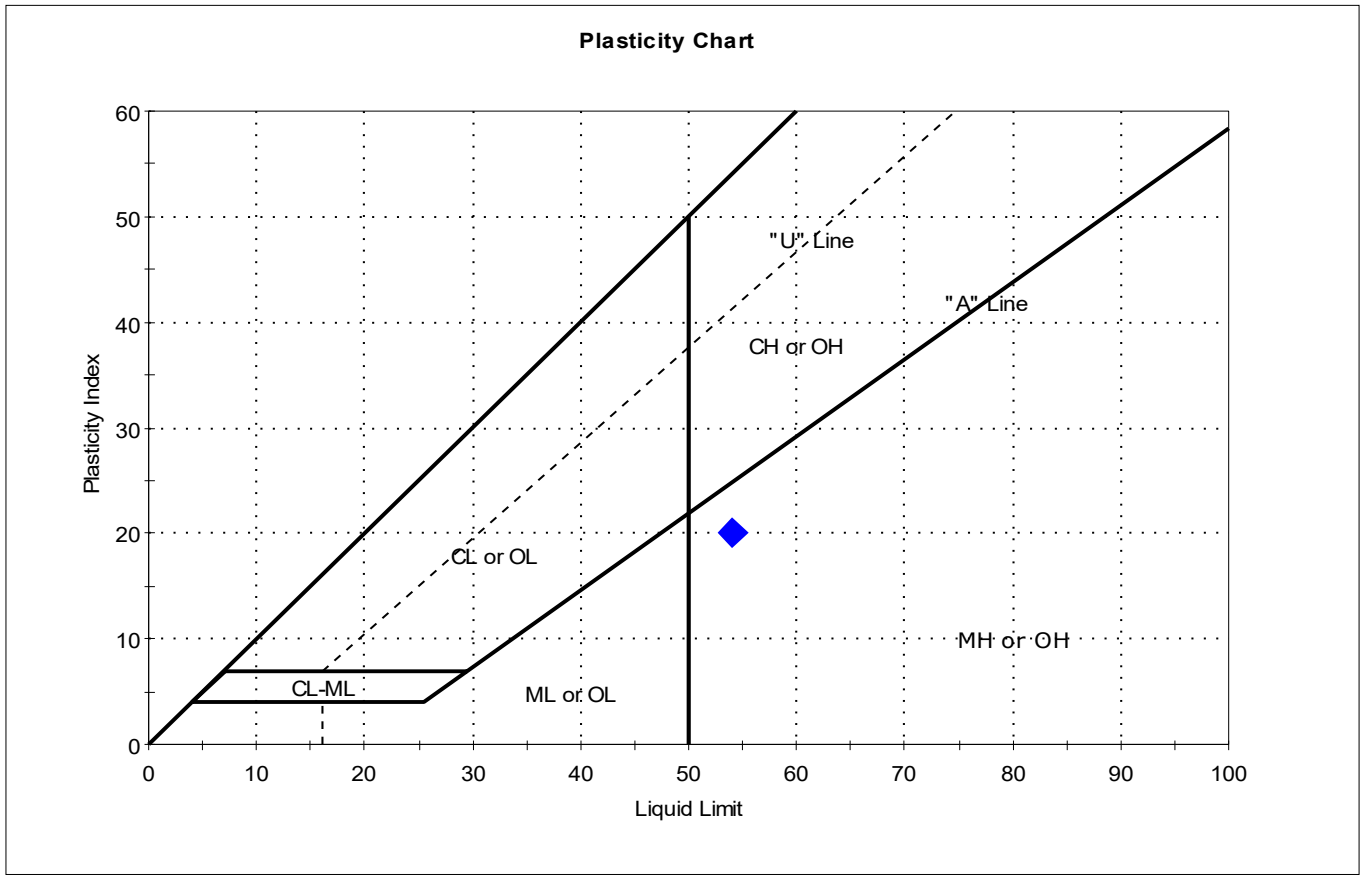
Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-113SPT-22-25.2-191(	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527507		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.13SPT-22-25.2-19	---	---	61	54	34	20	1.3	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-113SPT-31.9-39.4-19	Test Date:	10/23/19	Checked By:	bfs
Depth :	---	Test Id:	527508		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

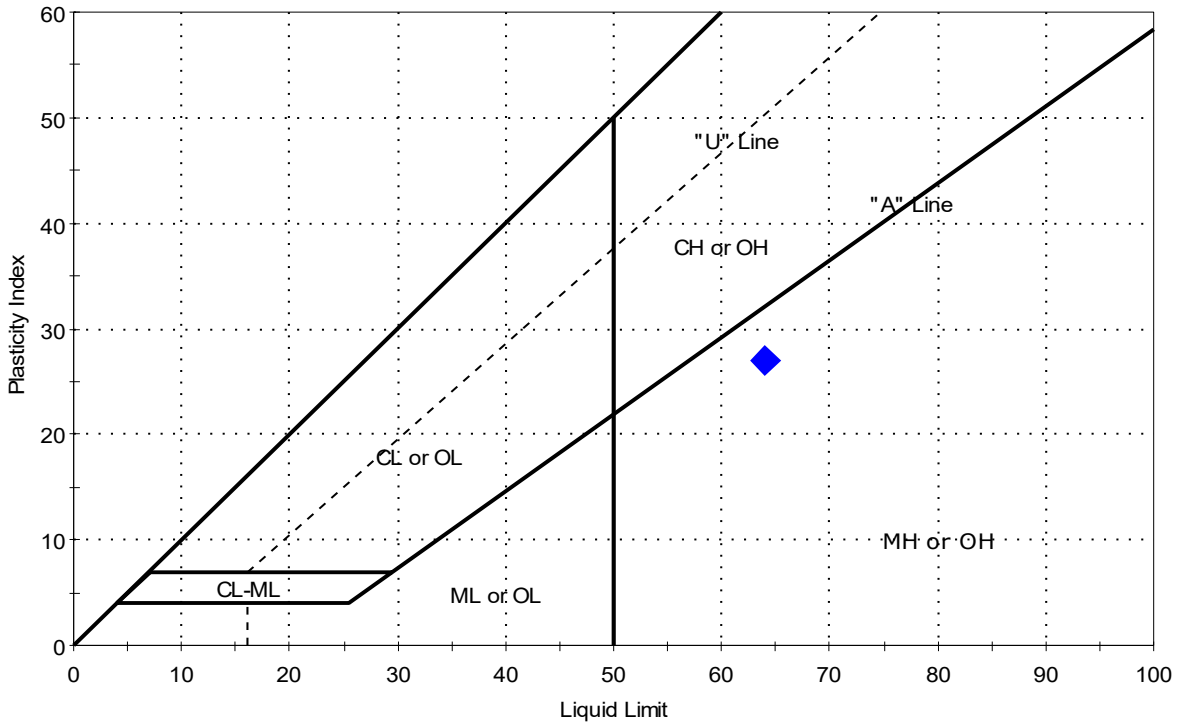
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	13SPT-31.9-39.4-1	---	---	33	n/a	n/a	n/a	n/a	Silty SAND (SM)

3% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-114SPT-00-7.5-1910	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527509		
Test Comment:	---				
Visual Description:	Wet, olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	114SPT-00-7.5-19	---	---	73	64	37	27	1.3	Elastic SILT (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-114SPT-25.5-28-191(	Test Date:	10/30/19	Checked By:	bfs
Depth :	---	Test Id:	527510		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.14SPT-25.5-28-19	---	---	31	n/a	n/a	n/a	n/a	Silty SAND (SM)

1% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

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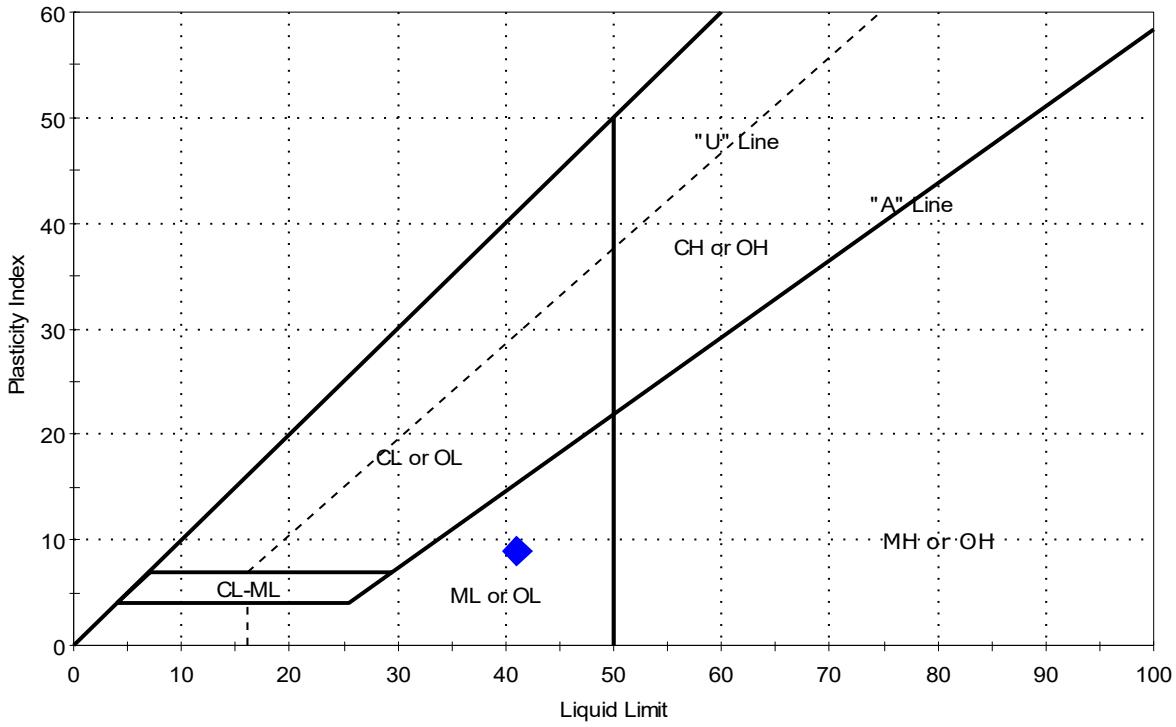
Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-114SPT-42-50.5-191(	Test Date:	11/15/19	Checked By:	bfs
Depth :	---	Test Id:	527511		
Test Comment:	---				
Visual Description:	Wet, olive brown sandy silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.14SPT-42-50.5-19	---	---	50	41	32	9	2	Sandy SILT (ML)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-114SPT-50.5-55-191(	Test Date:	10/28/19	Checked By:	bfs
Depth :	---	Test Id:	527512		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

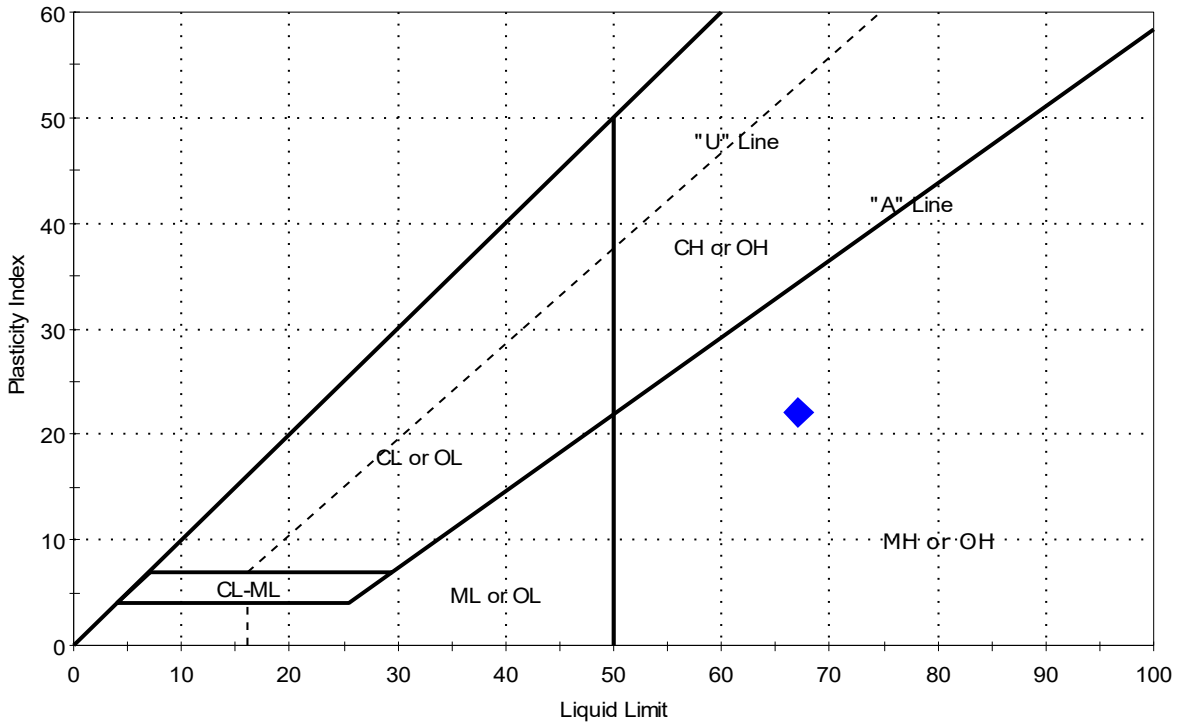
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.14SPT-50.5-55-19	---	---	37	n/a	n/a	n/a	n/a	Silty SAND (SM)

4% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-114SPT-7.5-12.5-191	Test Date:	11/18/19	Checked By:	bfs
Depth :	---	Test Id:	527513		
Test Comment:	---				
Visual Description:	Moist, olive brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	14SPT-7.5-12.5-19	---	---	65	67	45	22	0.9	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-115SPT-06-11-19100	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527514		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

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Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	115SPT-06-11-191	---	---	17	n/a	n/a	n/a	n/a	Silty SAND (SM)

11% Retained on #40 Sieve

Dry Strength: LOW

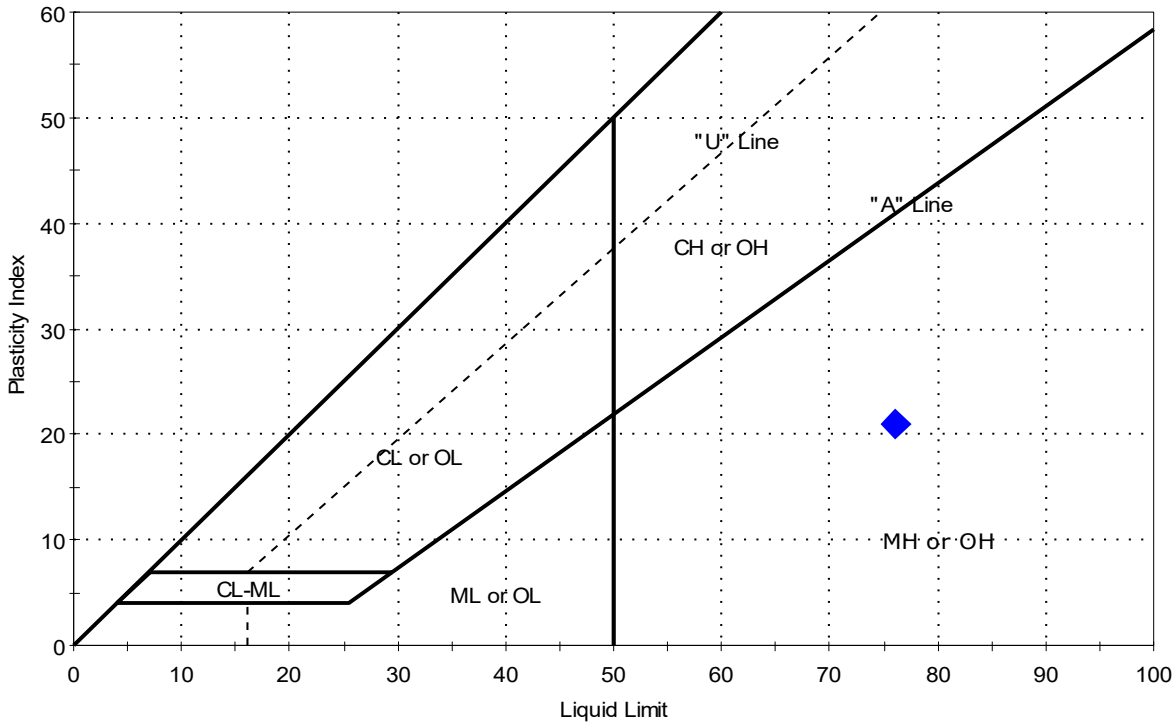
Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-115SPT-18.6-20.6-19	Test Date:	11/13/19	Checked By:	bfs
Depth :	---	Test Id:	527515		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	15SPT-18.6-20.6-1	---	---	72	76	55	21	0.8	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-115SPT-23-28.1-191(	Test Date:	10/24/19	Checked By:	bfs
Depth :	---	Test Id:	527516		
Test Comment:	---				
Visual Description:	Moist, very dark olive brown sand with silt				
Sample Comment:	---				

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Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.15SPT-23-28.1-19	---	---	28	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

5% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-115SPT-41.5-49.3-19	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527517		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

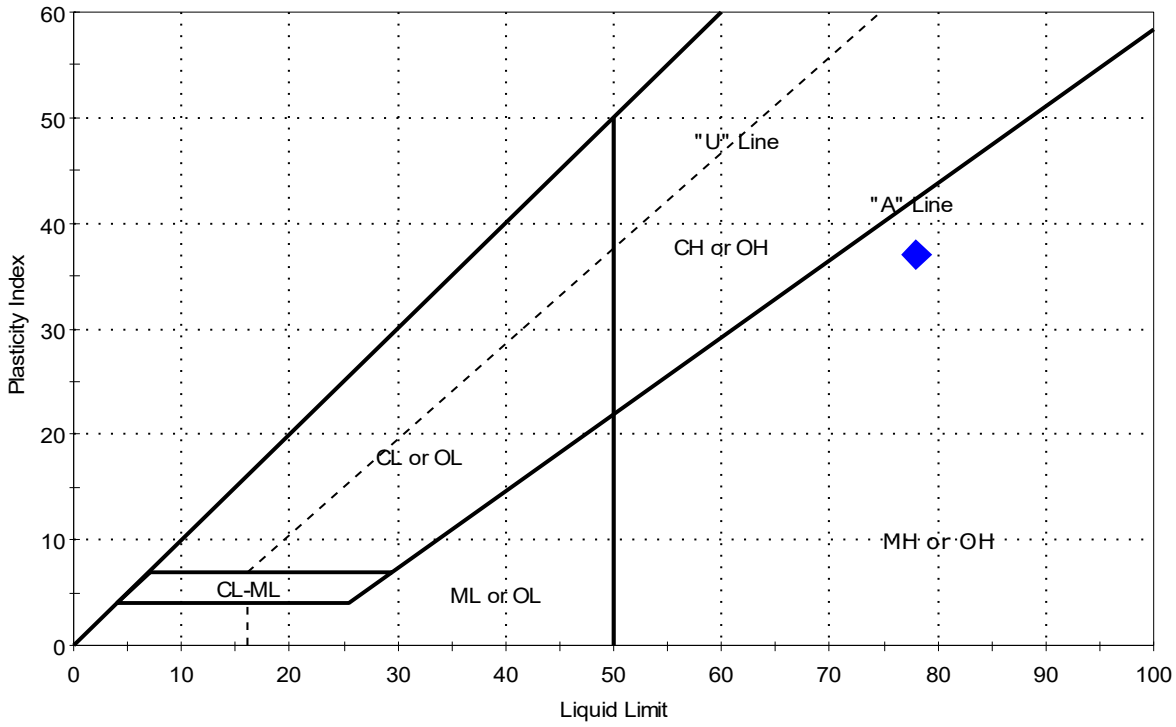
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	15SPT-41.5-49.3-1	---	---	39	n/a	n/a	n/a	n/a	Silty SAND (SM)

1% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-116SPT-00-4.5-1909	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527518		
Test Comment:	---				
Visual Description:	Wet, olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	116SPT-00-4.5-190	---	---	83	78	41	37	1.1	Elastic SILT (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-116SPT-20-26.7-1905	Test Date:	11/01/19	Checked By:	bfs
Depth :	---	Test Id:	527519		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.16SPT-20-26.7-19	---	---	26	n/a	n/a	n/a	n/a	Silty SAND (SM)

2% Retained on #40 Sieve

Dry Strength: LOW

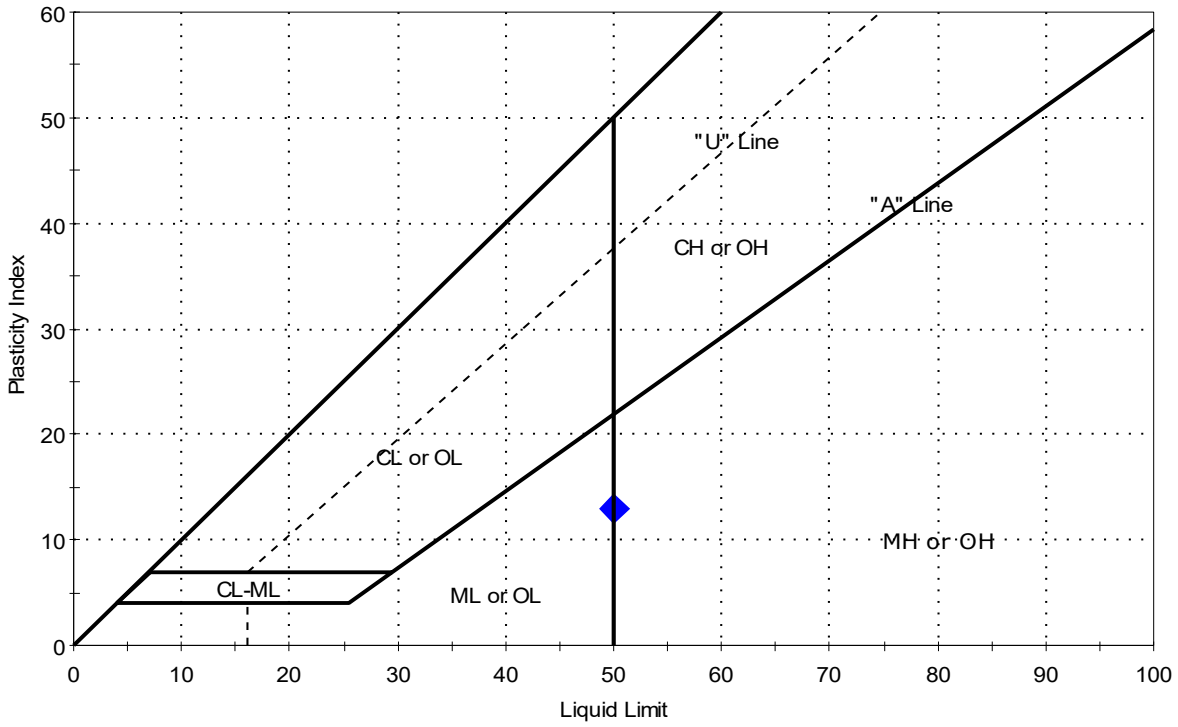
Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-116SPT-26.7-28.6-19	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527520		
Test Comment:	---				
Visual Description:	Wet, grayish brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	16SPT-26.7-28.6-1	---	---	64	50	37	13	2.1	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-116SPT-51.5-54.2-19	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527521		
Test Comment:	---				
Visual Description:	Moist, olive brown silty sand				
Sample Comment:	---				

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Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	16SPT-51.5-54.2-1	---	---	27	n/a	n/a	n/a	n/a	Silty SAND (SM)

1% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-117SPT-11-29.1-191(	Test Date:	10/28/19	Checked By:	bfs
Depth :	---	Test Id:	527522		
Test Comment:	---				
Visual Description:	Moist, dark gray sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.17SPT-11-29.1-19	---	---	38	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

28% Retained on #40 Sieve

Dry Strength: LOW

Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-117SPT-29.1-32-191(	Test Date:	11/05/19	Checked By:	bfs
Depth :	---	Test Id:	527523		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.17SPT-29.1-32-19	---	---	45	n/a	n/a	n/a	n/a	Silty SAND (SM)

3% Retained on #40 Sieve

Dry Strength: MEDIUM

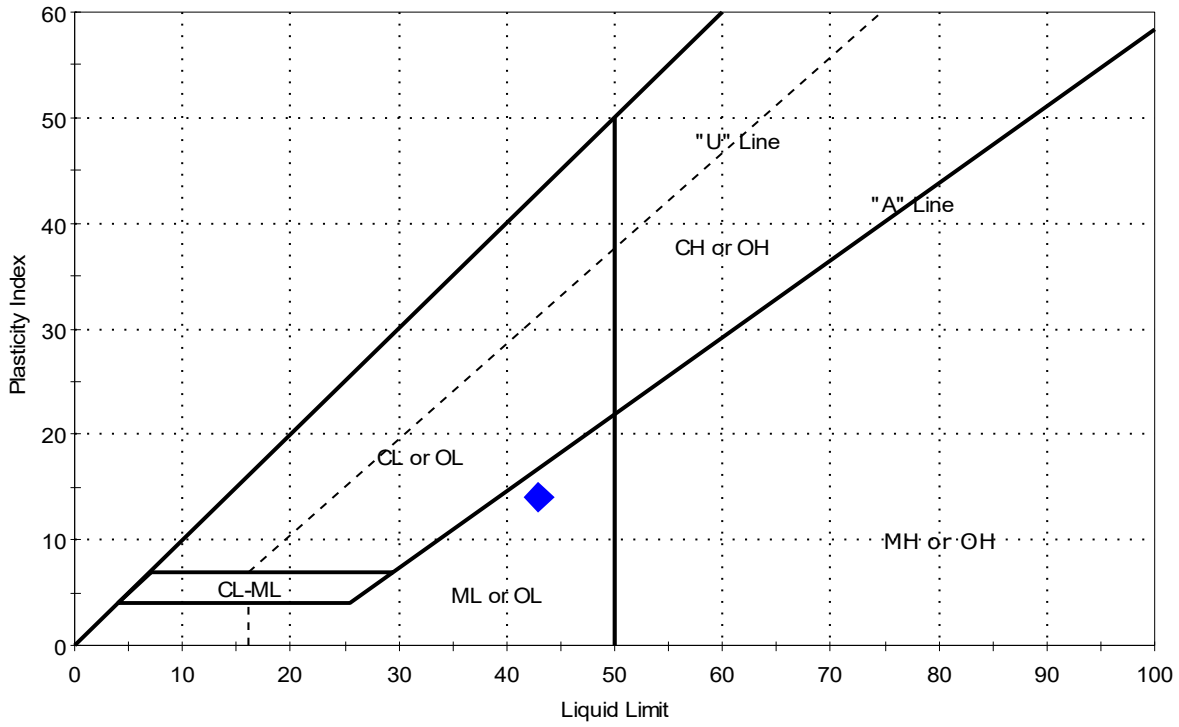
Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-117SPT-44.1-53.5-19	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527524		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

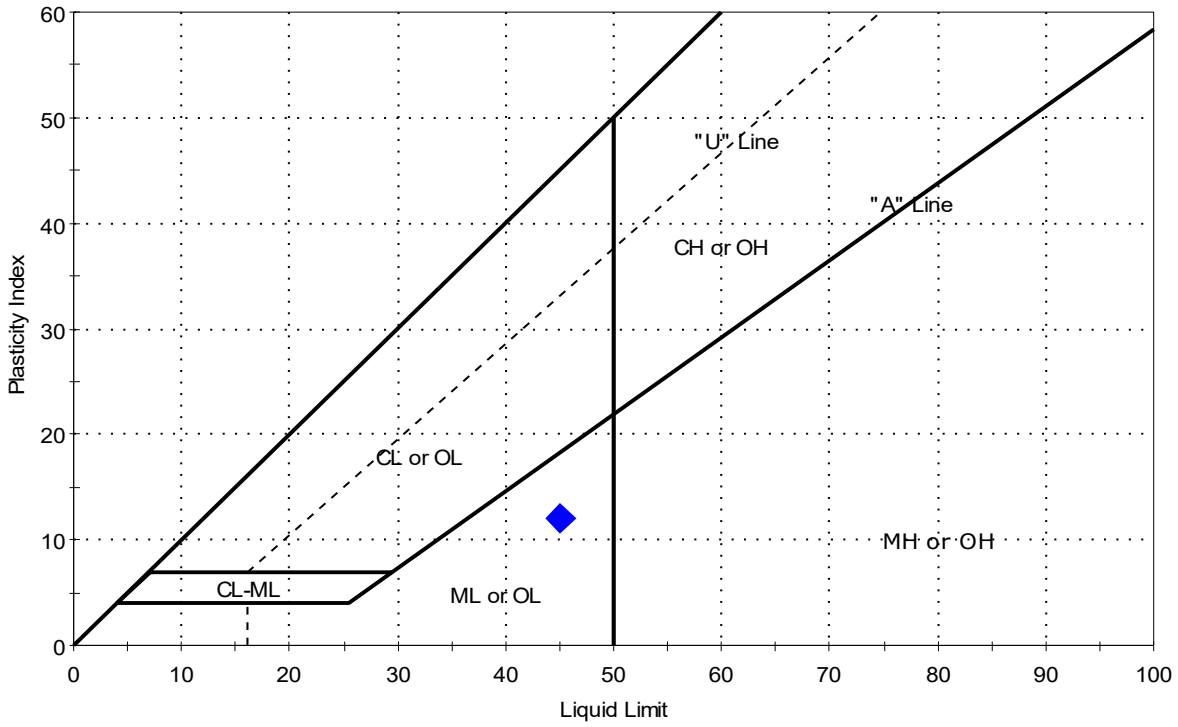


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	17SPT-44.1-53.5-1	---	---	46	43	29	14	1.2	Silty SAND (SM)

Sample Prepared using the WET method
3% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-117SPT-53.5-63.5-19	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527525		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

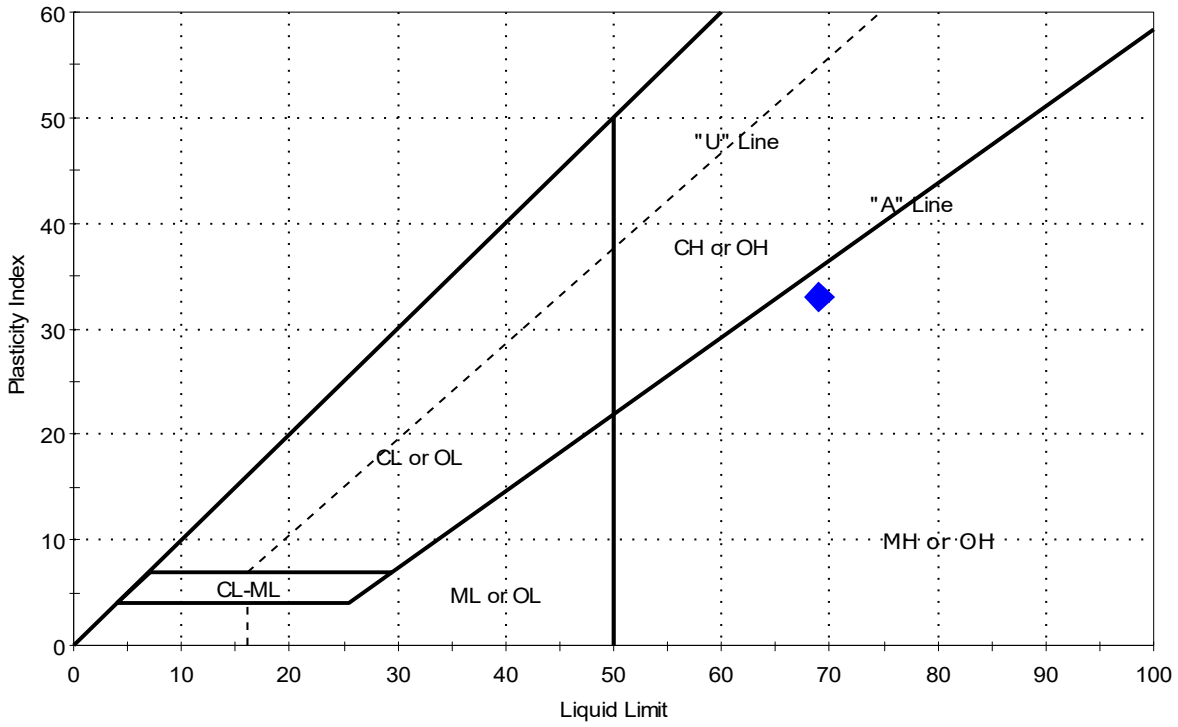


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	17SPT-53.5-63.5-1	---	---	83	45	33	12	4.2	SILT with Sand (ML)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-118SPT-00-4.5-1910	Test Date:	11/18/19	Checked By:	bfs
Depth :	---	Test Id:	527526		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

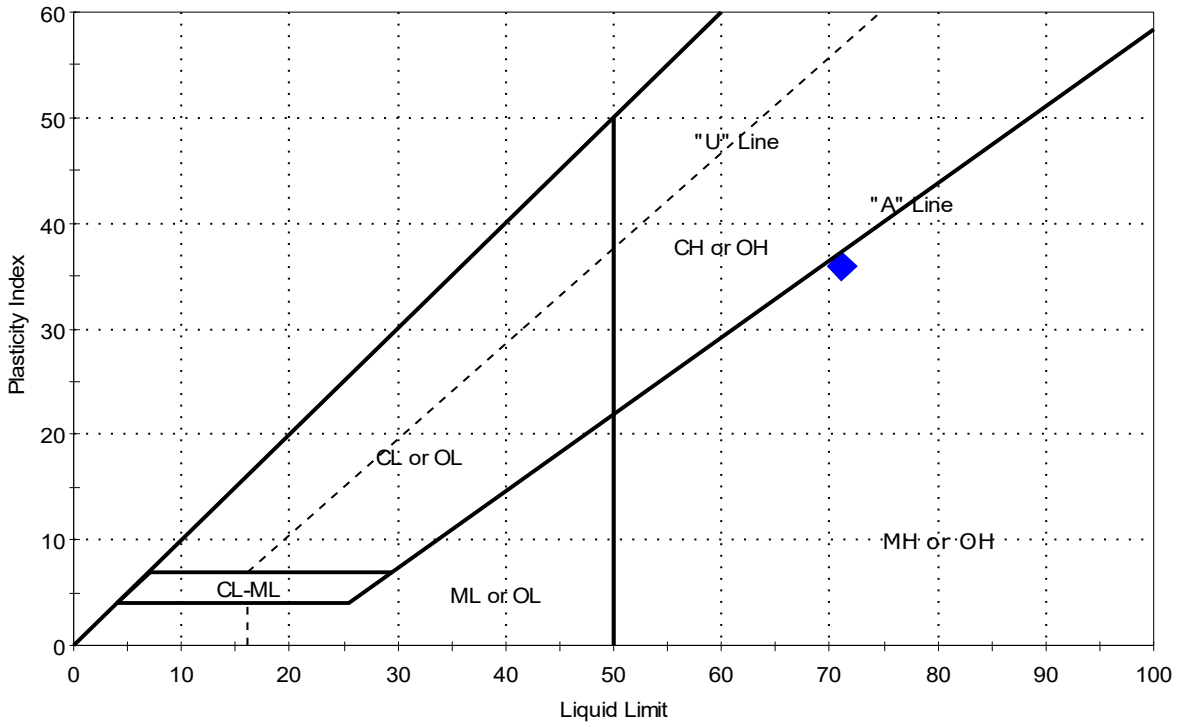


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	118SPT-00-4.5-19	---	---	113	69	36	33	2.3	Elastic SILT (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-118SPT-4.5-15-1910	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527527		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

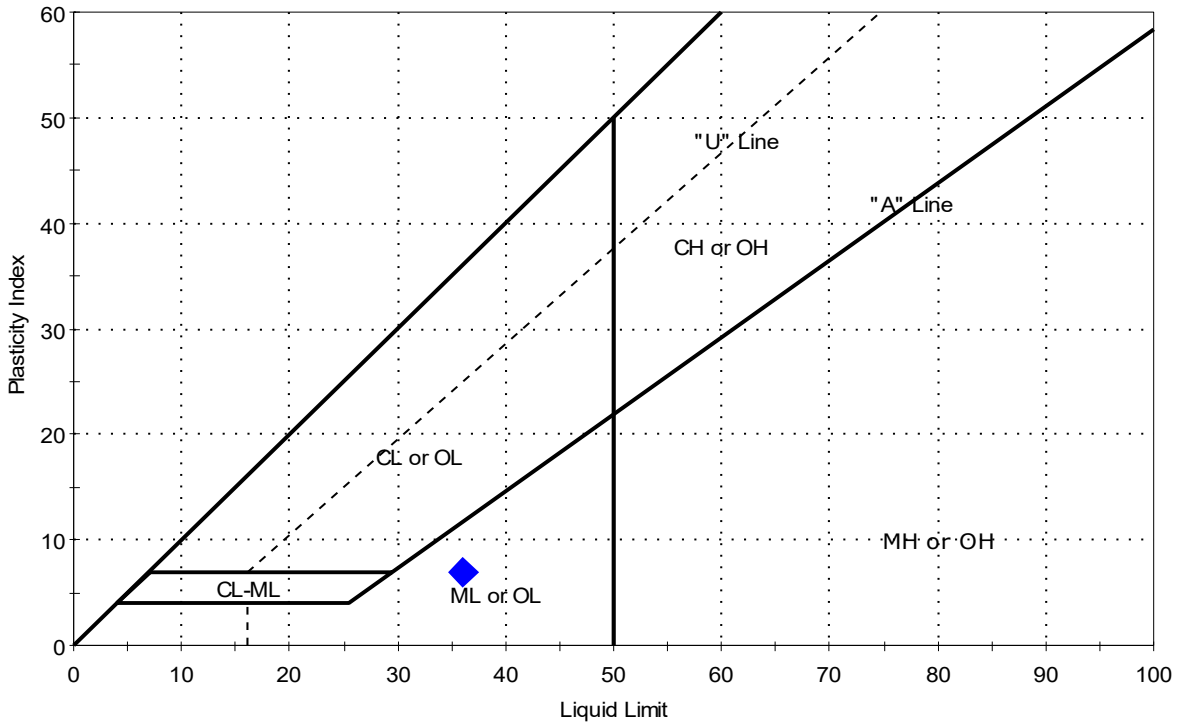


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	118SPT-4.5-15-19	---	---	70	71	35	36	1	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
3% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-118SPT-46.5-61-191(	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527528		
Test Comment:	---				
Visual Description:	Wet, dark grayish brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

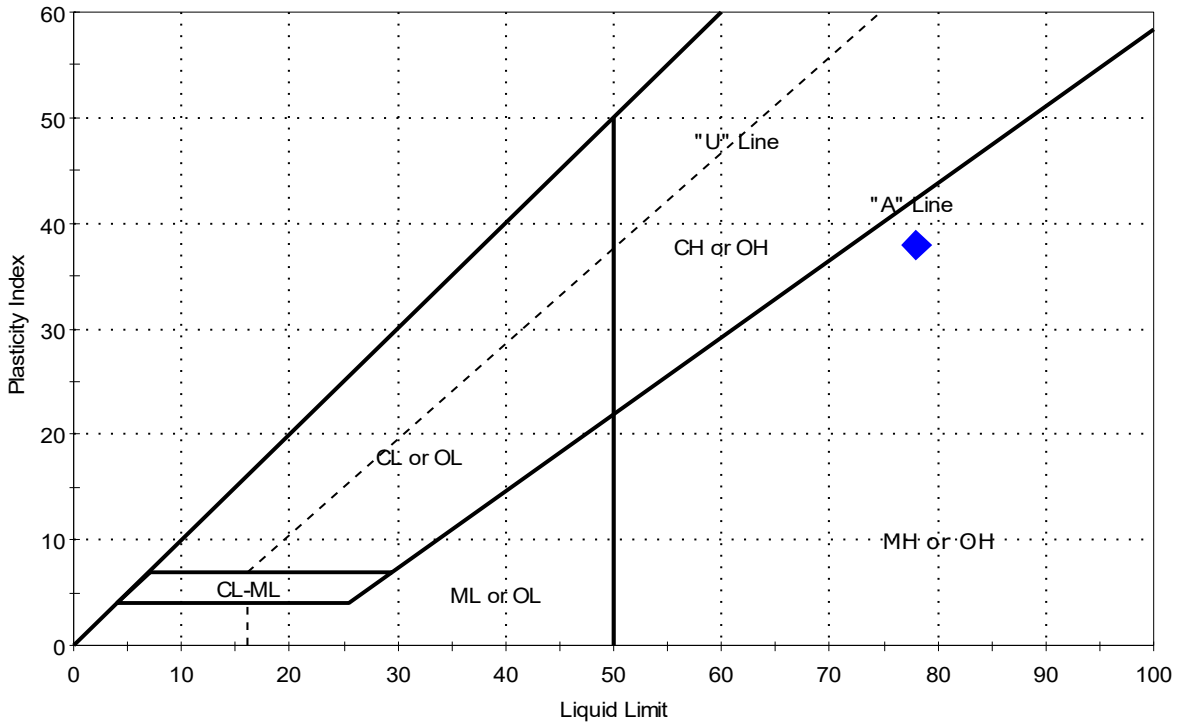


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.18SPT-46.5-61-19	---	---	62	36	29	7	4.7	Silty SAND (SM)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-119SPT-00-4.5-1910	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527529		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	119SPT-00-4.5-19	---	---	77	78	40	38	1	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-119SPT-18.3-31-191(	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527530		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

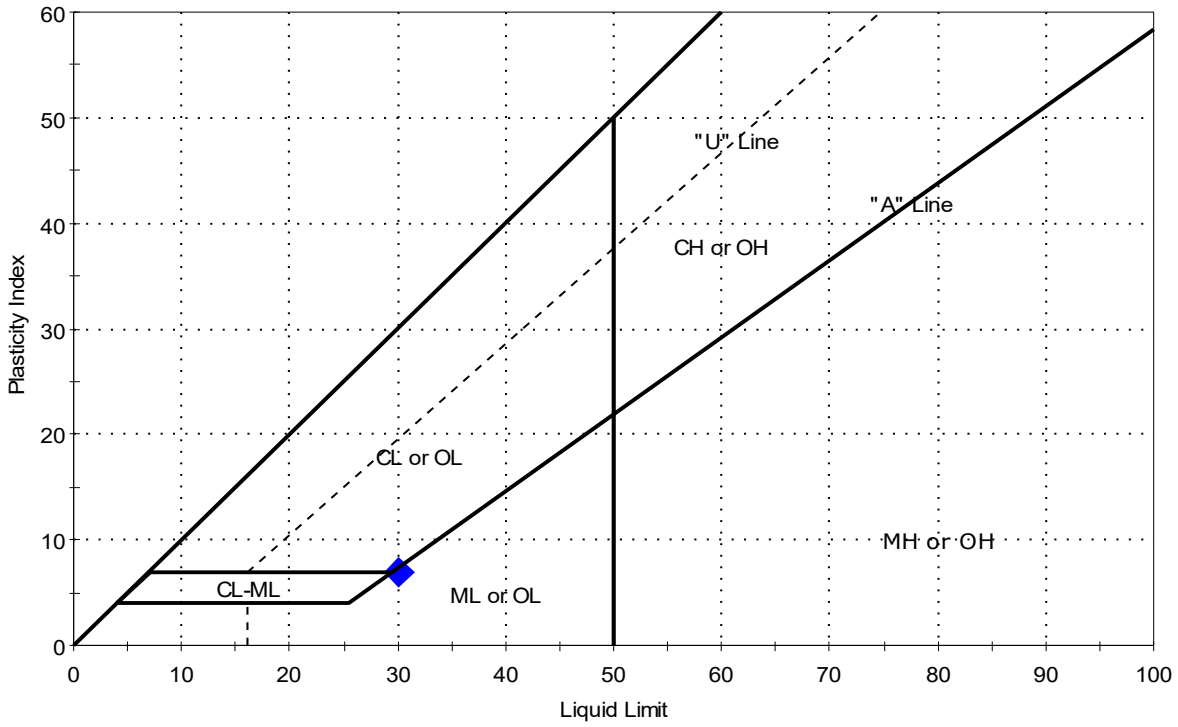
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.19SPT-18.3-31-19	---	---	30	n/a	n/a	n/a	n/a	Silty SAND (SM)

1% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-119SPT-47-52-19100	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527531		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	119SPT-47-52-191	---	---	33	30	23	7	1.5	Silty SAND (SM)

Sample Prepared using the WET method
7% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-119SPT-9.5-18.3-191	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527532		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

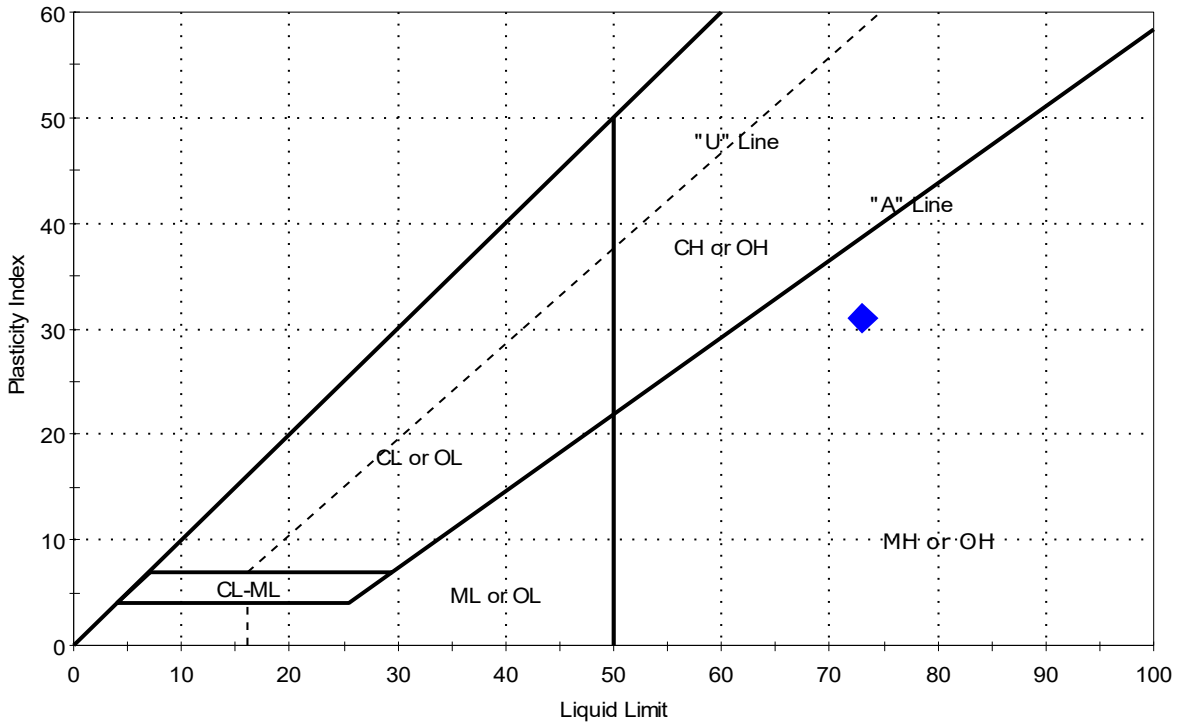
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	19SPT-9.5-18.3-19	---	---	37	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

10% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-121SPT-00-06-19093	Test Date:	11/15/19	Checked By:	bfs
Depth :	---	Test Id:	527533		
Test Comment:	---				
Visual Description:	Moist, olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

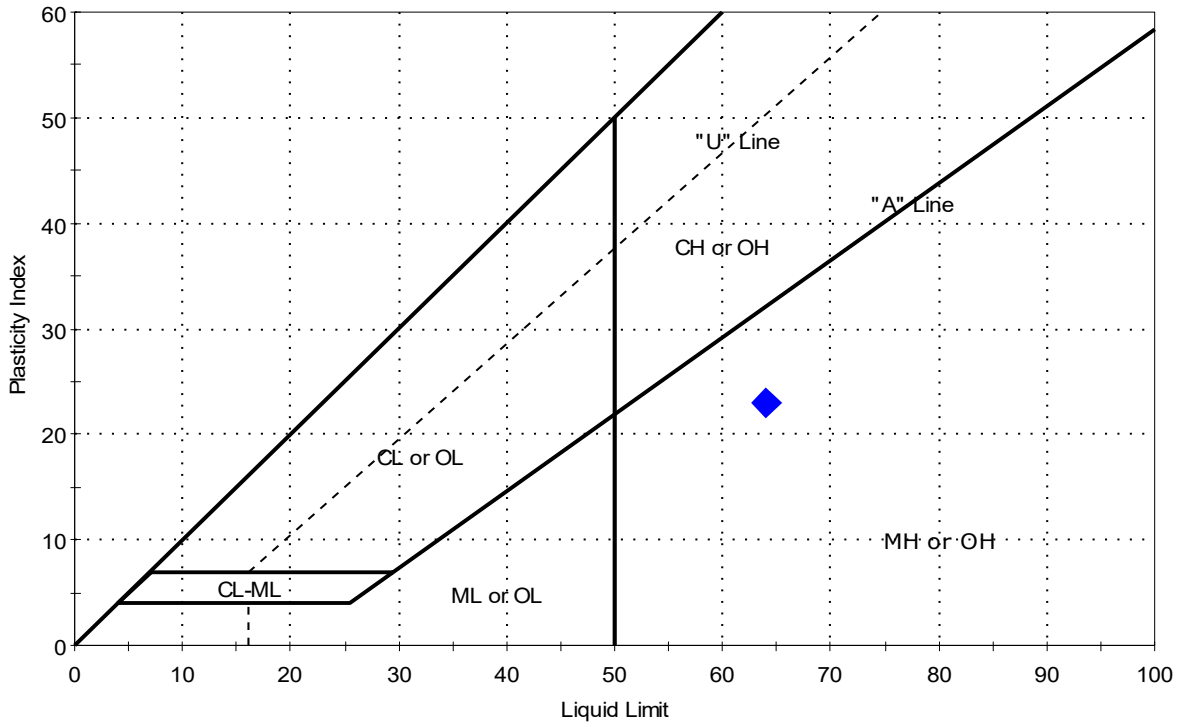


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	121SPT-00-06-190	---	---	76	73	42	31	1.1	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-121SPT-11-20.7-190	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527534		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.21SPT-11-20.7-19	---	---	60	64	41	23	0.8	Elastic SILT (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-121SPT-21-38-19093	Test Date:	10/28/19	Checked By:	bfs
Depth :	---	Test Id:	527535		
Test Comment:	---				
Visual Description:	Moist, dark olive gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

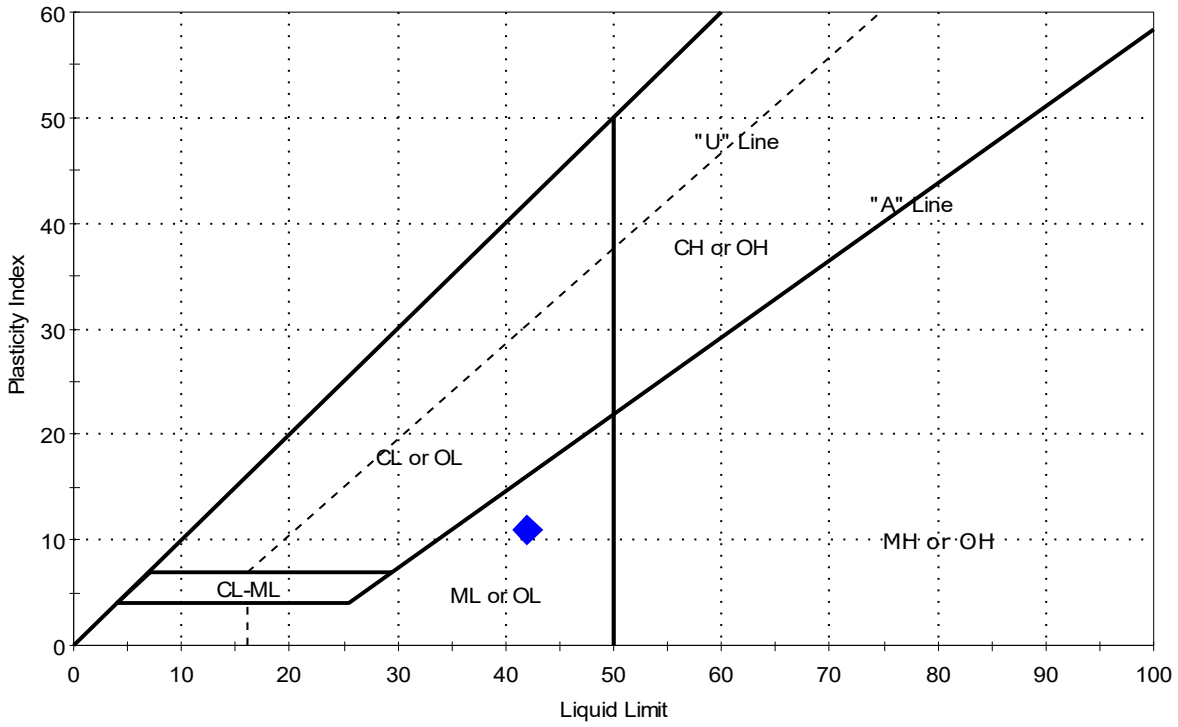
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	121SPT-21-38-190	---	---	43	n/a	n/a	n/a	n/a	Silty SAND (SM)

1% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-121SPT-49.4-54-190	Test Date:	11/18/19	Checked By:	bfs
Depth :	---	Test Id:	527536		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

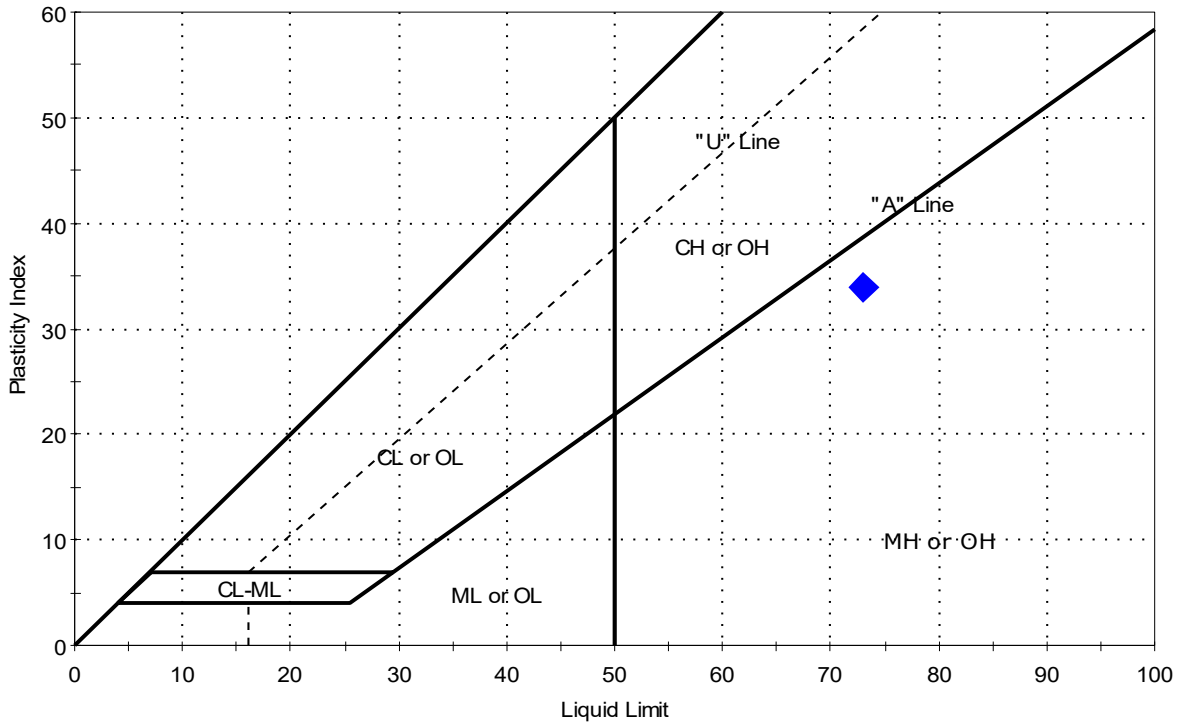


Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.21SPT-49.4-54-19	---	---	45	42	31	11	1.2	Silty SAND (SM)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-122SPT-04-09-19092	Test Date:	11/12/19	Checked By:	bfs
Depth :	---	Test Id:	527537		
Test Comment:	---				
Visual Description:	Wet, olive brown silt				
Sample Comment:	Sample contains organics				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	122SPT-04-09-190	---	---	80	73	39	34	1.2	Elastic SILT (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-122SPT-16.6-24-1905	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527538		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	.22SPT-16.6-24-19	---	---	49	n/a	n/a	n/a	n/a	Silty SAND (SM)

1% Retained on #40 Sieve

Dry Strength: LOW

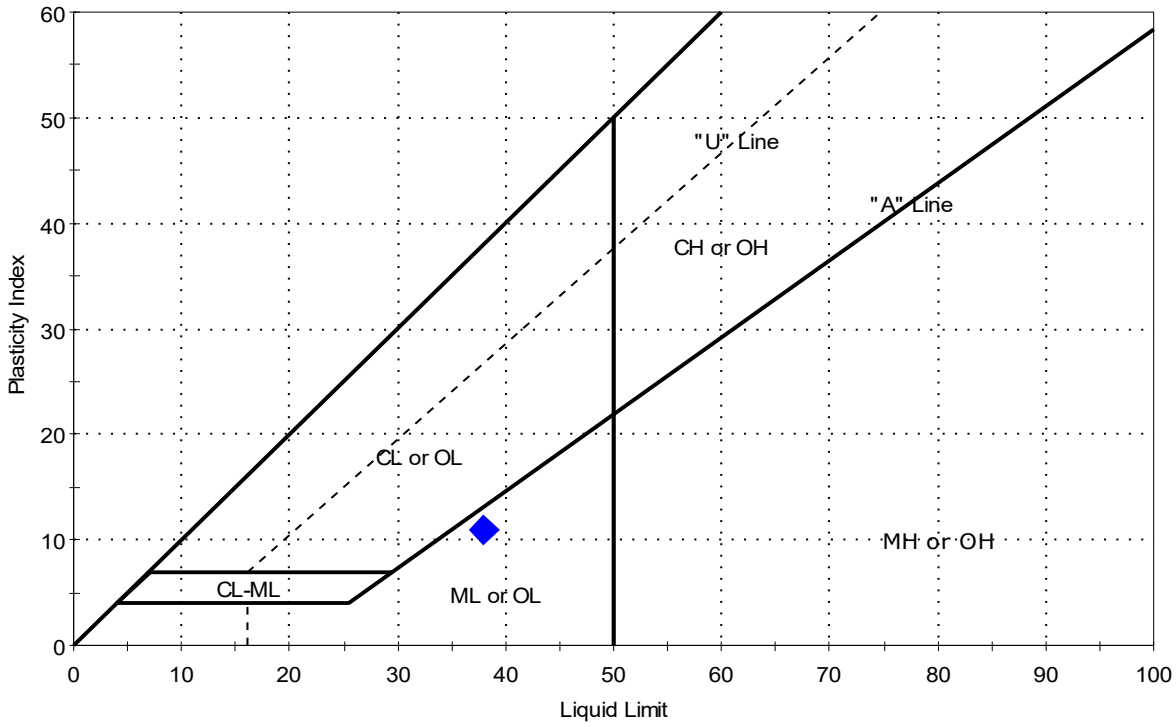
Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-122SPT-61-66-19092	Test Date:	11/08/19	Checked By:	bfs
Depth :	---	Test Id:	527539		
Test Comment:	---				
Visual Description:	Wet, olive brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



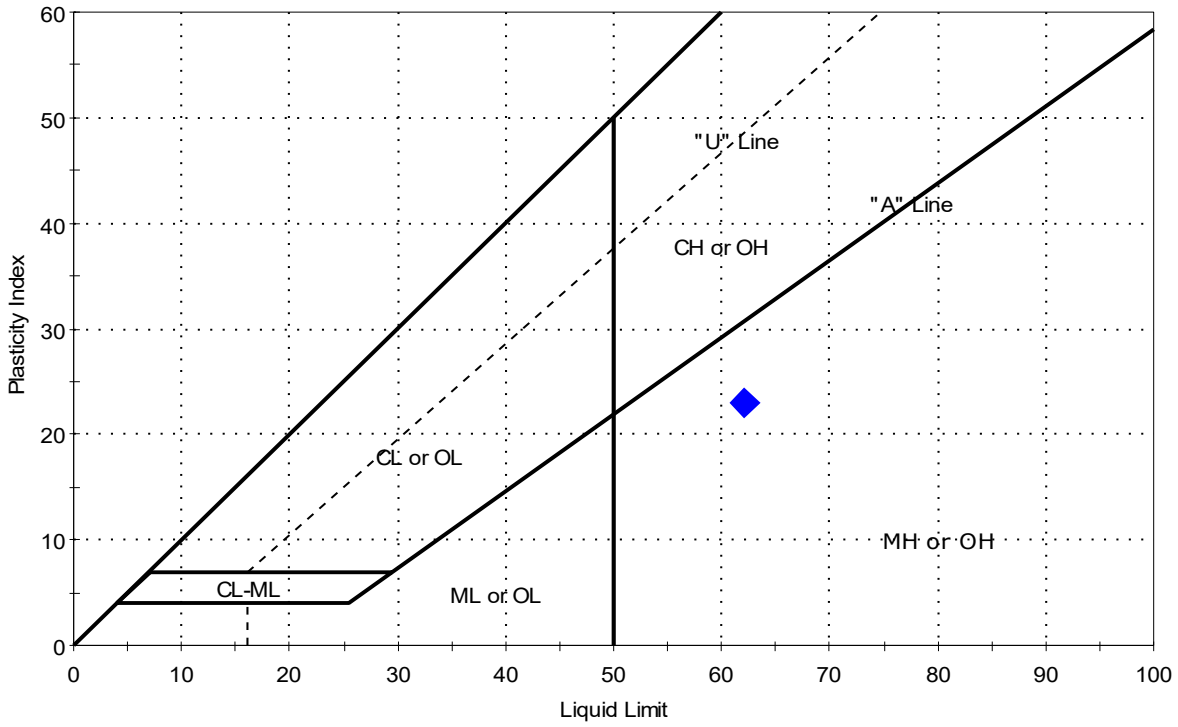
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	122SPT-61-66-190	---	---	42	38	27	11	1.3	Silty SAND (SM)

Sample Prepared using the WET method
4% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-123SPT-00-4.5-19097	Test Date:	11/11/19	Checked By:	bfs
Depth :	---	Test Id:	527540		
Test Comment:	---				
Visual Description:	Wet, dark olive silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	123SPT-00-4.5-19(	---	---	72	62	39	23	1.4	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-123SPT-25.5-30.5-19	Test Date:	10/25/19	Checked By:	bfs
Depth :	---	Test Id:	527541		
Test Comment:	---				
Visual Description:	Moist, dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	23SPT-25.5-30.5-1	---	---	19	n/a	n/a	n/a	n/a	Silty SAND (SM)

0% Retained on #40 Sieve

Dry Strength: LOW

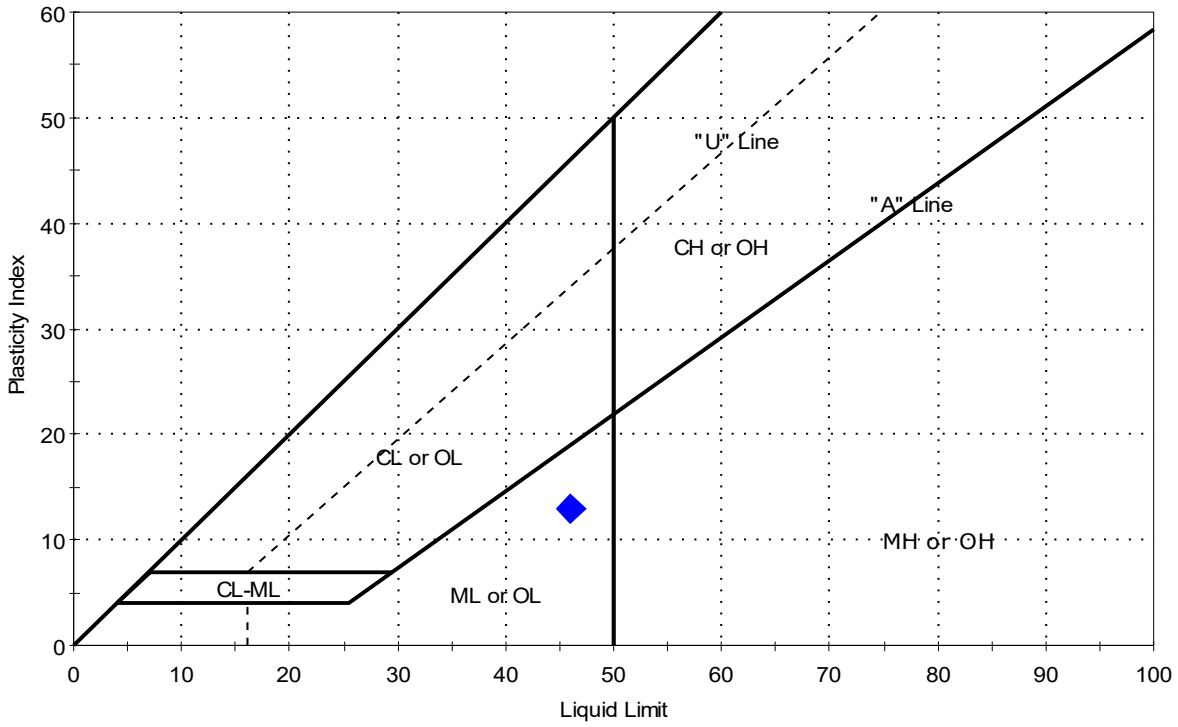
Dilatancy: RAPID

Toughness: n/a

The sample was determined to be Non-Plastic

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-123SPT-63.2-65.5-19	Test Date:	11/13/19	Checked By:	bfs
Depth :	---	Test Id:	527542		
Test Comment:	---				
Visual Description:	Moist, dark olive brown silt with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	23SPT-63.2-65.5-1	---	---	48	46	33	13	1.2	SILT with Sand (ML)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: MEDIUM

Client:	Anchor QEA, LLC				
Project:	Gasco PDI				
Location:				Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag	Tested By:	cam
Sample ID:	PDI-19SC-B-05-07-19100	Test Date:	11/05/19	Checked By:	bfs
Depth :	---	Test Id:	527479		
Test Comment:	---				
Visual Description:	Moist, dark olive brown sandy silt				
Sample Comment:	----				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	19SC-B-05-07-191	---	---	61	n/a	n/a	n/a	n/a	Sandy SILT (ML)

1% Retained on #40 Sieve
Dry Strength: MEDIUM
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20190924-170421

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: BJ
Lab: ~~Northwest Geotech~~ GTX

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-014SG-00-0.78-190923	N	SE	09/23/2019	17:05	1	☐	Grain Size	D6913/D7928	30	4°C
002	PDI-015SG-00-0.87-190924	N	SE	09/24/2019	11:19	1	☐	Grain Size	D6913/D7928	30	4°C
003	PDI-022SG-00-01-190924	N	SE	09/24/2019	13:00	1	☐	Grain Size	D6913/D7928	30	4°C
004	PDI-101SG-00-01-190923	N	SE	09/23/2019	13:35	1	☐	Grain Size	D6913/D7928	30	4°C
005	PDI-102SG-00-01-190923	N	SE	09/23/2019	15:05	1	☒	Grain Size	D6913/D7928	30	4°C
006	PDI-103SG-00-01-190924	N	SE	09/24/2019	14:30	1	☐	Grain Size	D6913/D7928	30	4°C
007	PDI-104SG-00-01-190924	N	SE	09/24/2019	14:45	1	☐	Grain Size	D6913/D7928	30	4°C
008	PDI-105SG-00-0.99-190924	N	SE	09/24/2019	14:00	1	☐	Grain Size	D6913/D7928	30	4°C
009	PDI-106SG-00-01-190924	N	SE	09/24/2019	15:05	1	☐	Grain Size	D6913/D7928	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name D Peterson	Print Name Shannon Pitcuch	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 9.25.19 1000	Date/Time 9/26/19 11am	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 9/24/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20190926-165106

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: dep
Lab: Northwest Geotech

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-018SC-A-06-07-190926	N	SE	09/26/2019	8:54	2 1	☐				
								Atterberg Limits	D4318	30	4°C
								~~Bulk Density~~	D7263	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-018SC-A-08-09-190926	N	SE	09/26/2019	8:54	2 1	☐				
								Atterberg Limits	D4318	30	4°C
								~~Bulk Density~~	D7263	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
003	PDI-021SC-B-7.7-9.7-190927	N	SE	09/27/2019	9:22	2 1	☐				
								Atterberg Limits	D4318	30	4°C
								~~Bulk Density~~	D7263	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
004	PDI-024SC-B-10-12.1-190927	N	SE	09/27/2019	11:31	2 1	☐				
								Atterberg Limits	D4318	30	4°C
								~~Bulk Density~~	D7263	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C

Comment: All changes DP 10.2.19

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name D. Peterson	Print Name Shannon Pleuch	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10.2.19 1000	Date/Time 10/3/19 10:30	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/2/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20190926-165106

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: dep
Lab: Northwest Geotech

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
004	PDI-024SC-B-10-12.1-190927	N	SE	09/27/2019	11:31	2 1	☐				
								Specific gravity	D854	30	4°C
005	PDI-036SC-B-4.2-6.2-190929	N	SE	09/29/2019	12:37	2 1	☐				
								Atterberg Limits	D4318	30	4°C
								~~Bulk Density~~ Sp. Gravity	D7263	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
006	PDI-064SC-B-04-06-190929	N	SE	09/29/2019	8:19	2 1	X				
								Atterberg Limits	D4318	30	4°C
								~~Bulk Density~~	D7263	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment: All changes DP 10.2.19

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature:	Signature	Signature	Signature	Signature
Print Name: D. Peterson	Print Name: Shannon Pierce	Print Name	Print Name	Print Name	Print Name
Company: AQ	Company: GTX	Company	Company	Company	Company
Date/Time: 10.2.19 1000	Date/Time: 10/3/19 10:30	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/2/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191001-164659

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: dep
Lab: Northwest Geotech

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-046SC-B-9.8-11.8-191001	N	SE	10/01/2019	8:48	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-071SC-B-08-10-191001	N	SE	10/01/2019	14:00	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name D. Peterson	Print Name Shannon Pierce	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10.2.19 1000	Date/Time 10/3/19 10:30	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/1/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191001-170018

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: dep
Lab: Northwest Geotech

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-039SC-B-7.8-9.8-190930	N	SE	09/30/2019	9:17	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name D. Peterson	Print Name Sharinon Pieczek	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10.2.19 1000	Date/Time 10/3/19 10:30	Date/Time	Date/Time	Date/Time	Date/Time

Date Printed: 10/1/2019

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191003-134441

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: dep
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	# Containers	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-028SC-B-10.7-12.7-191003	N	SE	10/03/2019	8:11	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
	PDI-081SC-B-08-10-191002		SE	10.2.19	0903	1		Atterberg	D4318		
								Grain Size	D6913/D7928		
								Moisture Content	D2216		
								Sp. Gravity	D854		

Comment:

	Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	[signature]	[signature]				
Print Name	D. Peterson	Shannon Pilcuch				
Company	AQ	GTX				
Date/Time	10.4.19 1000	10/8/19 11am				

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/3/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191014-145320

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CO, SN, BJ, DL
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-077SC-B-04-06-191014	N	SE	10/14/2019	8:41	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-079SC-B-06-08-191014	N	SE	10/14/2019	13:15	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name C. OREIRO	Print Name Shannon Pierce	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10/15/19 1535	Date/Time 10/21/19 8:55	Date/Time	Date/Time	Date/Time	Date/Time

Date Printed: 10/14/2019

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191010-175158

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CO, SN, DL, BJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-041SC-B-8.2-10.2-191010	N	SE	10/10/2019	9:42	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-067SC-B-02-04-191010	N	SE	10/10/2019	15:48	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name C. OREIRO	Print Name Shannon French	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10/15/19 1535	Date/Time 10/21/19 8:55	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/10/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191009-171243

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CO, SN, BJ, DL
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-016SC-B-06-08-191009	N	SE	10/09/2019	9:41	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-038SC-B-7.1-9.1-191009	N	SE	10/09/2019	15:56	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name C. OREIRO	Print Name Shannon Pierce	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10/15/19 1535	Date/Time 10/21/19 8:55	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/9/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191008-163122

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CO, SN, BJ, NB, DL
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-019SC-B-05-07-191008	N	SE	10/08/2019	14:55	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-033SC-B-8.7-10.7-191008	N	SE	10/08/2019	13:08	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name C. OREIRO	Print Name Shannon Pieruch	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10/15/19 1535	Date/Time 10/21/19 8:55	Date/Time	Date/Time	Date/Time	Date/Time

Date Printed: 10/8/2019

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191011-174305

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: SN
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-027SC-B-11-13.5-191011	N	SE	10/11/2019	14:25	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-066SC-B-06-08-191011	N	SE	10/11/2019	8:40	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name C. OREIRO	Print Name Shannon Pierach	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10/15/19 1535	Date/Time 10/21/19 8:55	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/11/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191012-174803

POC: [#] Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI

Client: NW Natural

Sample Custodian: SN

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	# Containers	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-090SC-B-06-08-191012	N	SE	10/12/2019	14:22	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

	Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	[signature]	[signature]				
Print Name	C. OREIRC	Shannon Pecuch				
Company	AQ	GTX				
Date/Time	10/15/19 1535	10/21/19 8:55				

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/12/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191015-152359

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CO, SN, BJ, DL
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	# Containers	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-049SC-B-06-08-191015	N	SE	10/15/2019	13:32	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-052SC-B-06-08-191015	N	SE	10/15/2019	8:54	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name C. OREIRO	Print Name Shannon Pieruch	Print Name	Print Name	Print Name	Print Name
Company AQ	Company GTX	Company	Company	Company	Company
Date/Time 10/15/19 1535	Date/Time 10/21/19 8:55	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/15/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-107SPT-00-04-190923	N	SE	09/23/2019	12:35	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-107SPT-04-09-190923	N	SE	09/23/2019	13:00	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
003	PDI-107SPT-17-18-190923	N	SE	09/23/2019	14:55	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
004	PDI-107SPT-62-64-190923	N	SE	09/23/2019	13:35	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
005	PDI-108SPT-00-6.4-191007	N	SE	10/07/2019	13:25	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Garrett Timm	Signature:	Signature	Signature:	Signature	Signature
Print Name: Garrett Timm	Print Name:	Print Name	Print Name: Scott Ferguson	Print Name	Print Name
Company: Anchor QEA	Company:	Company	Company: GTX	Company	Company
Date/Time: 10/16/19; 1400	Date/Time: 10/16/19; 1406	Date/Time	Date/Time: 10/21/19 8AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
005	PDI-108SPT-00-6.4-191007	N	SE	10/07/2019	13:25	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
006	PDI-108SPT-14-33.5-191007	N	SE	10/07/2019	9:15	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
007	PDI-108SPT-33.5-66.5-191007	N	SE	10/07/2019	10:55	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
008	PDI-109SPT-00-6.5-191004	N	SE	10/04/2019	9:05	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
009	PDI-109SPT-16.5-18.1-191004	N	SE	10/04/2019	10:30	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: [signature]	Signature: [signature]	Signature	Signature: [signature]	Signature	Signature
Print Name: Garrett Timm	Print Name: FedEx	Print Name	Print Name: Scott Ferguson	Print Name	Print Name
Company: Anchor QEA	Company: FedEx	Company	Company: GTX	Company	Company
Date/Time: 10/16/19; 1400	Date/Time: 10/16/19; 1700	Date/Time	Date/Time: 10/21/19 8AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
009	PDI-109SPT-16.5-18.1-191004	N	SE	10/04/2019	10:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
010	PDI-109SPT-22-30-191004	N	SE	10/04/2019	11:11	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
011	PDI-109SPT-35.5-48.3-191004	N	SE	10/04/2019	12:10	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
012	PDI-109SPT-48.3-51-191004	N	SE	10/04/2019	13:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
013	PDI-110 B-54-64.5-191015	N	SE	10/15/2019	9:50	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Garrett D. Timm	Signature: FEDEX	Signature:	Signature:	Signature:	Signature:
Print Name: Garrett Timm	Print Name:	Print Name:	Print Name: Scott Ferguson	Print Name:	Print Name:
Company: Anchor QEA	Company:	Company:	Company: GTX	Company:	Company:
Date/Time:	Date/Time: 10/16/19; 1400	Date/Time:	Date/Time: 10/21/19 8AM	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
013	PDI-110 B-54-64.5-191015	N	SE	10/15/2019	9:50	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
014	PDI-110SPT-21-32-191010	N	SE	10/10/2019	11:20	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
015	PDI-110SPT-32-45-191010	N	SE	10/10/2019	13:05	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
016	PDI-112SPT-00-6.5-191003	N	SE	10/03/2019	8:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
017	PDI-112SPT-07-11.5-191003	N	SE	10/03/2019	9:30	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Garrett Timm	Print Name FEDEX	Print Name	Print Name Scott Ferguson	Print Name	Print Name
Company Anchor QEA	Company	Company	Company GTX	Company	Company
Date/Time 10/16/19; 1400	Date/Time 10/16/19; 1400	Date/Time	Date/Time 10/21/19 8AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
017	PDI-112SPT-07-11.5-191003	N	SE	10/03/2019	9:30	#1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
018	PDI-112SPT-11.5-26.5-191003	N	SE	10/03/2019	9:40	#1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
019	PDI-112SPT-37.5-58-191003	N	SE	10/03/2019	12:50	#2	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
020	PDI-113SPT-06-16-191011	N	SE	10/11/2019	9:00	#1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
021	PDI-113SPT-16-22-191011	N	SE	10/11/2019	9:50	#1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Casey Jarvis	Signature: FedEx	Signature:	Signature:	Signature:	Signature:
Print Name: Casey Jarvis	Print Name: FedEx	Print Name:	Print Name: Scott Ferguson	Print Name:	Print Name:
Company: Anchor QEA	Company:	Company:	Company: GTX	Company:	Company:
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time:	Date/Time: 10/21/19 8AM	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
021	PDI-113SPT-16-22-191011	N	SE	10/11/2019	9:50	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
022	PDI-113SPT-22-25.2-191011	N	SE	10/11/2019	10:15	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
023	PDI-113SPT-31.9-39.4-191011	N	SE	10/11/2019	11:20	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
024	PDI-114SPT-00-7.5-191008	N	SE	10/08/2019	8:20	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
025	PDI-114SPT-25.5-28-191008	N	SE	10/08/2019	10:40	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Casey Jarosch	Signature: FedEx	Signature	Signature: Scott Ferguson	Signature	Signature
Print Name: Casey Jarosch	Print Name	Print Name	Print Name	Print Name	Print Name
Company: Anchor QEA	Company	Company	Company: GTX	Company	Company
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time	Date/Time: 10/21/19 8 AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
025	PDI-114SPT-25.5-28-191008	N	SE	10/08/2019	10:40	4 1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
026	PDI-114SPT-42-50.5-191008	N	SE	10/08/2019	12:55	4 1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
027	PDI-114SPT-50.5-55-191008	N	SE	10/08/2019	13:55	4 1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
028	PDI-114SPT-7.5-12.5-191008	N	SE	10/08/2019	9:15	4 1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
029	PDI-115SPT-06-11-191009	N	SE	10/09/2019	9:00	4 1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Cory Jurisch	Signature: FedEx	Signature:	Signature:	Signature:	Signature:
Print Name: Cory Jurisch	Print Name:	Print Name:	Print Name: Scott Ferguson	Print Name:	Print Name:
Company: Anchor QEA	Company:	Company:	Company: GTX	Company:	Company:
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time:	Date/Time: 10/21/19 8AM	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
029	PDI-115SPT-06-11-191009	N	SE	10/09/2019	9:00	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
030	PDI-115SPT-18.6-20.6-191009	N	SE	10/09/2019	10:00	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
031	PDI-115SPT-23-28.1-191009	N	SE	10/09/2019	10:35	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
032	PDI-115SPT-41.5-49.3-191009	N	SE	10/09/2019	13:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
033	PDI-116SPT-00-4.5-190926	N	SE	09/26/2019	16:05	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Casey Jenisch	Signature: FedEx	Signature:	Signature: Scott Ferguson	Signature:	Signature:
Print Name: Casey Jenisch	Print Name:	Print Name:	Print Name:	Print Name:	Print Name:
Company: Anchor QEA	Company:	Company:	Company: GTX	Company:	Company:
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time:	Date/Time: 10/21/19 8AM	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
033	PDI-116SPT-00-4.5-190926	N	SE	09/26/2019	16:05	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
034	PDI-116SPT-20-26.7-190927	N	SE	09/27/2019	9:15	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
035	PDI-116SPT-26.7-28.6-190926	N	SE	09/26/2019	10:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
036	PDI-116SPT-51.5-54.2-190927	N	SE	09/27/2019	14:10	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
037	PDI-117SPT-11-29.1-191002	N	SE	10/02/2019	10:05	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: [signature]	Signature: [signature]	Signature	Signature: [signature]	Signature	Signature
Print Name: Casey Jansch	Print Name: FedEx	Print Name	Print Name: Scott Ferguson	Print Name	Print Name
Company: Anchor QEA	Company	Company	Company: GTX	Company	Company
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time	Date/Time: 10/21/19 8AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
037	PDI-117SPT-11-29.1-191002	N	SE	10/02/2019	10:05	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
038	PDI-117SPT-29.1-32-191002	N	SE	10/02/2019	11:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
039	PDI-117SPT-44.1-53.5-191002	N	SE	10/02/2019	13:25	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
040	PDI-117SPT-53.5-63.5-191002	N	SE	10/02/2019	14:40	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
041	PDI-118SPT-00-4.5-191014	N	SE	10/14/2019	8:45	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Casey Jonisch	Signature: FedEx	Signature:	Signature:	Signature:	Signature:
Print Name: Casey Jonisch	Print Name: FedEx	Print Name:	Print Name: Scott Ferguson	Print Name:	Print Name:
Company: Anchor QEA	Company:	Company:	Company: GTX	Company:	Company:
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time:	Date/Time: 10/21/19 8AM	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
041	PDI-118SPT-00-4.5-191014	N	SE	10/14/2019	8:45	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
042	PDI-118SPT-4.5-15-191014	N	SE	10/14/2019	9:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
043	PDI-118SPT-46.5-61-191014	N	SE	10/14/2019	13:45	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
044	PDI-119SPT-00-4.5-191001	N	SE	10/01/2019	8:40	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
045	PDI-119SPT-18.3-31-191001	N	SE	10/01/2019	10:05	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Garrett D. Timm	Signature: FEDEX	Signature:	Signature:	Signature:	Signature:
Print Name: Garrett Timm	Print Name:	Print Name:	Print Name: Scott Ferguson	Print Name:	Print Name:
Company: Anchor QEA	Company: FEDEX	Company:	Company: GTX	Company:	Company:
Date/Time: 10/16/19; 1400	Date/Time: 10/16/19; 1400	Date/Time:	Date/Time: 10/21/19 8AM	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
045	PDI-119SPT-18.3-31-191001	N	SE	10/01/2019	10:05	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
046	PDI-119SPT-47-52-191001	N	SE	10/01/2019	14:00	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
047	PDI-119SPT-9.5-18.3-191001	N	SE	10/01/2019	9:35	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
048	PDI-121SPT-00-06-190930	N	SE	09/30/2019	8:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
049	PDI-121SPT-11-20.7-190930	N	SE	09/30/2019	9:25	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Garrett D. T.	Signature: EGDet	Signature:	Signature:	Signature:	Signature:
Print Name: Garrett Timm	Print Name: EGDet	Print Name:	Print Name: Scott Ferguson	Print Name:	Print Name:
Company: Anchor QEA	Company: EGDet	Company:	Company: GTX	Company:	Company:
Date/Time: 10/16/19, 1400	Date/Time: 10/16/19; 1400	Date/Time:	Date/Time: 10/21/19 8AM	Date/Time:	Date/Time:

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
049	PDI-121SPT-11-20.7-190930	N	SE	09/30/2019	9:25	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
050	PDI-121SPT-21-38-190930	N	SE	09/30/2019	10:25	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
051	PDI-121SPT-49.4-54-190930	N	SE	09/30/2019	13:30	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
052	PDI-122SPT-04-09-190925	N	SE	09/25/2019	15:35	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
053	PDI-122SPT-16.6-24-190925	N	SE	09/25/2019	16:55	1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name: Grant Tunna	Print Name FSDET	Print Name	Print Name Scott Ferguson	Print Name	Print Name
Company Anchor QEA	Company	Company	Company GTX	Company	Company
Date/Time 10/16/19; 1400	Date/Time 10/16/19; 1400	Date/Time	Date/Time 10/21/19 8AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
053	PDI-122SPT-16.6-24-190925	N	SE	09/25/2019	16:55	#1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
054	PDI-122SPT-61-66-190926	N	SE	09/26/2019	14:00	#1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
055	PDI-123SPT-00-4.5-190924	N	SE	09/24/2019	15:15	#1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
056	PDI-123SPT-25.5-30.5-190925	N	SE	09/25/2019	9:10	#1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
057	PDI-123SPT-63.2-65.5-190925	N	SE	09/25/2019	13:15	#1	☐				

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Garrett Timm	Print Name	Print Name	Print Name Scott Ferguson	Print Name	Print Name
Company Anchor QEA	Company	Company	Company GTX	Company	Company
Date/Time 10/16/19, 1400	Date/Time 10/16/19, 1400	Date/Time	Date/Time 10/21/19 8AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CJ
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
057	PDI-123SPT-63.2-65.5-190925	N	SE	09/25/2019	13:15	1	☐	Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Garrett Timm	Print Name FedEx	Print Name	Print Name Scott Ferguson	Print Name	Print Name
Company Anchor QEA	Company	Company	Company GTX	Company	Company
Date/Time 10/16/19; 1400	Date/Time 10/16/19; 1400	Date/Time	Date/Time 10/20/19 8AM	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-201910.

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CO, SN, BJ, SS
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-057SC-B-06-08-191023	N	SE	10/23/2019	12:46	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name: Ben Johnson	Print Name: Scott Ferguson	Print Name	Print Name	Print Name	Print Name
Company: Anchor QEA	Company: GTX	Company	Company	Company	Company
Date/Time: 10/29/19 @1215	Date/Time: 11/6/19 12:00	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/23/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191022-162549

Sample Custodian: CO, SN, BJ, SS

Lab: Geotesting Express

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI

Client: NW Natural

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-083SC-B-08-10-191022	N	SE	10/22/2019	14:05	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-099SC-B-02-04-191022	N	SE	10/22/2019	10:48	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Ben Johnson	Print Name Scott Ferguson	Print Name	Print Name	Print Name	Print Name
Company AnchorQEA	Company GeoX	Company	Company	Company	Company
Date/Time 10/29/19 @1215	Date/Time 11/6/19 0800	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/22/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191017-123936

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: SN
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-031SC-B-8.9-10.9-191017	N	SE	10/17/2019	9:06	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-097SC-B-02-04-191017	N	SE	10/17/2019	10:46	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Ben Johnson	Print Name Scott Ferguson	Print Name	Print Name	Print Name	Print Name
Company Anchor QEA	Company GTX	Company	Company	Company	Company
Date/Time 10/29/19 1215	Date/Time 10/6/19 1200	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/17/2019

ANCHOR QEA
1201 3rd Avenue, Suite 2600, Seattle, WA 98101

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-143858

POC: # Delaney Peterson (360-715-2707)
1605 Cornwall Avenue, Bellingham, WA 98225

Project: Gasco PDI
Client: NW Natural

Sample Custodian: CO, SN, BJ, DL
Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-022SC-B-5.5-7.5-191016	N	SE	10/16/2019	13:41	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
002	PDI-059SC-B-06-08-191016	N	SE	10/16/2019	7:57	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C
003	PDI-069SC-B-10-12-191016	N	SE	10/16/2019	10:38	1	☐				
								Atterberg Limits	D4318	30	4°C
								Grain Size	D6913/D7928	30	4°C
								Moisture Content	D2216	30	4°C
								Specific gravity	D854	30	4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Print Name Ben Johnson	Print Name Scott Ferguson	Print Name	Print Name	Print Name	Print Name
Company Anchor QEA	Company GTX	Company	Company	Company	Company
Date/Time 10/29/19 1215	Date/Time 11/6/19 1200	Date/Time	Date/Time	Date/Time	Date/Time

* Lab QC Requested for sample when box is checked ** TAT = Turn Around Time in DAYS # POC = Project Point of Contact

Date Printed: 10/16/2019

GeoTesting EXPRESS

WARRANTY and LIABILITY

GeoTesting Express (GTX) warrants that all tests it performs are run in general accordance with the specified test procedures and accepted industry practice. GTX will correct or repeat any test that does not comply with this warranty. GTX has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GTX may report engineering parameters that require us to interpret the test data. Such parameters are determined using accepted engineering procedures. However, GTX does not warrant that these parameters accurately reflect the true engineering properties of the *in situ* material. Responsibility for interpretation and use of the test data and these parameters for engineering and/or construction purposes rests solely with the user and not with GTX or any of its employees.

GTX's liability will be limited to correcting or repeating a test which fails our warranty. GTX's liability for damages to the Purchaser of testing services for any cause whatsoever shall be limited to the amount GTX received for the testing services. GTX will not be liable for any damages, or for any lost benefits or other consequential damages resulting from the use of these test results, even if GTX has been advised of the possibility of such damages. GTX will not be responsible for any liability of the Purchaser to any third party.

Commonly Used Symbols

A	pore pressure parameter for $\Delta\sigma_1 - \Delta\sigma_3$
B	pore pressure parameter for $\Delta\sigma_3$
CAI	CERCHAR Abrasiveness Index
CIU	isotropically consolidated undrained triaxial shear test
CR	compression ratio for one dimensional consolidation
CSR	cyclic stress ratio
C_c	coefficient of curvature, $(D_{30})^2 / (D_{10} \times D_{60})$
C_u	coefficient of uniformity, D_{60}/D_{10}
C_c	compression index for one dimensional consolidation
C_α	coefficient of secondary compression
c_v	coefficient of consolidation
c	cohesion intercept for total stresses
c'	cohesion intercept for effective stresses
D	diameter of specimen
D	damping ratio
D_{10}	diameter at which 10% of soil is finer
D_{15}	diameter at which 15% of soil is finer
D_{30}	diameter at which 30% of soil is finer
D_{50}	diameter at which 50% of soil is finer
D_{60}	diameter at which 60% of soil is finer
D_{85}	diameter at which 85% of soil is finer
d_{50}	displacement for 50% consolidation
d_{90}	displacement for 90% consolidation
d_{100}	displacement for 100% consolidation
E	Young's modulus
e	void ratio
e_c	void ratio after consolidation
e_o	initial void ratio
G	shear modulus
G_s	specific gravity of soil particles
H	height of specimen
H_R	Rebound Hardness number
i	gradient
I_S	Uncorrected point load strength
$I_{S(50)}$	Size corrected point load strength index
H_A	Modified Taber Abrasion
H_T	Total hardness
K_o	lateral stress ratio for one dimensional strain
k	permeability
LI	Liquidity Index
m_v	coefficient of volume change
n	porosity
PI	plasticity index
P_c	preconsolidation pressure
p	$(\sigma_1 + \sigma_3) / 2$, $(\sigma_v + \sigma_h) / 2$
p'	$(\sigma'_1 + \sigma'_3) / 2$, $(\sigma'_v + \sigma'_h) / 2$
p'_c	p' at consolidation
Q	quantity of flow
q	$(\sigma_1 - \sigma_3) / 2$
q_f	q at failure
q_o, q_i	initial q
q_c	q at consolidation
S_r	Post cyclic undrained shear strength
T	temperature
t	time
U, UC	unconfined compression test
UU, Q	unconsolidated undrained triaxial test
u_a	pore gas pressure
u_e	excess pore water pressure
u, u_w	pore water pressure
V	total volume
V_g	volume of gas
V_s	volume of solids
V_s	shear wave velocity
V_v	volume of voids
V_w	volume of water
V_o	initial volume
v	velocity
W	total weight
W_s	weight of solids
W_w	weight of water
w	water content
w_c	water content at consolidation
w_f	final water content
w_l	liquid limit
w_n	natural water content
w_p	plastic limit
w_s	shrinkage limit
w_o, w_i	initial water content
α	slope of q_f versus p_f
α'	slope of q_f versus p_f'
γ_t	total unit weight
γ_d	dry unit weight
γ_s	unit weight of solids
γ_w	unit weight of water
ε	strain
ε_{vol}	volume strain
ε_h, ε_v	horizontal strain, vertical strain
μ	Poisson's ratio, also viscosity
σ	normal stress
σ'	effective normal stress
σ_c, σ'_c	consolidation stress in isotropic stress system
σ_h, σ'_h	horizontal normal stress
σ_v, σ'_v	vertical normal stress
σ'_{vc}	Effective vertical consolidation stress
σ_1	major principal stress
σ_2	intermediate principal stress
σ_3	minor principal stress
τ	shear stress
φ	friction angle based on total stresses
φ'	friction angle based on effective stresses
φ'_r	residual friction angle
φ_{ult}	φ for ultimate strength