



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	md
Sample ID: ---	Test Date: 12/20/19	Checked By:	bfs
Depth : ---	Test Id: 530868		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-108SPT	1.5- 3.5-19107	---	Wet, olive gray silt	86.6
PDI-109SPT	6.5- 8.5-191004	---	Wet, dark olive gray silt	96.1
PDI-112SPT	6.5- 8.5-191003	---	Moist, olive gray silt	87.7
PDI-113SPT	47- 49-191011	---	Moist, dark grayish brown silty sand	32.1
PDI-114SPT	17.5- 19.5-191008	---	Wet, gray clay	65.6
PDI-114SPT	7.5- 9.5-191008	---	Wet, gray silt	63.9
PDI-115SPT	41.5- 43.5-191009	---	Moist, dark gray sandy silt	48.6
PDI-116SPT	30- 32-190927	---	Moist, gray sand with silt	31.0
PDI-116SPT	9.5- 11.5-191002	---	Wet, gray silt with sand	55.2

Notes: Temperature of Drying : 110° Celsius



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: ---	Tested By: md	
Sample ID: ---	Test Date: 12/19/19	Checked By: bfs	
Depth : ---	Test Id: 530876		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-118SPT	4.5- 6.5-191014	---	Wet, olive gray silt	83.2
PDI-119SPT	36.5- 38.5-191001	---	Moist, dark gray sandy clay	41.7
PDI-121SPT	06- 08-190930	---	Wet, olive gray silt	84.5
PDI-122SPT	44- 46-190926	---	Moist, dark gray sand	31.0
PDI-123SPT	4.5- 6.5-190924	---	Wet, olive gray silt	69.2

Notes: Temperature of Drying : 110° Celsius



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: ---	Tested By: md	
Sample ID: ---	Test Date: 12/26/19	Checked By: n/a	
Depth: ---	Test Id: 531126		

Laboratory Determination of Density (Unit Weight) of Soil Specimens by ASTM D7263

Boring ID	Sample ID	Depth	Visual Description	Bulk Density pcf	Moisture Content %	Dry Density pcf	*
PDI-108SPT	1.5-3.5-19107	---	Wet, olive gray silt	92.16	86.65	49.38	(1)
PDI-112SPT	6.5-8.5-191003	---	Moist, olive gray silt	86.71	87.70	46.20	(2)
PDI-114SPT	17.5-19.5-191008	---	Wet, gray clay	100.3	65.59	60.60	(3)
PDI-116SPT	9.5-11.5-191002	---	Wet, gray silt with sand	94.24	55.15	60.74	(4)
PDI-119SPT	36.5-38.5-191001	---	Moist, dark gray sandy clay	106.9	41.68	75.45	(5)
PDI-121SPT	06-08-190930	---	Wet, olive gray silt	75.75	84.53	41.05	(6)
PDI-123SPT	(") 16.5-190924	---	Wet, olive gray silt	96.54	69.18	57.06	(7)

* Sample Comments

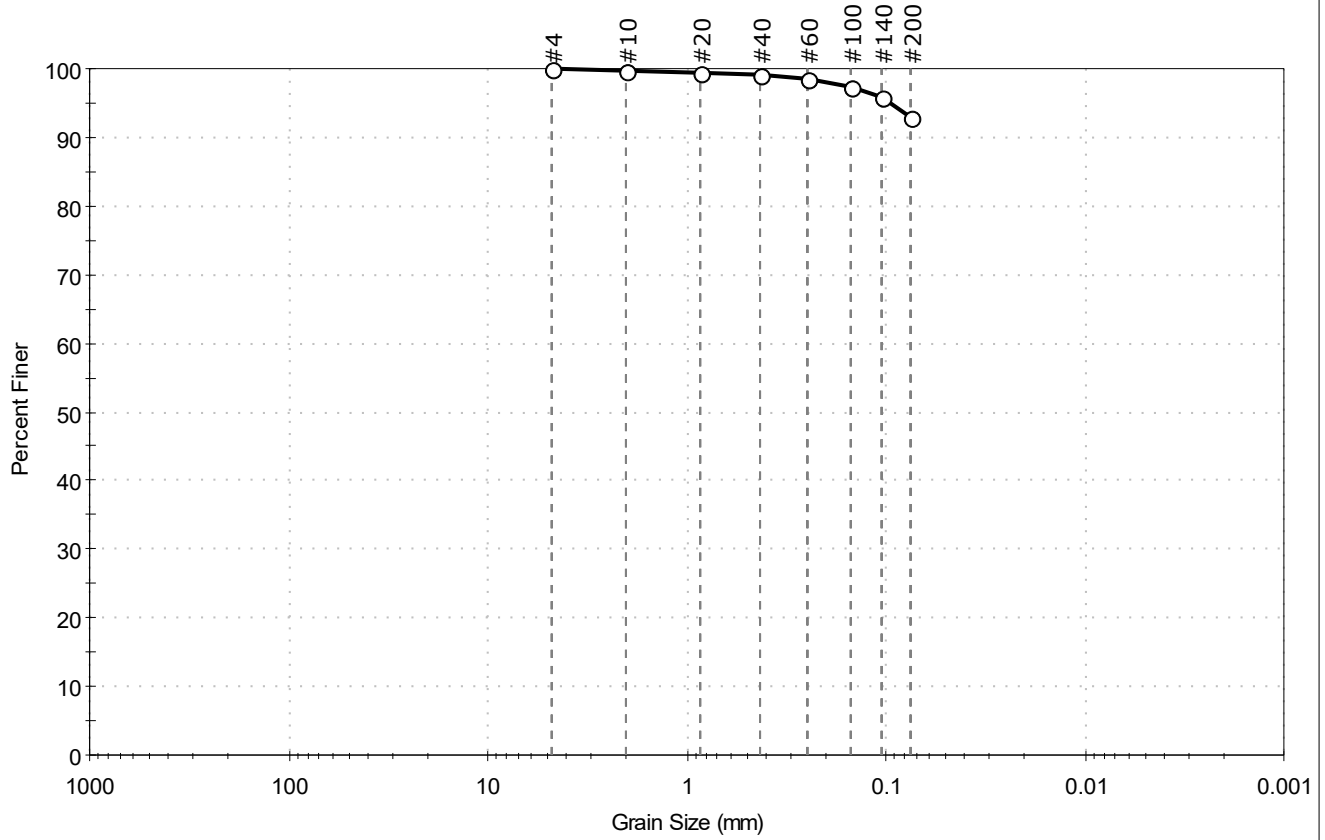
- (1): Method B-Cylinder, Intact
- (2): Sample contains organics
Method B-Cylinder, Intact
- (3): Method B-Cylinder, Intact
- (4): Method B-Cylinder, Intact
- (5): Method B-Cylinder, Intact
- (6): Method B-Cylinder, Intact
- (7): Method B-Cylinder, Intact

Notes: Moisture Content determined by ASTM D2216.



Client: Anchor QEA, LLC
 Project: Gasco PDI
 Location: Project No: GTX-310685
 Boring ID: PDI-112SPT Sample Type: tube Tested By: ckg
 Sample ID: 6.5-8.5-191003 Test Date: 12/16/19 Checked By: bfs
 Depth: --- Test Id: 531045
 Test Comment: ---
 Visual Description: Moist, olive gray silt
 Sample Comment: Sample contains organics

Particle Size Analysis - ASTM D6913



% 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	99		
#100	0.15	97		
#140	0.11	96		
#200	0.075	93		

<u>Coefficients</u>	
D ₈₅ = N/A	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

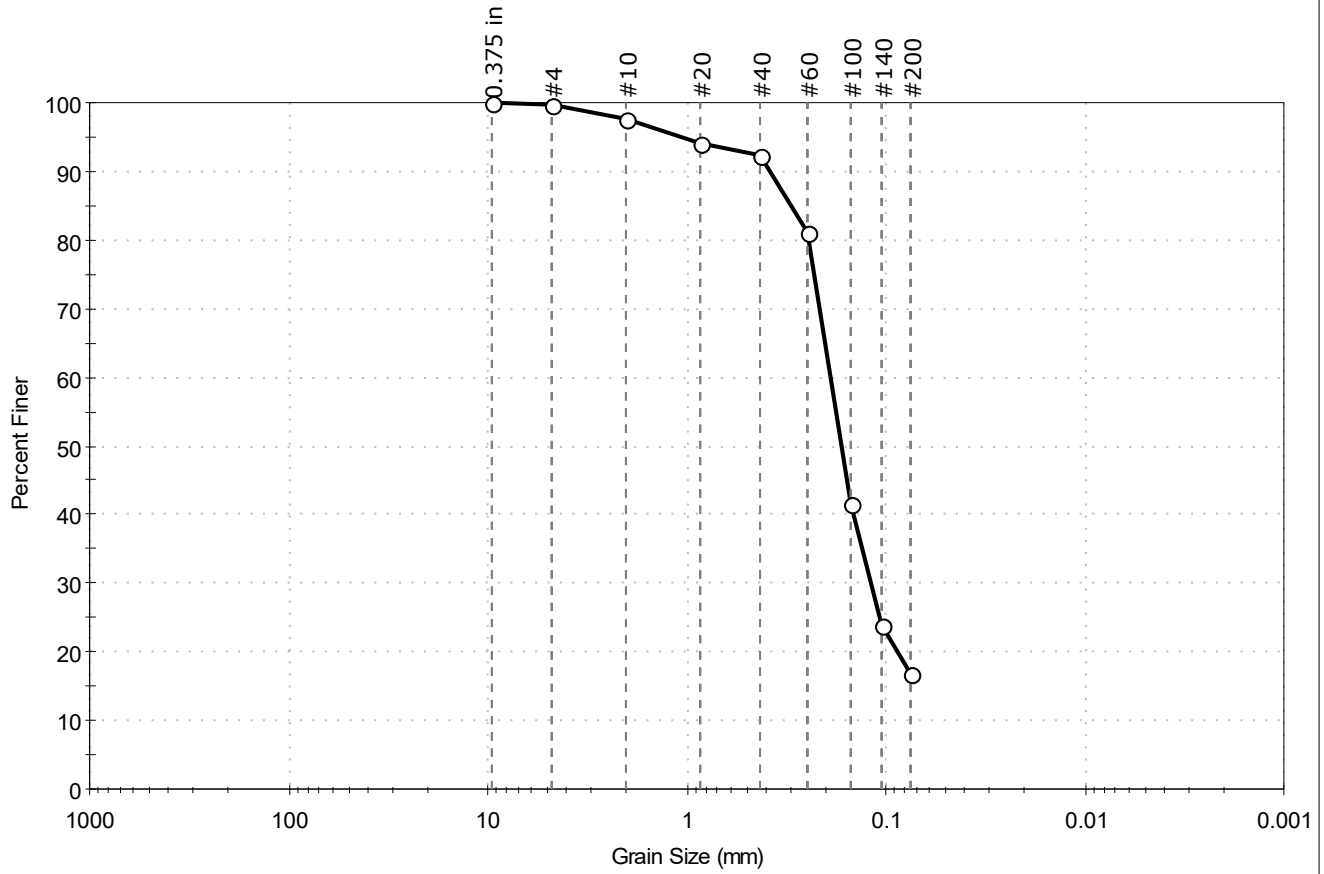
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-113SPT	Sample Type: tube	Tested By: ckg	Checked By: bfs
Sample ID: 47-49-191011	Test Date: 12/23/19	Test Id: 531046	
Depth: ---	Test Comment: ---	Visual Description: Moist, dark grayish brown silty sand	Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.4	82.7	16.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	98		
#20	0.85	94		
#40	0.42	92		
#60	0.25	81		
#100	0.15	42		
#140	0.11	24		
#200	0.075	17		

<u>Coefficients</u>	
D ₈₅ = 0.2993 mm	D ₃₀ = 0.1197 mm
D ₆₀ = 0.1902 mm	D ₁₅ = N/A
D ₅₀ = 0.1672 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

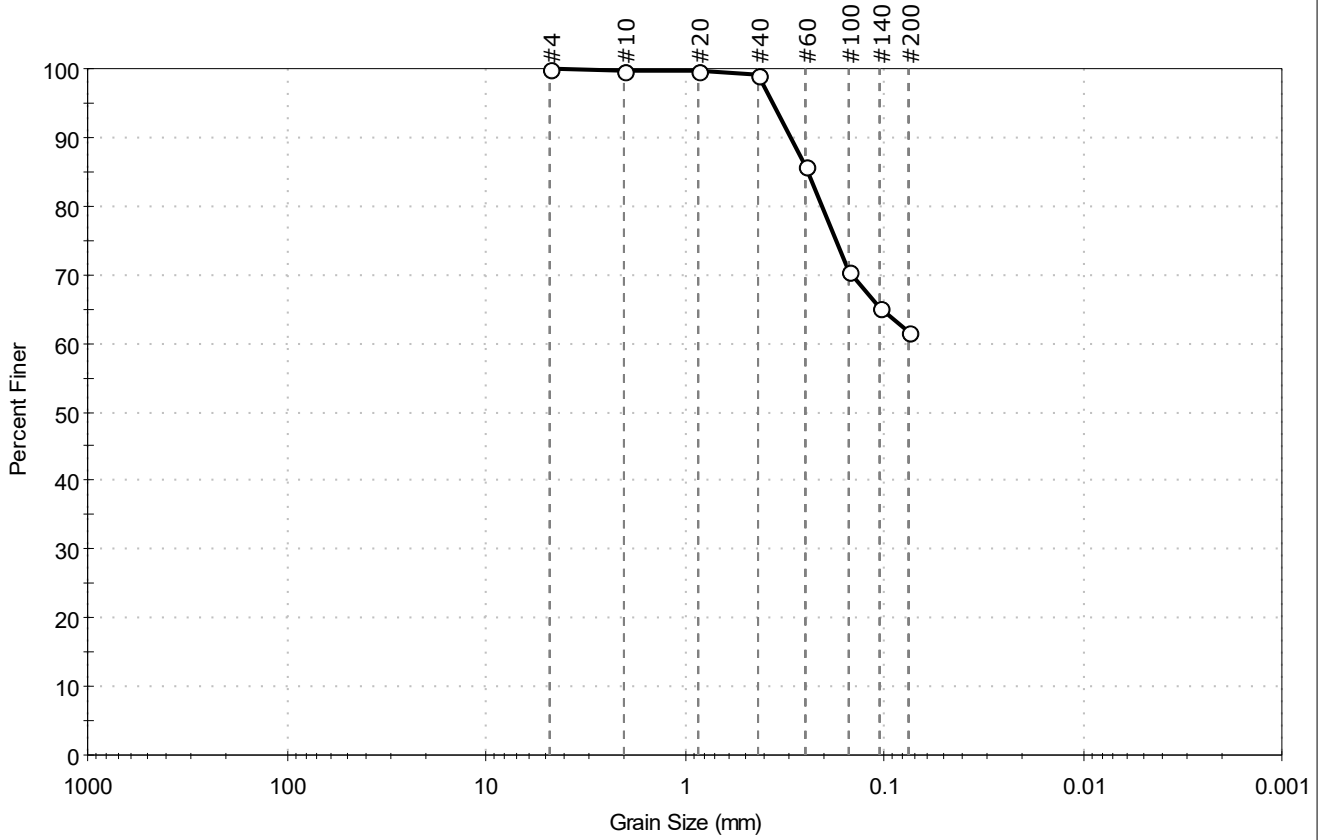
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC
 Project: Gasco PDI
 Location: Project No: GTX-310685
 Boring ID: PDI-115SPT Sample Type: tube Tested By: ckg
 Sample ID: 41.5-43.5-191009 Test Date: 12/04/19 Checked By: bfs
 Depth: --- Test Id: 531047
 Test Comment: ---
 Visual Description: Moist, dark gray sandy silt
 Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	38.2	61.8

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	86		
#100	0.15	71		
#140	0.11	65		
#200	0.075	62		

<u>Coefficients</u>	
D ₈₅ = 0.2425 mm	D ₃₀ = N/A
D ₆₀ = N/A	D ₁₅ = N/A
D ₅₀ = N/A	D ₁₀ = N/A
C _u = N/A	C _c = N/A

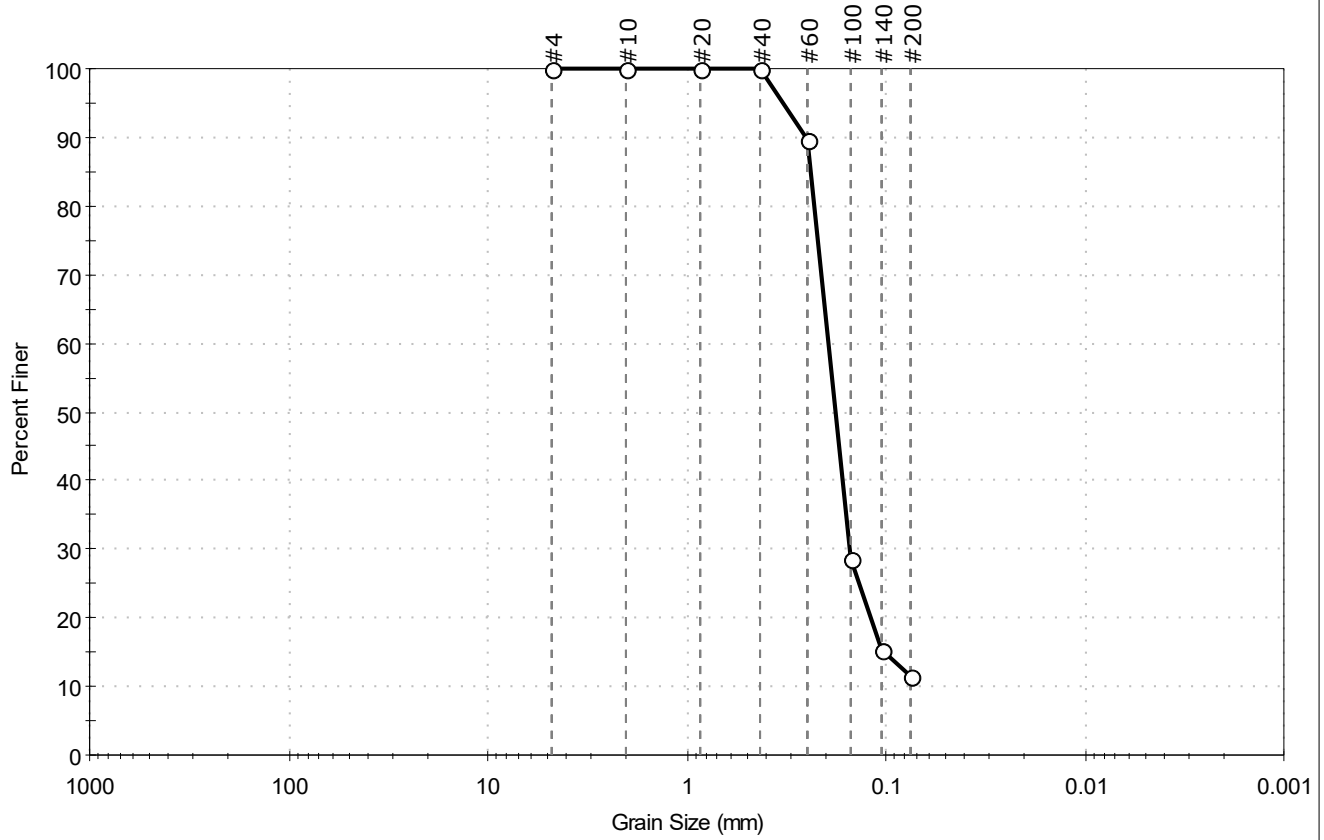
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC
 Project: Gasco PDI
 Location: Project No: GTX-310685
 Boring ID: PDI-116SPT Sample Type: tube Tested By: ckg
 Sample ID: 30-32-190927 Test Date: 12/16/19 Checked By: bfs
 Depth: --- Test Id: 531048
 Test Comment: ---
 Visual Description: Moist, gray sand with silt
 Sample Comment: ---

Particle Size Analysis - ASTM D6913



% 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	100		
#60	0.25	90		
#100	0.15	29		
#140	0.11	15		
#200	0.075	12		

<u>Coefficients</u>	
D ₈₅ = 0.2403 mm	D ₃₀ = 0.1516 mm
D ₆₀ = 0.1949 mm	D ₁₅ = 0.1019 mm
D ₅₀ = 0.1792 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

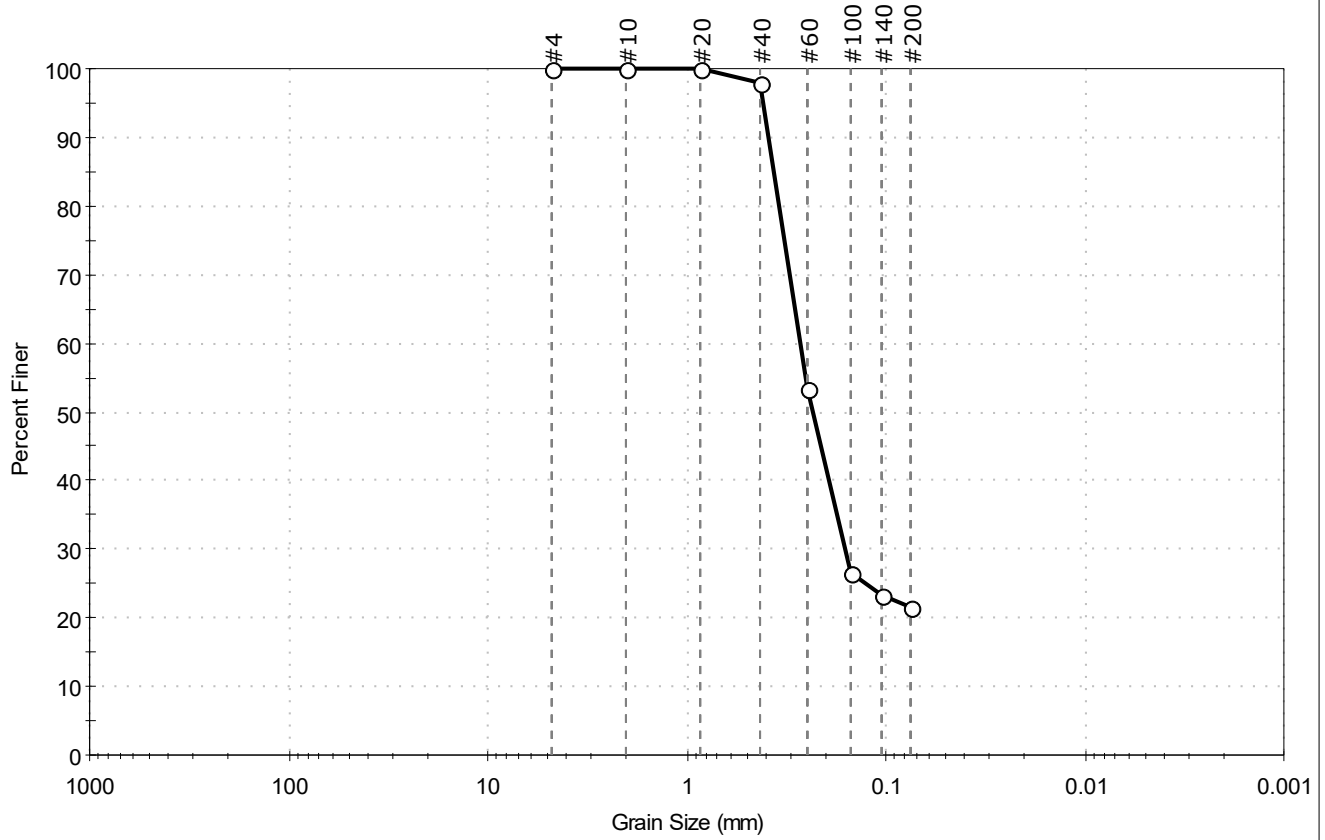
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-117SPT	Sample Type: tube	Tested By: ckg	Checked By: bfs
Sample ID: 58.5-60.5-191002	Test Date: 12/13/19	Test Id: 531049	
Depth: ---			
Test Comment: ---			
Visual Description: Moist, dark brownish gray silty sand			
Sample Comment: ----			

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	78.6	21.4

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	53		
#100	0.15	27		
#140	0.11	23		
#200	0.075	21		

<u>Coefficients</u>	
D ₈₅ = 0.3641 mm	D ₃₀ = 0.1598 mm
D ₆₀ = 0.2703 mm	D ₁₅ = N/A
D ₅₀ = 0.2340 mm	D ₁₀ = N/A
C _u = N/A	C _c = N/A

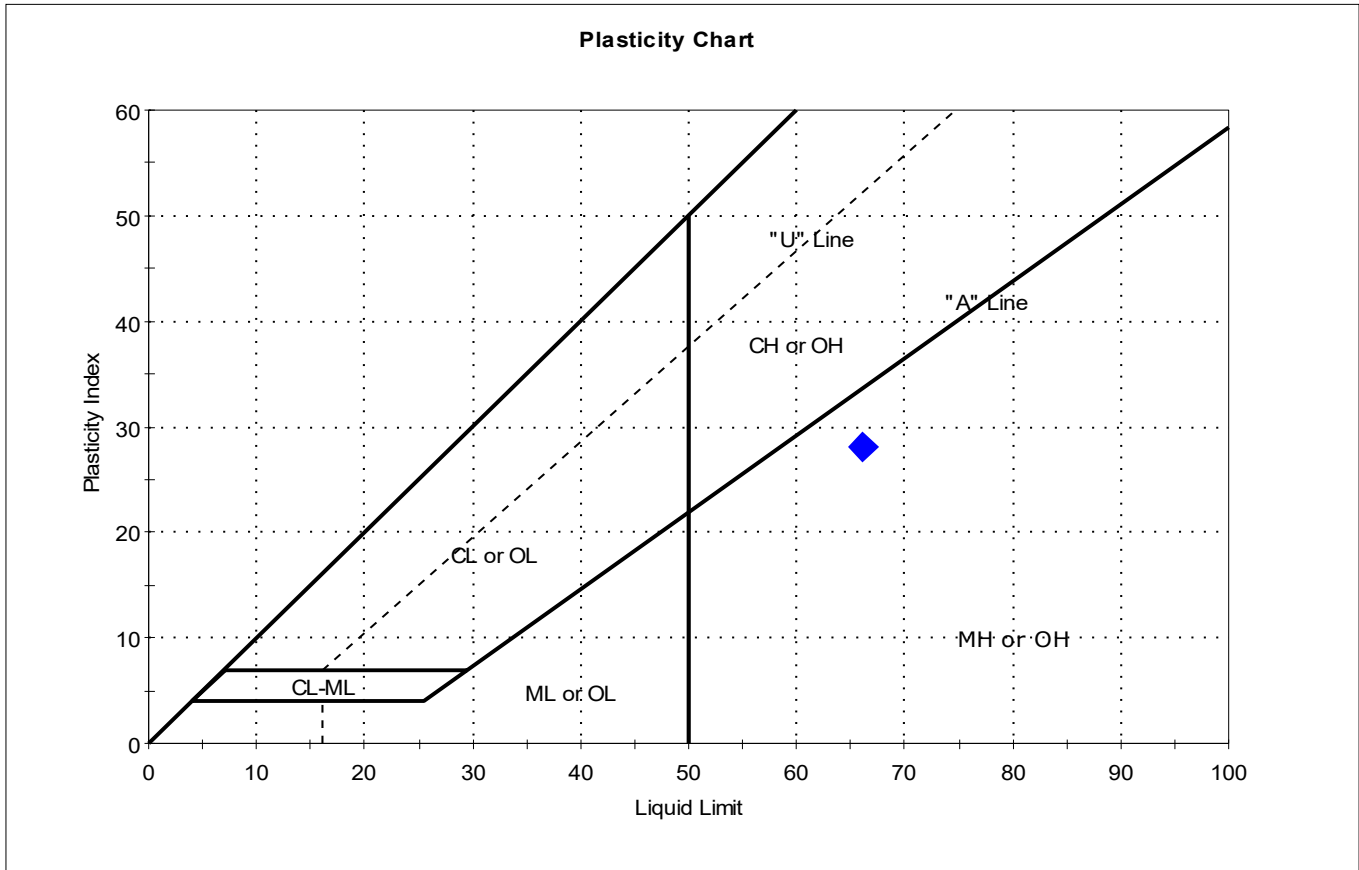
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: tube	Tested By: cam
Boring ID: PDI-108SPT	Test Date: 12/12/19	Checked By: bfs
Sample ID: 1.5-3.5-19107	Test Id: 531039	
Depth: ---		
Test Comment: ---		
Visual Description: Wet, olive 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
◆	1.5-3.5-19107	DI-108SP	---	87	66	38	28	1.7	

Sample Prepared using the WET method

Dry Strength: VERY HIGH

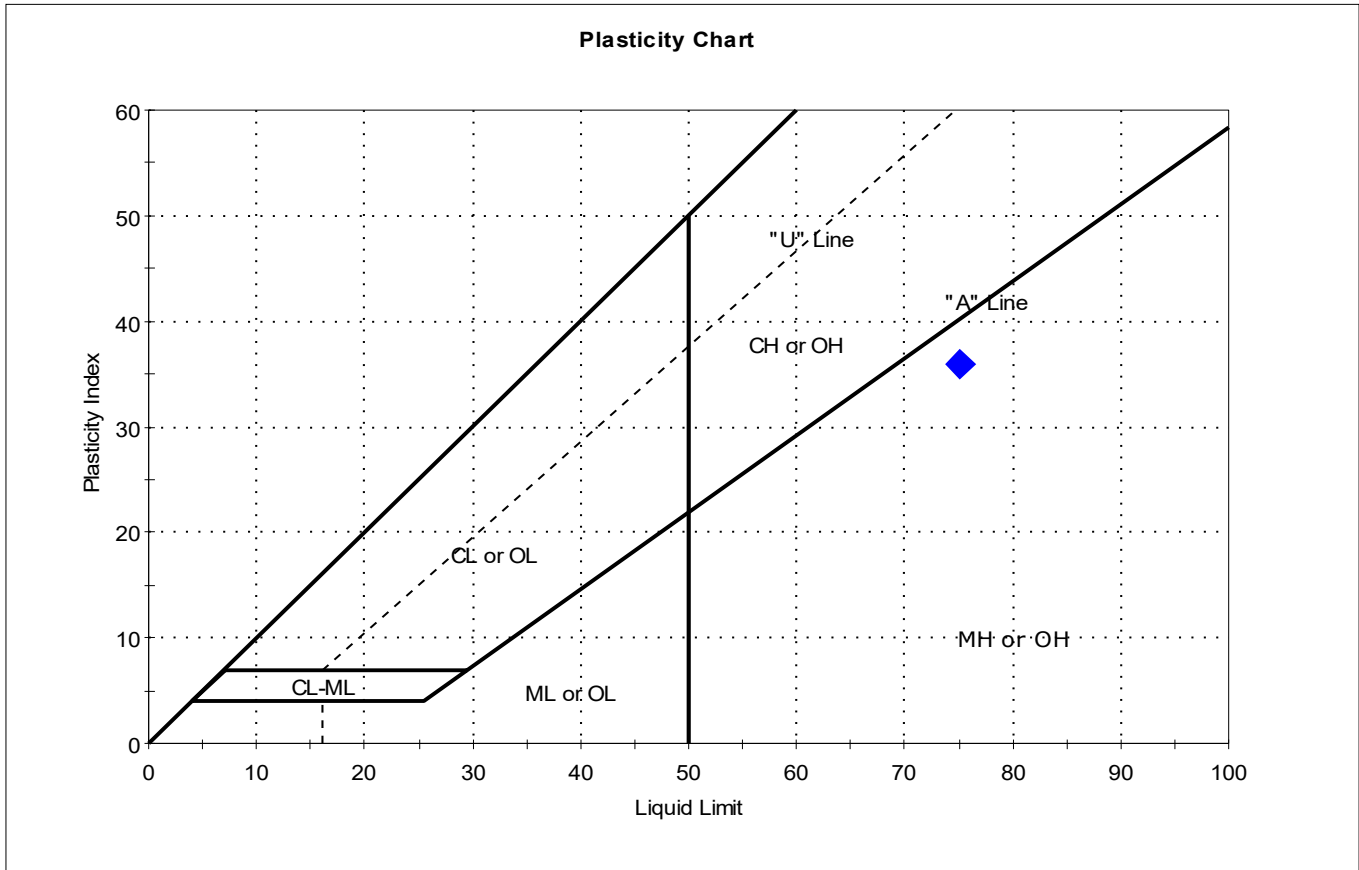
Dilatancy: SLOW

Toughness: LOW



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-109SPT	Sample Type: tube	Tested By: cam	
Sample ID: 6.5-8.5-191004	Test Date: 12/11/19	Checked By: bfs	
Depth: ---	Test Id: 531040		
Test Comment: ---			
Visual Description: Wet, dark olive gray 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
◆	6.5-8.5-191004	DI-109SP	---	96	75	39	36	1.6	

Sample Prepared using the WET method

Dry Strength: HIGH

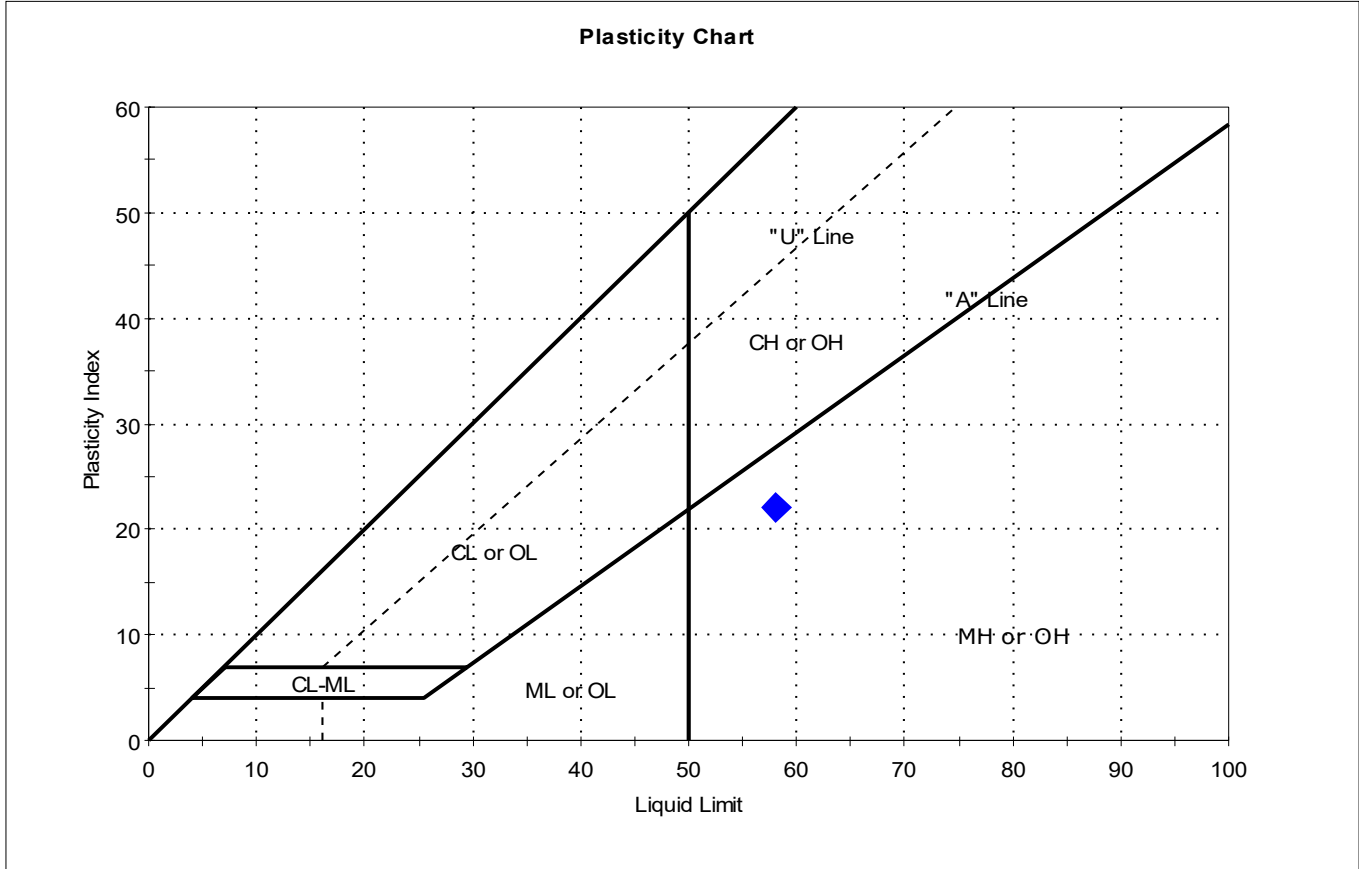
Dilatancy: SLOW

Toughness: LOW



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-114SPT	Sample Type: tube	Tested By: cam	
Sample ID: 7.5-9.5-191008	Test Date: 12/13/19	Checked By: bfs	
Depth: ---	Test Id: 531041		
Test Comment: ---			
Visual Description: Wet, 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
◆	7.5-9.5-191008	DI-114SP	---	64	58	36	22	1.3	

Sample Prepared using the WET method

Dry Strength: HIGH

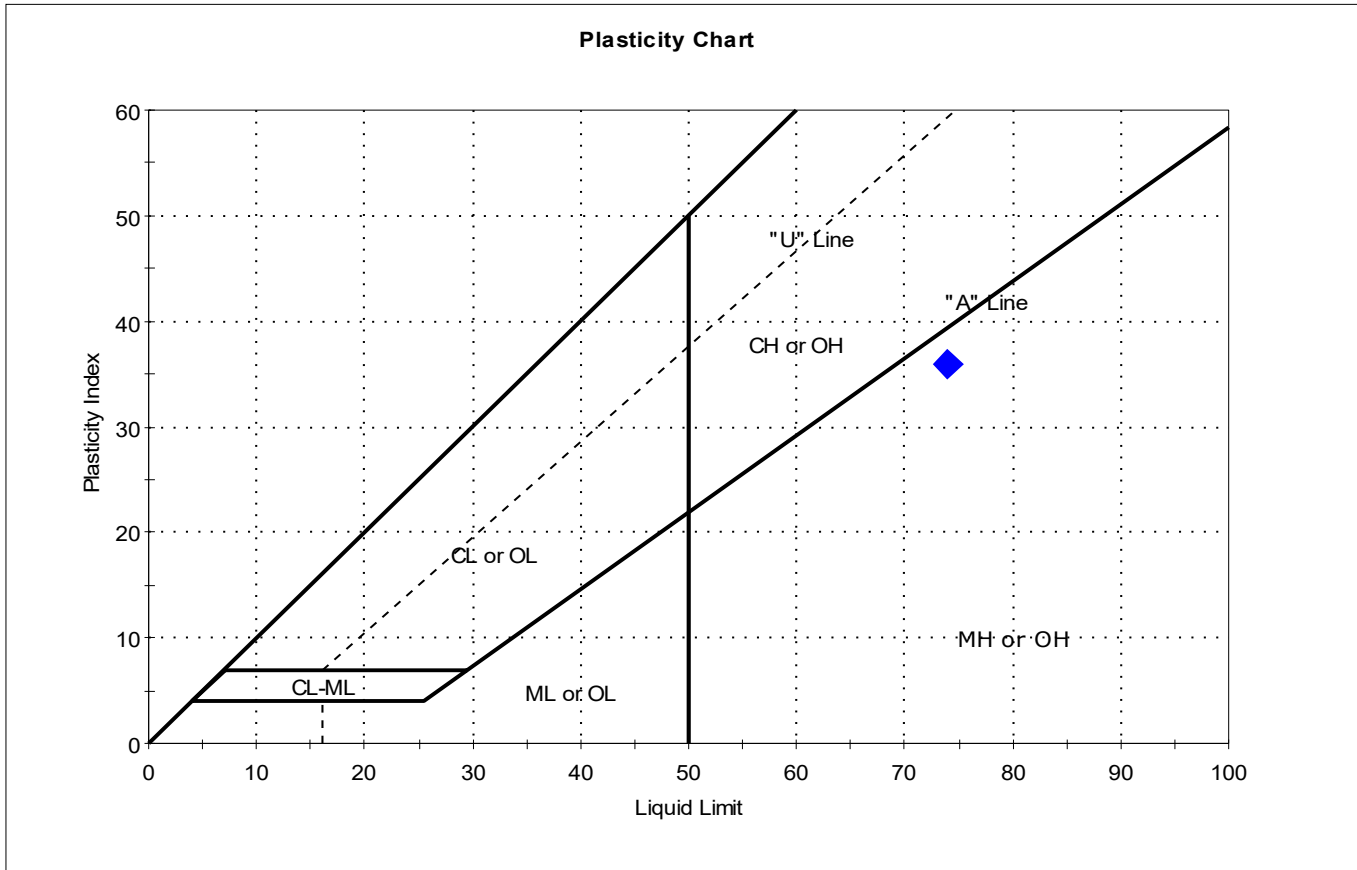
Dilatancy: SLOW

Toughness: LOW



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-118SPT	Sample Type: tube	Tested By: cam	
Sample ID: 4.5-6.5-191014	Test Date: 12/13/19	Checked By: bfs	
Depth: ---	Test Id: 531042		
Test Comment: ---			
Visual Description: Wet, olive 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
◆	4.5-6.5-191014	DI-118SP	---	83	74	38	36	1.3	

Sample Prepared using the WET method

Dry Strength: HIGH

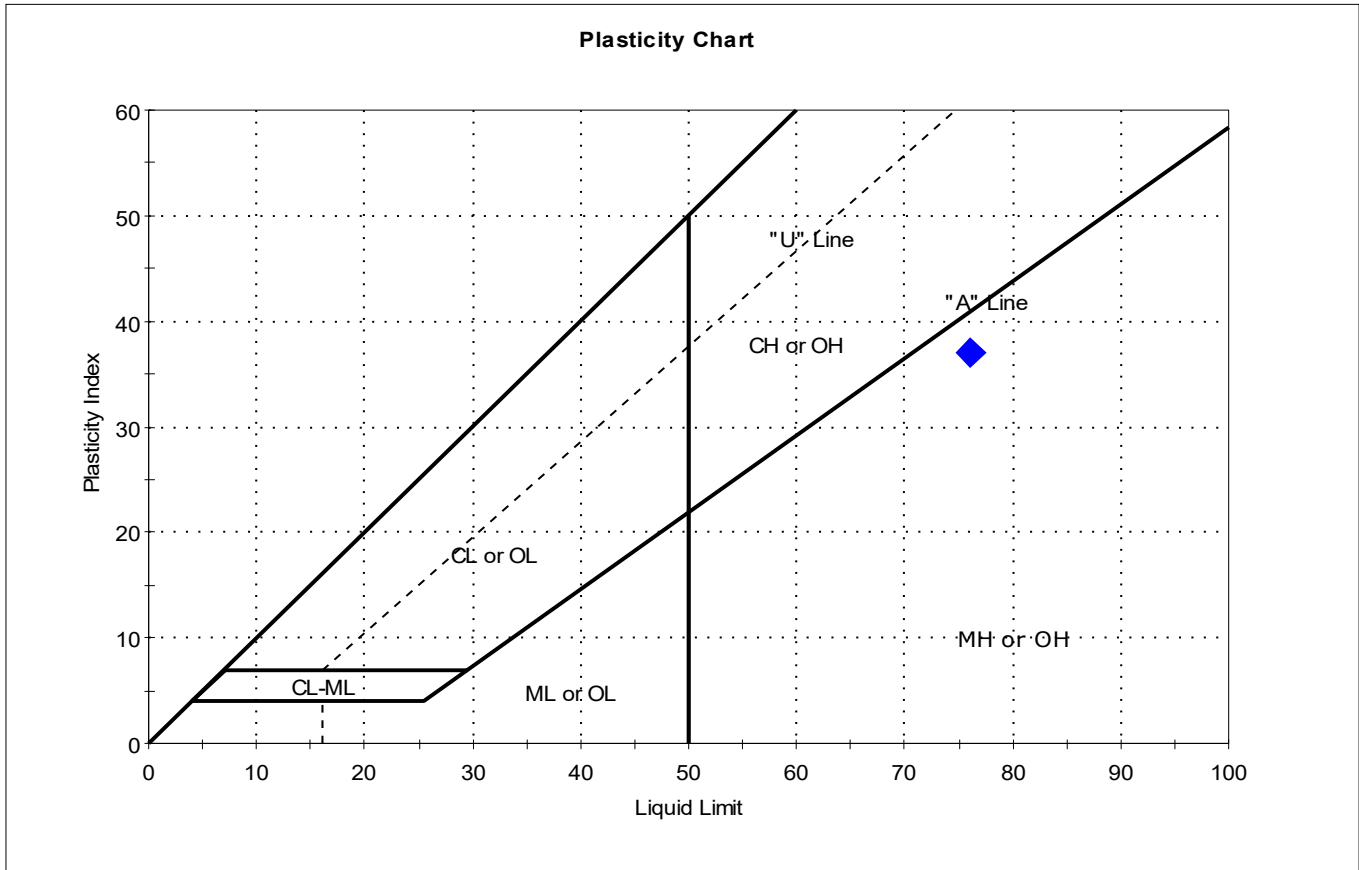
Dilatancy: SLOW

Toughness: LOW



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: tube	Tested By: cam
Boring ID: PDI-121SPT	Test Date: 12/13/19	Checked By: bfs
Sample ID: 06-08-190930	Test Id: 531043	
Depth: ---		
Test Comment: ---		
Visual Description: Wet, olive 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
◆	06-08-190930	DI-121SP	---	85	76	39	37	1.2	

Sample Prepared using the WET method

Dry Strength: HIGH

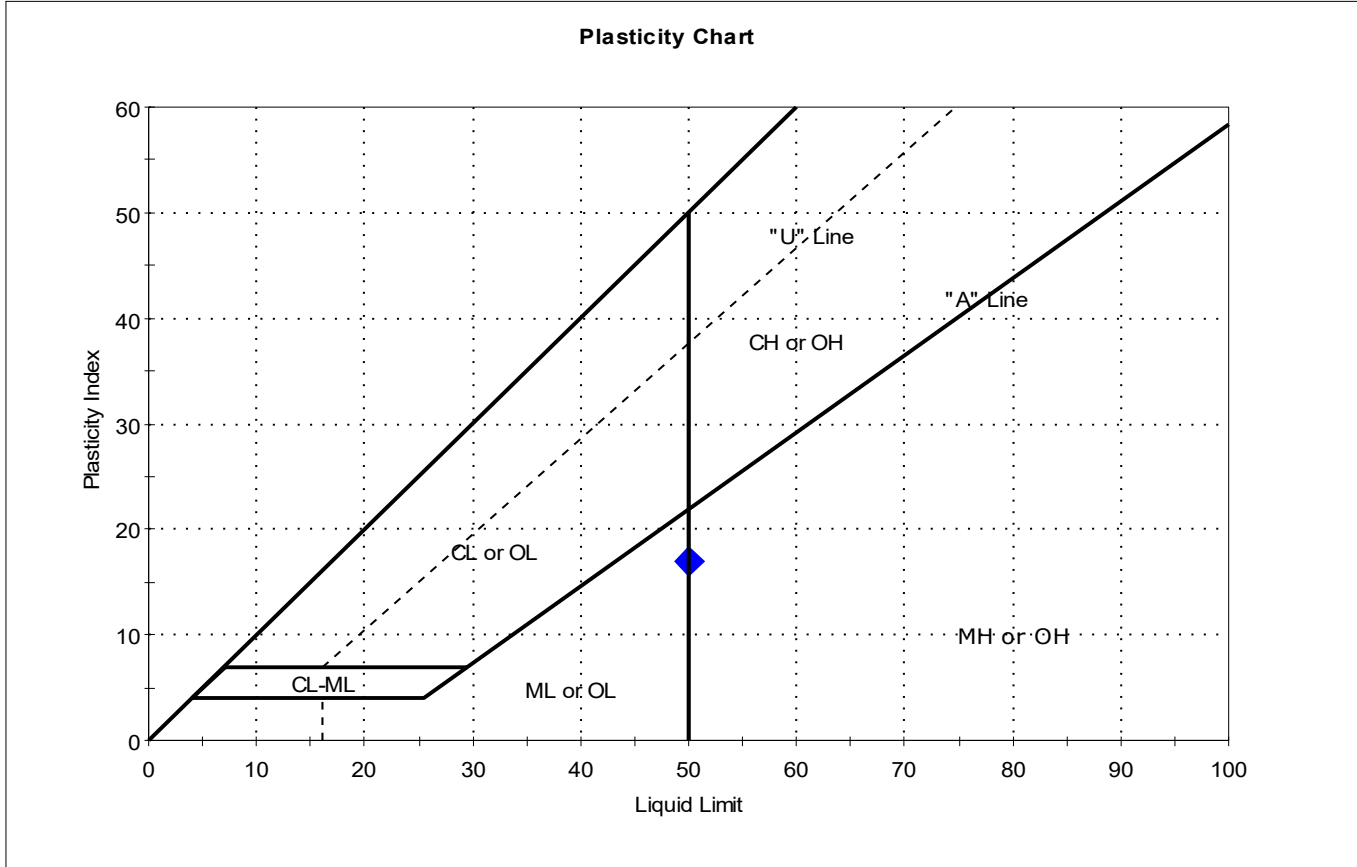
Dilatancy: SLOW

Toughness: LOW



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-123SPT	Sample Type: tube	Tested By: cam	
Sample ID: 4.5-6.5-190924	Test Date: 12/11/19	Checked By: bfs	
Depth: ---	Test Id: 531044		
Test Comment: ---			
Visual Description: Wet, olive 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
◆	4.5-6.5-190924	DI-123SP	---	69	50	33	17	2.1	

Sample Prepared using the WET method

Dry Strength: HIGH
 Dilatancy: SLOW
 Toughness: LOW