



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:	jsc
Depth : ---	Test Id: 530866		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-107SPT	39- 41-190924	---	Wet, dark gray sand	34.2
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-109SPT	20- 22-191004	---	Wet, black silt	50.7
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	7.5- 9.5-191008	---	Wet, gray silt	63.9
PDI-114SPT	17.5- 19.5-191008	---	Wet, gray clay	65.6
PDI-115SPT	41.5- 43.5-191009	---	Wet, dark gray sandy silt	48.6

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	md
Sample ID: ---	Test Date: 12/26/19	Checked By:	jsc
Depth : ---	Test Id: 530875		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-116SPT	9.5- 11.5-191002	---	Wet, gray silt with sand	55.2
PDI-116SPT	30- 32-190927	---	Moist, gray sand with silt	31.0
PDI-117SPT	58.5- 60.5-191002	---	Moist, dark brownish gray silty sand	29.5
PDI-118SPT	4.5- 6.5-191014	---	Wet, olive gray silt	83.2
PDI-118SPT	15- 17-191014	---	Wet, black silt	64.1
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
PDI-123SPT	19.5- 21.5-190924	---	Wet, gray clay	71.3

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 12/06/19	Checked By:	jsc
Depth : ---	Test Id: 532322		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-135RAB	19.1- 21-191120	---	Moist, very dark gray silty sand with gravel	17.2
PDI-137RAB	3.5- 14.8-191119	---	Moist, dark gray silty sand with gravel	17.7
PDI-138RAB	15.2- 18.6-191118	---	Moist, dark grayish brown sandy silt with gravel	25.4
PDI-139RAB	17.5- 21-191115	---	Moist, dark grayish brown sandy silt with gravel	28.2
PDI-140RAB	10- 12.7-191108	---	Moist, dark brown silty gravel with sand	29.6
PDI-141RAB	00- 10-191107	---	Moist, dark grayish brown clayey gravel with sand	12.0
PDI-142RAB	00- 10-191112	---	Moist, dark brown silty sand with gravel	6.6
PDI-143RAB	20- 31.1-191111	---	Moist, dark brown silty sand	10.9

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 12/09/19	Checked By:	jsc
Depth : ---	Test Id: 532310		

## 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-121SPT	06-08-190930	---	Wet, olive gray silt	75.75	84.53	41.05	(5)
PDI-123SPT	4.5-6.5-190924	---	Wet, olive gray silt	96.54	69.18	57.06	(6)
PDI-135RAB	19.1-21-191120	---	Moist, very dark gray silty sand with gravel	83.21	17.21	70.99	(7)

\* Sample Comments

- (1): Method B-Cylinder, Intact
- (2): 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: ---	Sample Type: ---	Tested By: ckg	
Sample ID: ---	Test Date: 12/09/19	Checked By: jsc	
Depth: ---	Test Id: 532306		

## 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-137RAB	3.5-14.8-191119	---	Moist, dark gray silty sand with gravel	105.0	17.73	89.16	(1)
PDI-138RAB	15.2-18.6-191118	---	Moist, dark grayish brown sandy silt with gravel	119.0	25.40	94.87	(2)
PDI-139RAB	17.5-21-191115	---	Moist, dark grayish brown sandy silt with gravel	125.7	28.22	98.03	(3)
PDI-140RAB	10-12.7-191108	---	Moist, dark brown silty gravel with sand	109.8	29.58	84.73	(4)
PDI-141RAB	00-10-191107	---	Moist, dark grayish brown clayey gravel with sand	120.2	11.99	107.3	(5)
PDI-142RAB	00-10-191112	---	Moist, dark brown silty sand with gravel	103.4	6.640	96.93	(6)
PDI-143RAB	20-31.1-191111	---	Moist, dark brown silty sand	104.2	10.93	93.92	(7)

\* Sample Comments

- (1): Method B-Cylinder, Reconstituted (compacted)
- (2): Method B-Cylinder, Reconstituted (compacted)
- (3): Method B-Volumetric, Reconstituted (compacted)
- (4): Method B-Cylinder, Reconstituted (compacted)
- (5): Method B-Cylinder, Reconstituted (compacted)
- (6): Method B-Cylinder, Reconstituted (compacted)
- (7): Method B-Cylinder, Reconstituted (compacted)

Notes: Moisture Content determined by ASTM D2216.



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI	Location:	
Boring ID: PDI-119SPT	Sample Type: tube	Tested By: md
Sample ID: 36.5-38.5-191001	Test Date: 12/20/19	Checked By: jsc
Depth : ---	Test Id: 531124	
Test Comment: ---		
Visual Description: Moist, dark gray sandy clay		
Sample Comment: ---		

**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-119SPT	36.5-38.5-191001	---	Moist, dark gray sandy clay	106.9	41.68	75.45

\* Sample Comments

(1): 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: ---	Sample Type: ---	Tested By: ckg	
Sample ID: ---	Test Date: 12/12/19	Checked By: jsc	
Depth : ---	Test Id: 532330		

## Specific Gravity of Soils by ASTM D854

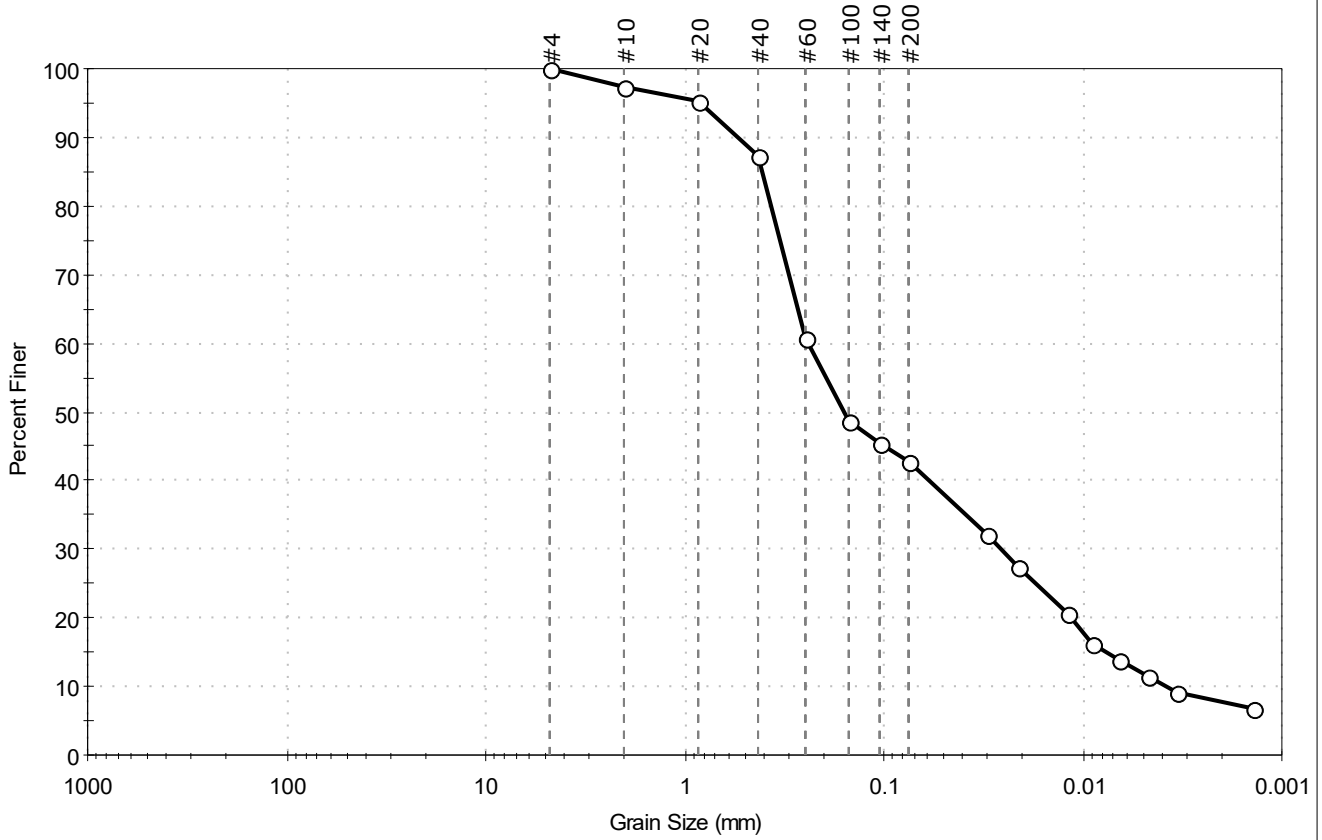
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI- 135RAB	19.1-21-191120	---	Moist, very dark gray silty sand with gravel	2.66	
PDI- 137RAB	3.5-14.8-191119	---	Moist, dark gray silty sand with gravel	2.74	
PDI- 138RAB	15.2-18.6-191118	---	Moist, dark grayish brown sandy silt with gravel	2.79	
PDI- 139RAB	17.5-21-191115	---	Moist, dark grayish brown sandy silt with gravel	2.81	
PDI- 140RAB	10-12.7-191108	---	Moist, dark brown silty gravel with sand	2.84	
PDI- 141RAB	00- 10-191107	---	Moist, dark grayish brown clayey gravel with sand	2.88	
PDI- 142RAB	00- 10-191112	---	Moist, dark brown silty sand with gravel	2.80	
PDI- 143RAB	20-31.1-191111	---	Moist, dark brown silty sand	2.77	

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: PDI-071SC	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 2-06-08-191001	Test Date: 11/27/19	Test Id: 531000	
Depth: ---			
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	57.1	42.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	97		
#20	0.85	95		
#40	0.42	87		
#60	0.25	61		
#100	0.15	49		
#140	0.11	45		
#200	0.075	43		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0303	32		
---	0.0214	28		
---	0.0120	21		
---	0.0089	16		
---	0.0067	14		
---	0.0048	11		
---	0.0033	9		
---	0.0014	7		

Coefficients	
D <sub>85</sub> = 0.4063 mm	D <sub>30</sub> = 0.0257 mm
D <sub>60</sub> = 0.2426 mm	D <sub>15</sub> = 0.0078 mm
D <sub>50</sub> = 0.1586 mm	D <sub>10</sub> = 0.0038 mm
C <sub>u</sub> = 63.842	C <sub>c</sub> = 0.716

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

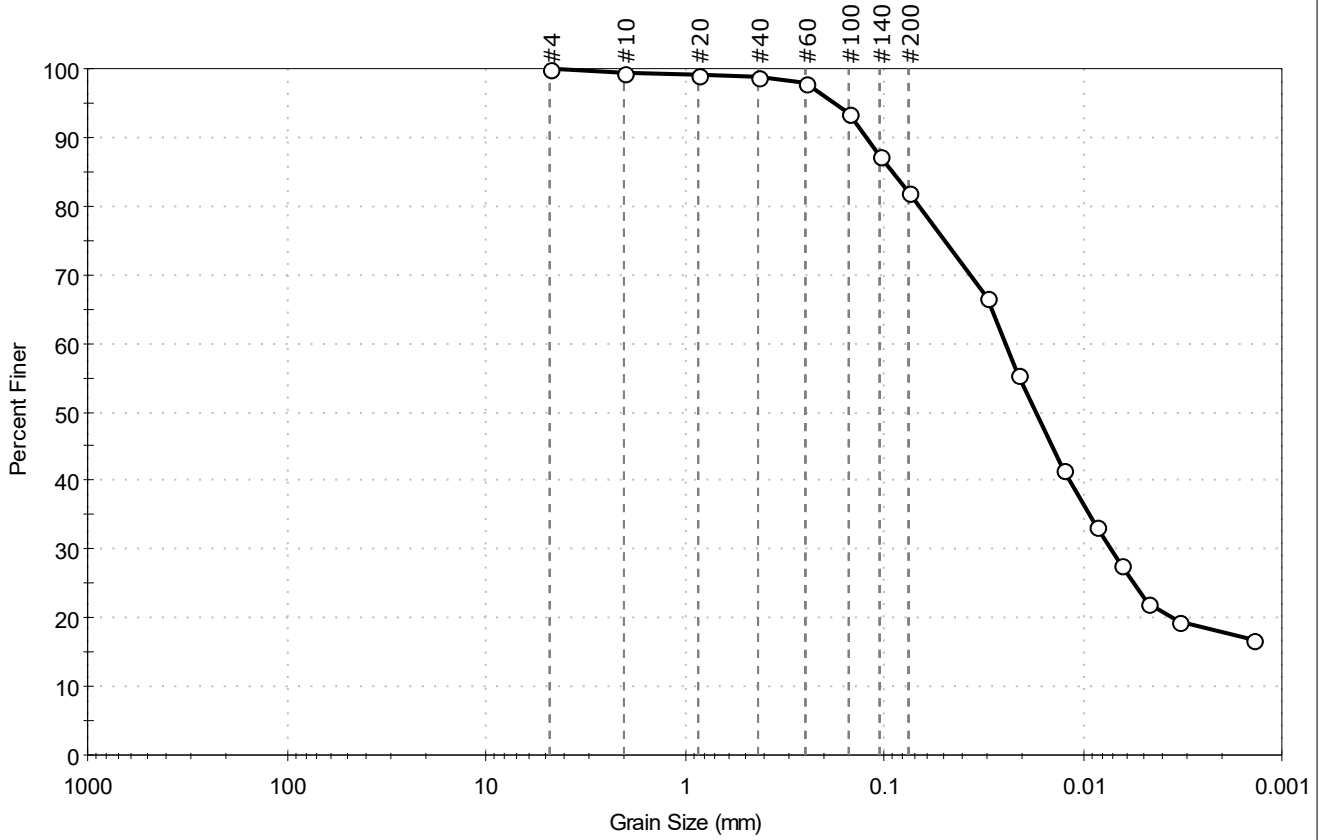
Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-084SC	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 2-06-08-191002	Test Date: 11/27/19	Test Id: 531001	
Depth: ---	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
—	0.1	17.9	82.0

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	93		
#140	0.11	87		
#200	0.075	82		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0306	67		
---	0.0210	56		
---	0.0125	42		
---	0.0086	33		
---	0.0064	28		
---	0.0047	22		
---	0.0033	19		
---	0.0014	17		

Coefficients	
D <sub>85</sub> = 0.0906 mm	D <sub>30</sub> = 0.0072 mm
D <sub>60</sub> = 0.0244 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0171 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

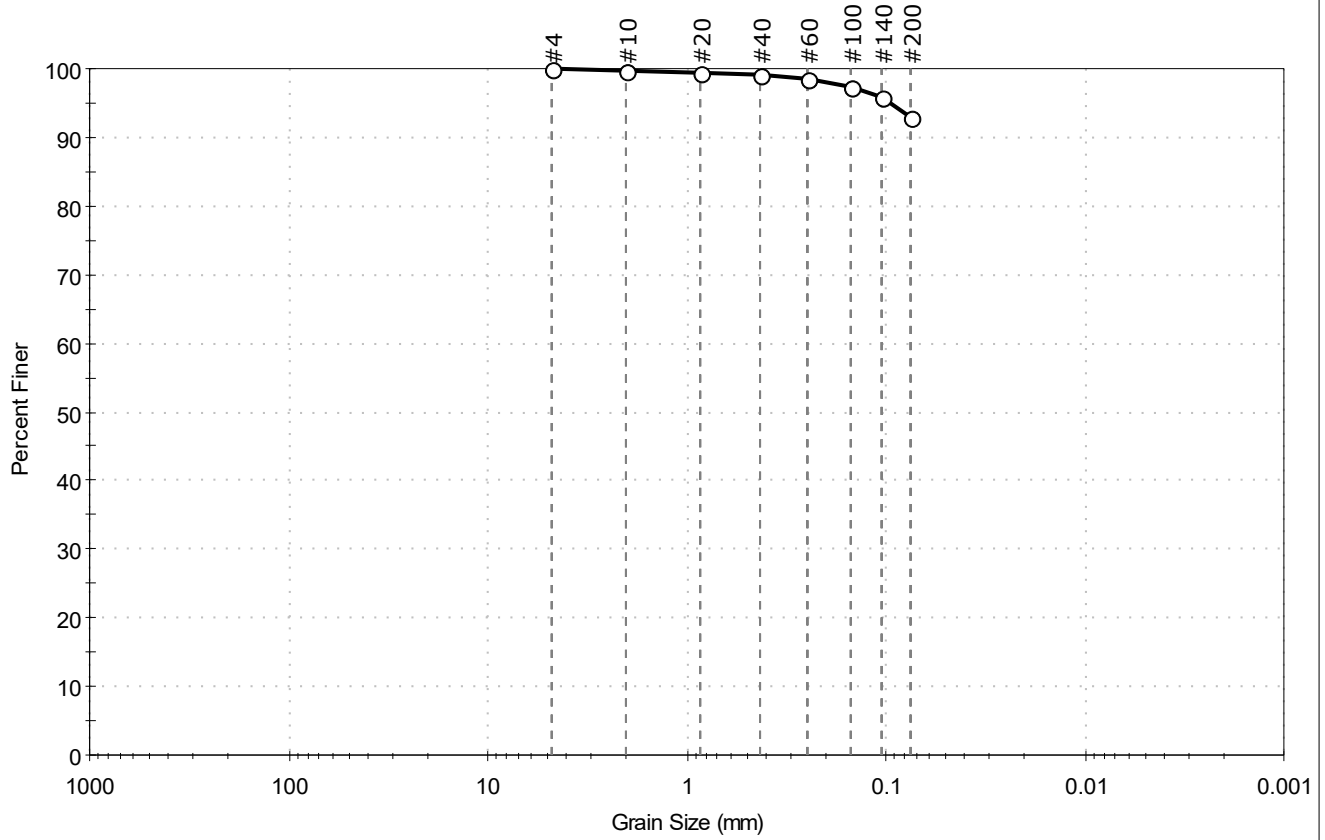
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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: PDI-112SPT	Sample Type: tube	Tested By: ckg	Checked By: bfs
Sample ID: 6.5-8.5-191003	Test Date: 12/16/19	Test Id: 531045	
Depth: ---	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 <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

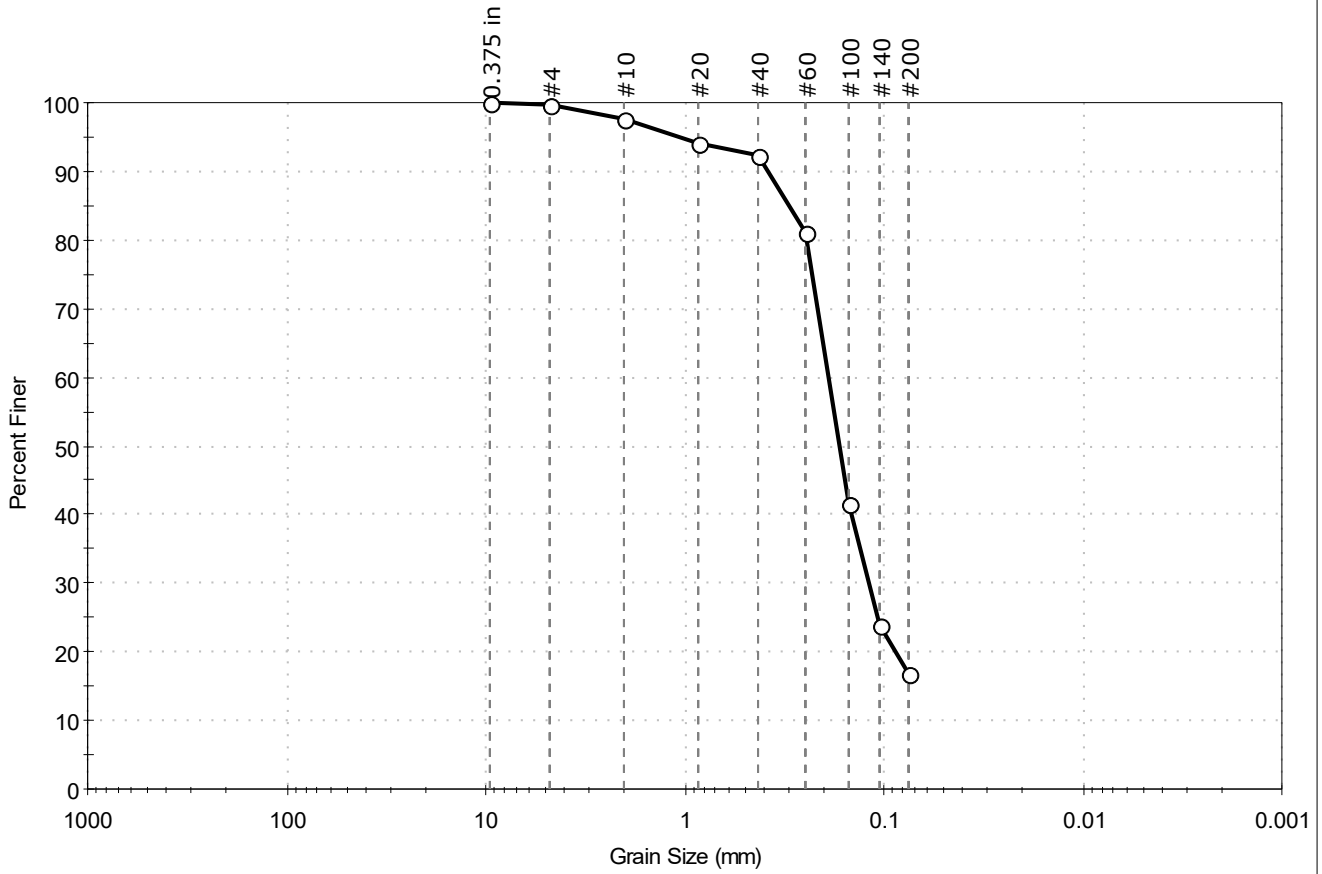
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<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		

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

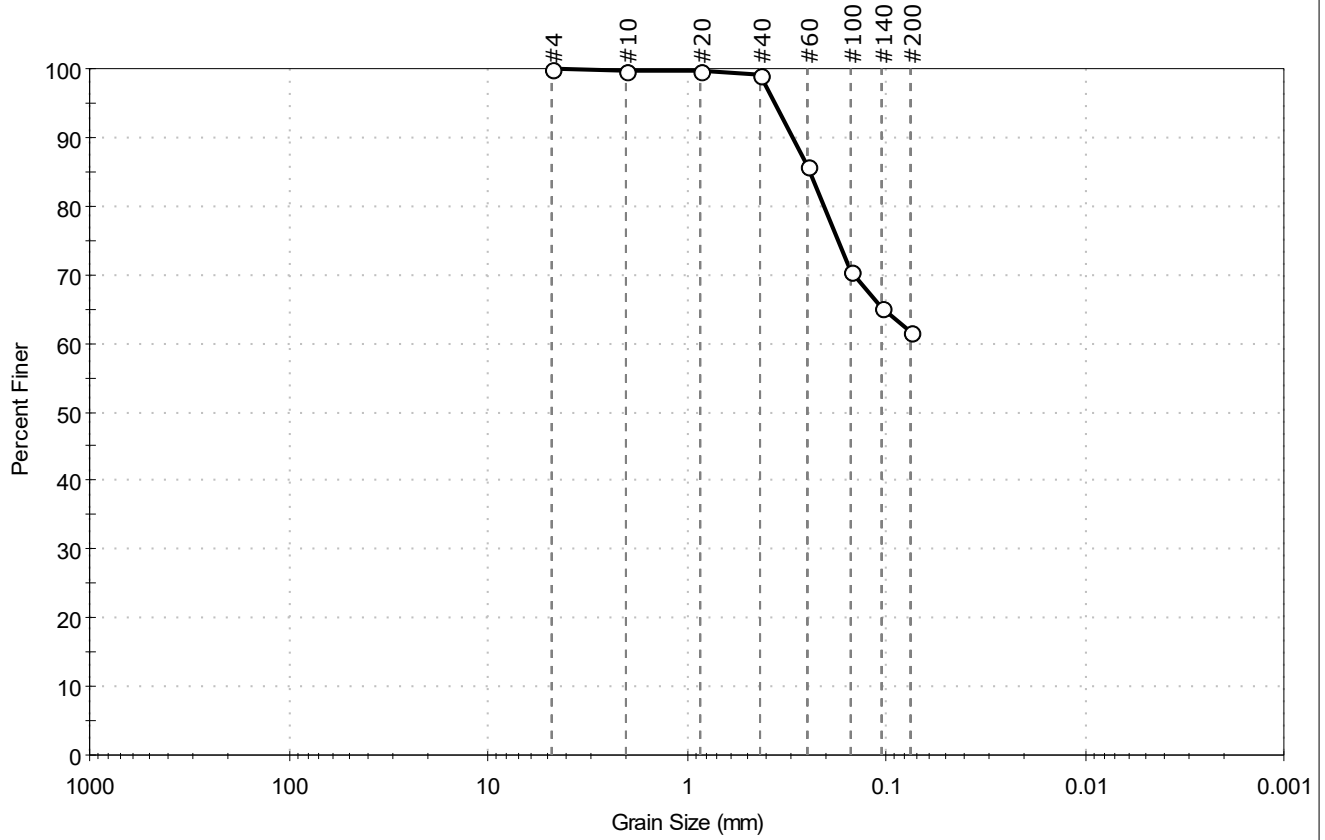
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: Wet, 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 <sub>85</sub> = 0.2425 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

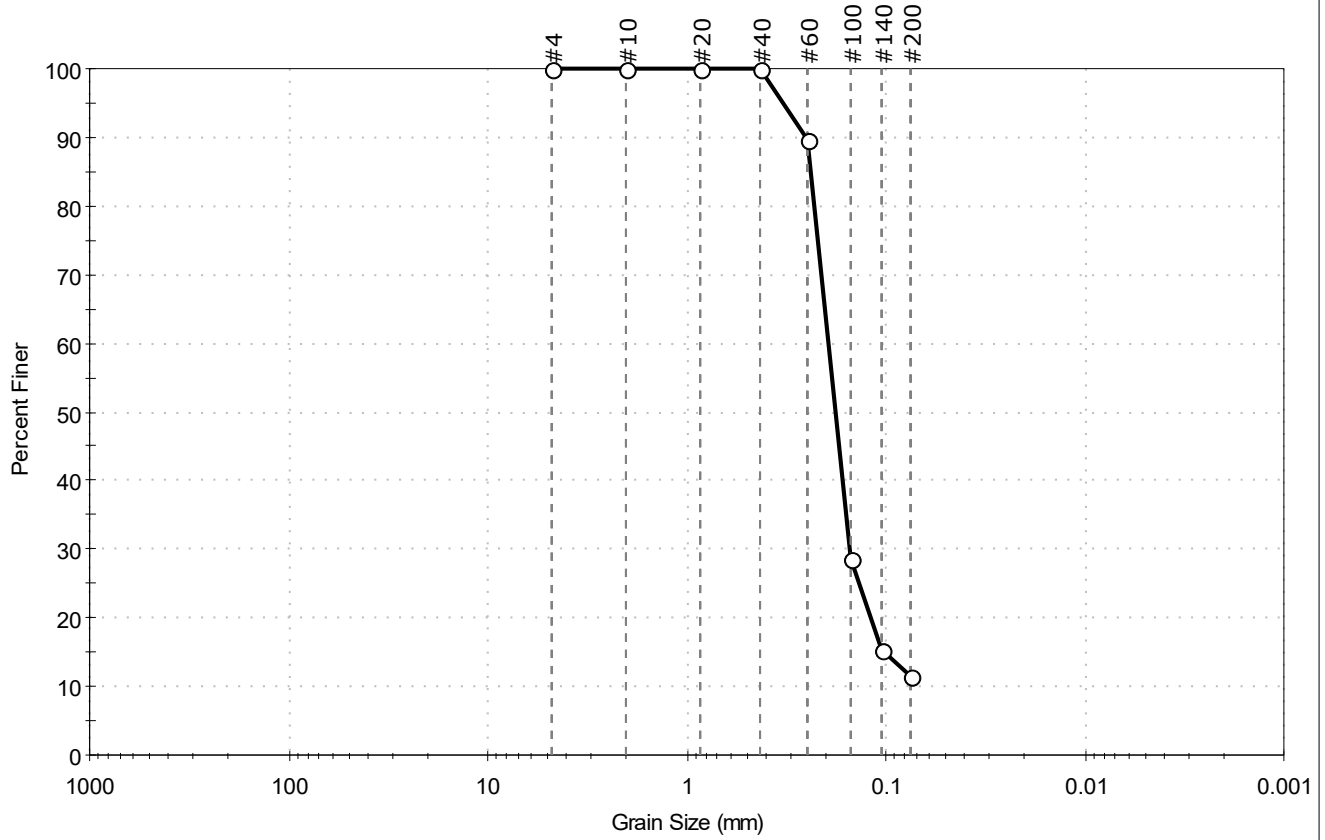
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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

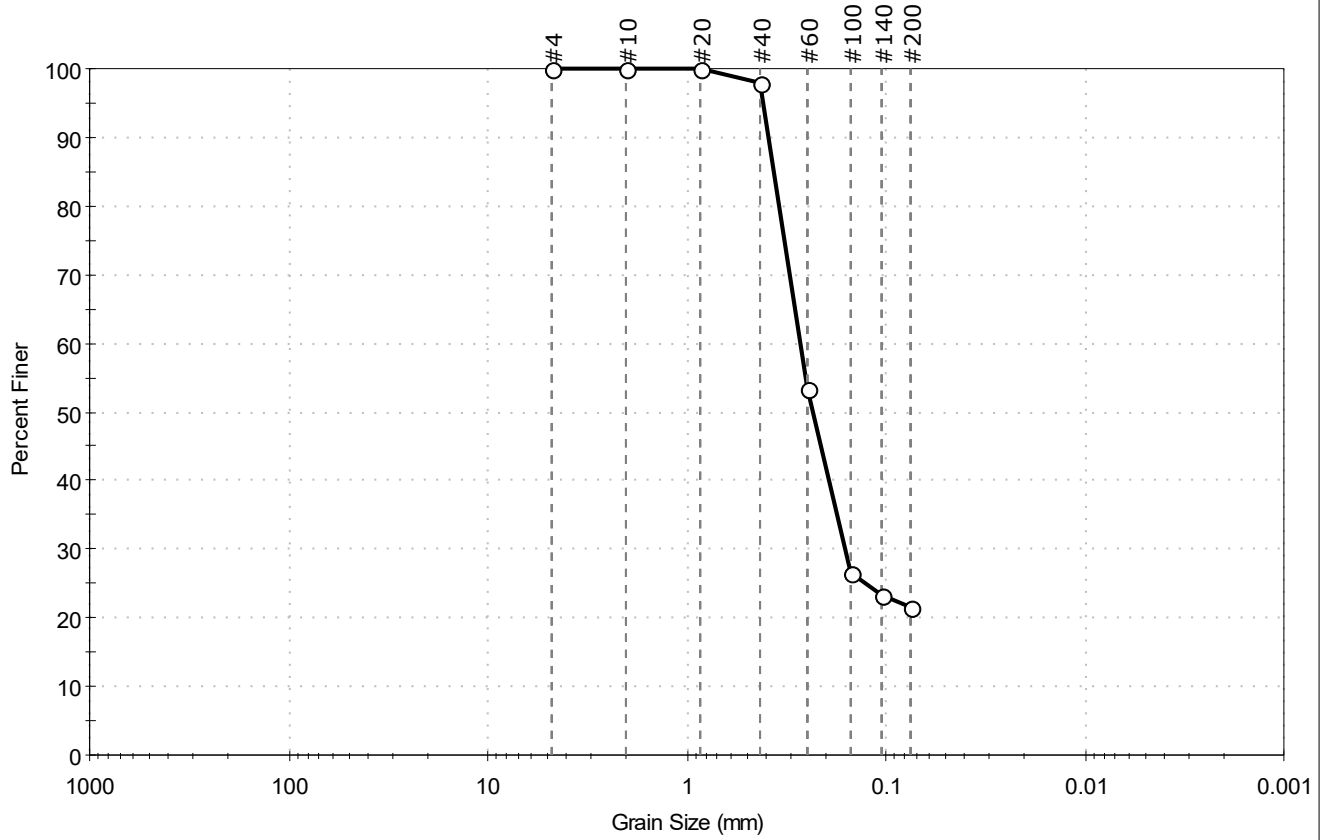
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<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  
 Sample ID: 58.5-60.5-191002 Test Date: 12/13/19 Checked By: bfs  
 Depth: --- Test Id: 531049  
 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		

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

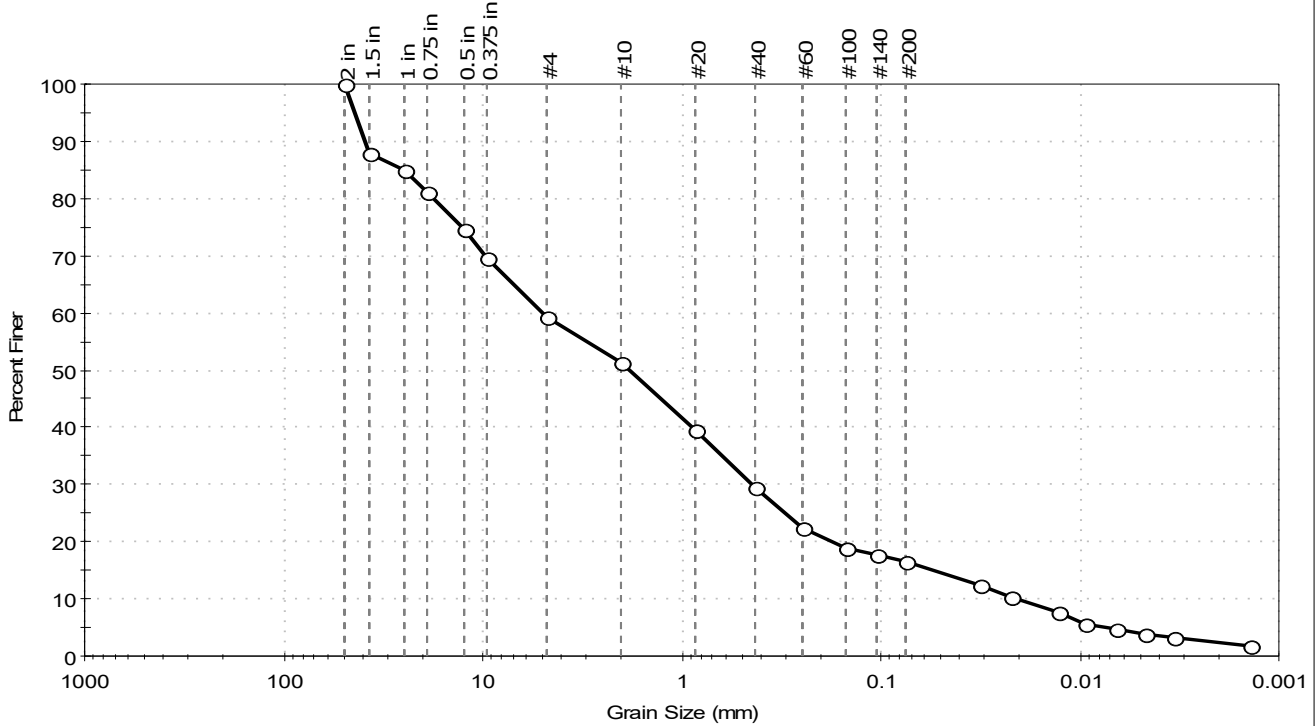
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: \_\_\_\_\_ Project No: GTX-310685  
 Boring ID: PDI-135RAB Sample Type: bag Tested By: ckg  
 Sample ID: 19.1-21-191120 Test Date: 12/09/19 Checked By: bfs  
 Depth: --- Test Id: 532318  
 Test Comment: ---  
 Visual Description: Moist, very dark gray silty sand with gravel  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	40.8	42.7	16.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
2 in	50.00	100		
1.5 in	37.50	88		
1 in	25.00	85		
0.75 in	19.00	81		
0.5 in	12.50	75		
0.375 in	9.50	70		
#4	4.75	59		
#10	2.00	51		
#20	0.85	39		
#40	0.42	30		
#60	0.25	22		
#100	0.15	19		
#140	0.11	18		
#200	0.075	17		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0317	12		
---	0.0224	10		
---	0.0130	8		
---	0.0094	6		
---	0.0067	5		
---	0.0047	4		
---	0.0034	3		
---	0.0014	2		

<u>Coefficients</u>	
D <sub>85</sub> = 25.0254 mm	D <sub>30</sub> = 0.4377 mm
D <sub>60</sub> = 5.0175 mm	D <sub>15</sub> = 0.0549 mm
D <sub>50</sub> = 1.8218 mm	D <sub>10</sub> = 0.0206 mm
C <sub>u</sub> = 243.568	C <sub>c</sub> = 1.854

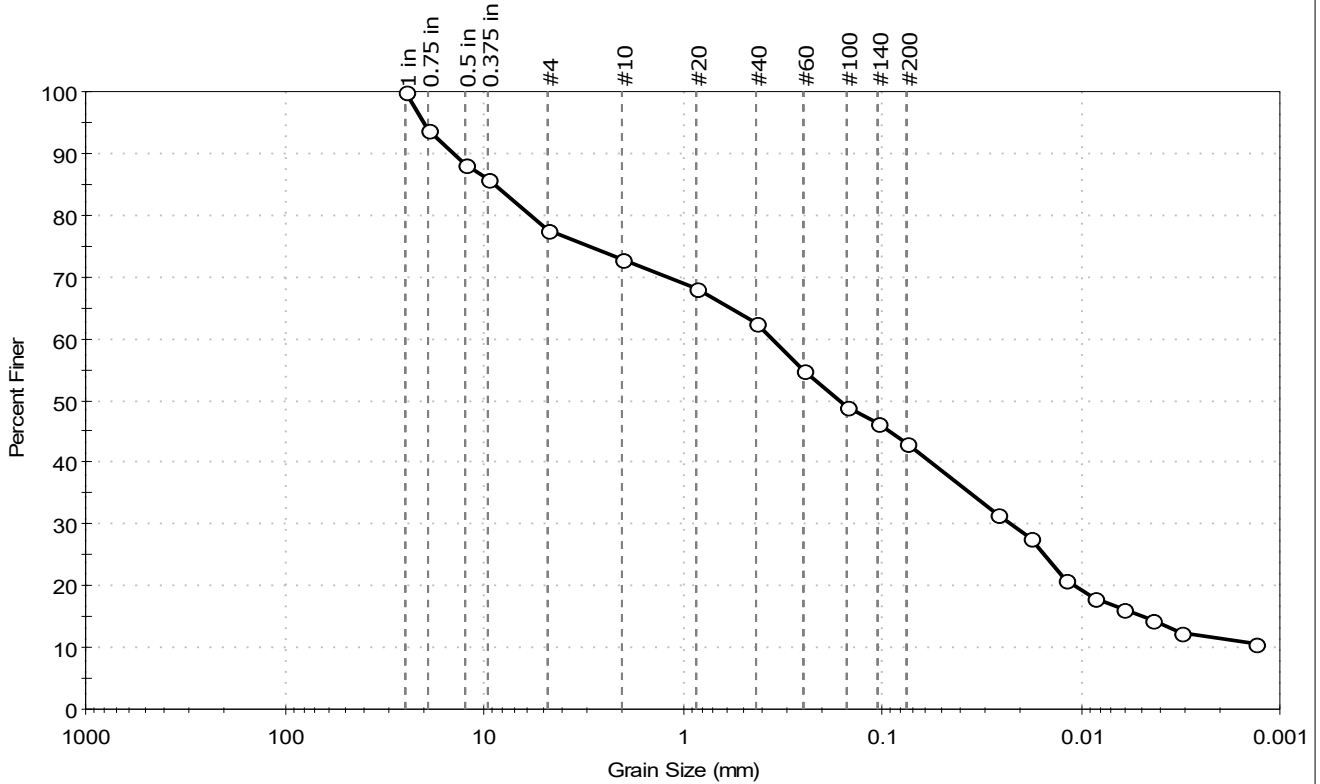
<u>Classification</u>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	Stone Fragments, Gravel and Sand (A-1-b (0))

<u>Sample/Test Description</u>
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



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: PDI-137RAB	Sample Type: bag
Sample ID: 3.5-14.8-191119	Test Date: 12/10/19
Depth: ---	Test Id: 532319
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark gray silty sand with gravel	Checked By: bfs
Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	22.6	34.5	42.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	94		
0.5 in	12.50	88		
0.375 in	9.50	86		
#4	4.75	77		
#10	2.00	73		
#20	0.85	68		
#40	0.42	63		
#60	0.25	55		
#100	0.15	49		
#140	0.11	46		
#200	0.075	43		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0264	31		
---	0.0181	28		
---	0.0121	21		
---	0.0085	18		
---	0.0061	16		
---	0.0044	14		
---	0.0032	12		
---	0.0013	10		

<u>Coefficients</u>	
D <sub>85</sub> = 8.9167 mm	D <sub>30</sub> = 0.0228 mm
D <sub>60</sub> = 0.3550 mm	D <sub>15</sub> = 0.0050 mm
D <sub>50</sub> = 0.1650 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

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

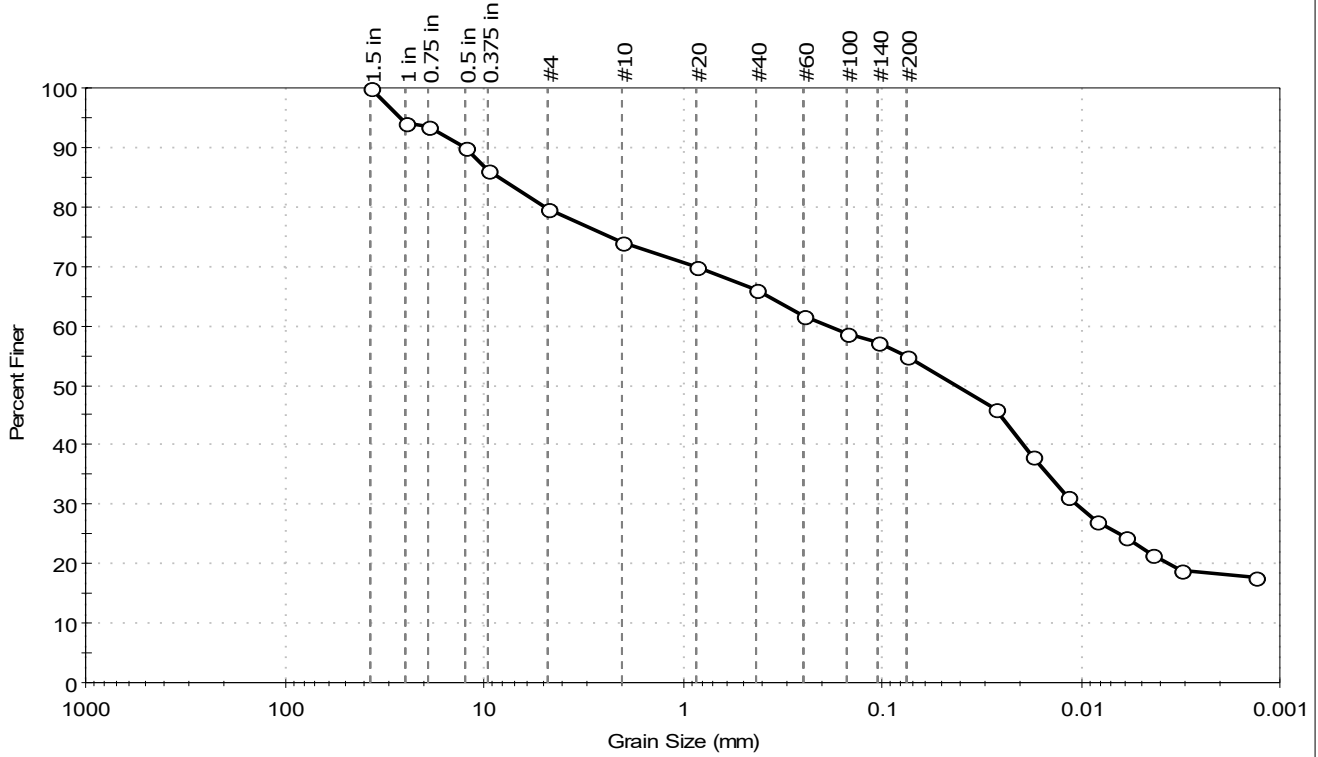
<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: PDI-138RAB Sample Type: bag Tested By: ckg  
 Sample ID: 15.2-18.6-191118 Test Date: 12/10/19 Checked By: bfs  
 Depth: --- Test Id: 532316  
 Test Comment: ---  
 Visual Description: Moist, dark grayish brown sandy silt with gravel  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	20.5	24.7	54.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	94		
0.75 in	19.00	94		
0.5 in	12.50	90		
0.375 in	9.50	86		
#4	4.75	80		
#10	2.00	74		
#20	0.85	70		
#40	0.42	66		
#60	0.25	62		
#100	0.15	59		
#140	0.11	57		
#200	0.075	55		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0271	46		
---	0.0176	38		
---	0.0117	31		
---	0.0085	27		
---	0.0060	24		
---	0.0044	22		
---	0.0032	19		
---	0.0013	18		

<u>Coefficients</u>	
D <sub>85</sub> = 8.3973 mm	D <sub>30</sub> = 0.0106 mm
D <sub>60</sub> = 0.1863 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0427 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

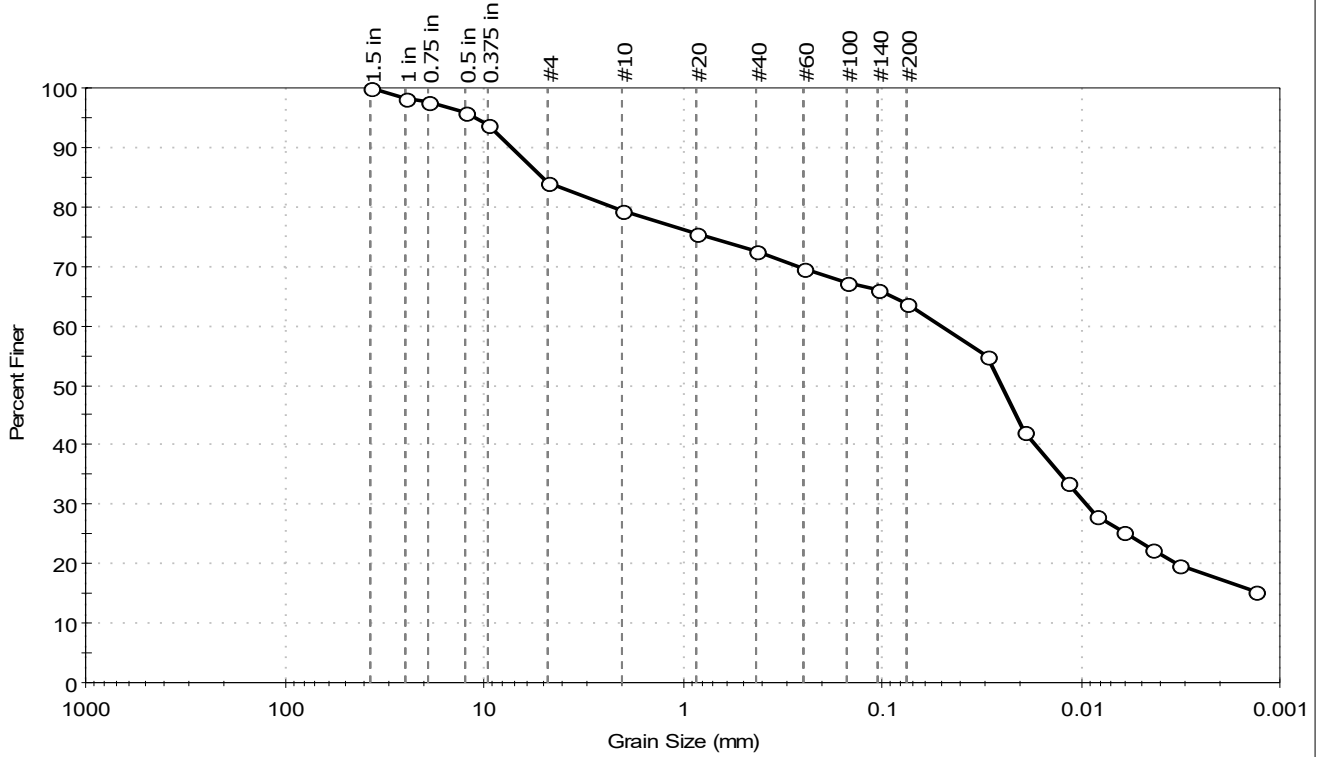
<u>Classification</u>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>	
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	



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: PDI-139RAB Sample Type: bag Tested By: ckg  
 Sample ID: 17.5-21-191115 Test Date: 12/09/19 Checked By: bfs  
 Depth: --- Test Id: 532317  
 Test Comment: ---  
 Visual Description: Moist, dark grayish brown sandy silt with gravel  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	16.0	20.1	63.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	98		
0.75 in	19.00	98		
0.5 in	12.50	96		
0.375 in	9.50	94		
#4	4.75	84		
#10	2.00	79		
#20	0.85	76		
#40	0.42	72		
#60	0.25	70		
#100	0.15	67		
#140	0.11	66		
#200	0.075	64		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0299	55		
---	0.0193	42		
---	0.0118	34		
---	0.0084	28		
---	0.0061	25		
---	0.0044	22		
---	0.0032	20		
---	0.0013	15		

**Coefficients**

D <sub>85</sub> = 5.1115 mm	D <sub>30</sub> = 0.0094 mm
D <sub>60</sub> = 0.0507 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0253 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

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

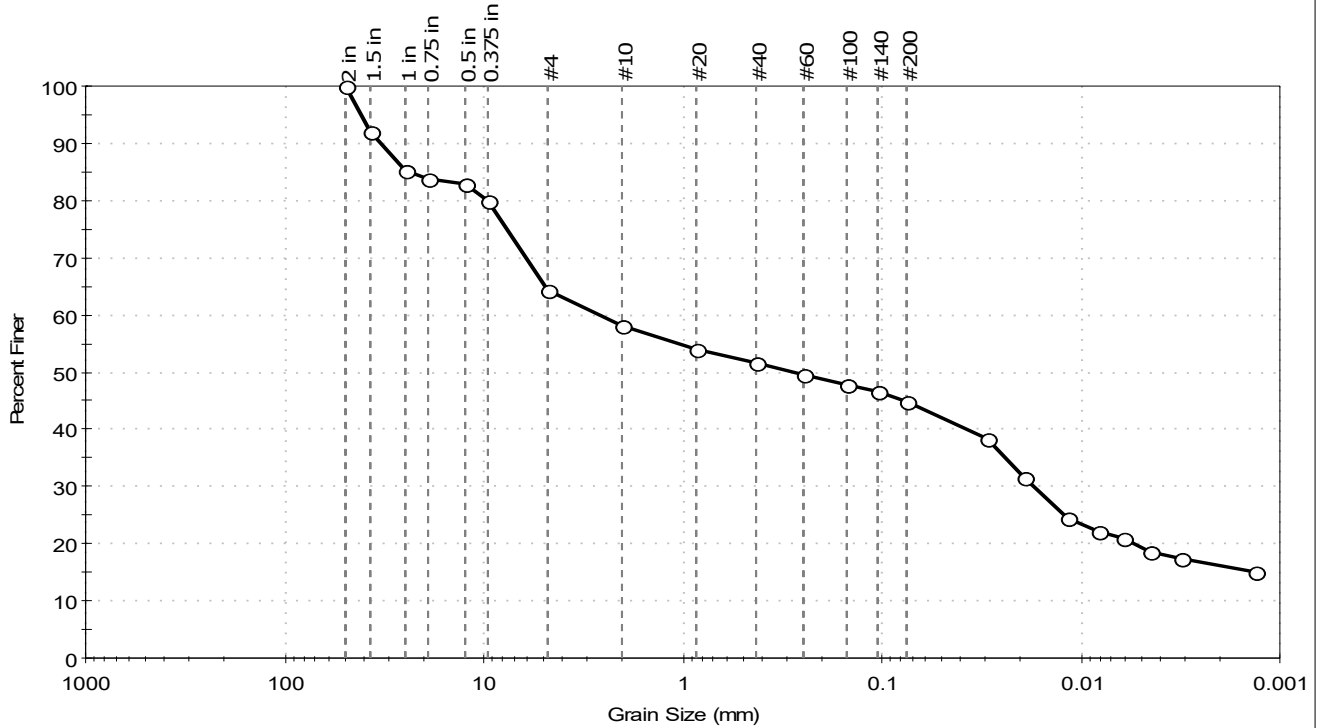
**Sample/Test Description**

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



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: \_\_\_\_\_ Project No: GTX-310685  
 Boring ID: PDI-140RAB Sample Type: bag Tested By: ckg  
 Sample ID: 10-12.7-191108 Test Date: 12/09/19 Checked By: bfs  
 Depth: --- Test Id: 532312  
 Test Comment: ---  
 Visual Description: Moist, dark brown silty gravel with sand  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	35.7	19.5	44.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
2 in	50.00	100		
1.5 in	37.50	92		
1 in	25.00	85		
0.75 in	19.00	84		
0.5 in	12.50	83		
0.375 in	9.50	80		
#4	4.75	64		
#10	2.00	58		
#20	0.85	54		
#40	0.42	52		
#60	0.25	49		
#100	0.15	48		
#140	0.11	47		
#200	0.075	45		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0299	38		
---	0.0192	31		
---	0.0117	24		
---	0.0083	22		
---	0.0061	21		
---	0.0044	19		
---	0.0032	17		
---	0.0013	15		

<b>Coefficients</b>	
D <sub>85</sub> = 23.5073 mm	D <sub>30</sub> = 0.0173 mm
D <sub>60</sub> = 2.6348 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.2879 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

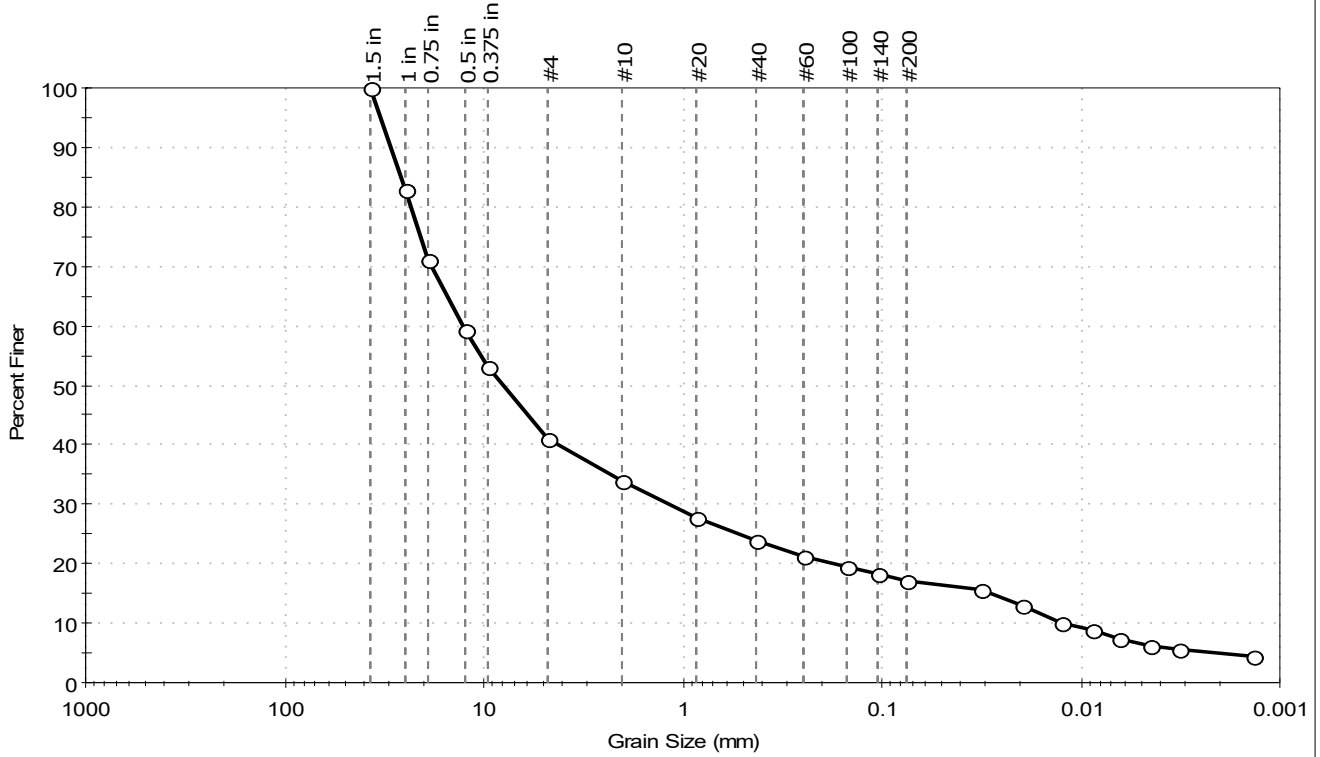
<b>Classification</b>	
<b>ASTM</b>	N/A
<b>AASHTO</b>	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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: PDI-141RAB Sample Type: bag Tested By: ckg  
 Sample ID: 00-10-191107 Test Date: 12/10/19 Checked By: bfs  
 Depth: --- Test Id: 532313  
 Test Comment: ---  
 Visual Description: Moist, dark grayish brown clayey gravel with sand  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	59.0	23.8	17.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	83		
0.75 in	19.00	71		
0.5 in	12.50	59		
0.375 in	9.50	53		
#4	4.75	41		
#10	2.00	34		
#20	0.85	28		
#40	0.42	24		
#60	0.25	21		
#100	0.15	19		
#140	0.11	18		
#200	0.075	17		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0322	16		
---	0.0197	13		
---	0.0127	10		
---	0.0089	9		
---	0.0064	7		
---	0.0045	6		
---	0.0032	6		
---	0.0014	4		

<u>Coefficients</u>	
D <sub>85</sub> = 26.2239 mm	D <sub>30</sub> = 1.1689 mm
D <sub>60</sub> = 12.8536 mm	D <sub>15</sub> = 0.0285 mm
D <sub>50</sub> = 7.9307 mm	D <sub>10</sub> = 0.0127 mm
C <sub>u</sub> = 1012.094	C <sub>c</sub> = 8.370

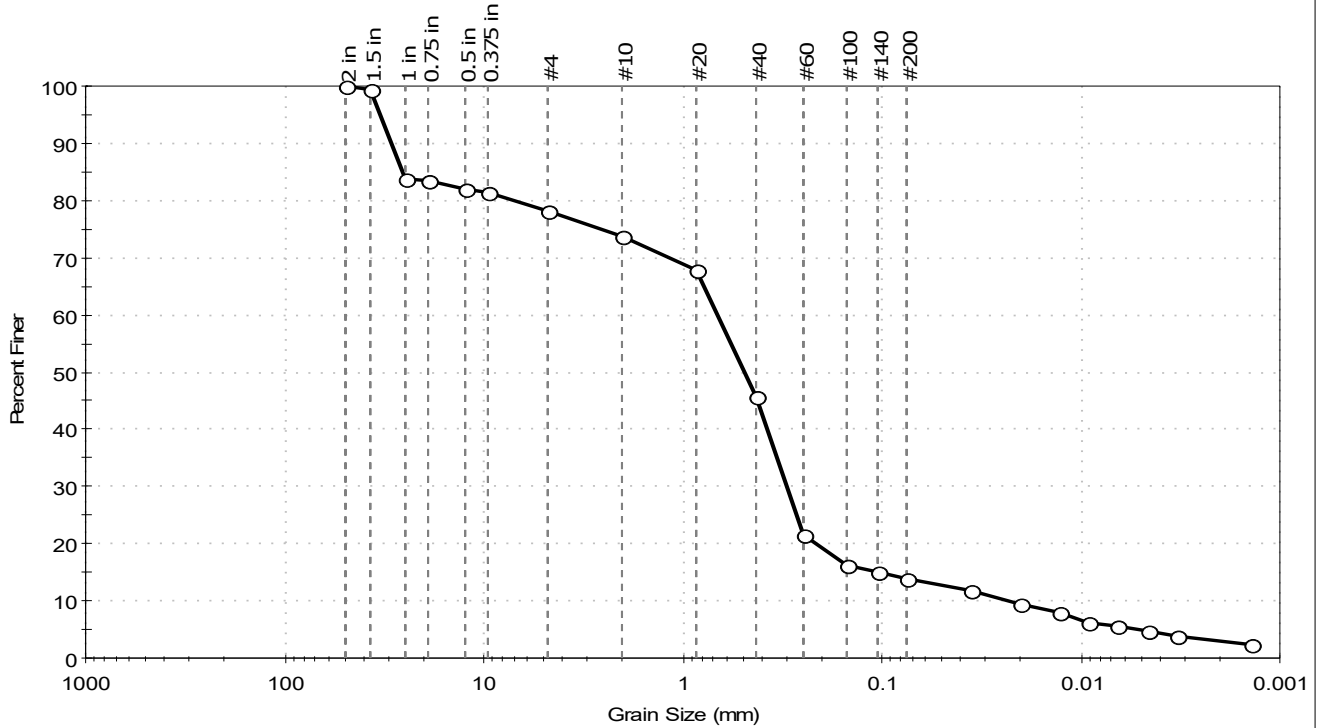
<u>Classification</u>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	Stone Fragments, Gravel and Sand (A-1-b (0))

<u>Sample/Test Description</u>	
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	



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: PDI-142RAB	Sample Type: bag
Sample ID: 00-10-191112	Test Date: 12/09/19
Depth: ---	Test Id: 532315
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark brown silty sand with gravel	Checked By: bfs
Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	21.9	64.2	13.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
2 in	50.00	100		
1.5 in	37.50	99		
1 in	25.00	84		
0.75 in	19.00	83		
0.5 in	12.50	82		
0.375 in	9.50	82		
#4	4.75	78		
#10	2.00	74		
#20	0.85	68		
#40	0.42	46		
#60	0.25	22		
#100	0.15	16		
#140	0.11	15		
#200	0.075	14		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0357	12		
---	0.0203	9		
---	0.0127	8		
---	0.0093	6		
---	0.0066	6		
---	0.0046	5		
---	0.0033	4		
---	0.0014	2		

<u>Coefficients</u>	
D <sub>85</sub> = 25.8783 mm	D <sub>30</sub> = 0.3005 mm
D <sub>60</sub> = 0.6646 mm	D <sub>15</sub> = 0.1028 mm
D <sub>50</sub> = 0.4844 mm	D <sub>10</sub> = 0.0232 mm
C <sub>u</sub> = 28.647	C <sub>c</sub> = 5.857

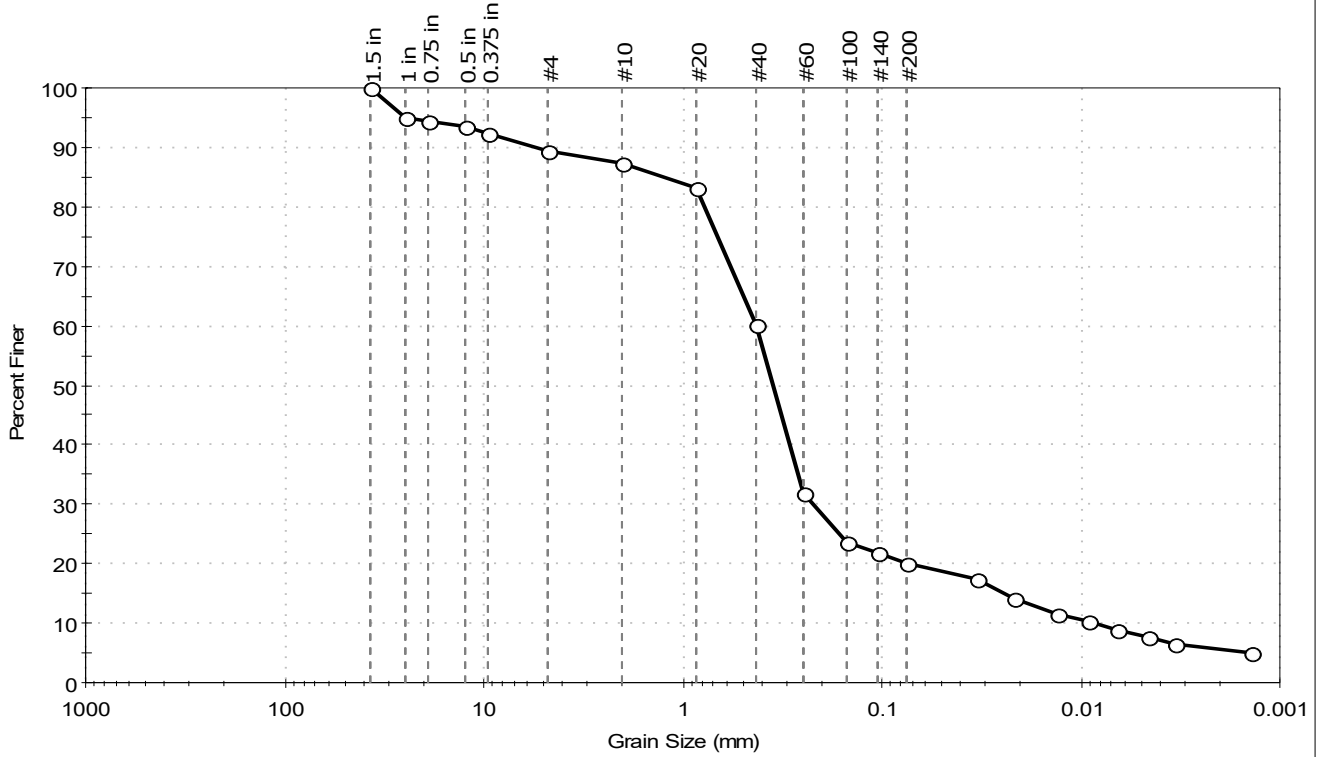
<u>Classification</u>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	Stone Fragments, Gravel and Sand (A-1-b (0))

<u>Sample/Test Description</u>
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



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: PDI-143RAB Sample Type: bag Tested By: ckg  
 Sample ID: 20-31.1-191111 Test Date: 12/09/19 Checked By: bfs  
 Depth: --- Test Id: 532314  
 Test Comment: ---  
 Visual Description: Moist, dark brown silty sand  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	10.6	69.5	19.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	95		
0.75 in	19.00	94		
0.5 in	12.50	94		
0.375 in	9.50	92		
#4	4.75	89		
#10	2.00	87		
#20	0.85	83		
#40	0.42	60		
#60	0.25	32		
#100	0.15	24		
#140	0.11	22		
#200	0.075	20		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.030	17		
---	0.0219	14		
---	0.0130	12		
---	0.0092	10		
---	0.0066	9		
---	0.0046	8		
---	0.0033	6		
---	0.0014	5		

**Coefficients**

D <sub>85</sub> = 1.2464 mm	D <sub>30</sub> = 0.2222 mm
D <sub>60</sub> = 0.4230 mm	D <sub>15</sub> = 0.0245 mm
D <sub>50</sub> = 0.3508 mm	D <sub>10</sub> = 0.0086 mm
C <sub>u</sub> = 49.186	C <sub>c</sub> = 13.572

**Classification**

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

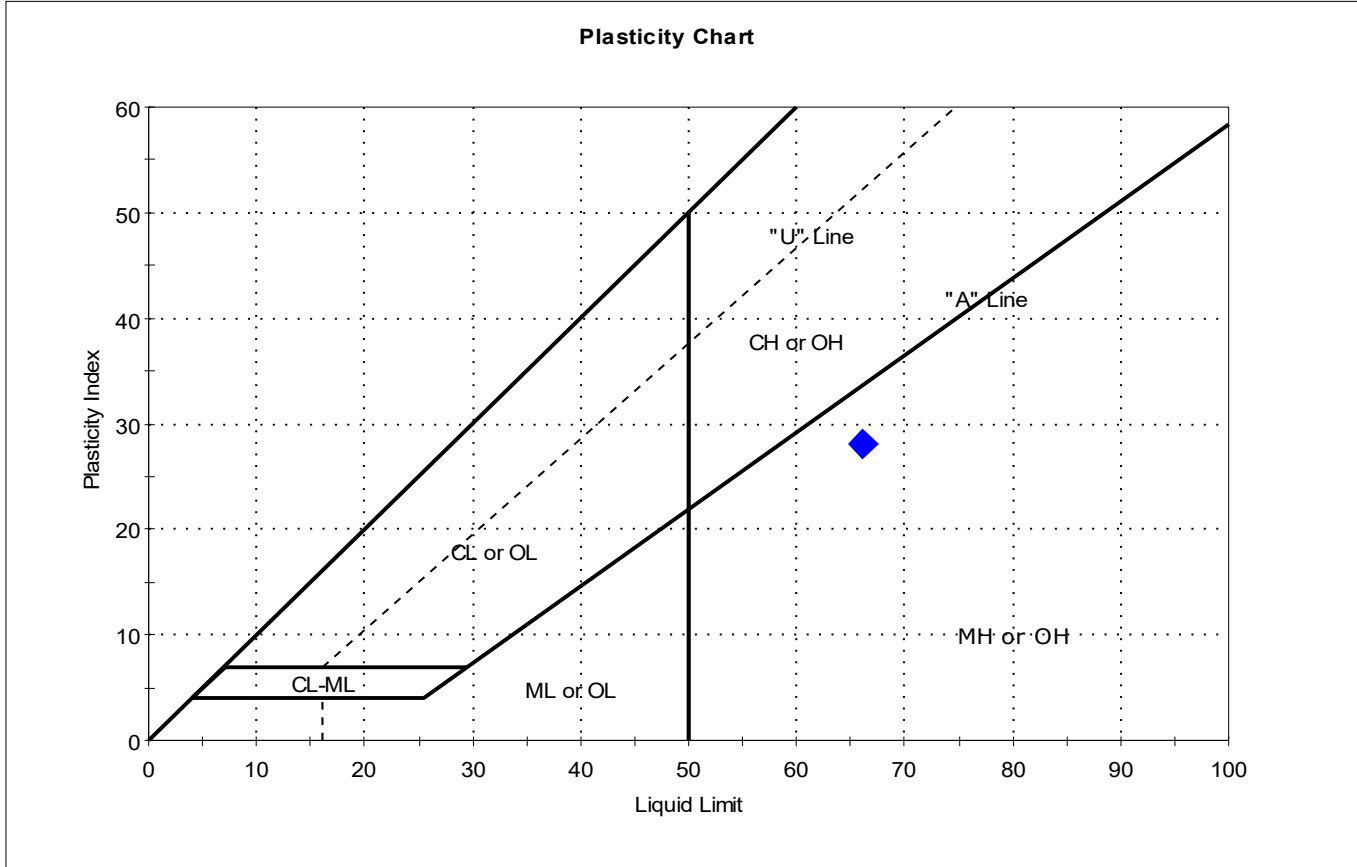
**Sample/Test Description**

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



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

Sample Prepared using the WET method

Dry Strength: VERY HIGH

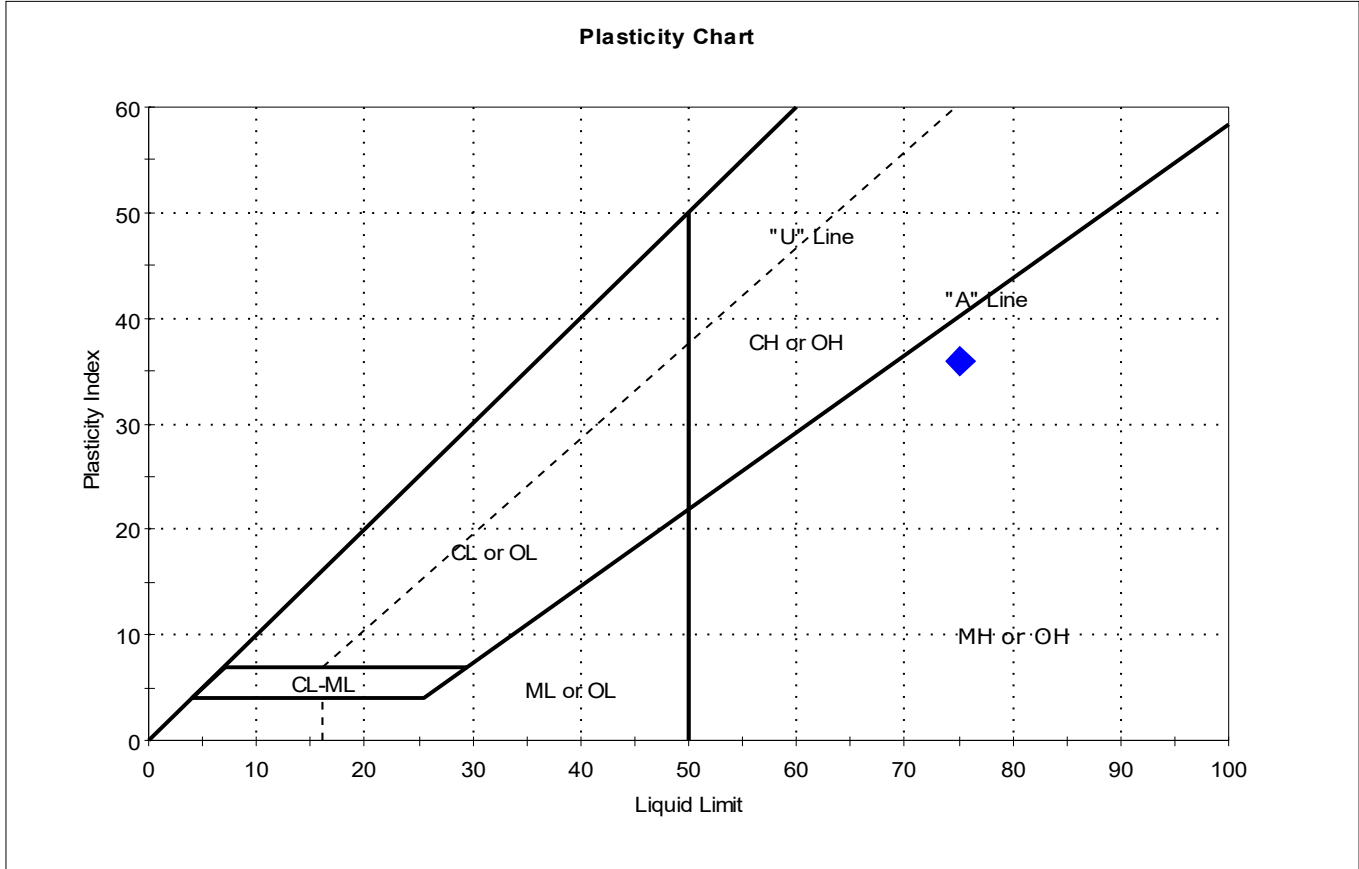
Dilatancy: SLOW

Toughness: LOW



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

Sample Prepared using the WET method

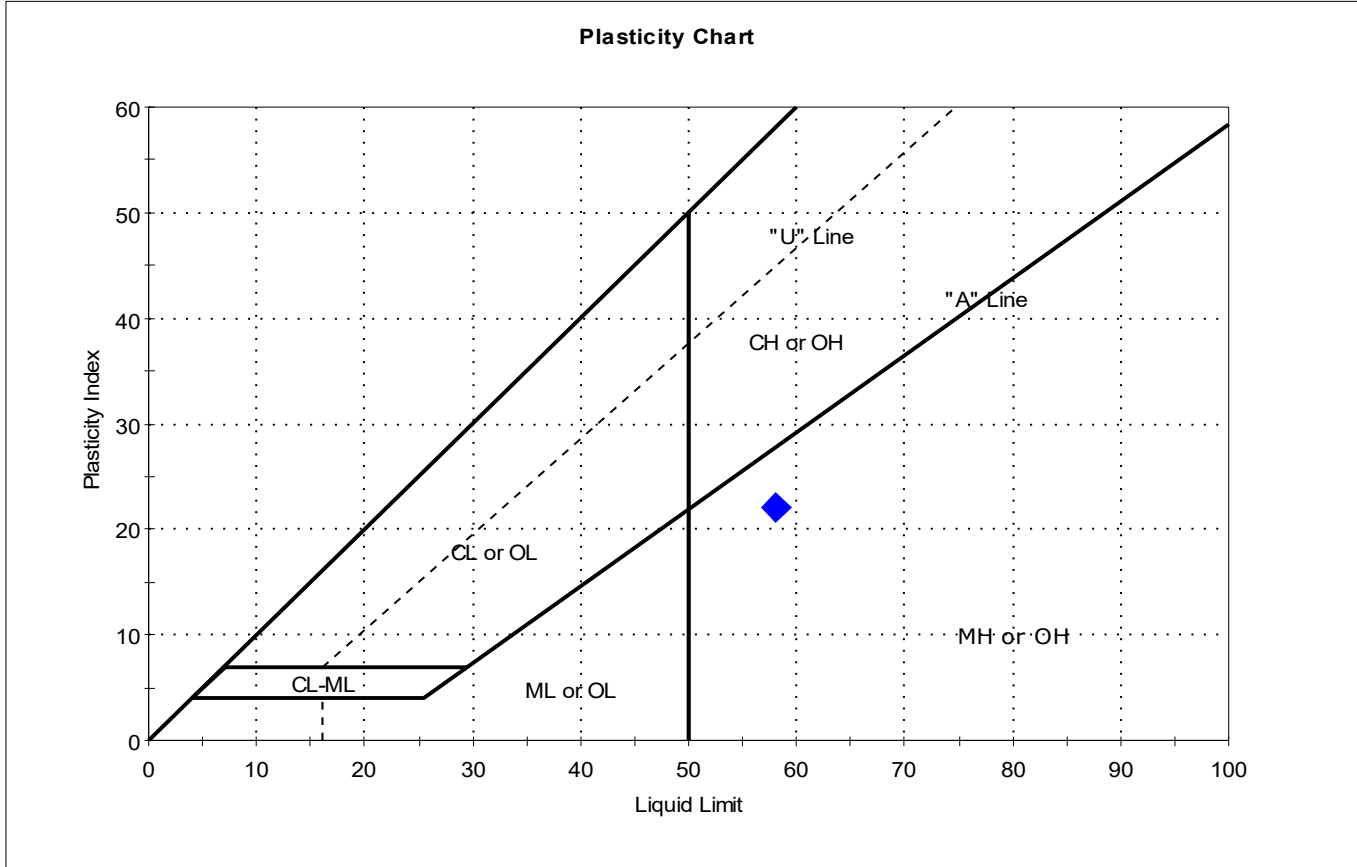
Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





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	PDI-114SPT	---	64	58	36	22	1.3	

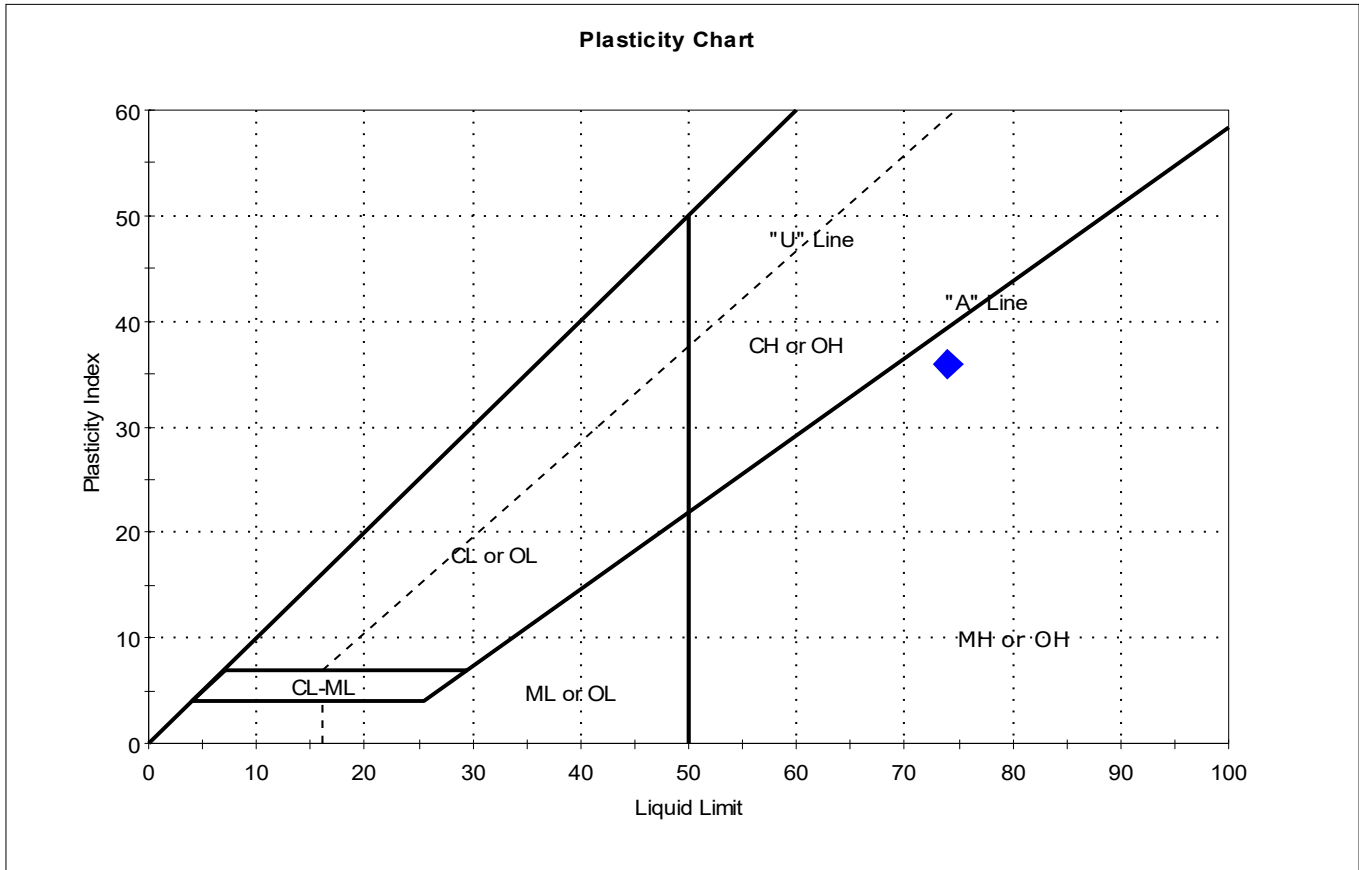
Sample Prepared using the WET method

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- 118SPT	Test Date: 12/13/19	Checked By: bfs
Sample ID: 4.5-6.5-191014	Test Id: 531042	
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
◆	4.5-6.5-191014	PDI-118SPT	---	83	74	38	36	1.3	

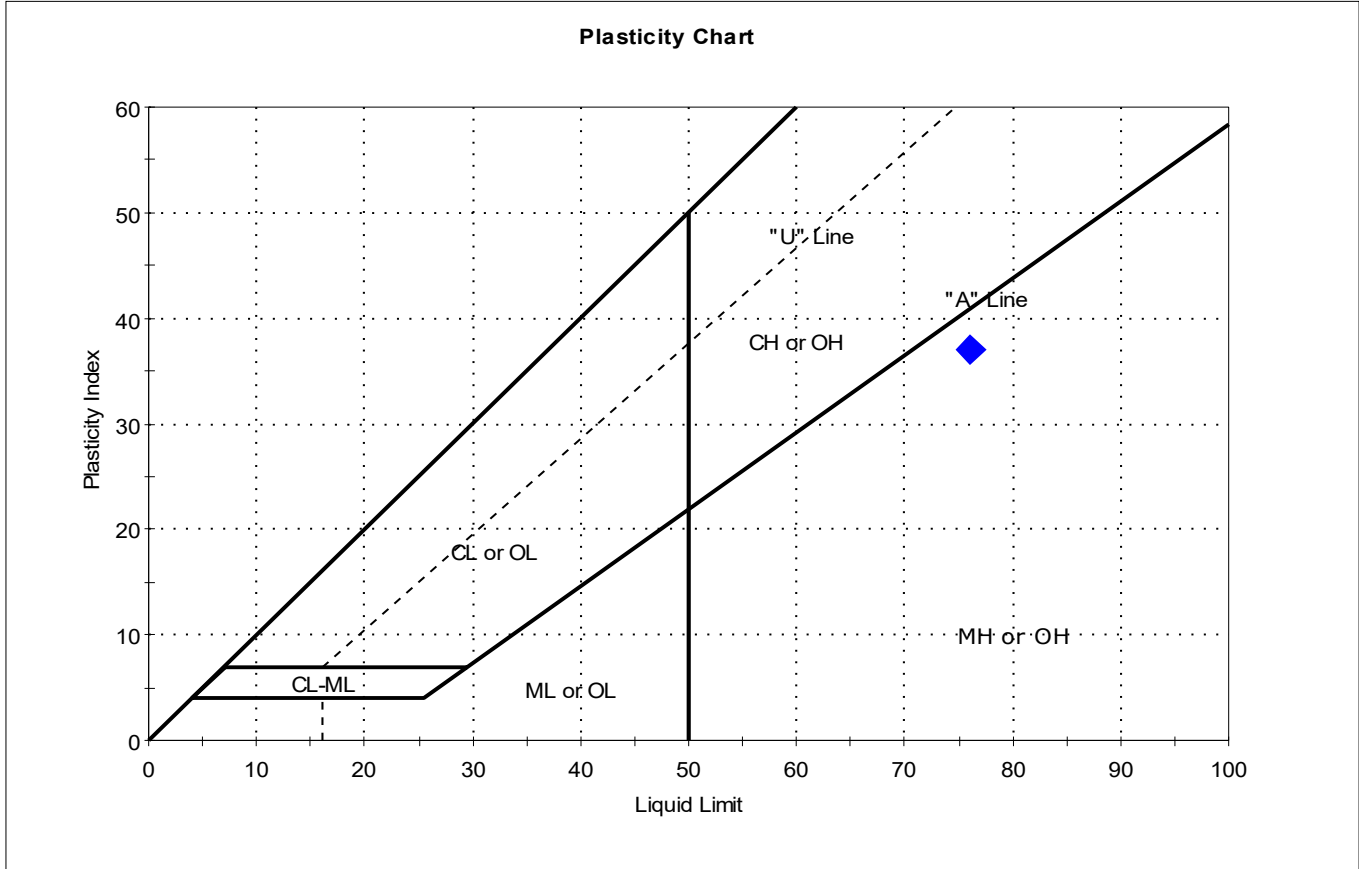
Sample Prepared using the WET method

Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: LOW



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

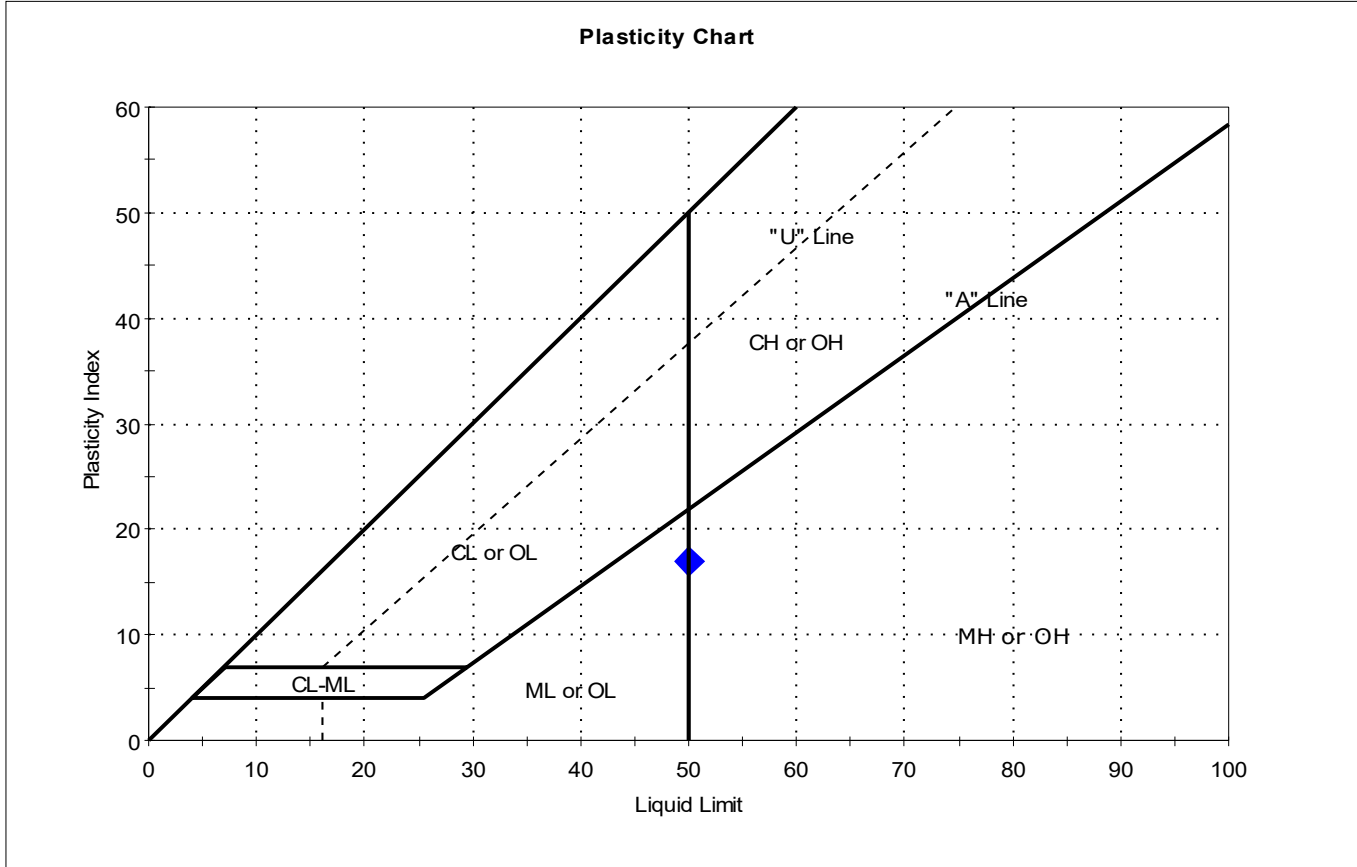
Sample Prepared using the WET method

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- 123SPT	Test Date: 12/11/19	Checked By: bfs
Sample ID: 4.5-6.5-190924	Test Id: 531044	
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
◆	4.5-6.5-190924	PDI-123SPT	---	69	50	33	17	2.1	

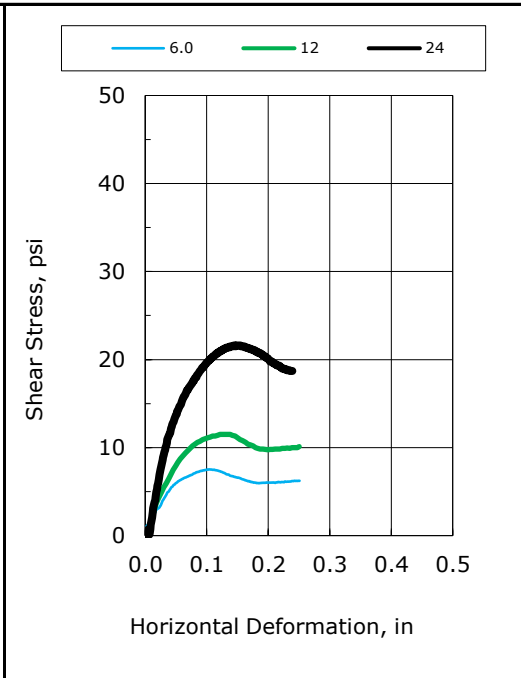
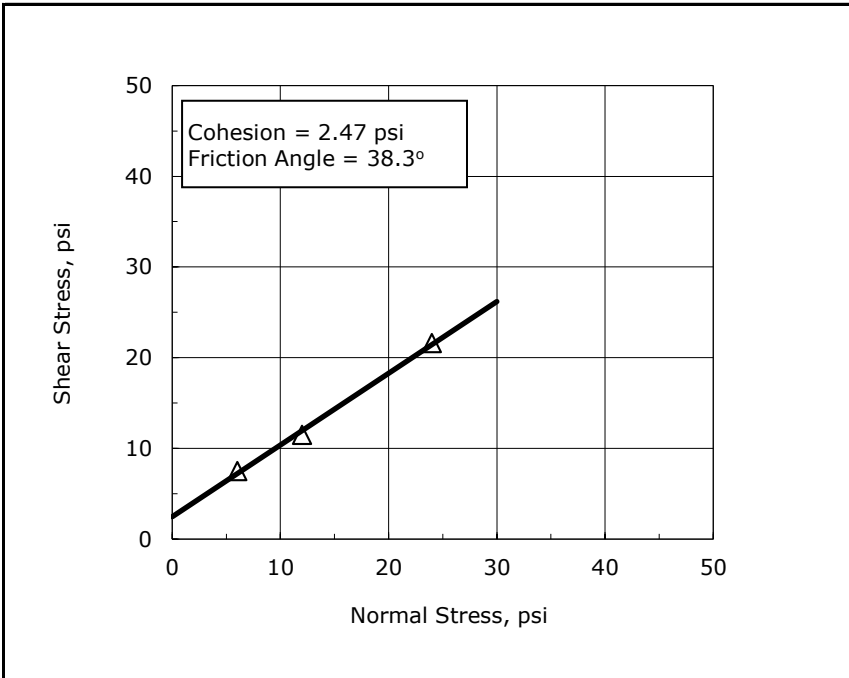
Sample Prepared using the WET method

Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: LOW

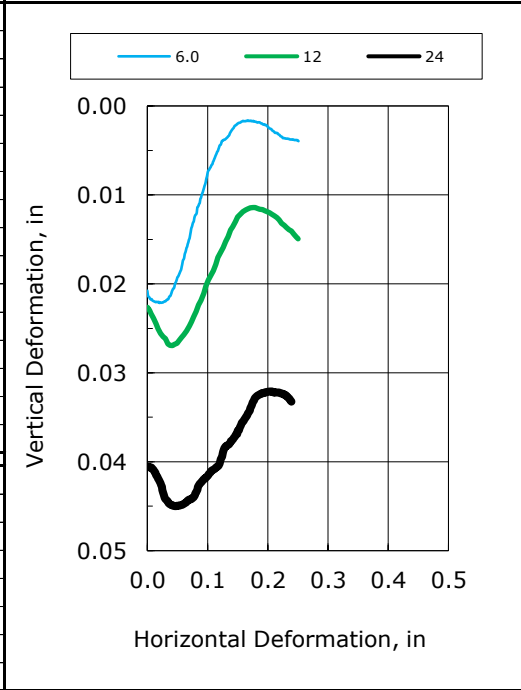


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/12/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-107SPT
Sample ID:	39-41-190924
Depth, ft:	---
Visual Description:	Moist, black sand

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-10	DS-11	DS-12
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	144	147	145
Initial Dry Density, pcf:	85.8	87.0	85.0
Initial Moisture Content, %:	30.7	31.3	32.5
Initial Bulk Density, pcf:	112.0	114.2	112.7
Initial Degree of Saturation:	87.4	92.0	91.0
Initial Void Ratio:	0.93	0.90	0.95
Final Dry Density, pcf:	86.1	88.3	88.0
Final Moisture Content, %:	30.5	31.6	32.2
Final Bulk Density, pcf:	112.4	116.2	116.3
Normal Stress, psi:	6.0	12	24
Maximum Shear Stress, psi:	7.5	12	22
Shear Rate, in/min:	0.004	0.004	0.004



Sample Type:	intact
Estimated Specific Gravity:	2.65
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

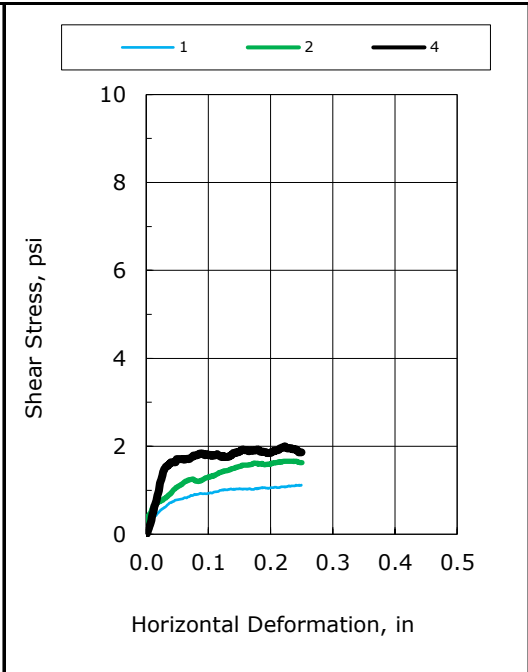
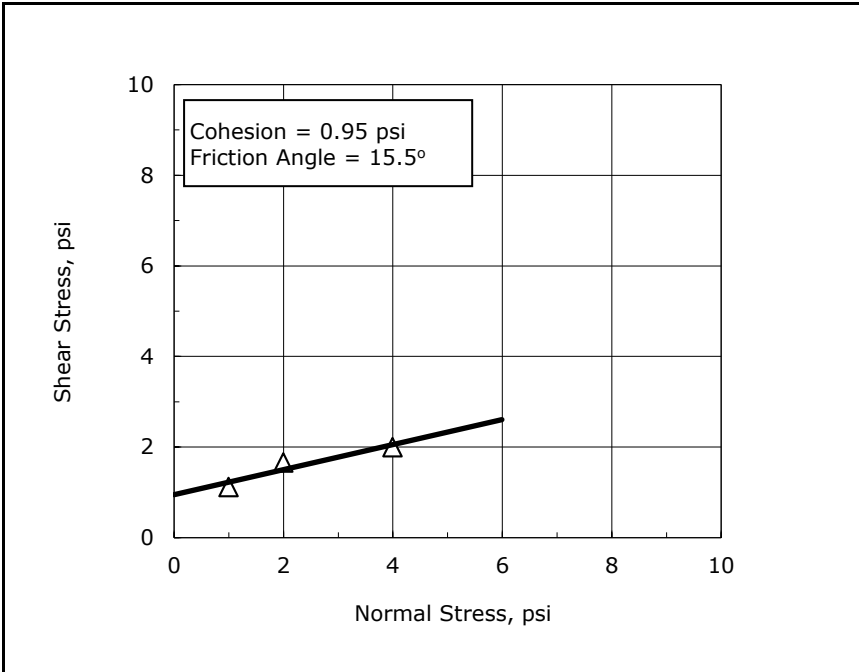
**Notes:**

Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "---" indicates testing required to determine these values was not requested.

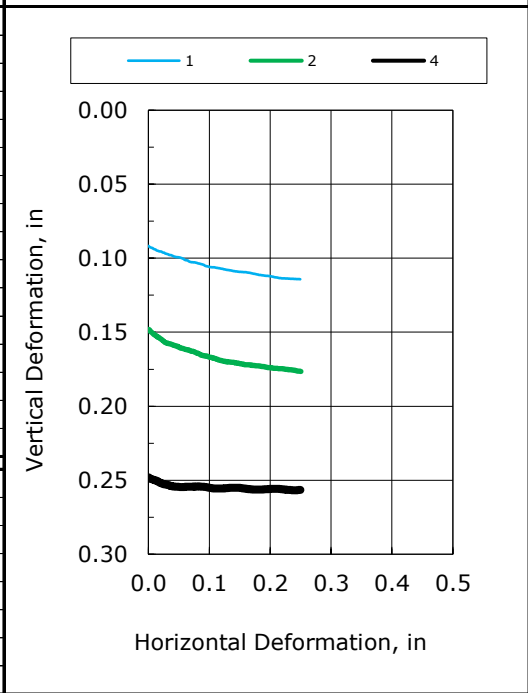


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/11/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-109SPT
Sample ID:	6.5-8.5-191004
Depth, ft:	---
Visual Description:	Wet, dark olive gray silt

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-1	DS-2	DS-3
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	105	115	115
Initial Dry Density, pcf:	41.5	44.4	44.4
Initial Moisture Content, %:	96.1	100.4	100.3
Initial Bulk Density, pcf:	81.5	89.0	89.0
Initial Degree of Saturation:	84.9	97.0	96.9
Initial Void Ratio:	3.06	2.79	2.80
Final Dry Density, pcf:	46.9	53.9	59.7
Final Moisture Content, %:	86.3	77.9	77.1
Final Bulk Density, pcf:	87.3	96.0	105.8
Normal Stress, psi:	1.0	2.0	4.0
Maximum Shear Stress, psi:	1.1	1.7	2.0
Shear Rate, in/min:	0.001	0.001	0.001



Sample Type:	intact
Estimated Specific Gravity:	2.70
Liquid Limit:	75
Plastic Limit:	39
Plasticity Index:	36
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

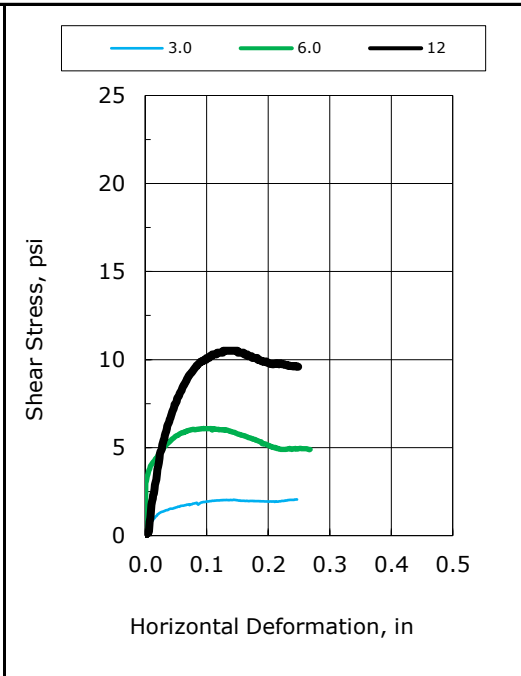
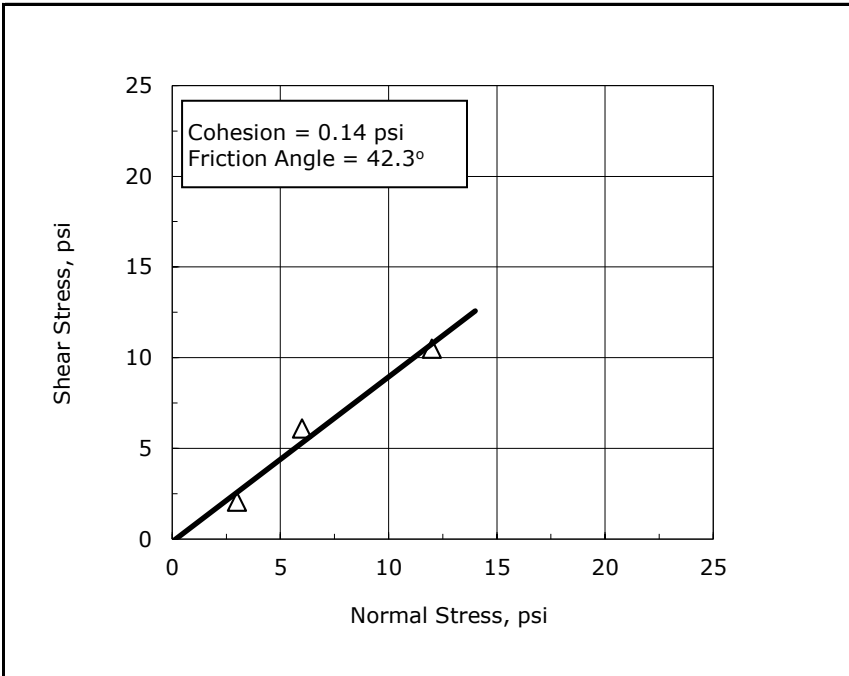
**Notes:**

Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Atterberg Limits determined by ASTM D4318  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "----" indicates testing required to determine these values was not requested.

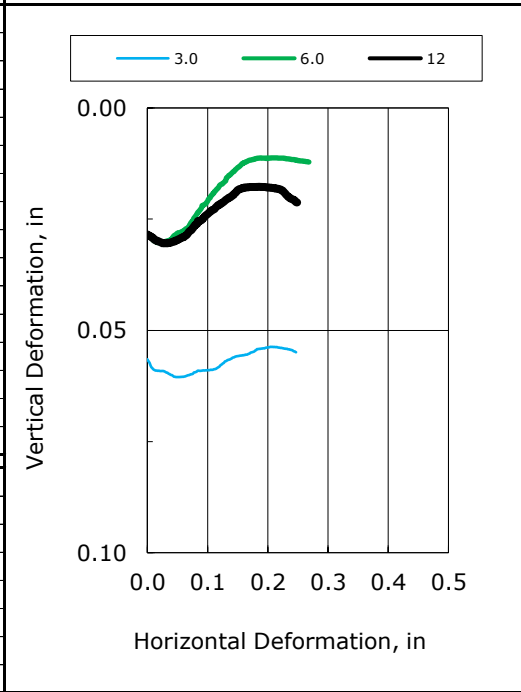


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/12/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-109SPT
Sample ID:	20-22-191004
Depth, ft:	---
Visual Description:	Moist, black sand with silt

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-7	DS-8	DS-9
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	137	135	141
Initial Dry Density, pcf:	78.1	76.9	80.9
Initial Moisture Content, %:	36.0	35.8	35.1
Initial Bulk Density, pcf:	106.2	104.5	109.2
Initial Degree of Saturation:	85.3	82.5	88.8
Initial Void Ratio:	1.12	1.15	1.05
Final Dry Density, pcf:	82.6	77.9	82.6
Final Moisture Content, %:	39.7	40.3	36.4
Final Bulk Density, pcf:	115.4	109.3	112.7
Normal Stress, psi:	3.0	6.0	12
Maximum Shear Stress, psi:	2.1	6.1	11
Shear Rate, in/min:	0.002	0.002	0.002



Sample Type:	intact
Estimated Specific Gravity:	2.65
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

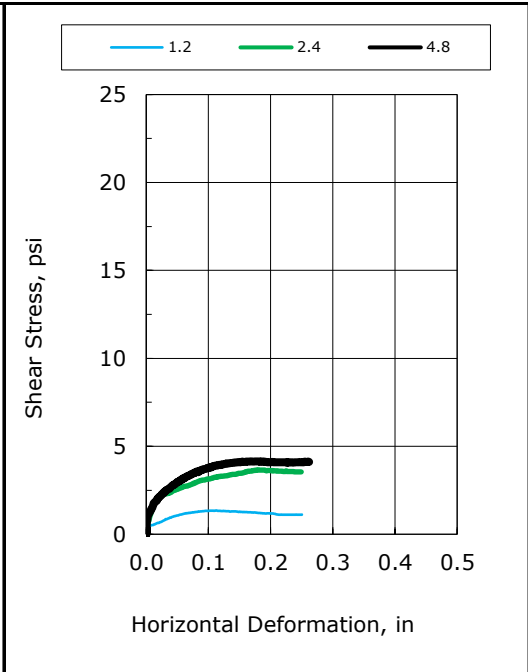
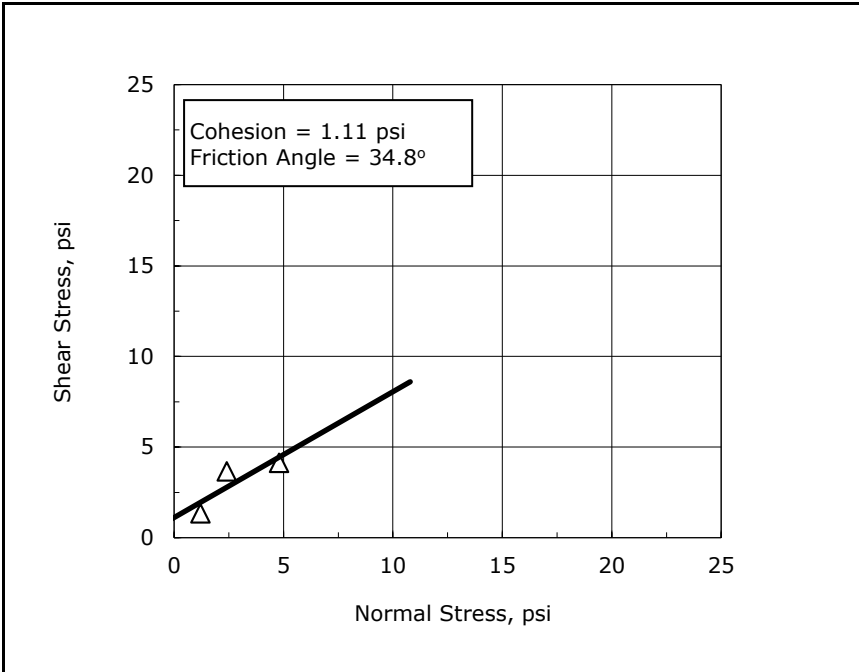
**Notes:**

Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "---" indicates testing required to determine these values was not requested.

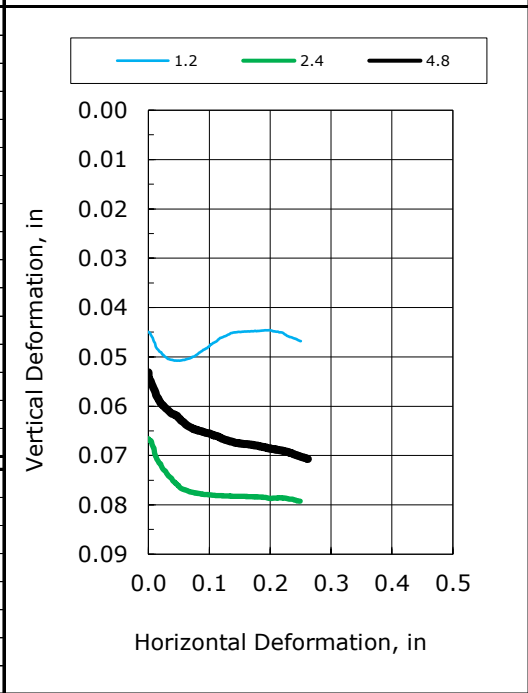


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/13/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-114SPT
Sample ID:	7.5-9.5-191008
Depth, ft:	---
Visual Description:	Wet, gray silt

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-13	DS-14	DS-15
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	123	118	122
Initial Dry Density, pcf:	60.9	55.8	62.9
Initial Moisture Content, %:	57.2	63.9	50.8
Initial Bulk Density, pcf:	95.8	91.4	94.8
Initial Degree of Saturation:	87.5	85.3	81.7
Initial Void Ratio:	1.77	2.02	1.68
Final Dry Density, pcf:	63.9	60.6	67.7
Final Moisture Content, %:	54.0	60.9	51.9
Final Bulk Density, pcf:	98.4	97.5	102.8
Normal Stress, psi:	1.2	2.4	4.8
Maximum Shear Stress, psi:	1.4	3.7	4.1
Shear Rate, in/min:	0.001	0.001	0.001



Sample Type:	intact
Estimated Specific Gravity:	2.70
Liquid Limit:	58
Plastic Limit:	36
Plasticity Index:	22
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

**Notes:**

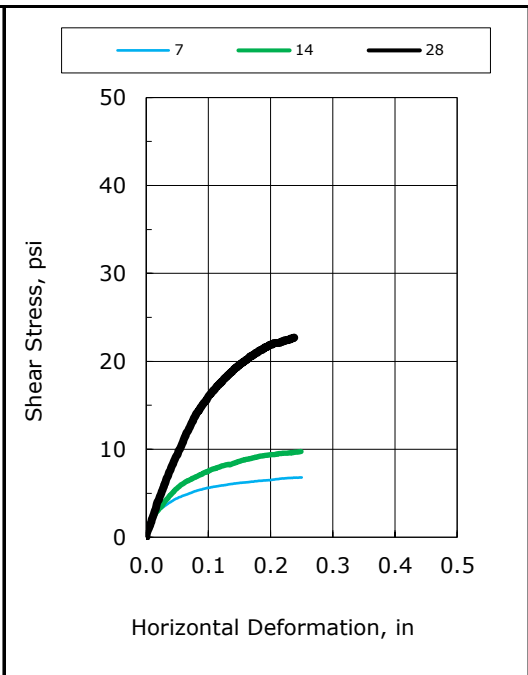
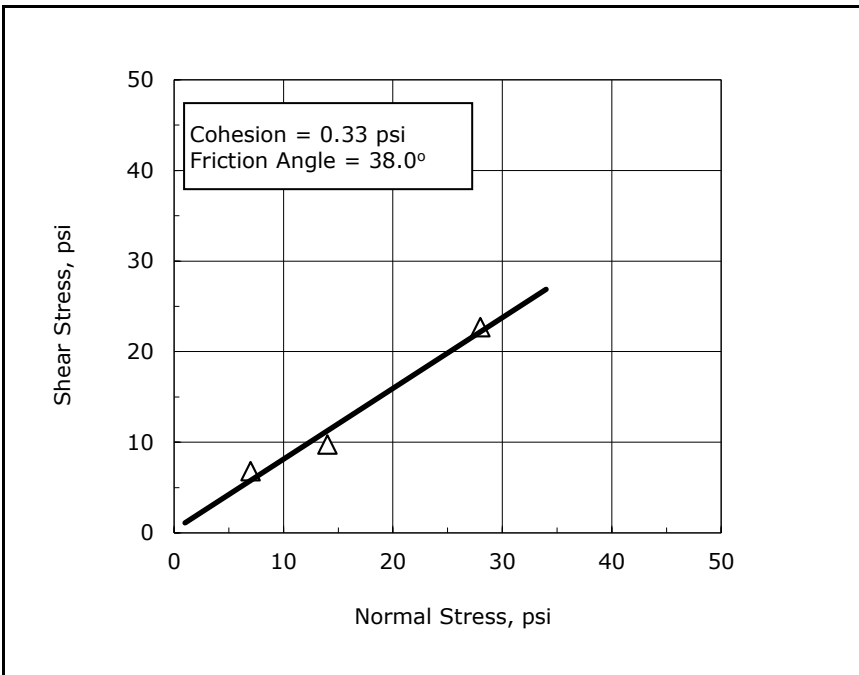
Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Atterberg Limits determined by ASTM D4318  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "----" indicates testing required to determine these values was not requested.



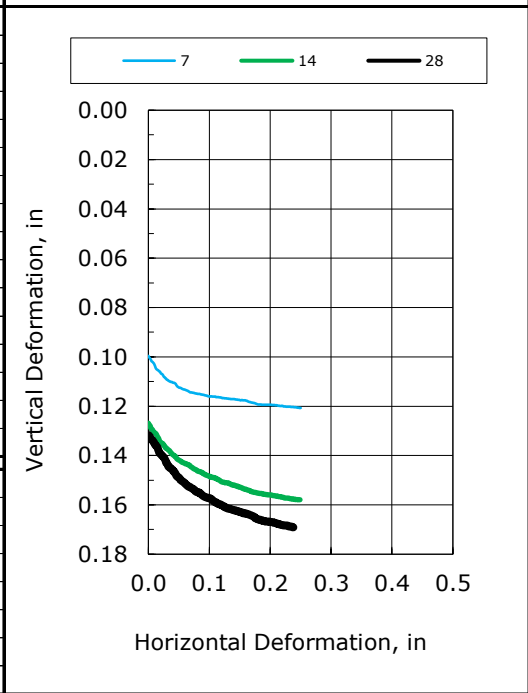


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/17/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-115SPT
Sample ID:	41.5-43.5-190100
Depth, ft:	---
Visual Description:	Wet, dark gray sandy silt

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-19	DS-20	DS-21
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	138	133	132
Initial Dry Density, pcf:	72.2	69.7	68.9
Initial Moisture Content, %:	48.6	48.6	48.6
Initial Bulk Density, pcf:	107.3	103.6	102.4
Initial Degree of Saturation:	99.7	93.8	92.0
Initial Void Ratio:	1.29	1.37	1.40
Final Dry Density, pcf:	82.1	82.8	83.0
Final Moisture Content, %:	47.8	4689.0	73.3
Final Bulk Density, pcf:	121.3	3964.3	143.7
Normal Stress, psi:	7.0	14	28
Maximum Shear Stress, psi:	6.8	10	23
Shear Rate, in/min:	0.0004	0.0004	0.0004



Sample Type:	intact
Estimated Specific Gravity:	2.65
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
% Passing #200 sieve:	61.8
Soil Classification:	---
Group Symbol:	---

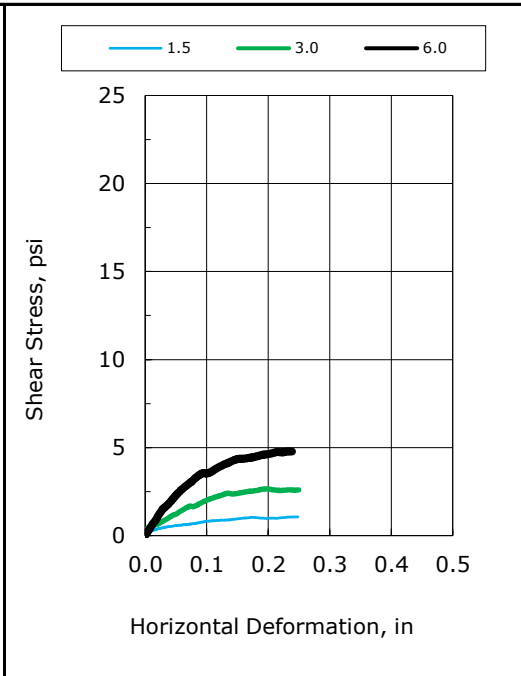
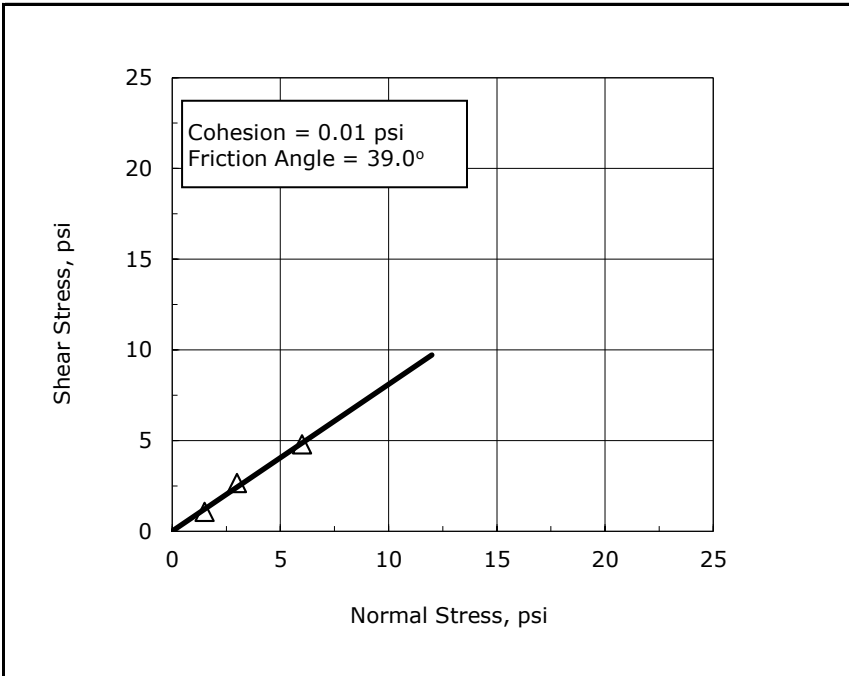
**Notes:**

Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 % Passing #200 Sieve determined by ASTM D6913  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "----" indicates testing required to determine these values was not requested.

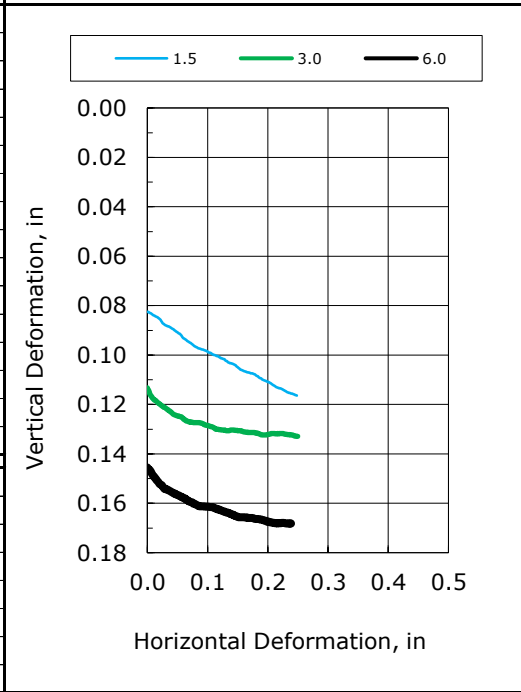


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/18/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-116SPT
Sample ID:	9.5-11.5-191002
Depth, ft:	---
Visual Description:	Wet, gray silt with sand

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-22	DS-23	DS-24
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	111	114	118
Initial Dry Density, pcf:	54.8	54.2	59.1
Initial Moisture Content, %:	57.7	62.9	55.2
Initial Bulk Density, pcf:	86.4	88.3	91.7
Initial Degree of Saturation:	75.0	80.5	80.4
Initial Void Ratio:	2.08	2.11	1.85
Final Dry Density, pcf:	62.0	62.5	71.0
Final Moisture Content, %:	66.1	57.6	50.7
Final Bulk Density, pcf:	103.0	98.5	107.0
Normal Stress, psi:	1.5	3.0	6.0
Maximum Shear Stress, psi:	1.1	2.7	4.8
Shear Rate, in/min:	0.001	0.001	0.001



Sample Type:	intact
Estimated Specific Gravity:	2.70
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

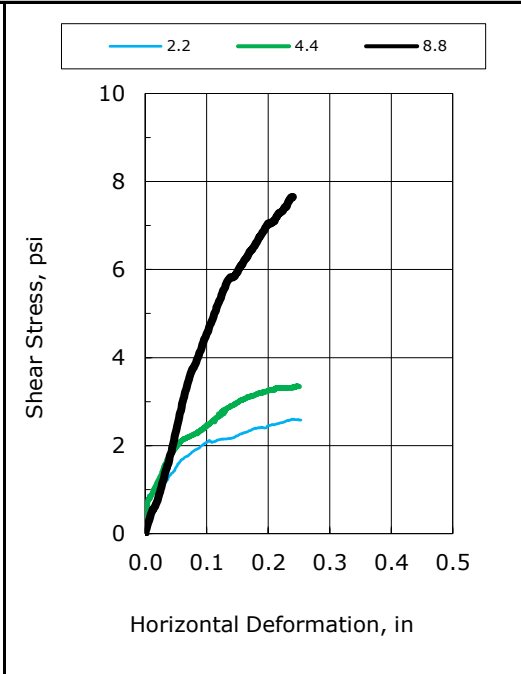
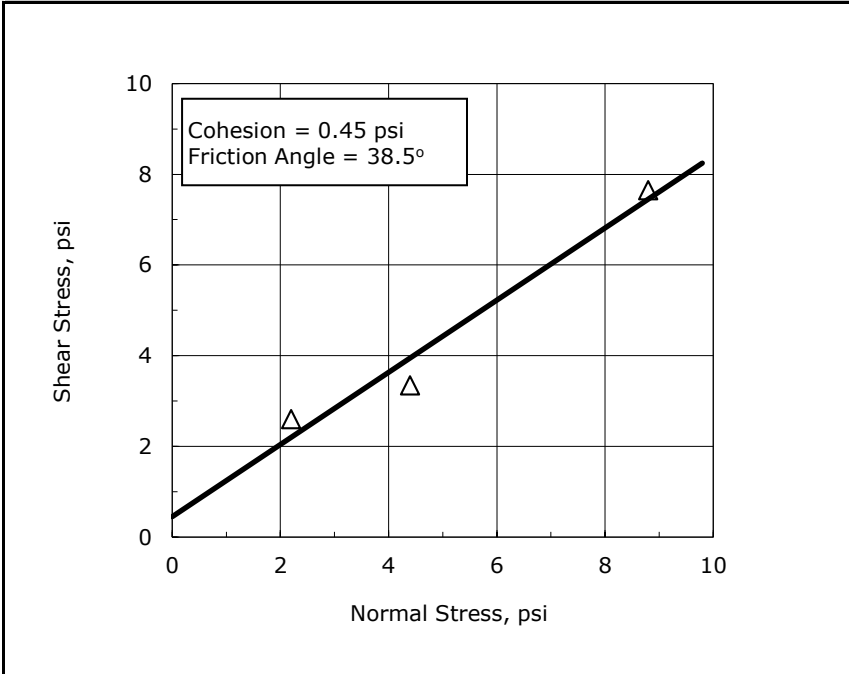
**Notes:**

Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "---" indicates testing required to determine these values was not requested.

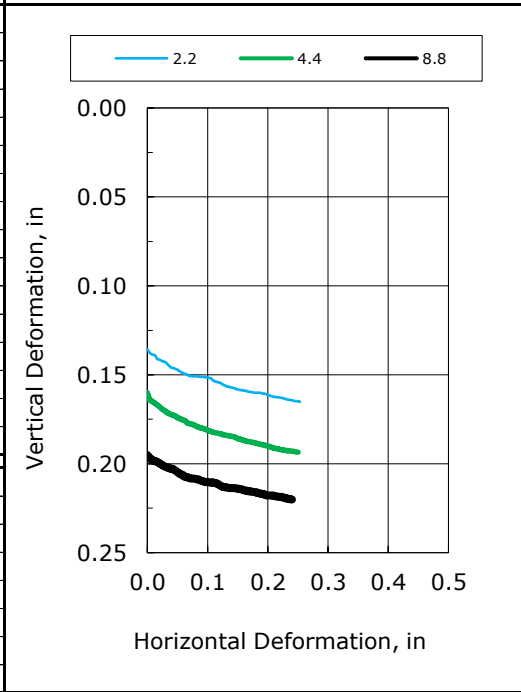


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/11/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-118SPT
Sample ID:	15-17-191014
Depth, ft:	---
Visual Description:	Wet, black silt

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-4	DS-5	DS-6
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	108	109	112
Initial Dry Density, pcf:	47.5	47.9	47.9
Initial Moisture Content, %:	76.6	76.9	81.1
Initial Bulk Density, pcf:	83.9	84.8	86.7
Initial Degree of Saturation:	81.1	82.5	86.8
Initial Void Ratio:	2.55	2.52	2.52
Final Dry Density, pcf:	56.9	59.4	61.4
Final Moisture Content, %:	68.6	63.3	57.7
Final Bulk Density, pcf:	95.9	97.1	96.8
Normal Stress, psi:	2.2	4.4	8.8
Maximum Shear Stress, psi:	2.6	3.4	7.7
Shear Rate, in/min:	0.0004	0.0004	0.0004



Sample Type:	intact
Estimated Specific Gravity:	2.70
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

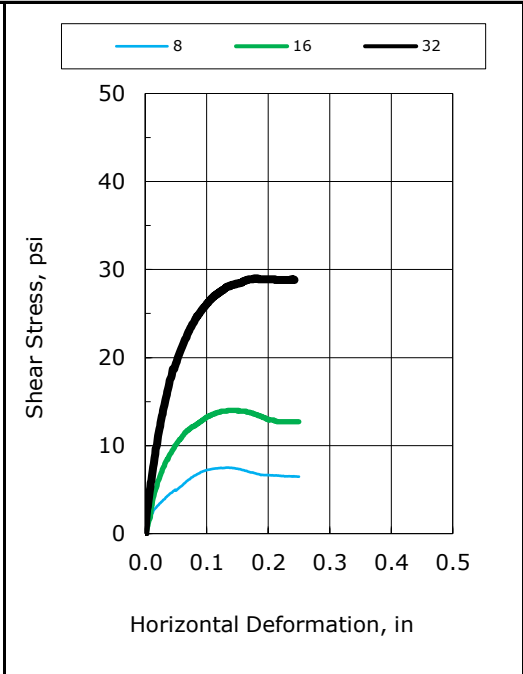
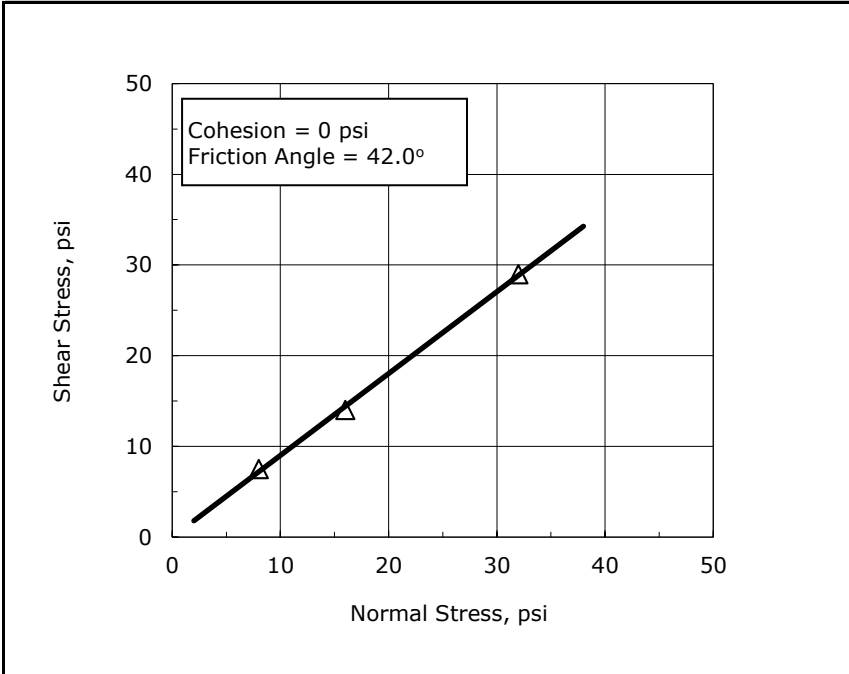
**Notes:**

Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "---" indicates testing required to determine these values was not requested.

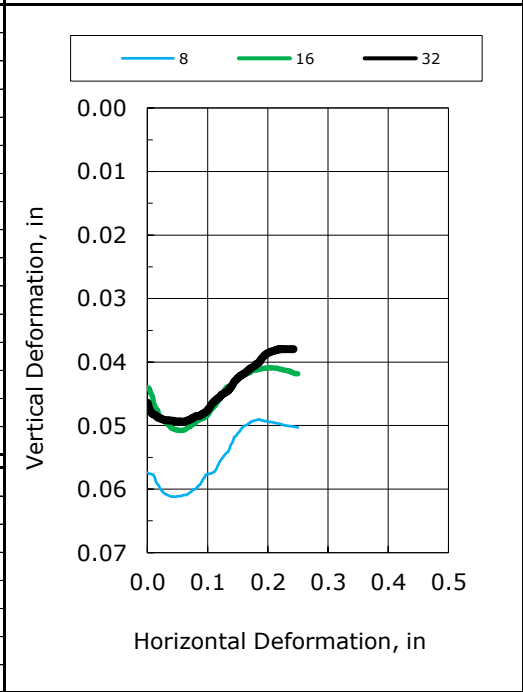


Client:	Anchor QEA, LLC
Project Name:	Gasco PDI
Project Location:	---
GTX #:	310685
Test Date:	12/16/19
Tested By:	md
Checked By:	njh
Boring ID:	PDI-122SPT
Sample ID:	44-46-190926
Depth, ft:	---
Visual Description:	Moist, dark gray sand

## Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080



Test No.:	DS-16	DS-17	DS-18
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	148	148	145
Initial Dry Density, pcf:	87.7	87.4	85.5
Initial Moisture Content, %:	30.8	31.0	31.5
Initial Bulk Density, pcf:	114.7	114.5	112.5
Initial Degree of Saturation:	92.1	92.0	89.4
Initial Void Ratio:	0.89	0.89	0.93
Final Dry Density, pcf:	92.3	91.2	88.9
Final Moisture Content, %:	30.9	31.1	30.7
Final Bulk Density, pcf:	120.9	119.6	116.2
Normal Stress, psi:	8.0	16	32
Maximum Shear Stress, psi:	7.5	14	29
Shear Rate, in/min:	0.002	0.002	0.002

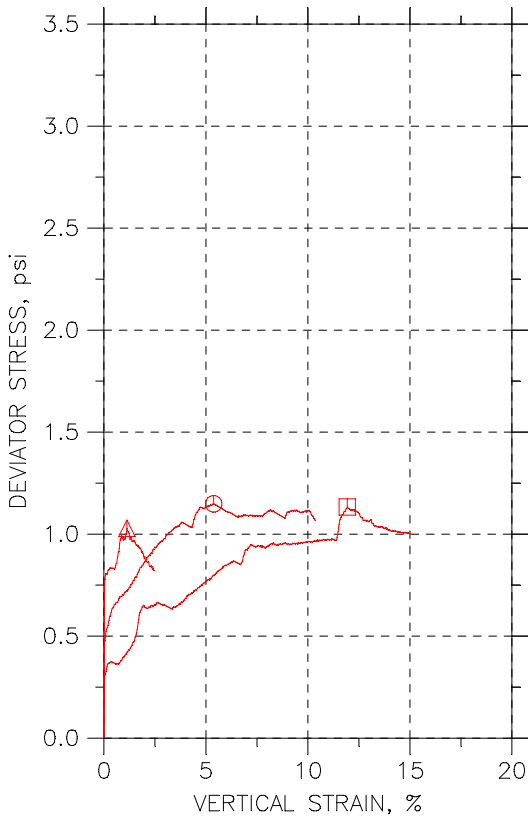
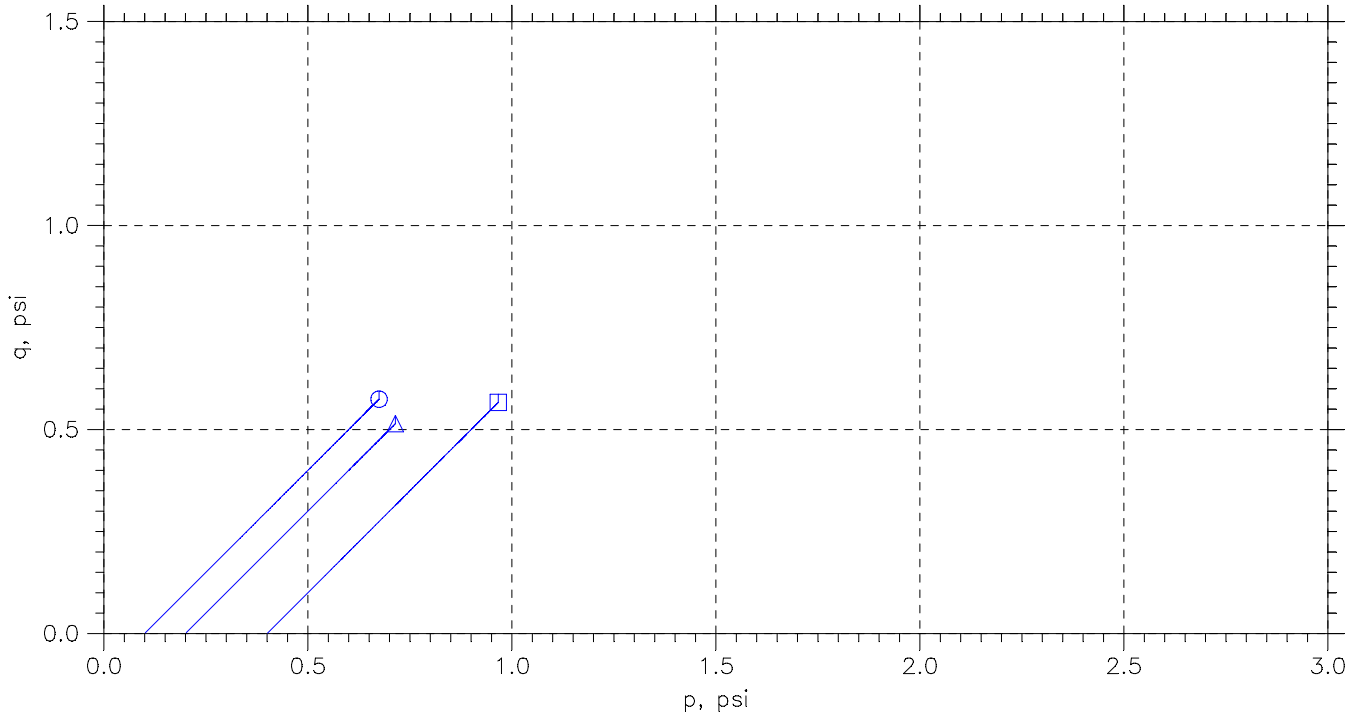


Sample Type:	intact
Estimated Specific Gravity:	2.65
Liquid Limit:	---
Plastic Limit:	---
Plasticity Index:	---
% Passing #200 sieve:	---
Soil Classification:	---
Group Symbol:	---

**Notes:**

Moisture content obtained before shear from sample trimmings  
 Moisture Content determined by ASTM D2216  
 Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content  
 Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.  
 "---" indicates testing required to determine these values was not requested.

# UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850

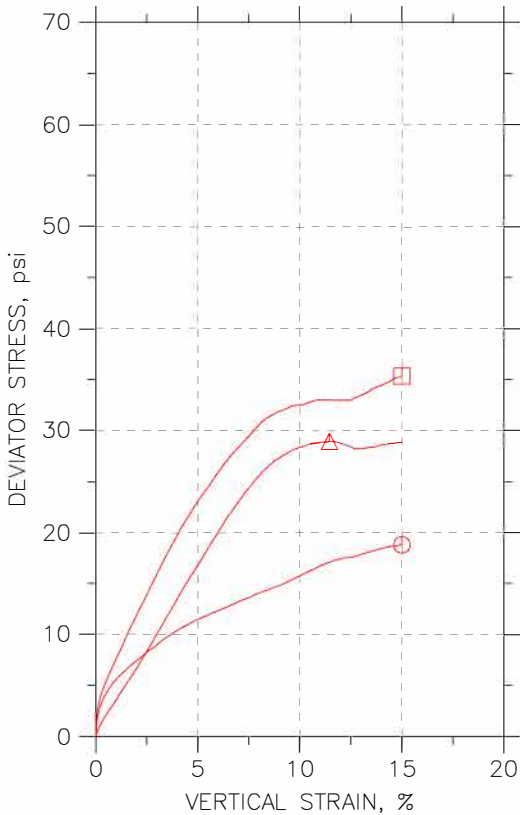
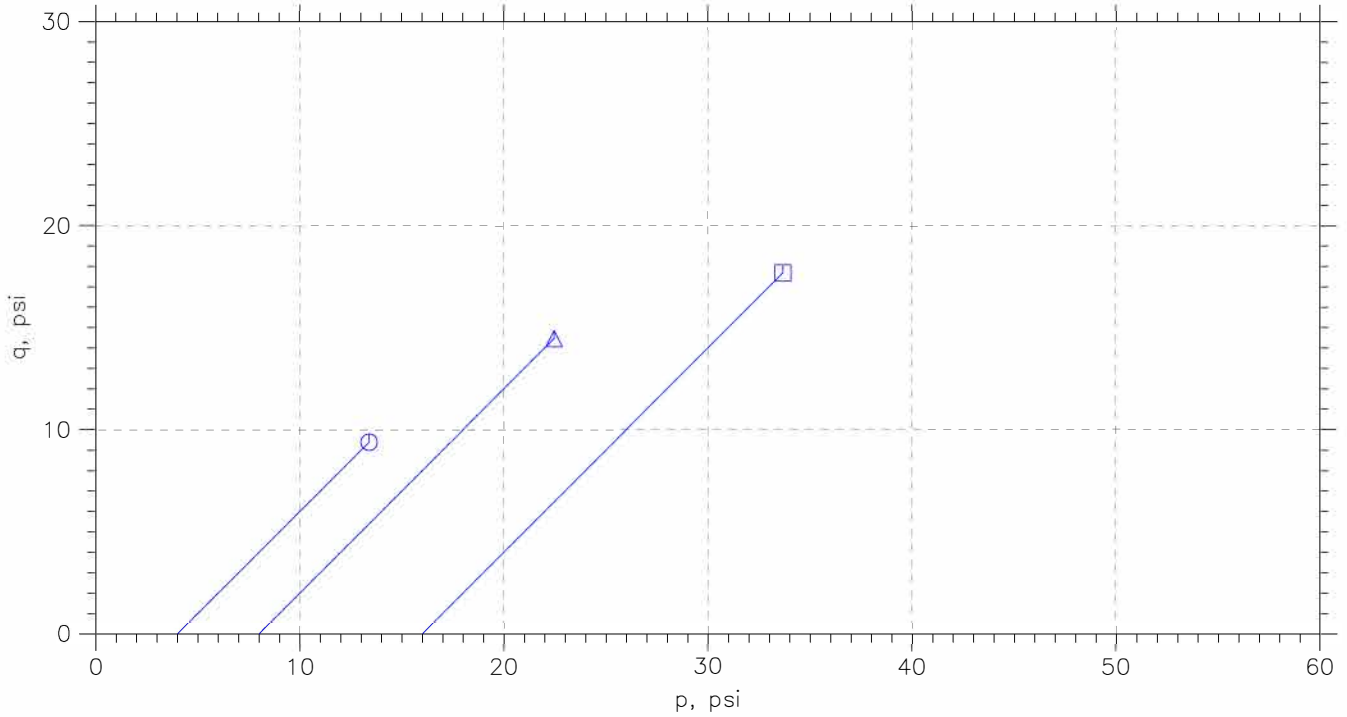


Symbol	⊙	△	□	
Sample No.	191007	191007	191007	
Test No.	UU-1-1	UU-1-2	UU-1-3	
Depth	1.5-3.5 ft	1.5-3.5 ft	1.5-3.5 ft	
Tested by	trm	trm	trm	
Test Date	12/16/19	12/17/19	12/16/19	
Checked by	anm	anm	anm	
Check Date	<b>2/06/20</b>	<b>2/06/20</b>	<b>2/06/20</b>	
Diameter, in	1.93	1.93	1.93	
Height, in	4.4	4.4	4.15	
Water Content, %	86.6	86.3	67.3	
Dry Density, pcf	49.38	49.01	59.8	
Saturation, %	96.9	95.5	99.9	
Void Ratio	2.41	2.44	1.82	
Confining Stress, psi	0.1	0.2	0.4	
Undrained Strength, psi	0.5743	0.5143	0.5666	
Max. Dev. Stress, psi	1.149	1.029	1.133	
Strain at Failure, %	5.38	1.13	11.9	
Strain Rate, %/min	1	1	1	
Estimated Specific Gravity	2.7	2.7	2.7	
Liquid Limit	66	66	66	
Plastic Limit	38	38	38	
Plasticity Index	28	28	28	

	Project: Gasco PDI	
	Location: ---	
	Project No.: GTX-310685	
	Boring No.: PDI-108SPT	
	Sample Type: intact	
	Description: Wet, olive gray silt	
	Remarks: System PP	

Phase calculations based on start and end of test.

# UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850

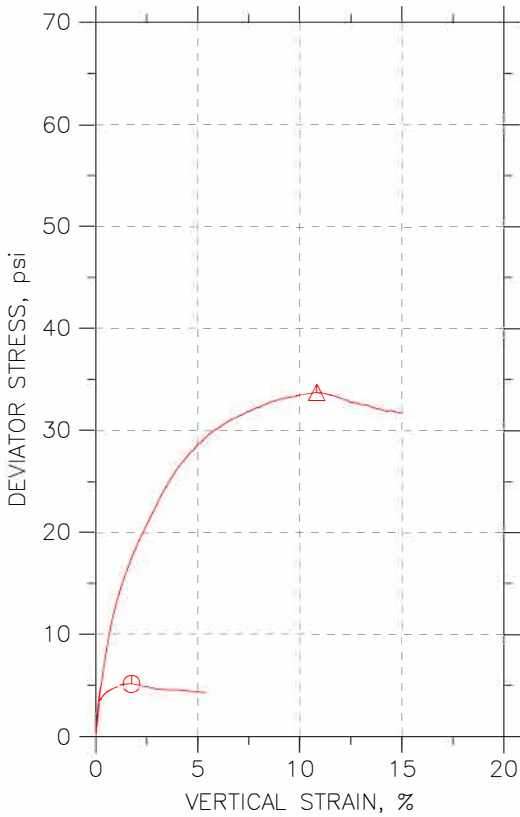
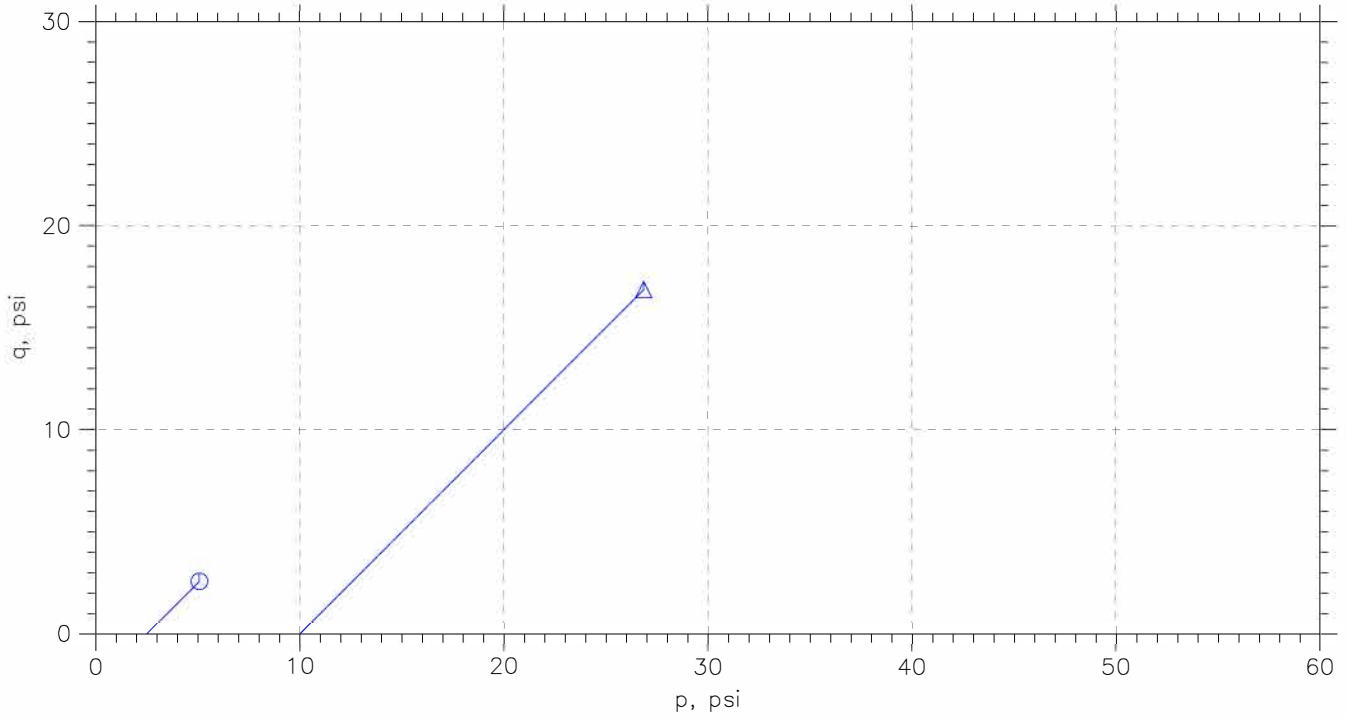


Symbol	○	△	□	
Sample No.	191011	191011	191011	
Test No.	UU-2-1	UU-2-2	UU-2-3	
Depth	47-49 ft	47-49 ft	47-49 ft	
Tested by	trm	trm	trm	
Test Date	12/19/19	12/19/19	12/19/19	
Checked by	anm	anm	anm	
Check Date	2/05/20	2/05/20	2/05/20	
Diameter, in	1.93	1.93	1.93	
Height, in	4.3	4.1	4.15	
Water Content, %	32.1	32.9	35.1	
Dry Density, pcf	84.1	85.78	85.19	
Saturation, %	88.1	94.0	98.7	
Void Ratio	0.967	0.928	0.942	
Confining Stress, psi	4	8	16	
Undrained Strength, psi	9.392	14.46	17.67	
Max. Dev. Stress, psi	18.78	28.92	35.35	
Strain at Failure, %	15	11.5	15	
Strain Rate, %/min	1	1	1	
Estimated Specific Gravity	2.65	2.65	2.65	
Liquid Limit	---	---	---	
Plastic Limit	---	---	---	
Plasticity Index	---	---	---	

	Project: Gasco PDI	
	Location: ---	
	Project No.: GTX-310685	
	Boring No.: PDI-113SPT	
	Sample Type: intact	
	Description: Moist, dark grayish brown silty sand	
Remarks: System F		

Phase calculations based on start and end of test.

# UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850

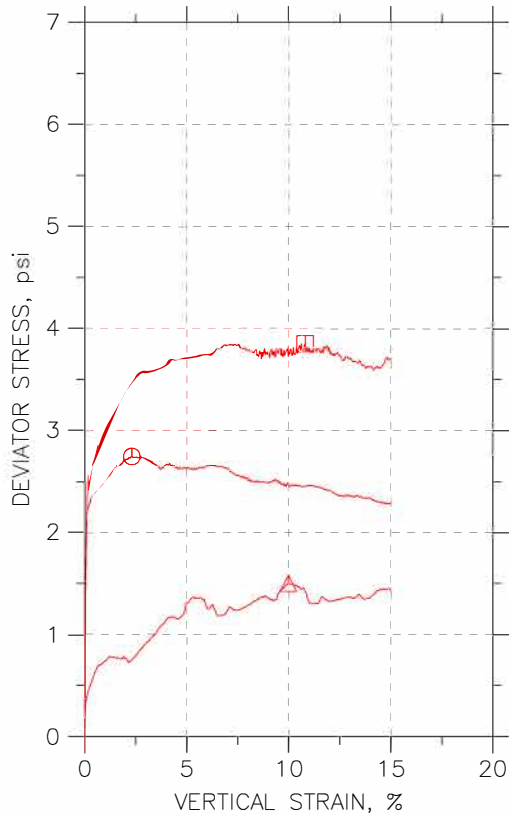
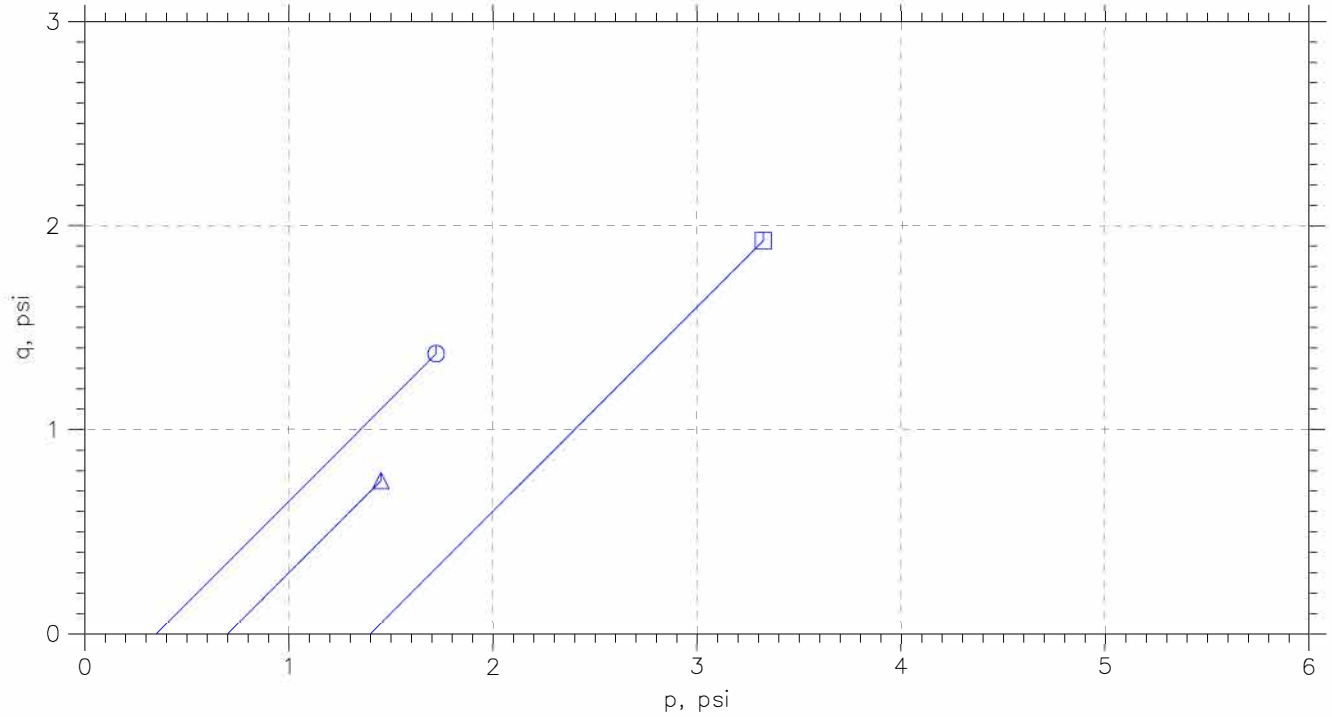


Symbol	⊙	△		
Sample No.	190927	190927		
Test No.	UU-4-1	UU-4-2		
Depth	30-32 ft	30-32 ft		
Tested by	trm	trm		
Test Date	12/16/19	12/16/19		
Checked by	anm	anm		
Check Date	2/06/20	2/06/20		
Diameter, in	1.93	1.93		
Height, in	4.2	4.4		
Water Content, %	31.0	29.8		
Dry Density, pcf	81.27	77.63		
Saturation, %	79.4	69.7		
Void Ratio	1.04	1.13		
Confining Stress, psi	2.5	10		
Undrained Strength, psi	2.573	16.86		
Max. Dev. Stress, psi	5.145	33.71		
Strain at Failure, %	1.75	10.8		
Strain Rate, %/min	1	1		
Estimated Specific Gravity	2.65	2.65		
Liquid Limit	---	---		
Plastic Limit	---	---		
Plasticity Index	---	---		

	Project: Gasco PDI	
	Location: ---	
	Project No.: GTX-310685	
	Boring No.: PDI-116SPT	
	Sample Type: intact	
	Description: Moist, dark gray sand with gravel	
Remarks: System F		

Phase calculations based on start and end of test.

# UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850



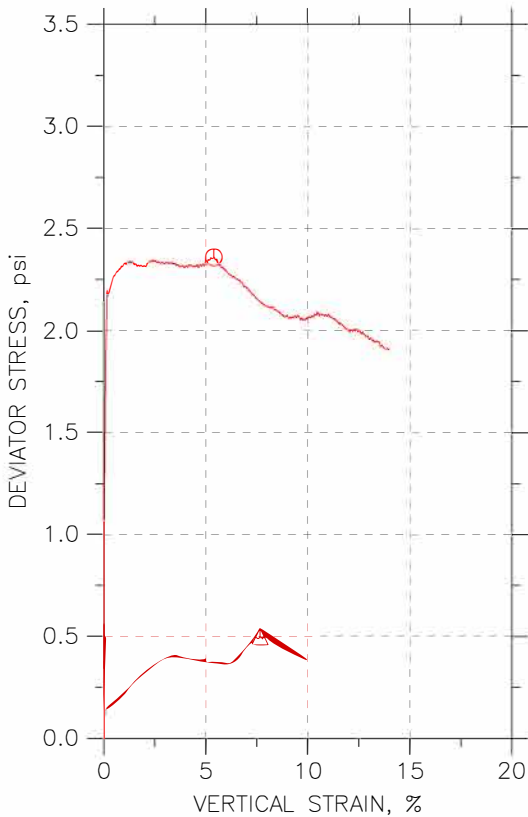
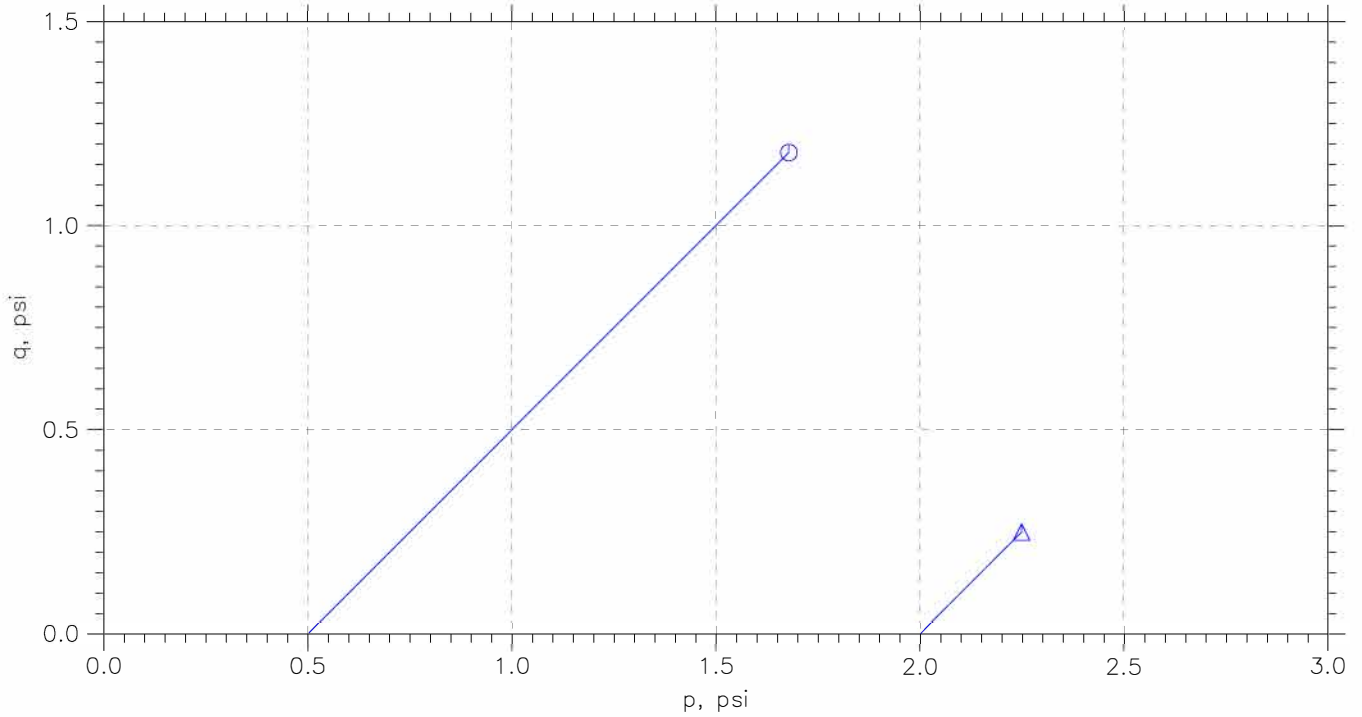
Symbol	⊙	△	□	
Sample No.	191014	191014	191014	
Test No.	UU-7-1	UU-7-2	UU-7-3	
Depth	4.5-6.5 ft	4.5-6.5 ft	4.5-6.5 ft	
Tested by	trm	trm	trm	
Test Date	12/16/19	12/16/19	12/16/19	
Checked by	anm	anm	anm	
Check Date	2/06/20	2/06/20	2/06/20	
Diameter, in	1.93	1.93	1.93	
Height, in	4.5	4.4	4.3	
Water Content, %	83.2	82.5	62.6	
Dry Density, pcf	51.13	50.66	60.49	
Saturation, %	97.9	95.7	94.6	
Void Ratio	2.3	2.33	1.79	
Confining Stress, psi	0.35	0.7	1.4	
Undrained Strength, psi	1.372	0.751	1.926	
Max. Dev. Stress, psi	2.744	1.502	3.852	
Strain at Failure, %	2.3	9.98	10.8	
Strain Rate, %/min	1	1	1	
Estimated Specific Gravity	2.7	2.7	2.7	
Liquid Limit	74	74	74	
Plastic Limit	38	38	38	
Plasticity Index	36	36	36	

	Project: Gasco PDI	
	Location: ---	
	Project No.: GTX-31685	
	Boring No.: PDI-118SPT	
	Sample Type: intact	
	Description: Wet, olive gray silt	
Remarks: System R		

Phase calculations based on start and end of test.



# UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850

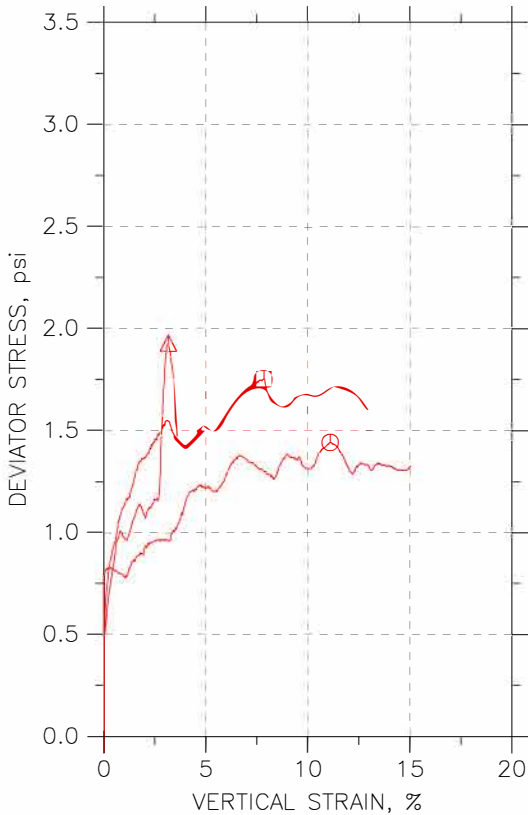
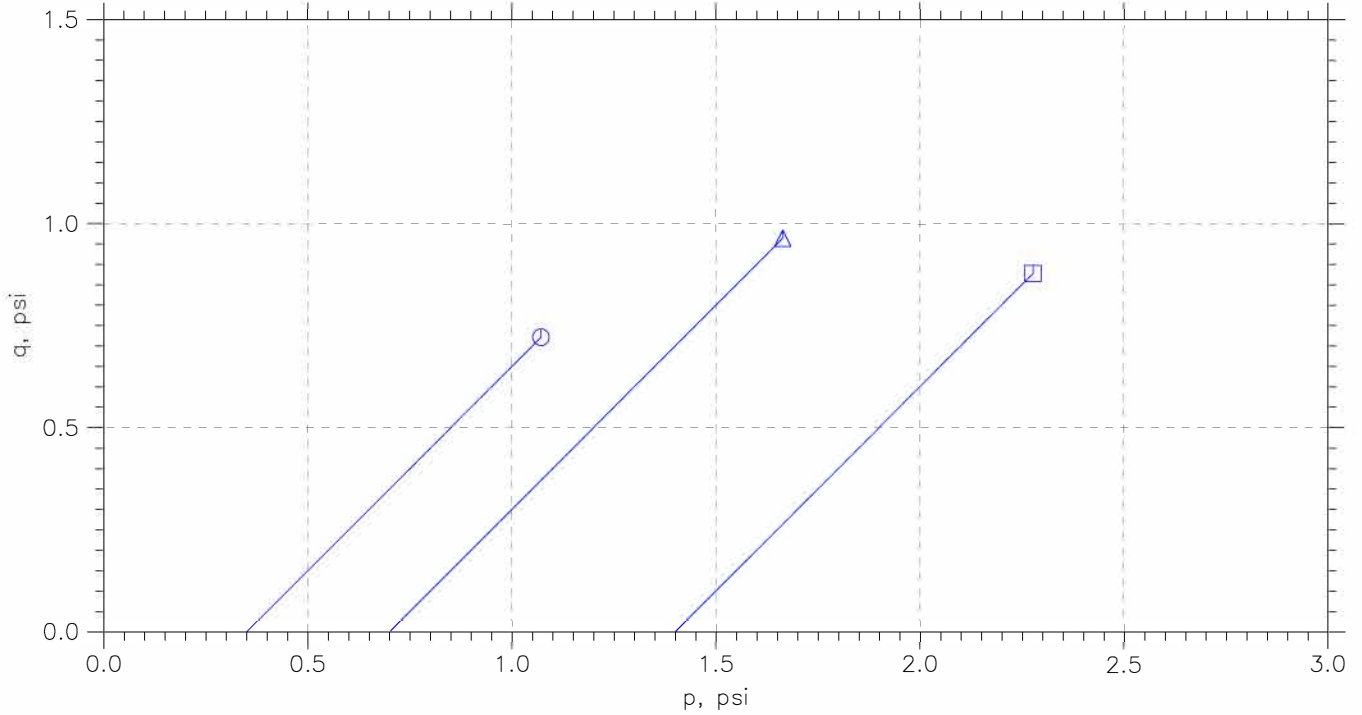


Symbol	⊙	△		
Sample No.	190930	190930		
Test No.	UU-5-1	UU-5-2		
Depth	6-8 ft	6-8 ft		
Tested by	trm	trm		
Test Date	12/16/19	12/16/19		
Checked by	anm	anm		
Check Date	2/06/20	2/06/20		
Diameter, in	1.93	1.93		
Height, in	4.05	4.2		
Water Content, %	84.5	77.3		
Dry Density, pcf	41.05	54.38		
Saturation, %	73.5	99.4		
Void Ratio	3.11	2.1		
Confining Stress, psi	0.5	2		
Undrained Strength, psi	1.179	0.2495		
Max. Dev. Stress, psi	2.358	0.499		
Strain at Failure, %	5.4	7.65		
Strain Rate, %/min	1	1		
Estimated Specific Gravity	2.7	2.7		
Liquid Limit	76	76		
Plastic Limit	39	39		
Plasticity Index	37	37		

	Project: Gasco PDI	
	Location: ---	
	Project No.: GTX-31685	
	Boring No.: PDI-121SPT	
	Sample Type: intact	
	Description: Wet, olive gray silt	
Remarks: System R		

Phase calculations based on start and end of test.

# UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850

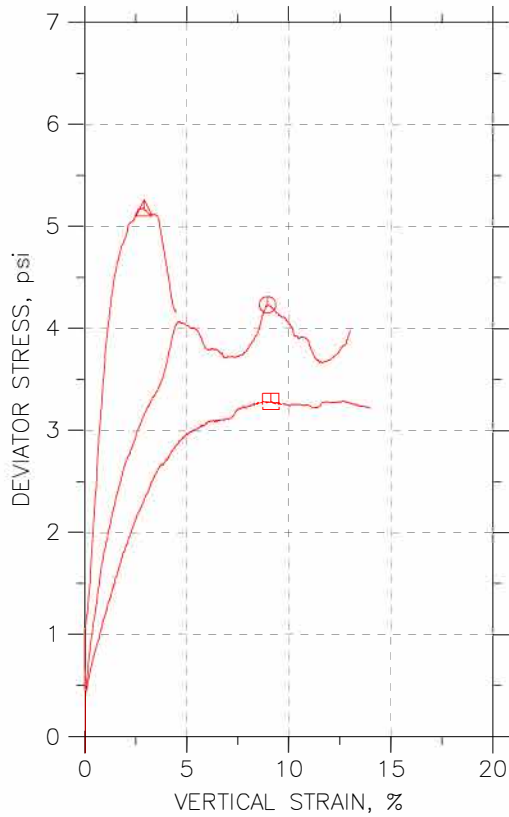
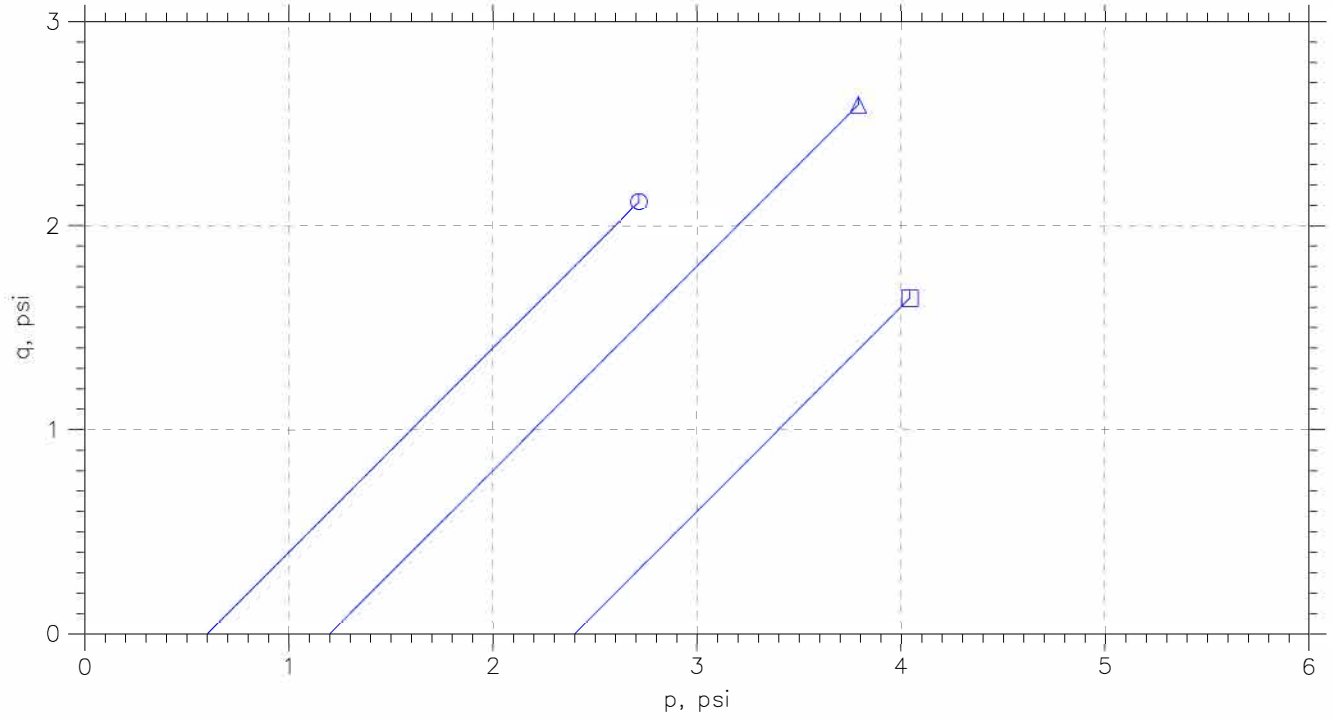


Symbol	○	△	□	
Sample No.	190924	190924	190924	
Test No.	UU-3-1	UU-3-2	UU-3-3	
Depth	4.5-6.5 ft	4.5-6.5 ft	4.5-6.5 ft	
Tested by	trm	trm	trm	
Test Date	12/16/19	12/17/19	12/16/19	
Checked by	anm	anm		
Check Date	2/06/20	2/06/20	2/06/20	
Diameter, in	1.93	1.93	1.93	
Height, in	4.3	4.4	4.35	
Water Content, %	69.2	73.4	78.6	
Dry Density, pcf	57.06	54.29	51.85	
Saturation, %	95.6	94.1	94.3	
Void Ratio	1.95	2.1	2.25	
Confining Stress, psi	0.35	0.7	1.4	
Undrained Strength, psi	0.7212	0.9639	0.8775	
Max. Dev. Stress, psi	1.442	1.928	1.755	
Strain at Failure, %	11.1	3.16	7.86	
Strain Rate, %/min	1	1	1	
Estimated Specific Gravity	2.7	2.7	2.7	
Liquid Limit	50	50	50	
Plastic Limit	33	33	33	
Plasticity Index	17	17	17	

	Project: Gasco PDI	
	Location: ---	
	Project No.: GTX-310685	
	Boring No.: PDI-123SPT	
	Sample Type: intact	
	Description: Wet, olive gray silt	
Remarks: System PP		

Phase calculations based on start and end of test.

# UNCONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D2850



Symbol	⊙	△	□	
Sample No.	191008	191008	191008	
Test No.	UU-6-1	UU-6-2	UU-6-3	
Depth	7.5-9.5 ft	7.5-9.5 ft	7.5-9.5 ft	
Tested by	trm	trm	trm	
Test Date	12/17/19	12/17/19	12/16/19	
Checked by	anm	anm	anm	
Check Date	2/06/20	2/06/20	2/06/20	
Diameter, in	1.93	1.93	1.93	
Height, in	4.6	4.7	4.65	
Water Content, %	67.1	78.2	75.8	
Dry Density, pcf	58.57	51.91	53.09	
Saturation, %	96.5	93.9	94.1	
Void Ratio	1.88	2.25	2.18	
Confining Stress, psi	0.6	1.2	2.4	
Undrained Strength, psi	2.116	2.591	1.644	
Max. Dev. Stress, psi	4.232	5.182	3.289	
Strain at Failure, %	8.96	2.91	9.13	
Strain Rate, %/min	1	1	1	
Estimated Specific Gravity	2.7	2.7	2.7	
Liquid Limit	58	58	58	
Plastic Limit	36	36	36	
Plasticity Index	22	22	22	

	Project: Gasco PDI	
	Location: ---	
	Project No.: GTX-310685	
	Boring No.: PDI-114SPT	
	Sample Type: intact	
	Description: Wet, gray silt	
Remarks: System QQ		

Phase calculations based on start and end of test.



Client: Anchor QEA, LLC

Project Name: Gasco PDI

Project Location: ---

Project Number: GTX-310685

Tested By: trm

Checked By: njh

Boring ID: PDI-107SPT

Preparation: intact

Description: Wet, dark gray sand

Classification: ---

Group Symbol: ---

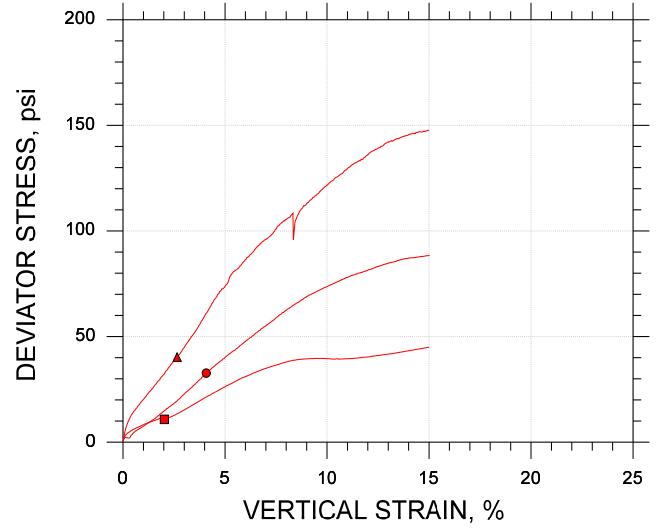
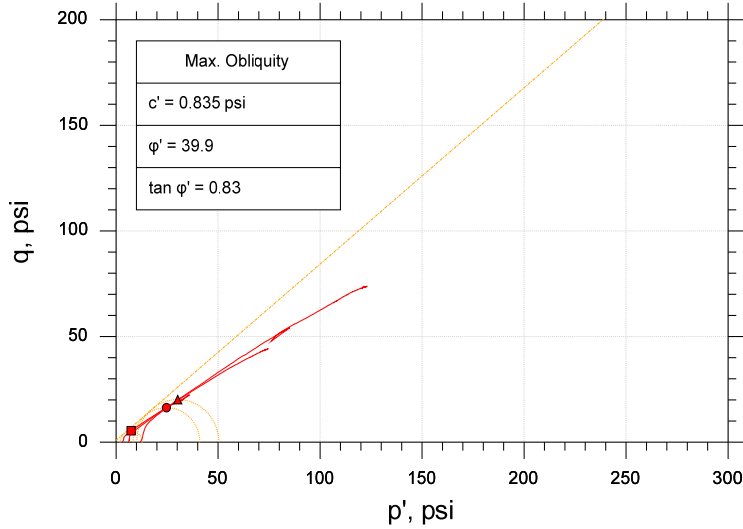
Liquid Limit: ---

Plastic Limit: ---

Plasticity Index: ---

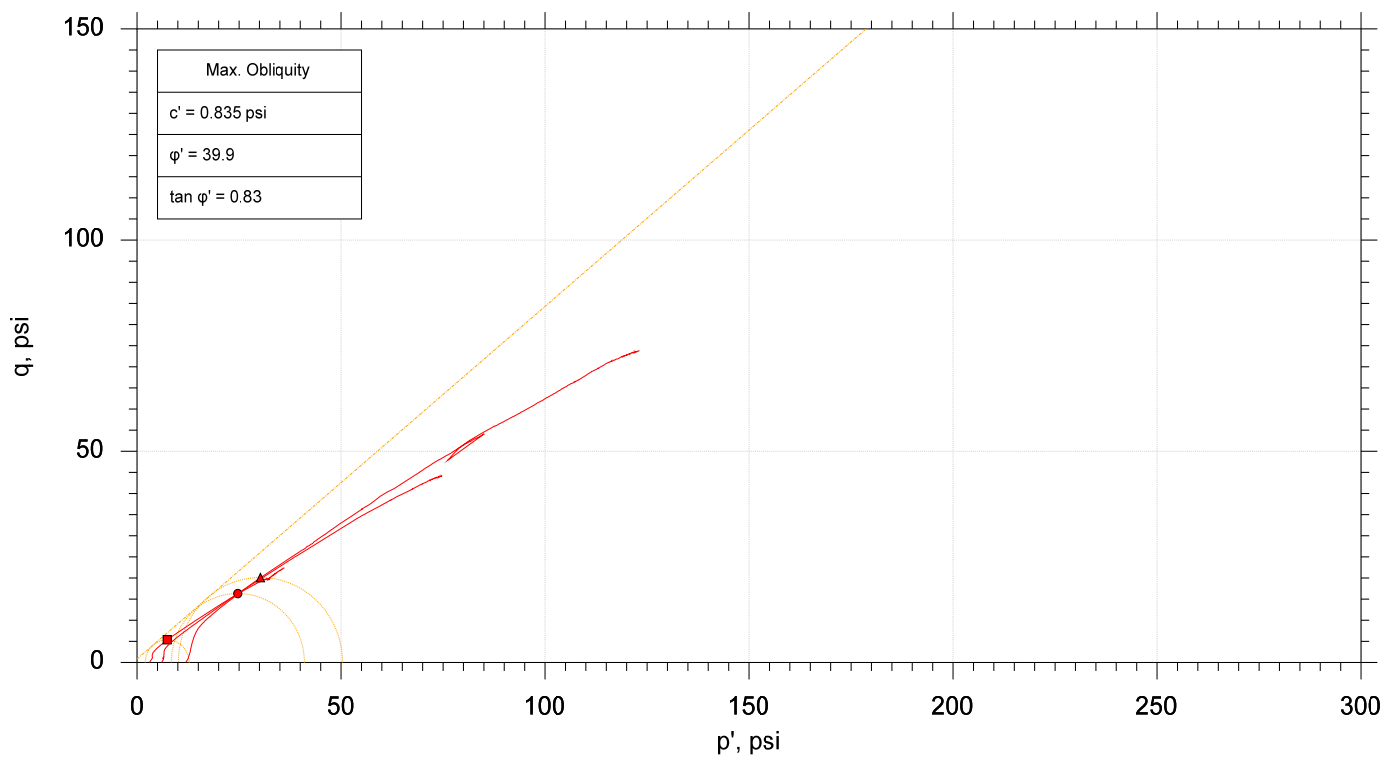
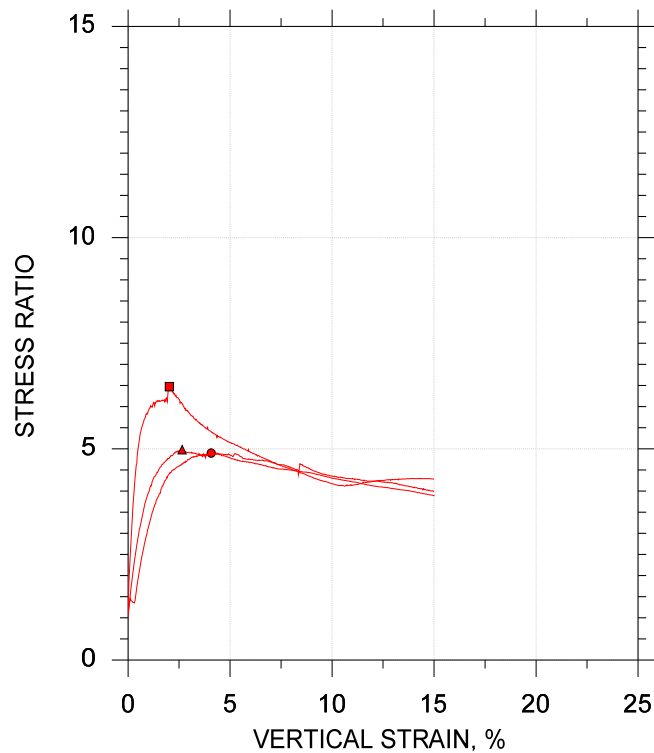
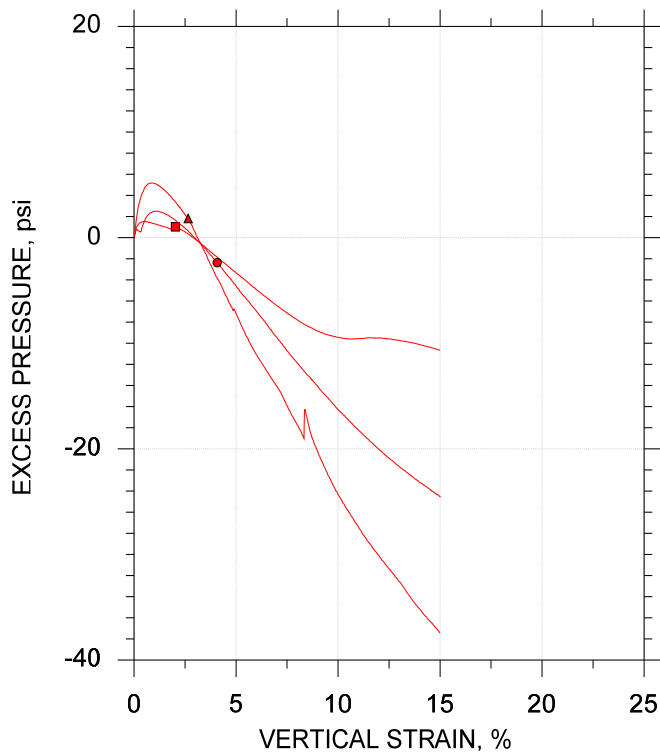
Estimated Specific Gravity: 2.65

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	■	●	▲	
Sample ID	190924	190924	190924	
Depth, ft	39-41	39-41	39-41	
Test Number	CU-8-1	CU-8-2	CU-8-3	
Initial	Height, in	4.500	4.200	4.500
	Diameter, in	1.930	1.930	1.930
	Moisture Content (from Cuttings), %	34.2	33.5	33.9
	Dry Density, pcf	79.6	82.9	73.8
	Saturation (Wet Method), %	84.0	89.4	72.5
	Void Ratio	1.08	0.995	1.24
Before Shear	Moisture Content, %	41.0	37.5	48.6
	Dry Density, pcf	79.2	82.9	72.3
	Cross-sectional Area (Method A), in <sup>2</sup>	2.933	2.927	3.002
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.09	0.995	1.29
	Back Pressure, psi	156.0	161.0	161.0
Vertical Effective Consolidation Stress, psi	3.007	6.003	11.94	
Horizontal Effective Consolidation Stress, psi	2.994	5.987	11.96	
Vertical Strain after Consolidation, %	0.0000	0.01899	0.3484	
Volumetric Strain after Consolidation, %	0.1850	-0.07463	-2.490	
Time to 50% Consolidation, min	---	---	0.1600	
Shear Strength, psi	5.399	16.33	20.12	
Strain at Failure, %	2.03	4.08	2.65	
Strain Rate, %/min	0.01600	0.01600	0.01600	
Deviator Stress at Failure, psi	10.80	32.65	40.24	
Effective Minor Principal Stress at Failure, psi	1.973	8.368	10.11	
Effective Major Principal Stress at Failure, psi	12.77	41.02	50.35	
B-Value	0.95	0.95	0.99	
Notes:	<ul style="list-style-type: none"> <li>- Before Shear Saturation set to 100% for phase calculation.</li> <li>- Moisture Content determined by ASTM D2216.</li> <li>- Deviator Stress includes membrane correction.</li> <li>- Values for c and <math>\phi</math> determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.</li> </ul>			
Remarks:				

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

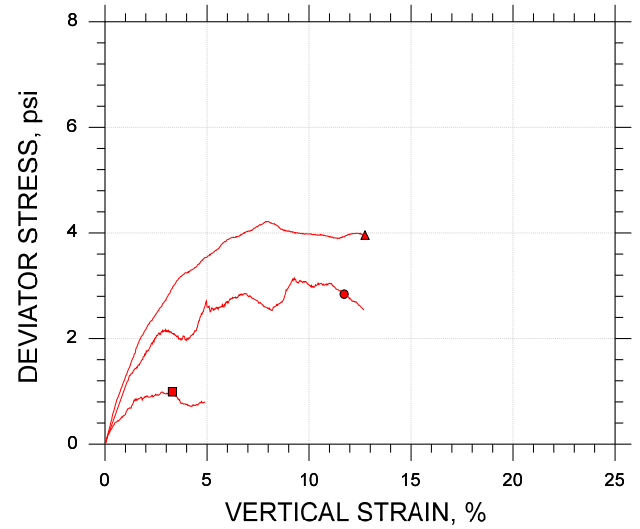
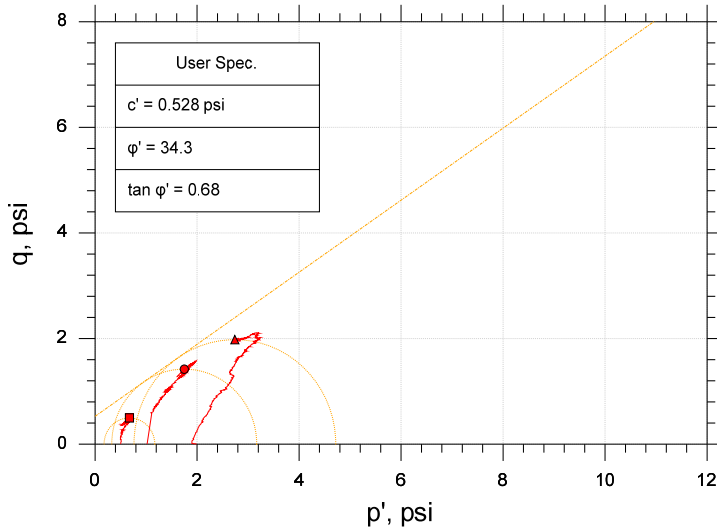


	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	190924	CU-8-1	39-41	trm	12/13/19	njh	2/7/2020	310685-CU-8-1n.dat
●	190924	CU-8-2	39-41	trm	12/13/19	njh	2/7/2020	310685-CU-8-2n.dat
▲	190924	CU-8-3	39-41	trm	12/12/19	njh	2/7/2020	310685-CU-8-3n.dat

	Project: Gasco PDI		Location: --		Project No.: GTX-310685	
	Boring No.: PDI-107SPT		Sample Type: intact			
	Description: Wet, dark gray sand					
	Remarks: System R					

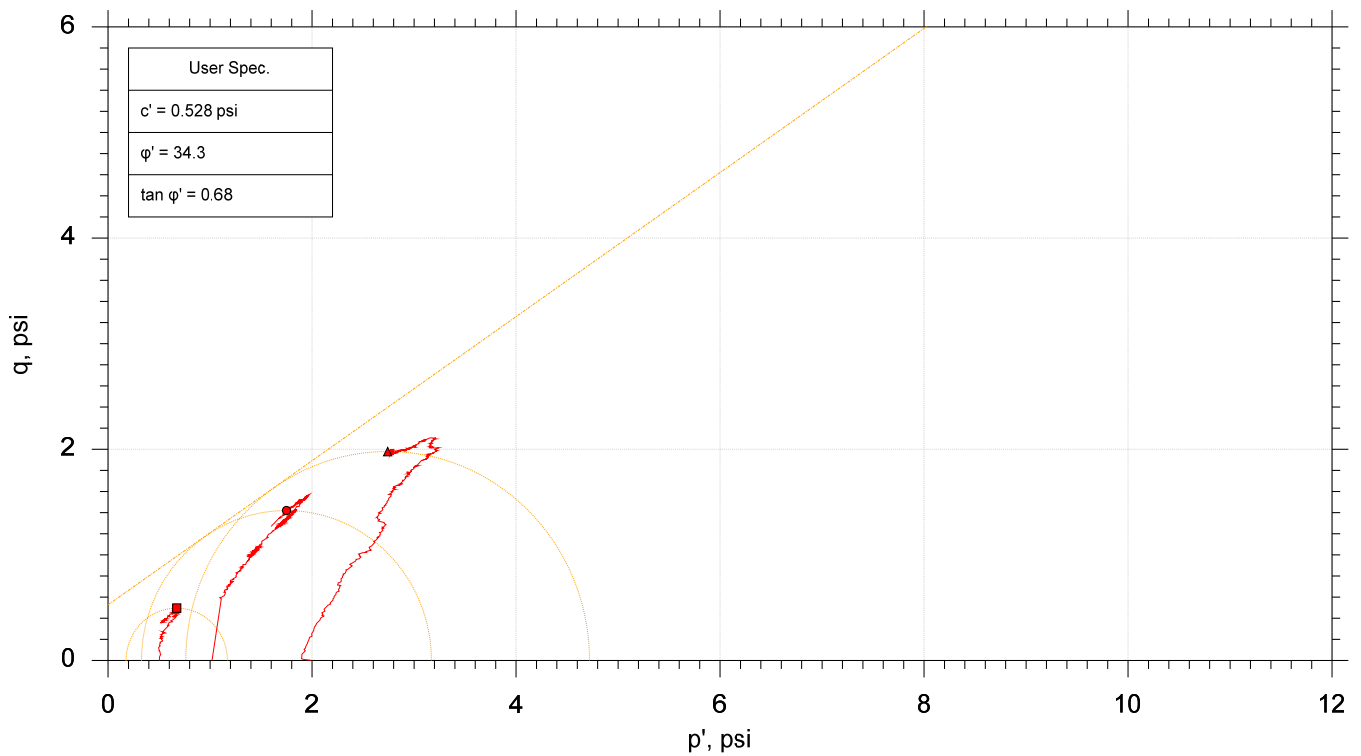
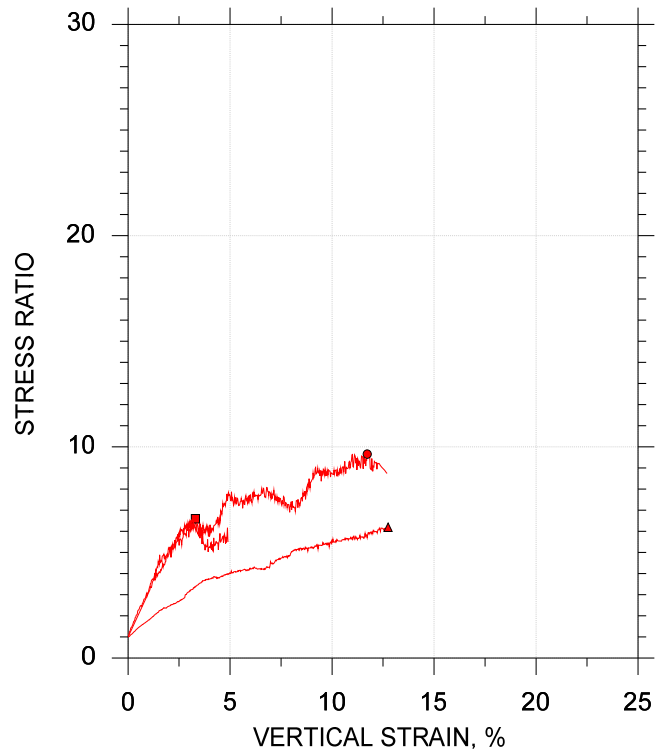
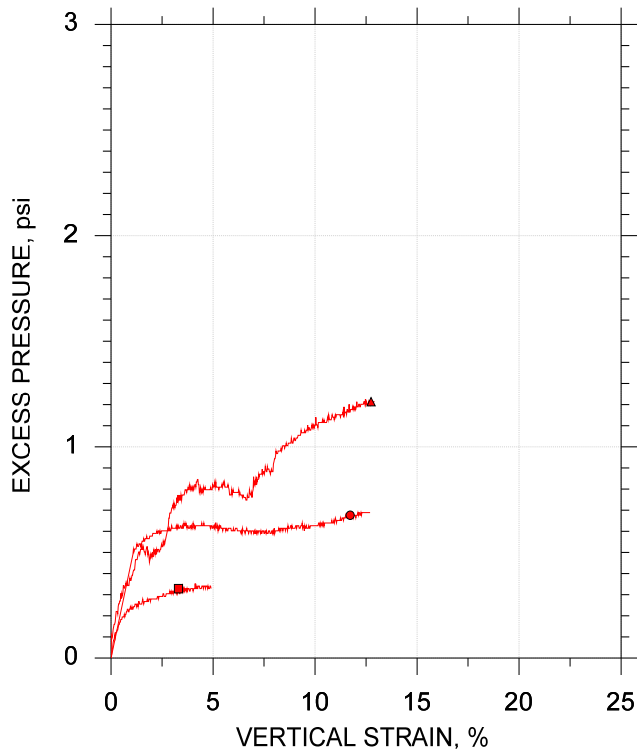
Client: Anchor QEA, LLC	
Project Name: Gasco PDI	
Project Location: ---	
Project Number: GTX-310685	
Tested By: trm	Checked By: njh
Boring ID: PDI-109SPT	
Preparation: intact	
Description: Wet, dark olive gray silt	
Classification: ---	
Group Symbol: ---	
Liquid Limit: 75	Plastic Limit: 39
Plasticity Index: 36	Estimated Specific Gravity: 2.7

**CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767**



Symbol	■	●	▲	
Sample ID	191004	191004	191004	
Depth, ft	6.5-8.5	6.5-8.5	6.5-8.5	
Test Number	CU-5-1	CU-5-2	CU-5-3	
Initial	Height, in	4.200	4.550	4.600
	Diameter, in	1.930	1.930	1.930
	Moisture Content (from Cuttings), %	76.1	90.2	82.4
	Dry Density, pcf	55.1	47.9	50.6
	Saturation (Wet Method), %	99.9	96.6	95.5
	Void Ratio	2.06	2.52	2.33
Before Shear	Moisture Content, %	67.0	91.5	87.2
	Dry Density, pcf	60.0	48.6	50.3
	Cross-sectional Area (Method A), in <sup>2</sup>	2.764	2.882	2.943
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.81	2.47	2.35
	Back Pressure, psi	113.2	40.98	160.8
Vertical Effective Consolidation Stress, psi	0.4813	1.022	1.979	
Horizontal Effective Consolidation Stress, psi	0.5062	1.017	1.988	
Vertical Strain after Consolidation, %	0.3160	0.002070	0.1552	
Volumetric Strain after Consolidation, %	0.8702	1.559	0.04152	
Time to 50% Consolidation, min	---	---	9.600	
Shear Strength, psi	0.4964	1.421	1.979	
Strain at Failure, %	3.30	11.7	12.7	
Strain Rate, %/min	0.01600	0.01600	0.01600	
Deviator Stress at Failure, psi	0.9928	2.841	3.958	
Effective Minor Principal Stress at Failure, psi	0.1773	0.3282	0.7621	
Effective Major Principal Stress at Failure, psi	1.170	3.169	4.720	
B-Value	0.96	0.98	0.95	
Notes:				
<ul style="list-style-type: none"> <li>- Before Shear Saturation set to 100% for phase calculation.</li> <li>- Moisture Content determined by ASTM D2216.</li> <li>- Atterberg Limits determined by ASTM D4318.</li> <li>- Deviator Stress includes membrane correction.</li> <li>- Values for c and φ determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.</li> </ul>				
Remarks:				

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	191004	CU-5-1	6.5-8.5	trm	12/5/19	njh	2/6/2020	310685-CU-5-1n.dat
●	191004	CU-5-2	6.5-8.5	jlw/trm	12/05/19	njh	2/6/2020	310685-CU-5-2n.dat
▲	191004	CU-5-3	6.5-8.5	jlw/trm	12/05/19	njh	2/6/2020	310685-CU-5-3n.dat

	Project: Gasco PDI	Location: --	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Sample Type: intact	
	Description: Wet, dark olive gray silt		
	Remarks: System E, Test Specimen CU-5-1 was not used in determining cohesion and friction values		



Client: Anchor QEA, LLC

Project Name: Gasco PDI

Project Location: ---

Project Number: GTX-310685

Tested By: md

Checked By: njh

Boring ID: PDI-114SPT

Preparation: intact

Description: Wet, gray clay

Classification: ---

Group Symbol: ---

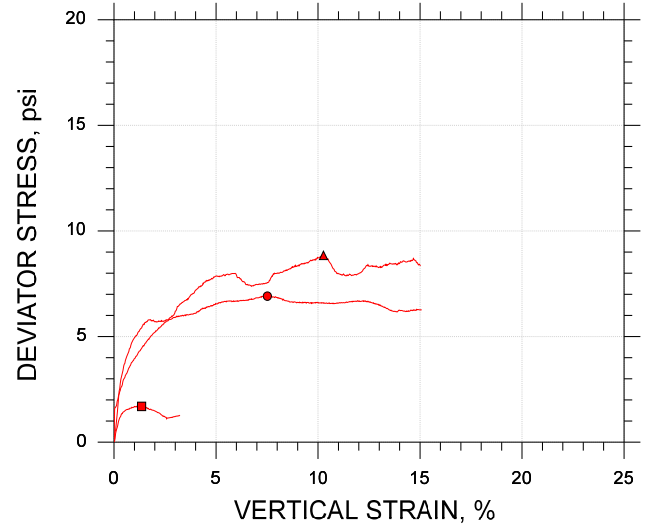
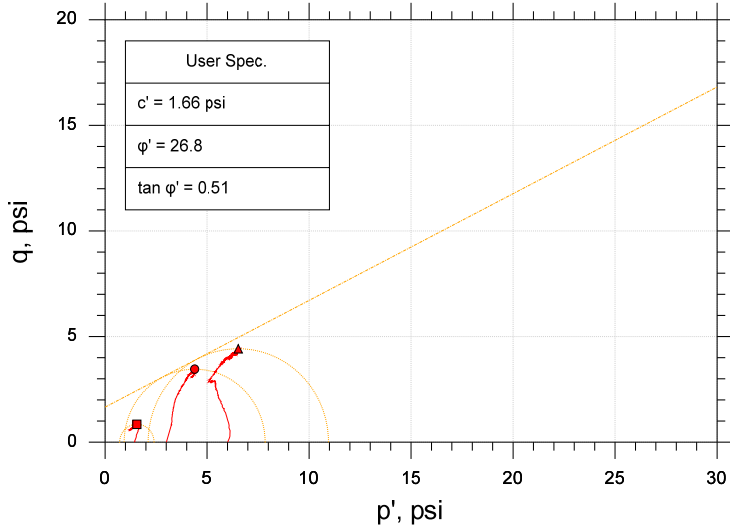
Liquid Limit: ---

Plastic Limit: ---

Plasticity Index: ---

Estimated Specific Gravity: 2.7

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

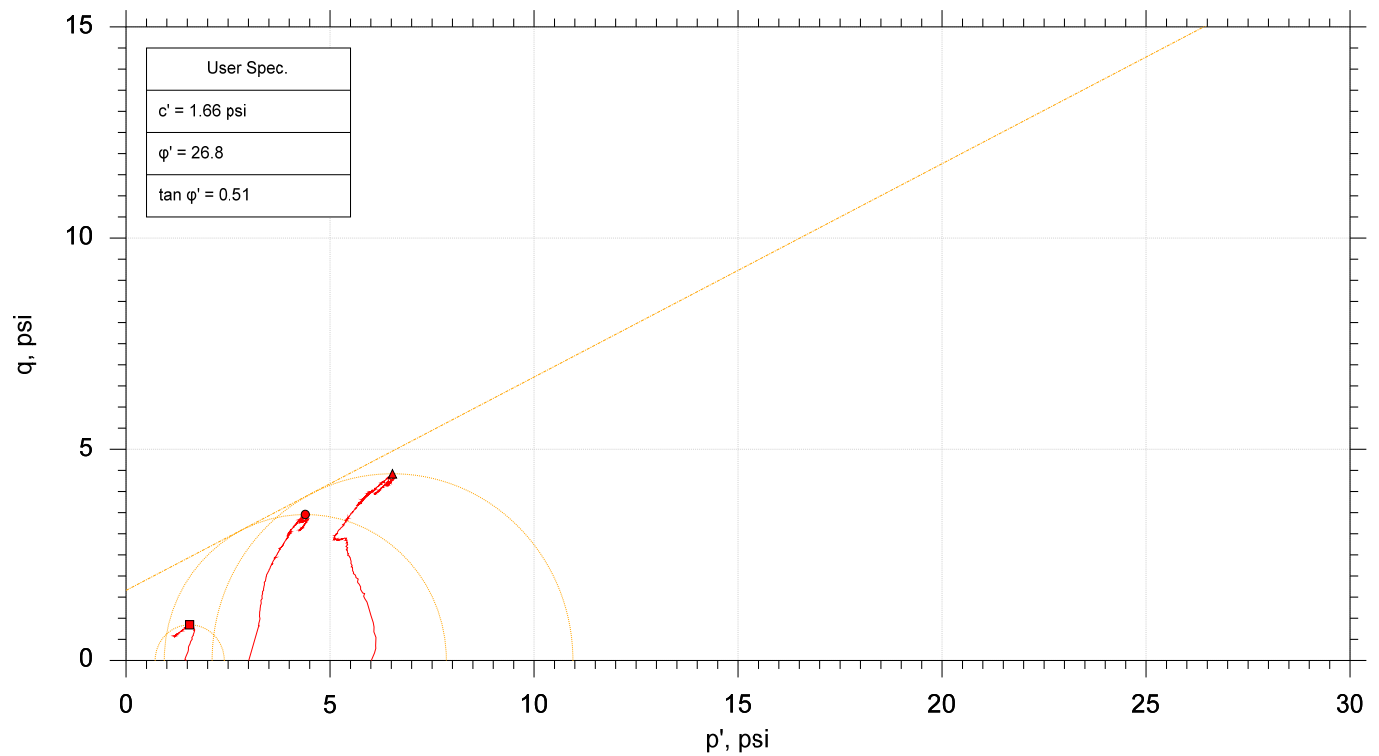
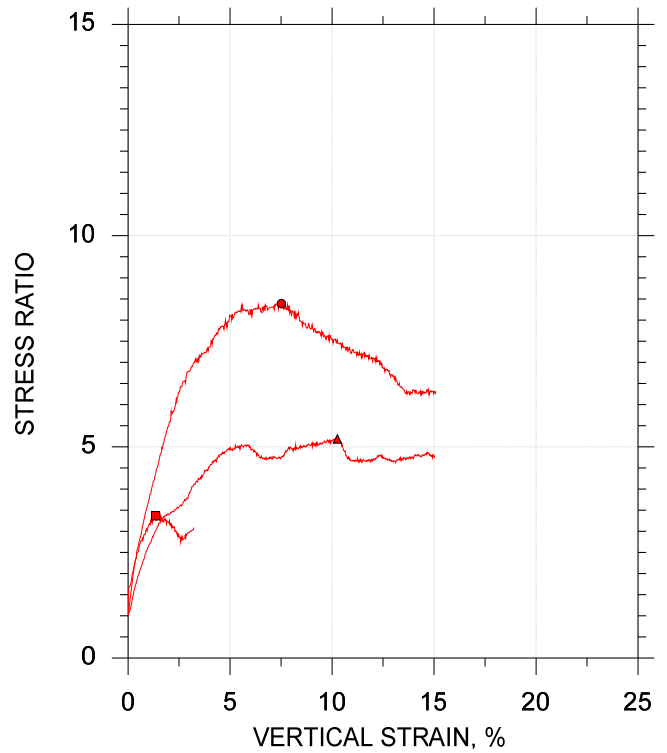
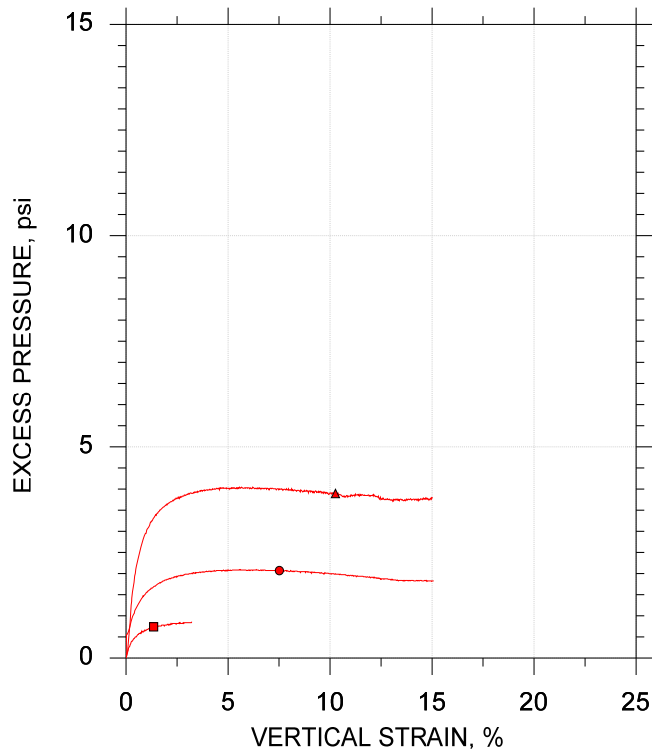


Symbol	■	●	▲	
Sample ID	191008	191008	191008	
Depth, ft	17.5-19.5	17.5-19.5	17.5-19.5	
Test Number	CU-3-1	CU-3-2	CU-3-3	
Initial	Height, in	4.000	4.180	4.400
	Diameter, in	1.930	1.930	1.930
	Moisture Content (from Cuttings), %	60.1	76.1	65.6
	Dry Density, pcf	63.3	55.1	60.6
	Saturation (Wet Method), %	97.6	99.9	99.4
	Void Ratio	1.66	2.06	1.78
Before Shear	Moisture Content, %	41.2	73.2	59.1
	Dry Density, pcf	79.8	56.6	65.0
	Cross-sectional Area (Method A), in <sup>2</sup>	2.419	2.867	2.792
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.11	1.98	1.59
	Back Pressure, psi	151.0	103.0	161.0
Vertical Effective Consolidation Stress, psi	1.408	2.963	5.947	
Horizontal Effective Consolidation Stress, psi	1.474	3.007	6.008	
Vertical Strain after Consolidation, %	0.8168	0.5256	0.7459	
Volumetric Strain after Consolidation, %	12.13	2.387	2.207	
Time to 50% Consolidation, min	---	---	4.400	
Shear Strength, psi	0.8463	3.457	4.421	
Strain at Failure, %	1.35	7.51	10.3	
Strain Rate, %/min	0.01600	0.01600	0.01600	
Deviator Stress at Failure, psi	1.693	6.913	8.841	
Effective Minor Principal Stress at Failure, psi	0.7134	0.9349	2.110	
Effective Major Principal Stress at Failure, psi	2.406	7.848	10.95	
B-Value	1.0	0.95	0.97	
Notes:	<ul style="list-style-type: none"> <li>- Before Shear Saturation set to 100% for phase calculation.</li> <li>- Moisture Content determined by ASTM D2216.</li> <li>- Deviator Stress includes membrane correction.</li> <li>- Values for c and <math>\phi</math> determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.</li> </ul>			
Remarks:				


System QQ, Test Specimen CU-3-1 was not used in determining cohesion and friction values



CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	191008	CU-3-1	17.5-19.5	md	11/30/19	njh	1/28/2020	310685-CU-3-1n.dat
●	191008	CU-3-2	17.5-19.5	md	11/30/19	njh	1/28/2020	310685-CU-3-2n.dat
▲	191008	CU-3-3	17.5-19.5	md	11/30/19	njh	1/28/2020	310685-CU-3-3n.dat

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Sample Type: intact	
	Description: Wet, gray clay		
	Remarks: System QQ, Test Specimen CU-3-1 was not used in determining cohesion and friction values		



Client: Anchor QEA, LLC

Project Name: Gasco PDI

Project Location: ---

Project Number: GTX-310685

Tested By: md

Checked By: njh

Boring ID: PDI-117SPT

Preparation: intact

Description: Moist, dark brownish gray silty sand

Classification: ---

Group Symbol: ---

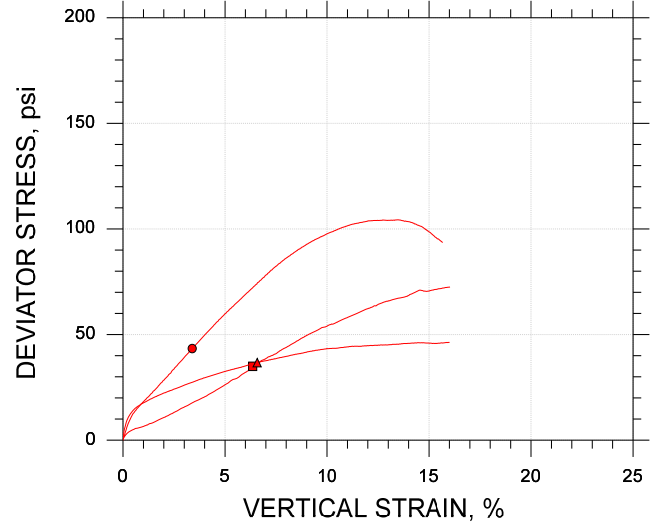
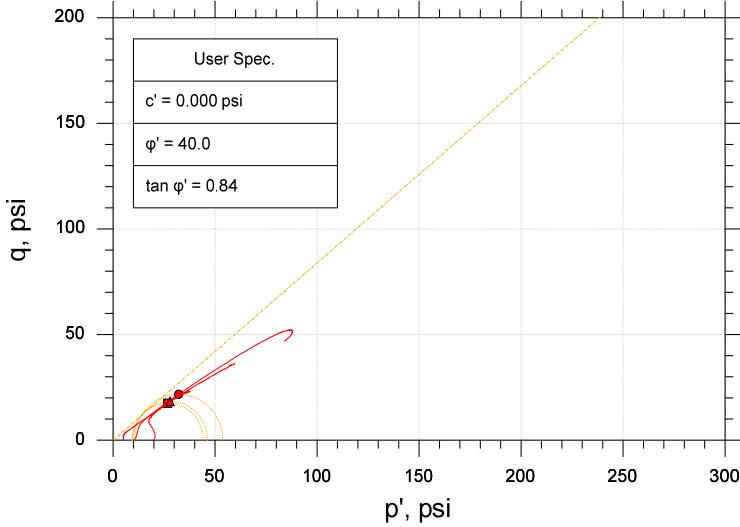
Liquid Limit: ---

Plastic Limit: ---

Plasticity Index: ---

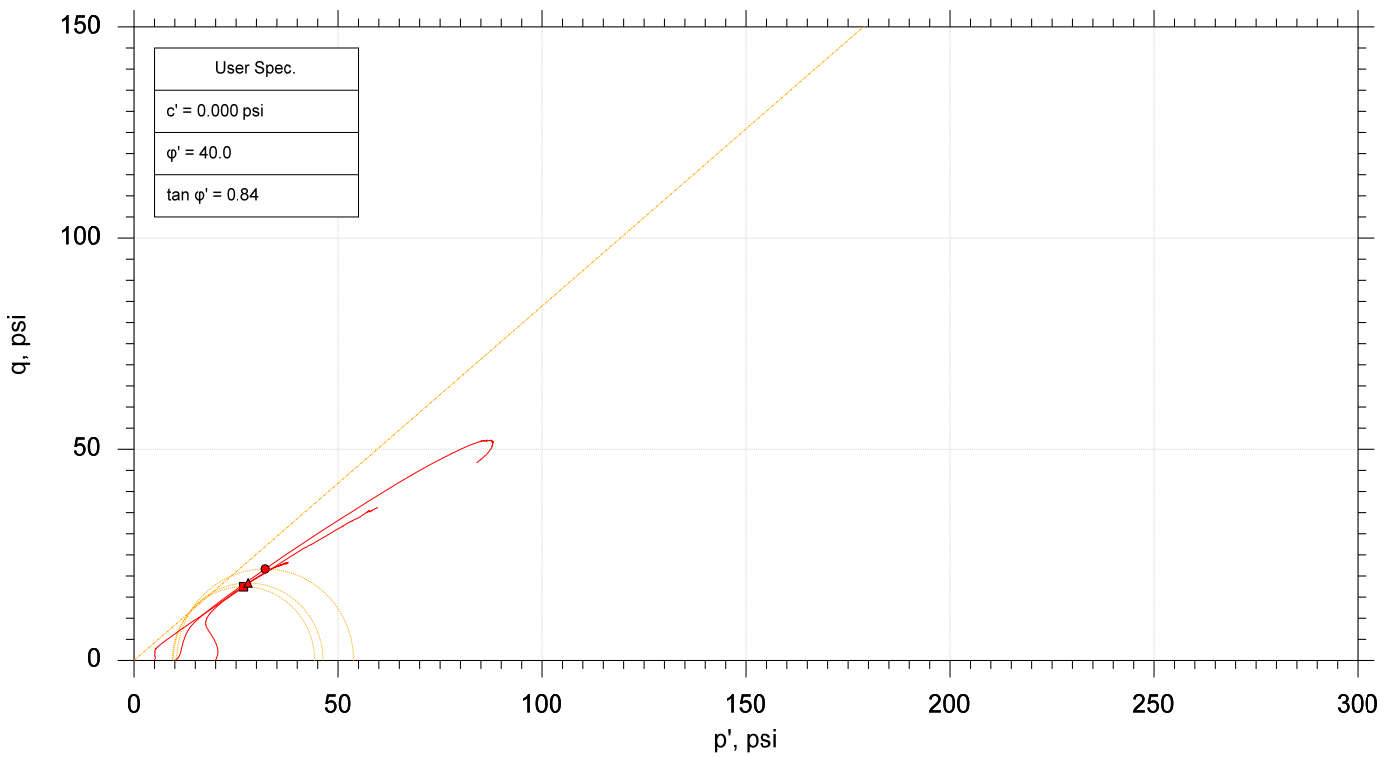
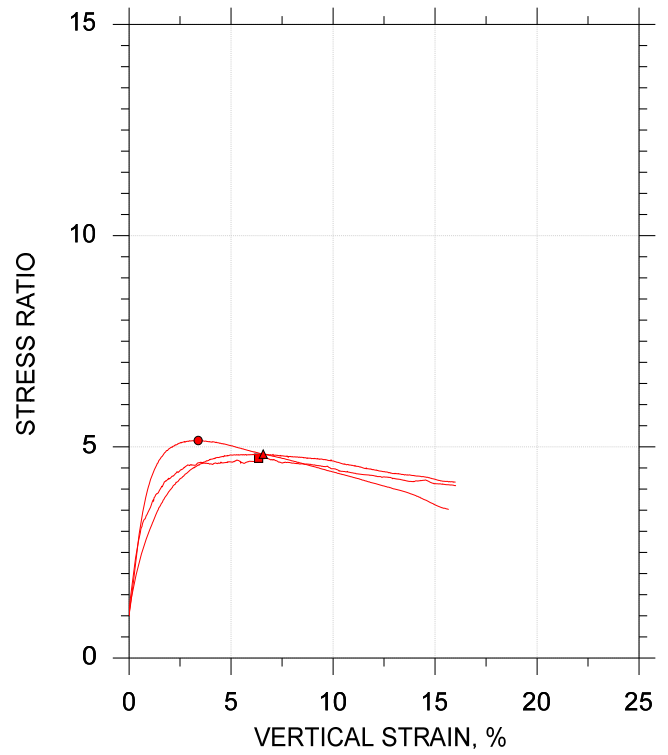
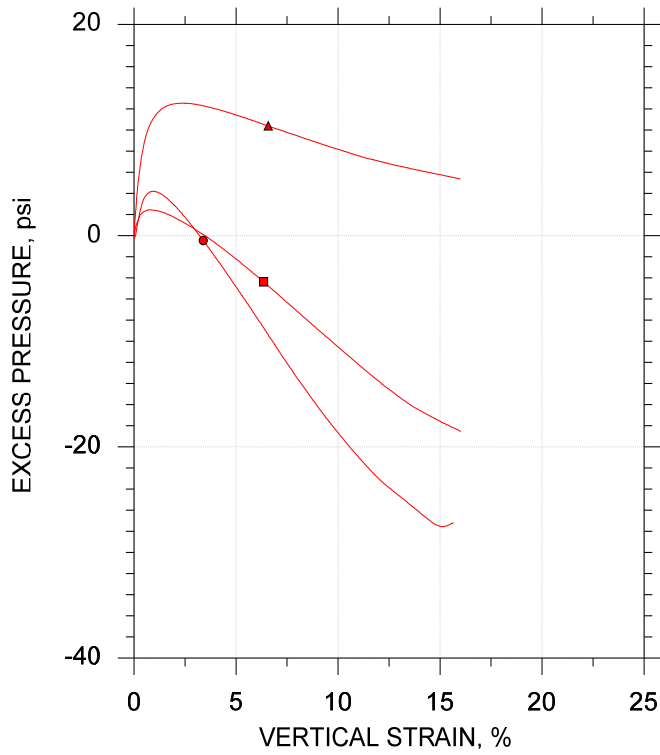
Estimated Specific Gravity: 2.65

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767




Symbol	■	●	▲	
Sample ID	191002	191002	191002	
Depth, ft	58.5-60.5	58.5-60.5	58.5-60.5	
Test Number	CU-1-1	CU-1-2	CU-1-3	
Initial	Height, in	4.400	4.500	4.500
	Diameter, in	1.930	1.930	1.930
	Moisture Content (from Cuttings), %	29.1	30.7	32.8
	Dry Density, pcf	88.3	87.0	85.2
	Saturation (Wet Method), %	88.2	90.3	92.2
	Void Ratio	0.874	0.902	0.941
Before Shear	Moisture Content, %	32.0	33.1	25.9
	Dry Density, pcf	89.5	88.1	98.1
	Cross-sectional Area (Method A), in <sup>2</sup>	2.899	2.901	2.663
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.849	0.878	0.687
	Back Pressure, psi	135.0	151.0	151.0
Vertical Effective Consolidation Stress, psi	4.971	9.967	19.87	
Horizontal Effective Consolidation Stress, psi	4.986	9.995	19.97	
Vertical Strain after Consolidation, %	0.2302	0.3939	1.304	
Volumetric Strain after Consolidation, %	0.6439	1.229	3.669	
Time to 50% Consolidation, min	---	---	0.2500	
Shear Strength, psi	17.46	21.68	18.36	
Strain at Failure, %	6.35	3.39	6.58	
Strain Rate, %/min	0.01600	0.01600	0.01600	
Deviator Stress at Failure, psi	34.93	43.36	36.71	
Effective Minor Principal Stress at Failure, psi	9.355	10.45	9.586	
Effective Major Principal Stress at Failure, psi	44.28	53.81	46.30	
B-Value	0.95	0.96	0.96	
Notes:	<ul style="list-style-type: none"> <li>- Before Shear Saturation set to 100% for phase calculation.</li> <li>- Moisture Content determined by ASTM D2216.</li> <li>- Deviator Stress includes membrane correction.</li> <li>- Values for c and φ determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.</li> </ul>			
Remarks:				

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	191002	CU-1-1	58.5-60.5	md	11/29/19	njh	1/28/2020	310685-CU-1-1n.dat
●	191002	CU-1-2	58.5-60.5	md	11/29/19	njh	1/28/2020	310685-CU-1-2n.dat
▲	191002	CU-1-3	58.5-60.5	md	11/29/19	njh	1/28/2020	310685-CU-1-3n.dat

	Project: Gasco PDI	Location: --	Project No.: GTX-310685
	Boring No.: PDI-117SPT	Sample Type: intact	
	Description: Moist, dark brownish gray silty sand		
	Remarks: System R		



Client: Anchor QEA, LLC

Project Name: Gasco PDI

Project Location: ---

Project Number: GTX-310685

Tested By: md

Checked By: njh

Boring ID: PDI-118SPT

Preparation: intact

Description: Wet, black silt

Classification: ---

Group Symbol: ---

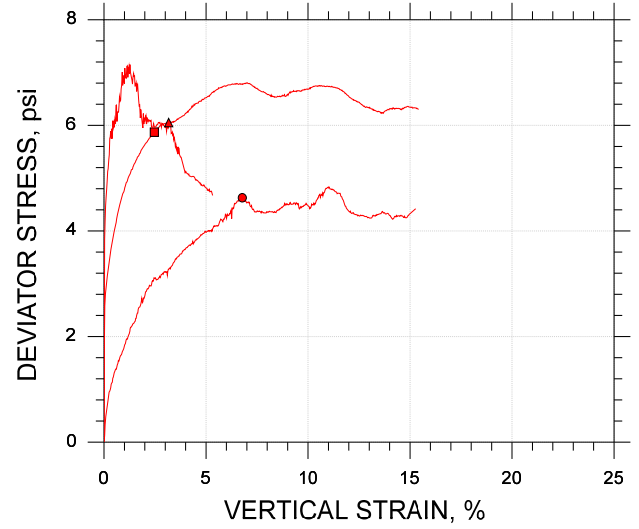
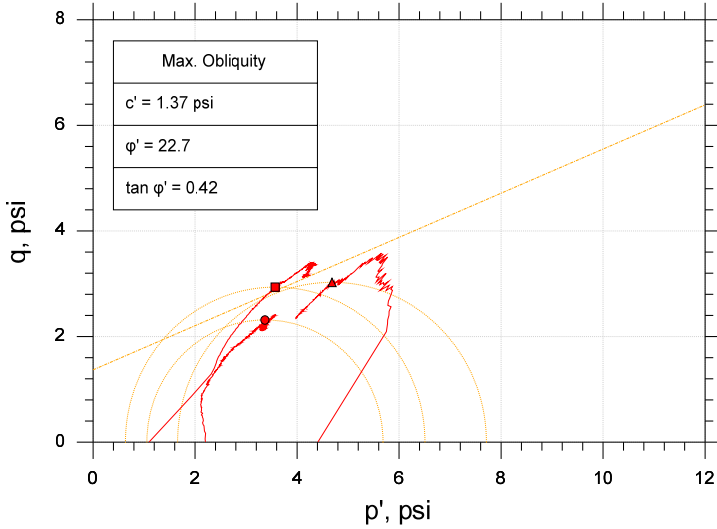
Liquid Limit: ---

Plastic Limit: ---

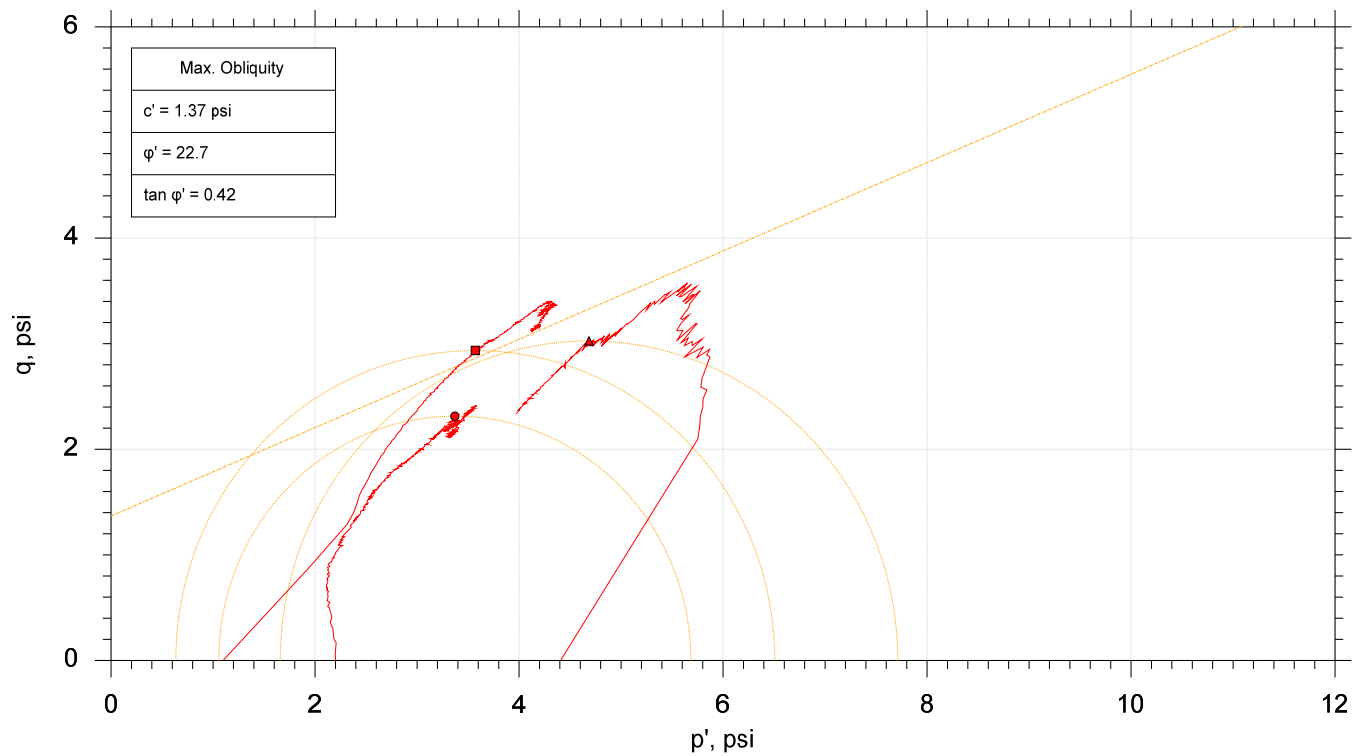
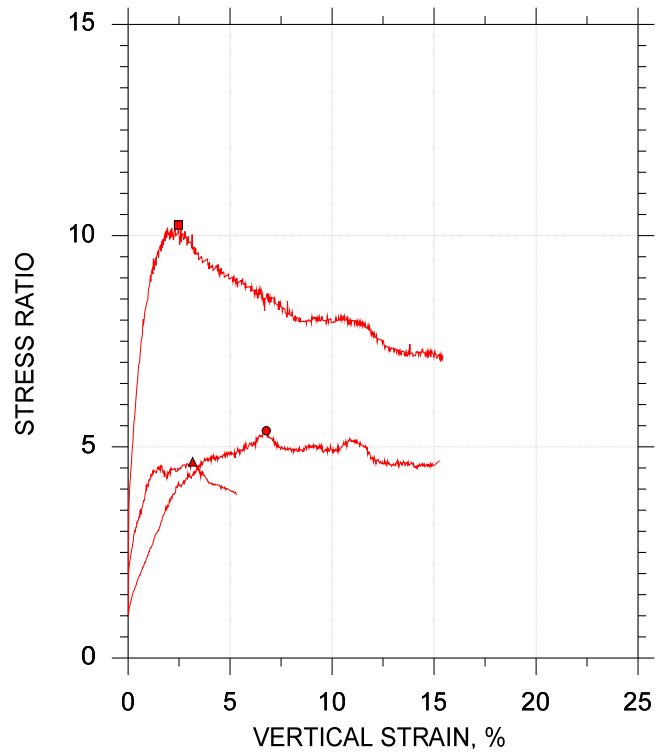
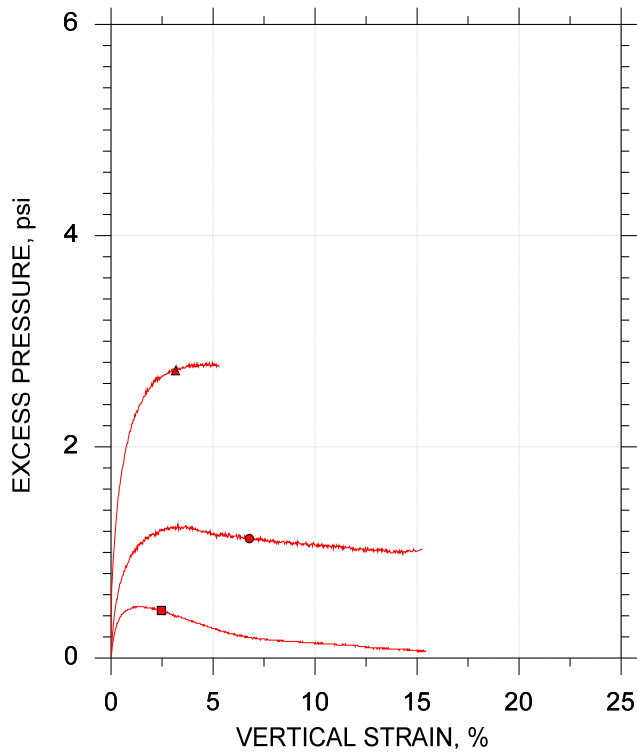
Plasticity Index: ---

Estimated Specific Gravity: 2.7

CONSOLIDATED DRAINED TRIAXIAL TEST by ASTM D4767



Symbol	■	●	▲	
Sample ID	191014	191014	191014	
Depth, ft	15-17	15-17	15-17	
Test Number	CU-2-1	CU-2-2	CU-2-3	
Initial	Height, in	4.330	4.410	4.000
	Diameter, in	1.930	1.930	1.930
	Moisture Content (from Cuttings), %	64.1	72.4	62.8
	Dry Density, pcf	61.0	55.4	62.5
	Saturation (Wet Method), %	98.2	95.6	100.0
	Void Ratio	1.76	2.04	1.70
Before Shear	Moisture Content, %	58.8	70.9	56.9
	Dry Density, pcf	65.1	57.8	66.5
	Cross-sectional Area (Method A), in <sup>2</sup>	2.788	2.842	2.816
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.59	1.91	1.54
	Back Pressure, psi	62.74	86.98	95.01
Vertical Effective Consolidation Stress, psi	1.102	2.150	4.300	
Horizontal Effective Consolidation Stress, psi	1.097	2.200	4.405	
Vertical Strain after Consolidation, %	0.005610	0.6233	1.267	
Volumetric Strain after Consolidation, %	1.401	1.928	2.949	
Time to 50% Consolidation, min	---	---	46.00	
Shear Strength, psi	2.936	2.314	3.027	
Strain at Failure, %	2.47	6.78	3.17	
Strain Rate, %/min	0.01600	0.01600	0.01600	
Deviator Stress at Failure, psi	5.872	4.628	6.053	
Effective Minor Principal Stress at Failure, psi	0.6345	1.056	1.659	
Effective Major Principal Stress at Failure, psi	6.506	5.684	7.712	
B-Value	0.97	0.96	0.96	
Notes:	<ul style="list-style-type: none"> <li>- Before Shear Saturation set to 100% for phase calculation.</li> <li>- Moisture Content determined by ASTM D2216.</li> <li>- Deviator Stress includes membrane correction.</li> <li>- Values for c and <math>\phi</math> determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.</li> </ul>			
Remarks:				



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	191014	CU-2-1	15-17	md	12/03/19	njh	1/28/2020	310685-CU-2-1n.dat
●	191014	CU-2-2	15-17	md	12/03/19	njh	1/28/2020	310685-CU-2-2n.dat
▲	191014	CU-2-3	15-17	md	12/03/19	njh	1/28/2020	310685-CU-2-3n.dat

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Sample Type: intact	
	Description: Wet, black silt		
	Remarks: System E		



Client: Anchor QEA, LLC

Project Name: Gasco PDI

Project Location: ---

Project Number: GTX-310685

Tested By: trm

Checked By: njh

Boring ID: PDI-119SPT

Preparation: intact

Description: Moist, dark gray sandy clay

Classification: ---

Group Symbol: ---

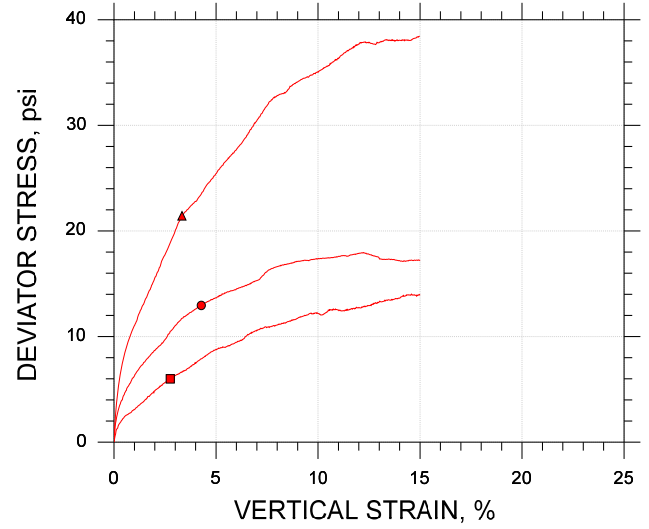
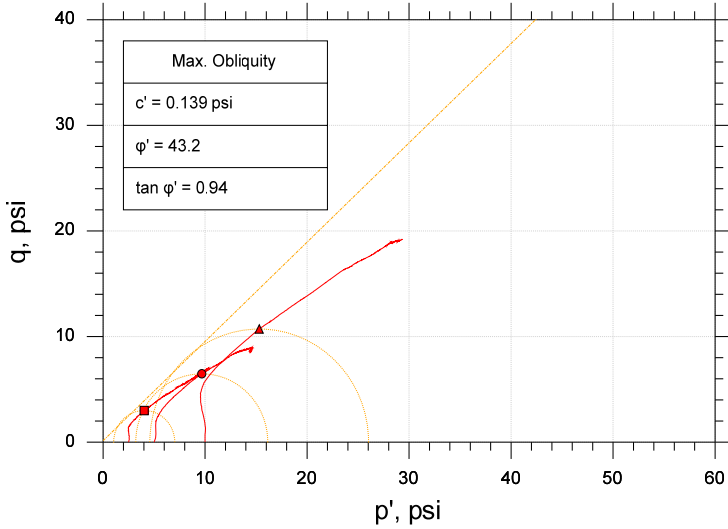
Liquid Limit: ---

Plastic Limit: ---

Plasticity Index: ---

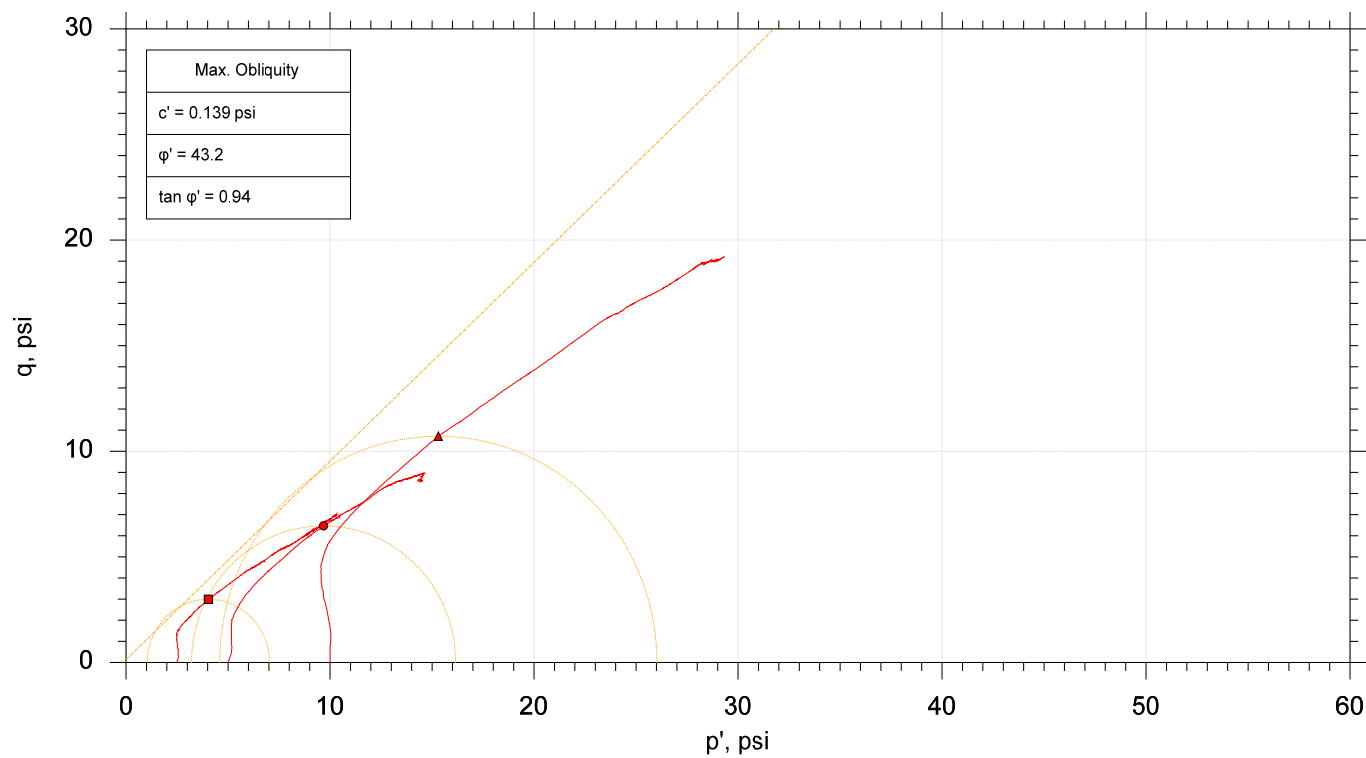
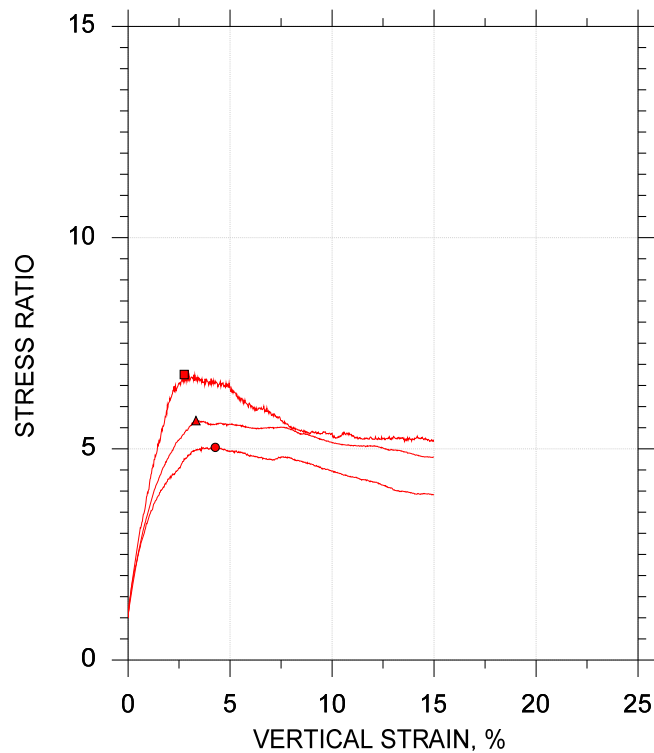
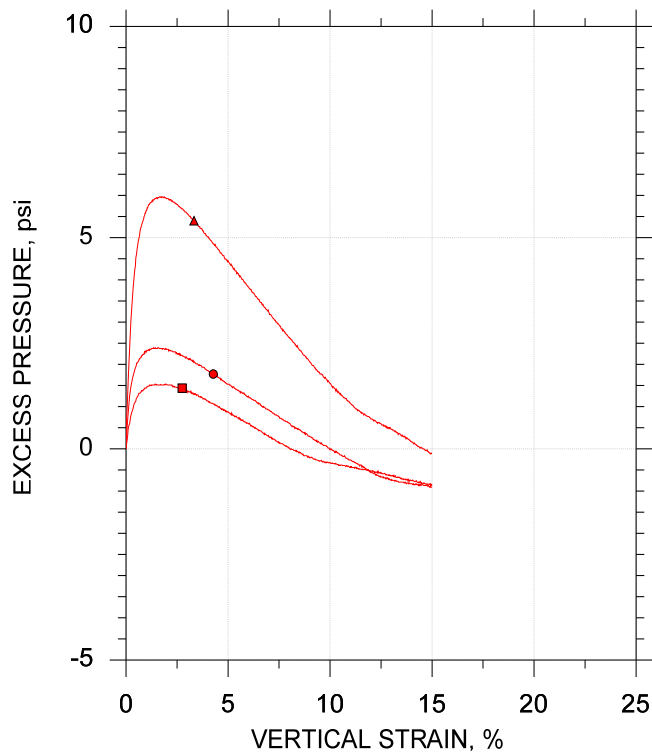
Estimated Specific Gravity: 2.7

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	■	●	▲	
Sample ID	191001	191001	191001	
Depth, ft	36.5-38.5	36.5-38.5	63.5-38.5	
Test Number	CU-6-1	CU-6-2	CU-6-3	
Initial	Height, in	4.100	4.500	4.650
	Diameter, in	1.930	1.930	1.930
	Moisture Content (from Cuttings), %	41.4	44.2	41.2
	Dry Density, pcf	76.2	74.2	79.8
	Saturation (Wet Method), %	92.3	93.9	100.0
	Void Ratio	1.21	1.27	1.11
Before Shear	Moisture Content, %	43.1	38.1	25.9
	Dry Density, pcf	77.9	83.1	99.2
	Cross-sectional Area (Method A), in <sup>2</sup>	2.883	2.630	2.383
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.16	1.03	0.700
	Back Pressure, psi	131.0	161.0	163.0
Vertical Effective Consolidation Stress, psi	2.475	4.965	9.938	
Horizontal Effective Consolidation Stress, psi	2.491	5.000	9.993	
Vertical Strain after Consolidation, %	0.3139	0.4299	0.8871	
Volumetric Strain after Consolidation, %	0.8759	10.07	18.69	
Time to 50% Consolidation, min	---	---	2.250	
Shear Strength, psi	2.995	6.473	10.72	
Strain at Failure, %	2.75	4.28	3.33	
Strain Rate, %/min	0.01600	0.01600	0.01600	
Deviator Stress at Failure, psi	5.991	12.95	21.44	
Effective Minor Principal Stress at Failure, psi	1.040	3.207	4.590	
Effective Major Principal Stress at Failure, psi	7.030	16.15	26.03	
B-Value	0.96	0.95	0.96	
Notes:	<ul style="list-style-type: none"> <li>- Before Shear Saturation set to 100% for phase calculation.</li> <li>- Moisture Content determined by ASTM D2216.</li> <li>- Deviator Stress includes membrane correction.</li> <li>- Values for c and φ determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.</li> </ul>			
Remarks:				

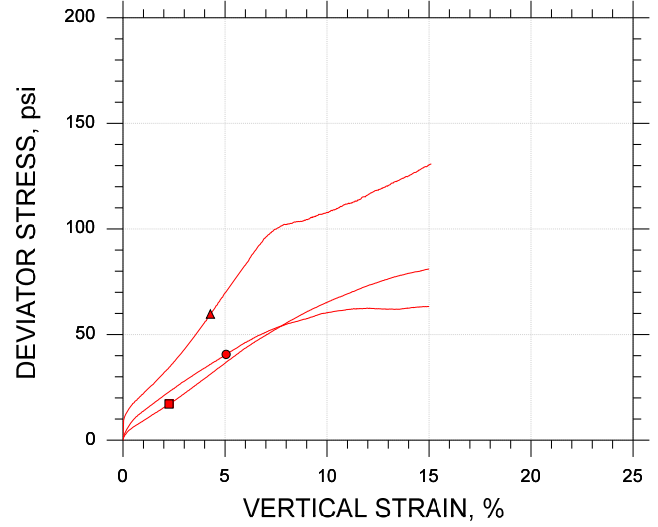
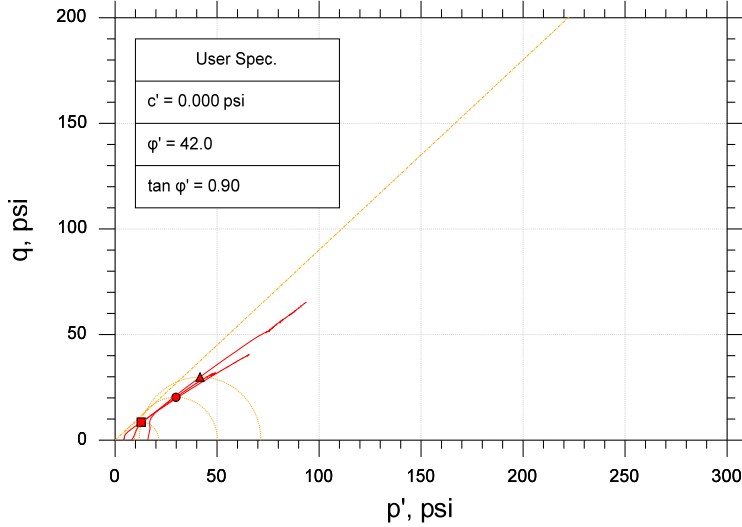
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	191001	CU-6-1	36.5-38.5	trm	12/13/19	njh	2/6/2020	310685-CU-6-1n.dat
●	191001	CU-6-2	36.5-38.5	trm	12/13/19	njh	2/6/2020	310685-CU-6-2n.dat
▲	191001	CU-6-3	63.5-38.5	trm	12/13/19	njh	2/6/2020	310685-CU-6-3n.dat

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-119SPT	Sample Type: intact	
	Description: Moist, dark gray sandy clay		
	Remarks: System OO		

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



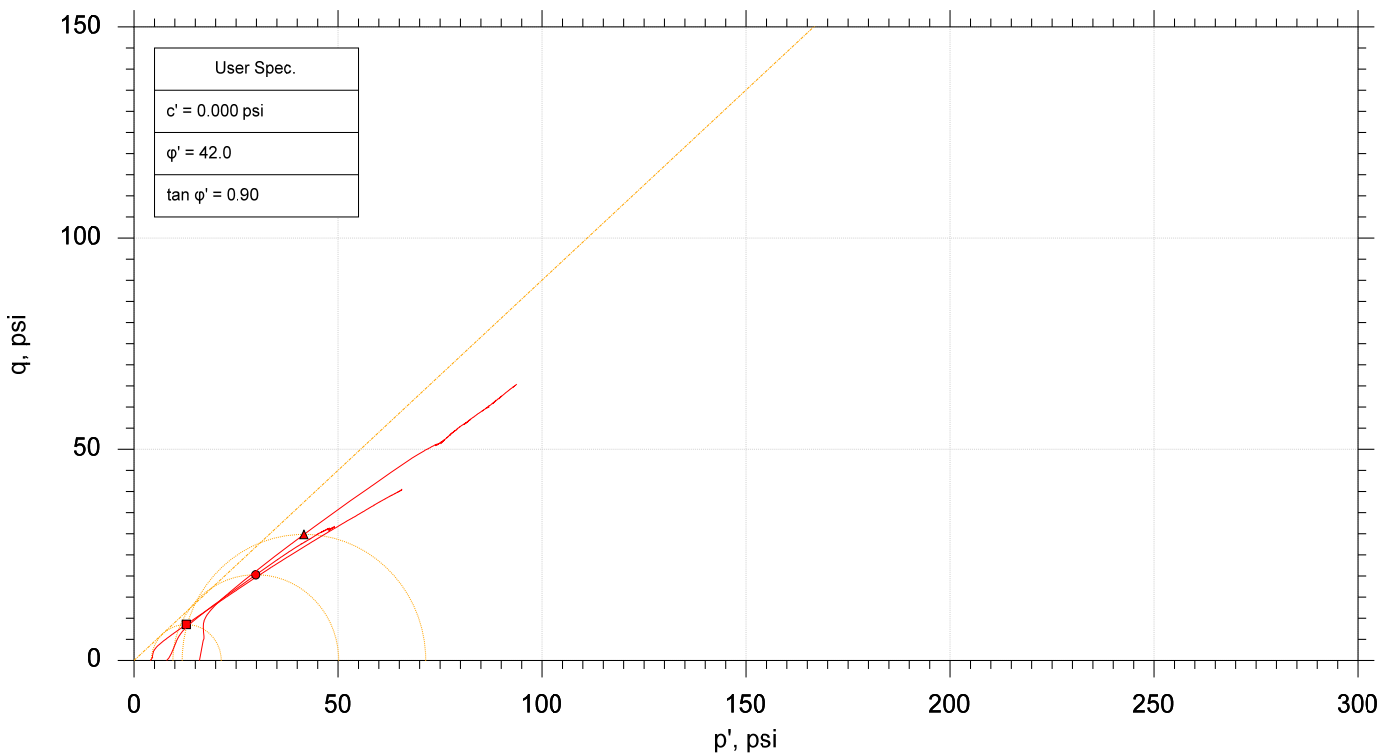
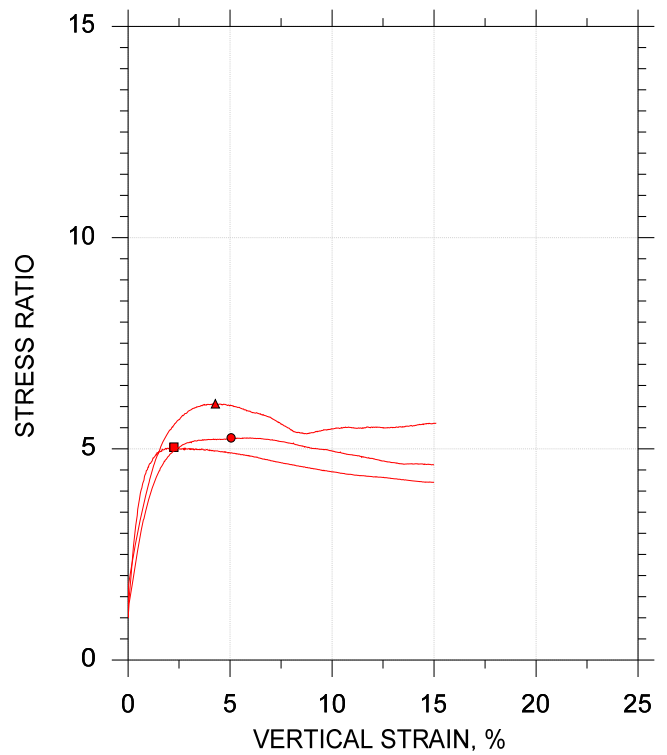
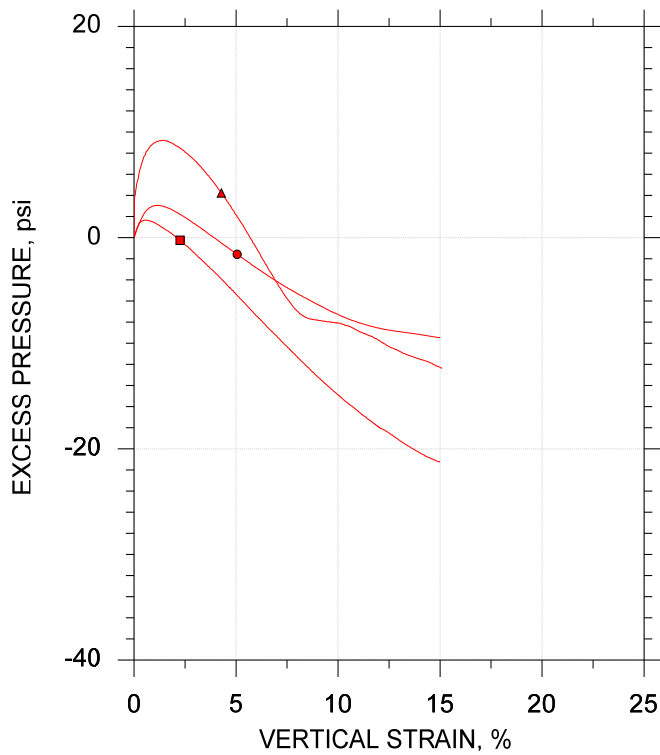
Symbol	■	●	▲	
Sample ID	190926	190926	190926	
Depth, ft	44-46	44-46	44-46	
Test Number	CU-7-1	CU-7-2	CU-7-3	
Initial	Height, in	4.500	4.500	4.100
	Diameter, in	1.930	1.930	1.930
	Moisture Content (from Cuttings), %	30.3	29.9	28.3
	Dry Density, pcf	77.7	78.3	82.2
	Saturation (Wet Method), %	71.2	71.2	74.0
	Void Ratio	1.13	1.11	1.01
Before Shear	Moisture Content, %	42.6	33.6	17.9
	Dry Density, pcf	77.7	87.5	112.
	Cross-sectional Area (Method A), in <sup>2</sup>	2.921	2.635	2.201
	Saturation, %	100.0	100.0	100.0
	Void Ratio	1.13	0.891	0.476
	Back Pressure, psi	125.0	29.00	119.0
Vertical Effective Consolidation Stress, psi	3.996	7.987	15.90	
Horizontal Effective Consolidation Stress, psi	3.991	7.995	16.01	
Vertical Strain after Consolidation, %	0.004162	0.2147	1.453	
Volumetric Strain after Consolidation, %	0.5562	9.366	24.16	
Time to 50% Consolidation, min	---	---	0.1600	
Shear Strength, psi	8.557	20.30	29.85	
Strain at Failure, %	2.25	5.05	4.28	
Strain Rate, %/min	0.01600	0.01600	0.01600	
Deviator Stress at Failure, psi	17.11	40.60	59.71	
Effective Minor Principal Stress at Failure, psi	4.235	9.528	11.78	
Effective Major Principal Stress at Failure, psi	21.35	50.13	71.48	
B-Value	0.95	1.0	0.95	

Notes:  
 - Before Shear Saturation set to 100% for phase calculation.  
 - Moisture Content determined by ASTM D2216.  
 - Deviator Stress includes membrane correction.  
 - Values for c and phi determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.


Remarks:



CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	190926	CU-7-1	44-46	trm	12/12/19	njh	2/7/2020	310685-CU-7-1n.dat
●	190926	CU-7-2	44-46	trm	12/12/19	njh	2/7/2020	310685-CU-7-2n.dat
▲	190926	CU-7-3	44-46	trm	12/11/19	njh	2/7/2020	310685-CU-7-3n.dat

	Project: Gasco PDI	Location: --	Project No.: GTX-310685
	Boring No.: PDI-122SPT	Sample Type: intact	
	Description: Moist, dark gray sand		
	Remarks: System KK		



Client: Anchor QEA, LLC

Project Name: Gasco PDI

Project Location: ---

Project Number: GTX-310685

Tested By: trm

Checked By: njh

Boring ID: PDI-123SPT

Preparation: intact

Description: Wet, gray clay

Classification: ---

Group Symbol: ---

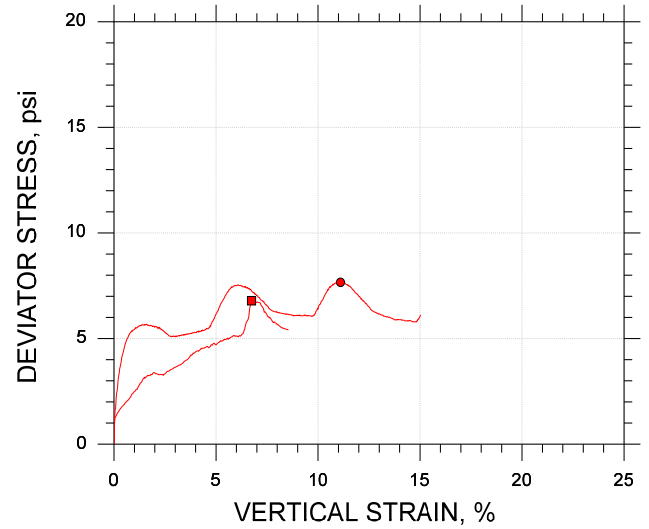
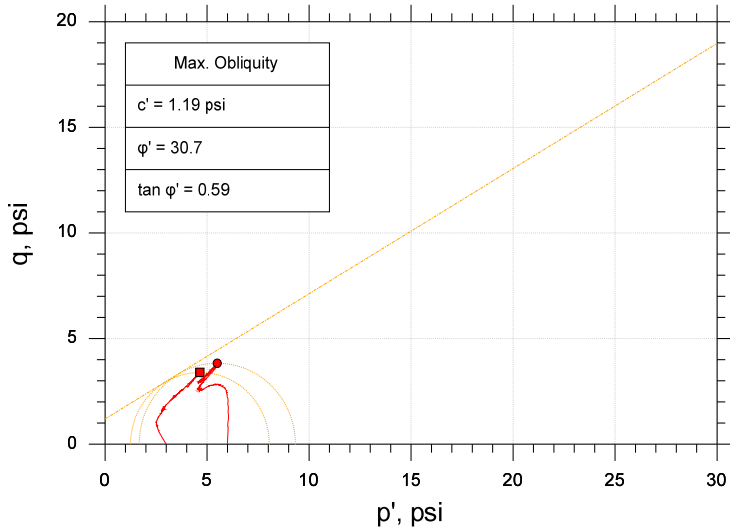
Liquid Limit: ---

Plastic Limit: ---

Plasticity Index: ---

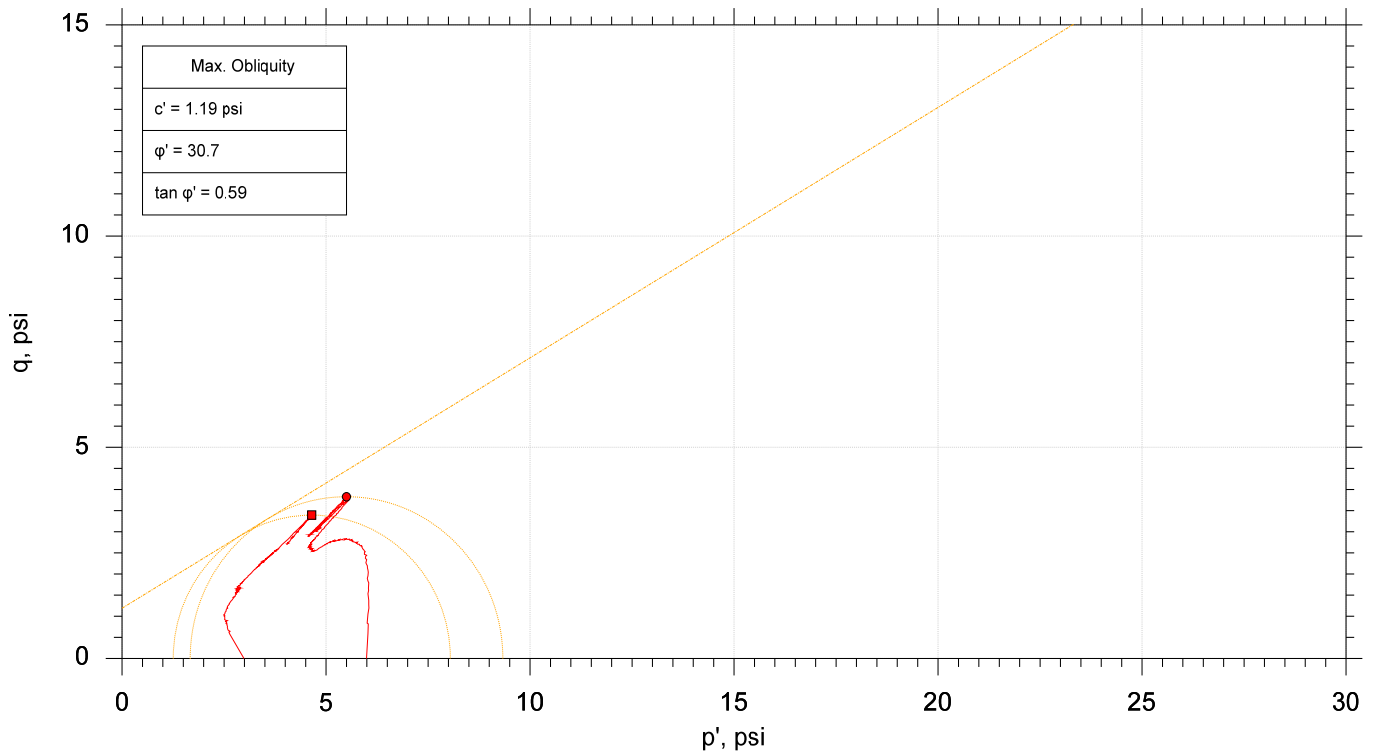
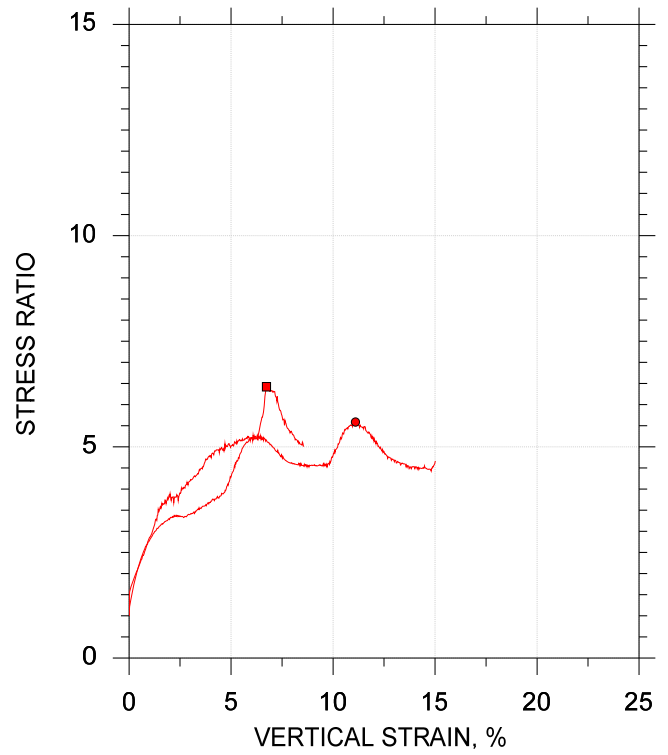
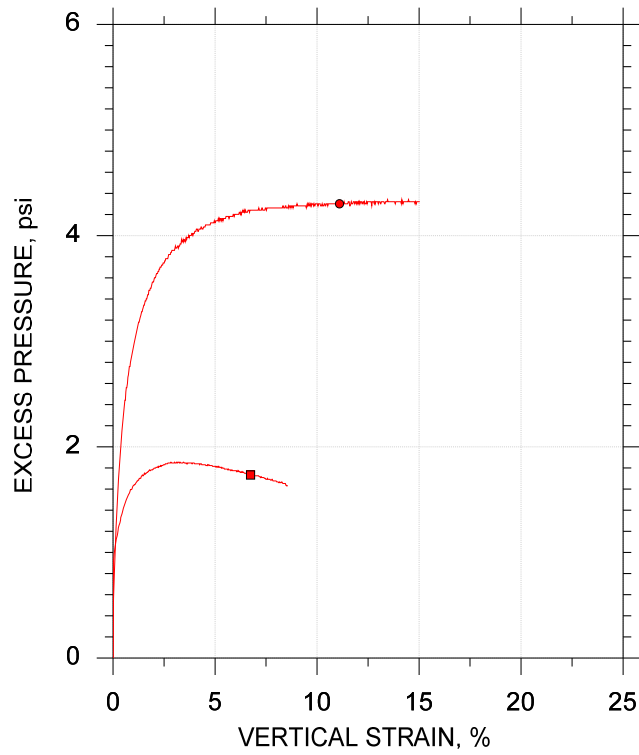
Estimated Specific Gravity: 2.7

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



Symbol	■	●		
Sample ID	190924	190924		
Depth, ft	19.5-21.5	19.5-21.5		
Test Number	CU-4-2	CU-4-3		
Initial	Height, in	4.100	4.200	
	Diameter, in	1.930	1.930	
	Moisture Content (from Cuttings), %	67.5	73.0	
	Dry Density, pcf	57.0	56.5	
	Saturation (Wet Method), %	93.1	99.5	
	Void Ratio	1.96	1.98	
Before Shear	Moisture Content, %	71.7	62.3	
	Dry Density, pcf	57.4	62.9	
	Cross-sectional Area (Method A), in <sup>2</sup>	2.926	2.750	
	Saturation, %	100.0	100.0	
	Void Ratio	1.94	1.68	
	Back Pressure, psi	80.99	151.0	
Vertical Effective Consolidation Stress, psi	2.907	5.754		
Horizontal Effective Consolidation Stress, psi	2.987	5.992		
Vertical Strain after Consolidation, %	0.9609	2.758		
Volumetric Strain after Consolidation, %	1.277	5.489		
Time to 50% Consolidation, min	---	12.25		
Shear Strength, psi	3.397	3.831		
Strain at Failure, %	6.74	11.1		
Strain Rate, %/min	0.01600	0.01600		
Deviator Stress at Failure, psi	6.793	7.661		
Effective Minor Principal Stress at Failure, psi	1.253	1.670		
Effective Major Principal Stress at Failure, psi	8.046	9.331		
B-Value	0.98	0.96		
Notes:	<ul style="list-style-type: none"> <li>- Before Shear Saturation set to 100% for phase calculation.</li> <li>- Moisture Content determined by ASTM D2216.</li> <li>- Deviator Stress includes membrane correction.</li> <li>- Values for c and <math>\phi</math> determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.</li> </ul>			
Remarks:				

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

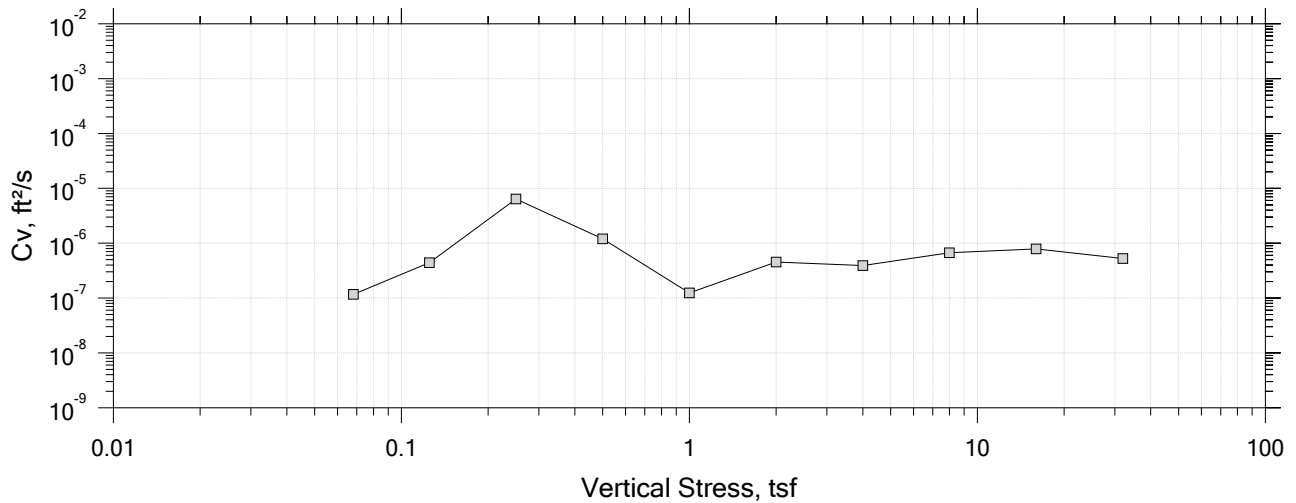
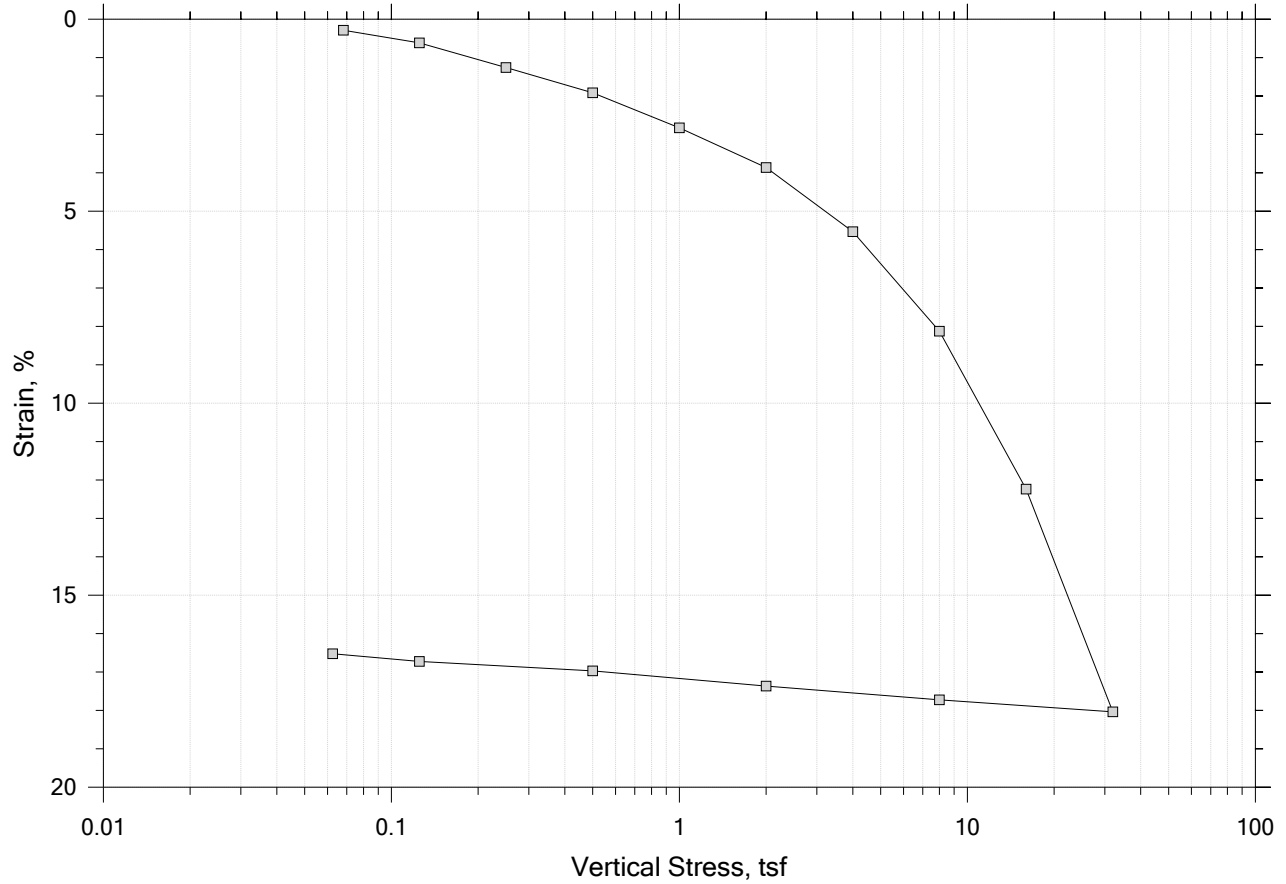



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	190924	CU-4-2	19.5-21.5	trm	12/4/19	njh	1/28/2020	310685-CU-4-2n.dat
●	190924	CU-4-3	19.5-21.5	trm	12/4/19	njh	1/28/2020	310685-CU-4-3n.dat

	Project: Gasco PDI		Location: ---		Project No.: GTX-310685	
	Boring No.: PDI-123SPT		Sample Type: intact			
	Description: Wet, gray clay					
	Remarks: System Y					

# One-Dimensional Consolidation by ASTM D2435 - Method B

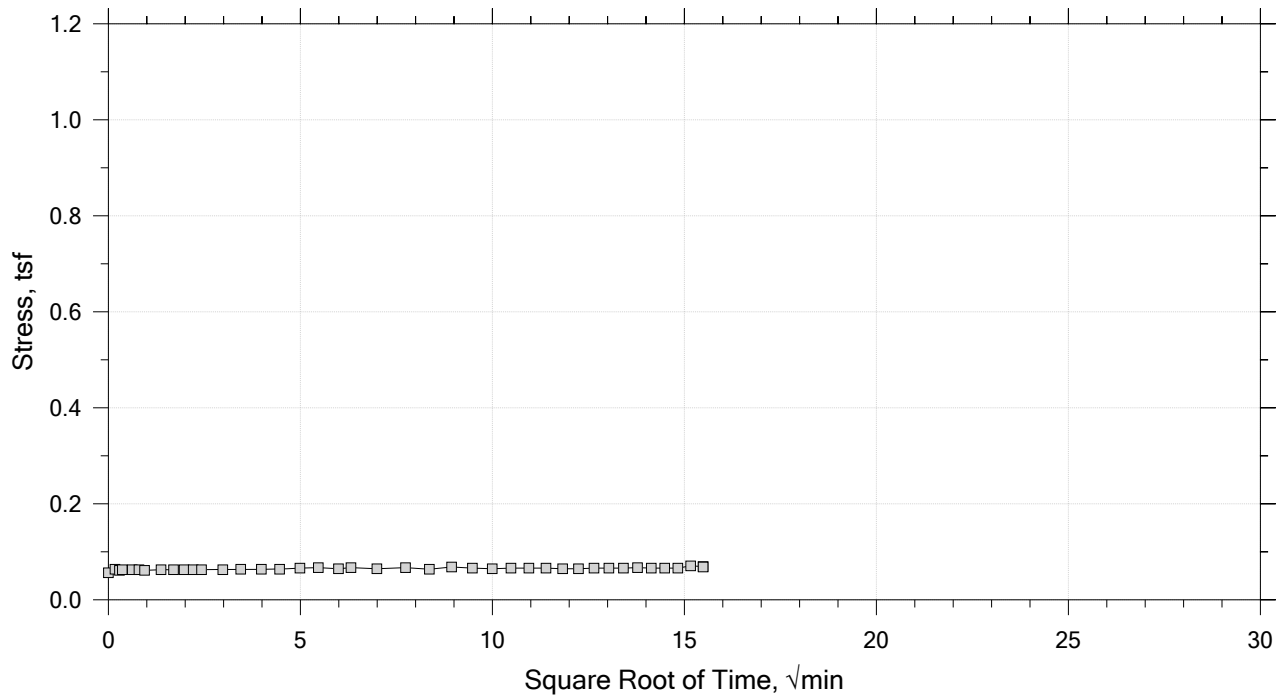
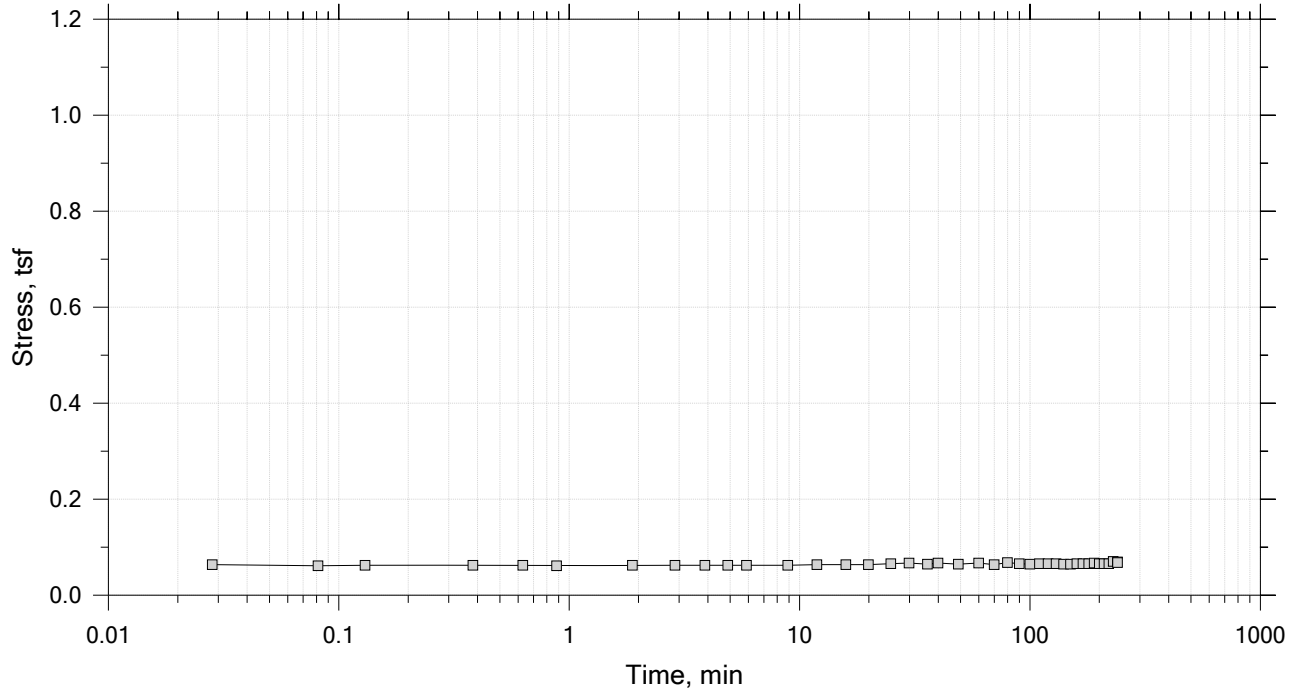
## Summary Report




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		
	Displacement at End of Increment		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 1 of 15  
 Constant Volume Step  
 Stress: 0.0681 tsf



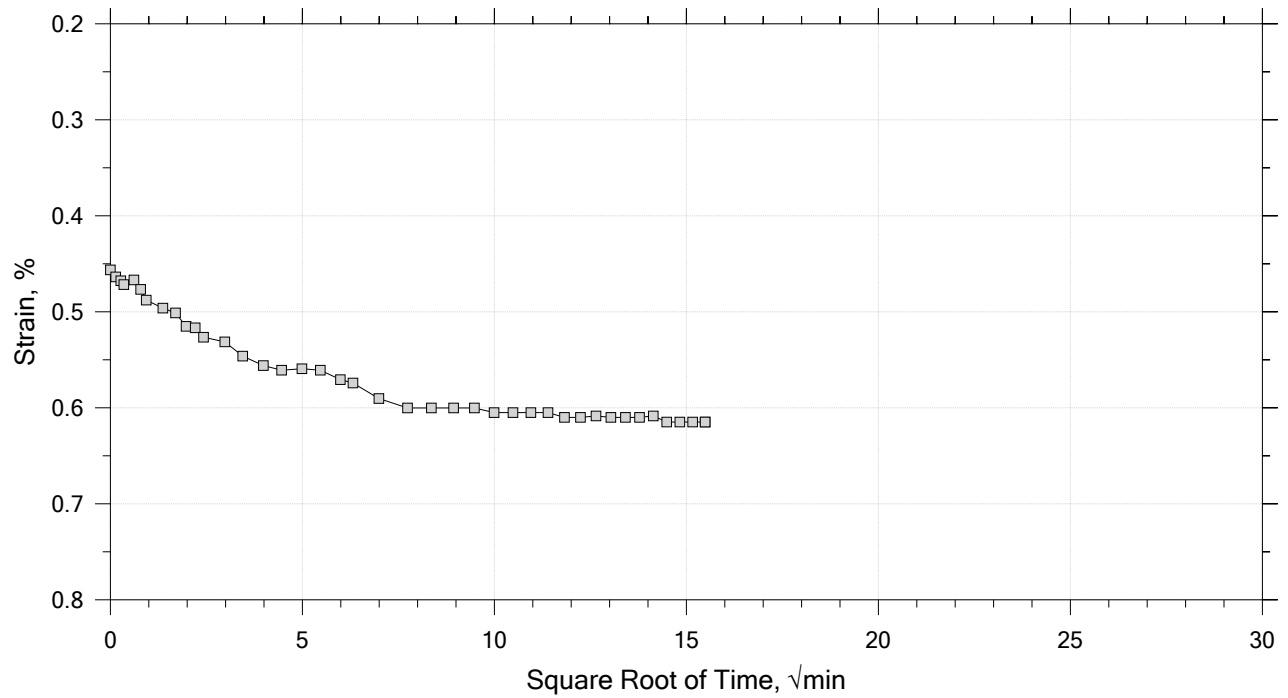
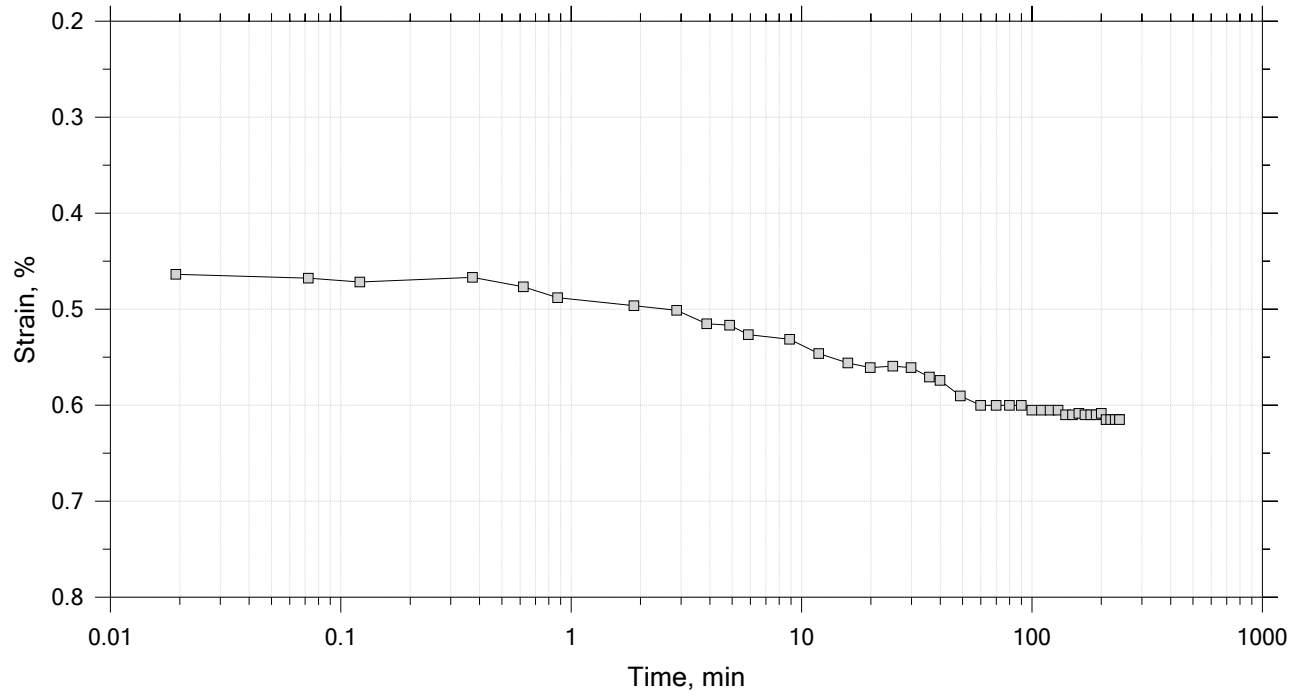
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 2 of 15

Constant Load Step

Stress: 0.125 tsf



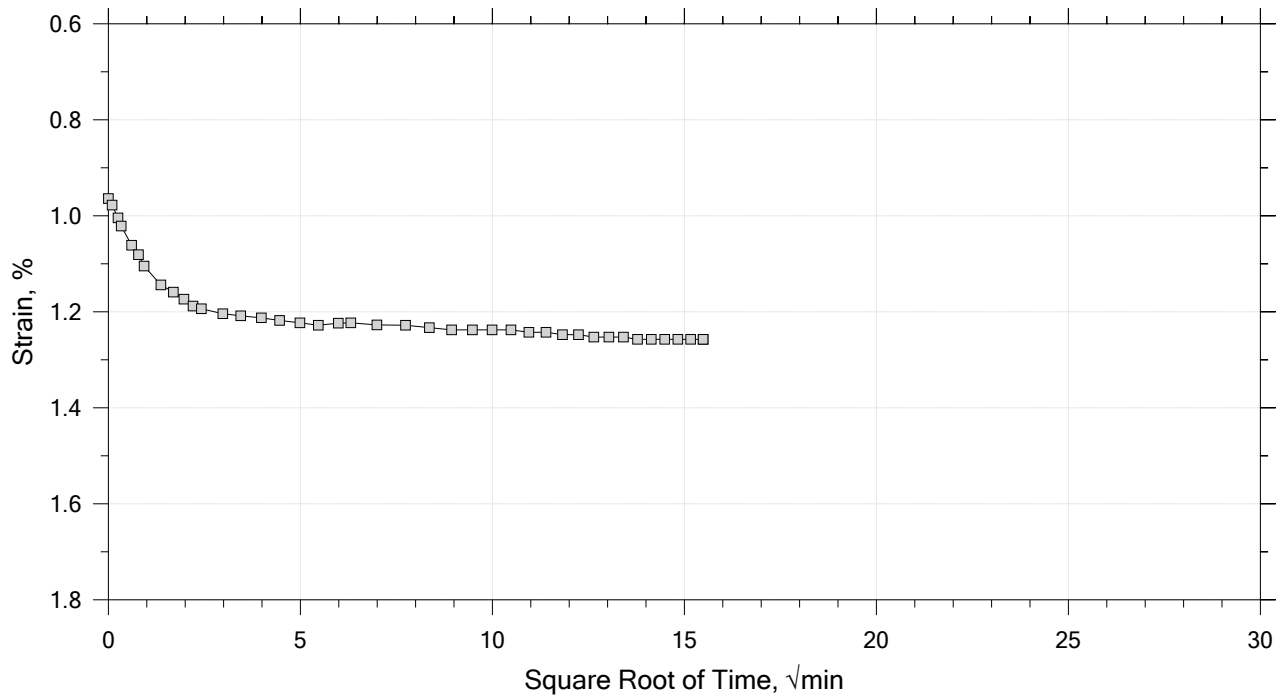
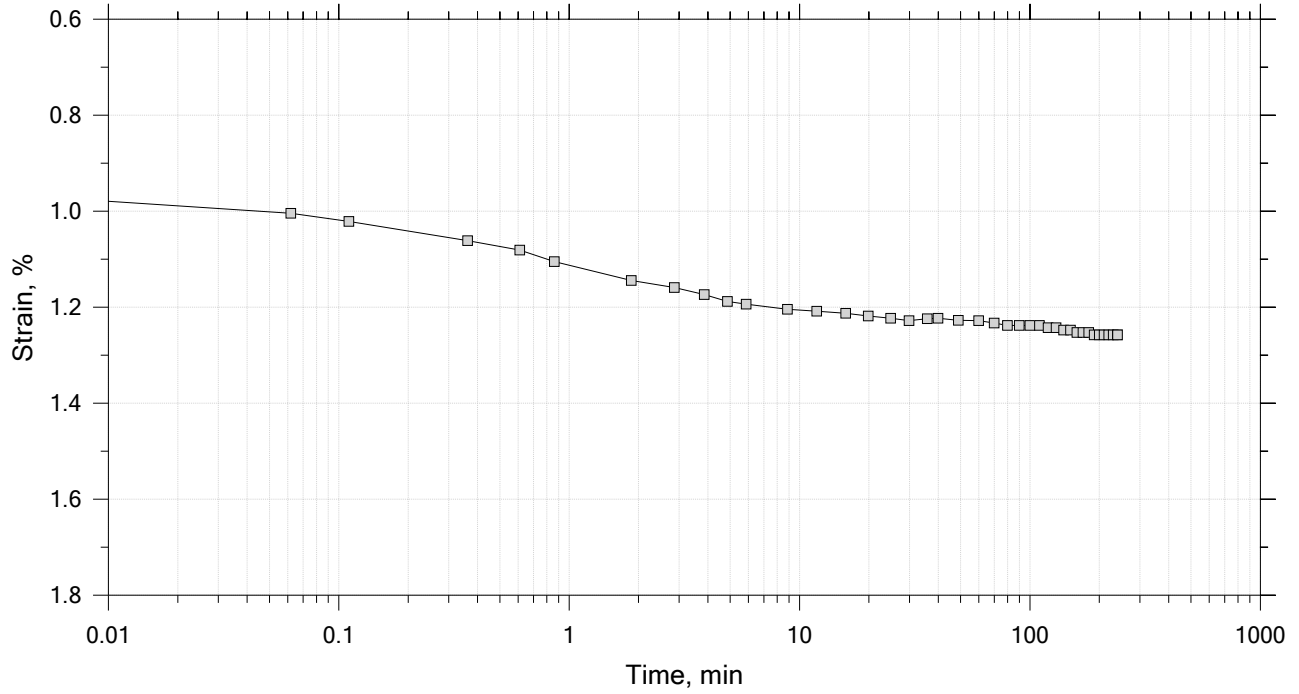
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 15

Constant Load Step

Stress: 0.25 tsf



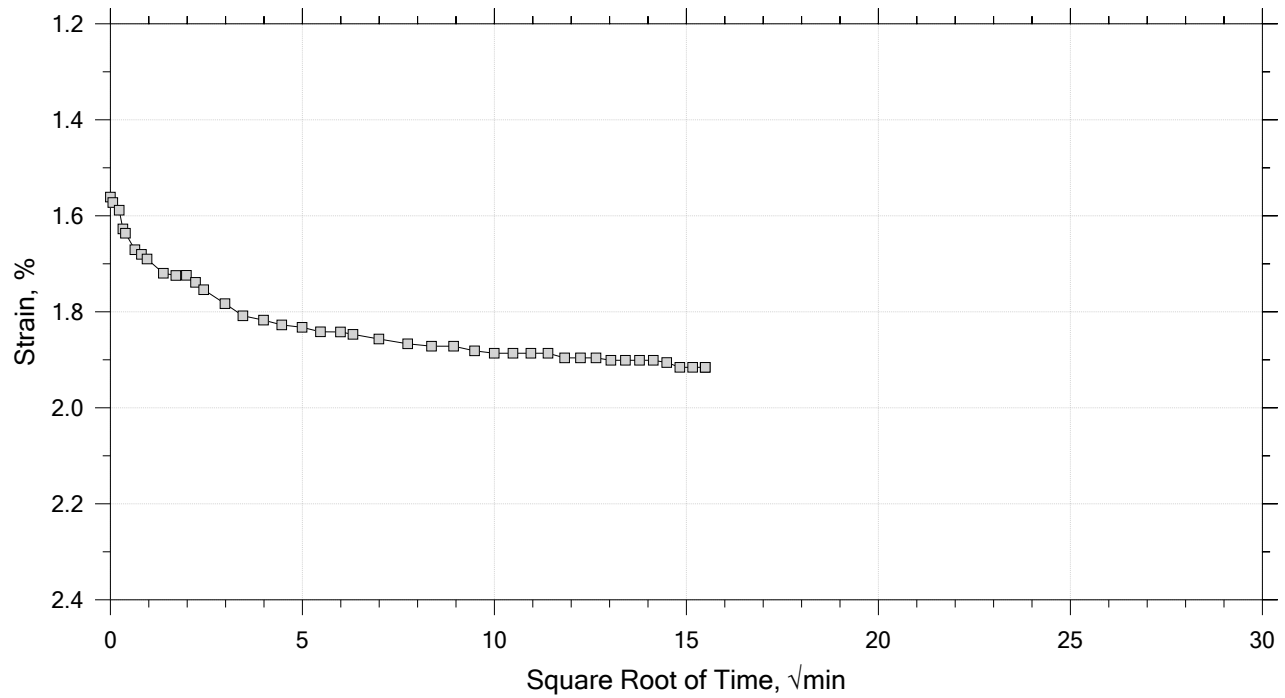
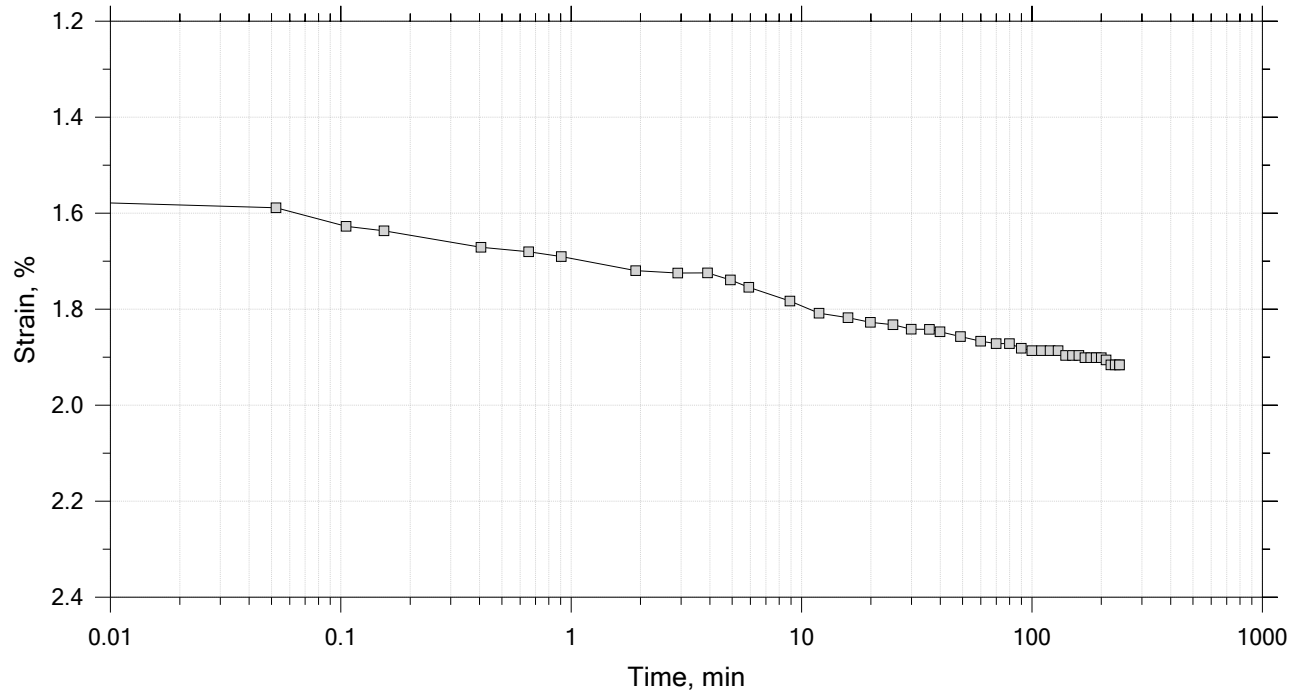
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 15

Constant Load Step

Stress: 0.5 tsf

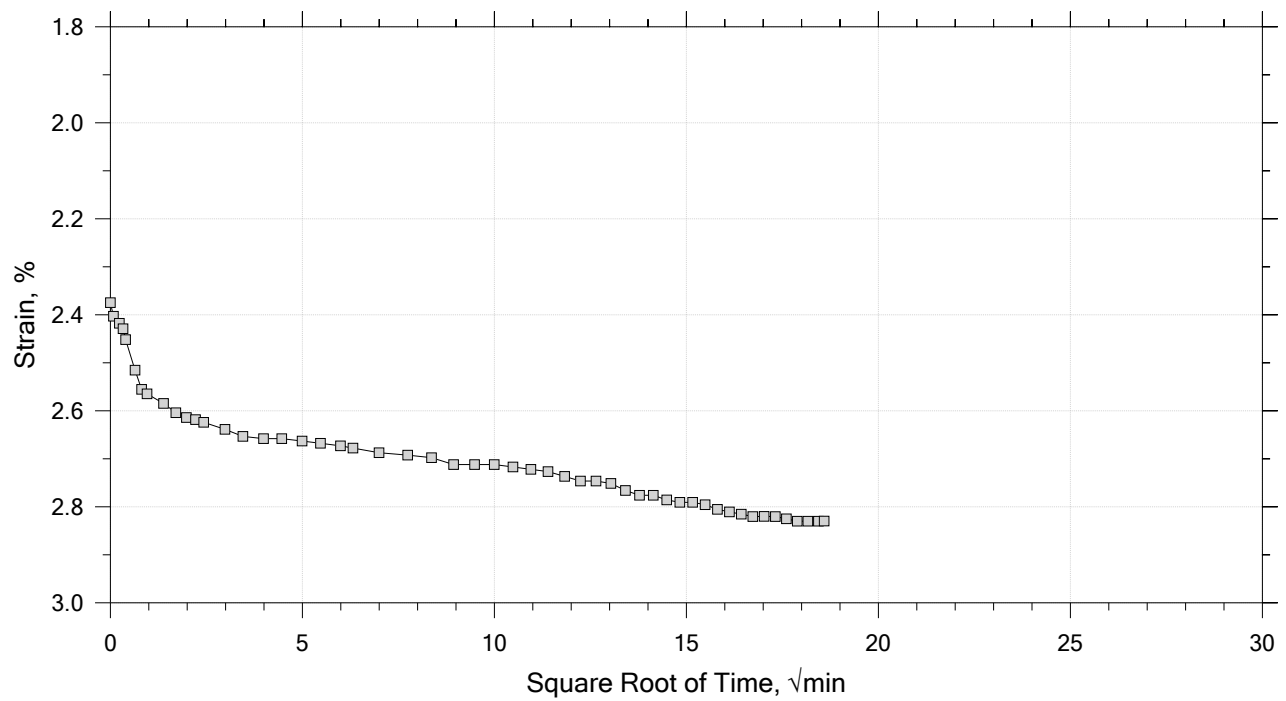
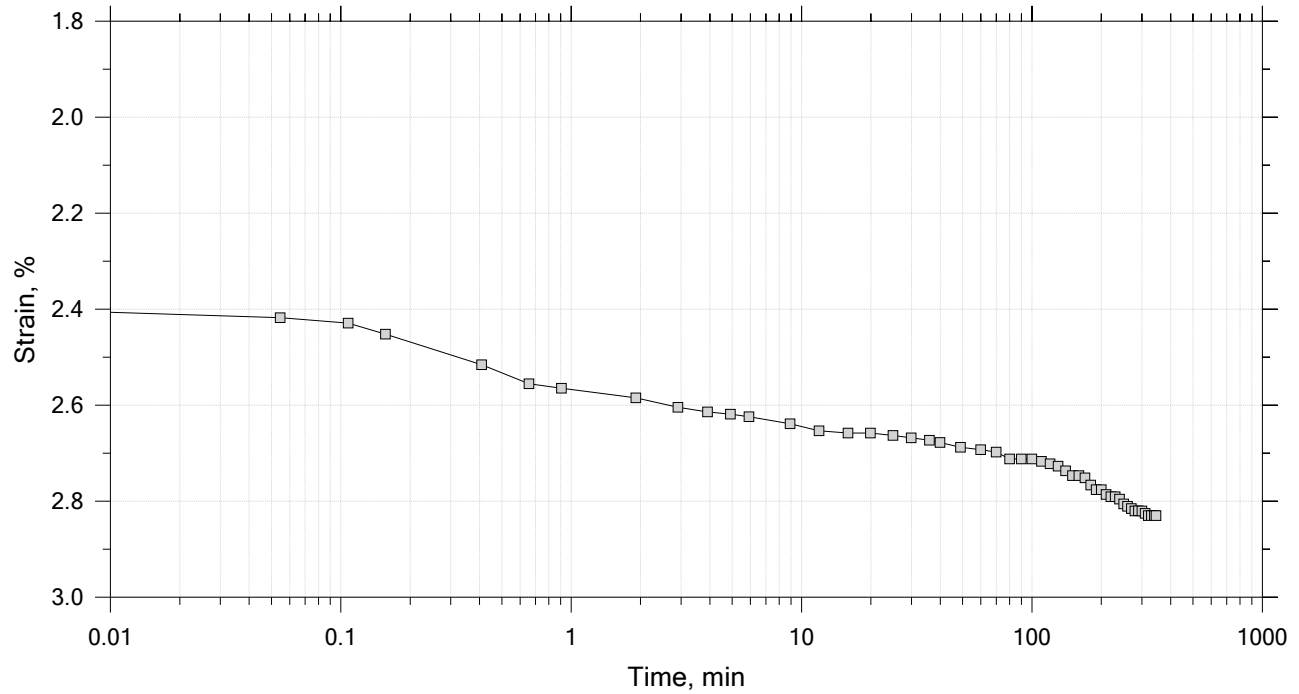



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		



# One-Dimensional Consolidation by ASTM D2435 - Method B

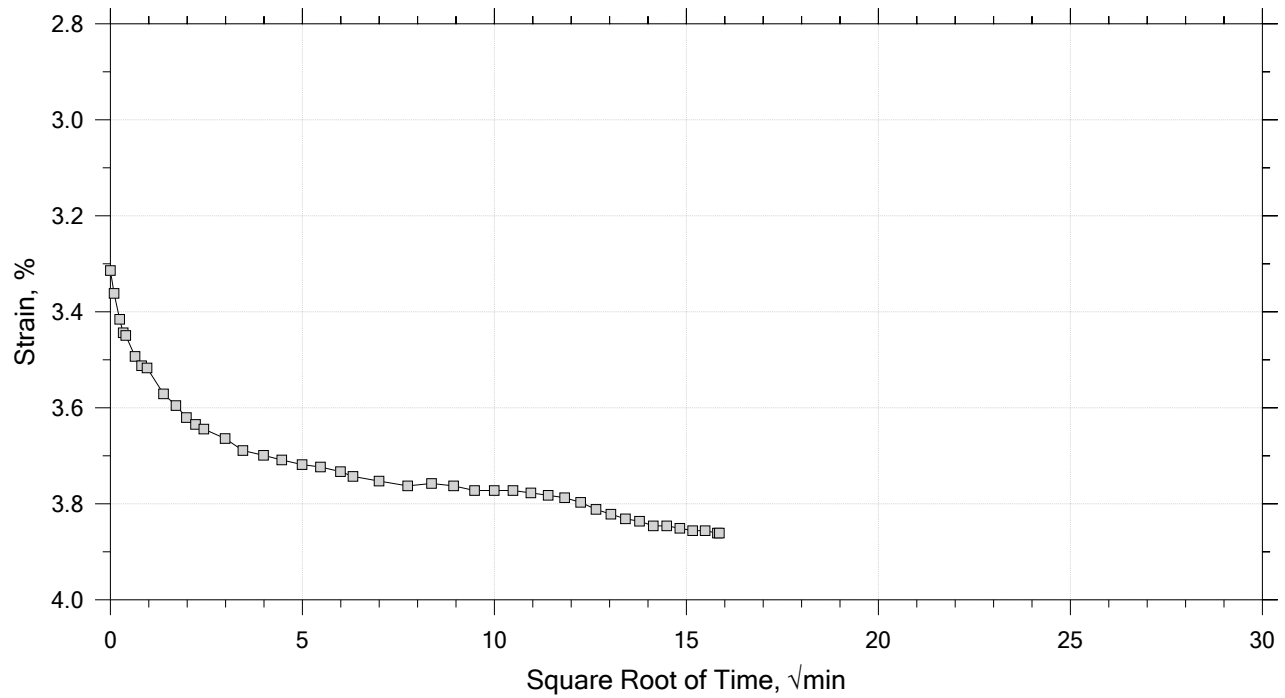
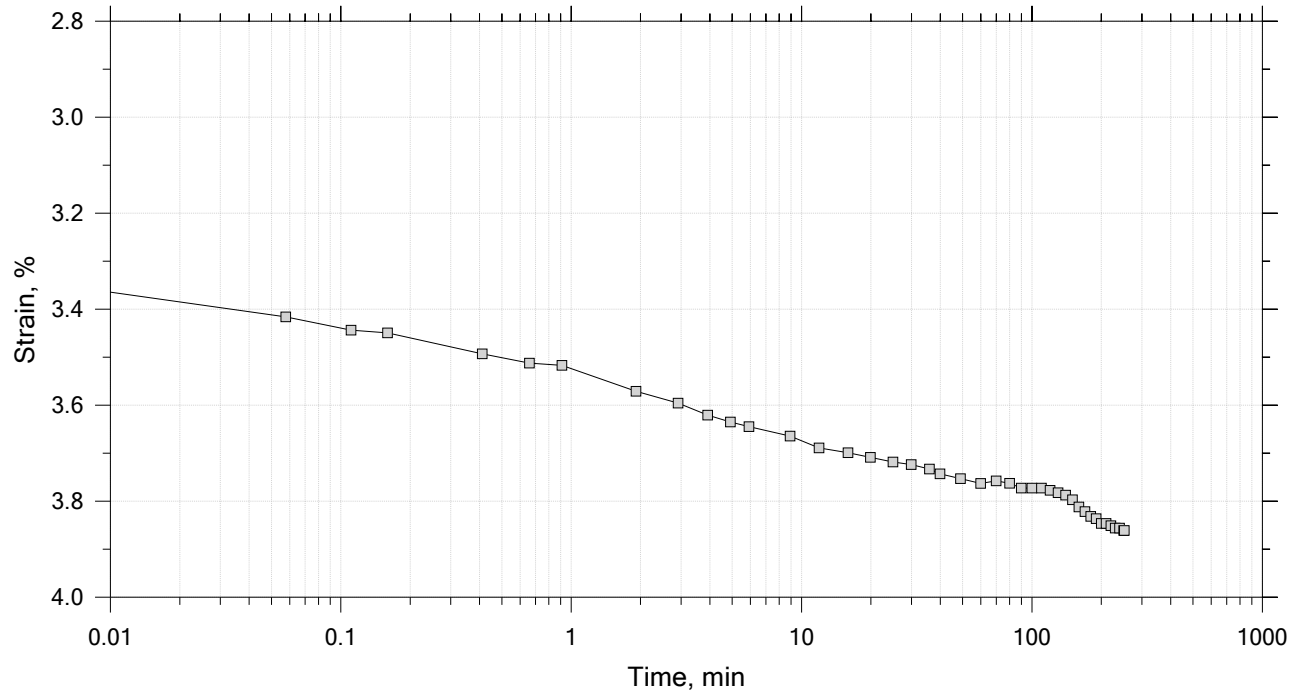
Time Curve 5 of 15  
 Constant Load Step  
 Stress: 1 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 15  
 Constant Load Step  
 Stress: 2 tsf



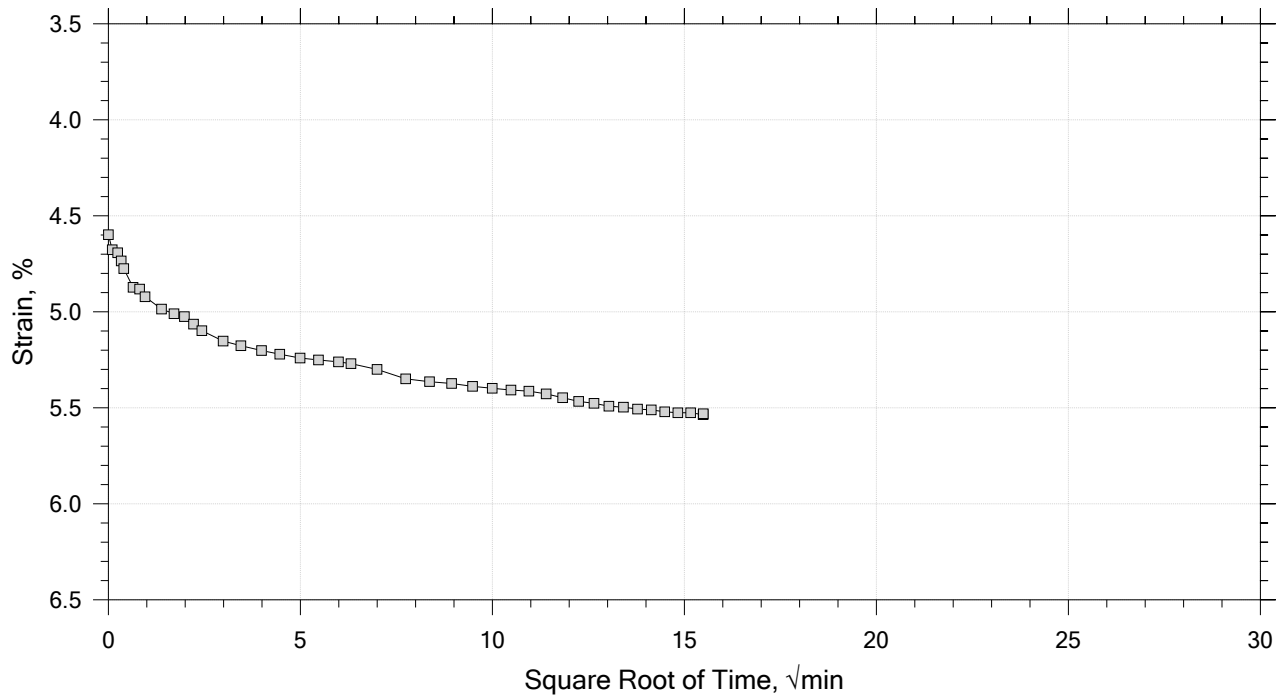
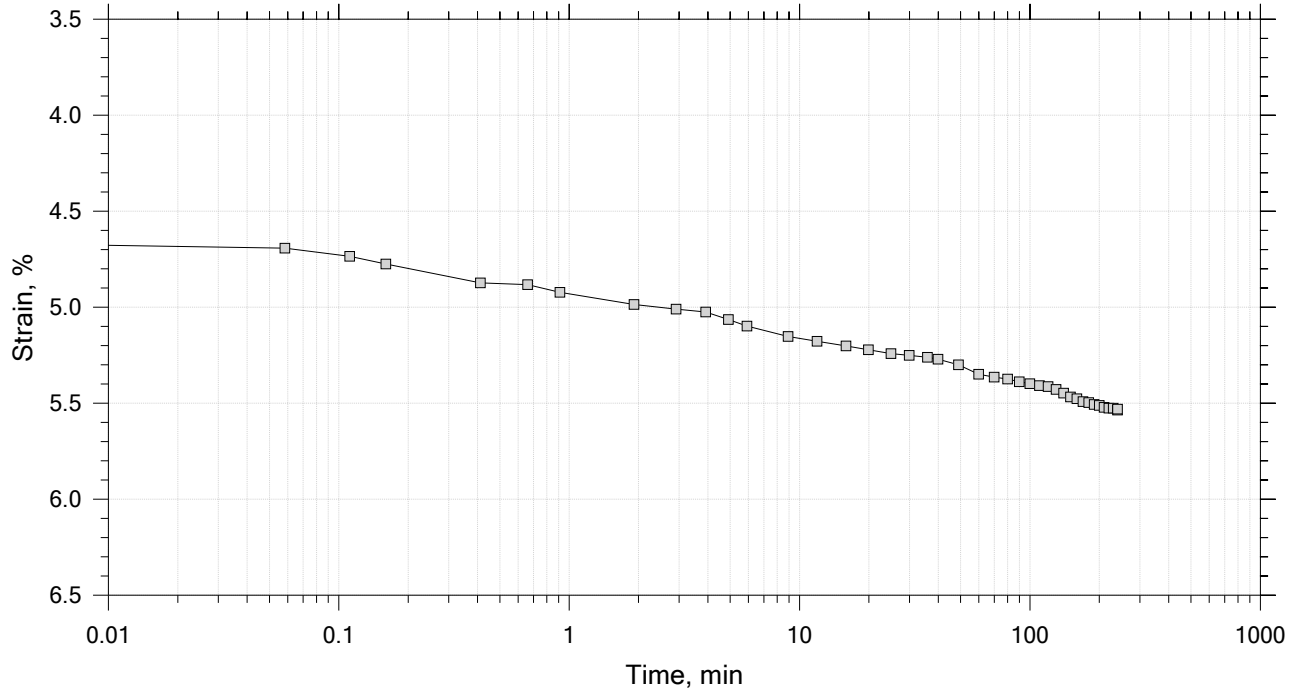
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 15

Constant Load Step

Stress: 4 tsf



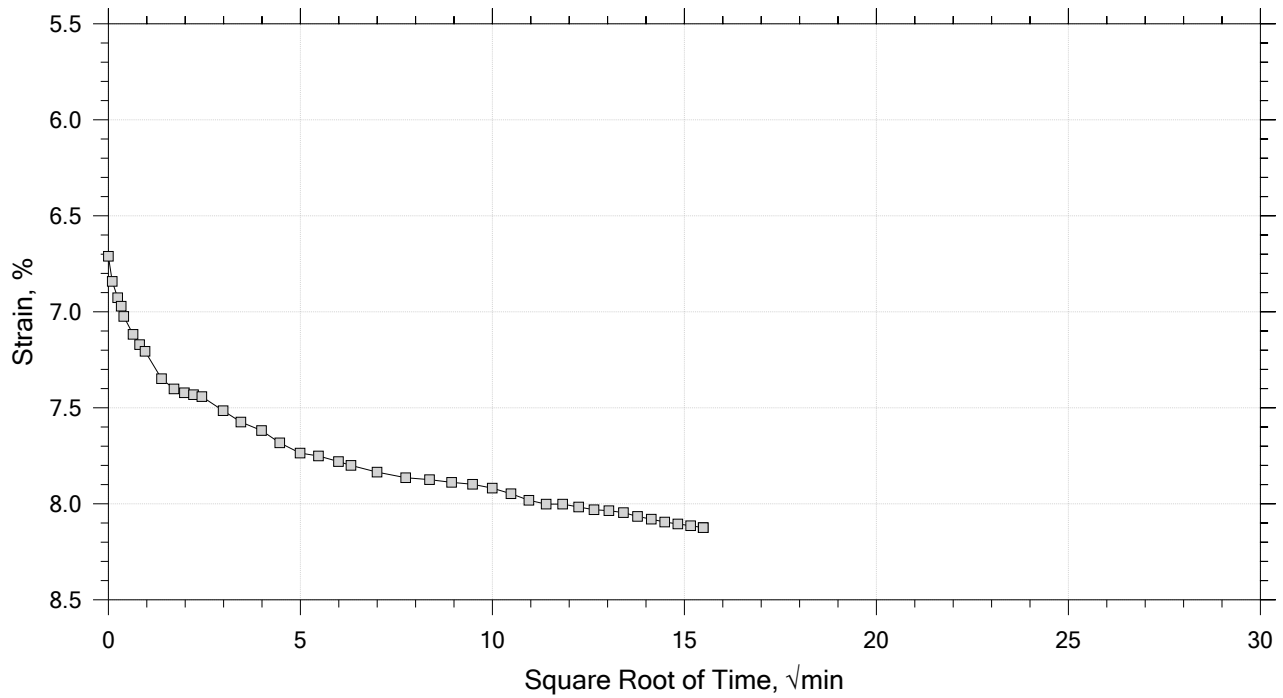
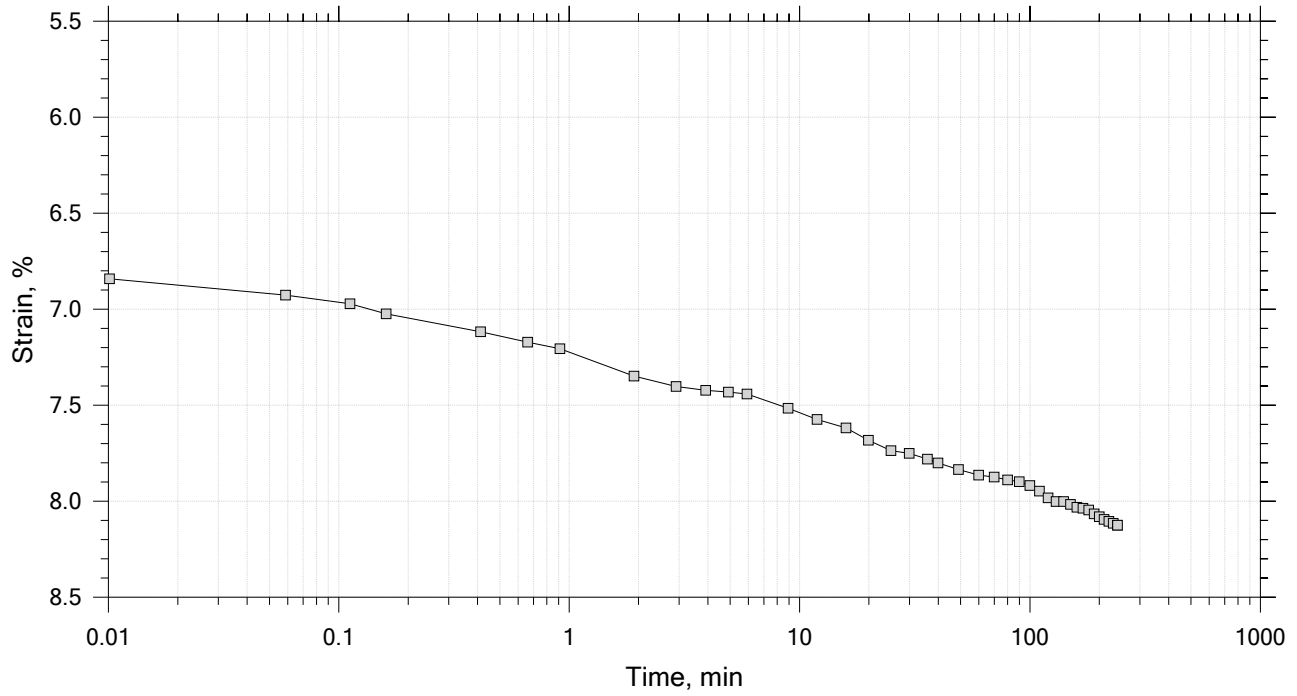
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 15

Constant Load Step

Stress: 8 tsf



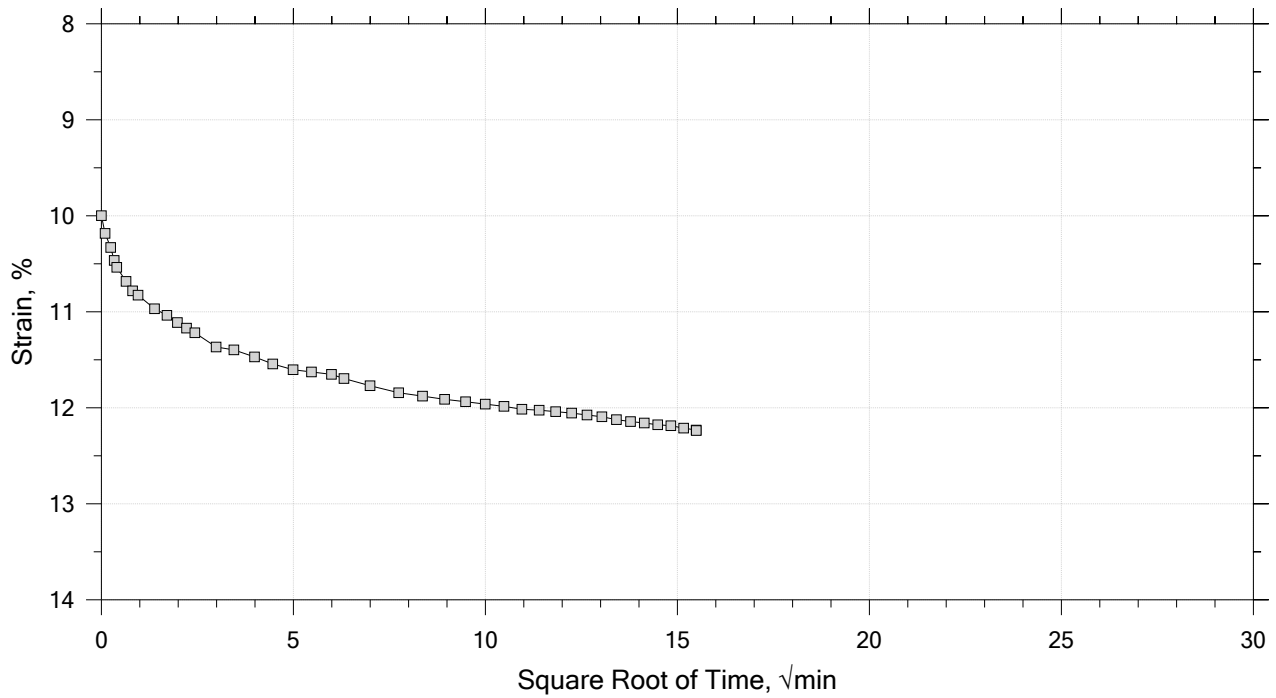
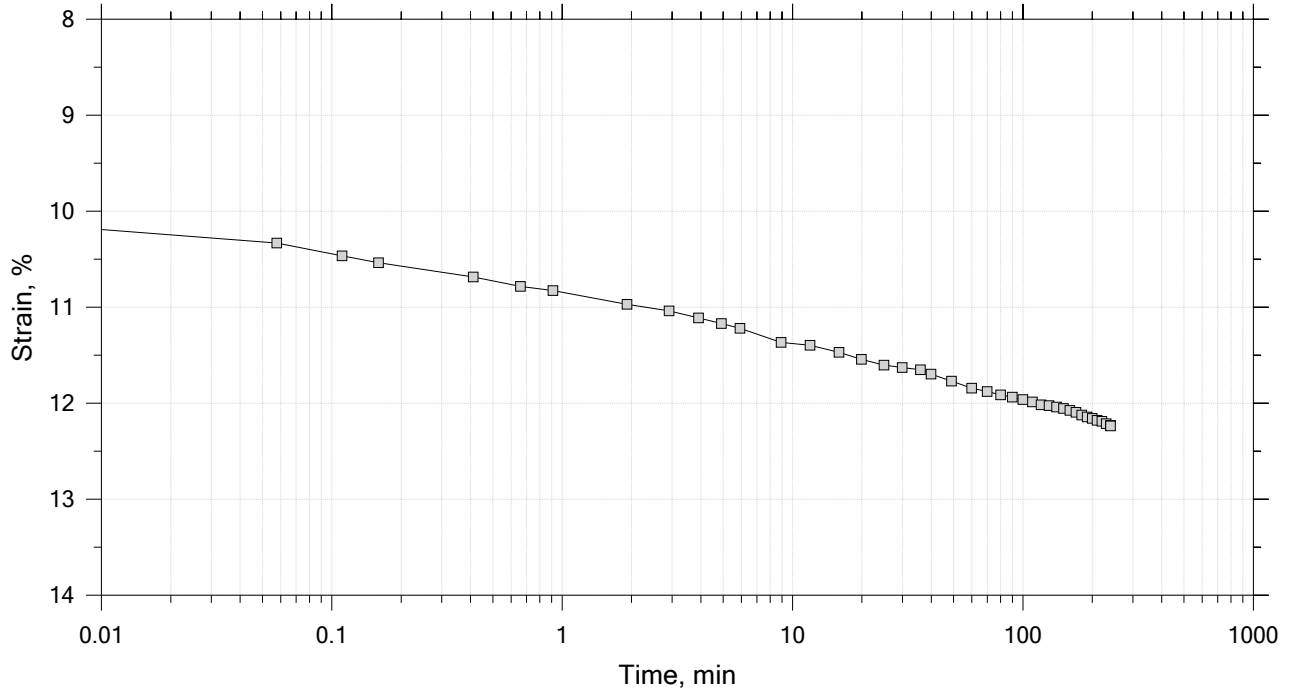
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 15

Constant Load Step

Stress: 16 tsf



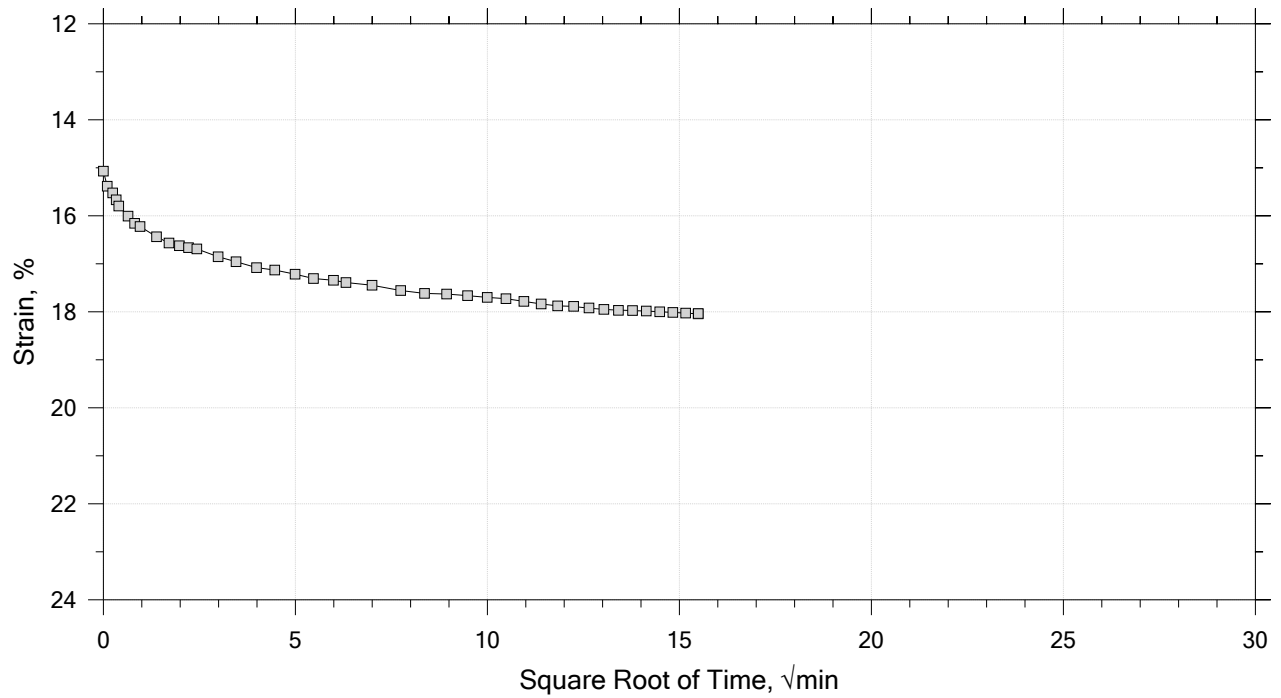
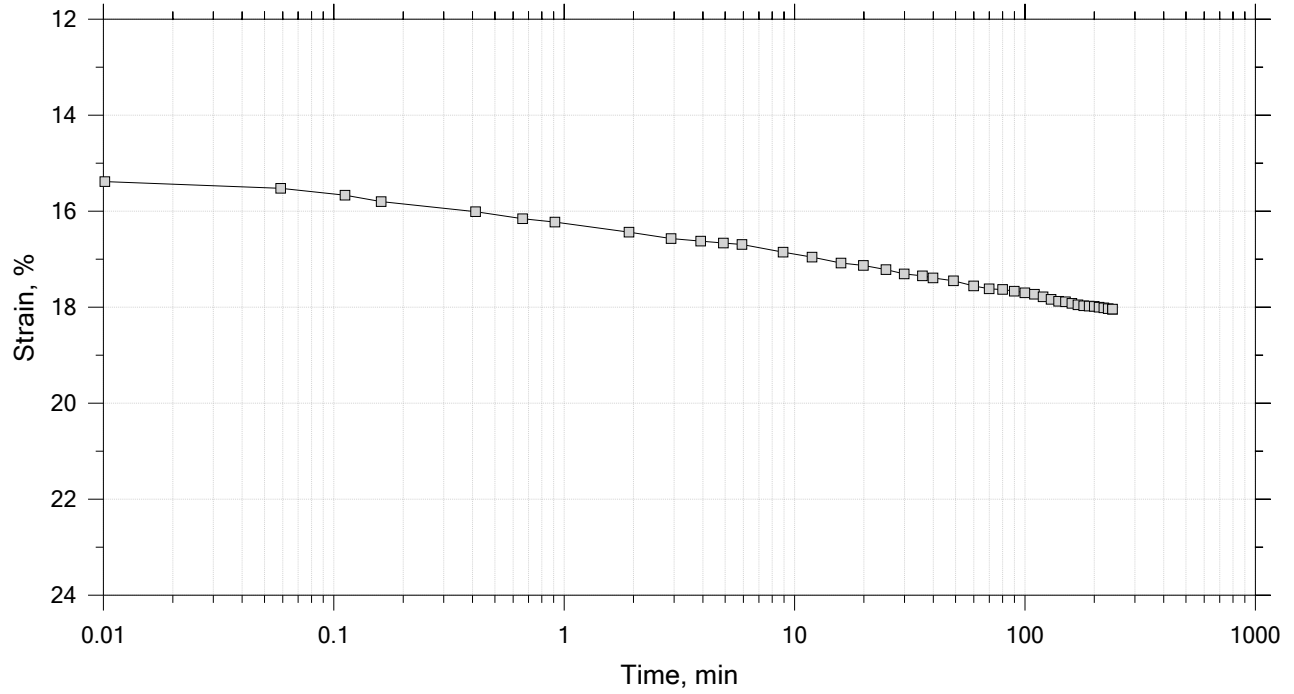
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 15

Constant Load Step

Stress: 32 tsf



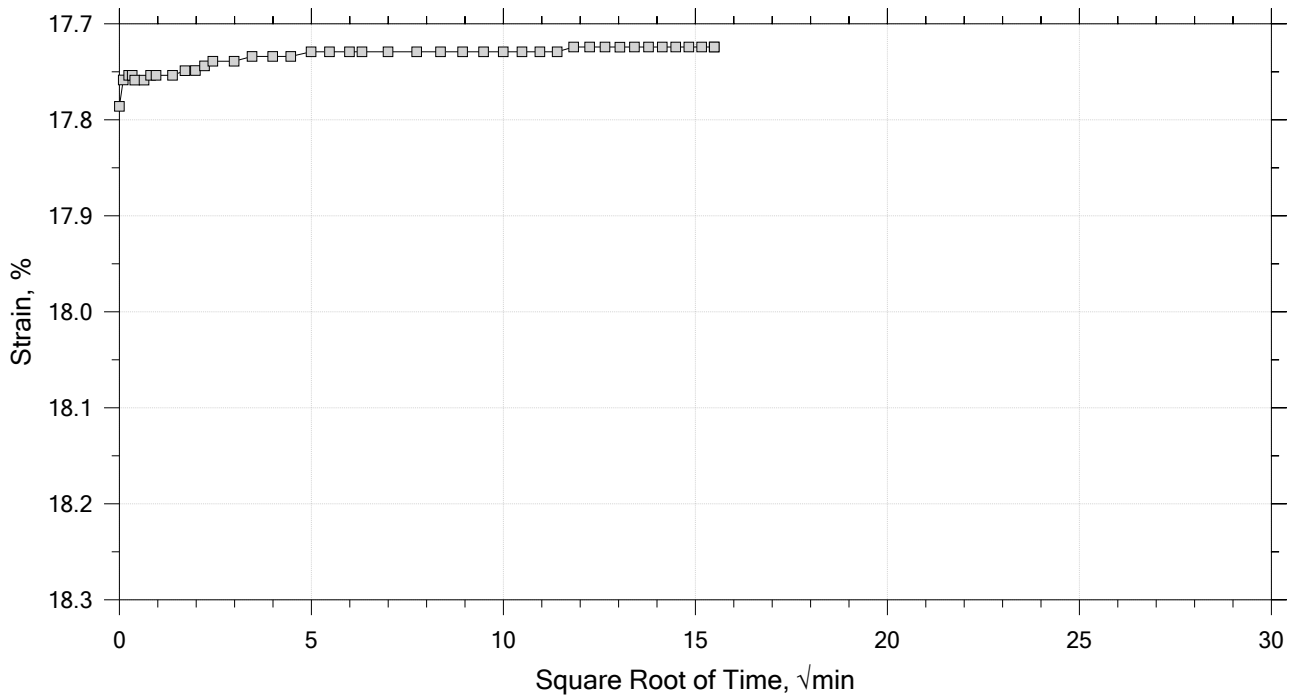
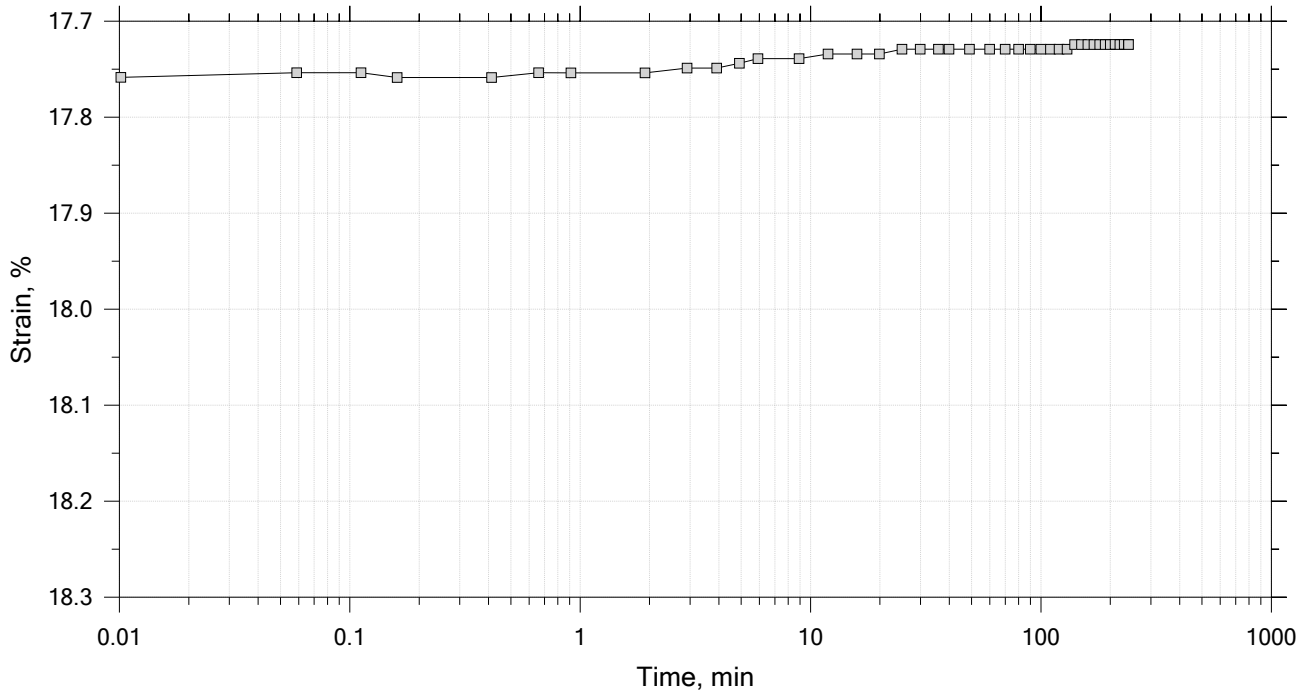
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 15

Constant Load Step

Stress: 8 tsf



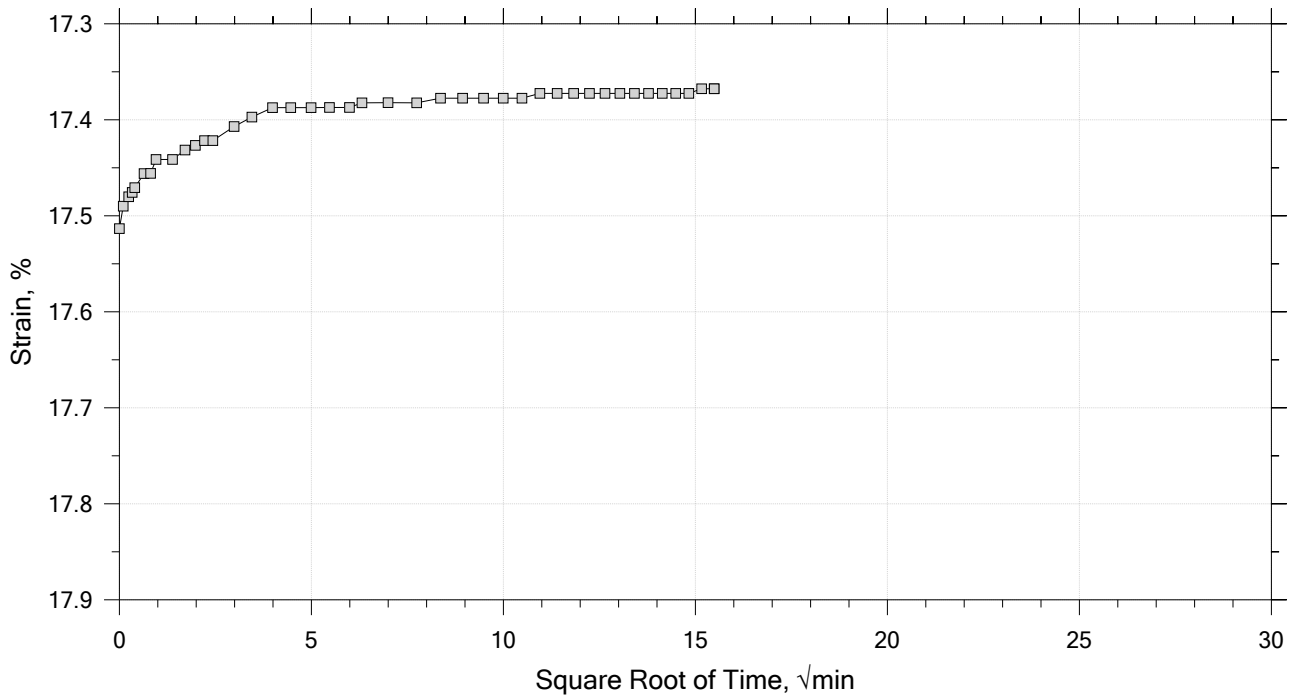
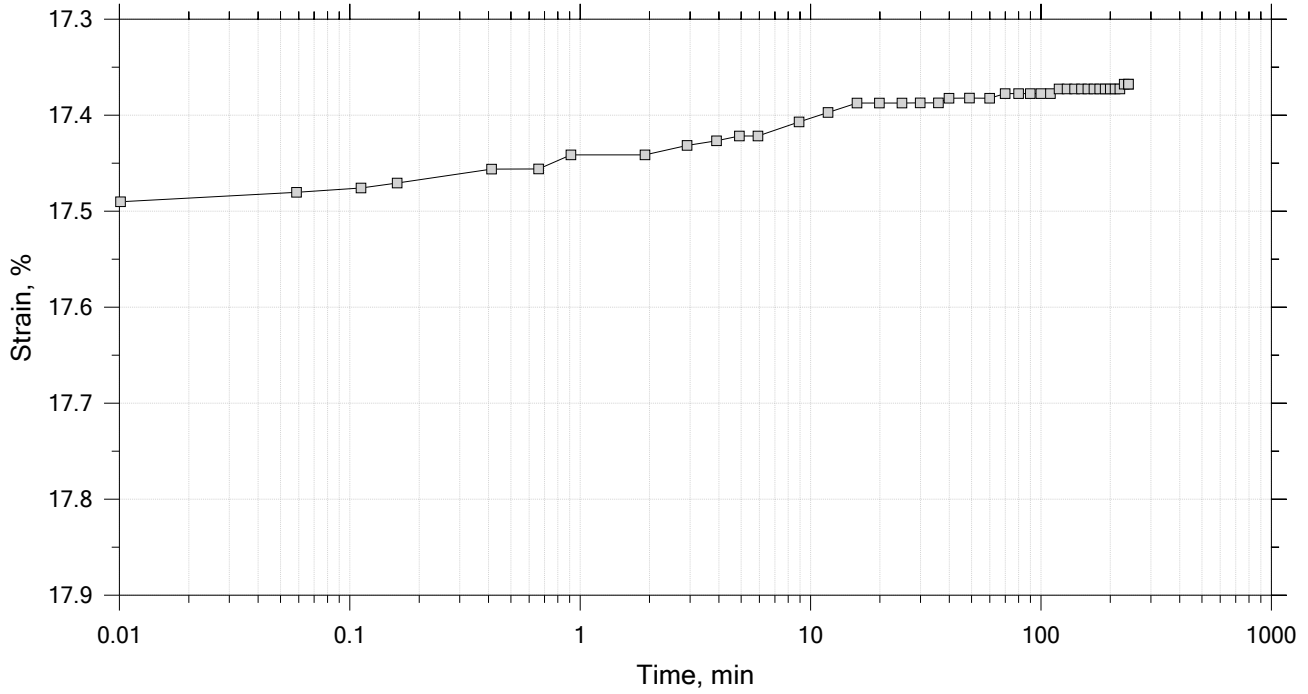
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 15

Constant Load Step

Stress: 2 tsf



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

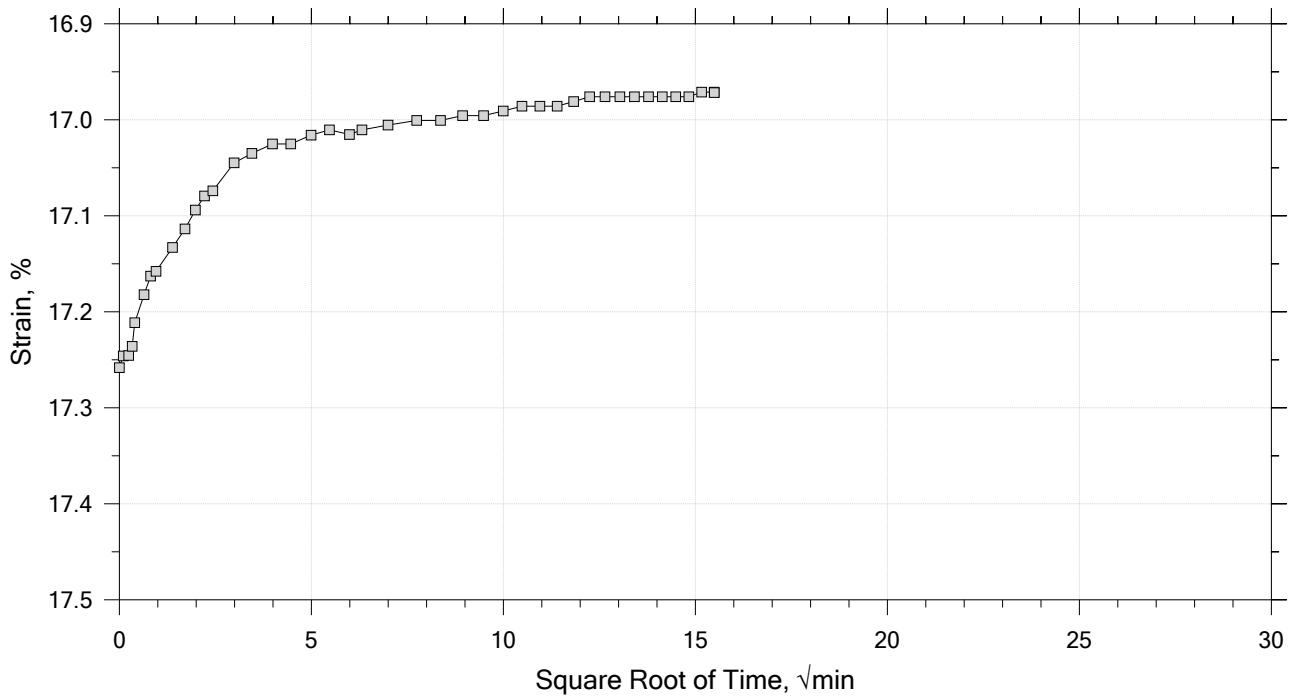
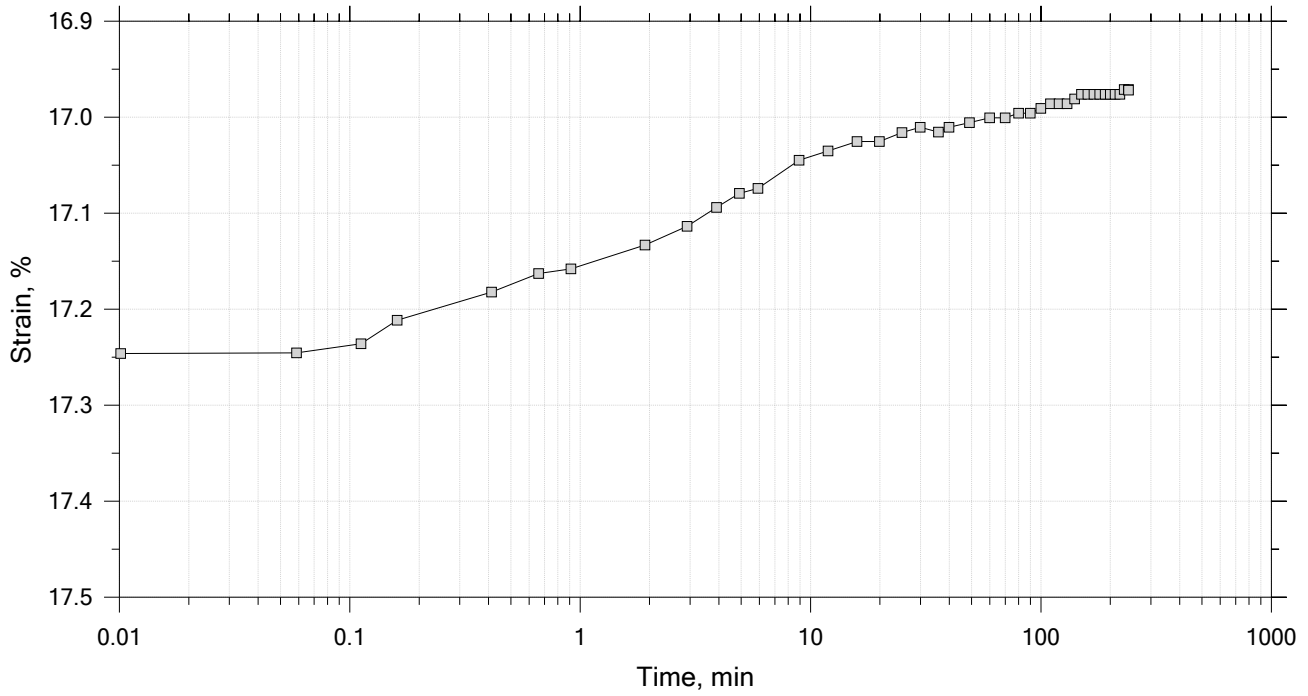



# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 15

Constant Load Step

Stress: 0.5 tsf



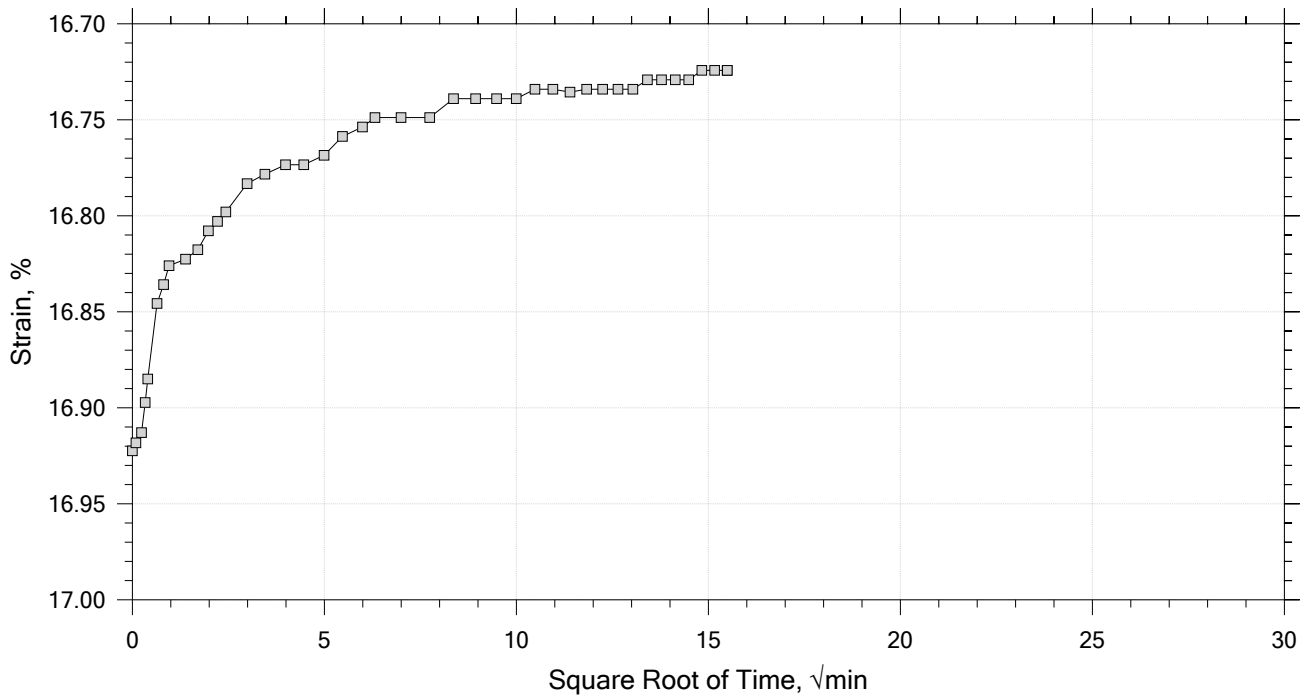
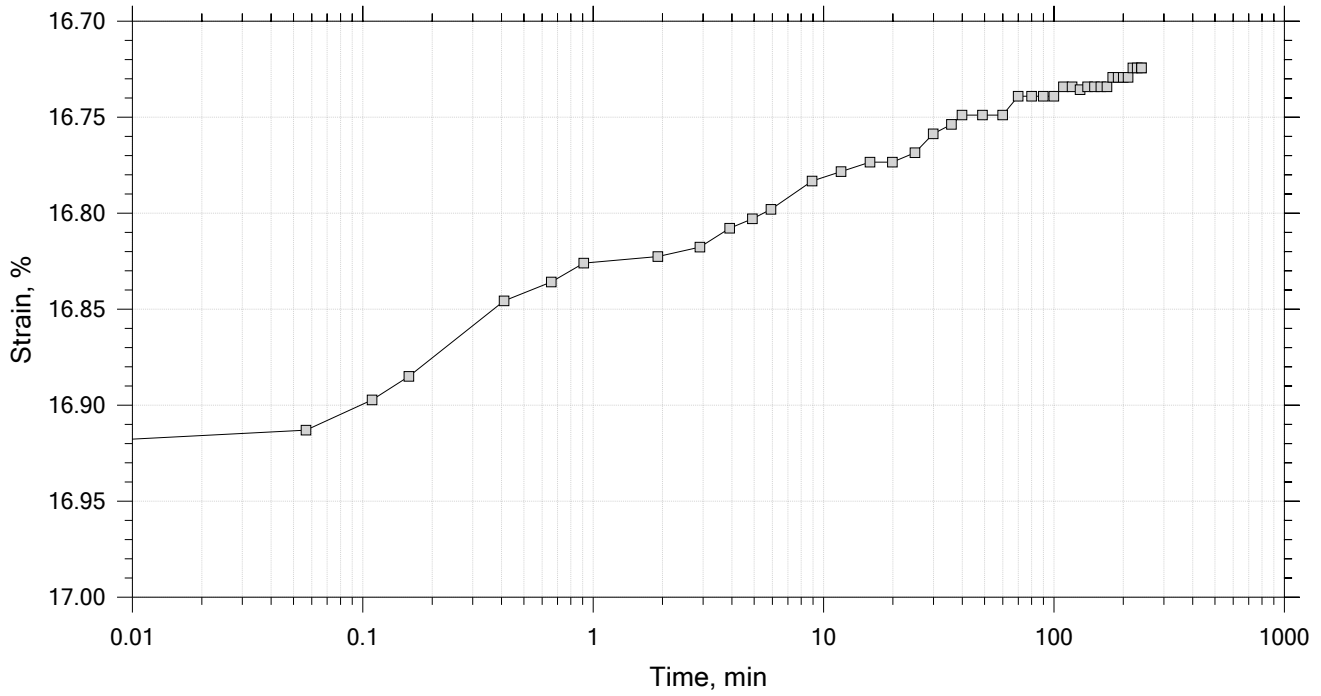
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 15

Constant Load Step

Stress: 0.125 tsf



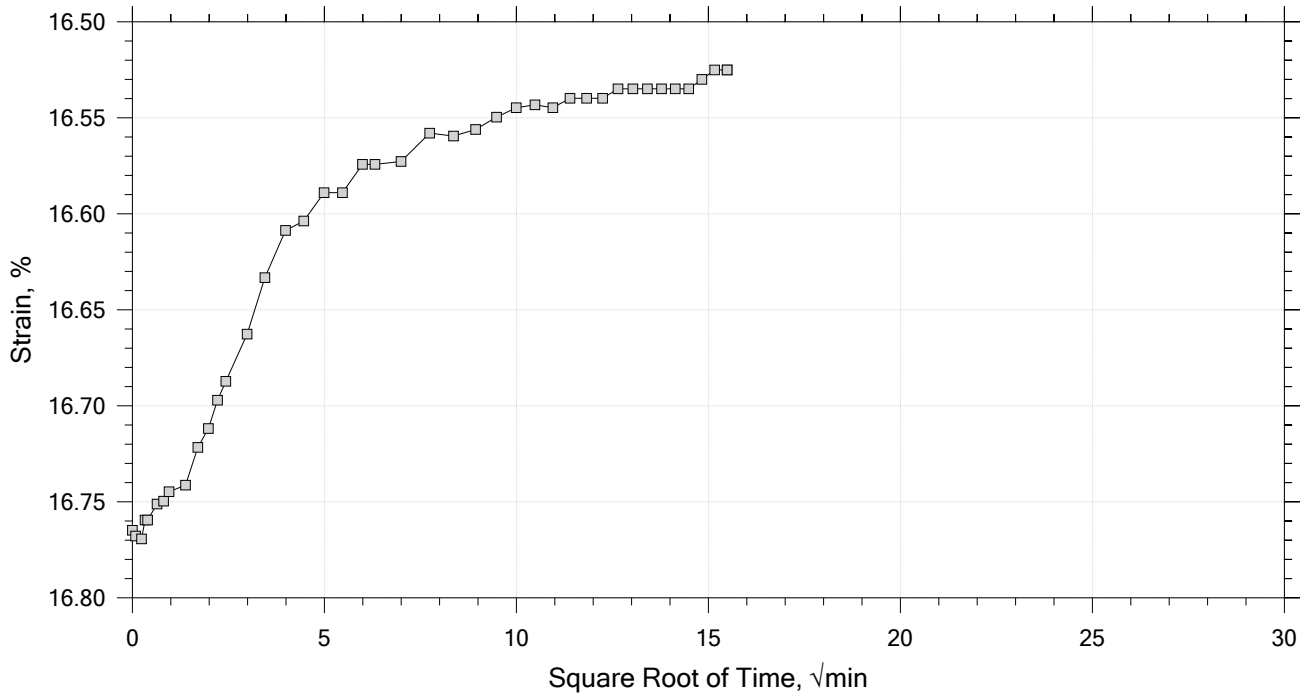
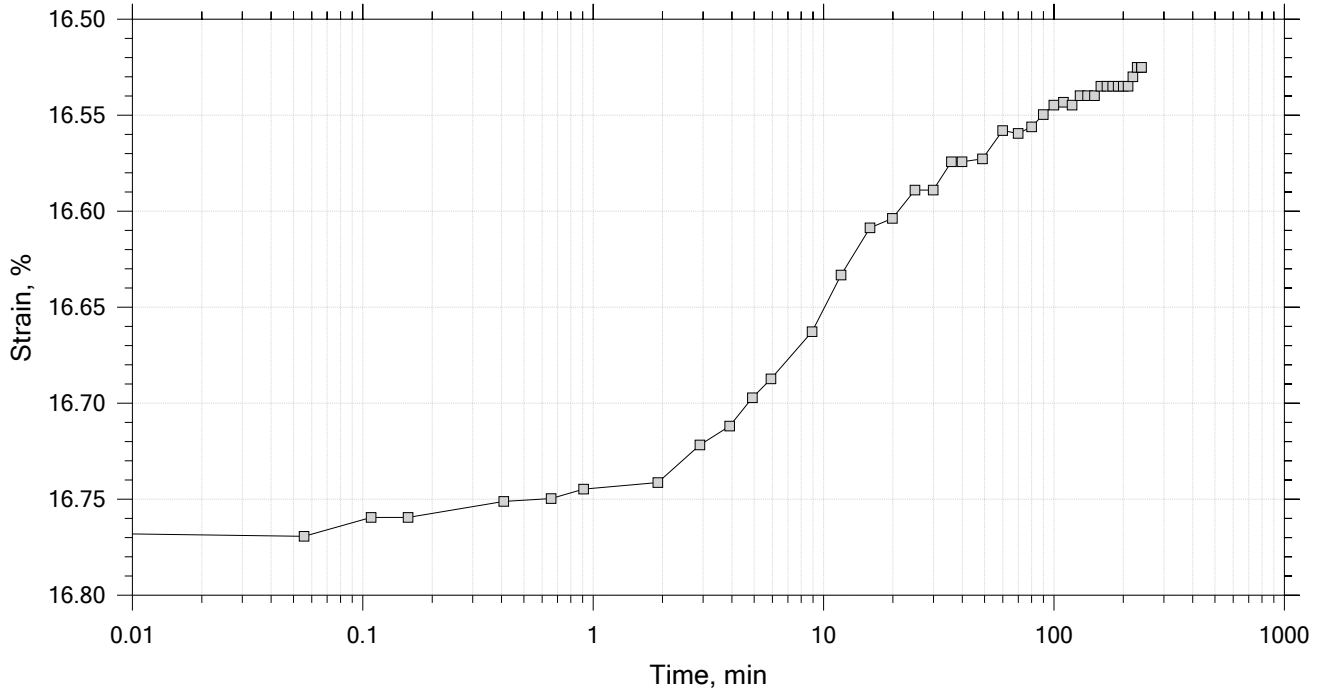
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 15 of 15

Constant Load Step

Stress: 0.0625 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.65	Liquid Limit: ---
Initial Height: 1.00 in	Initial Void Ratio: 1.21	Plastic Limit: ---
Final Height: 0.86 in	Final Void Ratio: 0.9	Plasticity Index: ---

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	A1611	RING		B-2329
Mass Container, gm	8.86	108.85	108.85	9.13
Mass Container + Wet Soil, gm	244.76	248.35	238.1	137.71
Mass Container + Dry Soil, gm	165.44	205.34	205.34	105.12
Mass Dry Soil, gm	156.58	96.49	96.49	95.99
Water Content, %	50.66	44.57	33.95	33.95
Void Ratio	---	1.21	0.90	---
Degree of Saturation, %	---	97.70	100.00	---
Dry Unit Weight, pcf	---	74.884	87.075	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

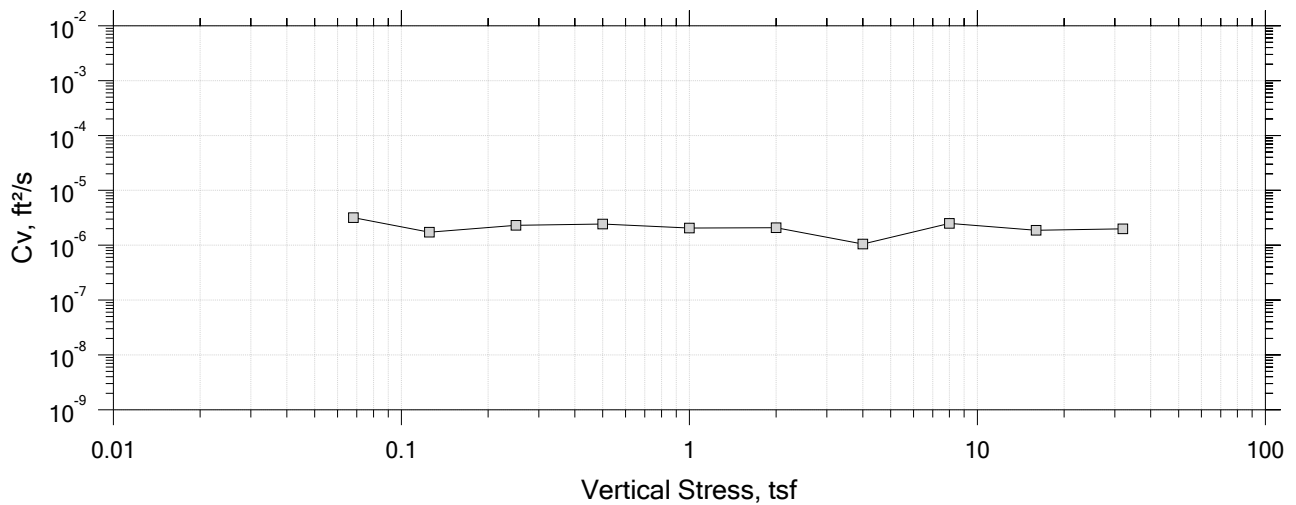
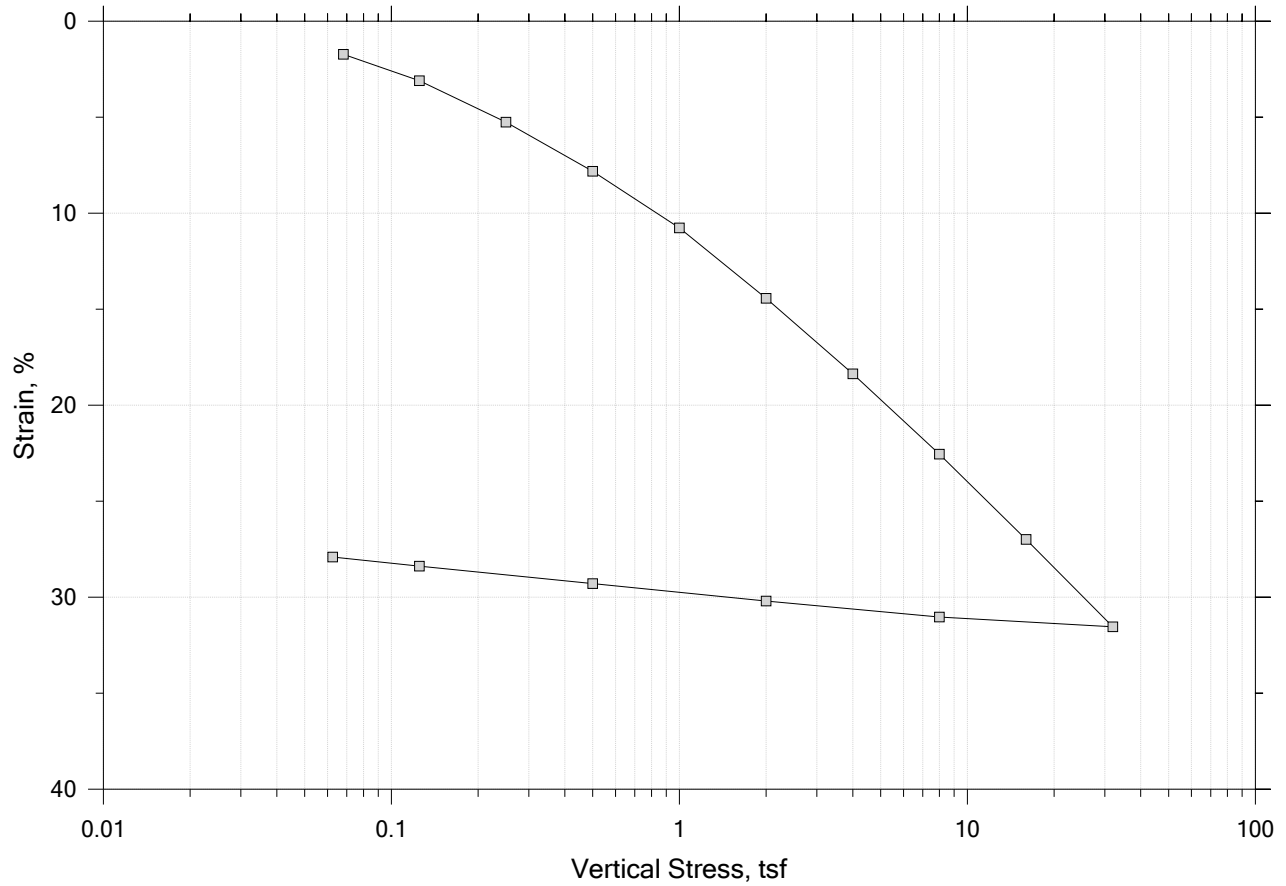
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-109SPT	Tested By: trm	Checked By: anm
	Sample No.: 20-22-191004	Test Date: 12/6/19	Depth: ---
	Test No.: IP-4	Sample Type: intact	Elevation: ---
	Description: Moist, very dark gray sand		
	Remarks: System X, Swell Pressure = 0.0681 tsf		






# One-Dimensional Consolidation by ASTM D2435 - Method B

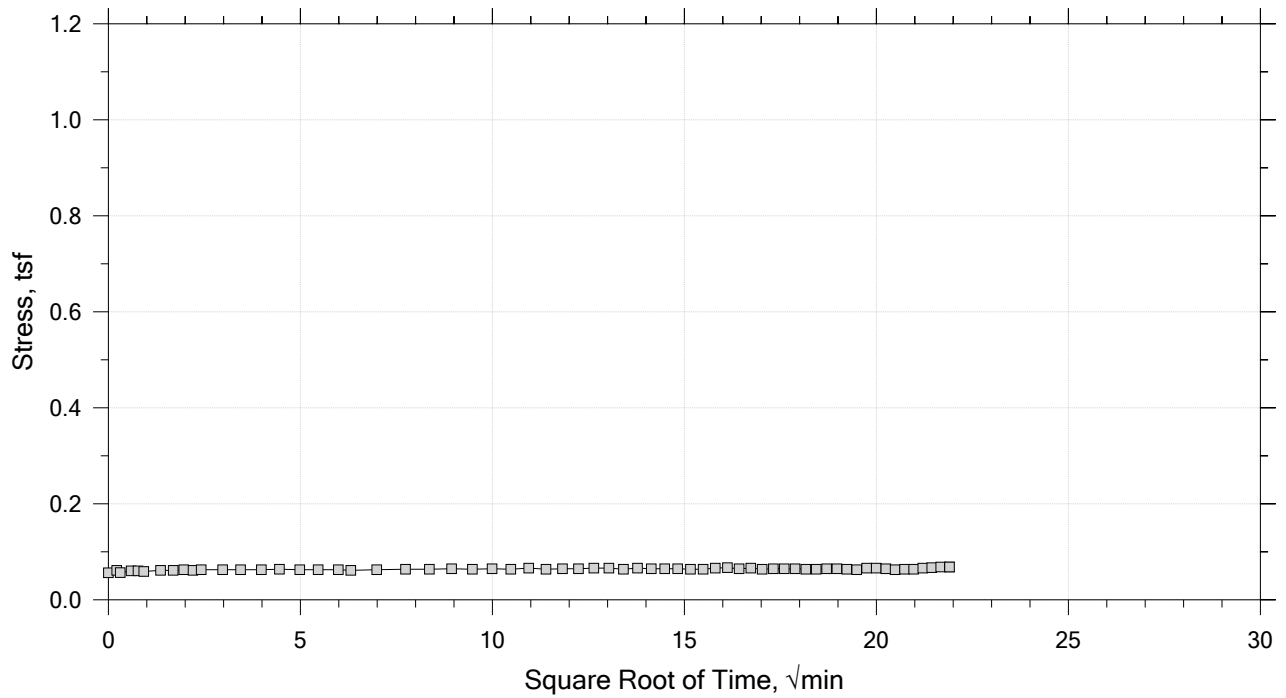
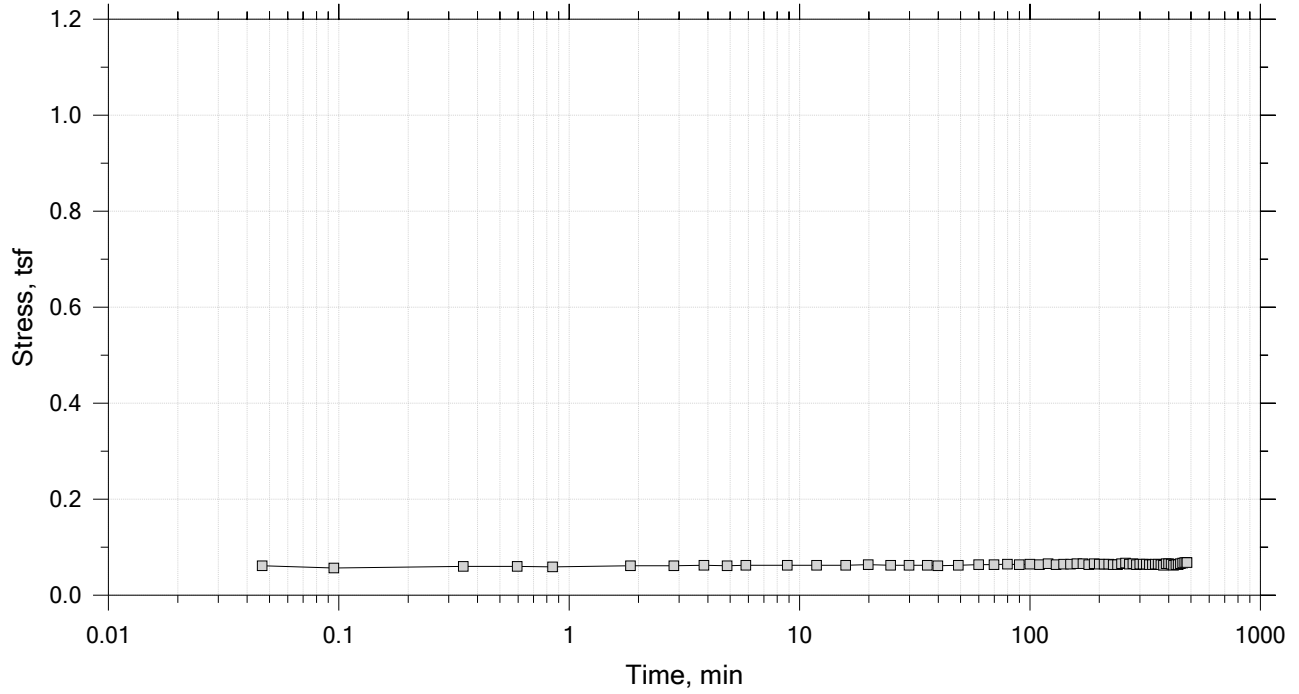
## Summary Report




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		
	Displacement at End of Increment		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 1 of 15  
 Constant Volume Step  
 Stress: 0.0681 tsf

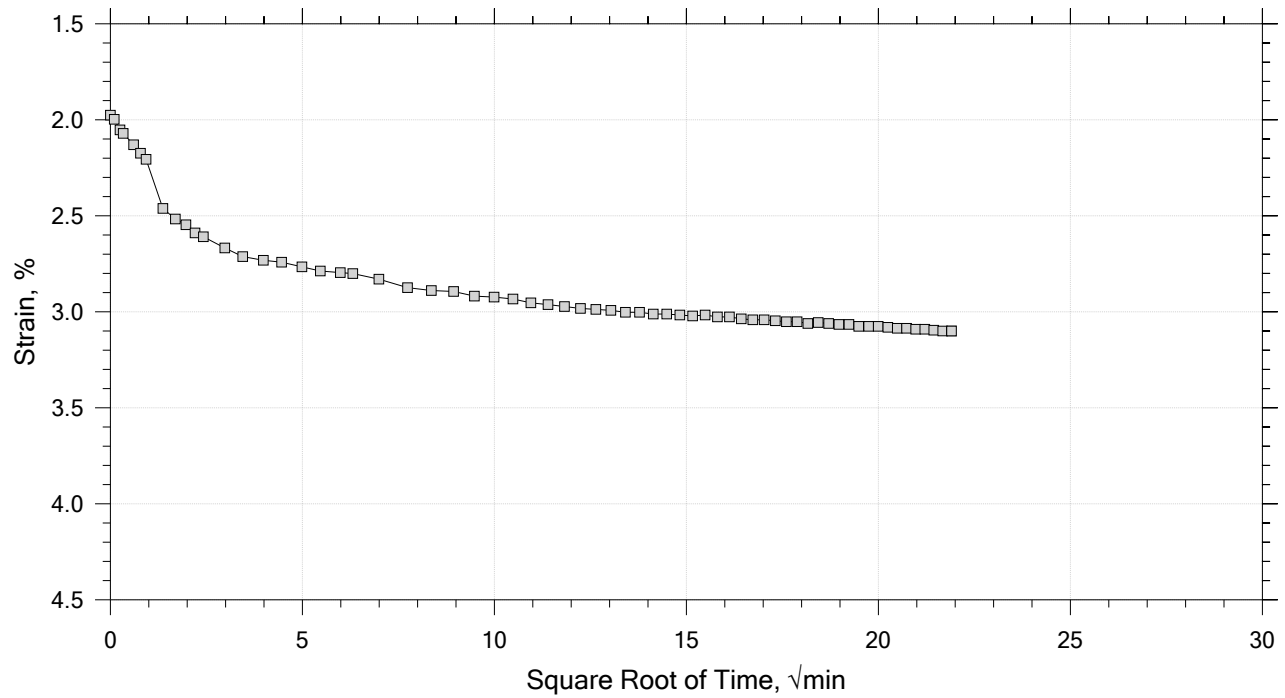
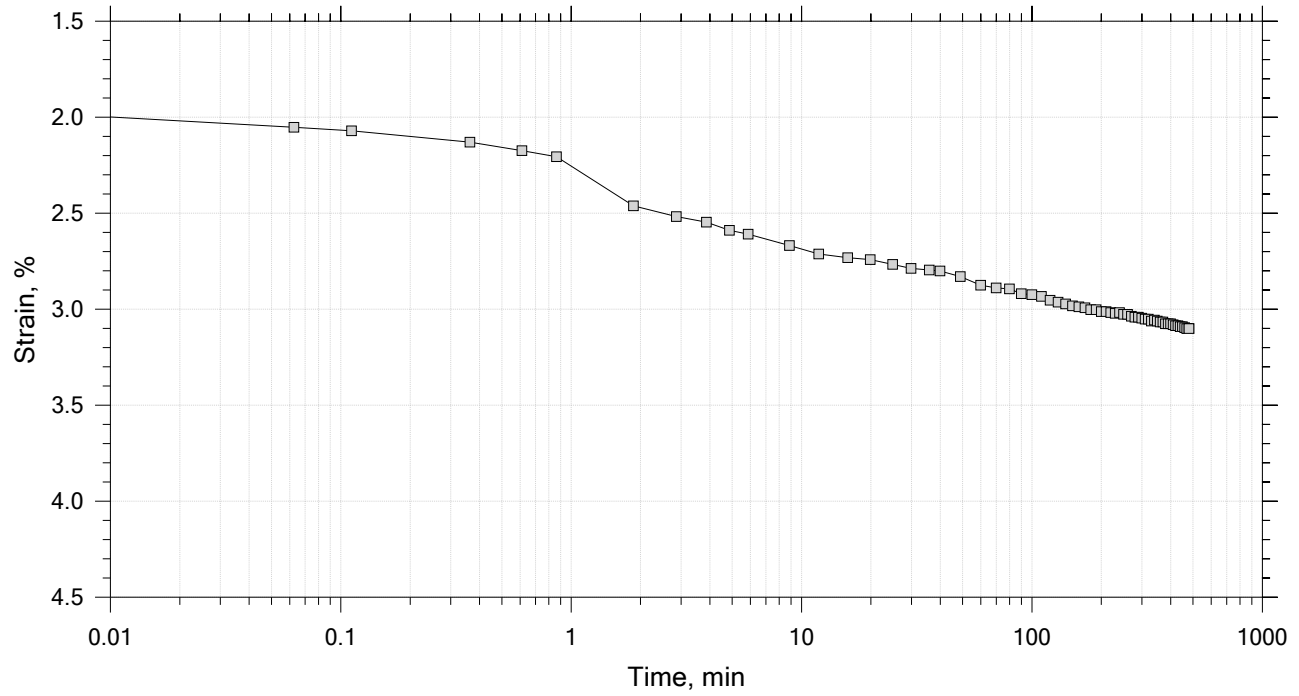



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		



# One-Dimensional Consolidation by ASTM D2435 - Method B

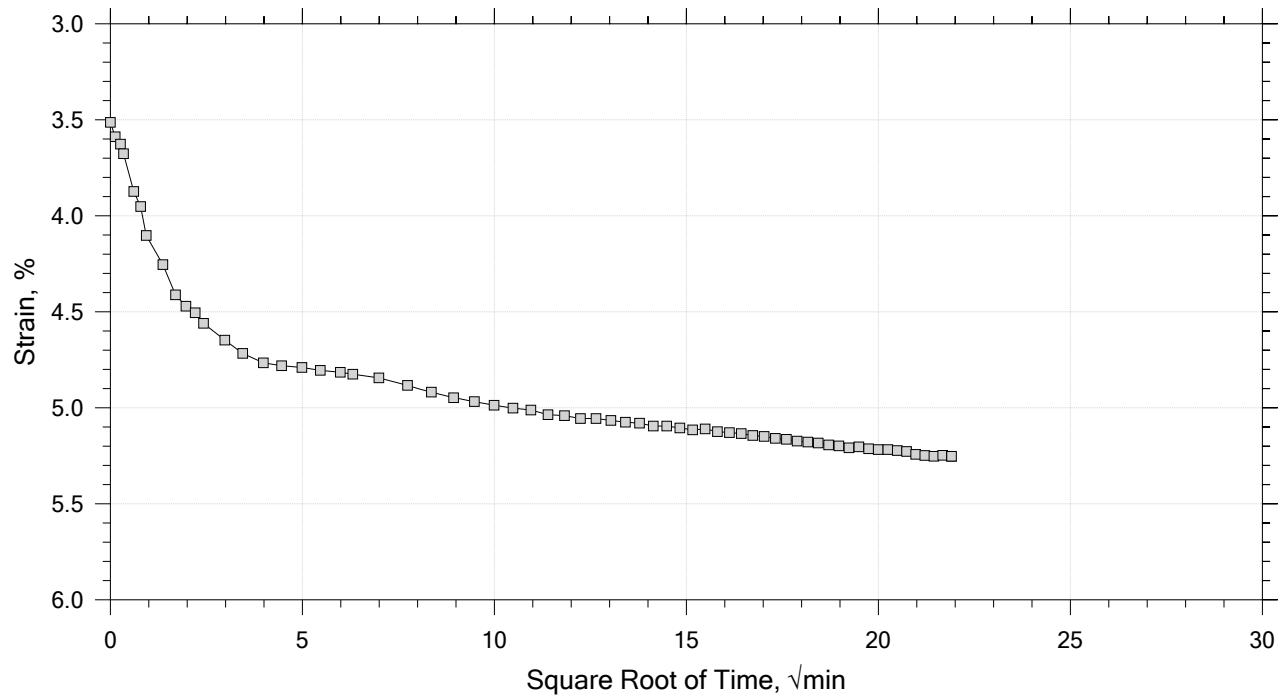
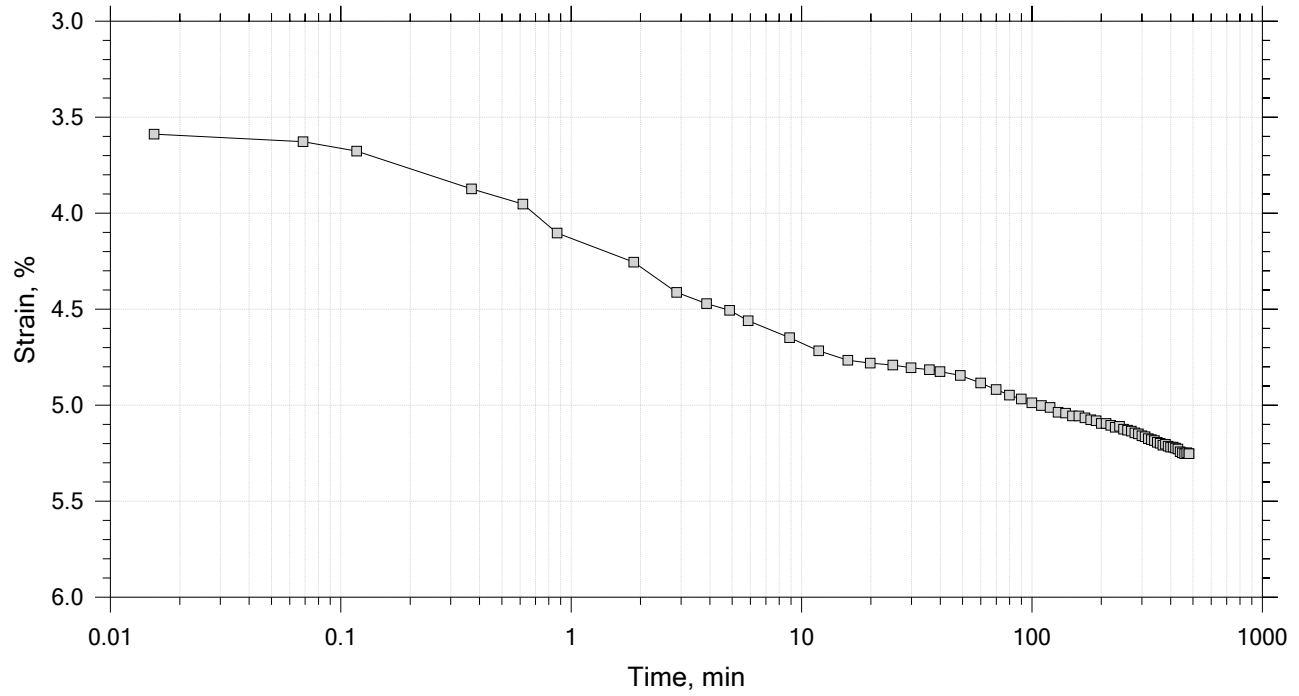
Time Curve 2 of 15  
 Constant Load Step  
 Stress: 0.125 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

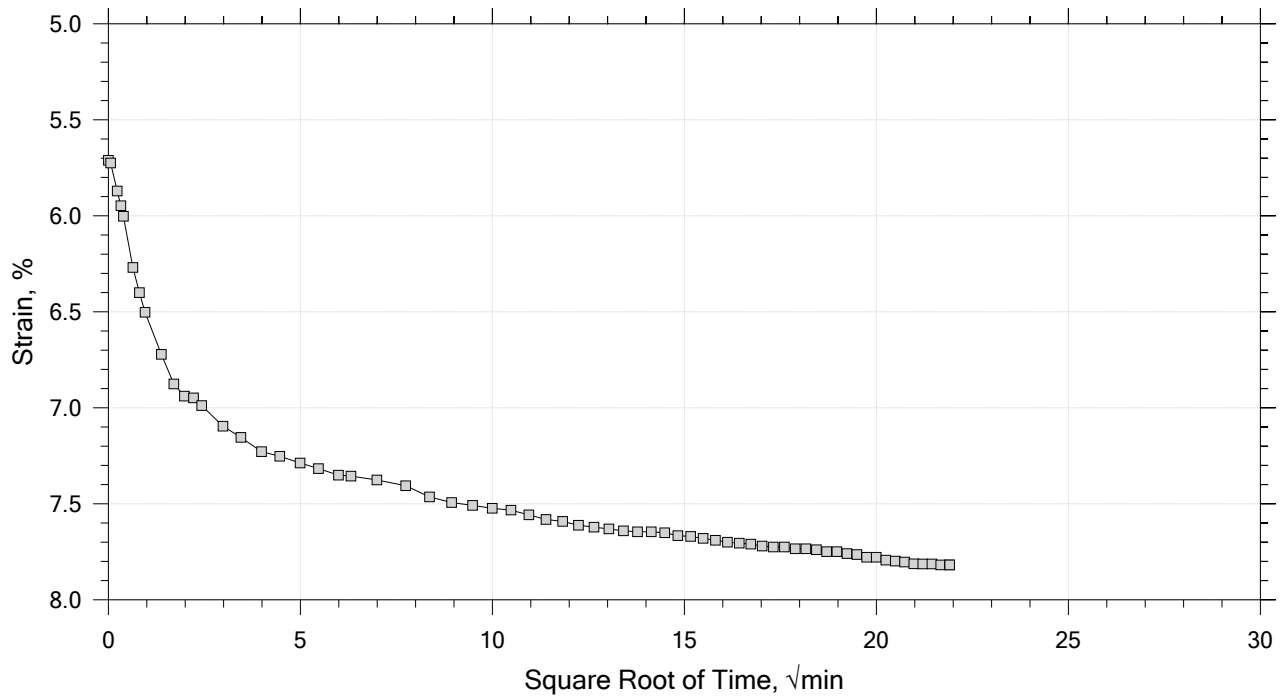
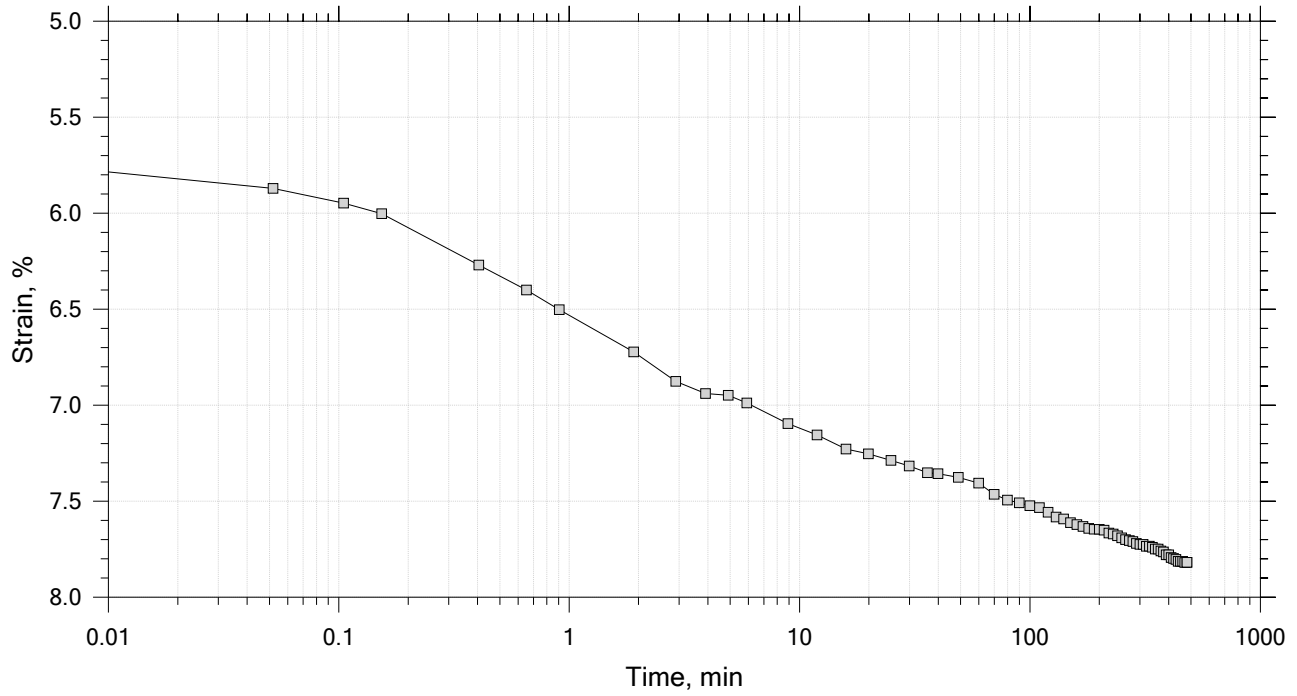
Time Curve 3 of 15  
 Constant Load Step  
 Stress: 0.25 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

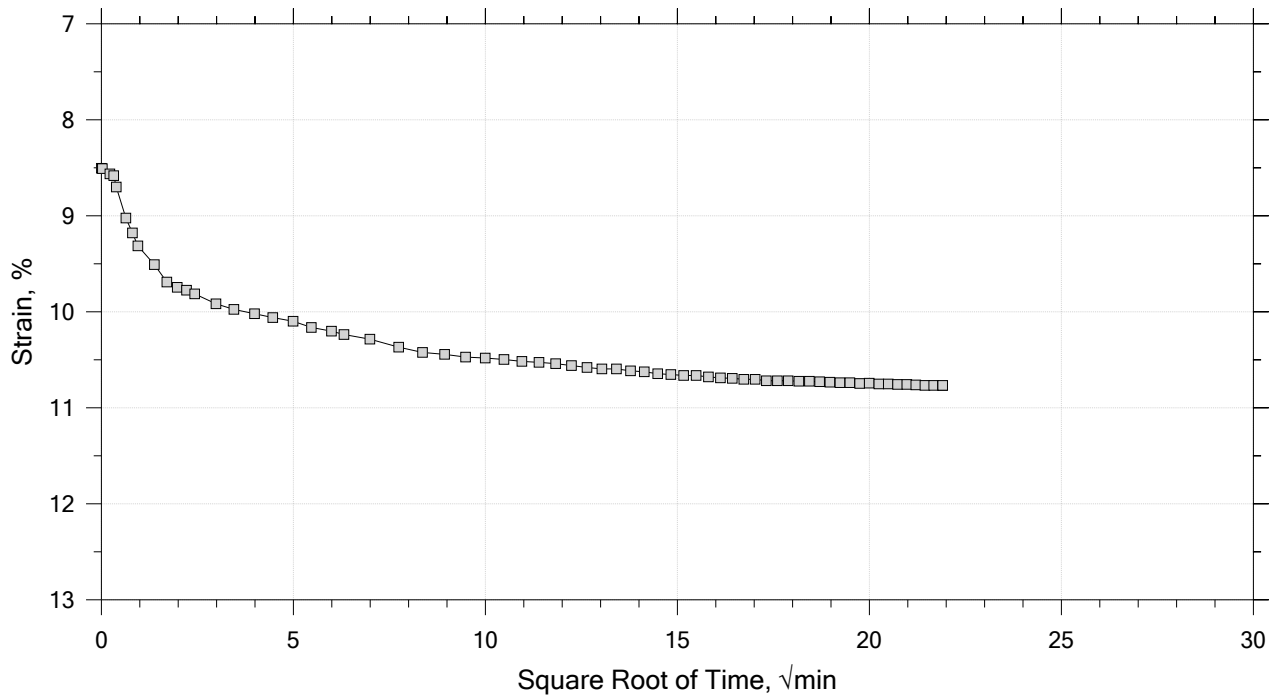
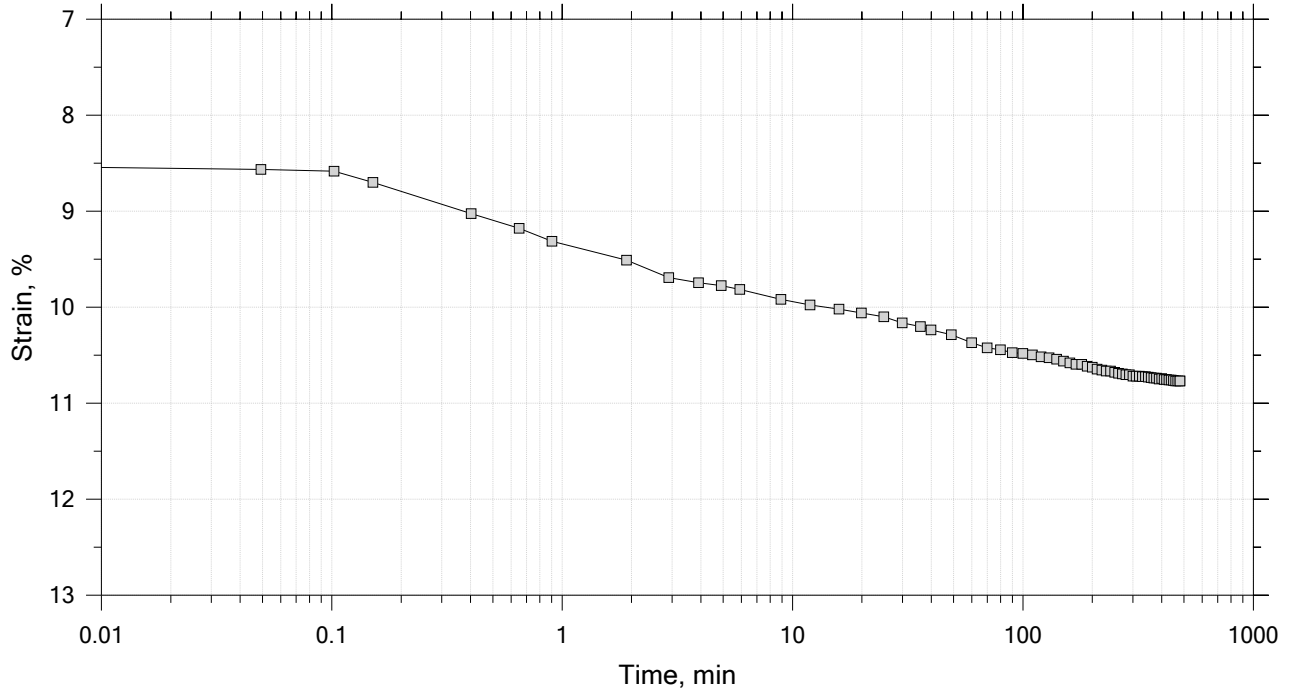
Time Curve 4 of 15  
 Constant Load Step  
 Stress: 0.5 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 5 of 15  
 Constant Load Step  
 Stress: 1 tsf



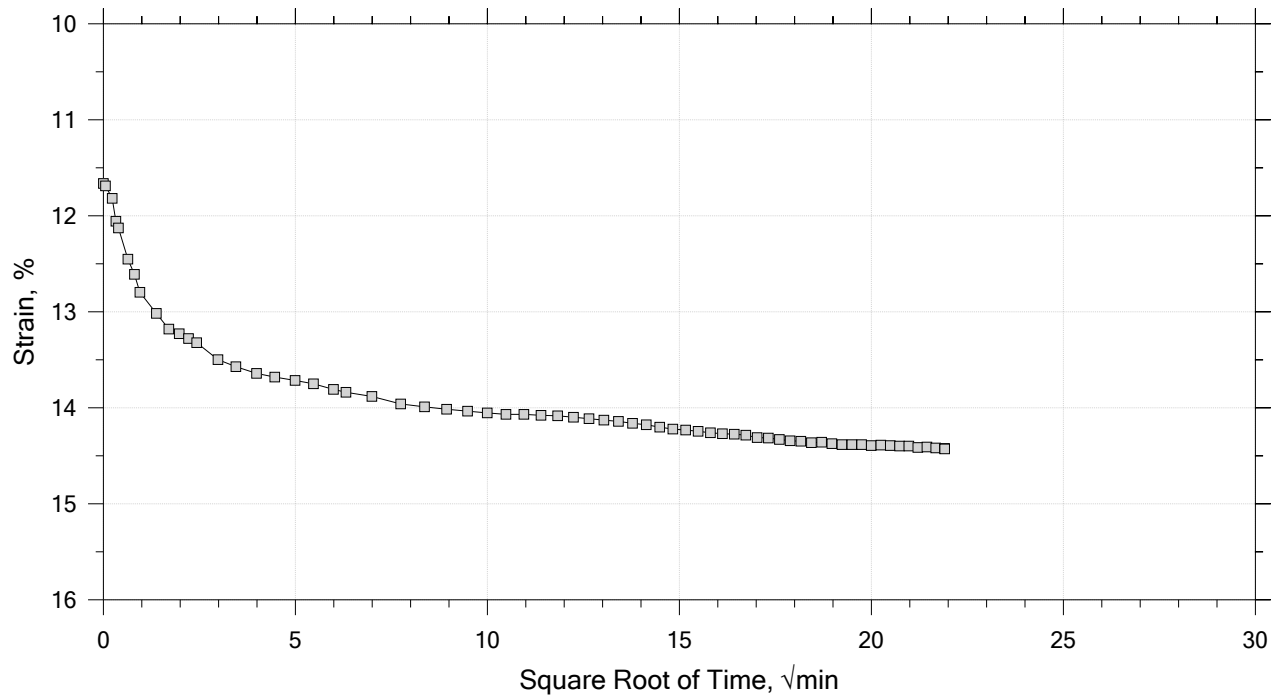
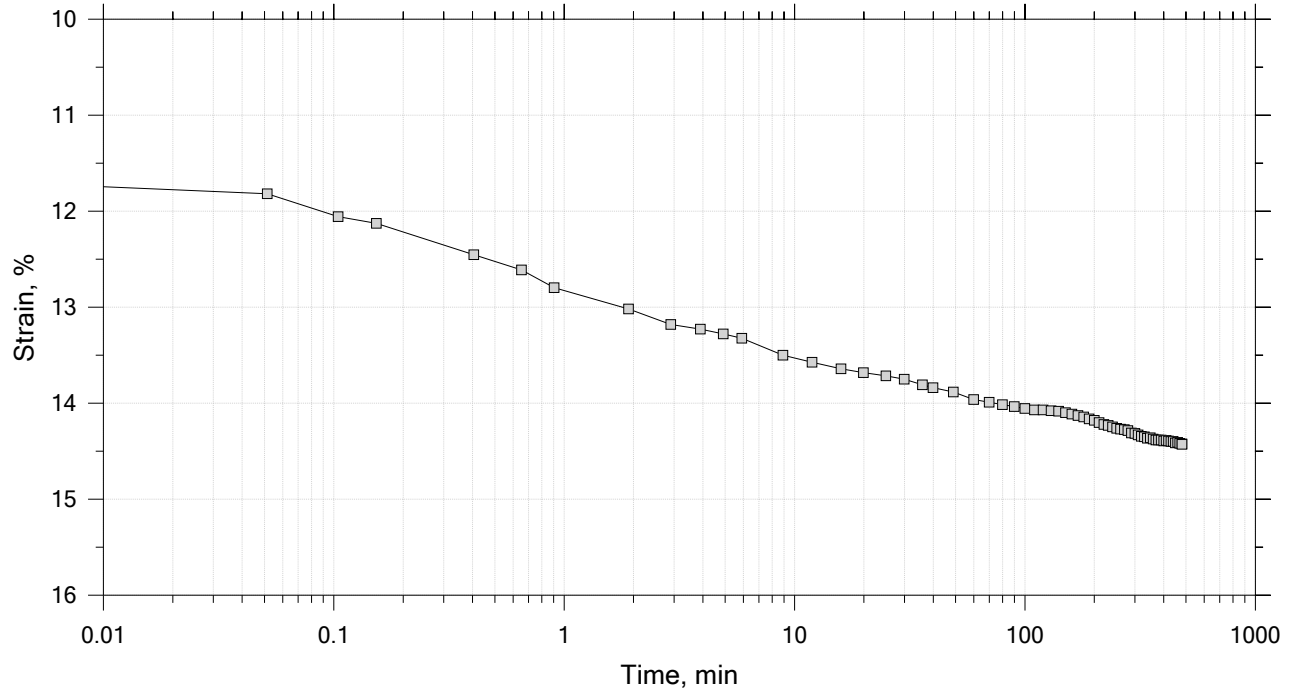
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 15

Constant Load Step

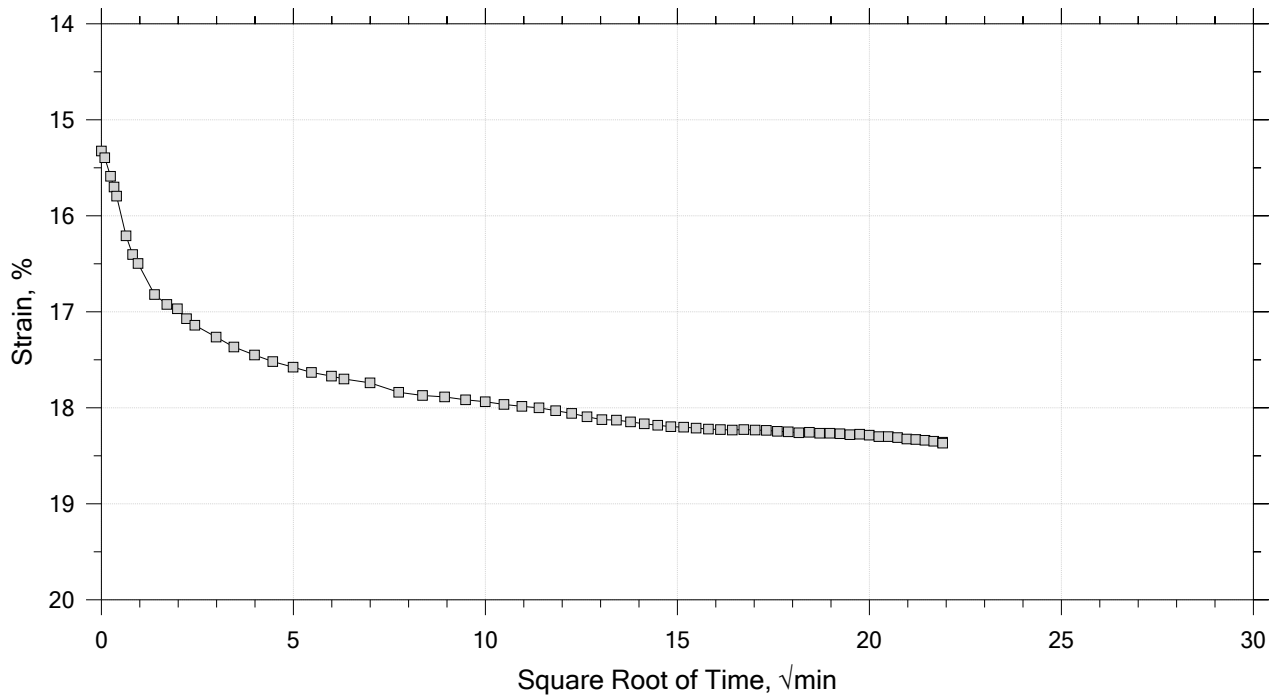
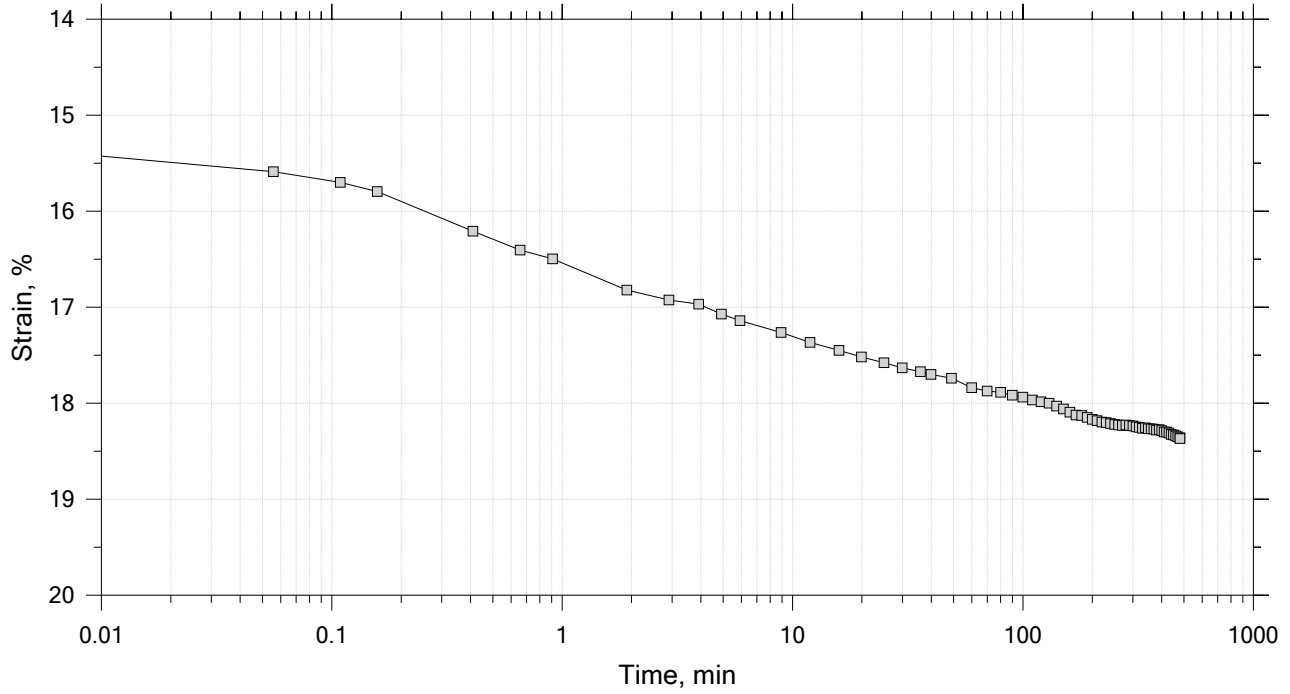
Stress: 2 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 15  
 Constant Load Step  
 Stress: 4 tsf



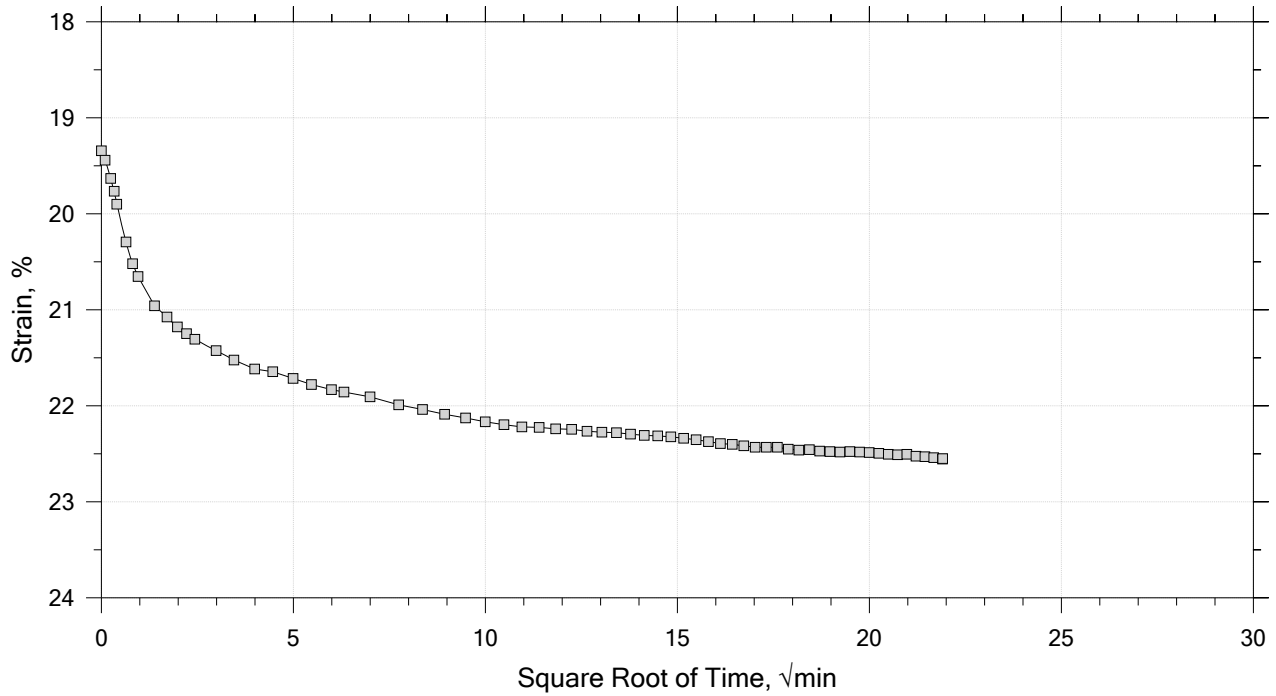
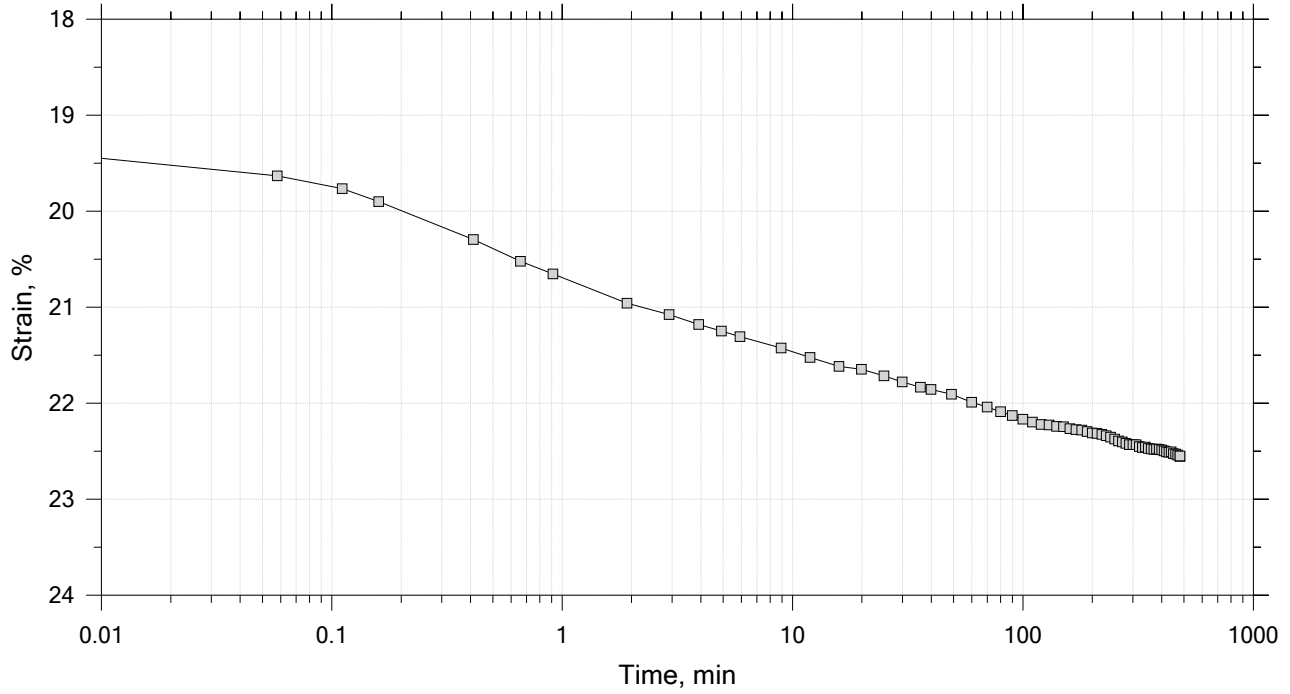
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 15

Constant Load Step

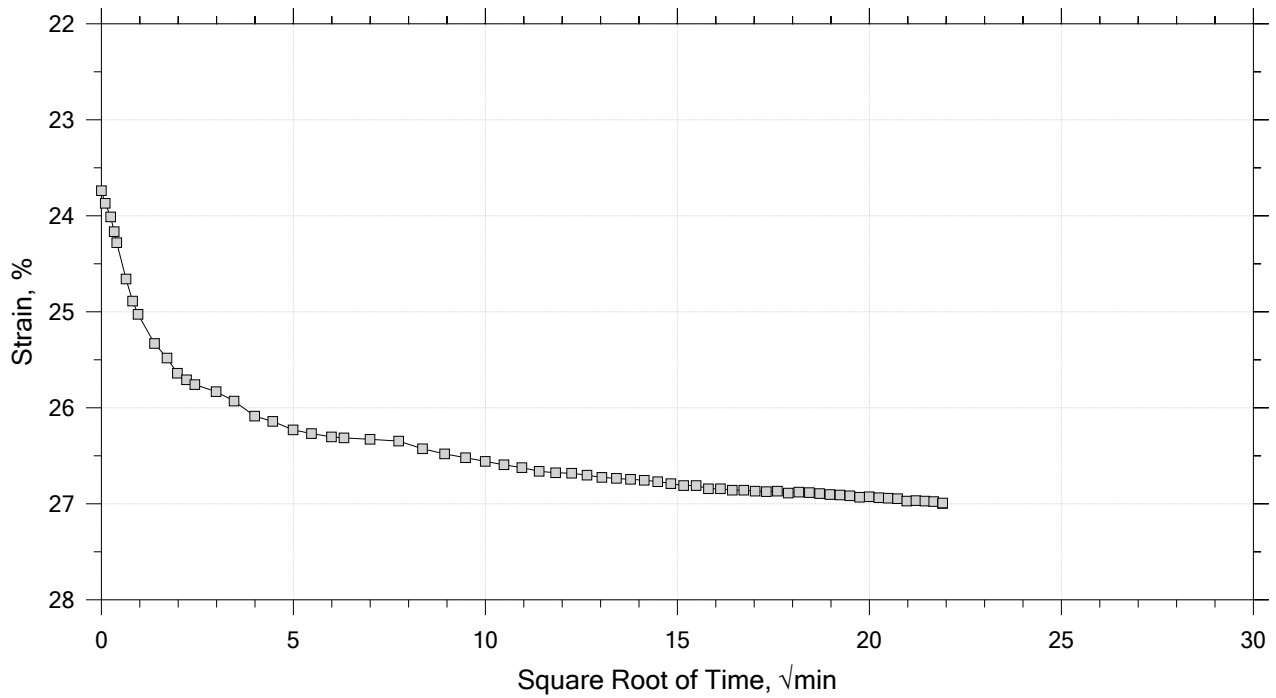
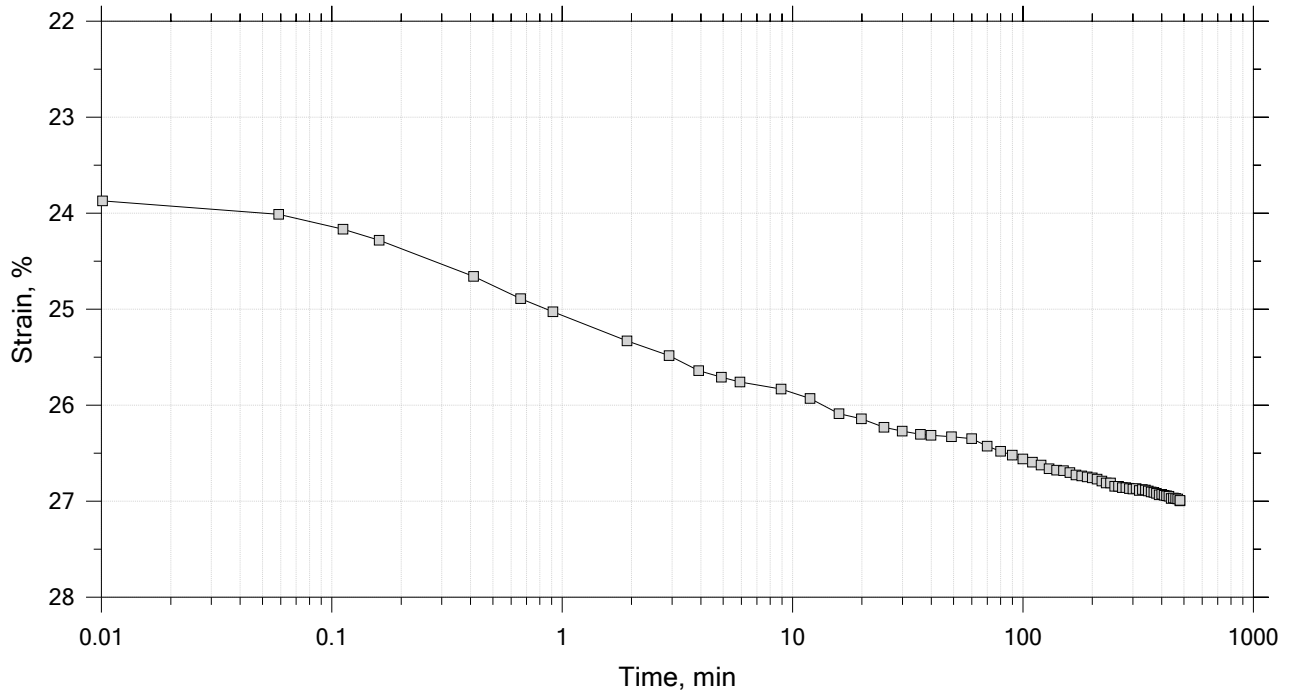
Stress: 8 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 15  
 Constant Load Step  
 Stress: 16 tsf



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

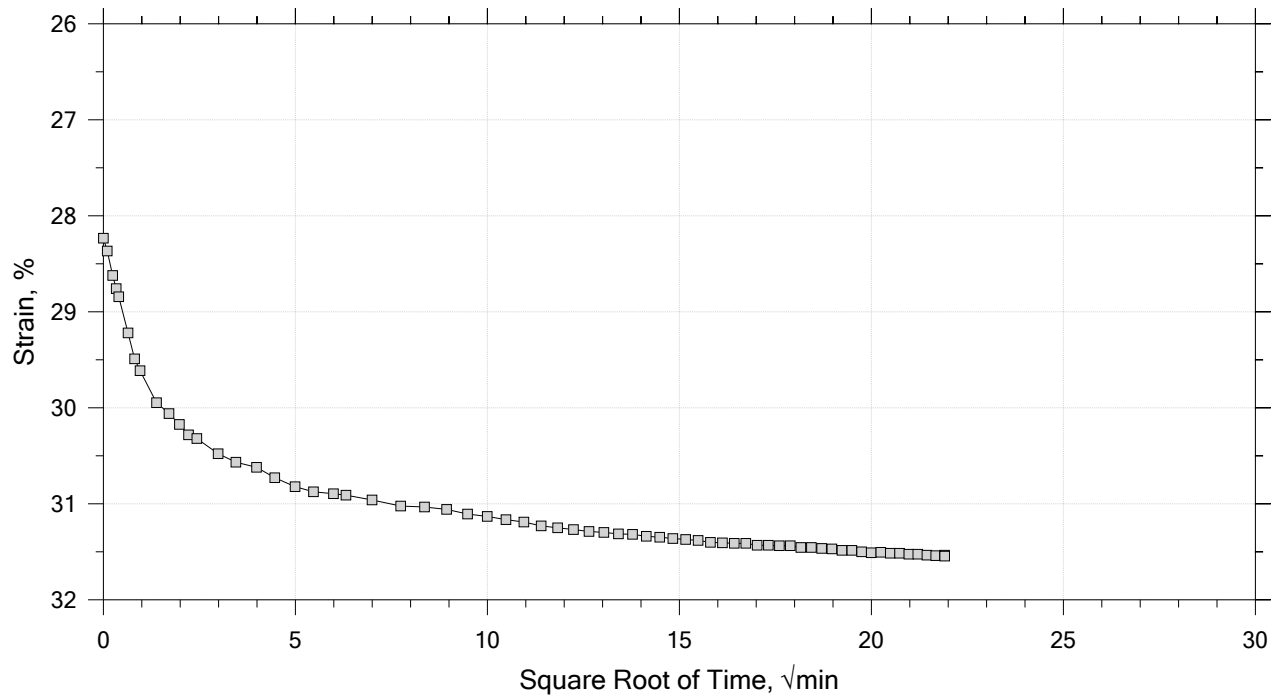
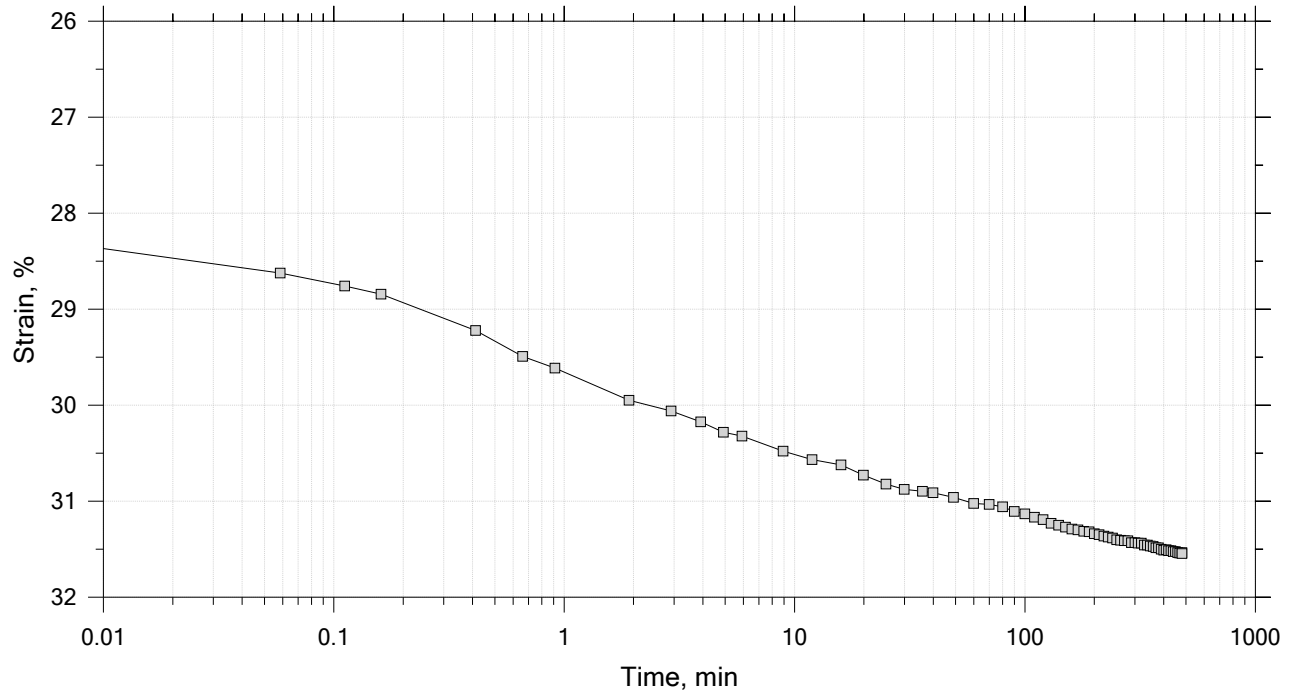



# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 15

Constant Load Step

Stress: 32 tsf



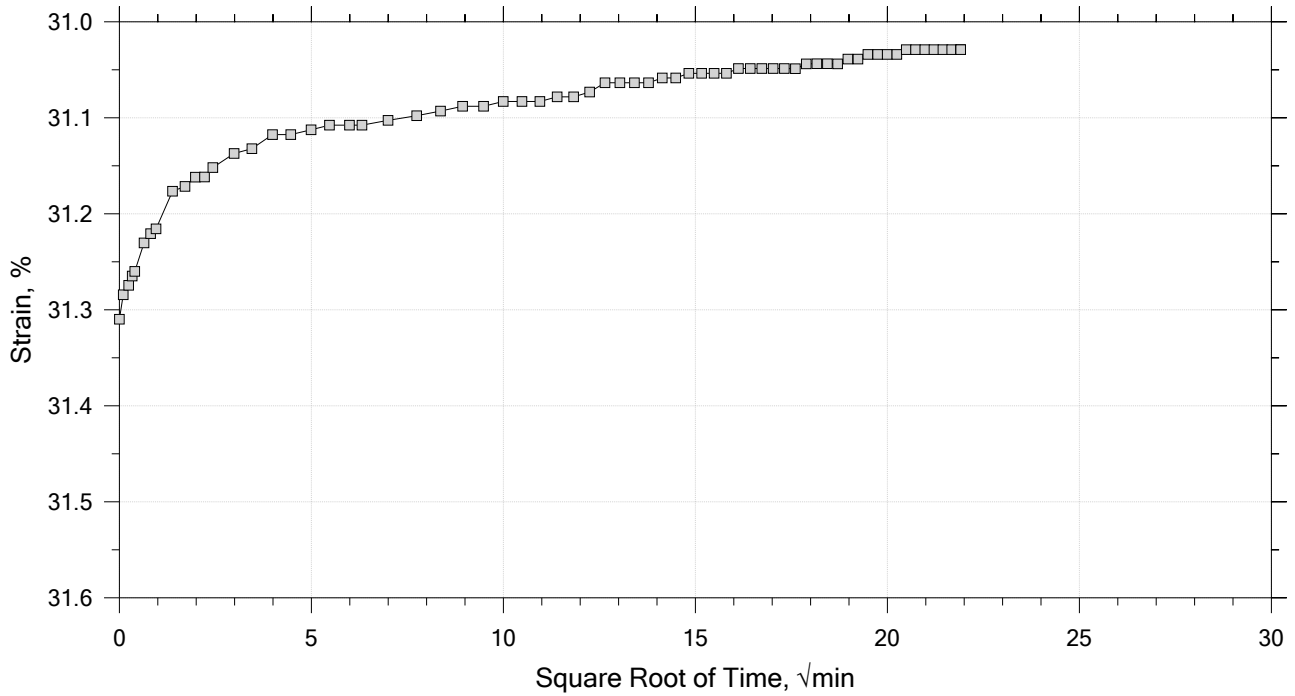
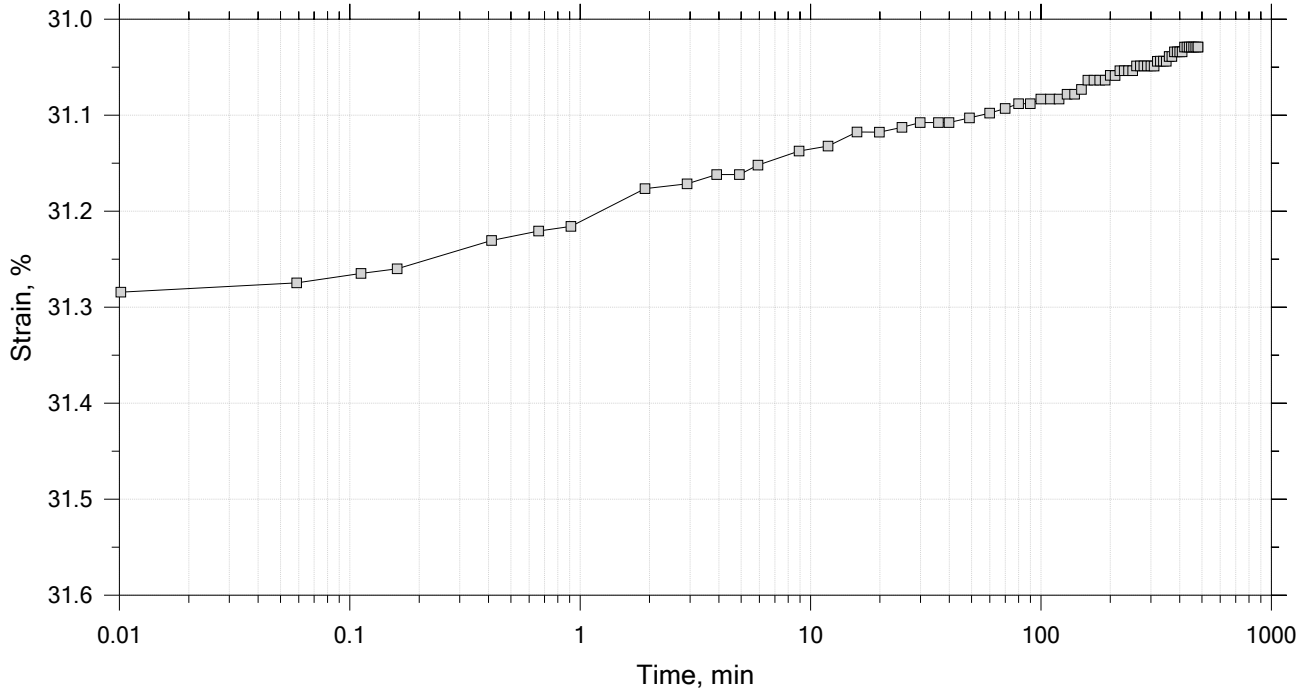
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 15

Constant Load Step

Stress: 8 tsf



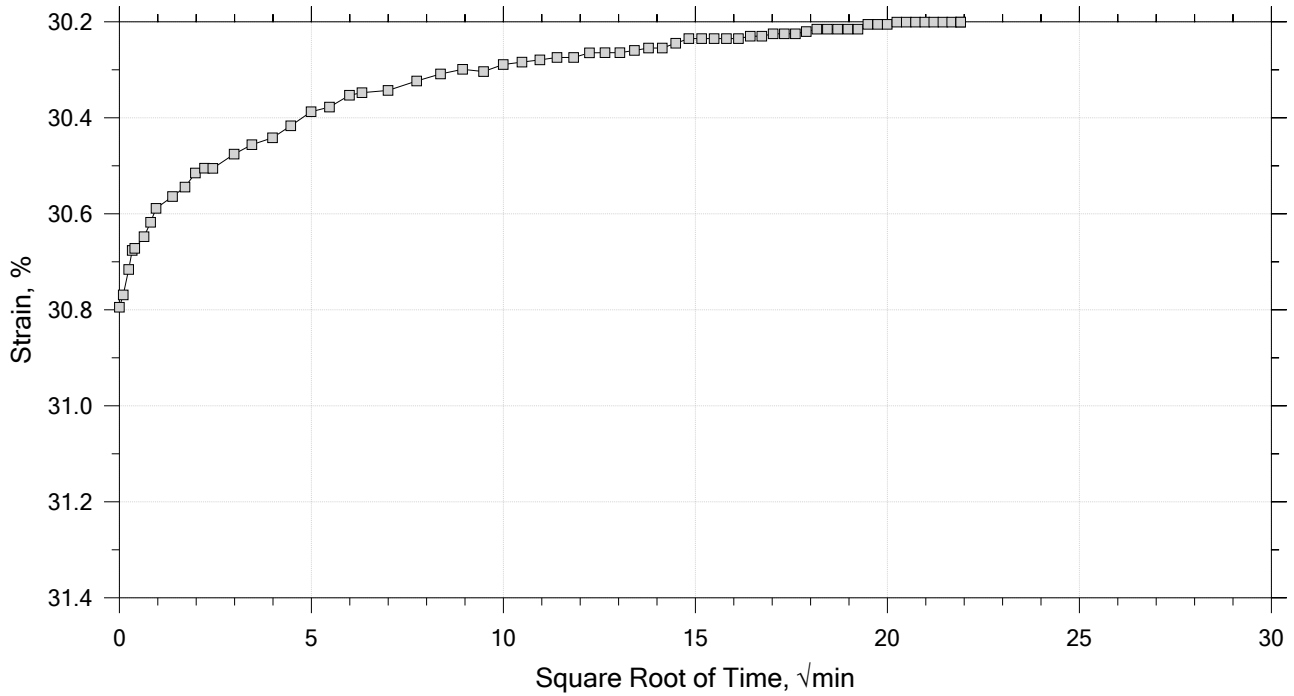
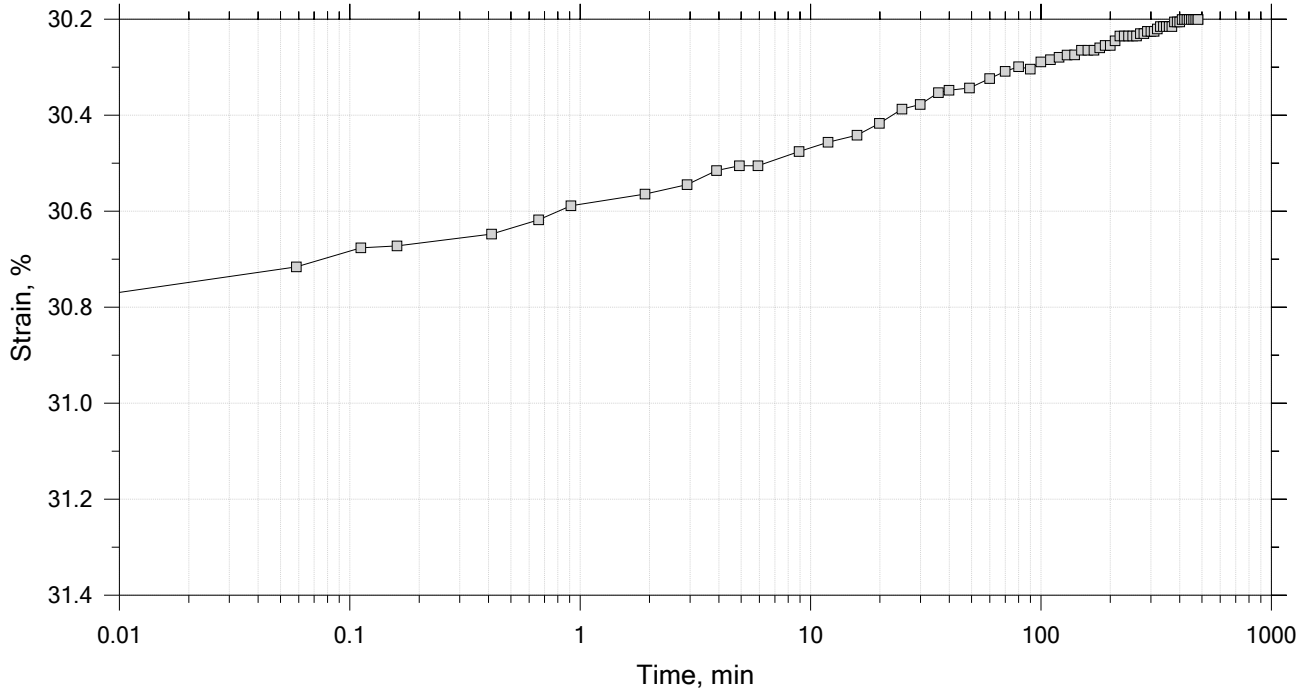
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 15

Constant Load Step

Stress: 2 tsf



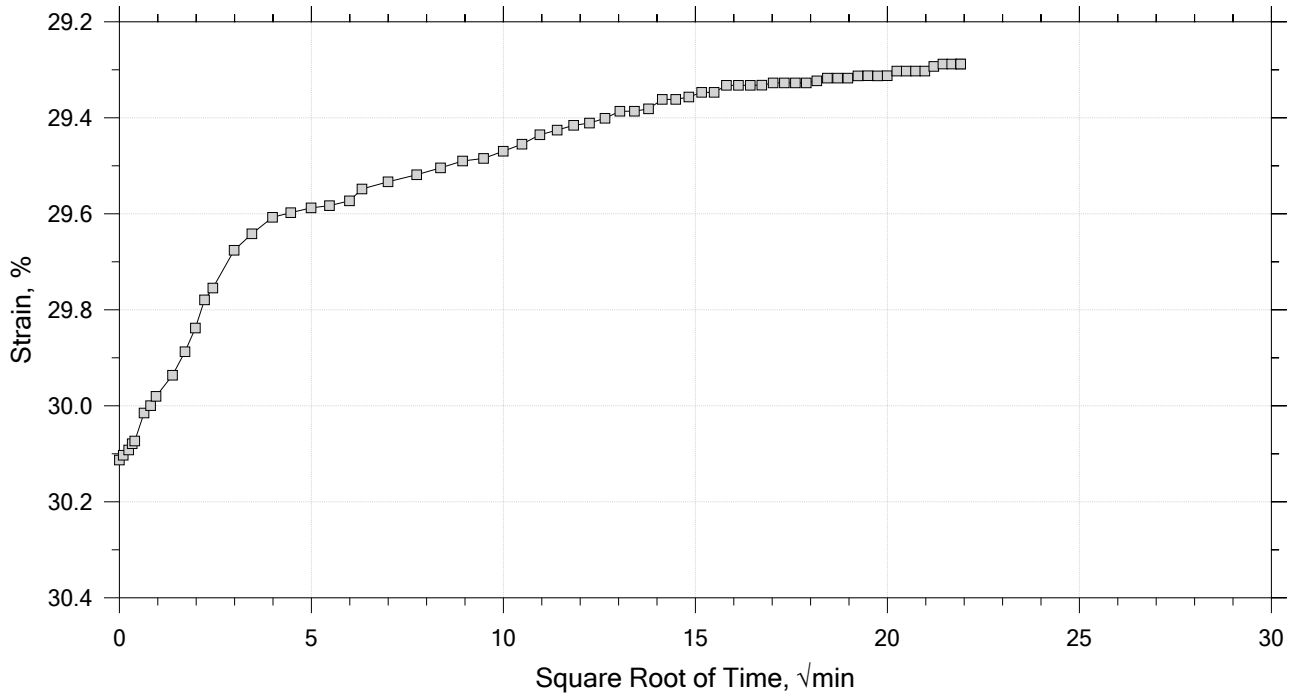
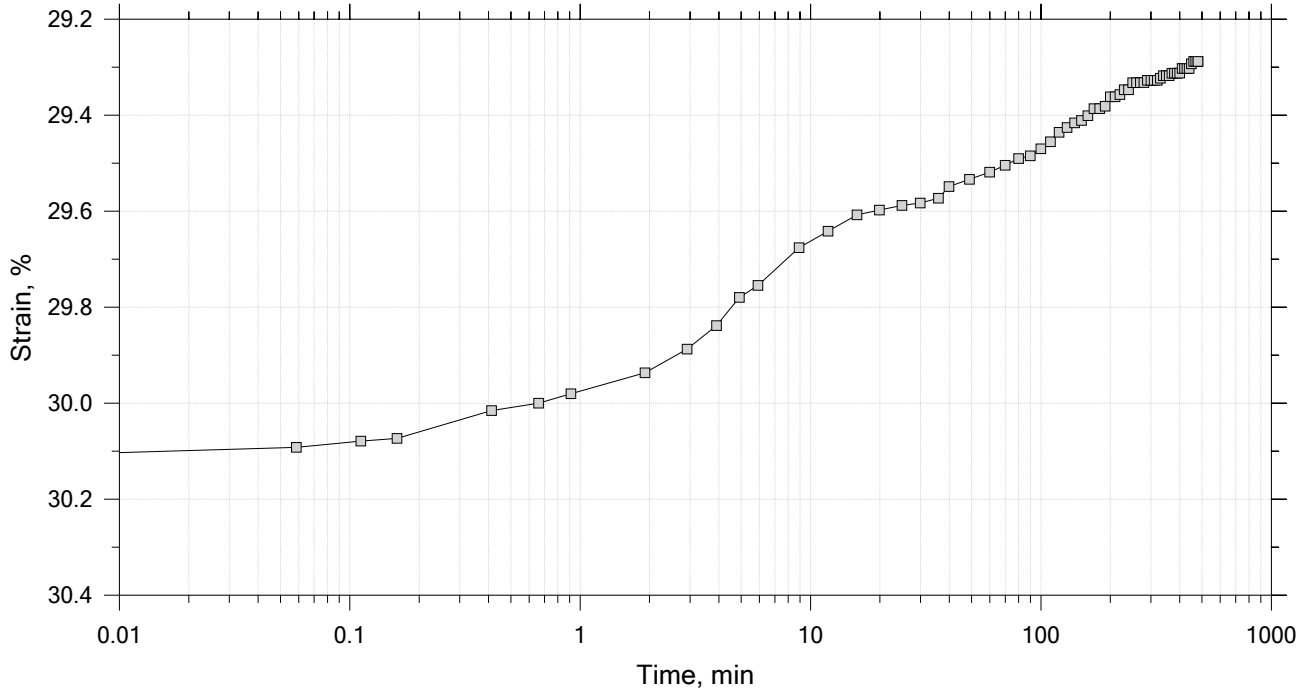
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 15

Constant Load Step

Stress: 0.5 tsf



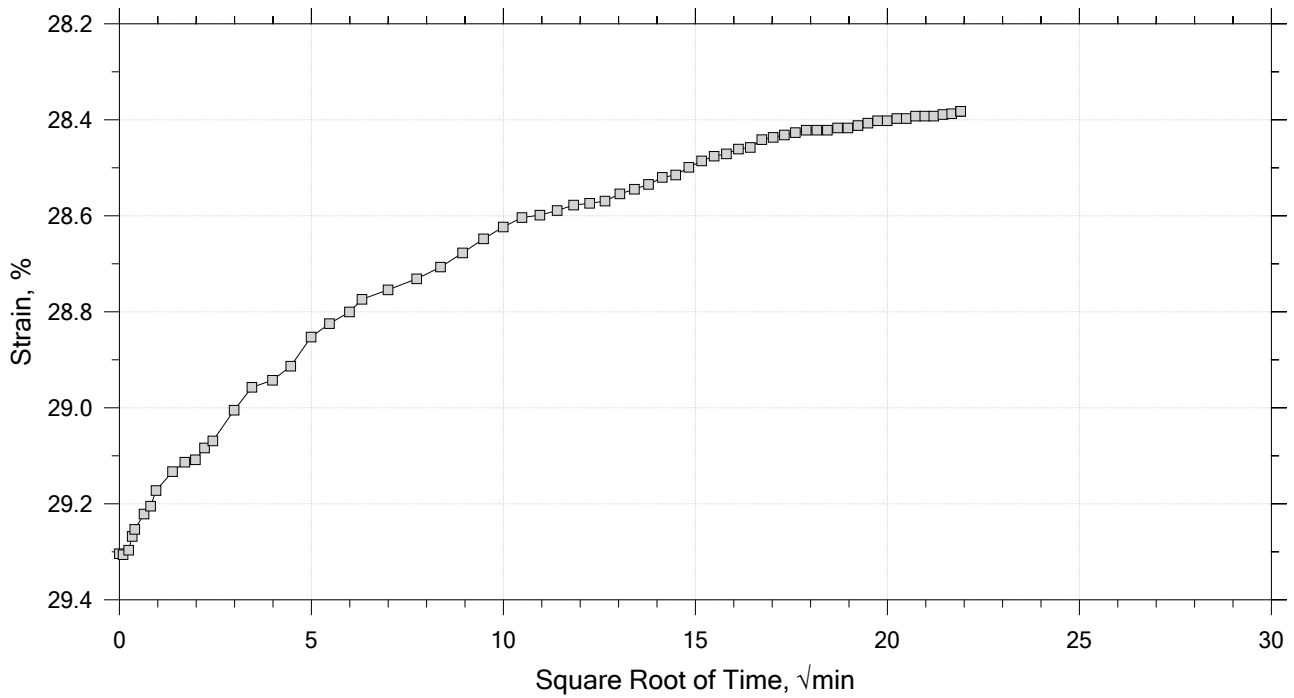
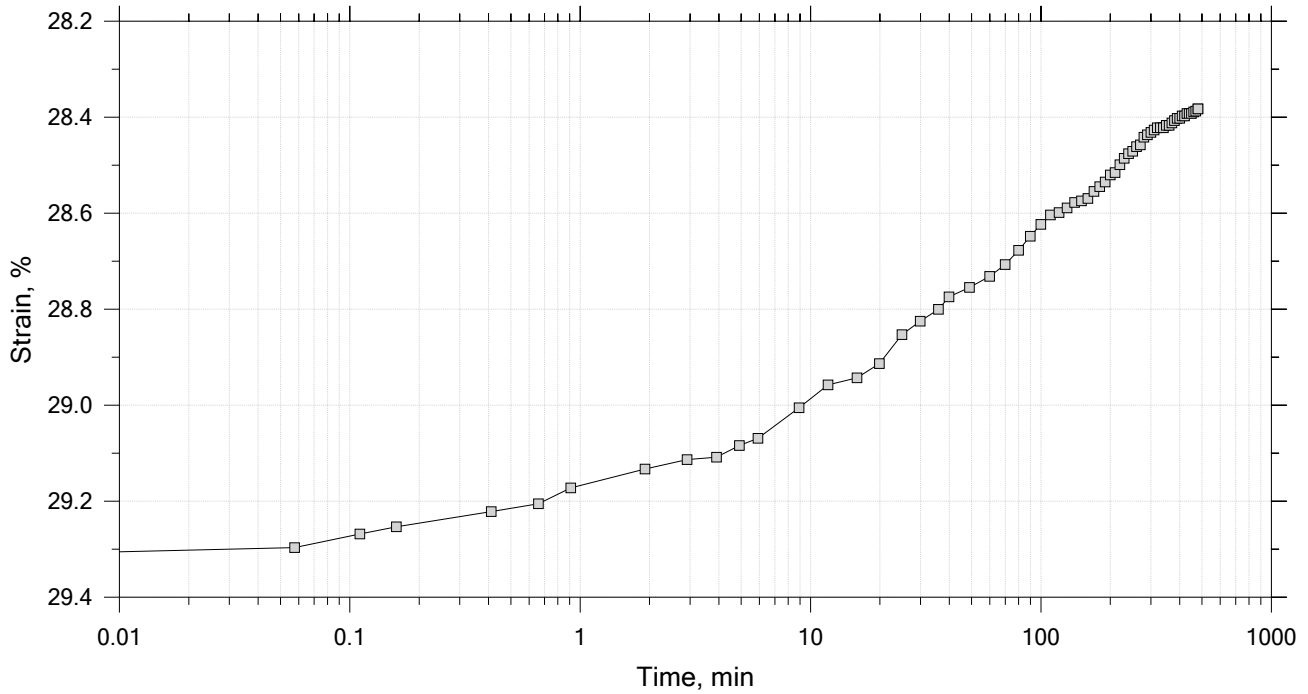
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 15

Constant Load Step

Stress: 0.125 tsf



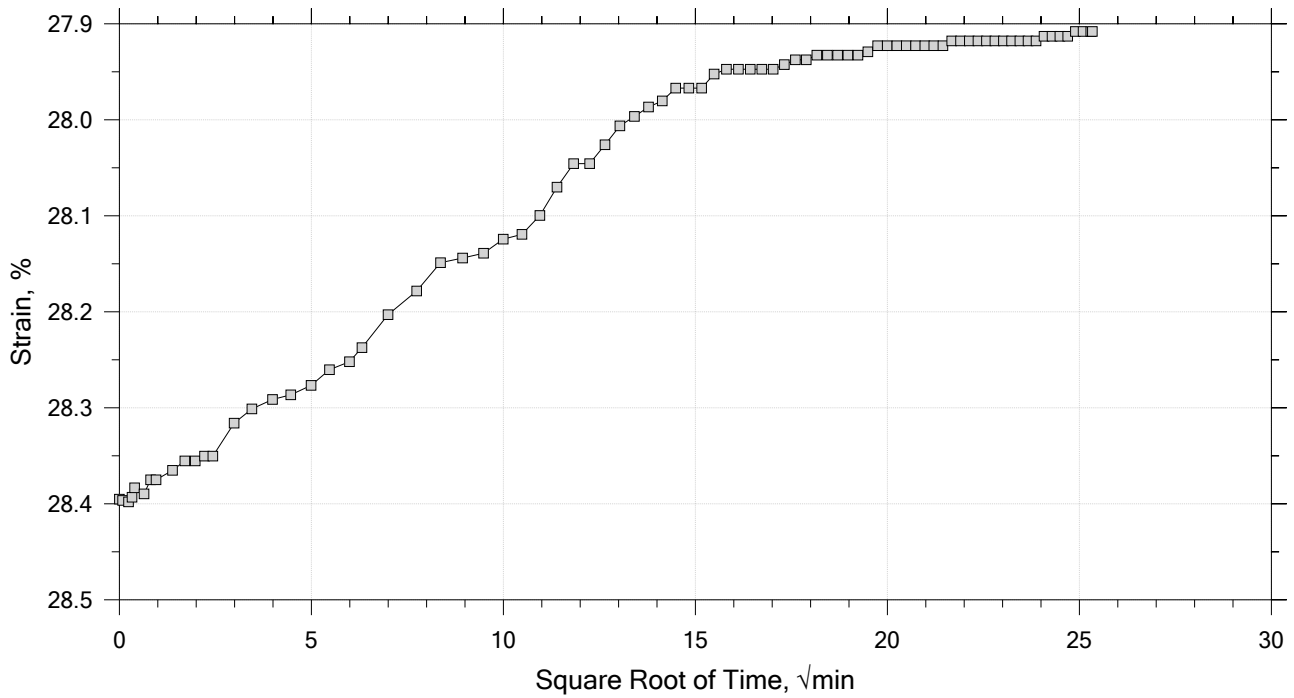
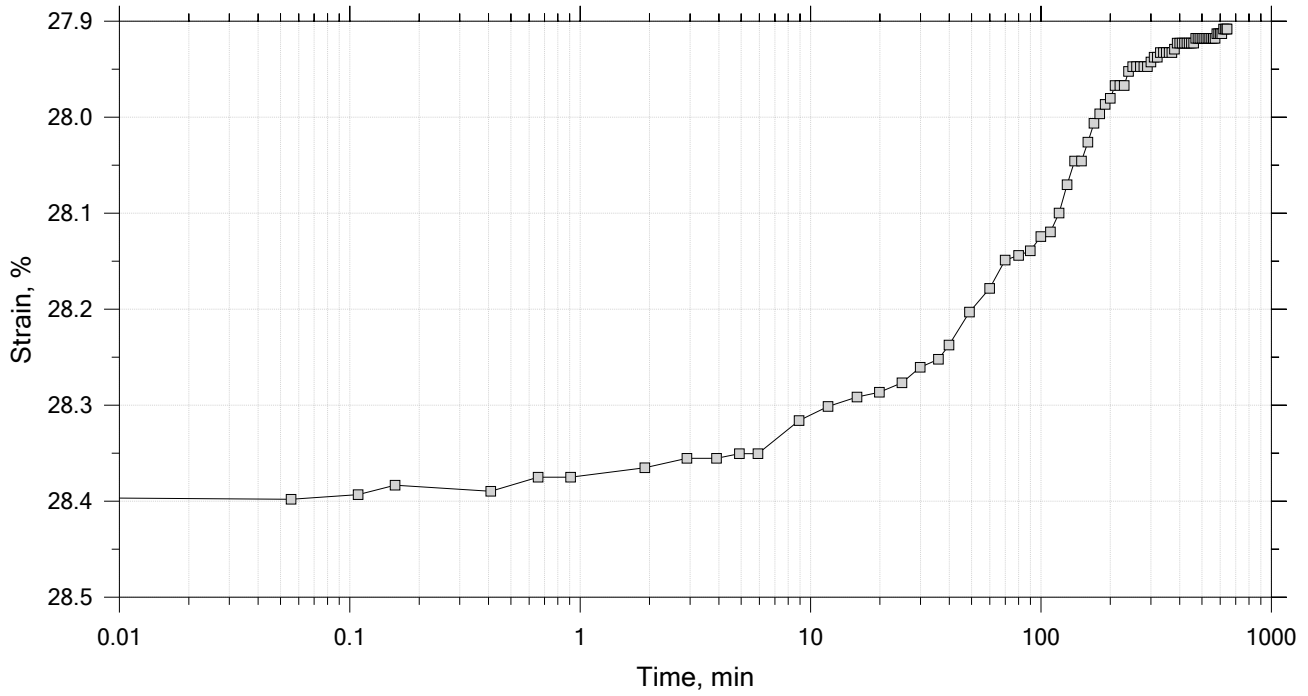
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 15 of 15

Constant Load Step

Stress: 0.0625 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.74	Liquid Limit: ---
Initial Height: 1.00 in	Initial Void Ratio: 1.66	Plastic Limit: ---
Final Height: 0.74 in	Final Void Ratio: 0.967	Plasticity Index: ---

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	C-2810	RING		D-895
Mass Container, gm	9.08	108.81	108.81	8.25
Mass Container + Wet Soil, gm	173.54	240.58	220.97	120.22
Mass Container + Dry Soil, gm	117.77	191.7	191.7	91
Mass Dry Soil, gm	108.69	82.89	82.89	82.75
Water Content, %	51.31	58.97	35.31	35.31
Void Ratio	---	1.66	0.97	---
Degree of Saturation, %	---	97.40	100.00	---
Dry Unit Weight, pcf	---	64.33	86.932	---


Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

## Log of Time Coefficients

Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Log T50 min	Cv ft <sup>2</sup> /s	Mv 1/tsf	k ft/day	Ca %
1	0.0681	0.01724	1.61	1.72	0.000	0.00e+00	2.53e-01	0.00e+00	0.00e+00
2	0.125	0.03101	1.58	3.10	1.715	3.17e-06	2.42e-01	2.07e-03	0.00e+00
3	0.250	0.05252	1.52	5.25	0.000	0.00e+00	1.72e-01	0.00e+00	0.00e+00
4	0.500	0.07818	1.45	7.82	0.000	0.00e+00	1.03e-01	0.00e+00	0.00e+00
5	1.00	0.1077	1.37	10.8	1.217	3.85e-06	5.90e-02	6.13e-04	0.00e+00
6	2.00	0.1443	1.28	14.4	0.000	0.00e+00	3.66e-02	0.00e+00	0.00e+00
7	4.00	0.1837	1.17	18.4	0.000	0.00e+00	1.97e-02	0.00e+00	0.00e+00
8	8.00	0.2255	1.06	22.6	0.978	3.69e-06	1.05e-02	1.04e-04	0.00e+00
9	16.0	0.2699	0.941	27.0	1.187	2.72e-06	5.55e-03	4.07e-05	0.00e+00
10	32.0	0.3154	0.820	31.5	1.004	2.84e-06	2.85e-03	2.18e-05	0.00e+00
11	8.00	0.3103	0.834	31.0	0.000	0.00e+00	2.15e-04	0.00e+00	0.00e+00
12	2.00	0.3020	0.856	30.2	9.426	2.91e-07	1.38e-03	1.08e-06	0.00e+00
13	0.500	0.2929	0.880	29.3	0.000	0.00e+00	6.08e-03	0.00e+00	0.00e+00
14	0.125	0.2838	0.904	28.4	0.000	0.00e+00	2.41e-02	0.00e+00	0.00e+00
15	0.0625	0.2791	0.917	27.9	0.000	0.00e+00	7.59e-02	0.00e+00	0.00e+00

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT	Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008	Test Date: 11/30/19	Depth: ---
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt		
	Remarks: System X, Swell Pressure = 0.0681 tsf		
	Displacement at End of Increment		



# One-Dimensional Consolidation by ASTM D2435 - Method B

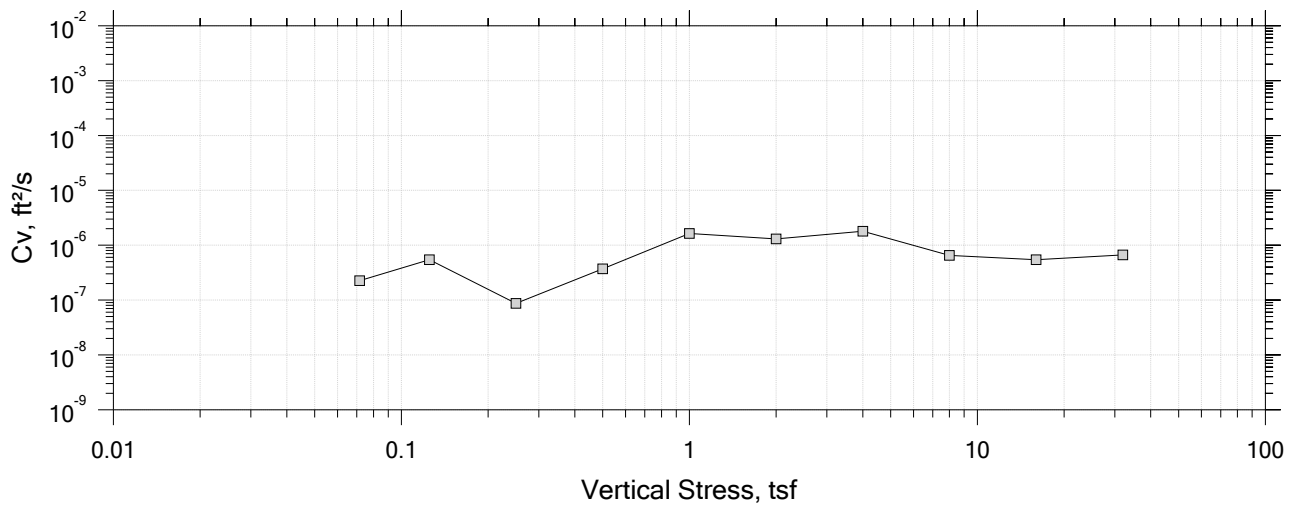
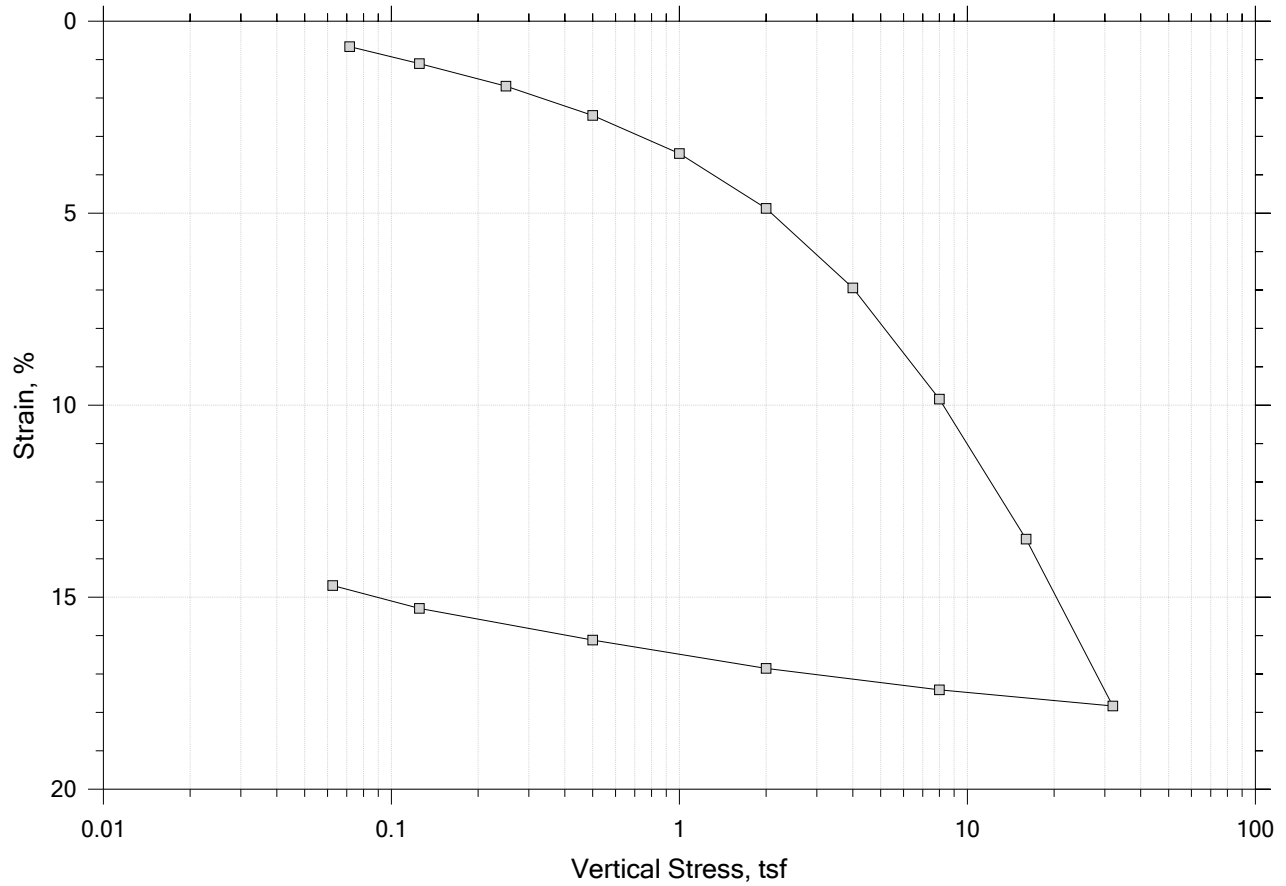
## Square Root of Time Coefficients


Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv ft <sup>2</sup> /s	Mv 1/tsf	k ft/day
1	0.0681	0.01724	1.61	1.72	11.235	2.15e-06	2.53e-01	1.46e-03
2	0.125	0.03101	1.58	3.10	30.010	7.79e-07	2.42e-01	5.08e-04
3	0.250	0.05252	1.52	5.25	15.043	1.50e-06	1.72e-01	6.95e-04
4	0.500	0.07818	1.45	7.82	14.890	1.44e-06	1.03e-01	3.98e-04
5	1.00	0.1077	1.37	10.8	24.725	8.17e-07	5.90e-02	1.30e-04
6	2.00	0.1443	1.28	14.4	15.174	1.24e-06	3.66e-02	1.22e-04
7	4.00	0.1837	1.17	18.4	21.371	8.02e-07	1.97e-02	4.26e-05
8	8.00	0.2255	1.06	22.6	14.991	1.04e-06	1.05e-02	2.92e-05
9	16.0	0.2699	0.941	27.0	15.800	8.79e-07	5.55e-03	1.32e-05
10	32.0	0.3154	0.820	31.5	14.438	8.50e-07	2.85e-03	6.53e-06
11	8.00	0.3103	0.834	31.0	42.571	2.72e-07	2.15e-04	1.58e-07
12	2.00	0.3020	0.856	30.2	38.421	3.07e-07	1.38e-03	1.14e-06
13	0.500	0.2929	0.880	29.3	46.081	2.63e-07	6.08e-03	4.31e-06
14	0.125	0.2838	0.904	28.4	109.804	1.13e-07	2.41e-02	7.37e-06
15	0.0625	0.2791	0.917	27.9	329.908	3.84e-08	7.59e-02	7.86e-06

	Project: Gasco PDI		Location: ---	Project No.: GTX-310685
	Boring No.: PDI-114SPT		Tested By: md	Checked By: anm
	Sample No.: 17.5-19.5191008		Test Date: 11/30/19	Depth: ---
	Test No.: IP-2		Sample Type: intact	Elevation: ---
	Description: Wet, gray clay with silt			
	Remarks: System X, Swell Pressure = 0.0681 tsf			
	Displacement at End of Increment			

# One-Dimensional Consolidation by ASTM D2435 - Method B

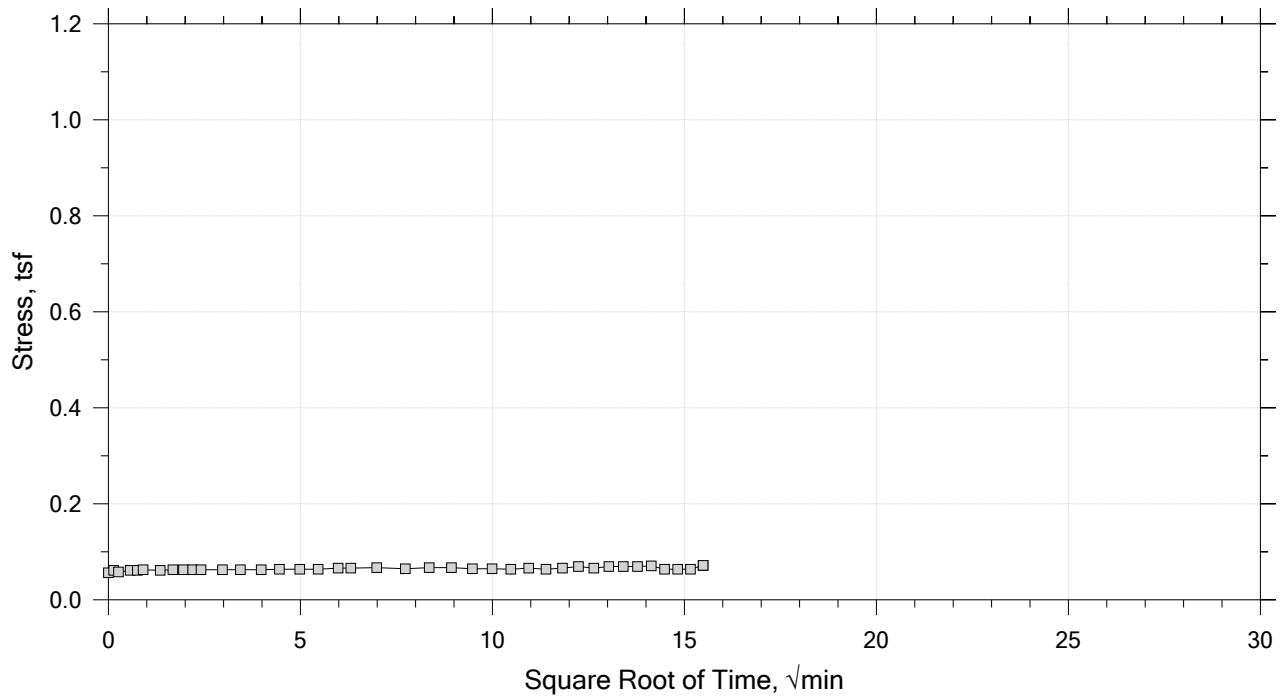
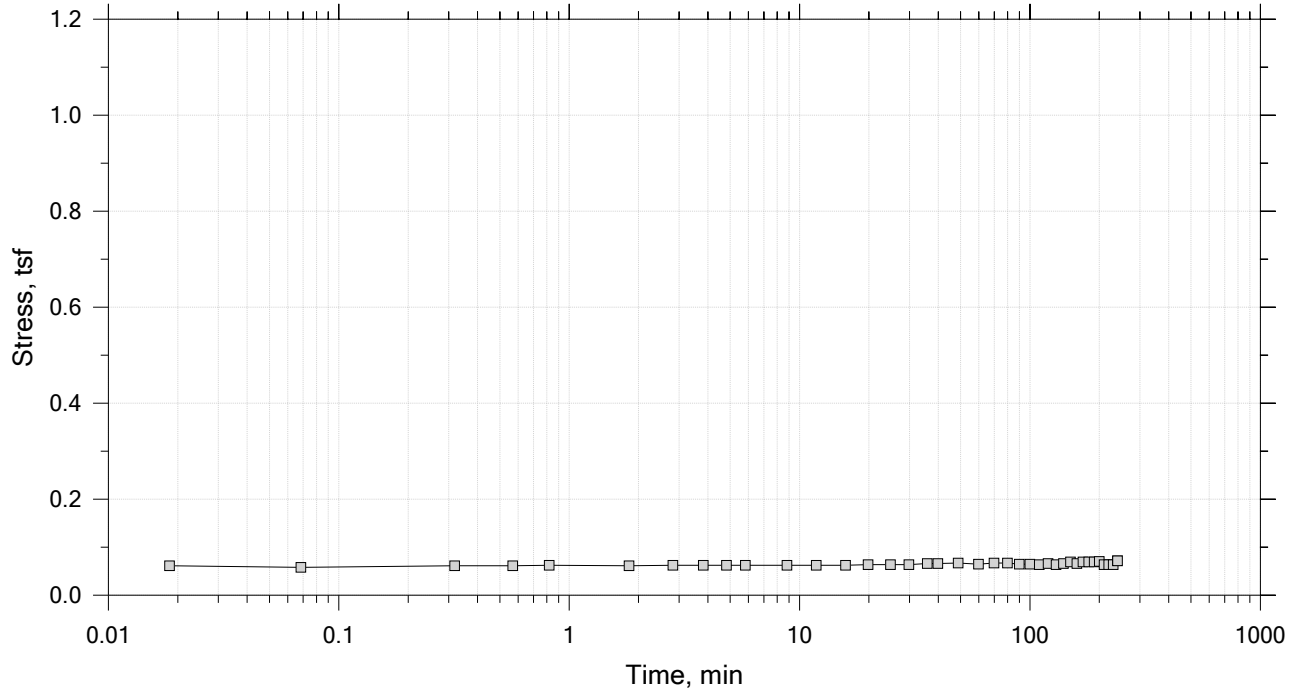
## Summary Report




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		
	Displacement at End of Increment		

# One-Dimensional Consolidation by ASTM D2435 - Method B

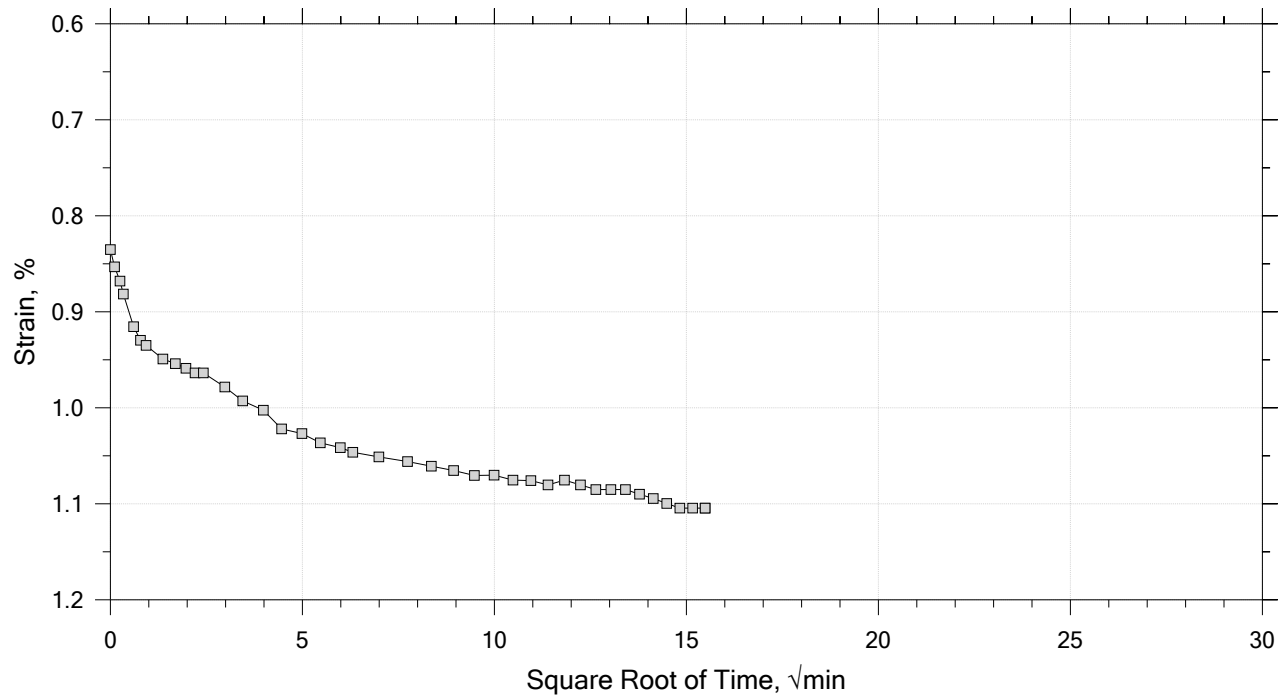
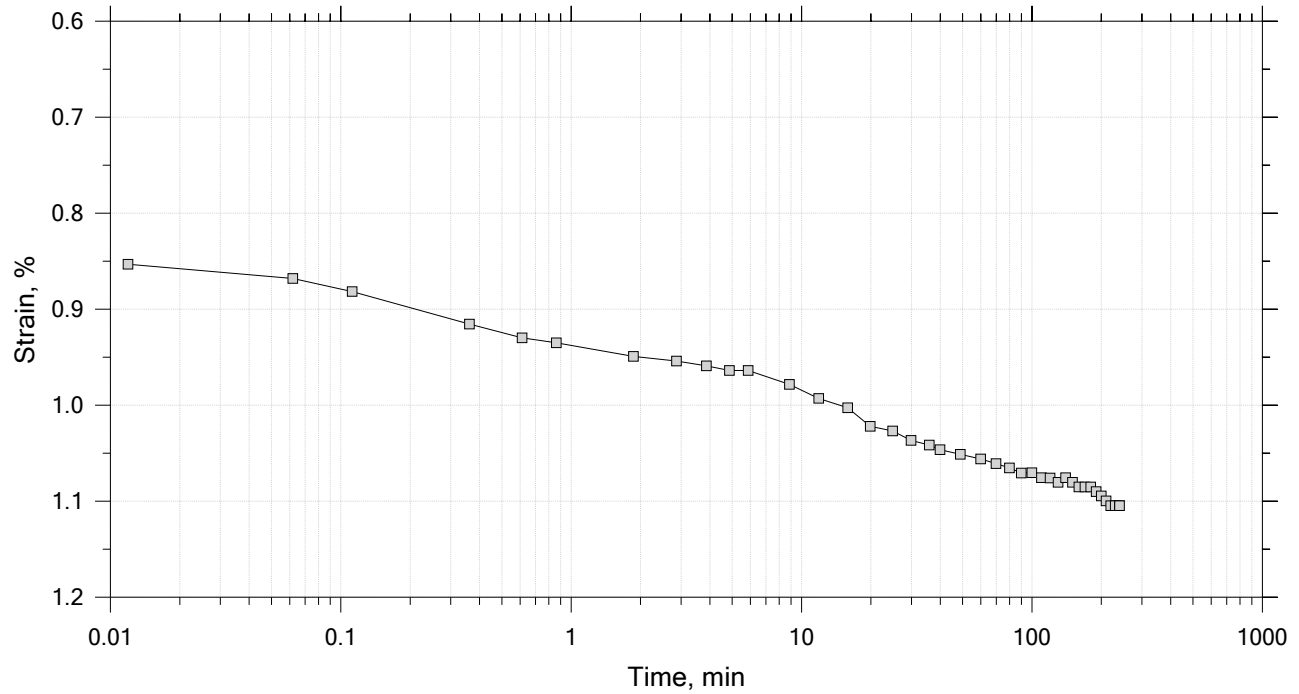
Time Curve 1 of 15  
 Constant Volume Step  
 Stress: 0.0716 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

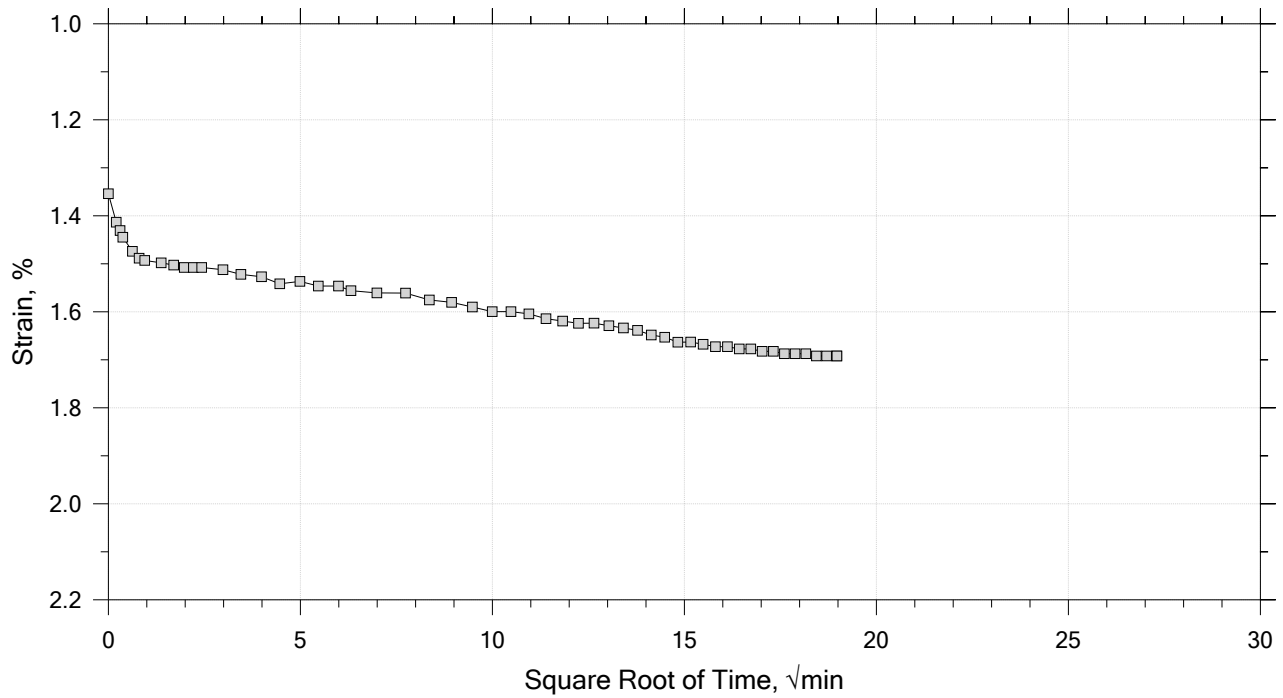
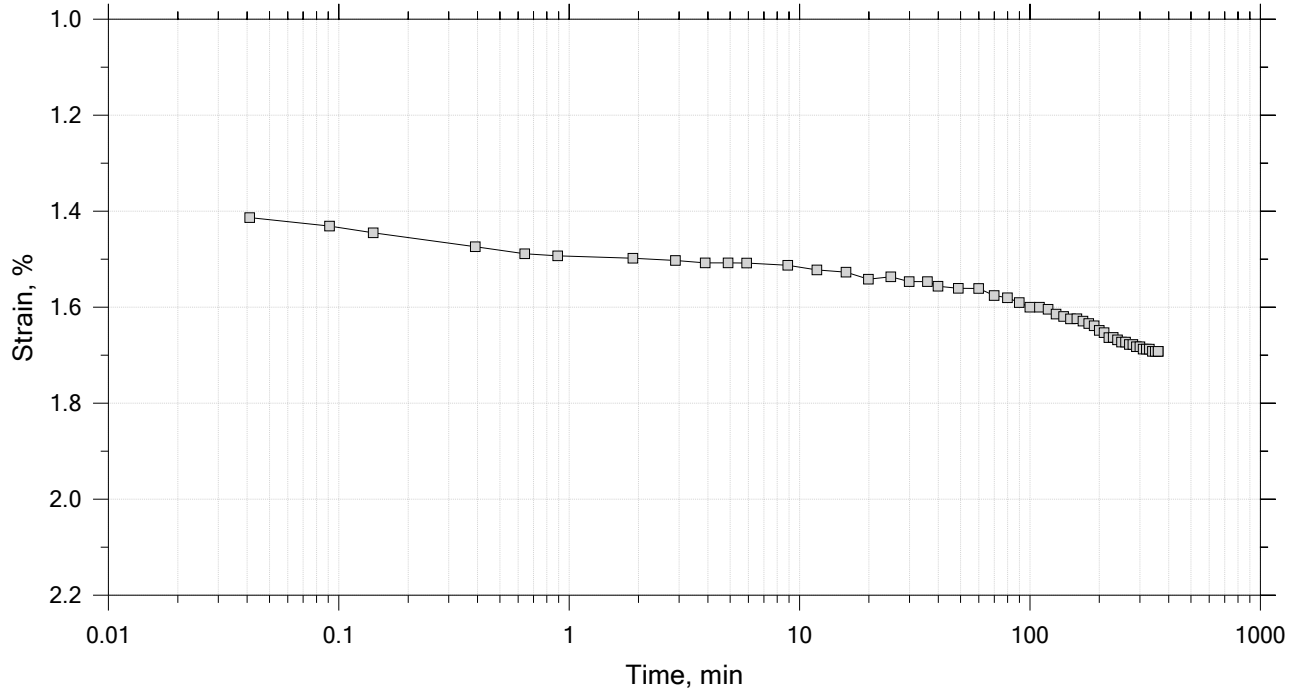
Time Curve 2 of 15  
 Constant Load Step  
 Stress: 0.125 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 15  
 Constant Load Step  
 Stress: 0.25 tsf



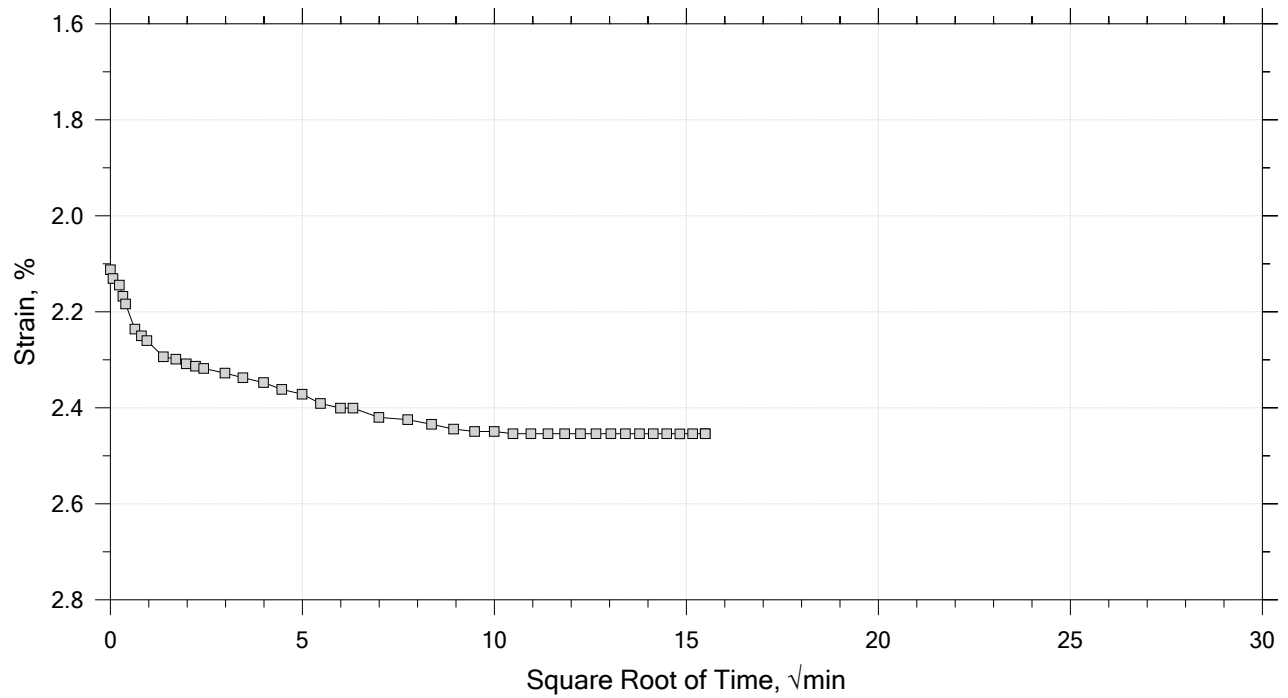
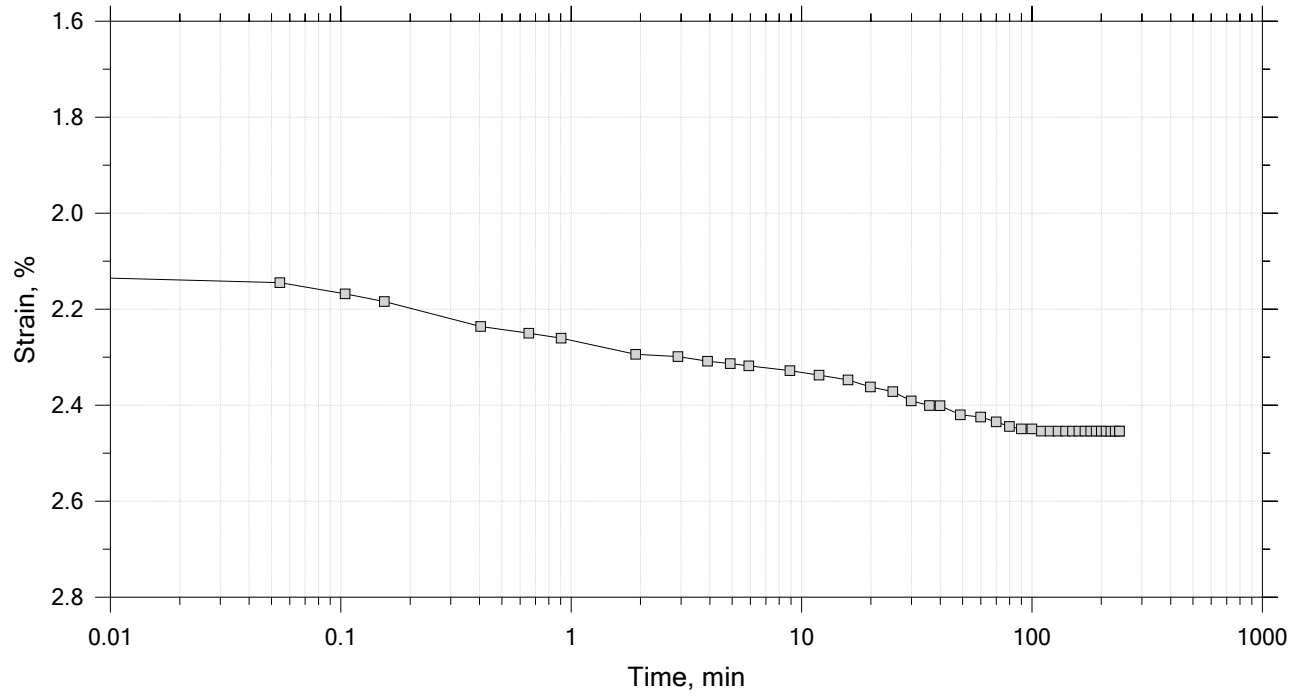
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 15

Constant Load Step

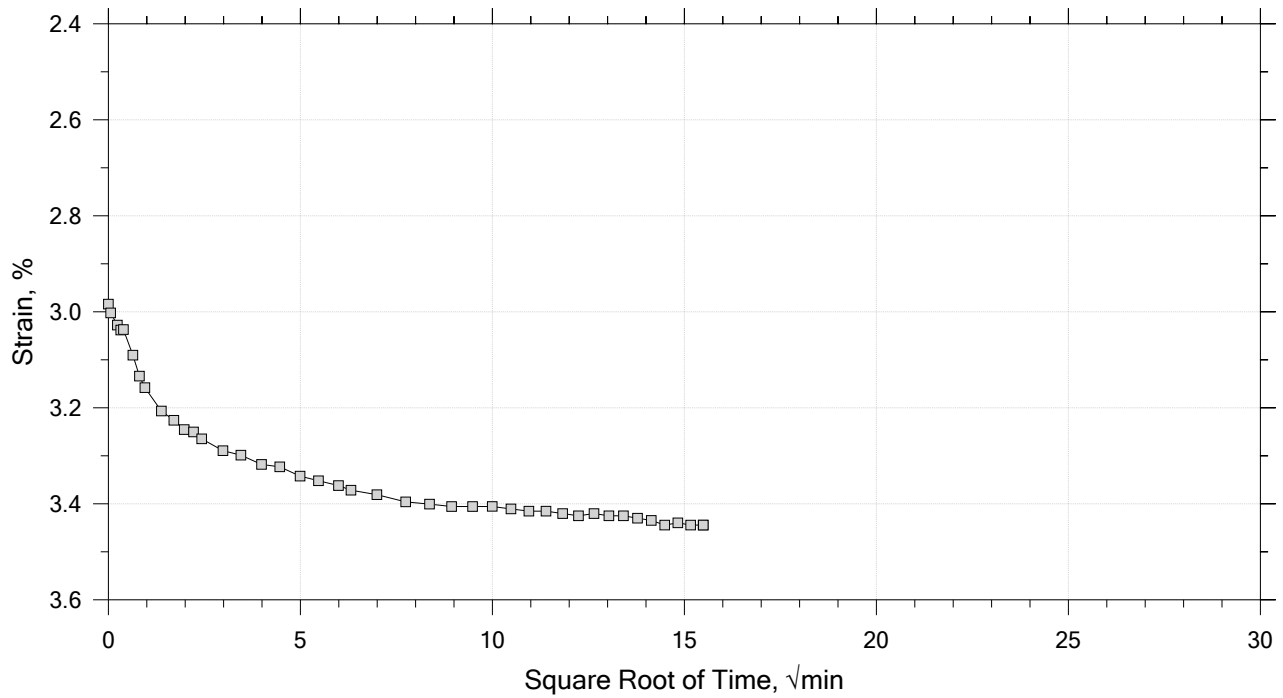
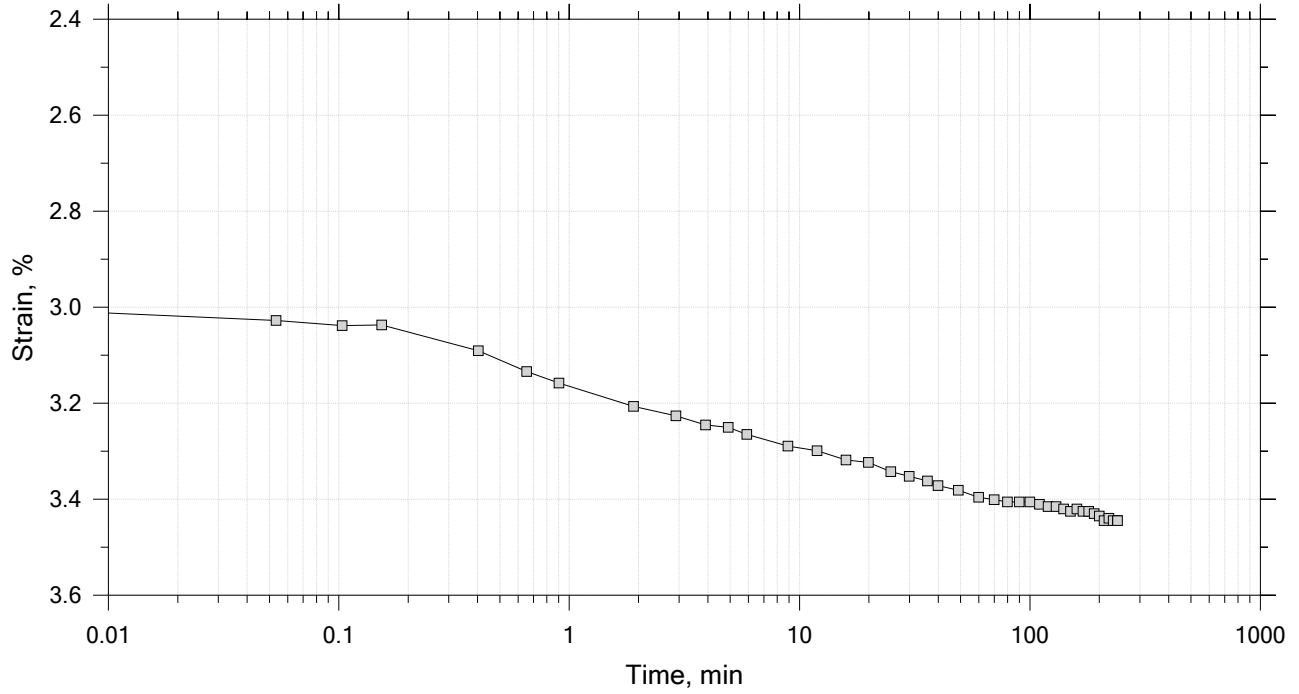
Stress: 0.5 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

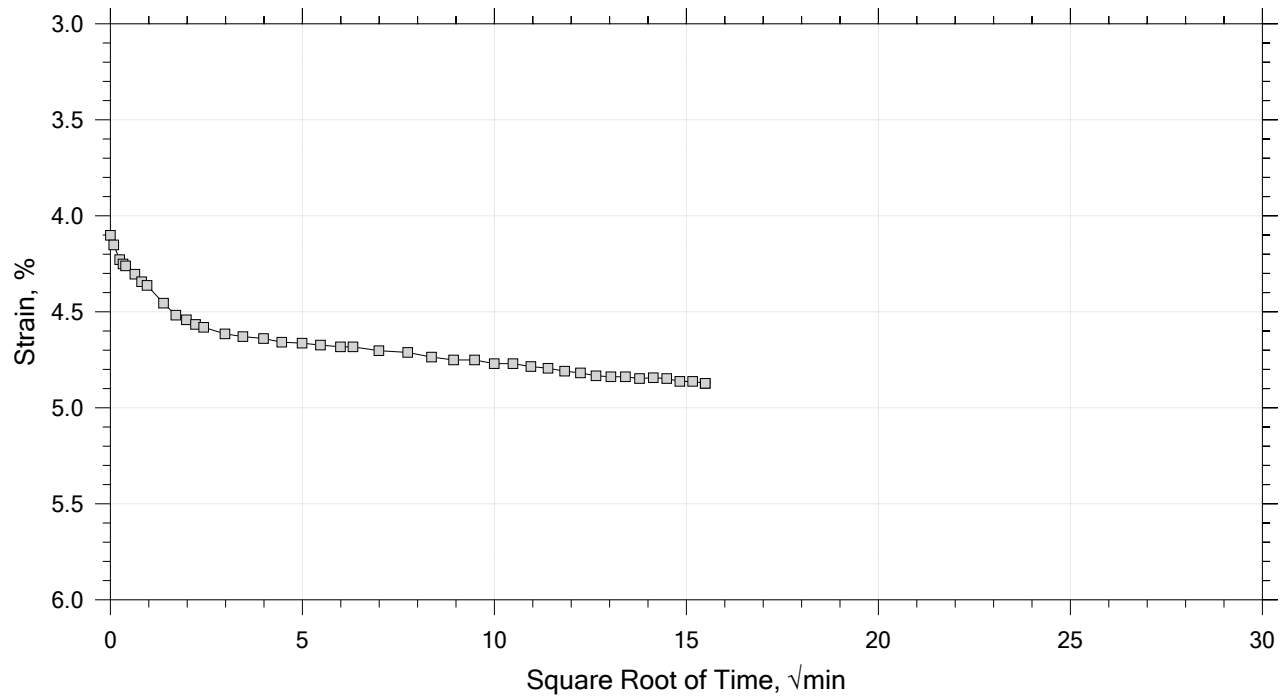
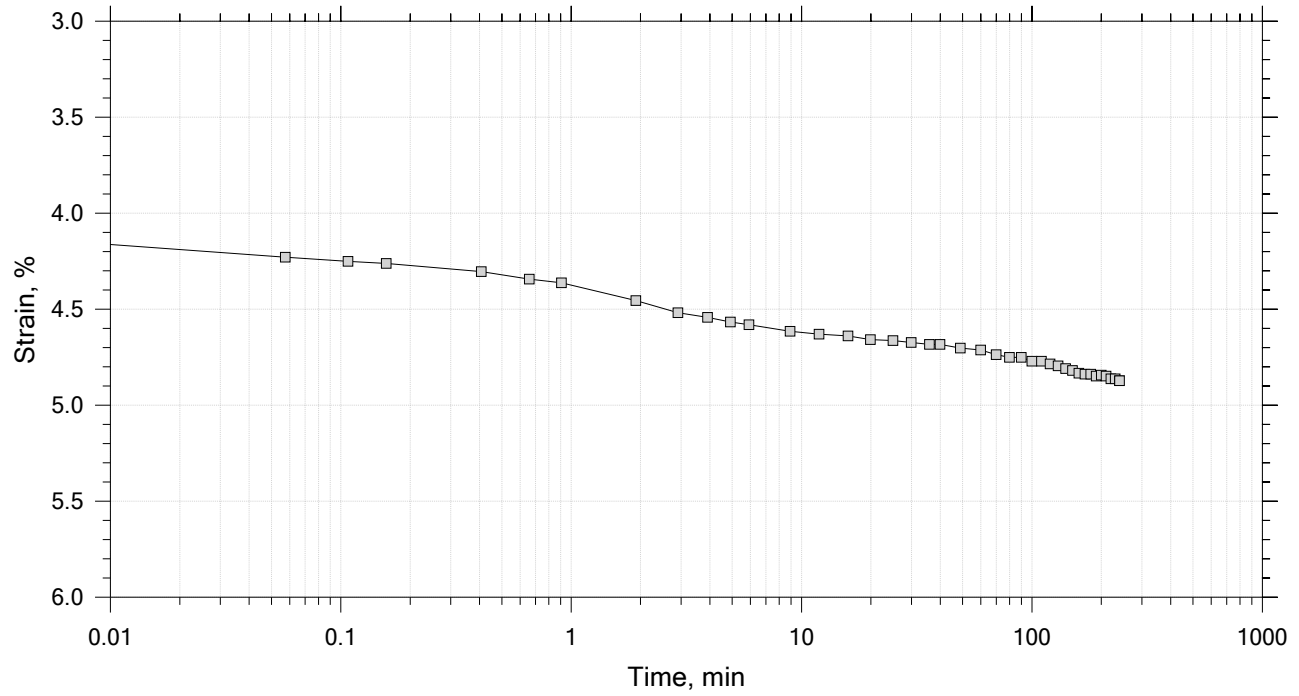
Time Curve 5 of 15  
 Constant Load Step  
 Stress: 1 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 15  
 Constant Load Step  
 Stress: 2 tsf



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		

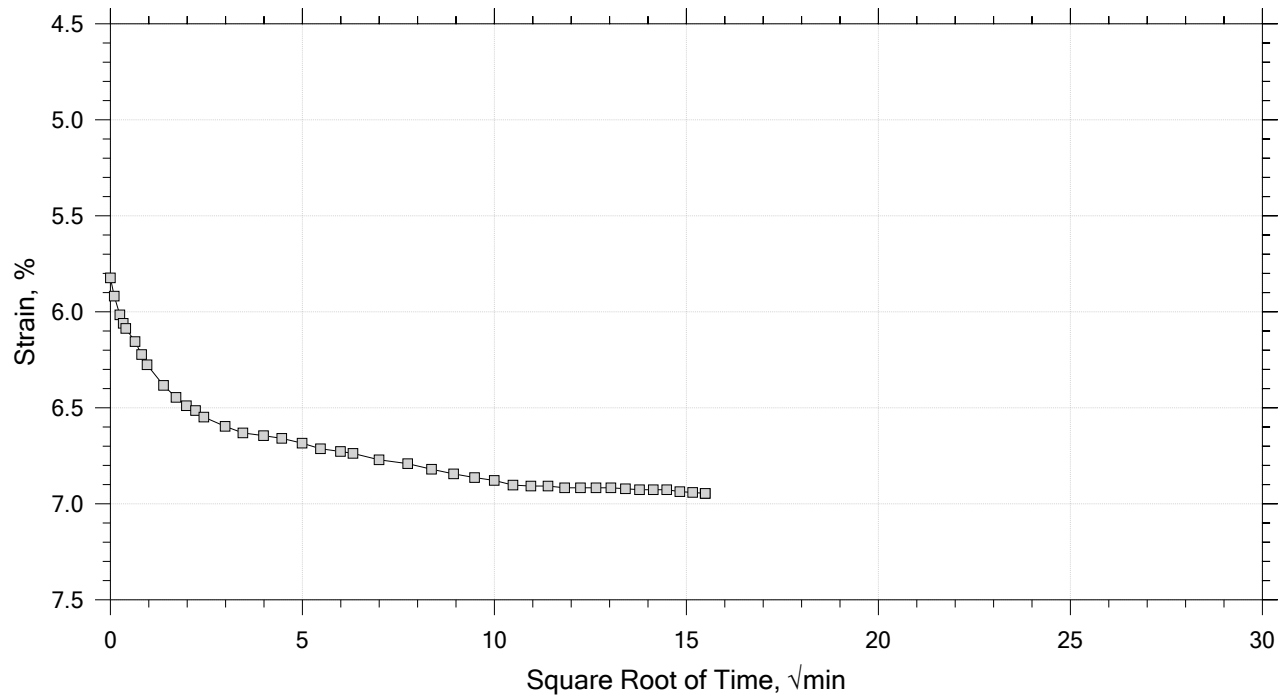
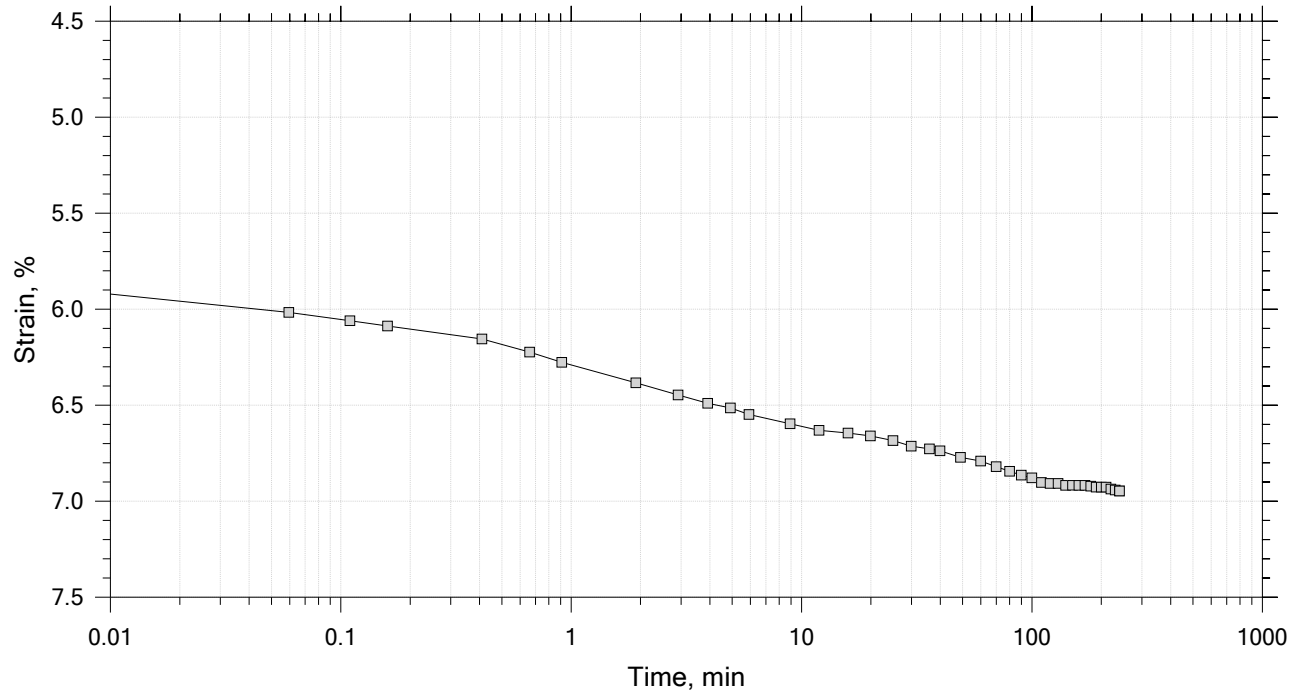



# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 15

Constant Load Step

Stress: 4 tsf



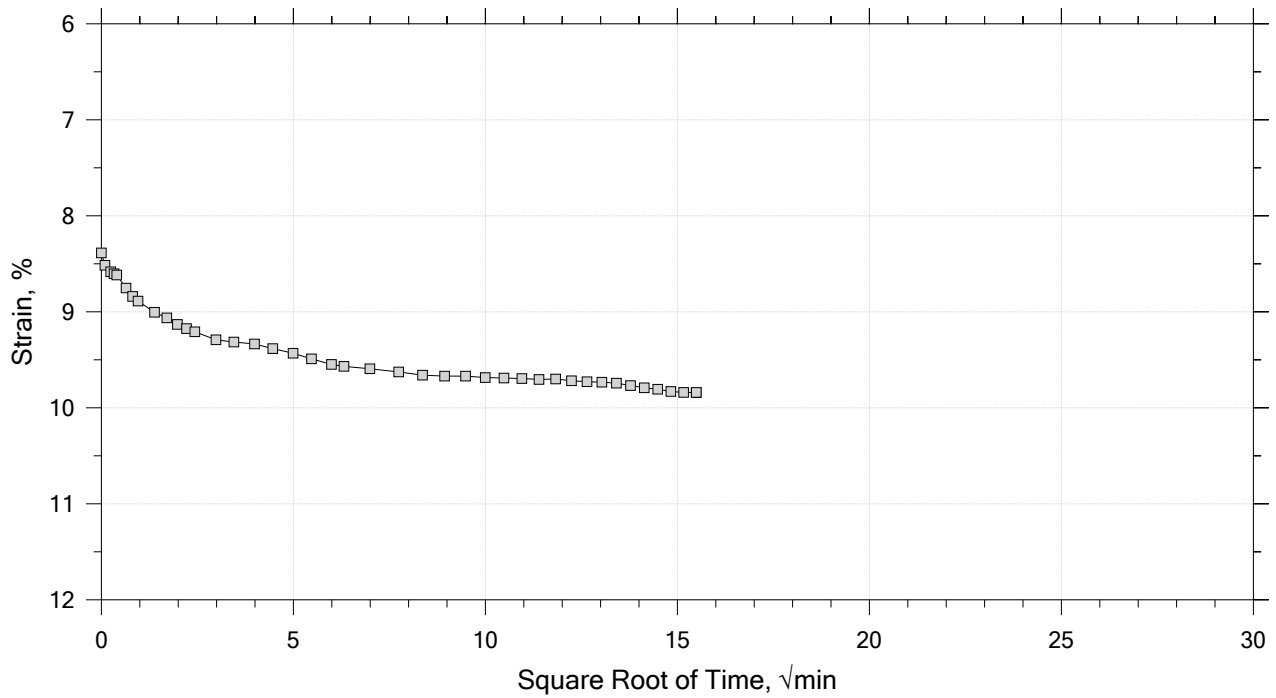
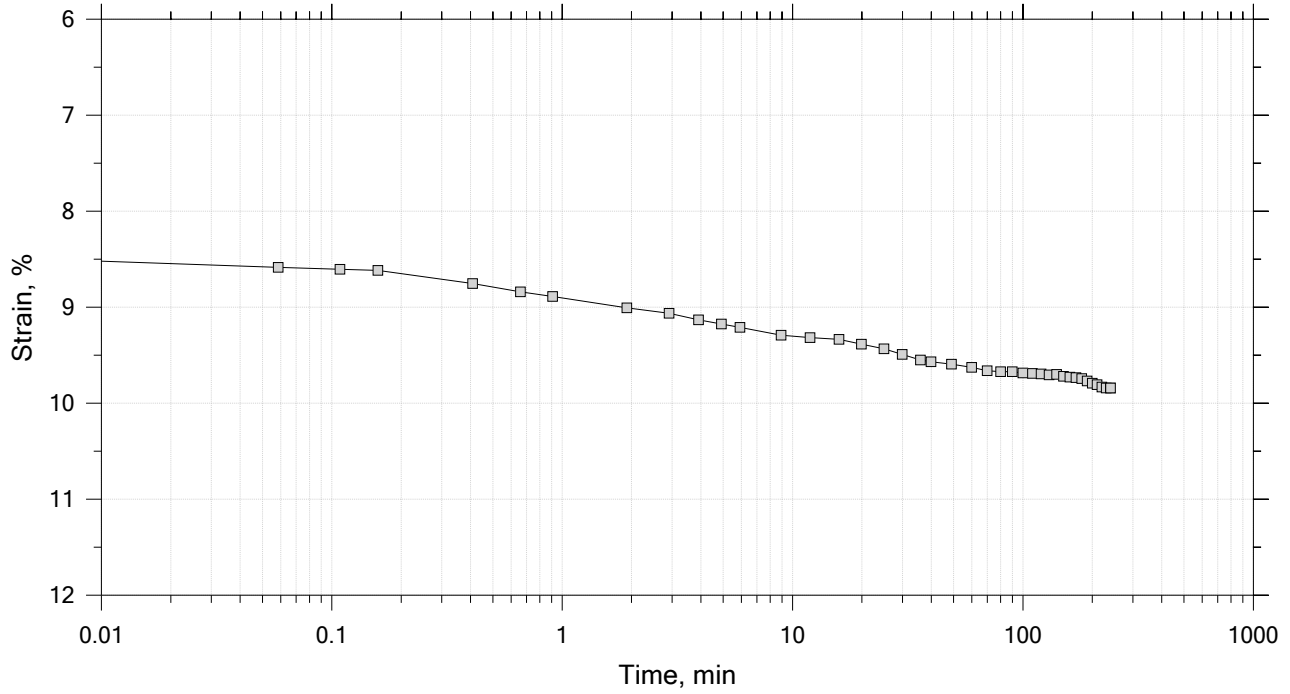
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 15

Constant Load Step

Stress: 8 tsf



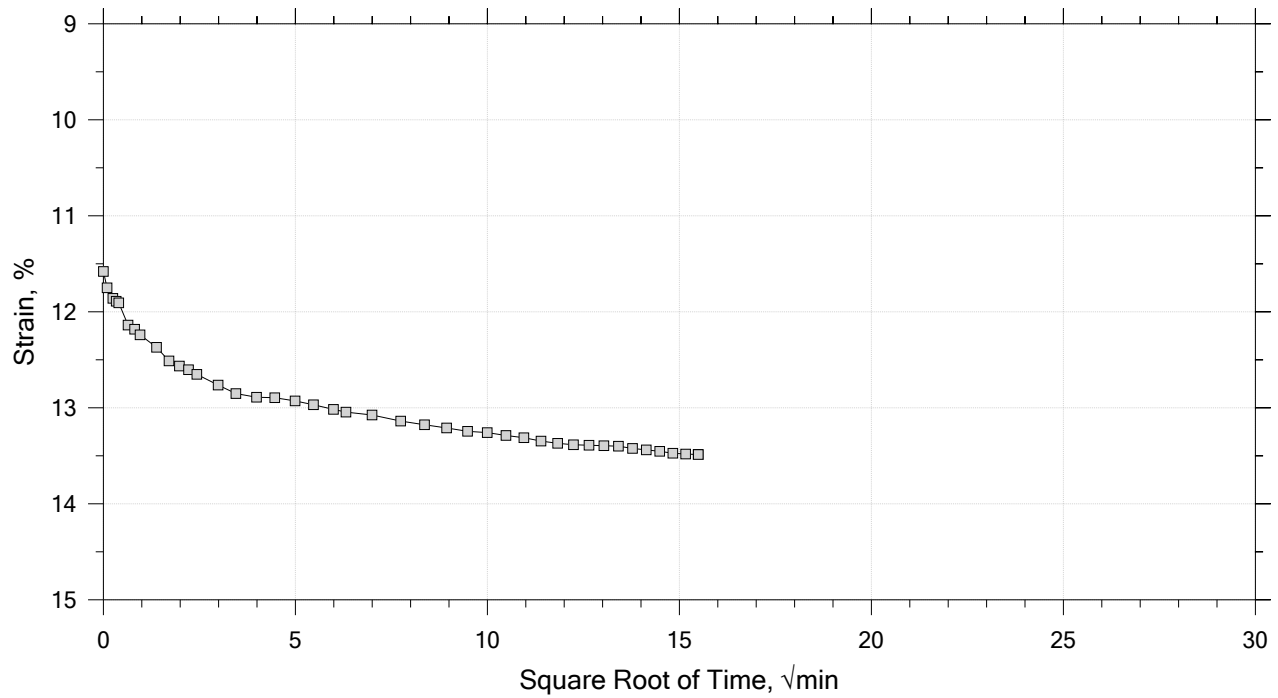
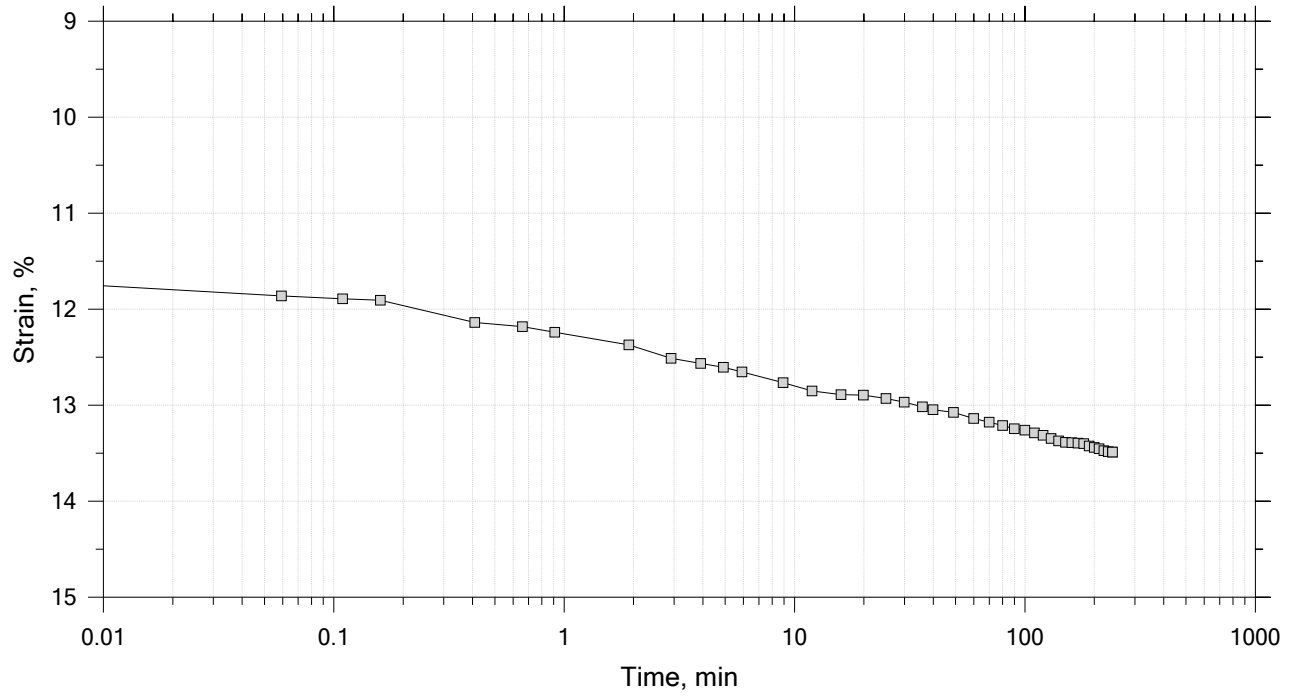
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 15

Constant Load Step

Stress: 16 tsf



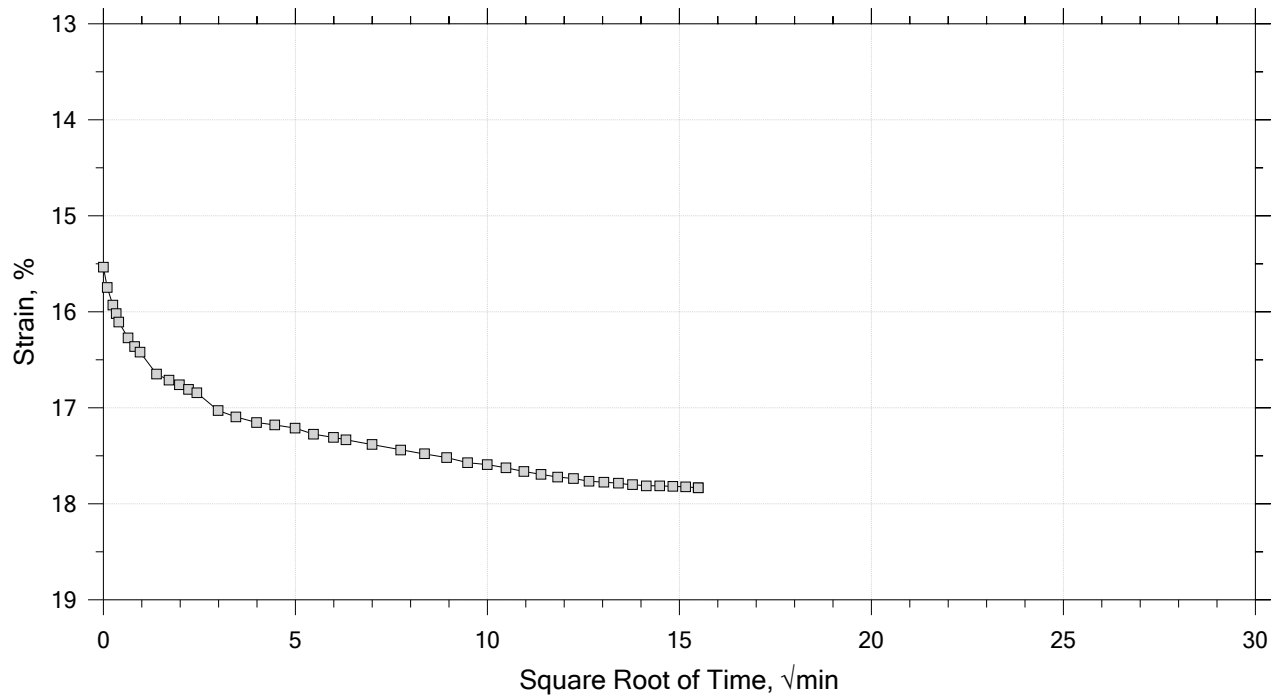
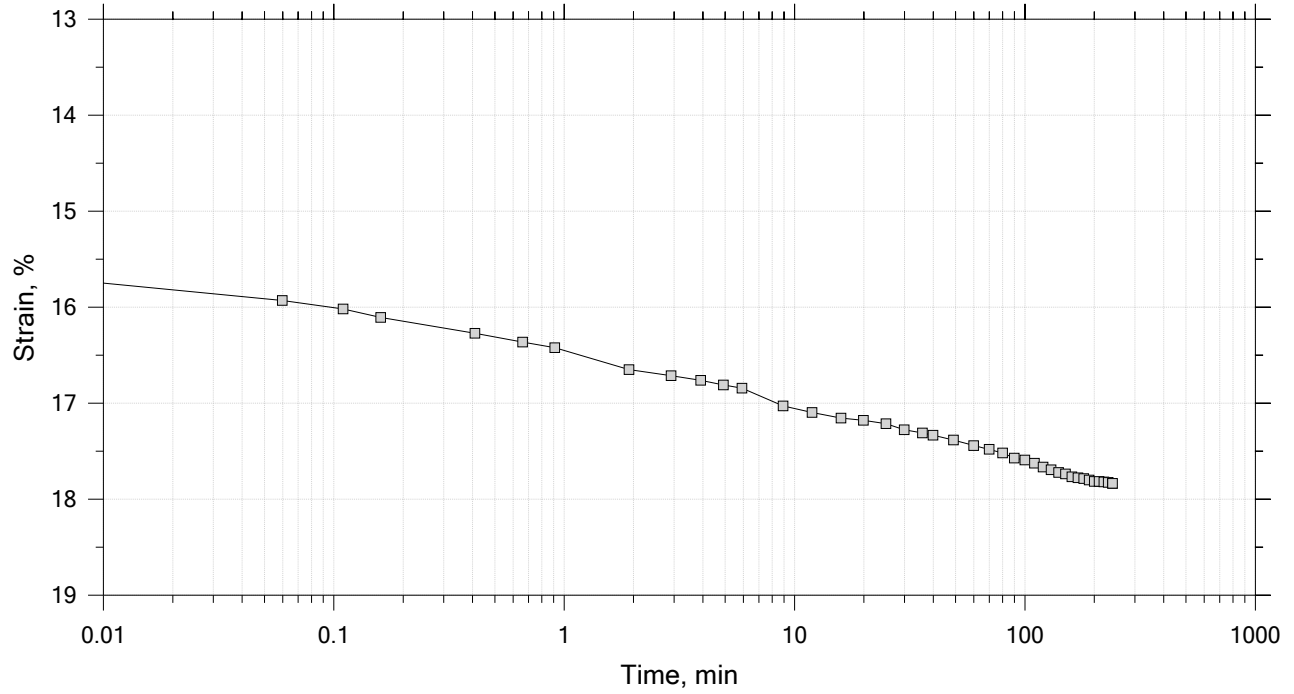
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 15

Constant Load Step

Stress: 32 tsf



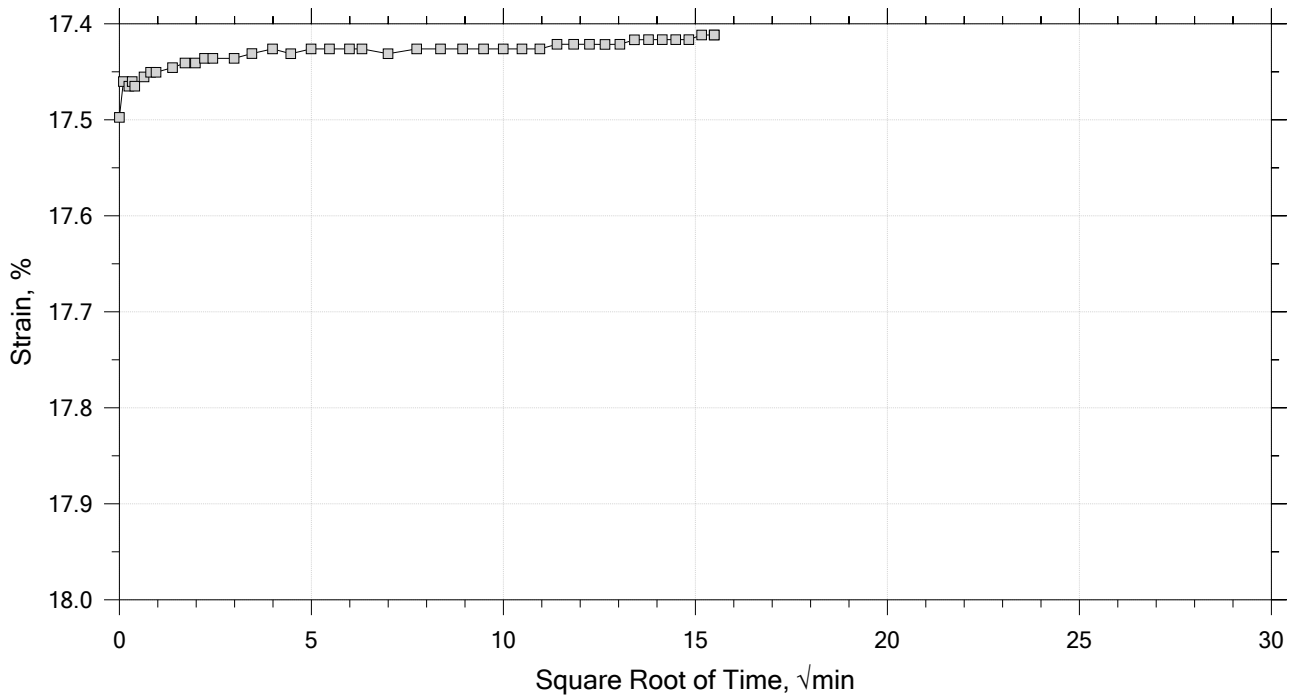
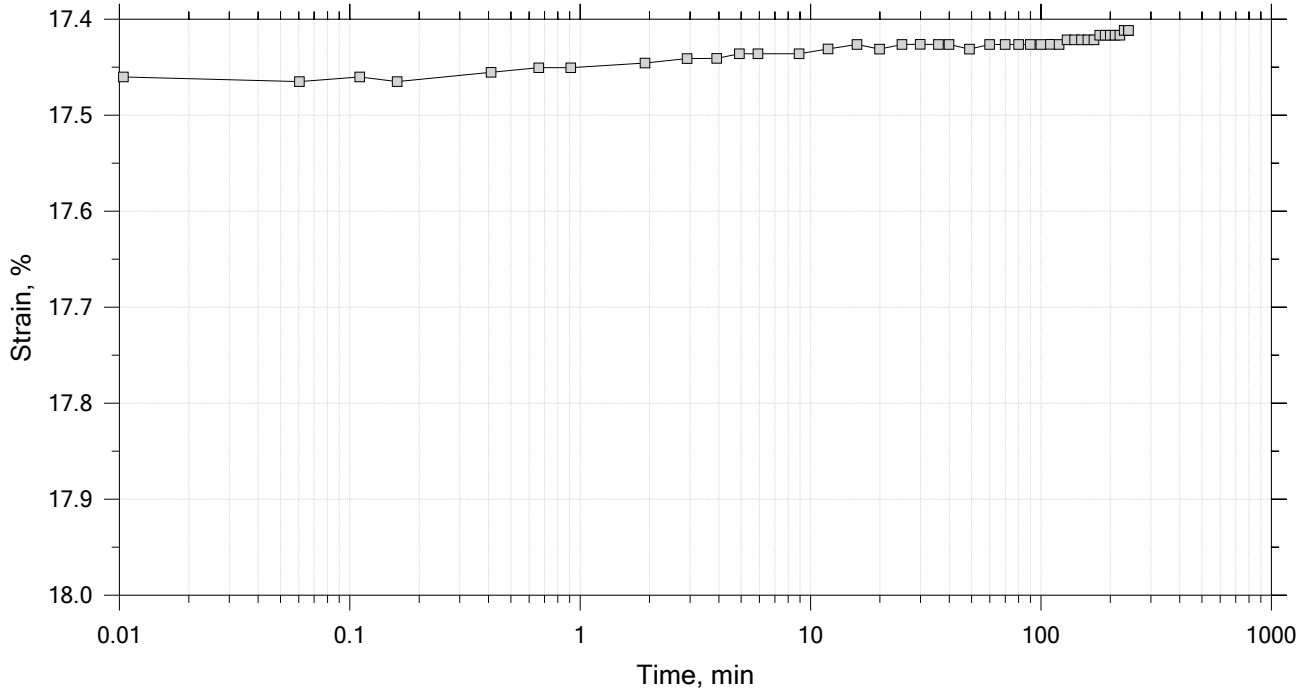
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 15

Constant Load Step

Stress: 8 tsf



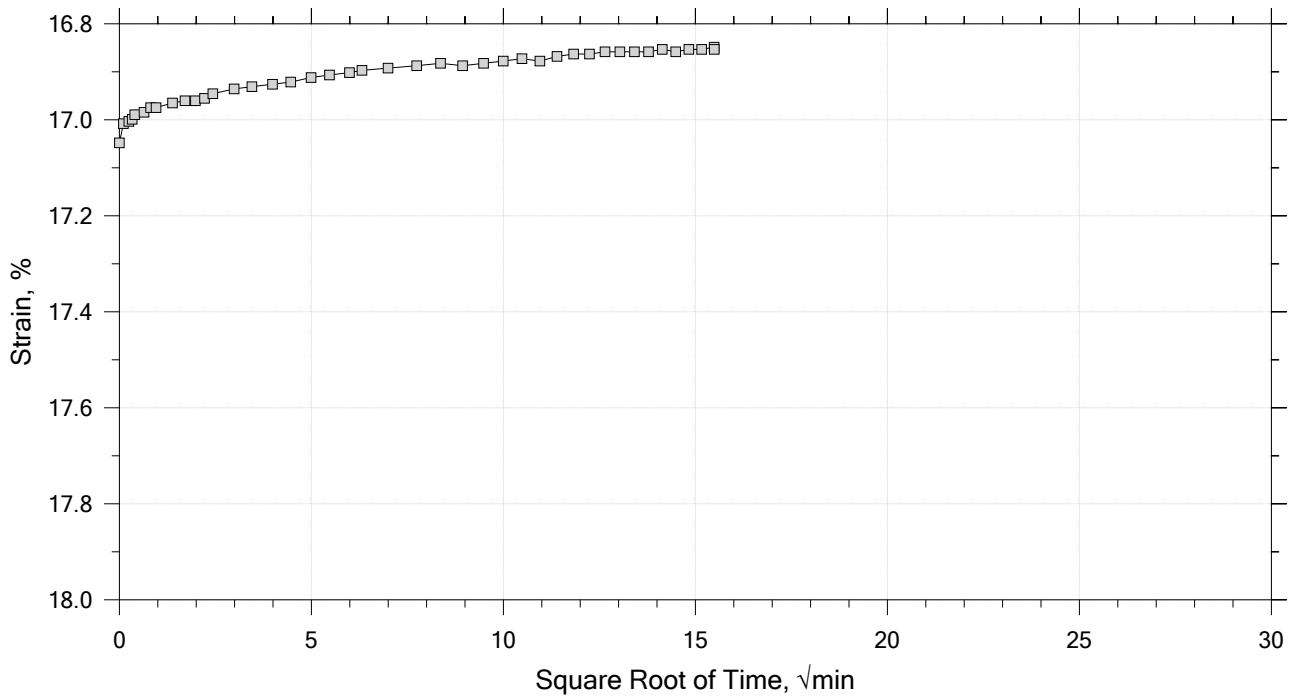
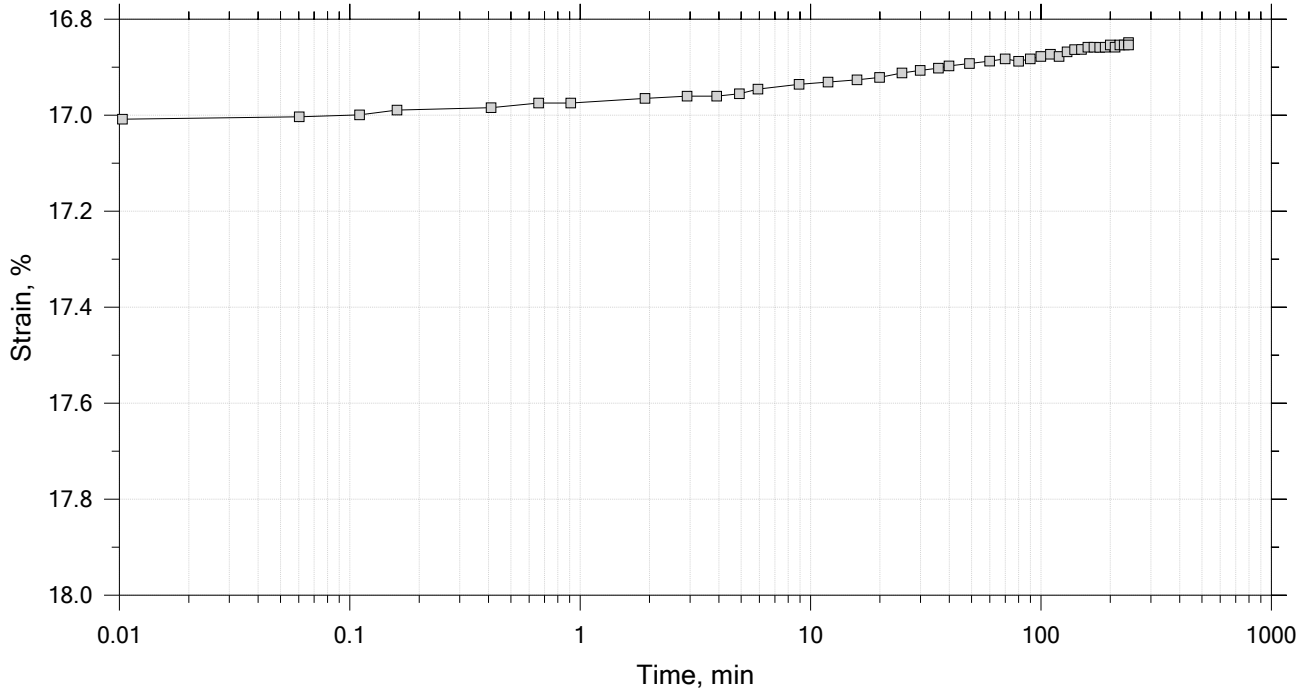
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 15

Constant Load Step

Stress: 2 tsf



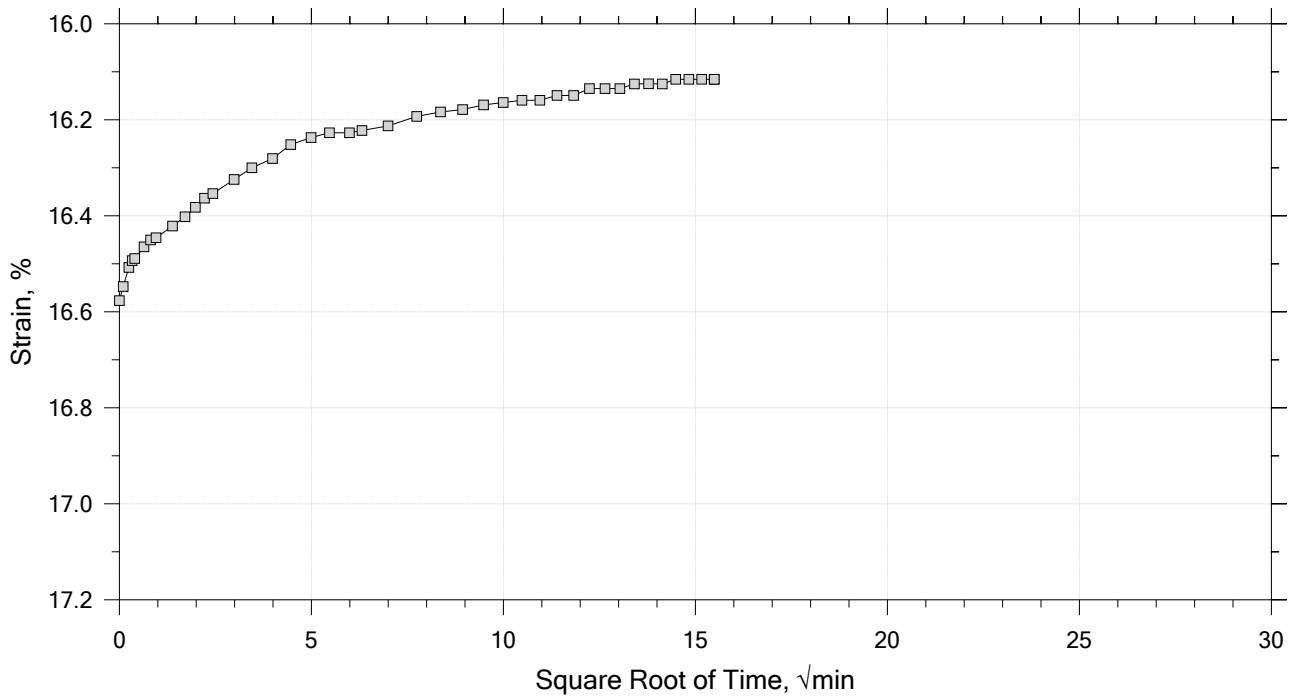
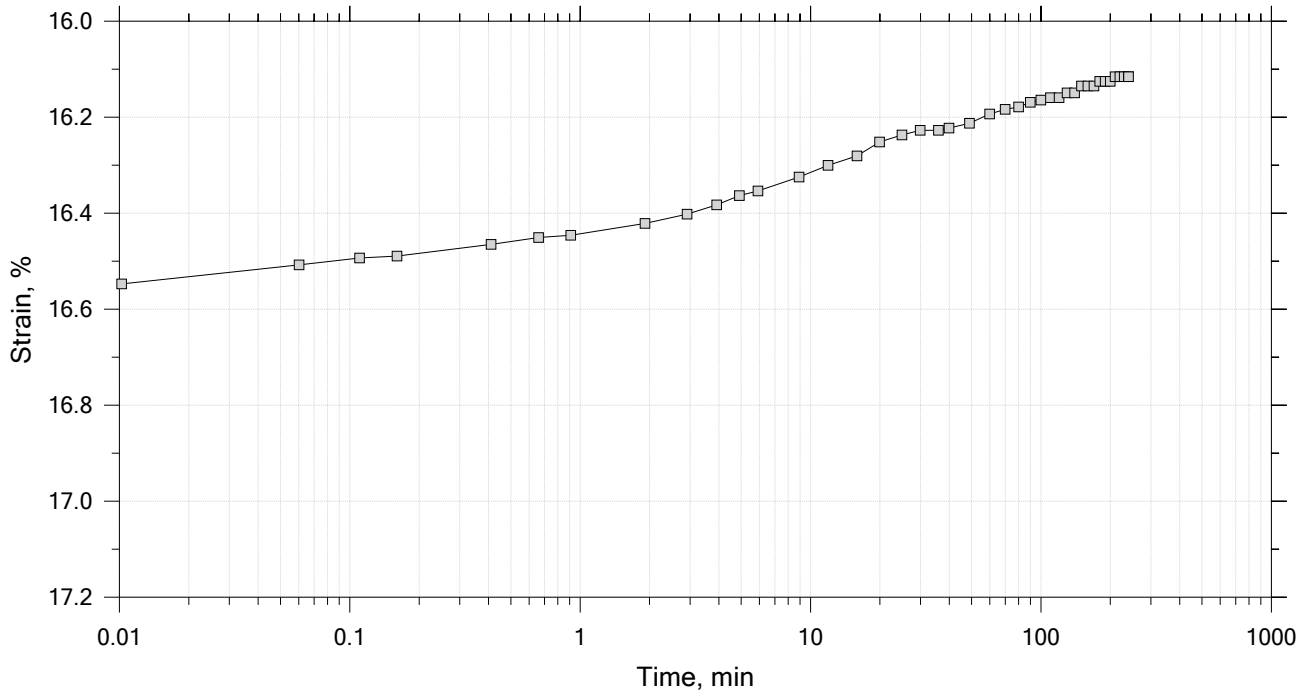
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 15

Constant Load Step

Stress: 0.5 tsf



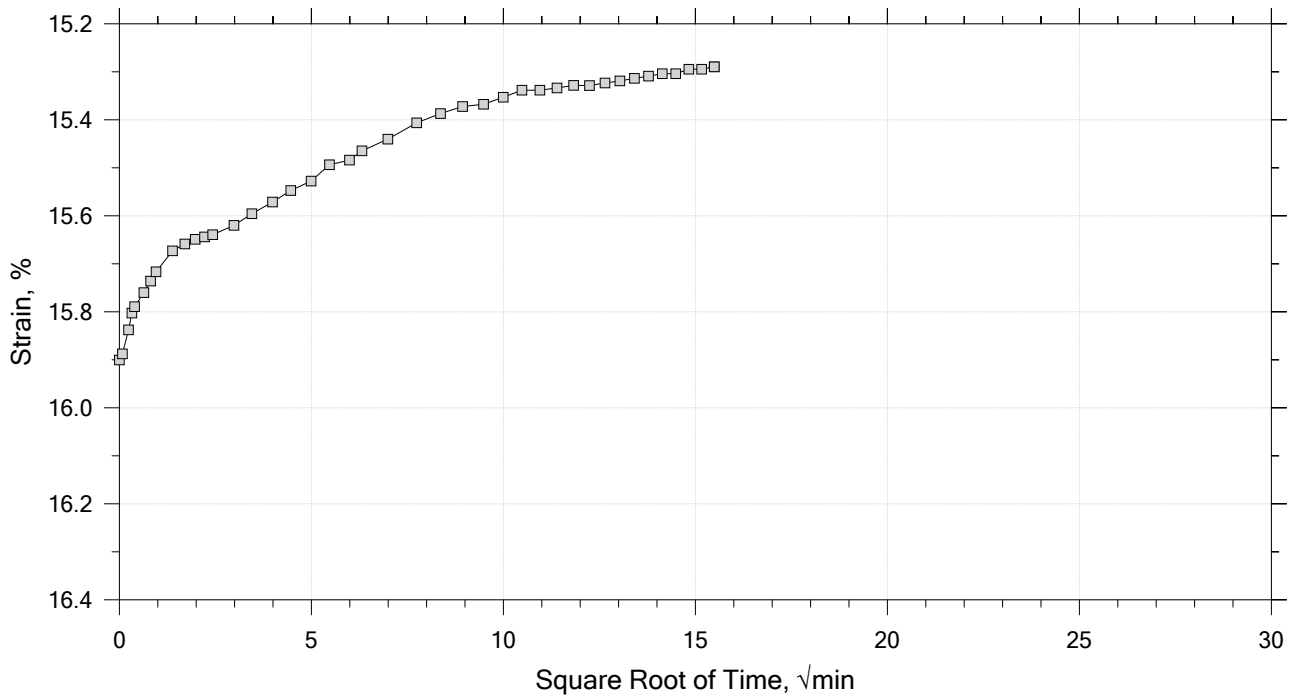
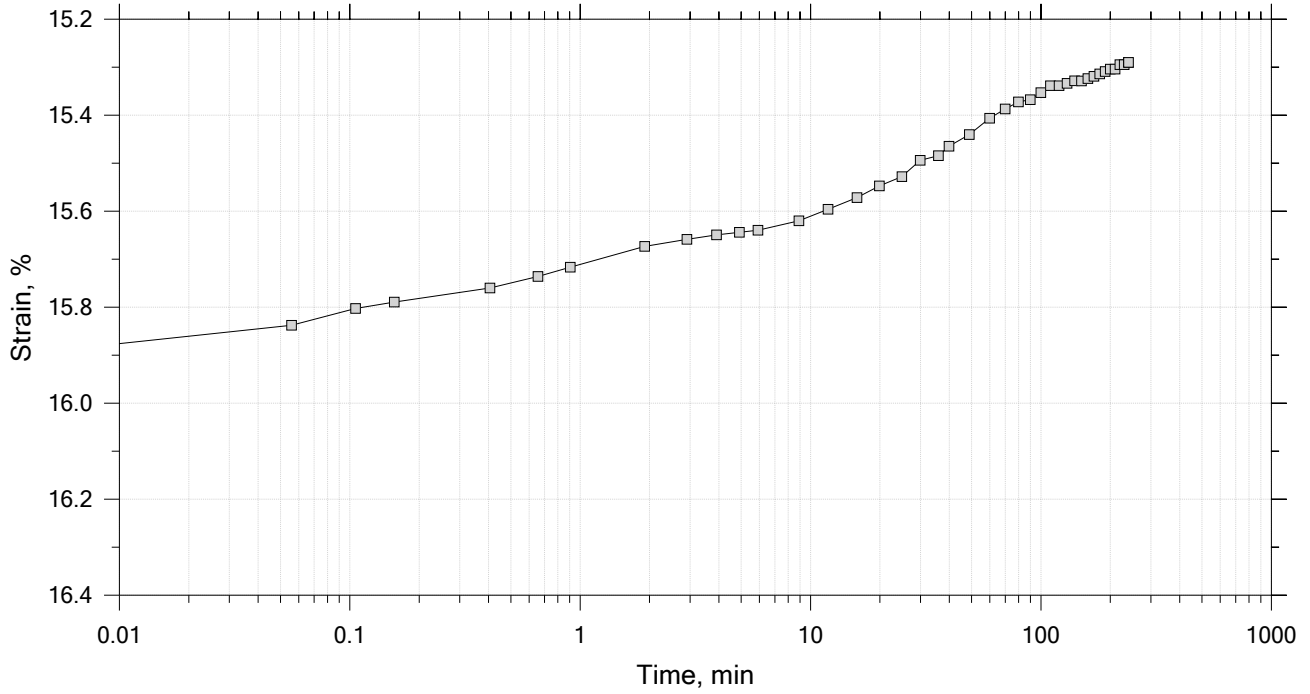
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 15

Constant Load Step

Stress: 0.125 tsf



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		

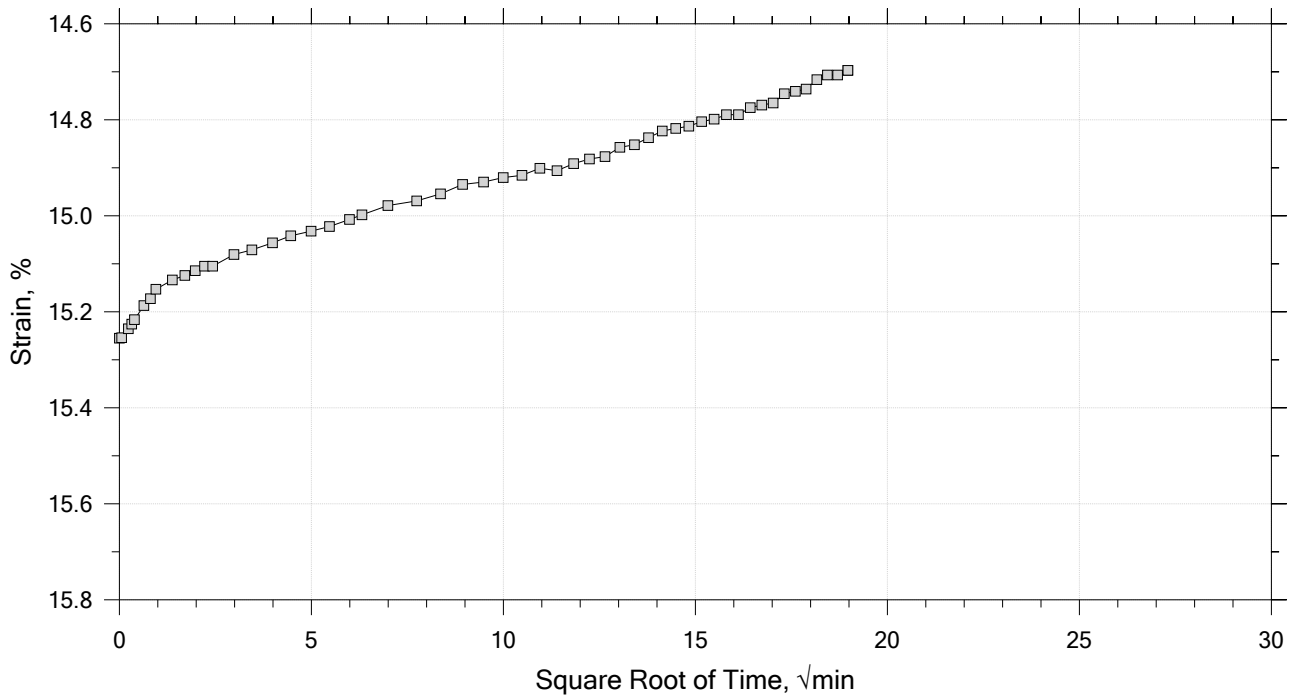
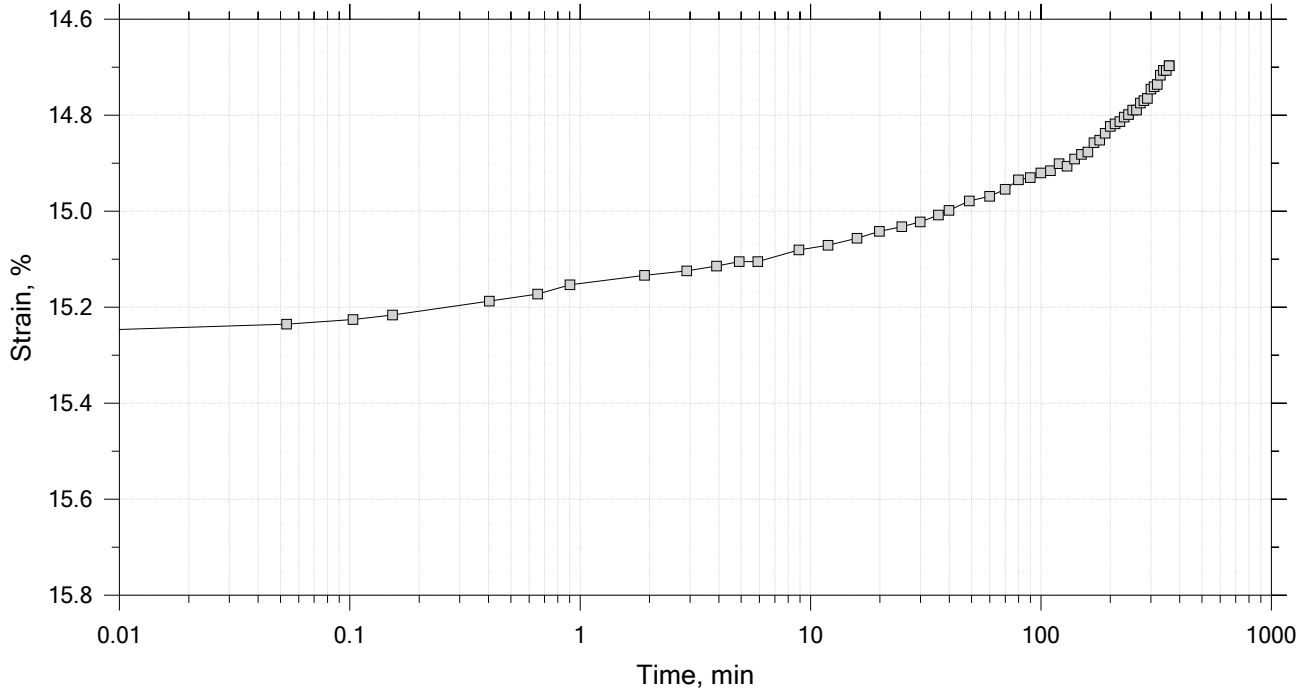



# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 15 of 15

Constant Load Step

Stress: 0.0625 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.68	Liquid Limit: ---
Initial Height: 1.00 in	Initial Void Ratio: 1.11	Plastic Limit: ---
Final Height: 0.83 in	Final Void Ratio: 0.747	Plasticity Index: ---

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	B2573	RING		A-2270
Mass Container, gm	9.15	108.66	108.66	8.22
Mass Container + Wet Soil, gm	125.7	252.46	239.45	139.71
Mass Container + Dry Soil, gm	92.66	210.89	210.89	111
Mass Dry Soil, gm	83.51	102.23	102.23	102.78
Water Content, %	39.56	40.66	27.93	27.93
Void Ratio	---	1.11	0.75	---
Degree of Saturation, %	---	98.43	100.00	---
Dry Unit Weight, pcf	---	79.341	95.592	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.


	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		



# One-Dimensional Consolidation by ASTM D2435 - Method B

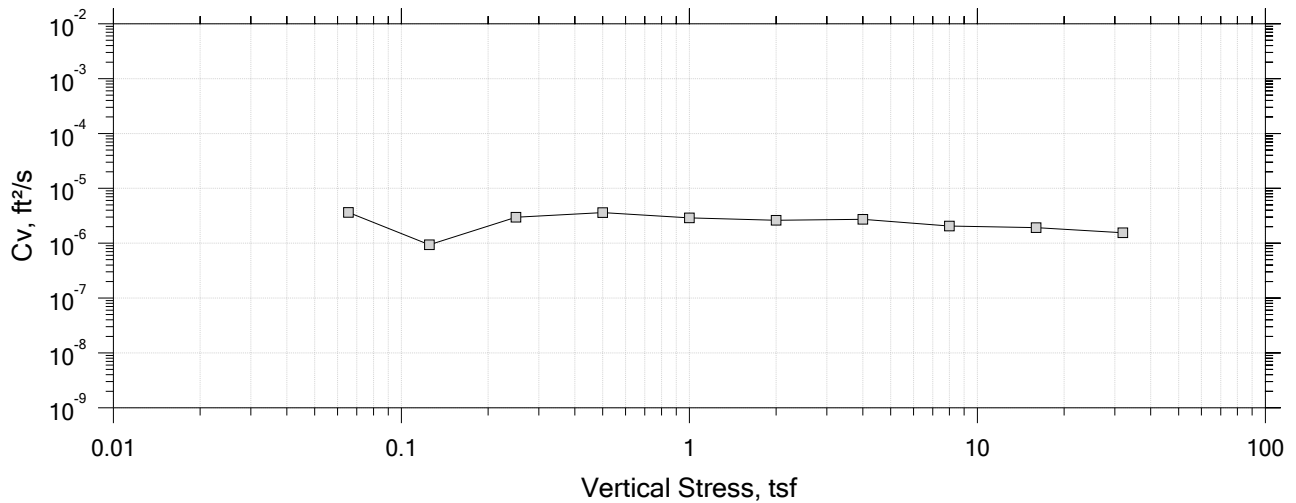
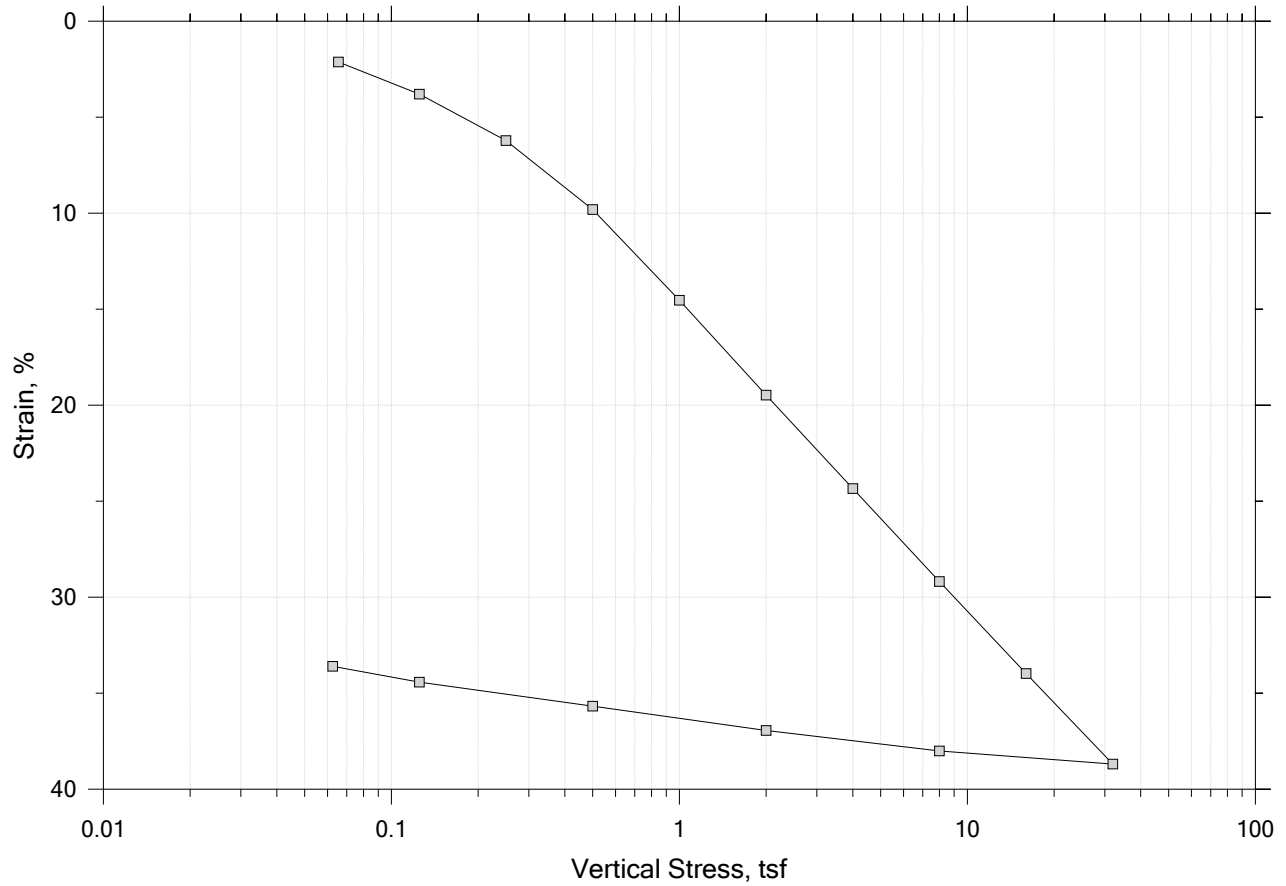
## Square Root of Time Coefficients


Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv ft <sup>2</sup> /s	Mv 1/tsf	k ft/day
1	0.0716	0.006595	1.09	0.659	181.433	1.34e-07	9.21e-02	3.34e-05
2	0.125	0.01105	1.08	1.10	40.385	5.97e-07	8.33e-02	1.34e-04
3	0.250	0.01692	1.07	1.69	305.688	7.80e-08	4.70e-02	9.89e-06
4	0.500	0.02454	1.05	2.45	52.375	4.49e-07	3.05e-02	3.69e-05
5	1.00	0.03445	1.03	3.44	16.782	1.38e-06	1.98e-02	7.36e-05
6	2.00	0.04872	1.00	4.87	20.097	1.12e-06	1.43e-02	4.32e-05
7	4.00	0.06946	0.959	6.95	13.993	1.55e-06	1.04e-02	4.34e-05
8	8.00	0.09841	0.898	9.84	37.898	5.43e-07	7.24e-03	1.06e-05
9	16.0	0.1349	0.821	13.5	40.484	4.73e-07	4.56e-03	5.81e-06
10	32.0	0.1783	0.730	17.8	24.923	7.00e-07	2.72e-03	5.13e-06
11	8.00	0.1741	0.739	17.4	0.000	0.00e+00	1.76e-04	0.00e+00
12	2.00	0.1685	0.751	16.9	42.506	3.96e-07	9.30e-04	9.95e-07
13	0.500	0.1612	0.766	16.1	21.830	7.84e-07	4.92e-03	1.04e-05
14	0.125	0.1529	0.783	15.3	71.935	2.42e-07	2.20e-02	1.44e-05
15	0.0625	0.1470	0.796	14.7	0.000	0.00e+00	9.49e-02	0.00e+00

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-115SPT	Tested By: trm	Checked By: anm
	Sample No.: 41.5-43.5191009	Test Date: 11/27/19	Depth: ---
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, dark gray sandy silt		
	Remarks: System JJ, Swell Pressure = 0.0716 tsf		
Displacement at End of Increment			

# One-Dimensional Consolidation by ASTM D2435 - Method B

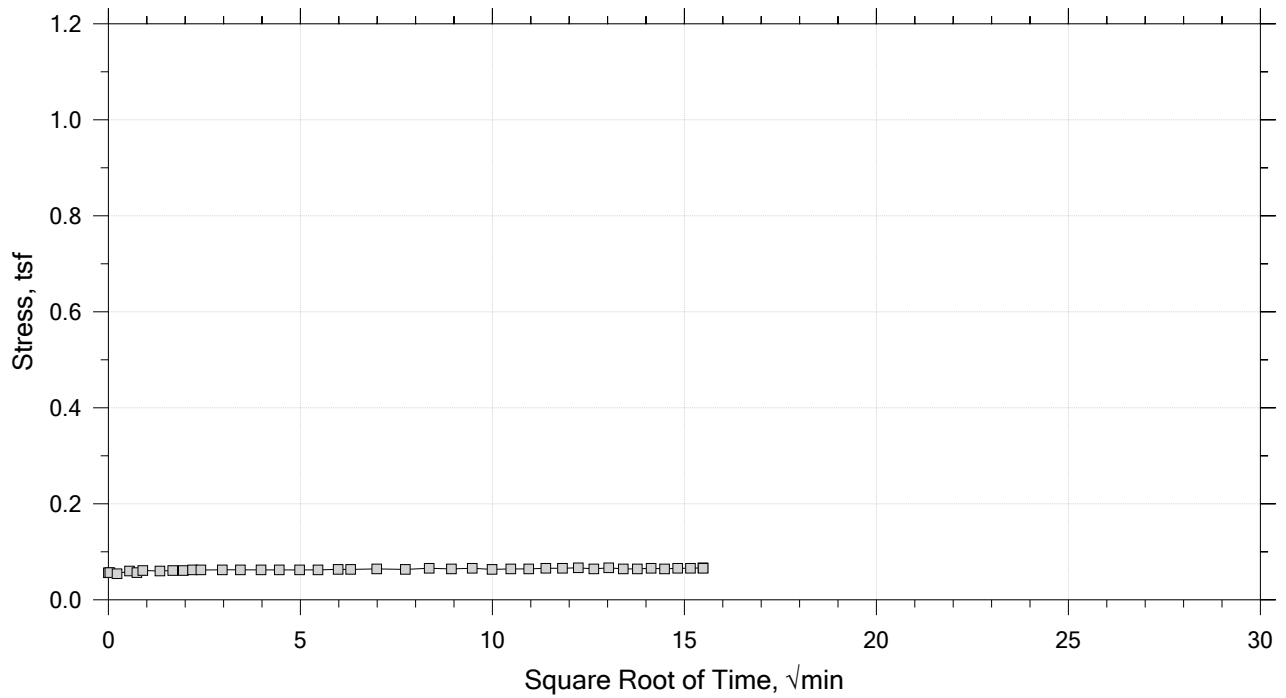
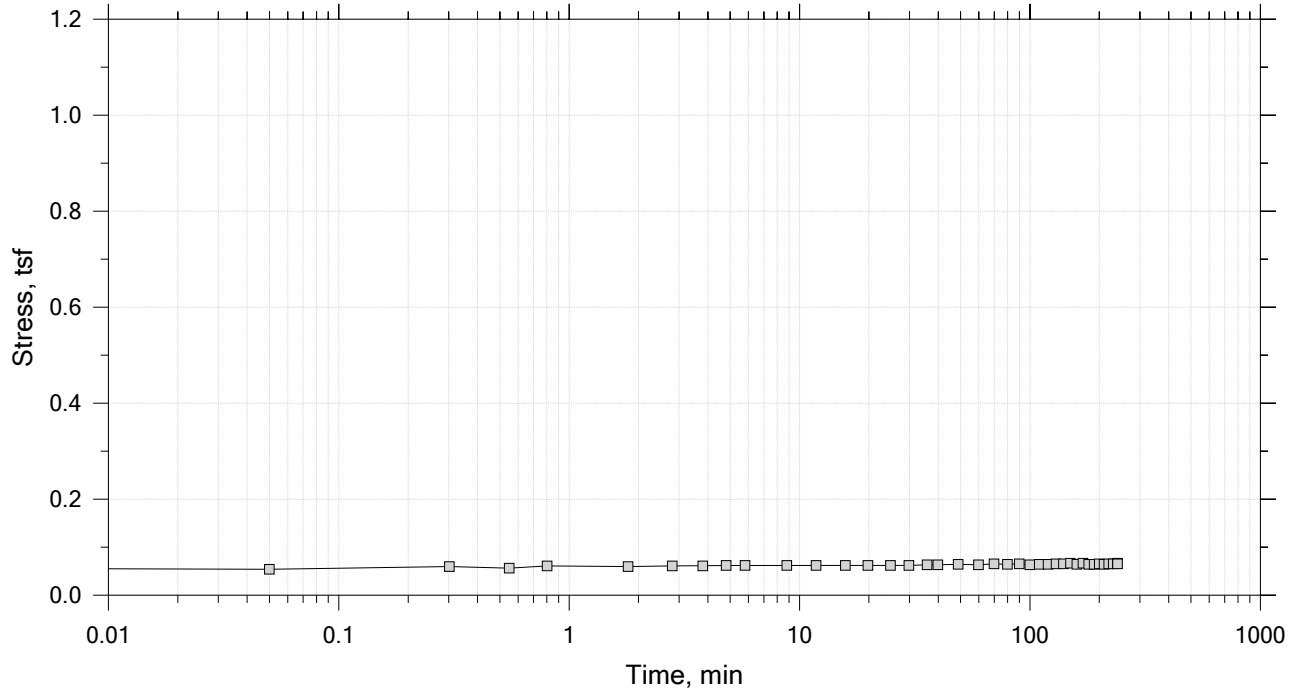
## Summary Report




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		
	Displacement at End of Increment		

# One-Dimensional Consolidation by ASTM D2435 - Method B

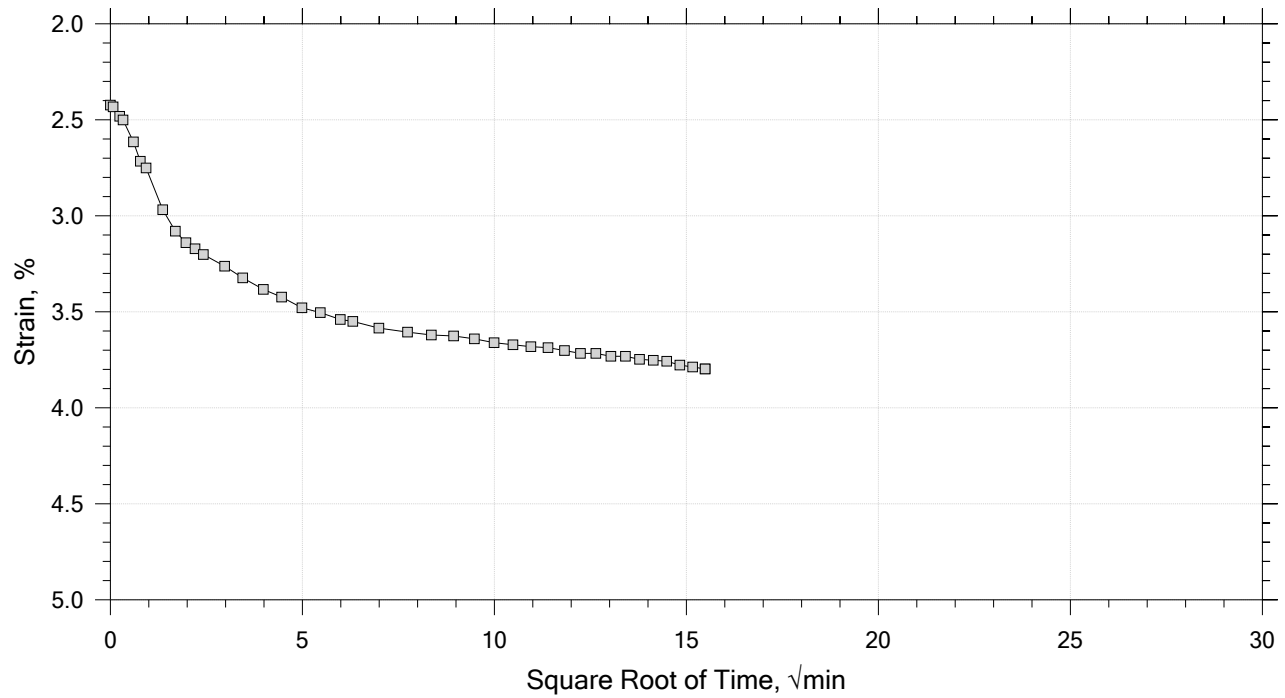
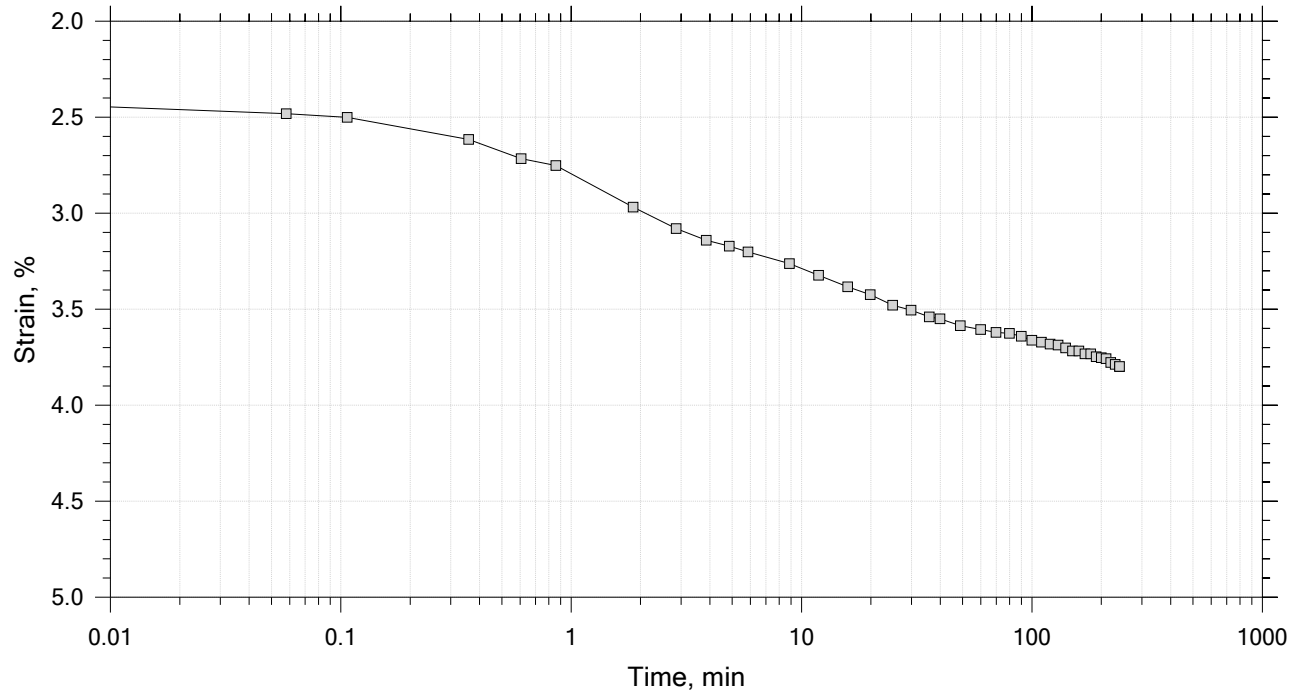
Time Curve 1 of 15  
 Constant Volume Step  
 Stress: 0.0655 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

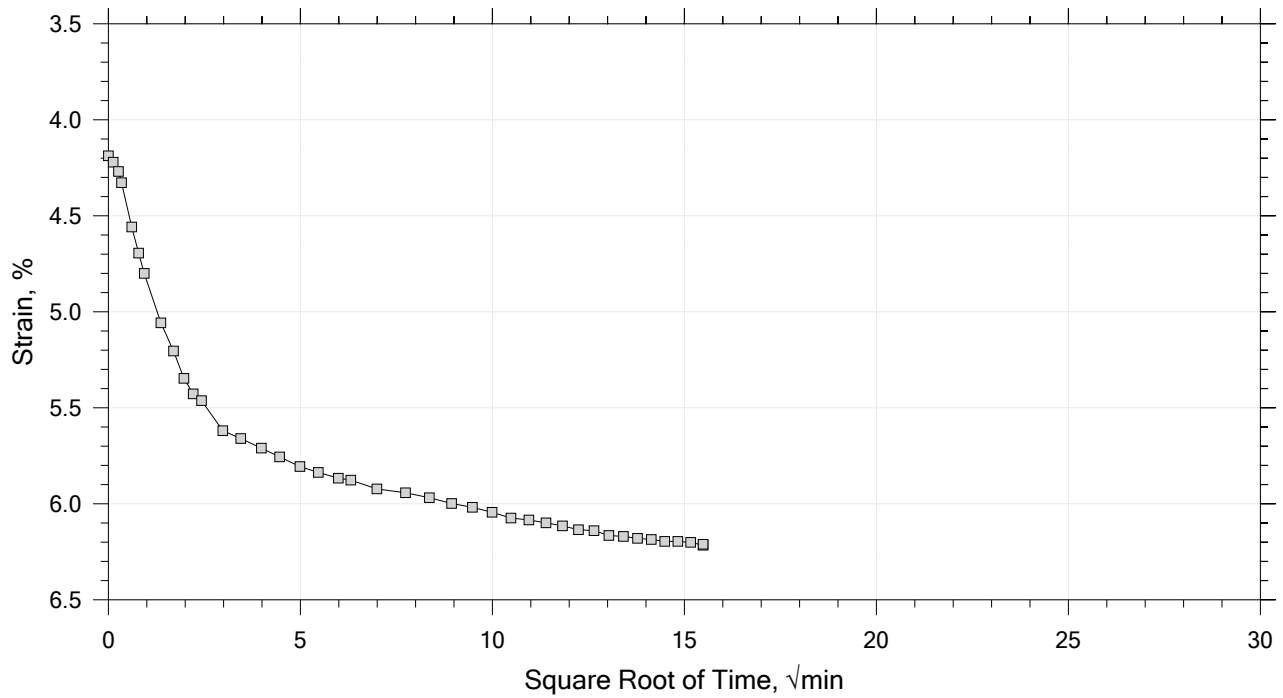
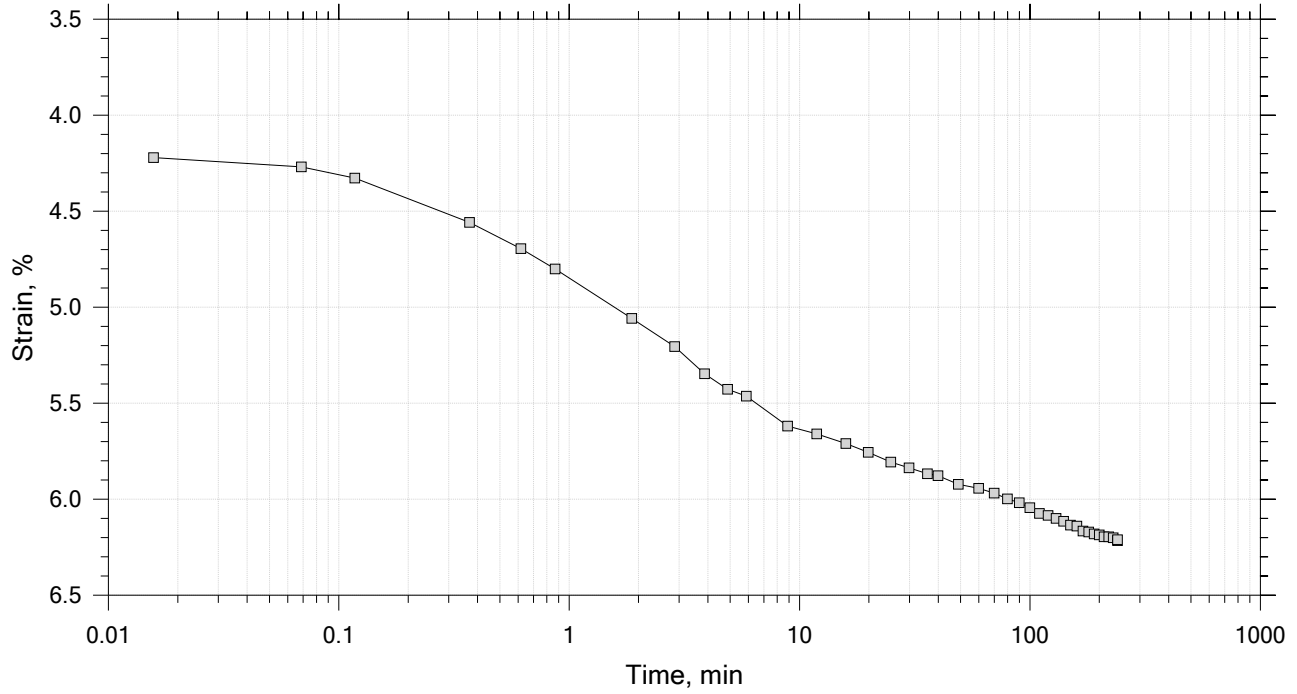
Time Curve 2 of 15  
 Constant Load Step  
 Stress: 0.125 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 15  
 Constant Load Step  
 Stress: 0.25 tsf

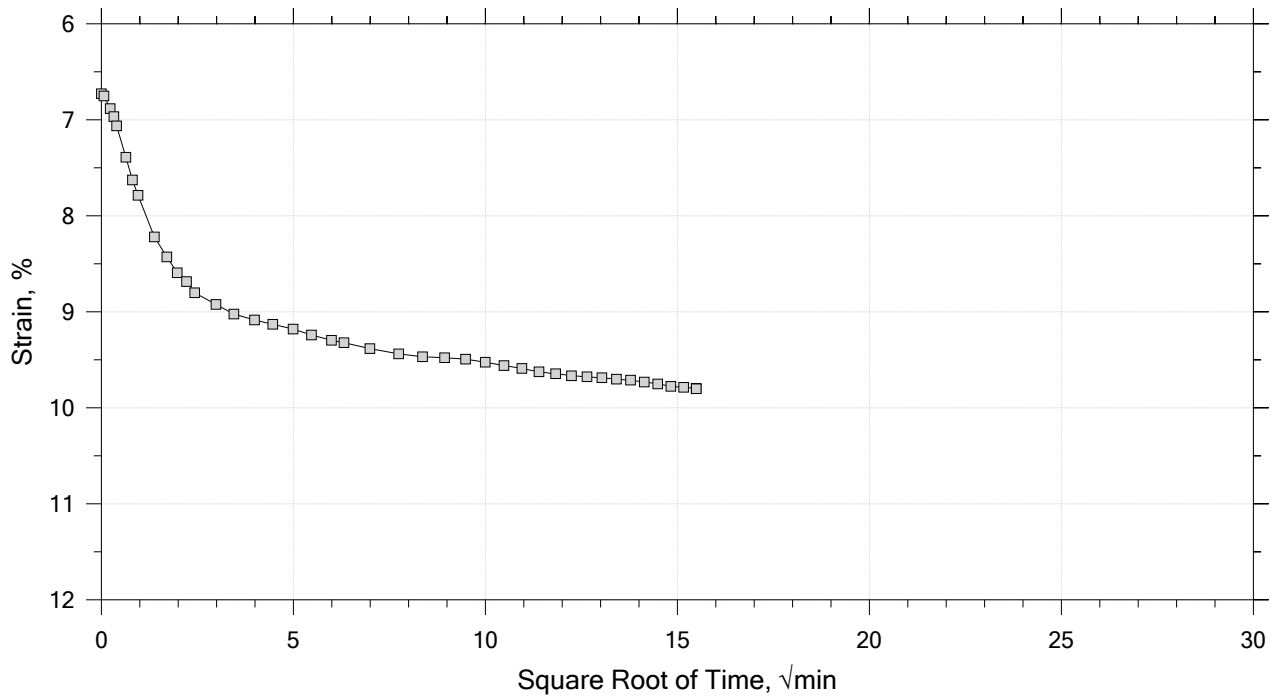
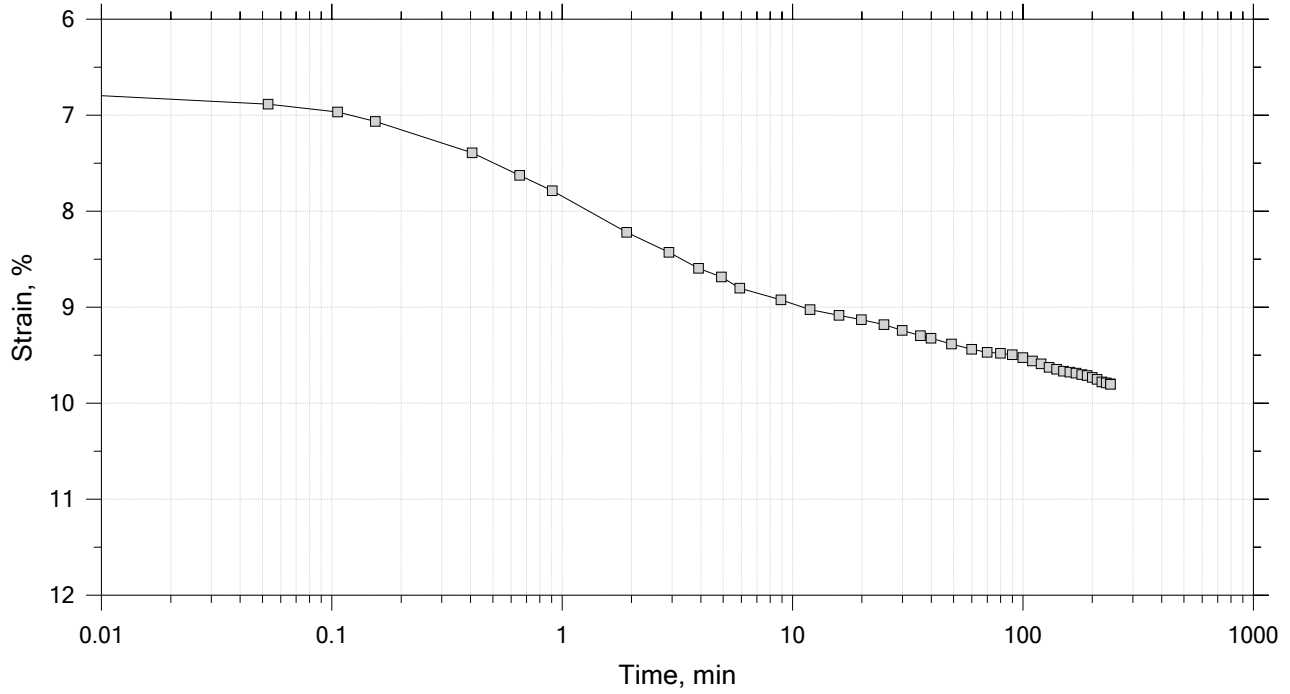



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		



# One-Dimensional Consolidation by ASTM D2435 - Method B

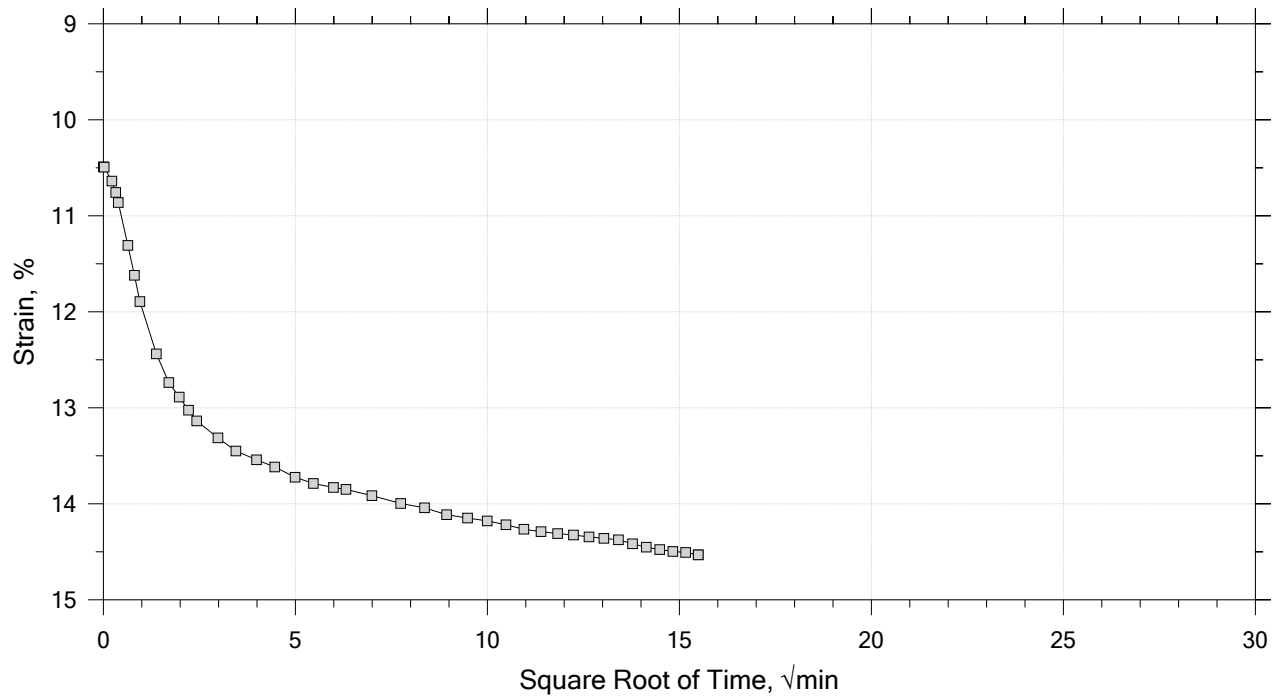
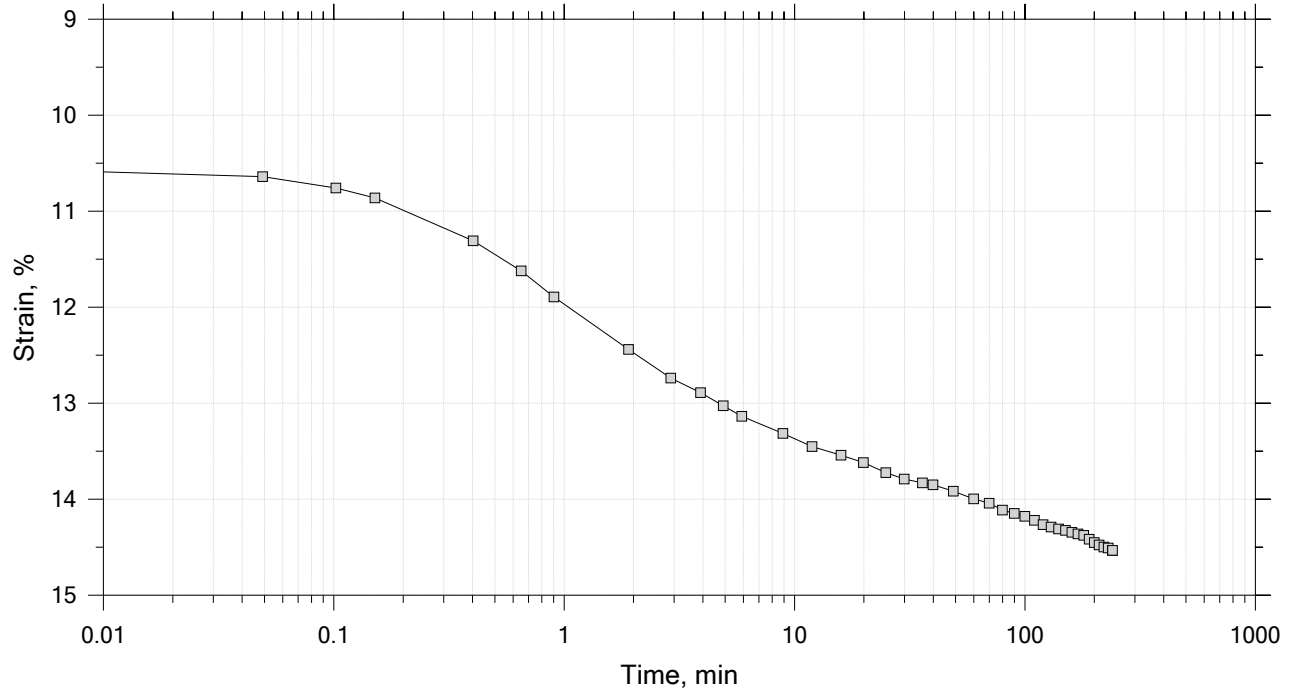
Time Curve 4 of 15  
 Constant Load Step  
 Stress: 0.5 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

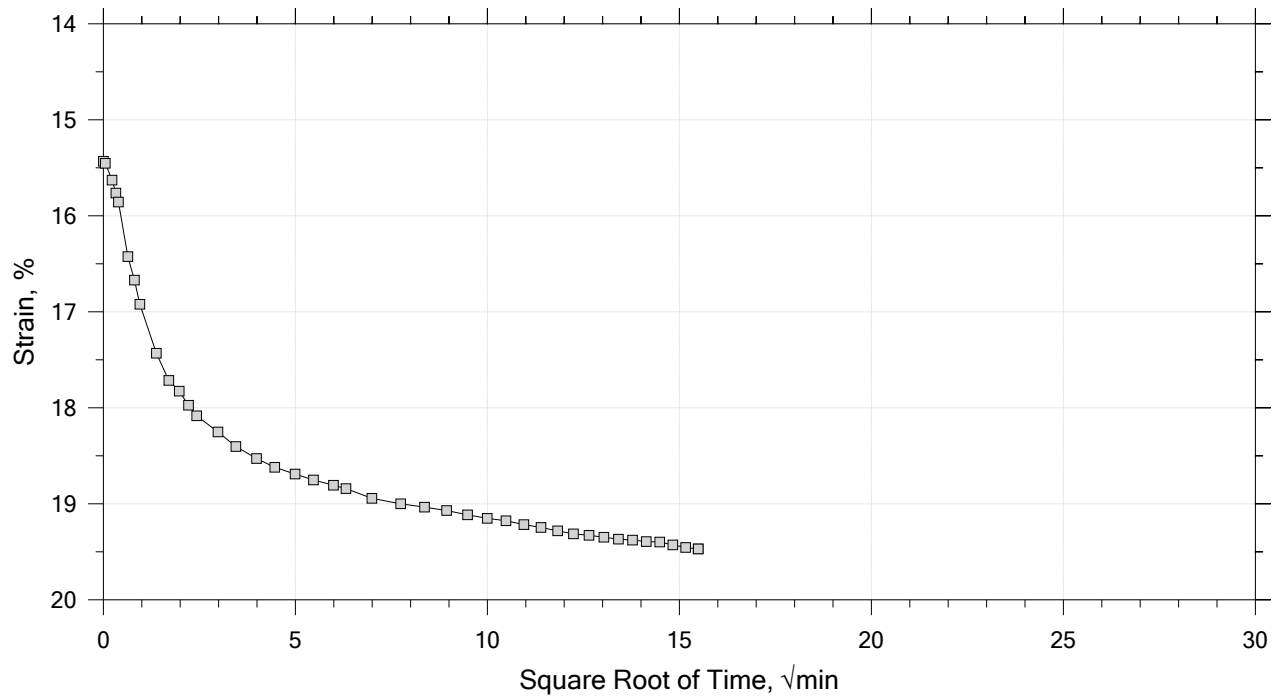
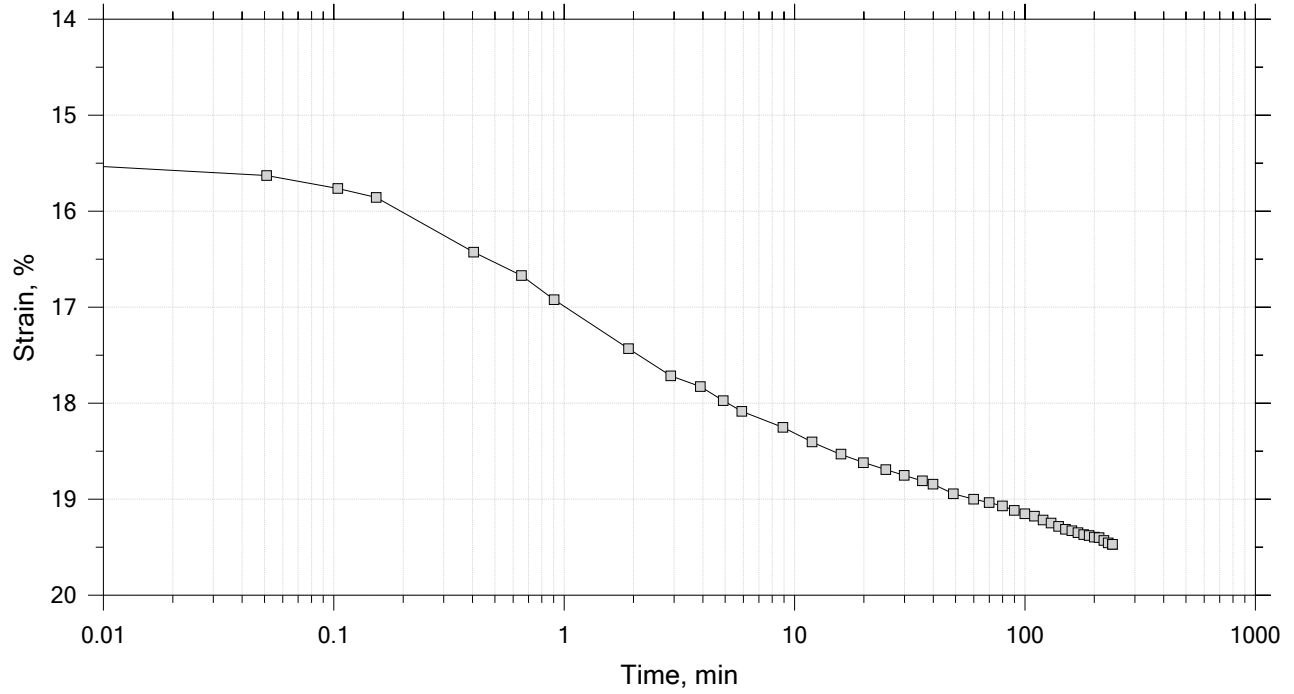
Time Curve 5 of 15  
 Constant Load Step  
 Stress: 1 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

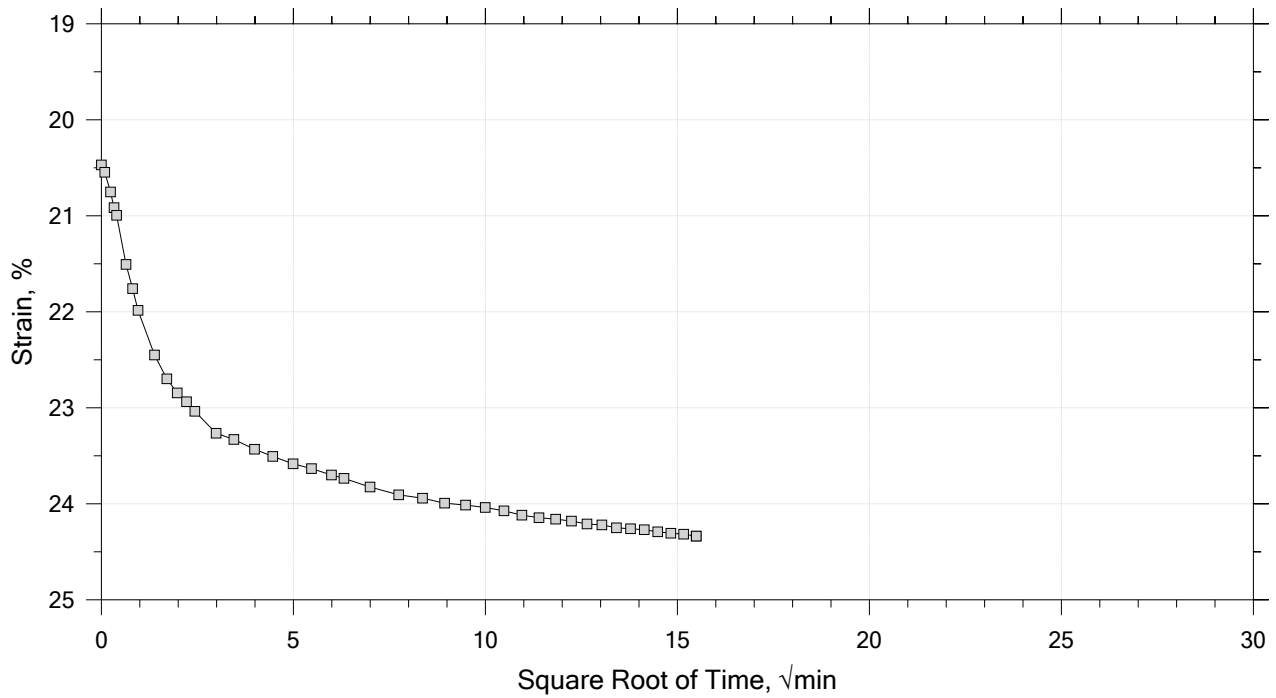
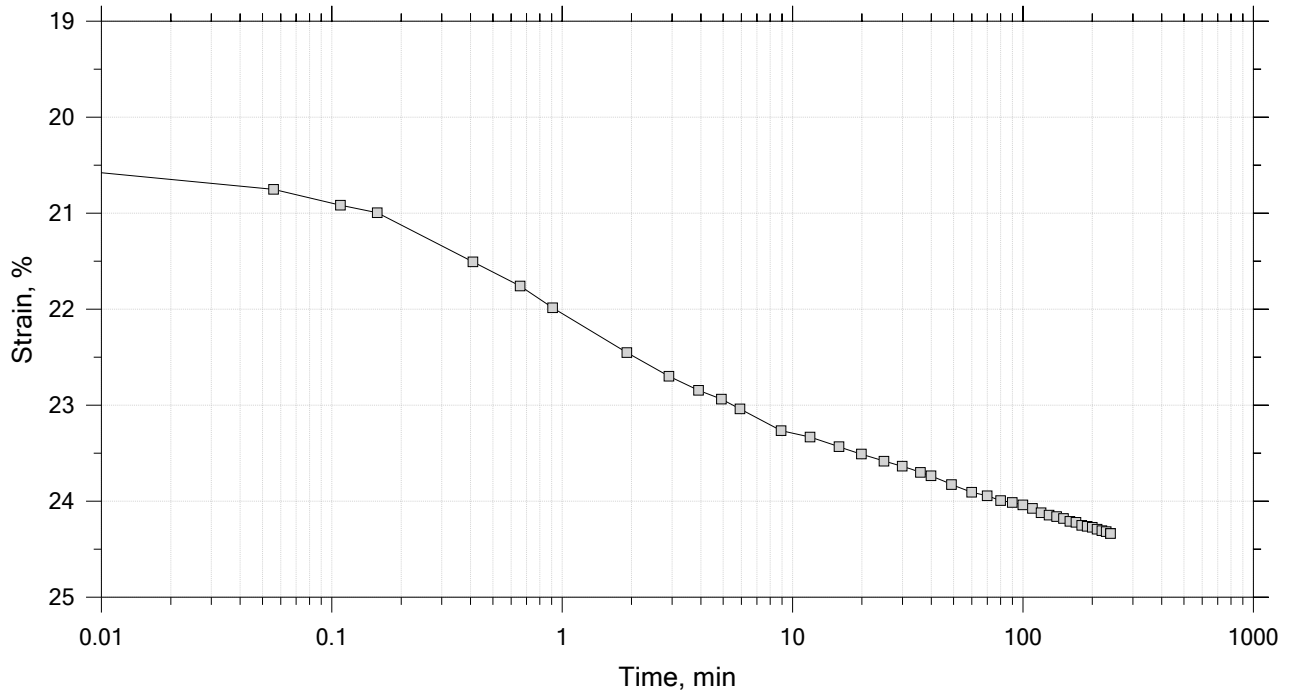
Time Curve 6 of 15  
 Constant Load Step  
 Stress: 2 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 15  
 Constant Load Step  
 Stress: 4 tsf



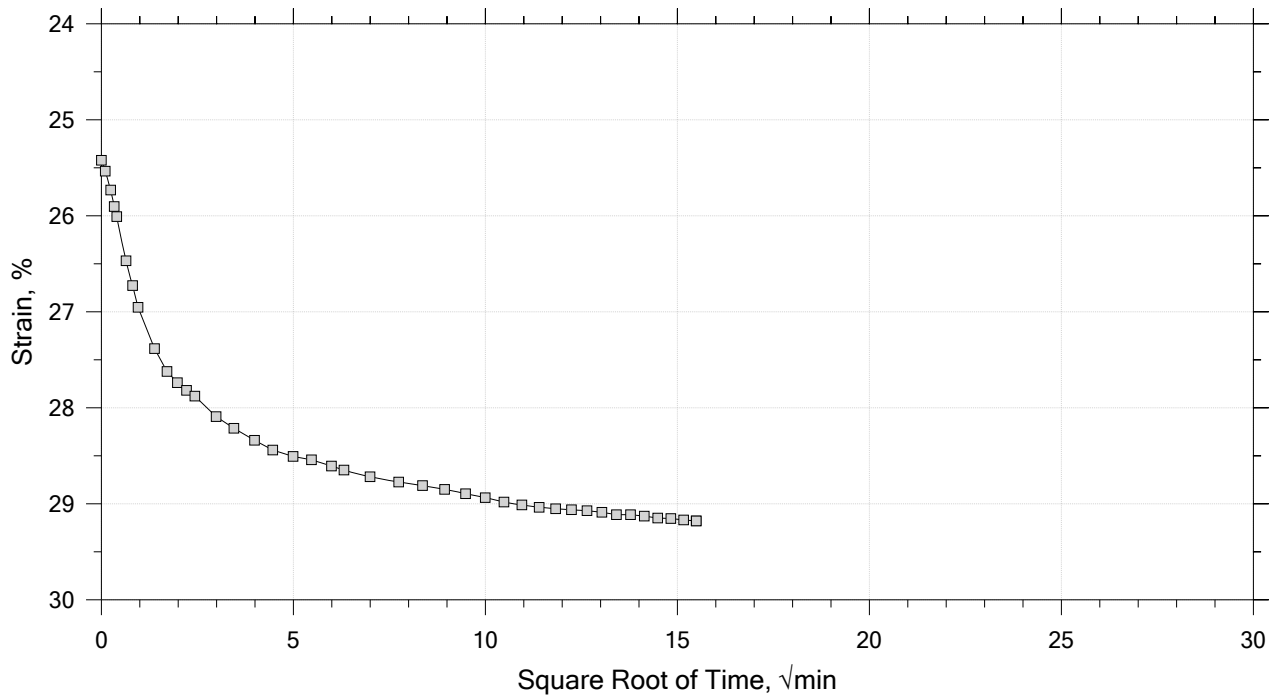
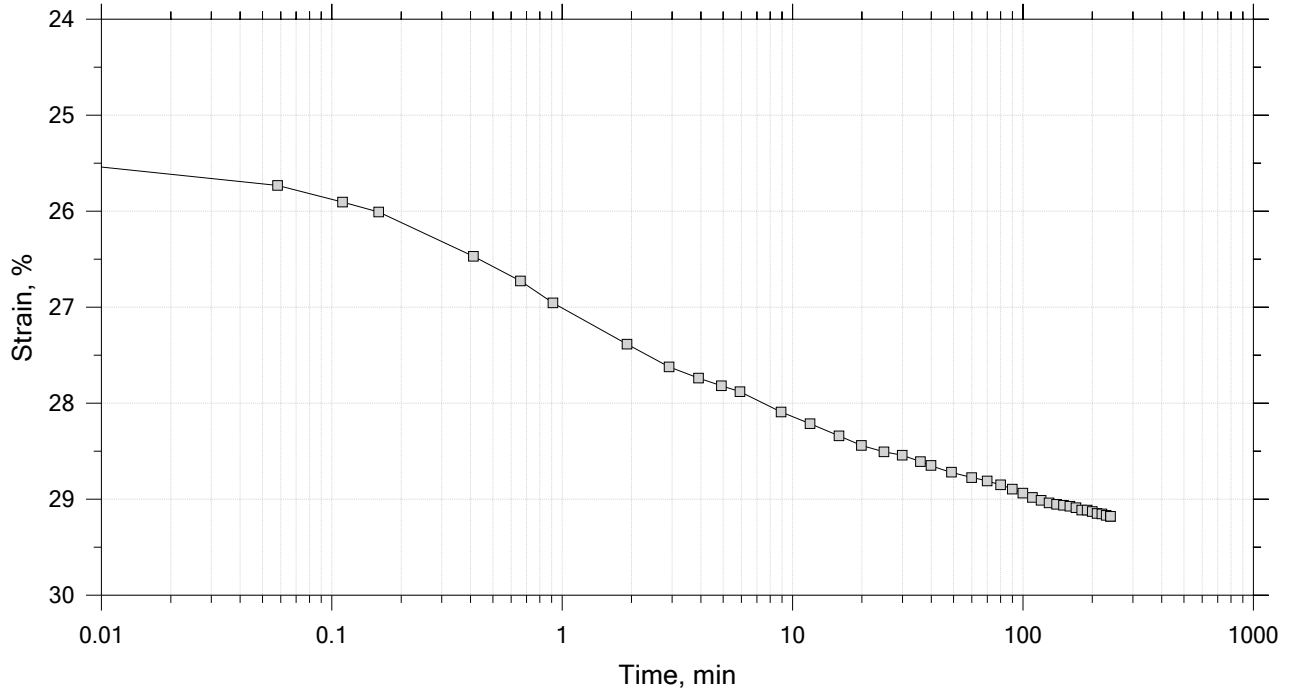
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 15

Constant Load Step

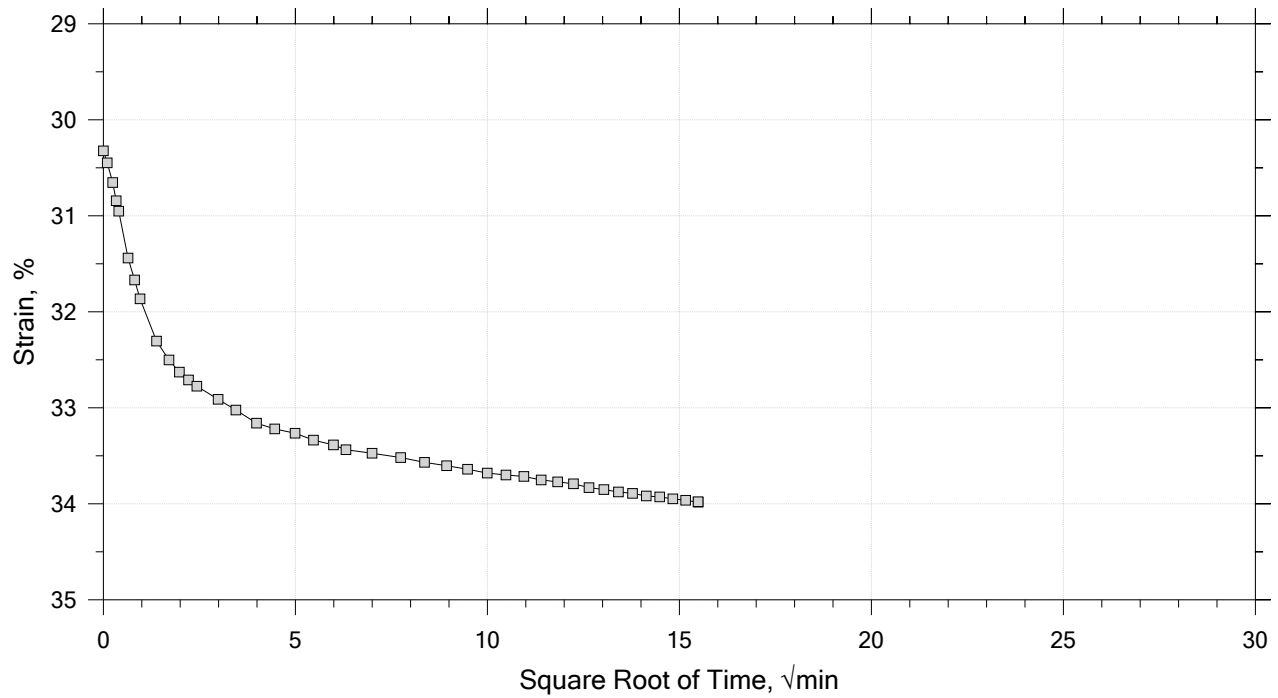
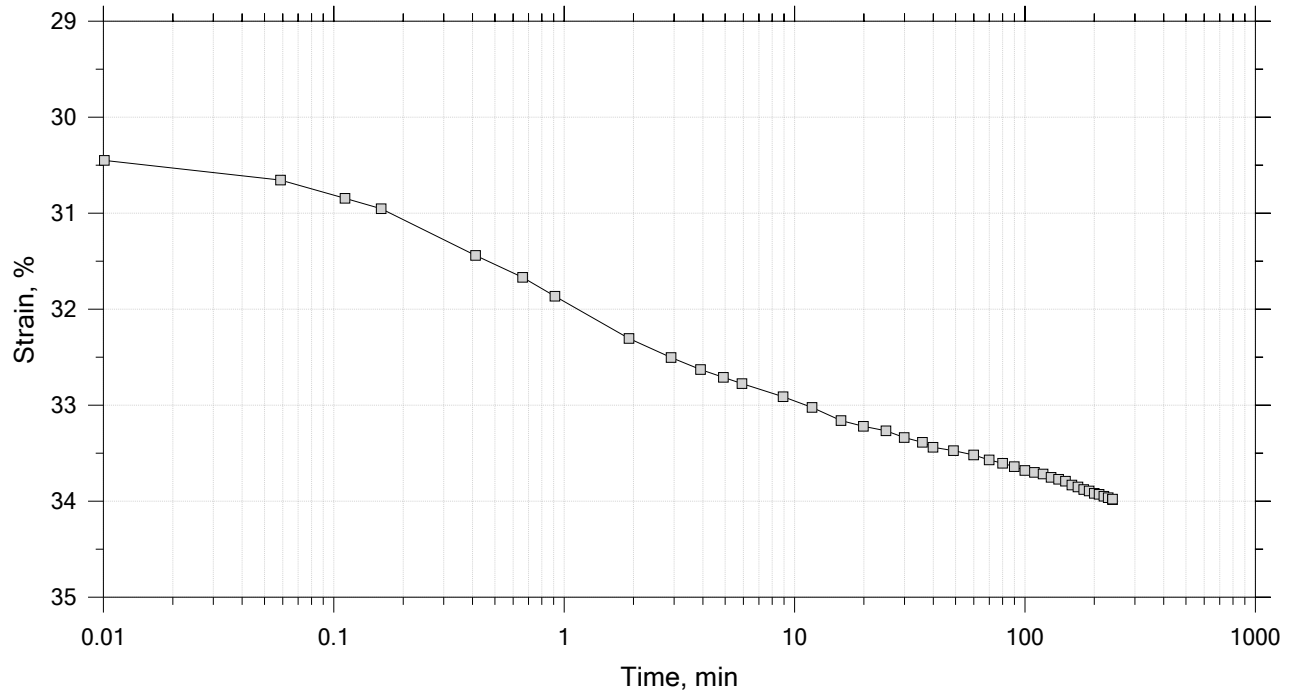
Stress: 8 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 15  
 Constant Load Step  
 Stress: 16 tsf



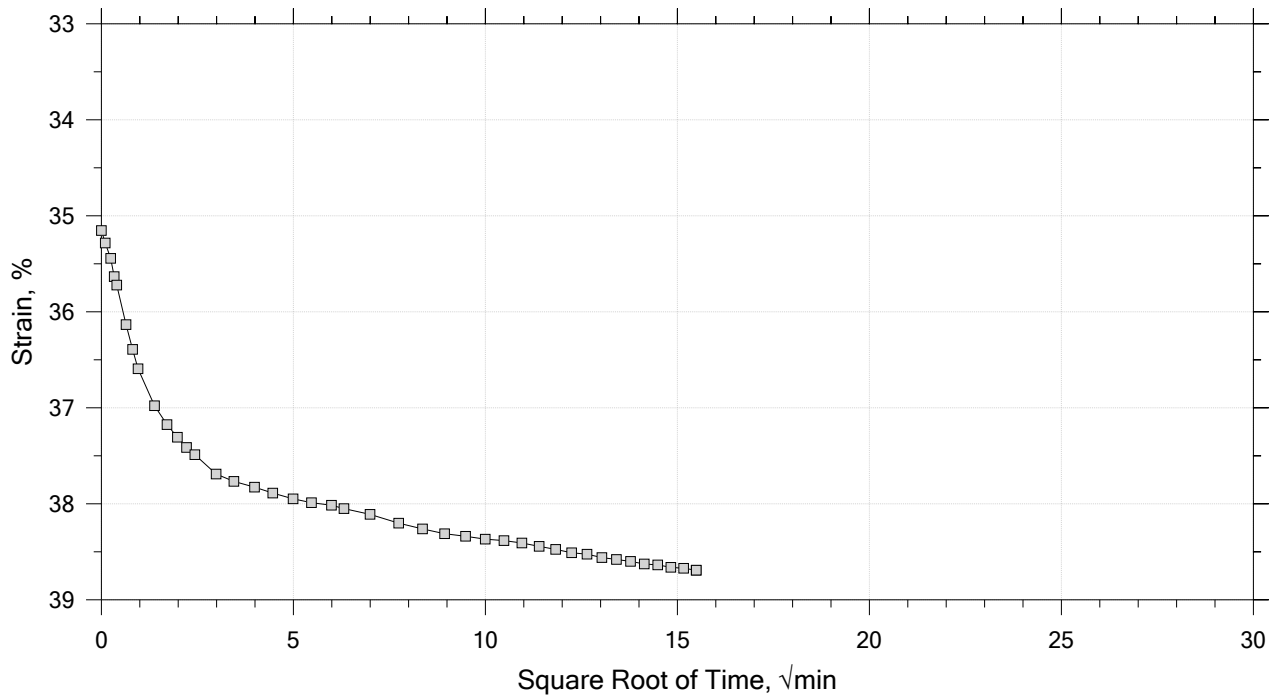
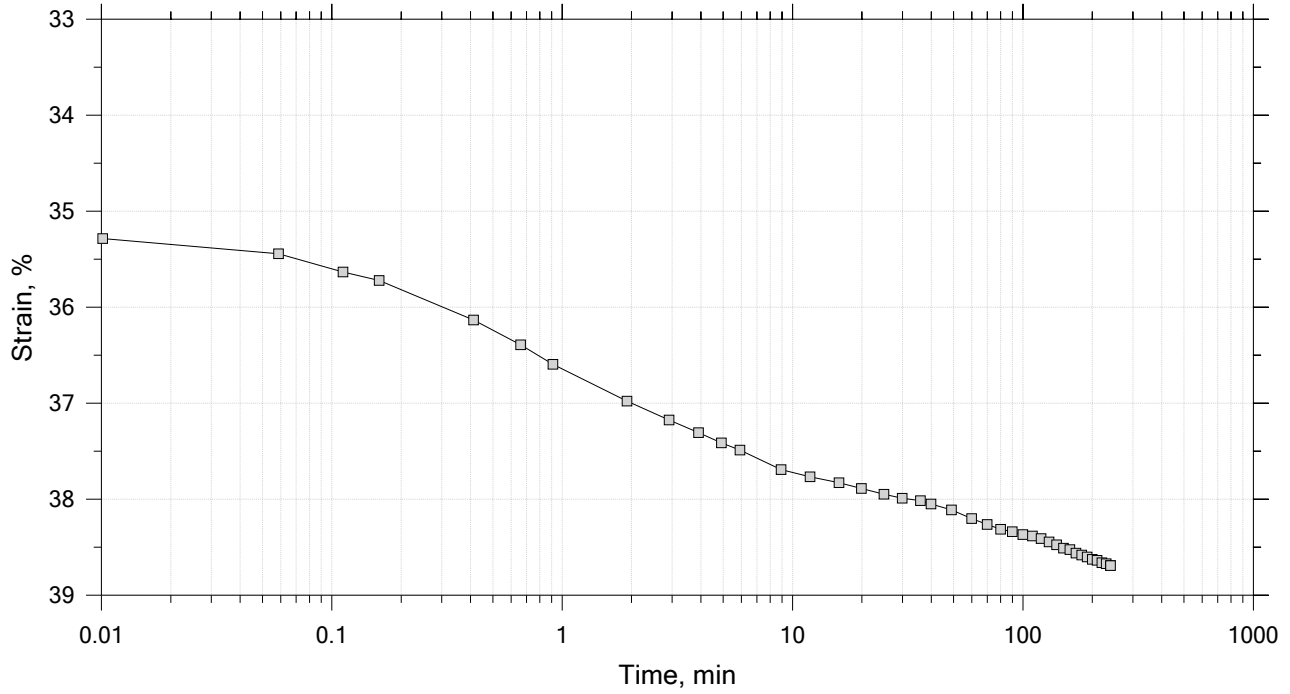
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 15

Constant Load Step

Stress: 32 tsf



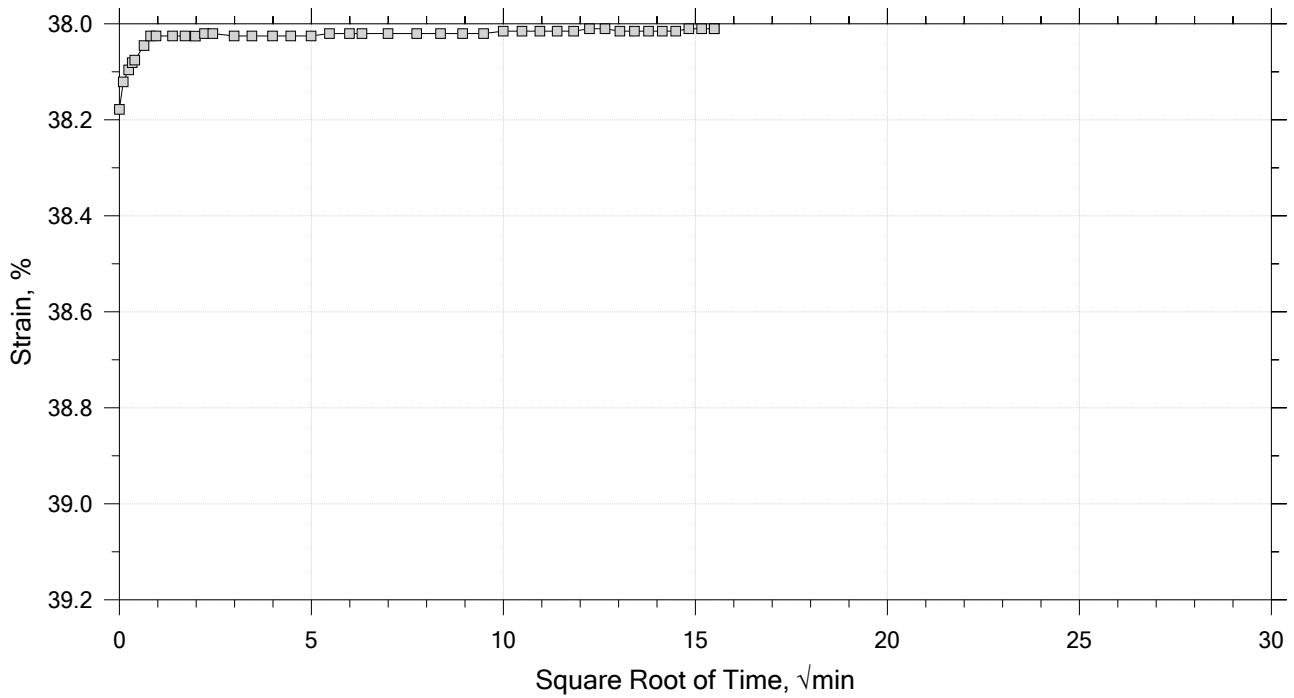
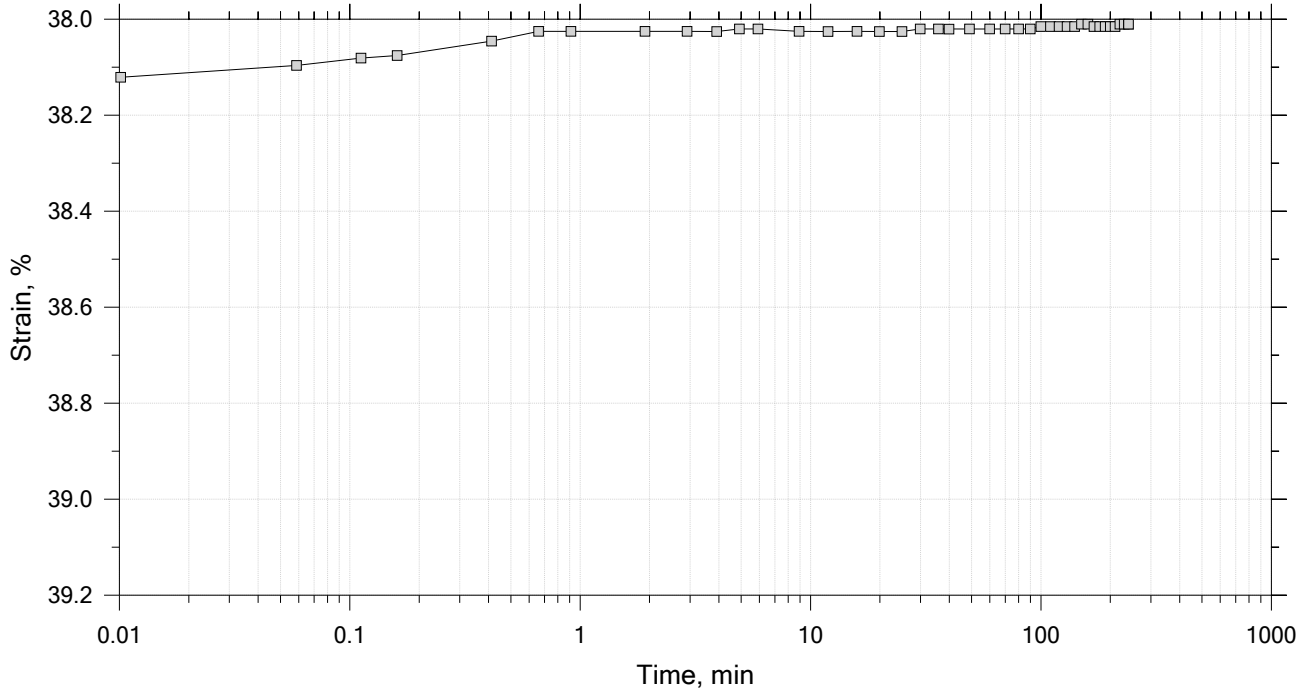
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 15

Constant Load Step

Stress: 8 tsf



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

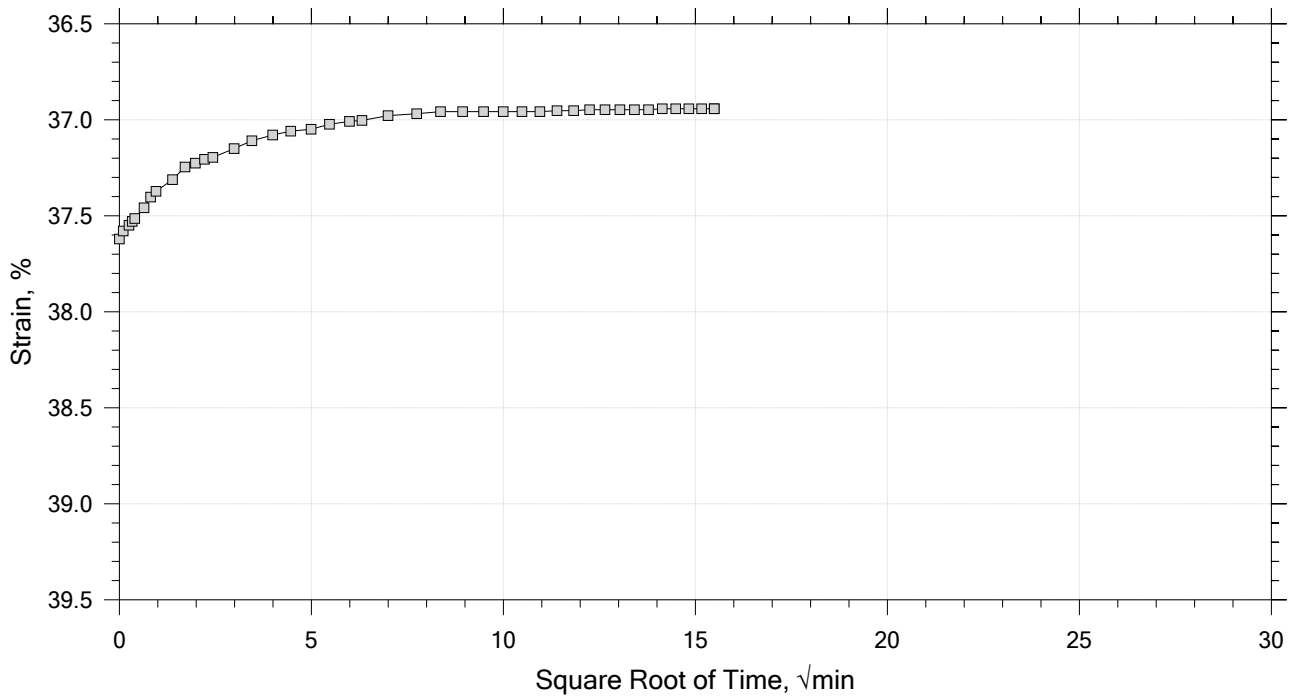
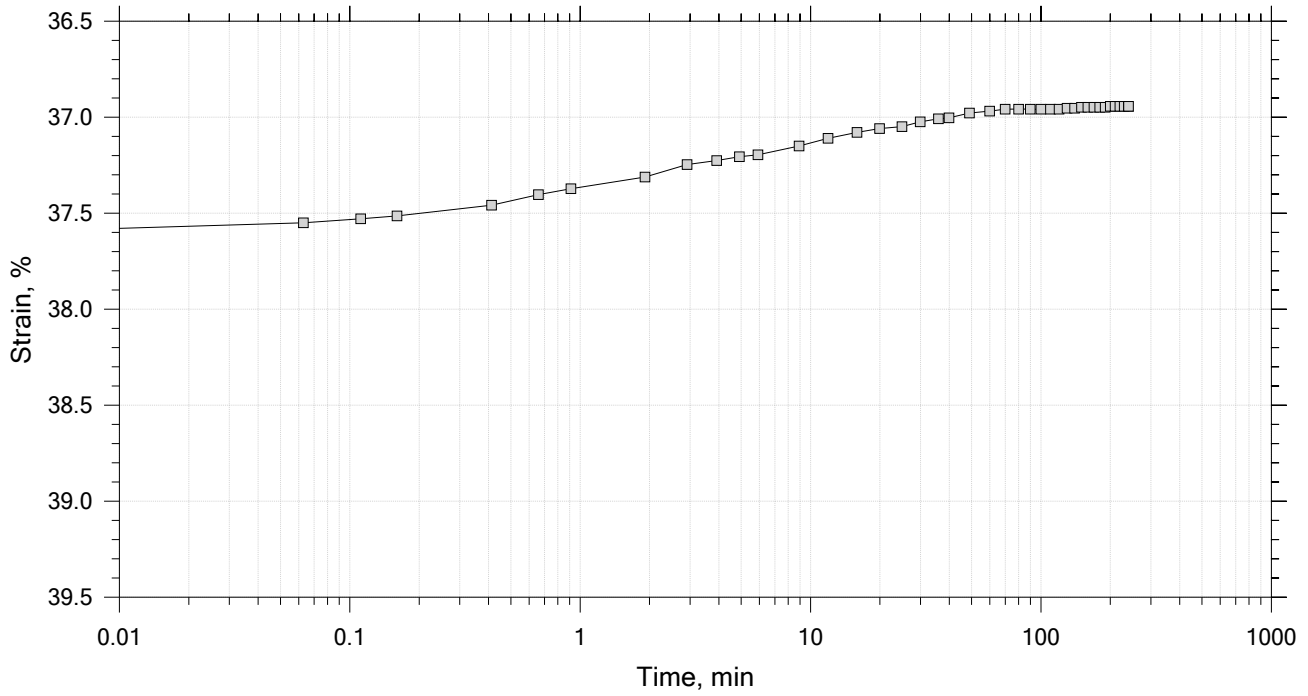



# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 15

Constant Load Step

Stress: 2 tsf



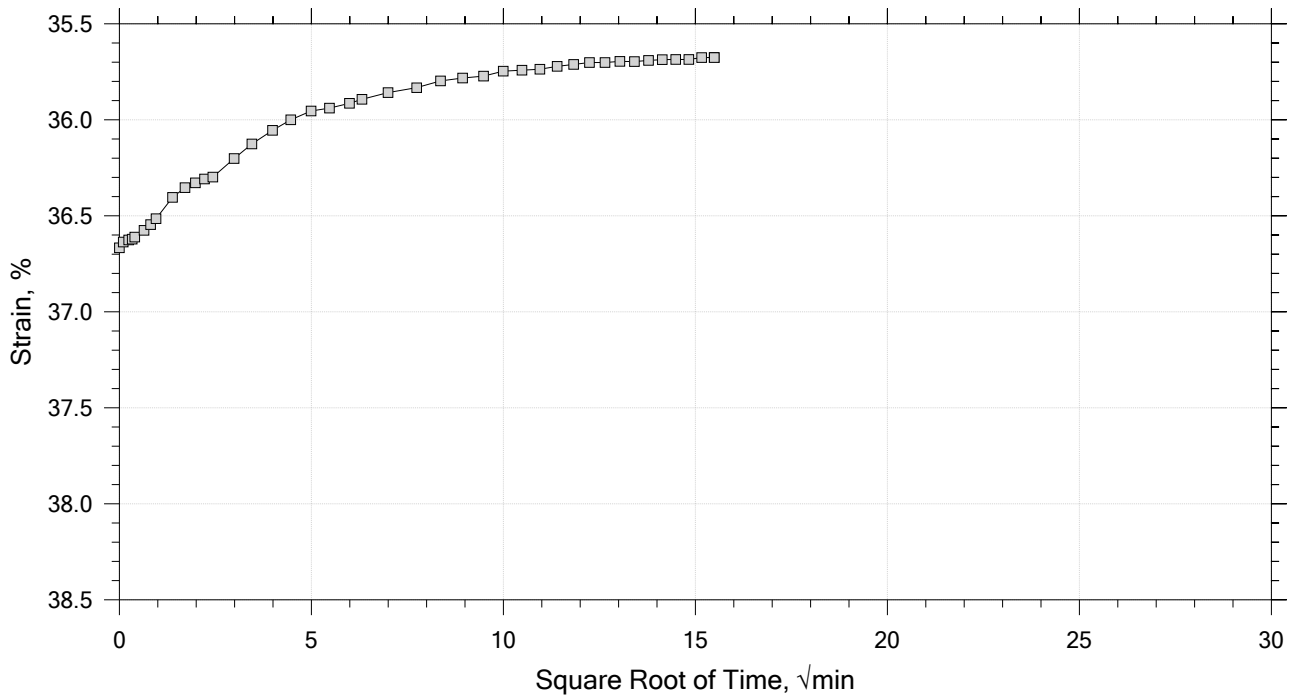
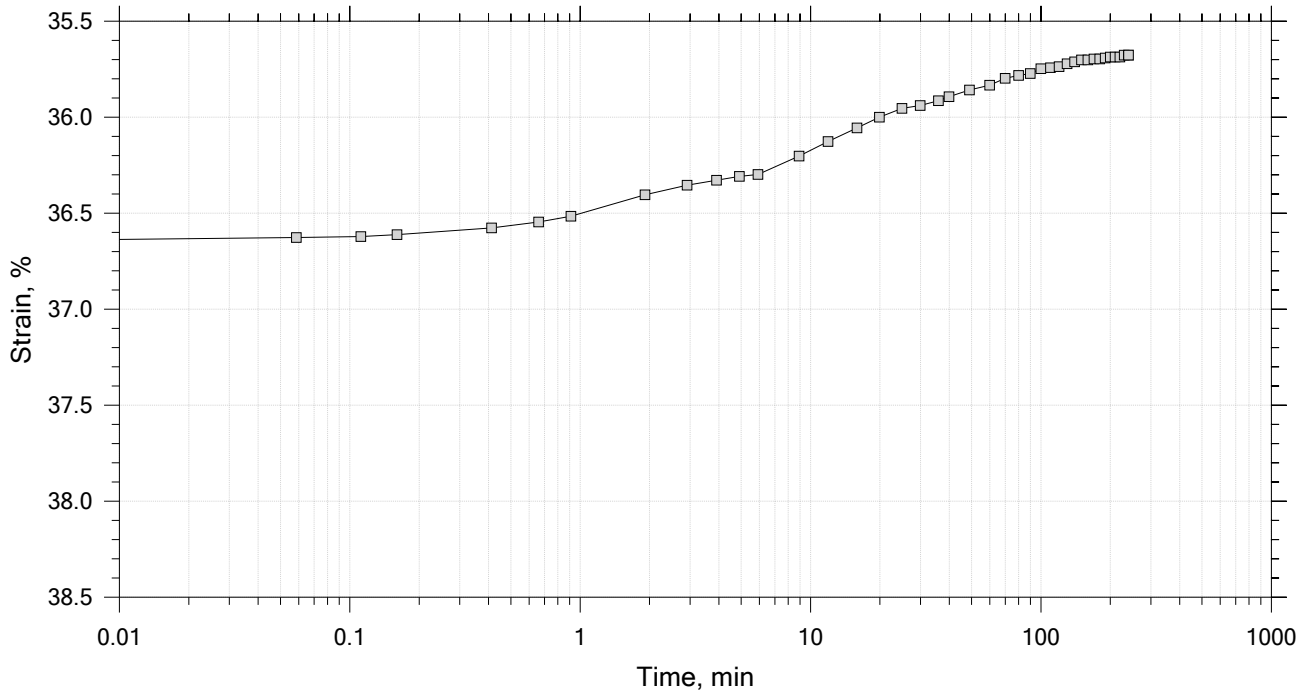
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 15

Constant Load Step

Stress: 0.5 tsf



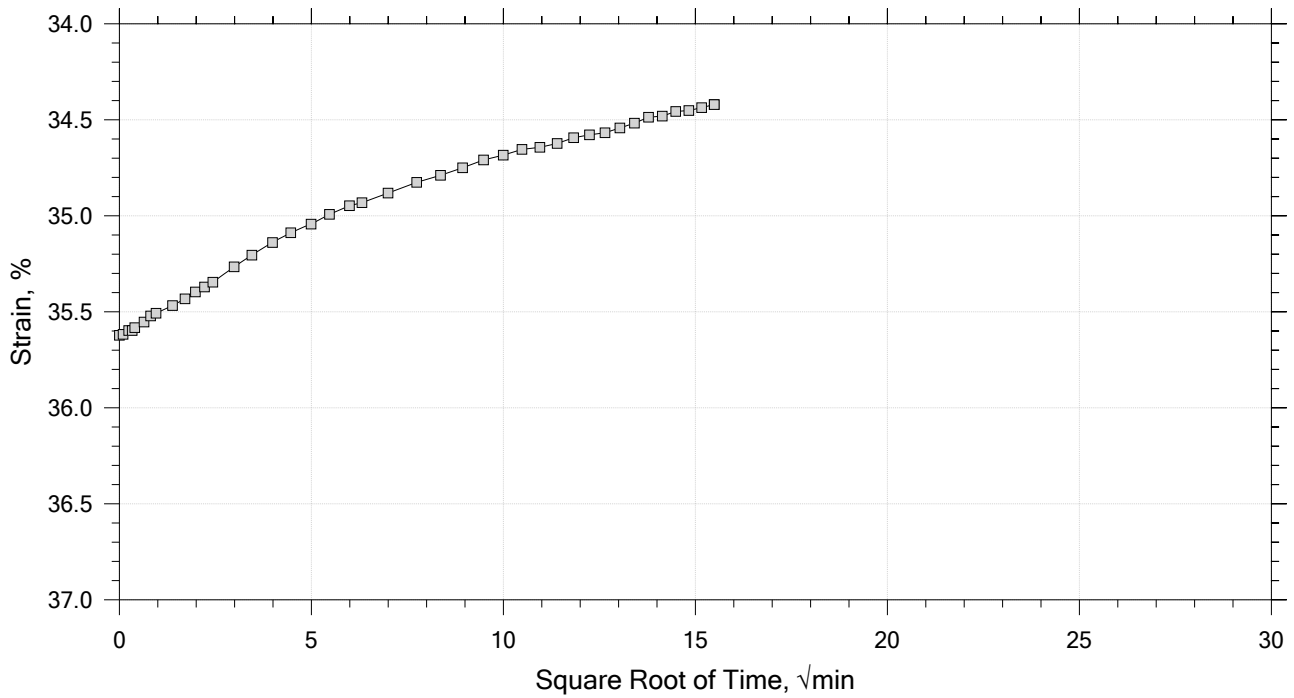
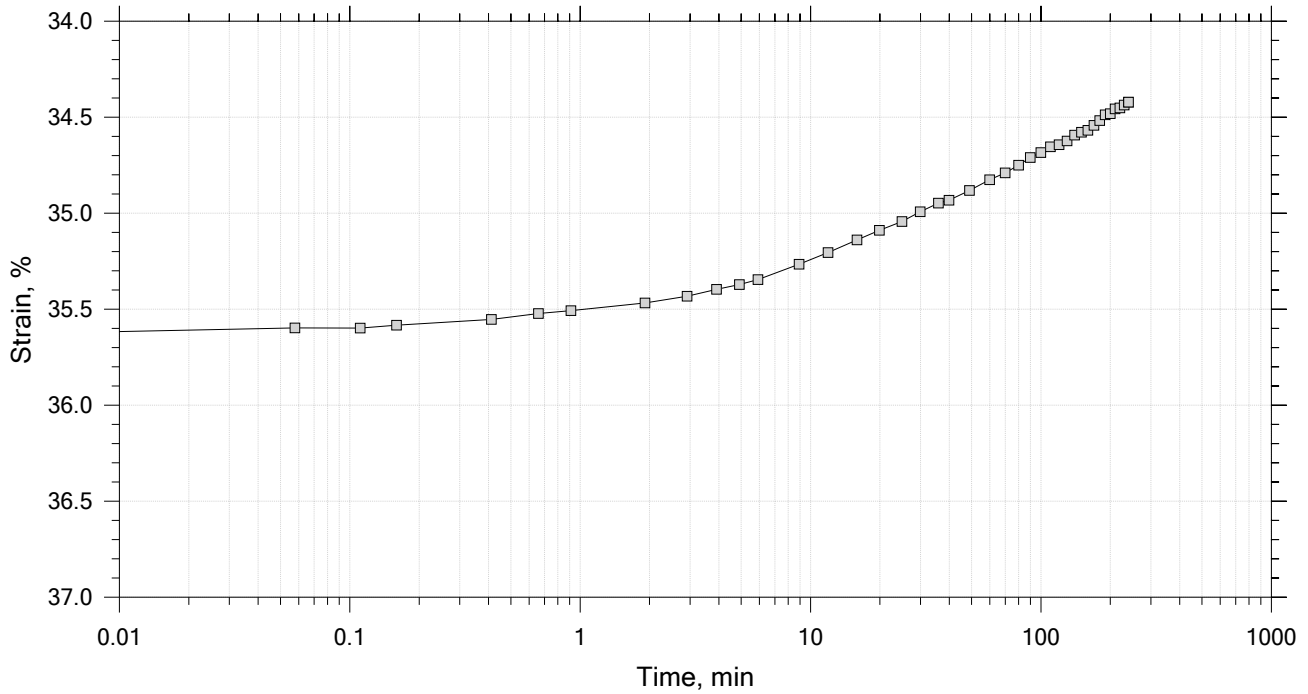
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 15

Constant Load Step

Stress: 0.125 tsf



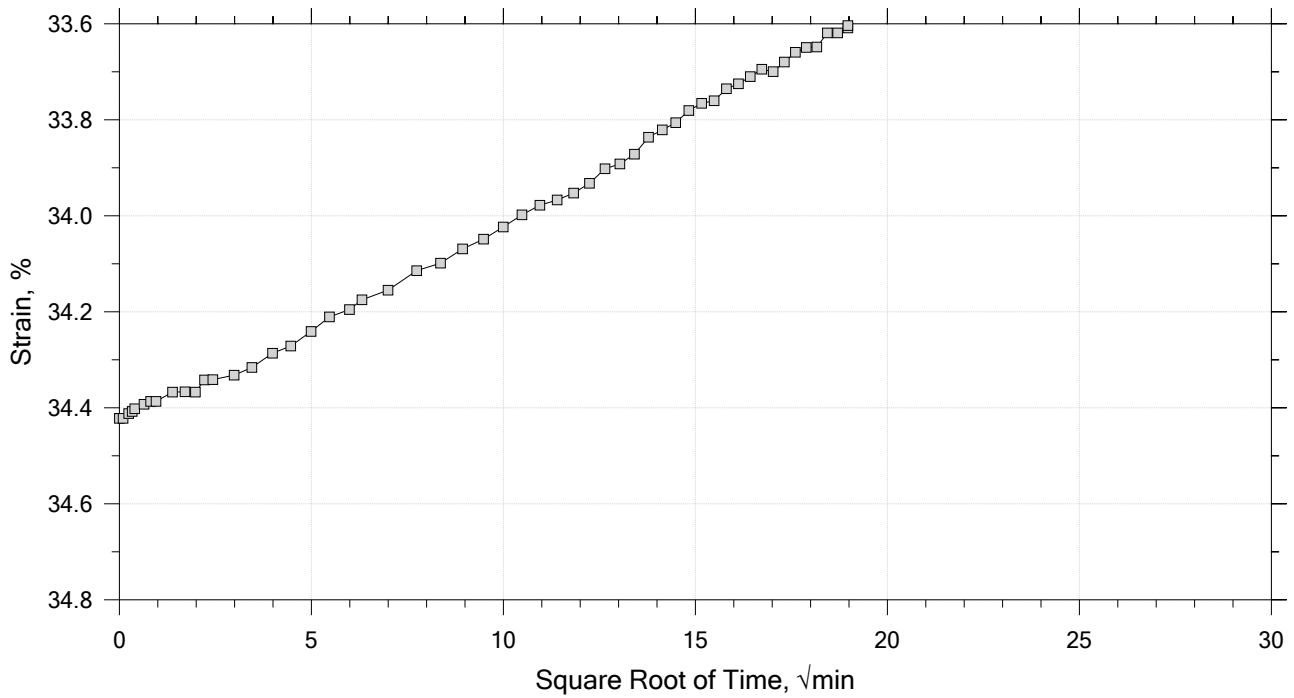
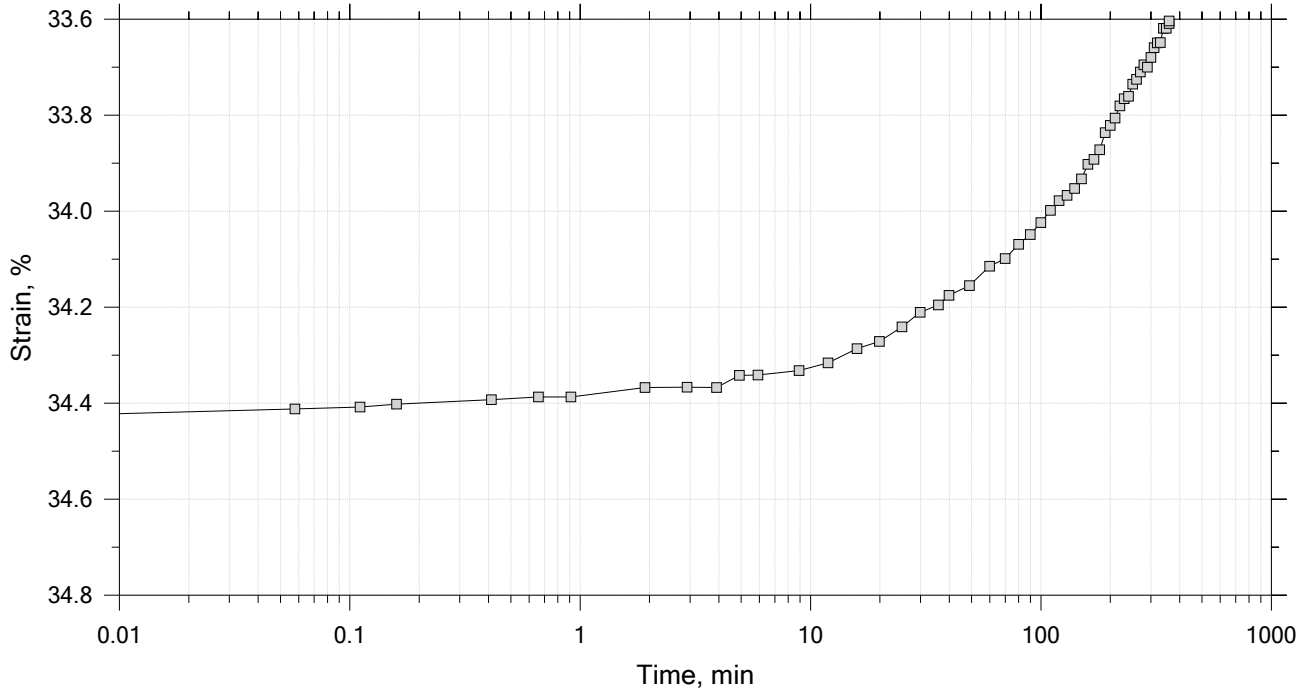
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 15 of 15

Constant Load Step

Stress: 0.0625 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.69	Liquid Limit: 74
Initial Height: 1.00 in	Initial Void Ratio: 1.68	Plastic Limit: 38
Final Height: 0.70 in	Final Void Ratio: 0.877	Plasticity Index: 36

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	D909	RING		B-2656
Mass Container, gm	8.3	109.13	109.13	8.27
Mass Container + Wet Soil, gm	258.06	239.47	216	111.39
Mass Container + Dry Soil, gm	163.24	189.69	189.69	86
Mass Dry Soil, gm	154.94	80.557	80.557	77.73
Water Content, %	61.20	61.80	32.66	32.66
Void Ratio	---	1.68	0.88	---
Degree of Saturation, %	---	98.69	100.00	---
Dry Unit Weight, pcf	---	62.519	89.312	---


Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

## Log of Time Coefficients


Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Log T50 min	Cv ft <sup>2</sup> /s	Mv 1/tsf	k ft/day	Ca %
1	0.0655	0.02125	1.62	2.12	1.440	3.87e-06	3.24e-01	3.39e-03	0.00e+00
2	0.125	0.03798	1.58	3.80	0.000	0.00e+00	2.81e-01	0.00e+00	0.00e+00
3	0.250	0.06211	1.52	6.21	1.694	3.04e-06	1.93e-01	1.58e-03	0.00e+00
4	0.500	0.09803	1.42	9.80	1.197	4.03e-06	1.44e-01	1.56e-03	0.00e+00
5	1.00	0.1453	1.29	14.5	1.190	3.69e-06	9.46e-02	9.43e-04	0.00e+00
6	2.00	0.1947	1.16	19.5	1.121	3.50e-06	4.94e-02	4.66e-04	0.00e+00
7	4.00	0.2434	1.03	24.3	1.063	3.27e-06	2.43e-02	2.15e-04	0.00e+00
8	8.00	0.2918	0.899	29.2	1.030	2.97e-06	1.21e-02	9.69e-05	0.00e+00
9	16.0	0.3398	0.771	34.0	0.993	2.69e-06	6.00e-03	4.35e-05	0.00e+00
10	32.0	0.3869	0.644	38.7	0.987	2.34e-06	2.95e-03	1.86e-05	0.00e+00
11	8.00	0.3801	0.662	38.0	0.000	0.00e+00	2.84e-04	0.00e+00	0.00e+00
12	2.00	0.3694	0.691	36.9	1.994	1.12e-06	1.78e-03	5.36e-06	0.00e+00
13	0.500	0.3568	0.725	35.7	8.202	2.82e-07	8.44e-03	6.42e-06	0.00e+00
14	0.125	0.3442	0.759	34.4	0.000	0.00e+00	3.35e-02	0.00e+00	0.00e+00
15	0.0625	0.3360	0.781	33.6	0.000	0.00e+00	1.31e-01	0.00e+00	0.00e+00

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		
Displacement at End of Increment			

# One-Dimensional Consolidation by ASTM D2435 - Method B

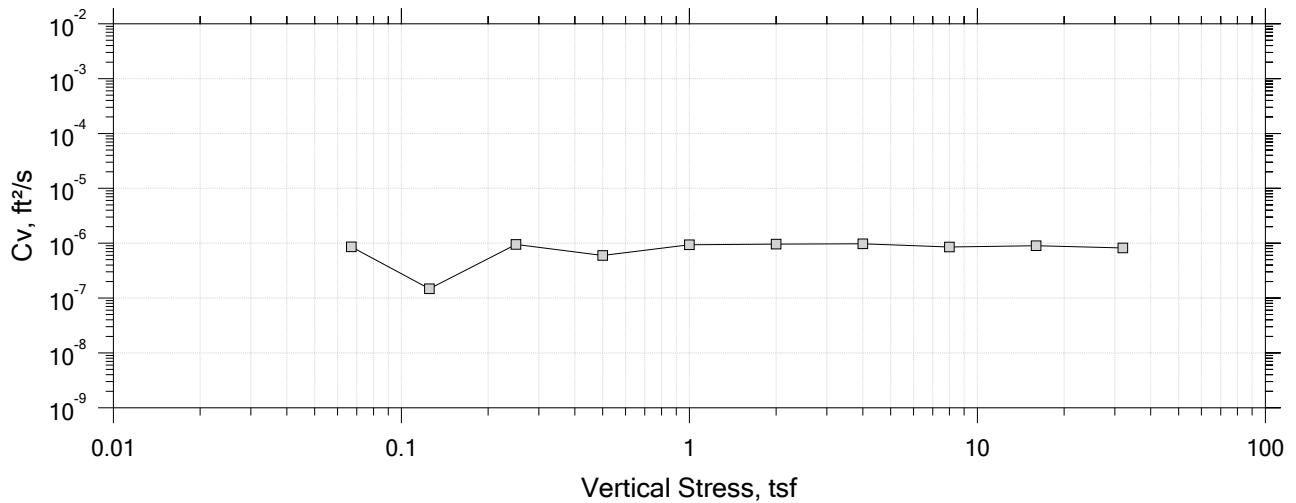
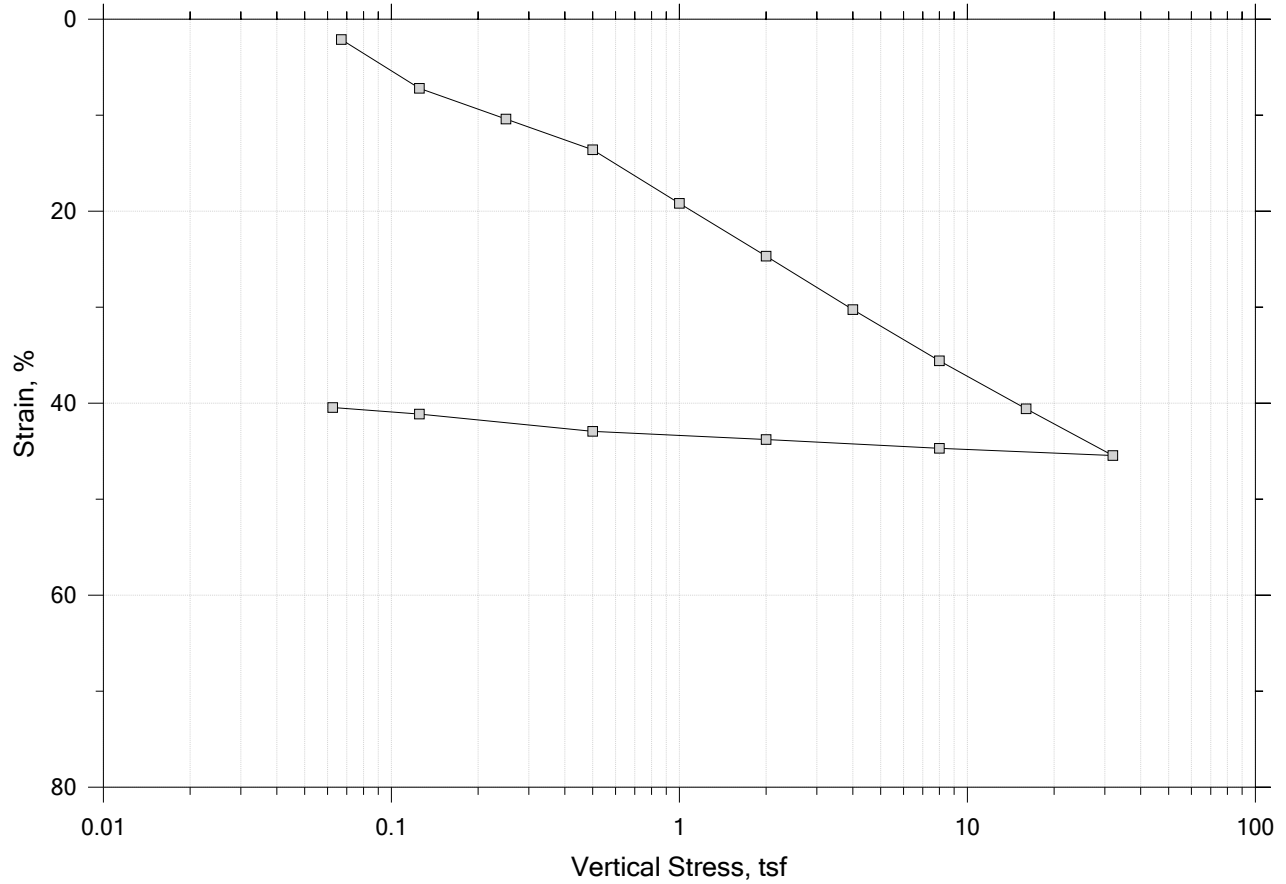
## Square Root of Time Coefficients


Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv ft <sup>2</sup> /s	Mv 1/tsf	k ft/day
1	0.0655	0.02125	1.62	2.12	7.427	3.23e-06	3.24e-01	2.83e-03
2	0.125	0.03798	1.58	3.80	27.984	8.26e-07	2.81e-01	6.26e-04
3	0.250	0.06211	1.52	6.21	8.732	2.54e-06	1.93e-01	1.32e-03
4	0.500	0.09803	1.42	9.80	7.566	2.74e-06	1.44e-01	1.06e-03
5	1.00	0.1453	1.29	14.5	9.964	1.90e-06	9.46e-02	4.85e-04
6	2.00	0.1947	1.16	19.5	10.289	1.64e-06	4.94e-02	2.19e-04
7	4.00	0.2434	1.03	24.3	7.994	1.87e-06	2.43e-02	1.23e-04
8	8.00	0.2918	0.899	29.2	10.821	1.22e-06	1.21e-02	3.97e-05
9	16.0	0.3398	0.771	34.0	9.891	1.16e-06	6.00e-03	1.88e-05
10	32.0	0.3869	0.644	38.7	10.669	9.32e-07	2.95e-03	7.41e-06
11	8.00	0.3801	0.662	38.0	1.531	6.09e-06	2.84e-04	4.67e-06
12	2.00	0.3694	0.691	36.9	14.086	6.81e-07	1.78e-03	3.27e-06
13	0.500	0.3568	0.725	35.7	30.578	3.26e-07	8.44e-03	7.41e-06
14	0.125	0.3442	0.759	34.4	70.876	1.46e-07	3.35e-02	1.32e-05
15	0.0625	0.3360	0.781	33.6	268.654	3.98e-08	1.31e-01	1.40e-05

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-118SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-191014	Test Date: 12/12/19	Depth: ---
	Test No.: IP-5	Sample Type: intact	Elevation: ---
	Description: Moist, olive gray silt		
	Remarks: System O, Swell Pressure = 0.0655 tsf		
	Displacement at End of Increment		

# One-Dimensional Consolidation by ASTM D2435 - Method B

## Summary Report

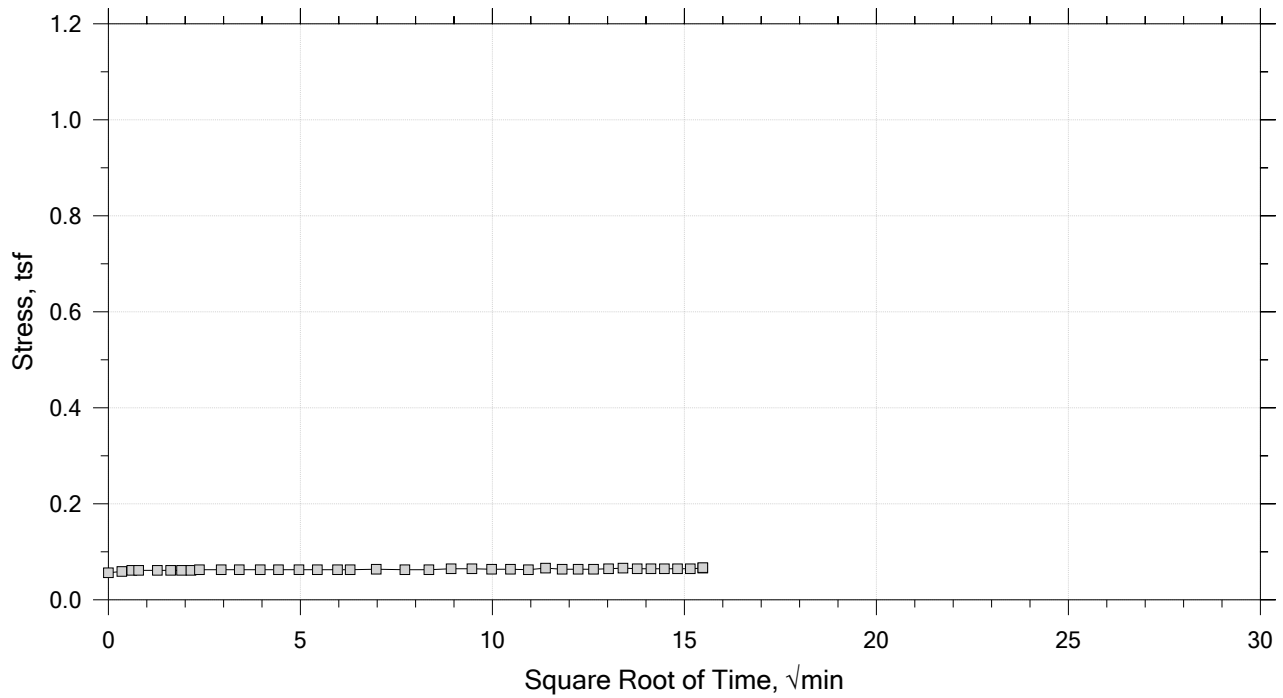
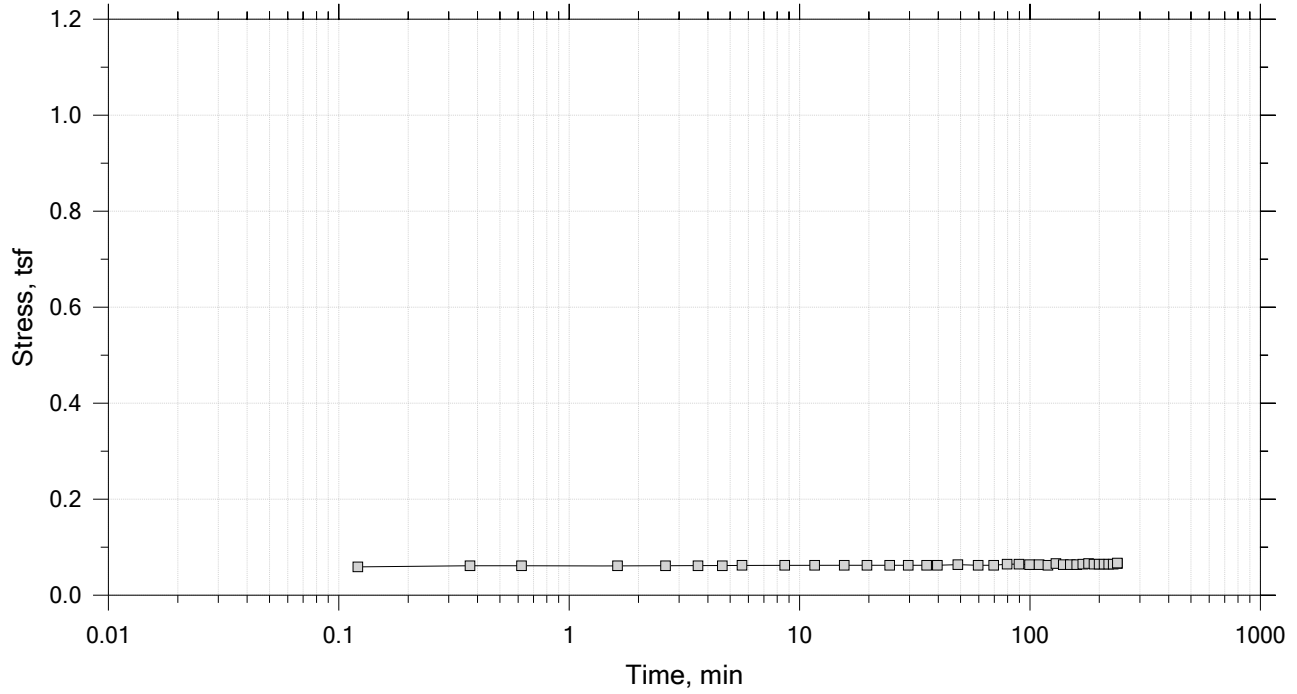



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		
	Displacement at End of Increment		



# One-Dimensional Consolidation by ASTM D2435 - Method B

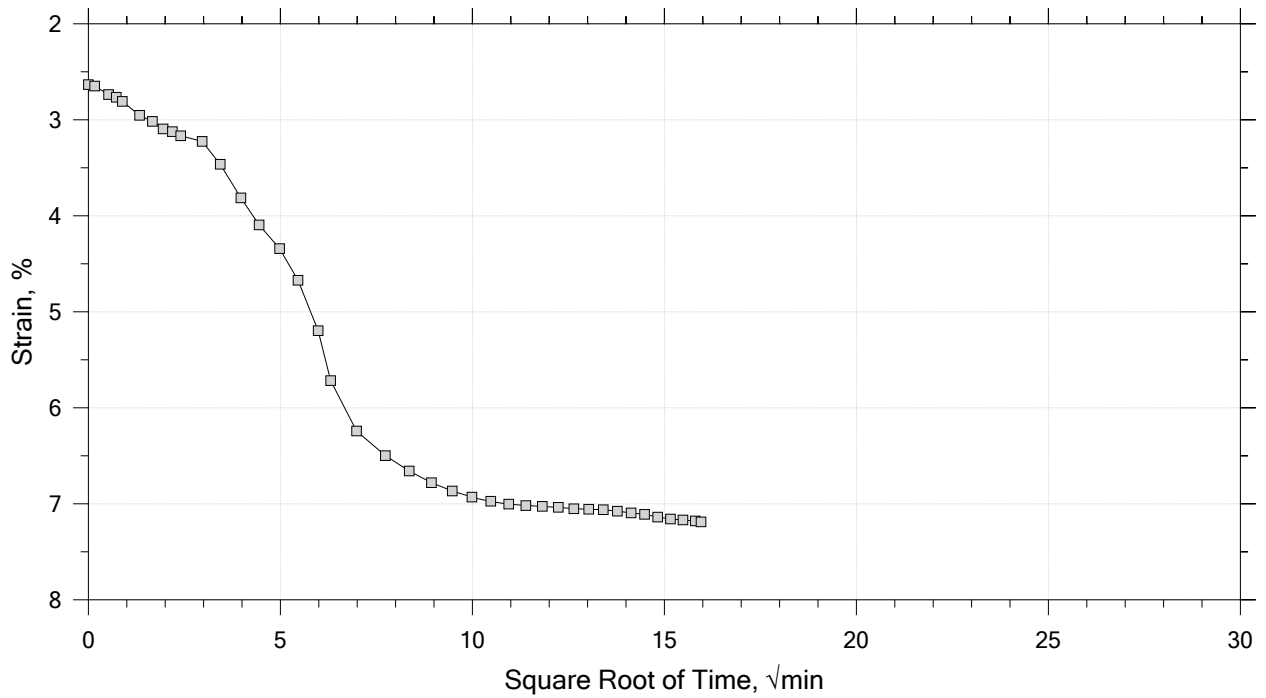
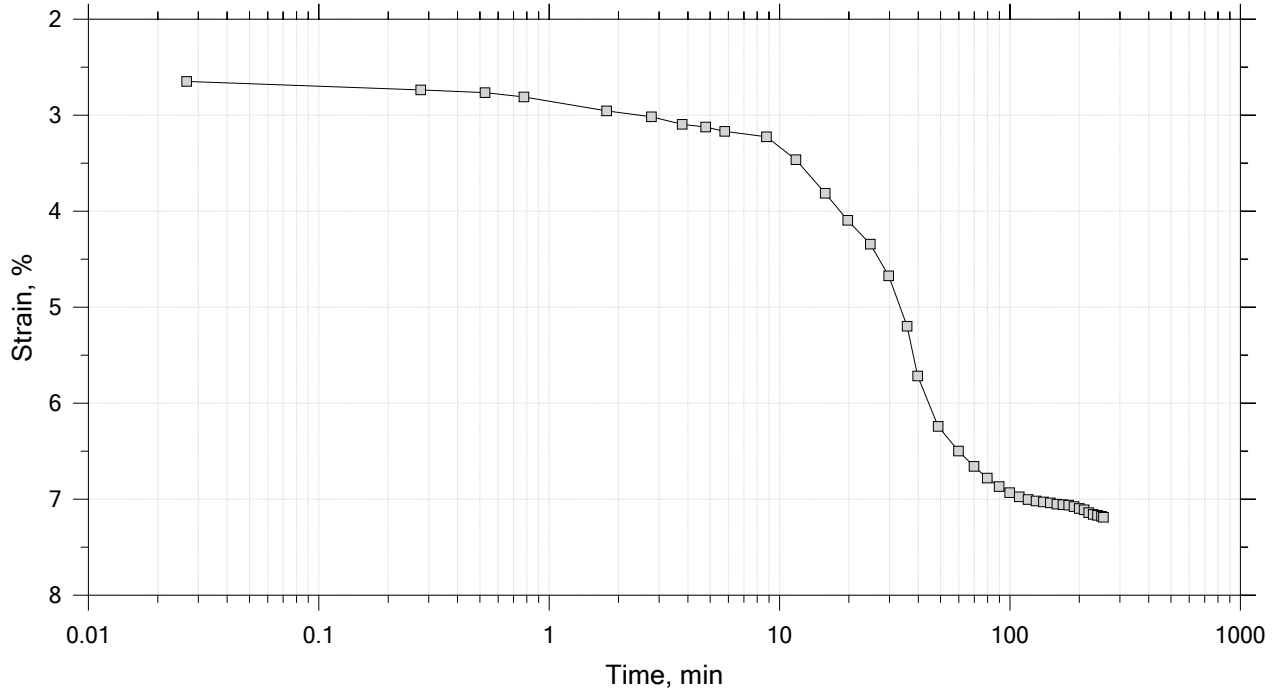
Time Curve 1 of 15  
 Constant Volume Step  
 Stress: 0.067 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

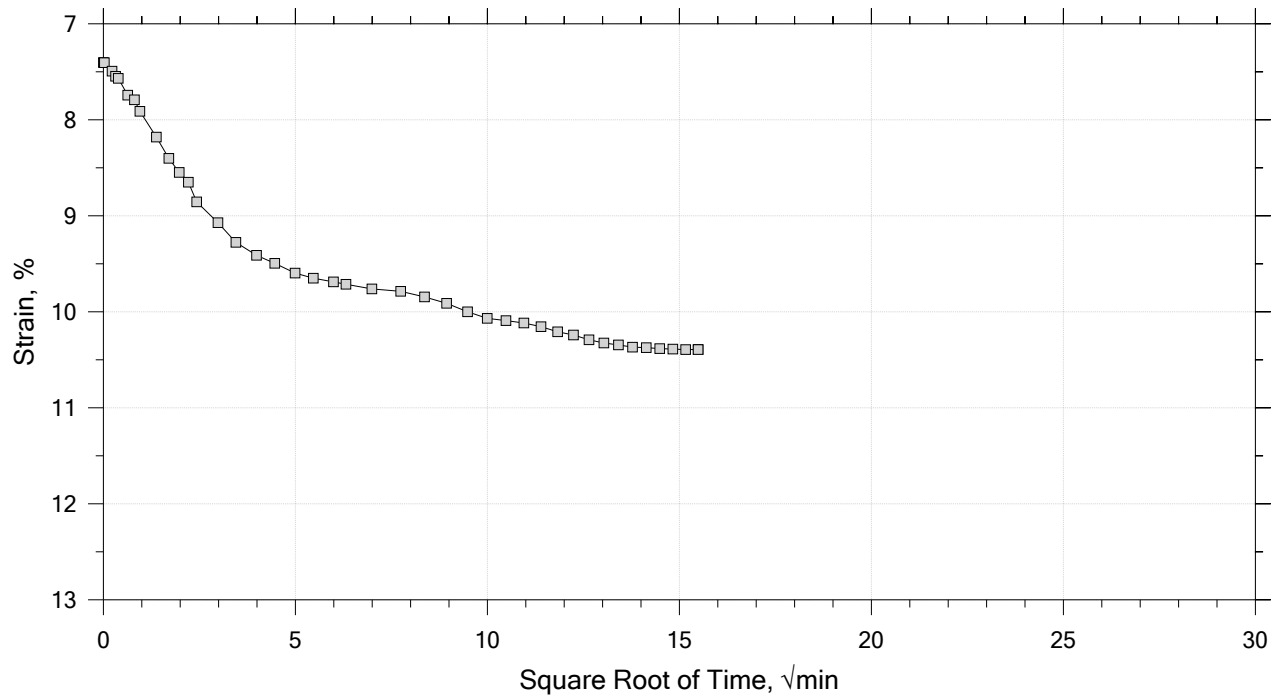
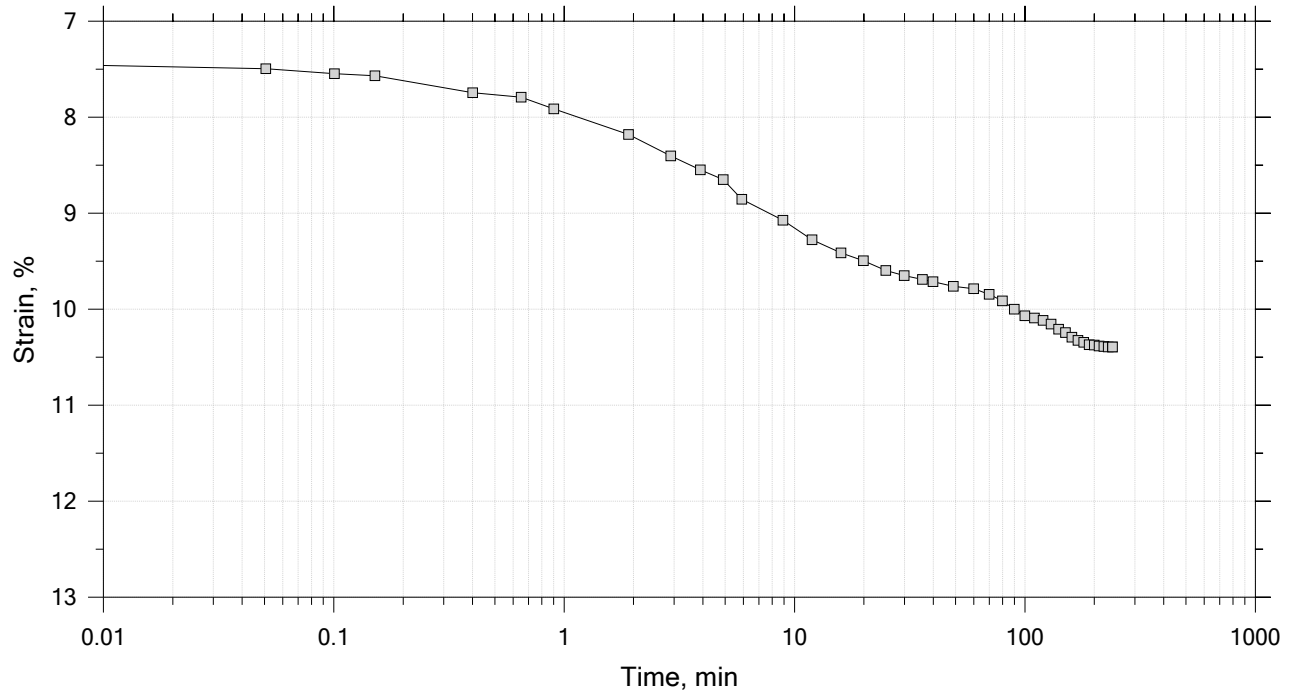
Time Curve 2 of 15  
 Constant Load Step  
 Stress: 0.125 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 15  
 Constant Load Step  
 Stress: 0.25 tsf



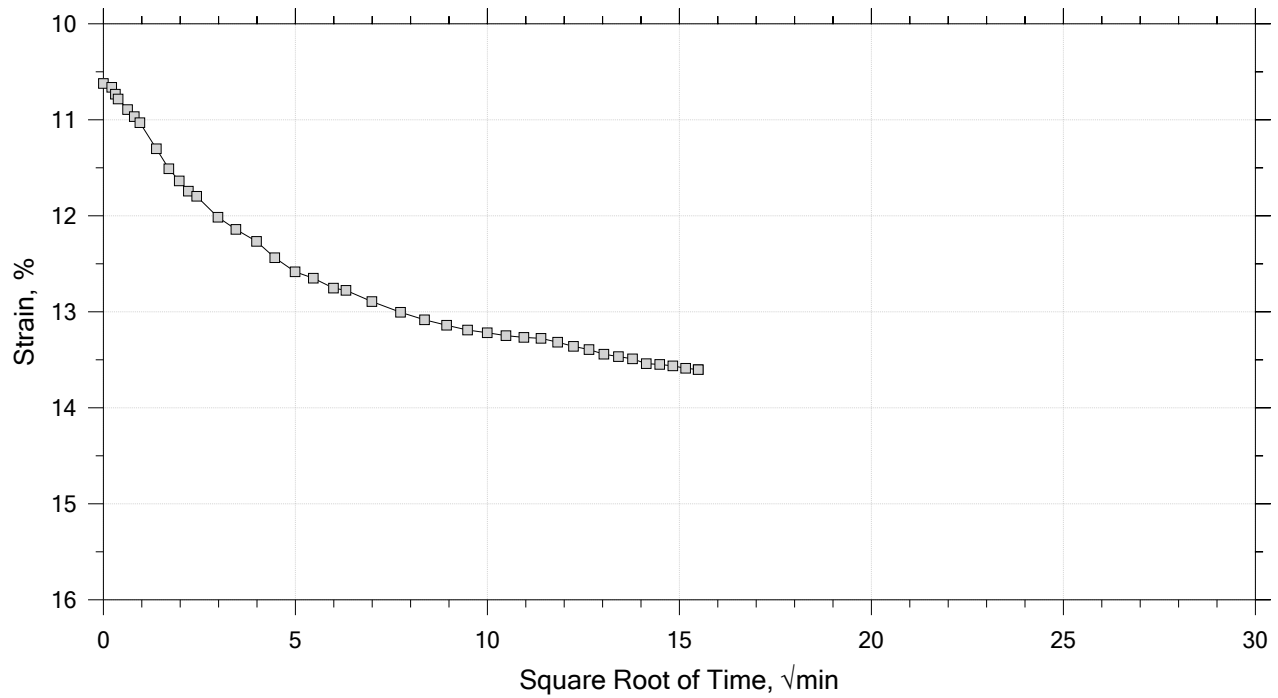
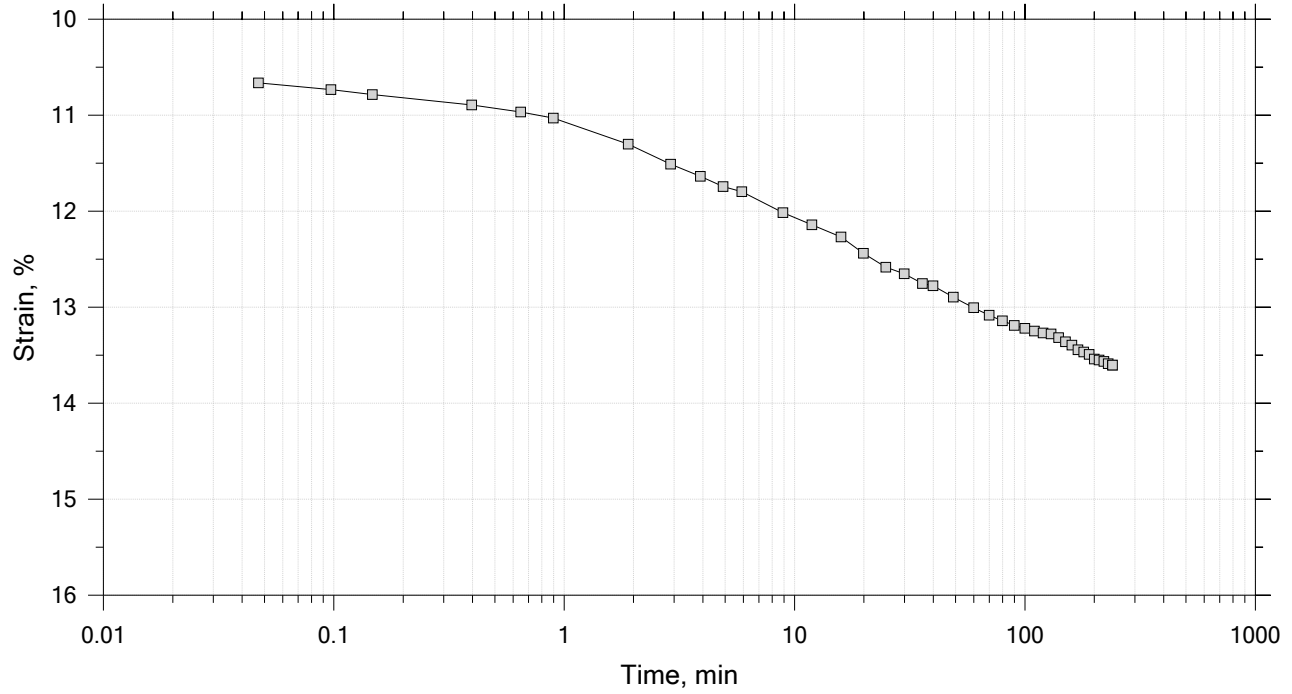
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 15

Constant Load Step

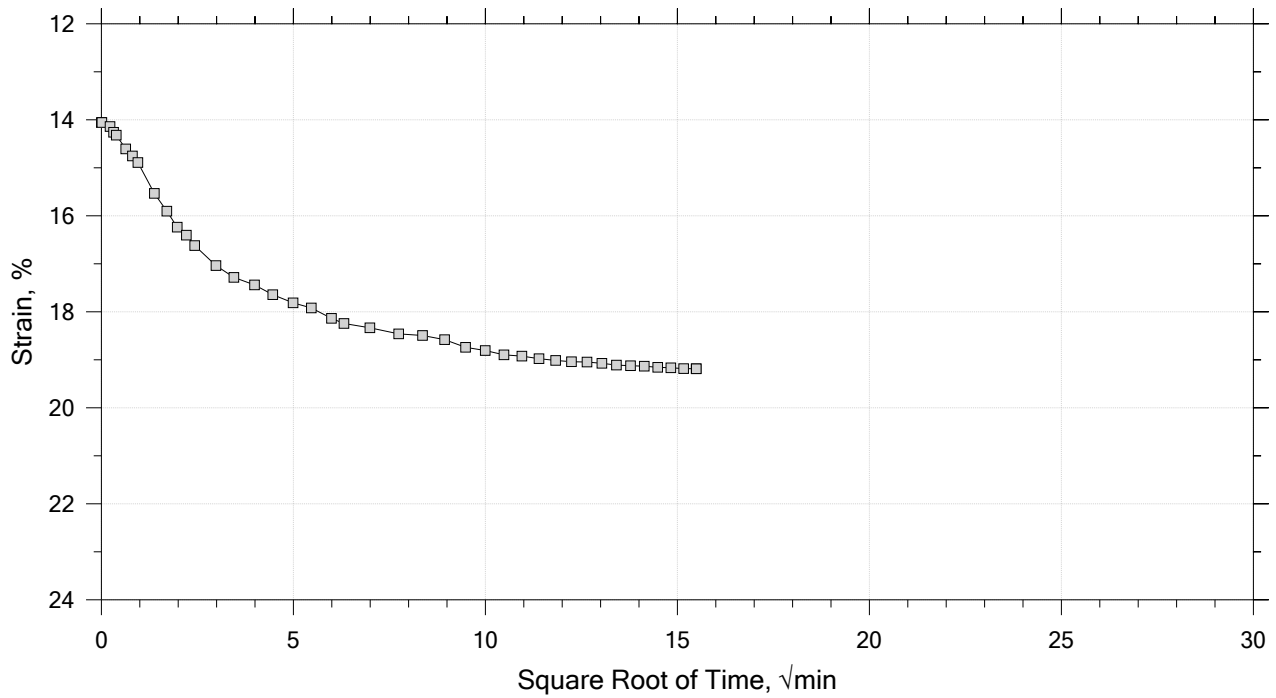
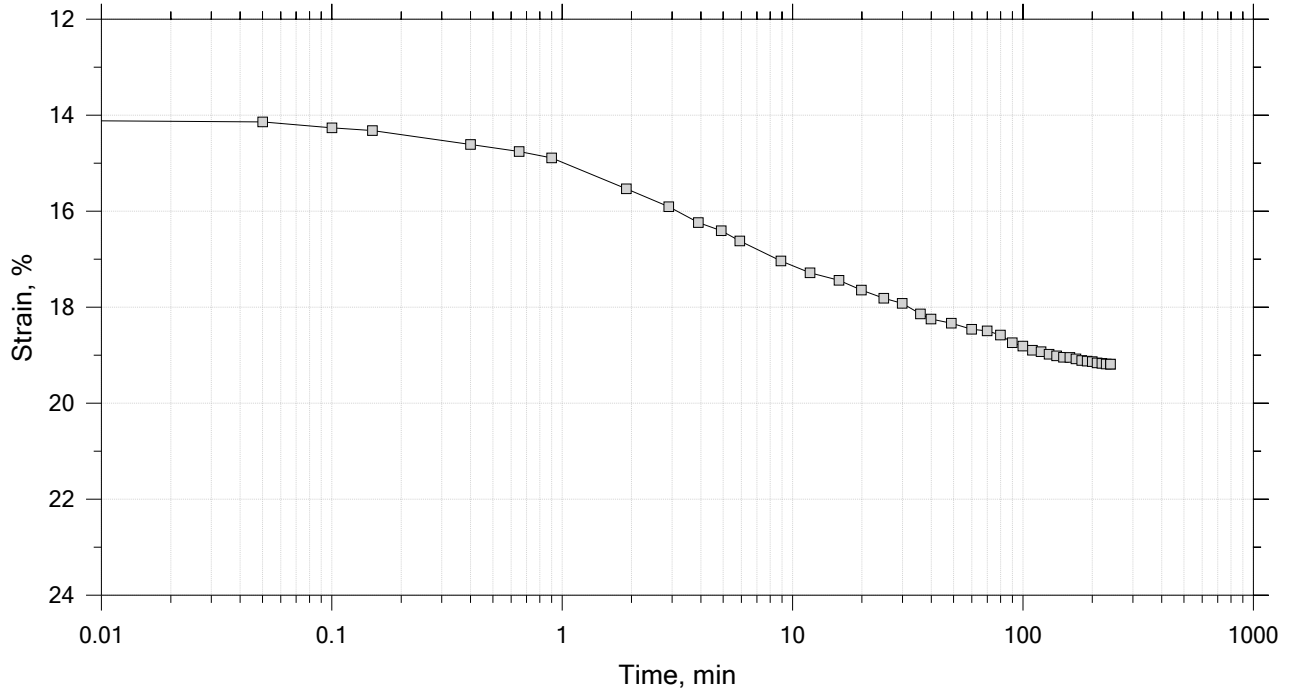
Stress: 0.5 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

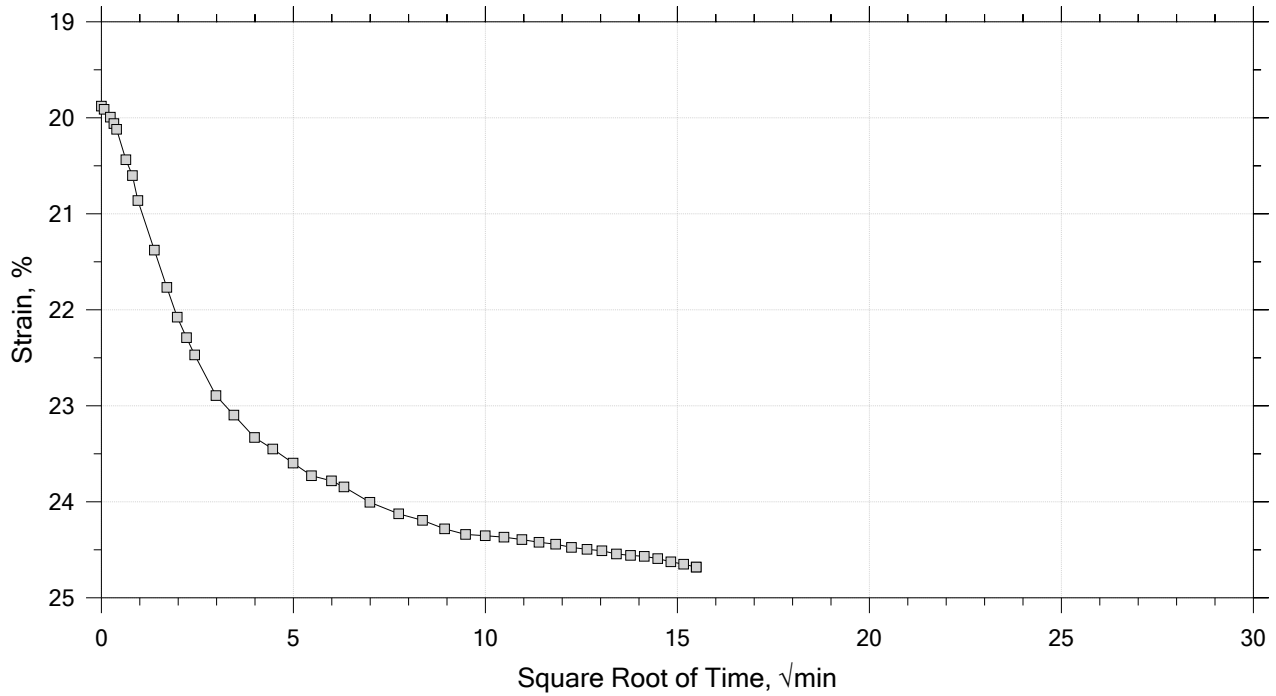
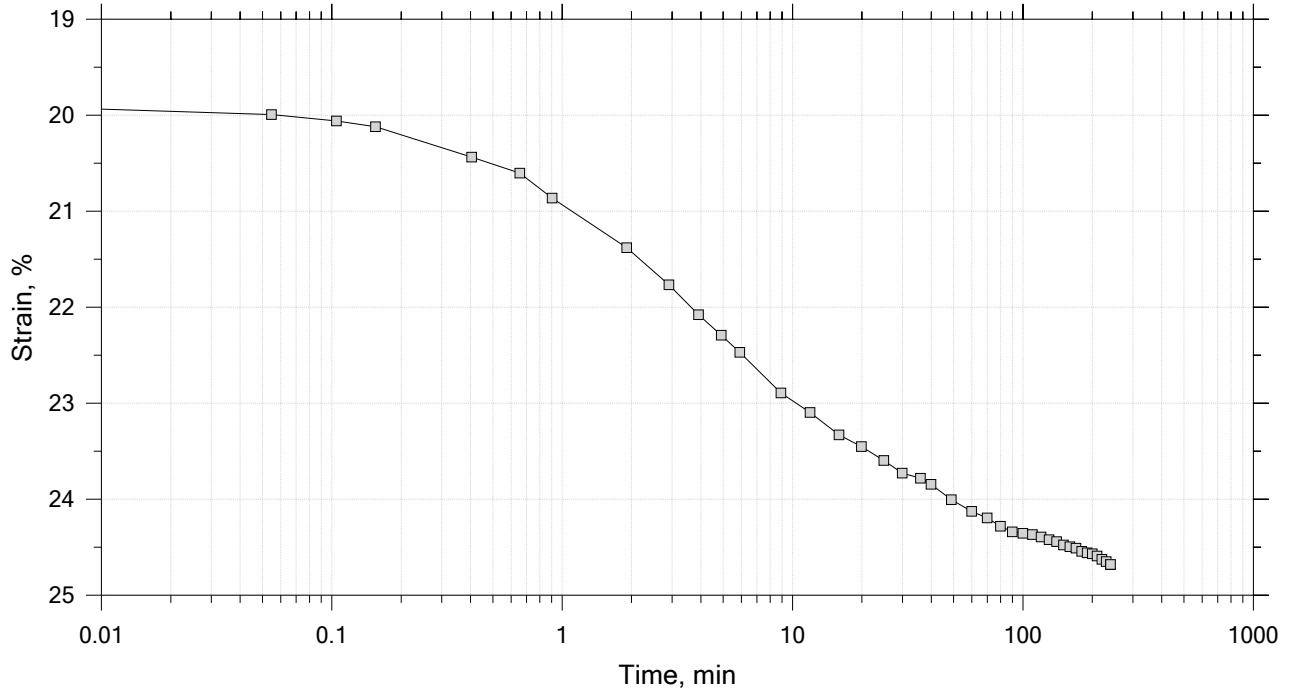
Time Curve 5 of 15  
 Constant Load Step  
 Stress: 1 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 15  
 Constant Load Step  
 Stress: 2 tsf



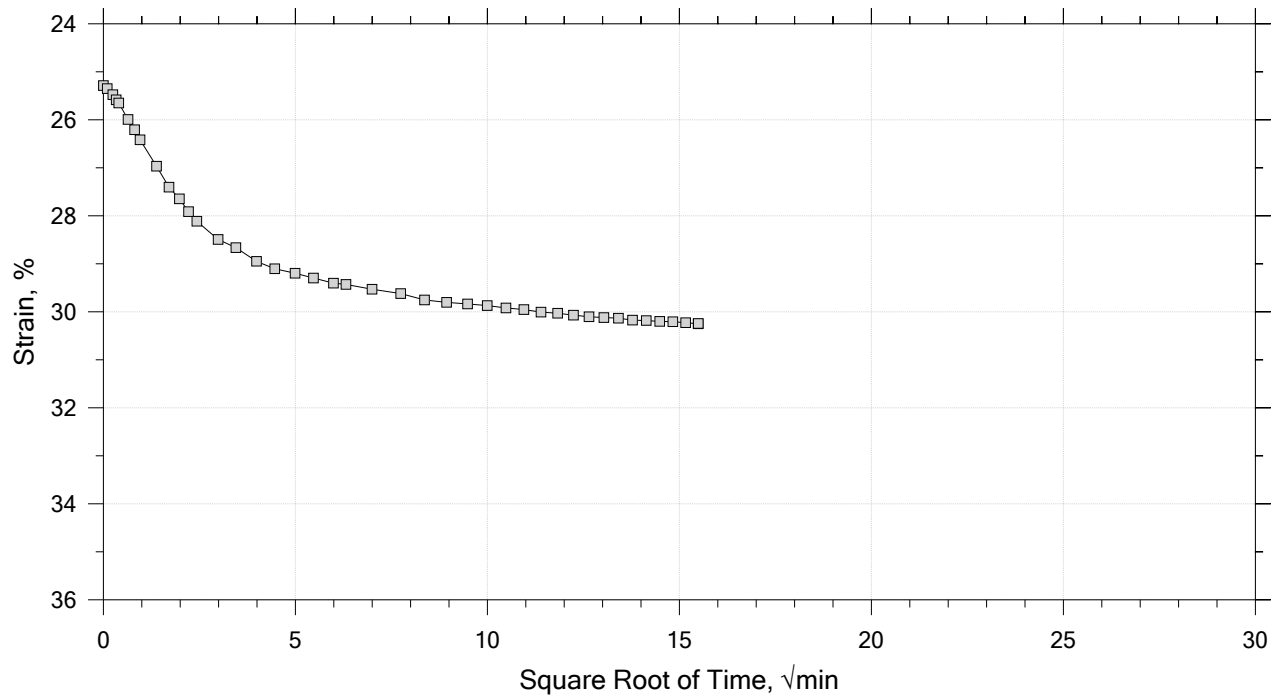
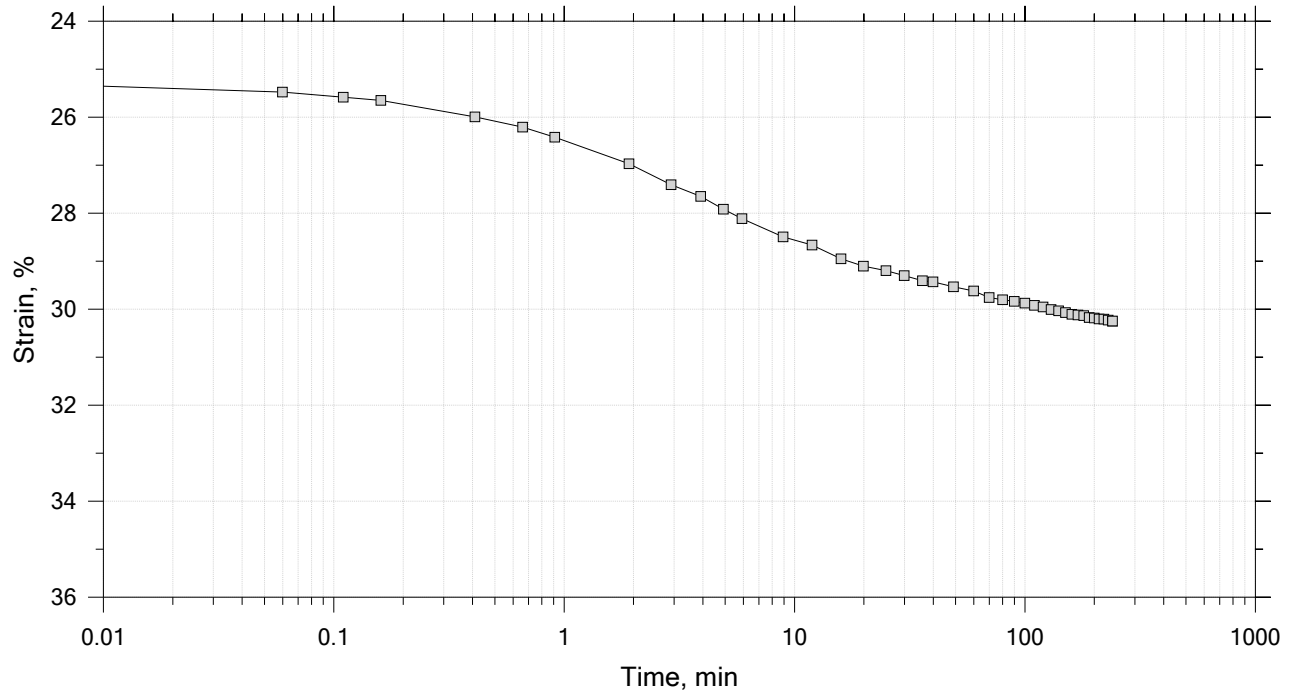
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 15

Constant Load Step

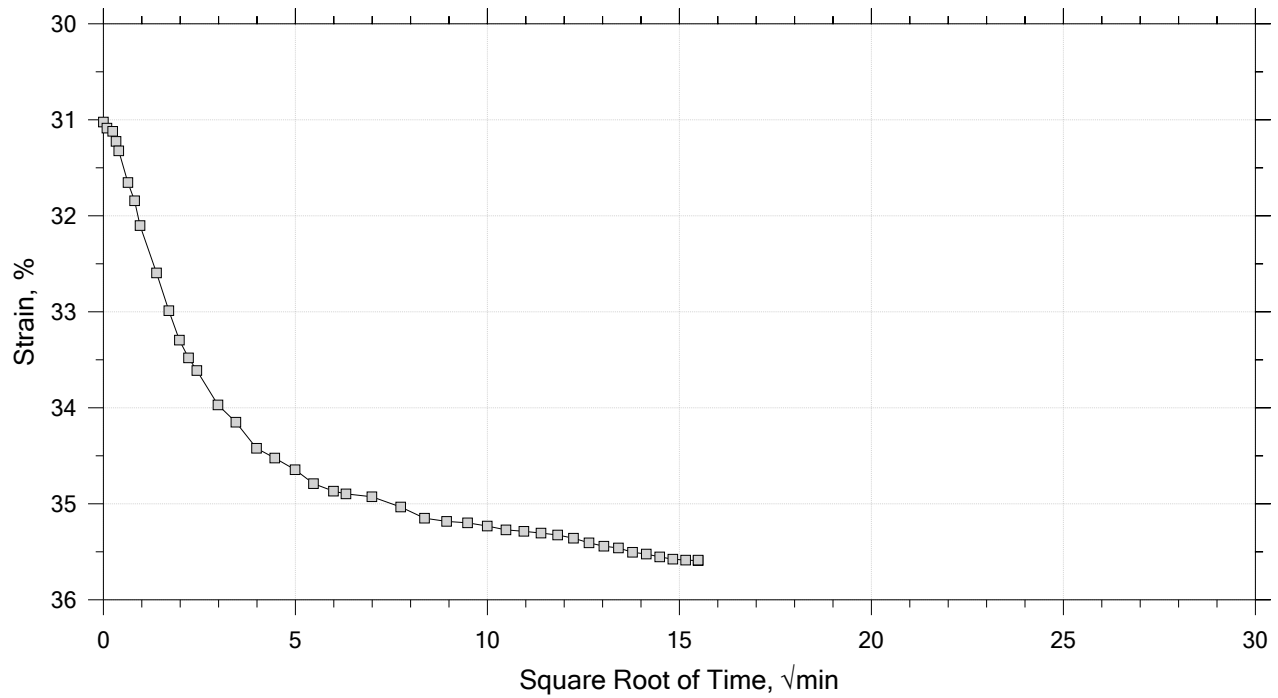
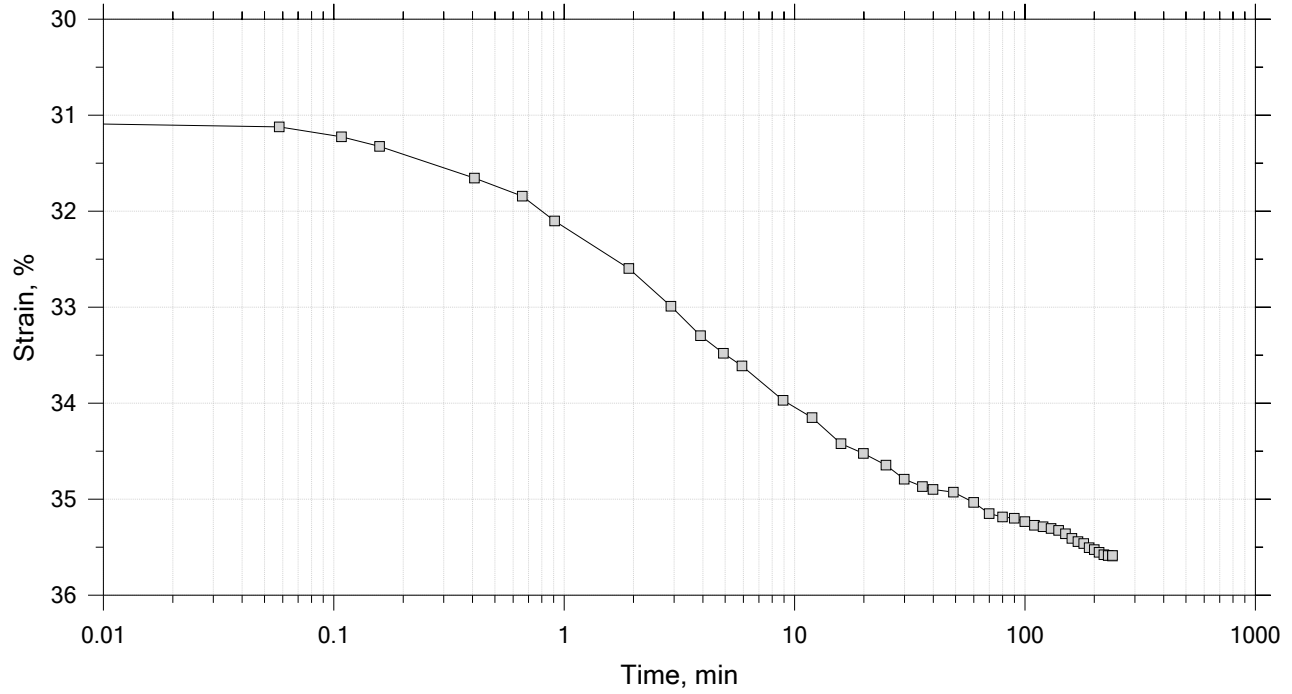
Stress: 4 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 15  
 Constant Load Step  
 Stress: 8 tsf

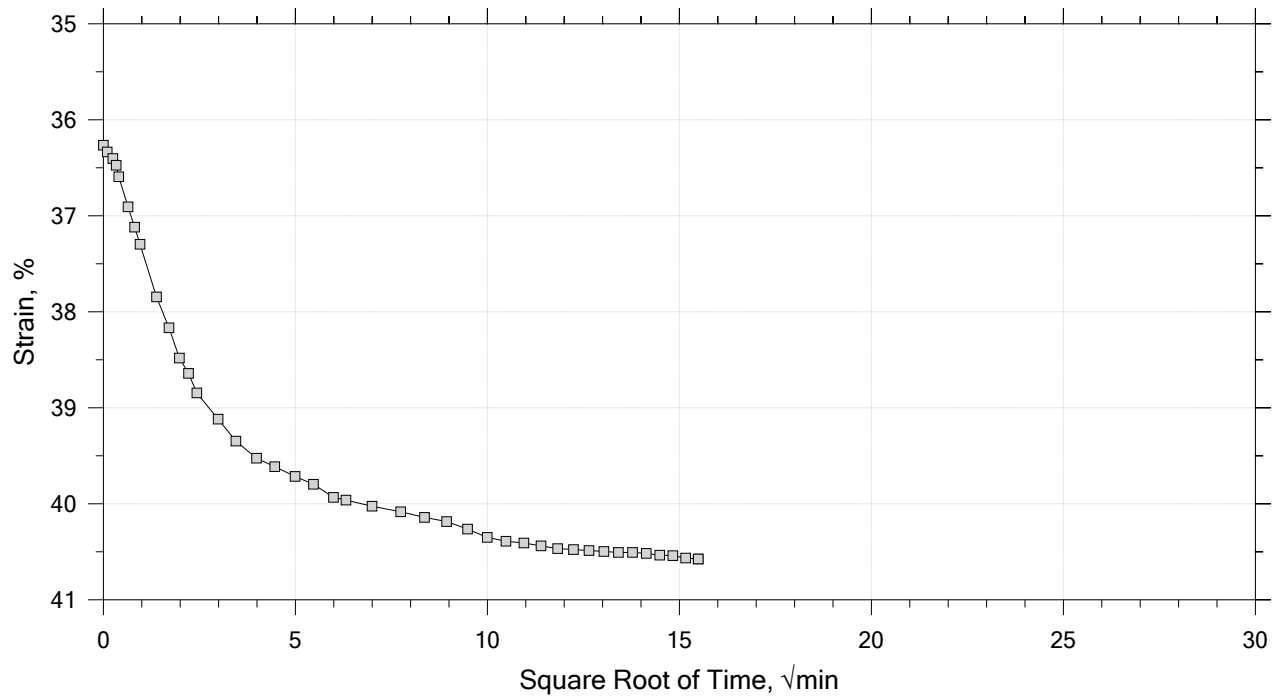
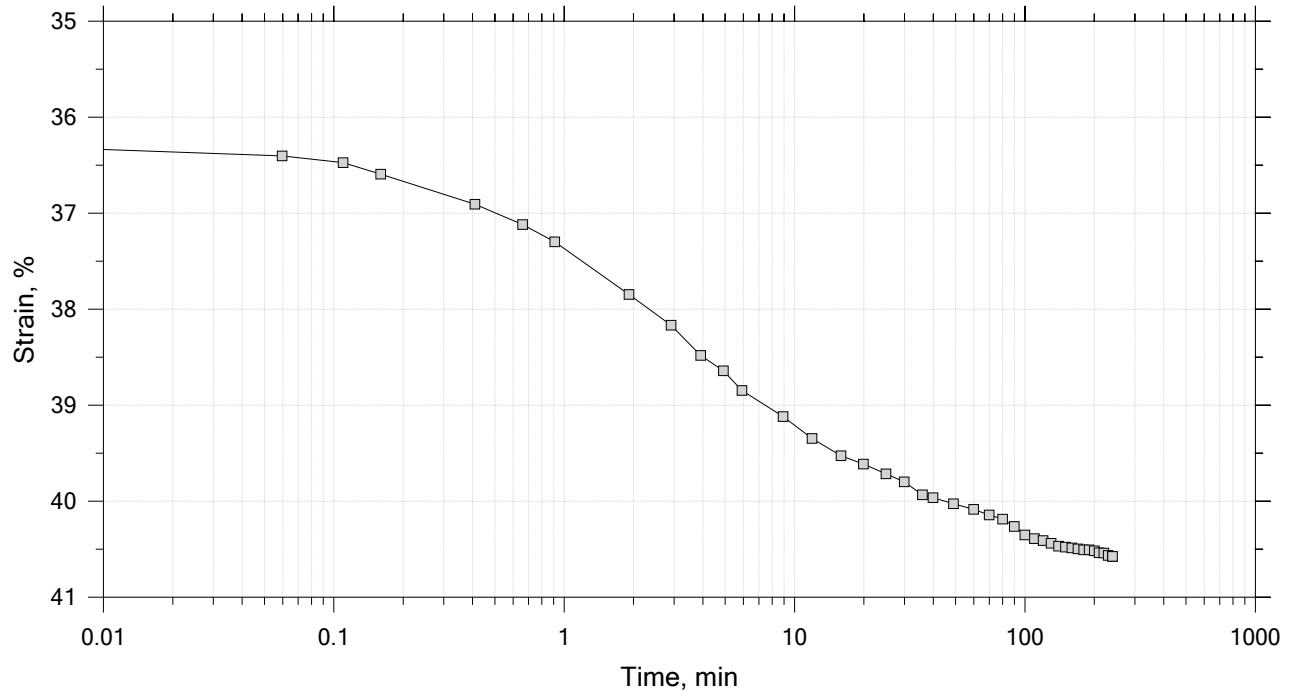



	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		



# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 15  
 Constant Load Step  
 Stress: 16 tsf



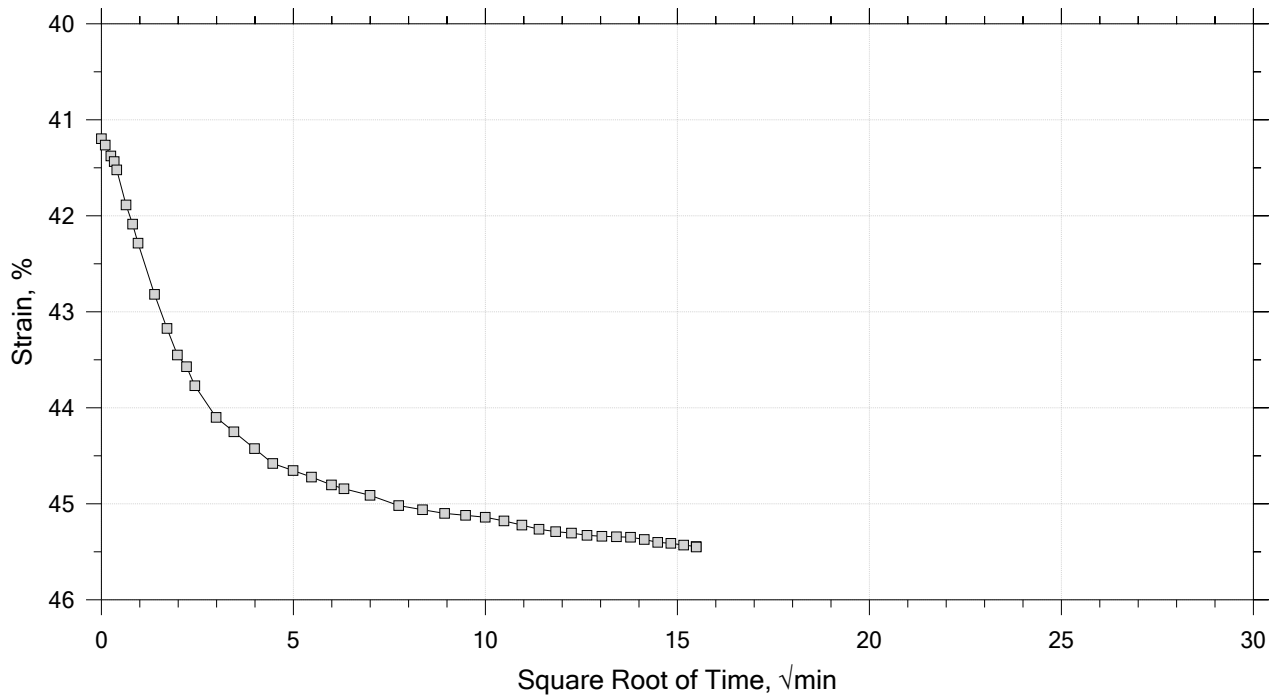
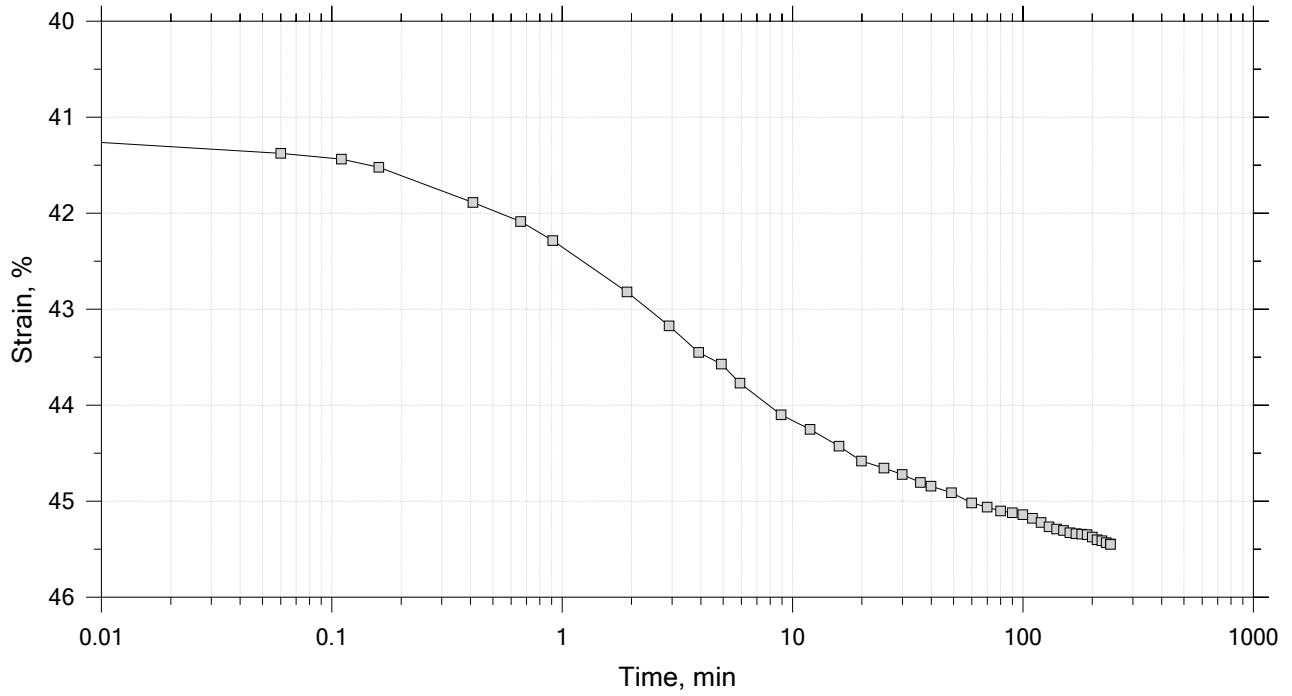
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 15

Constant Load Step

Stress: 32 tsf



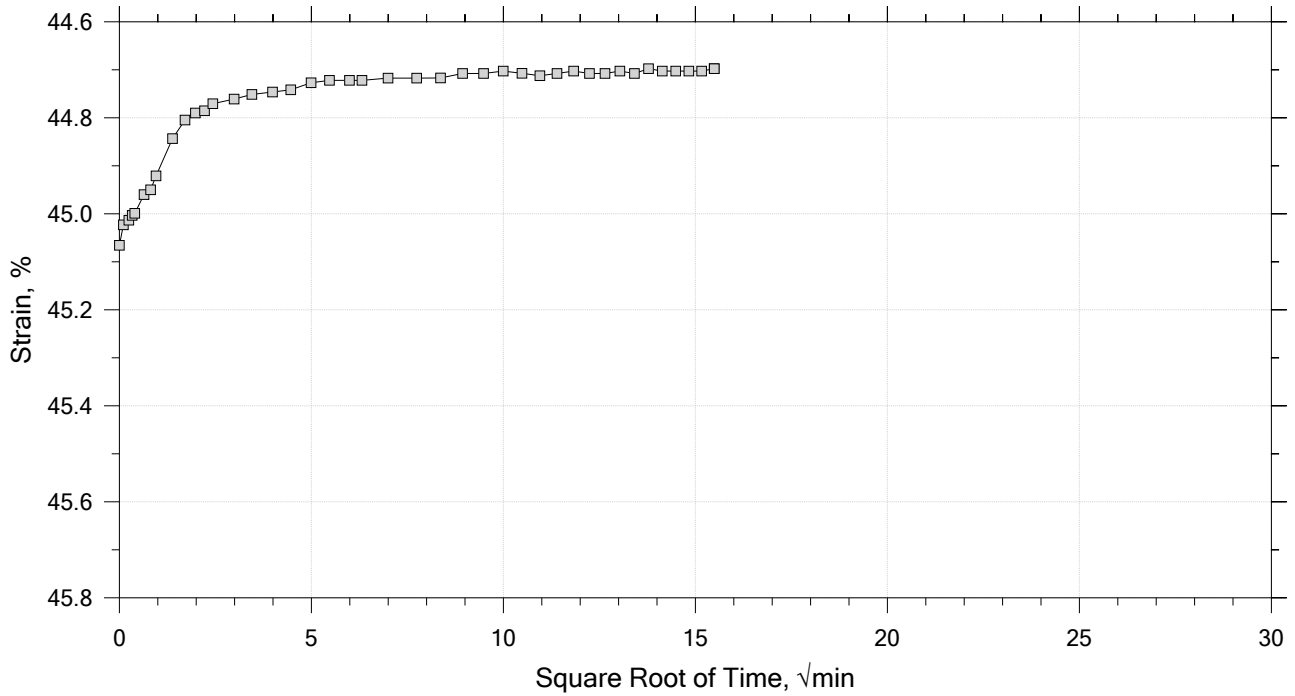
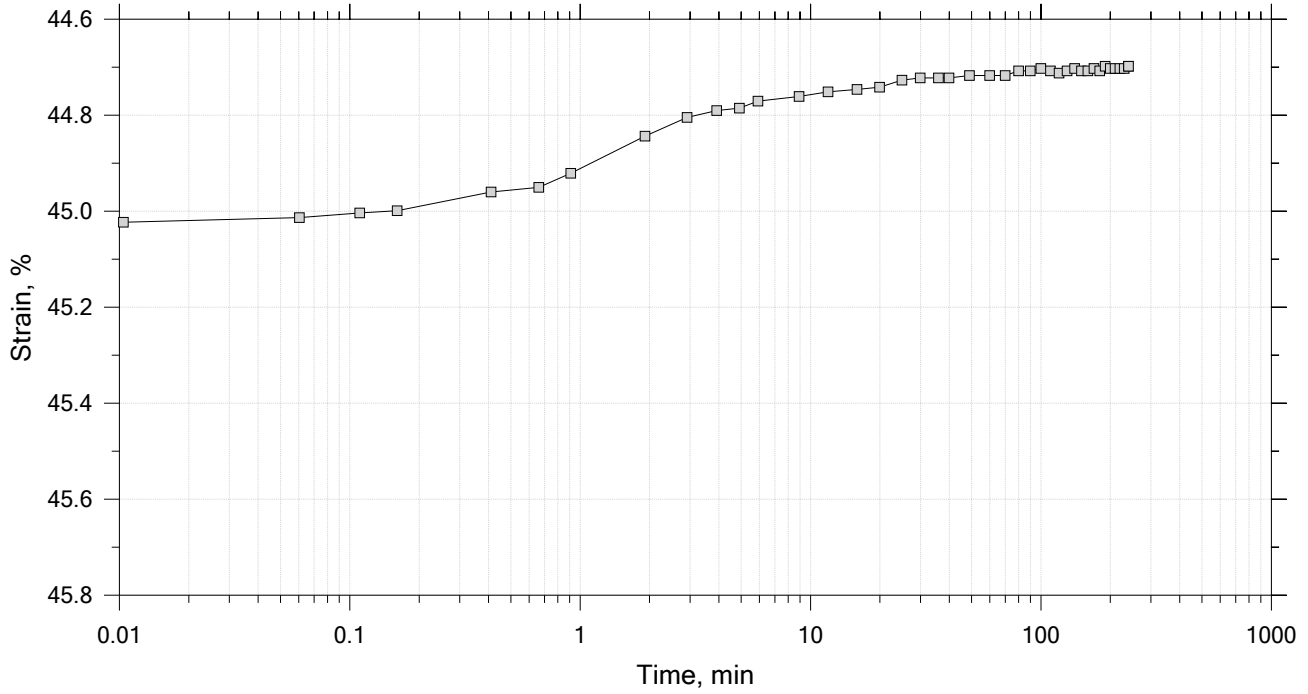
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 15

Constant Load Step

Stress: 8 tsf



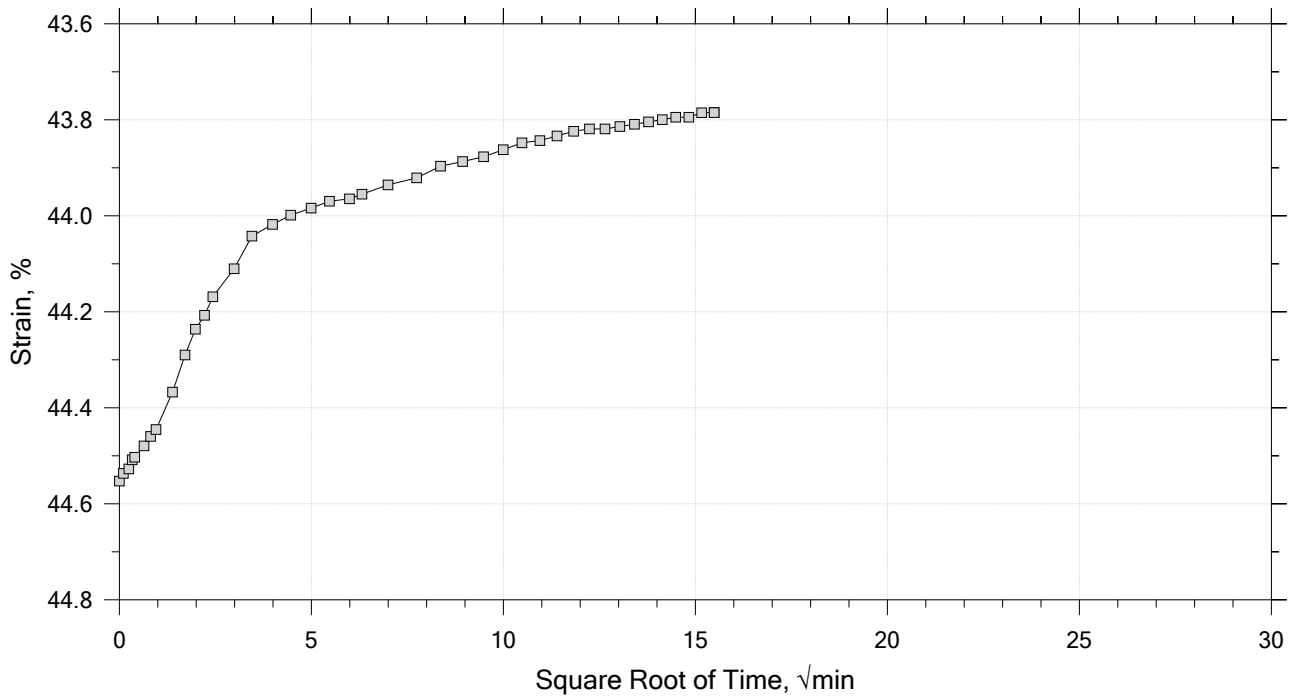
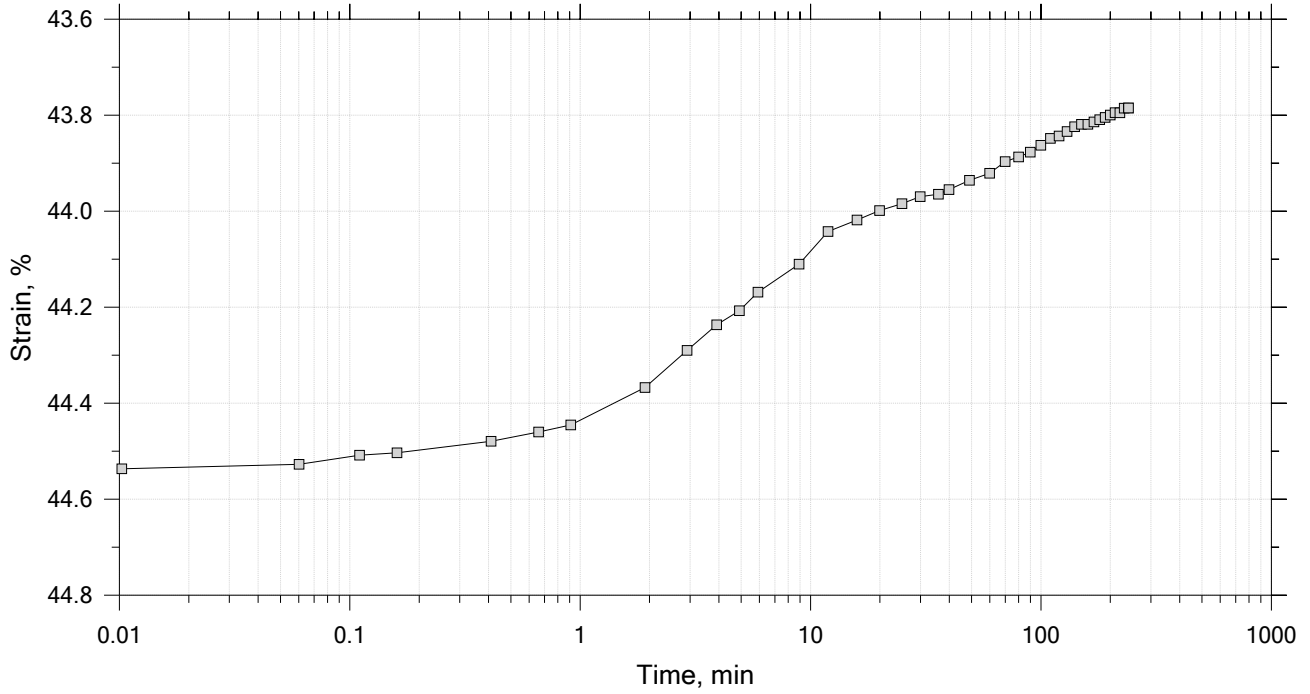
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 15

Constant Load Step

Stress: 2 tsf



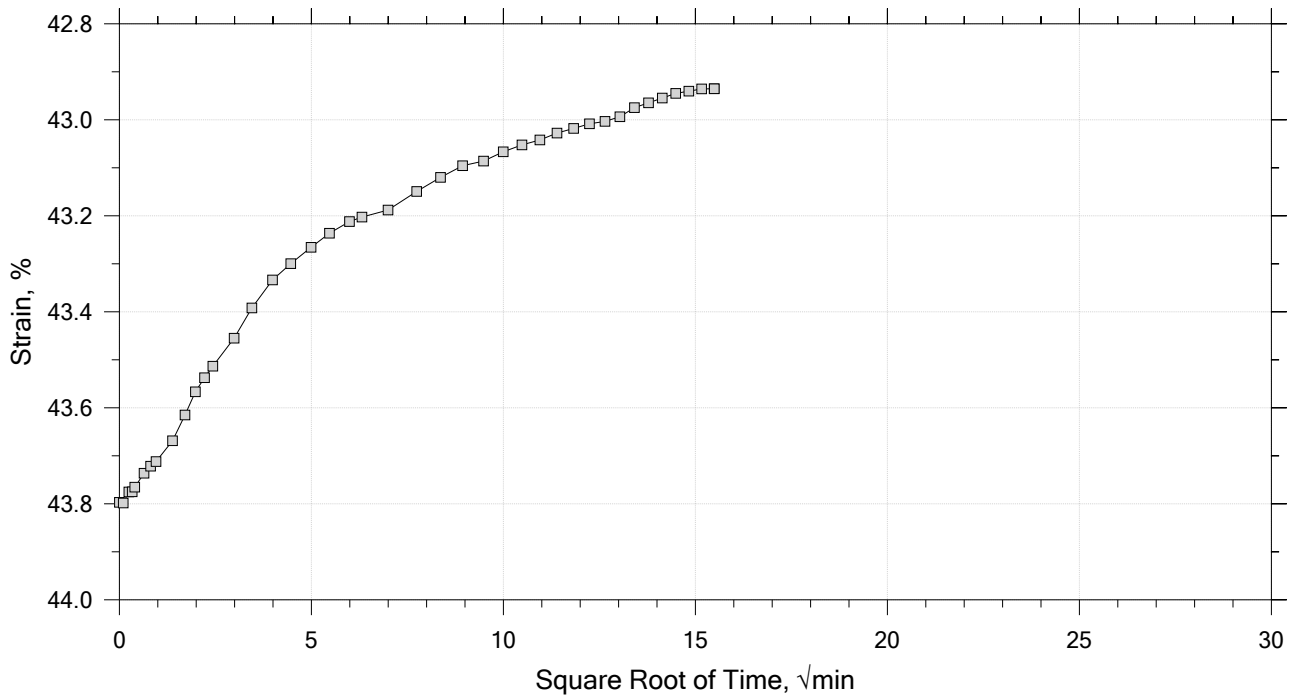
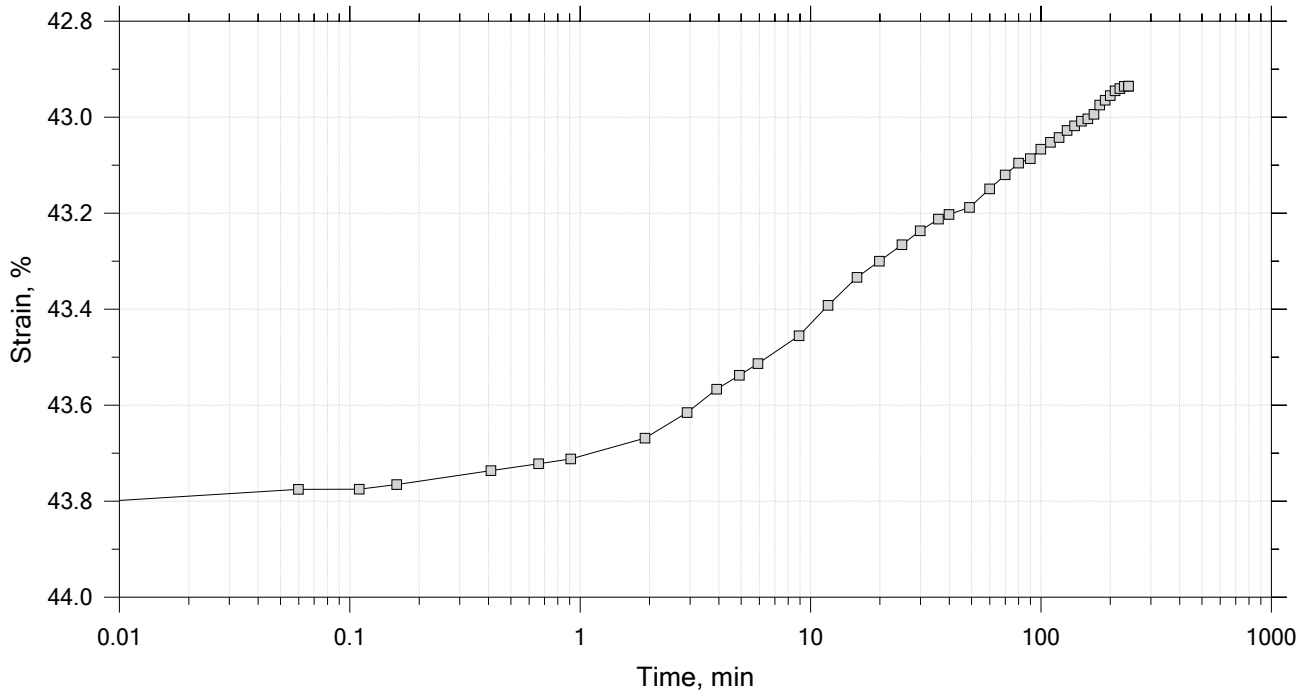
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 15

Constant Load Step

Stress: 0.5 tsf



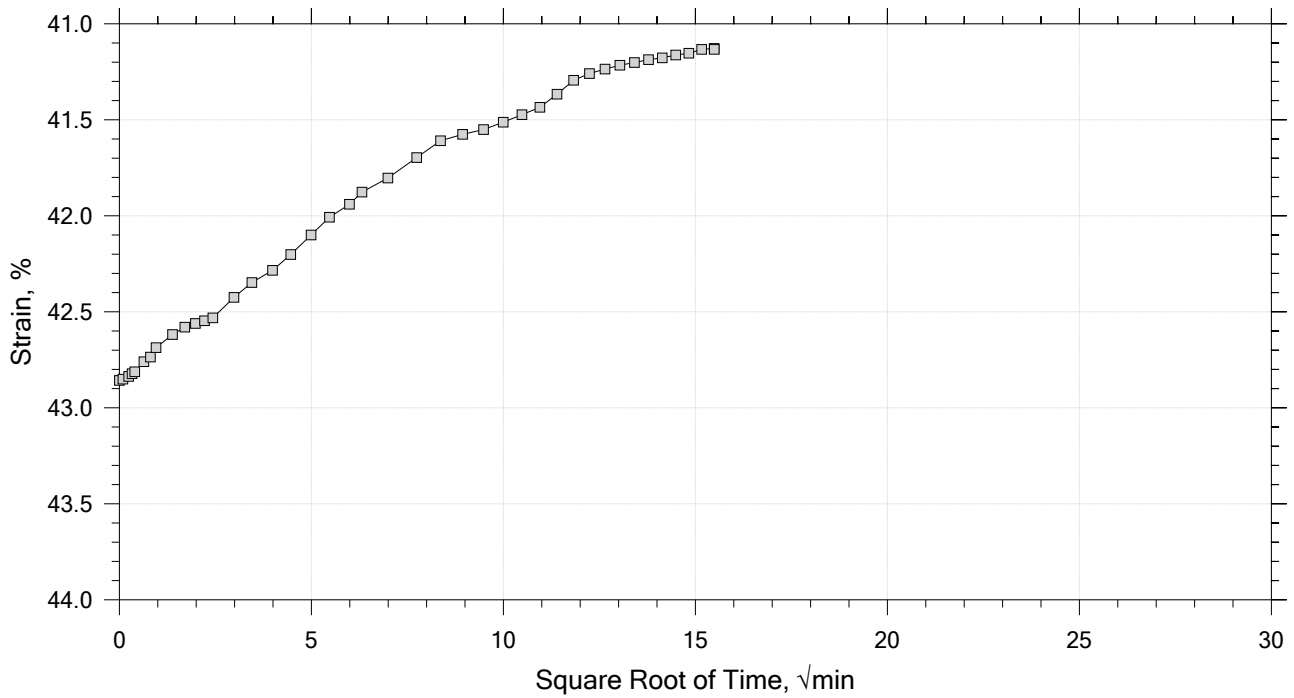
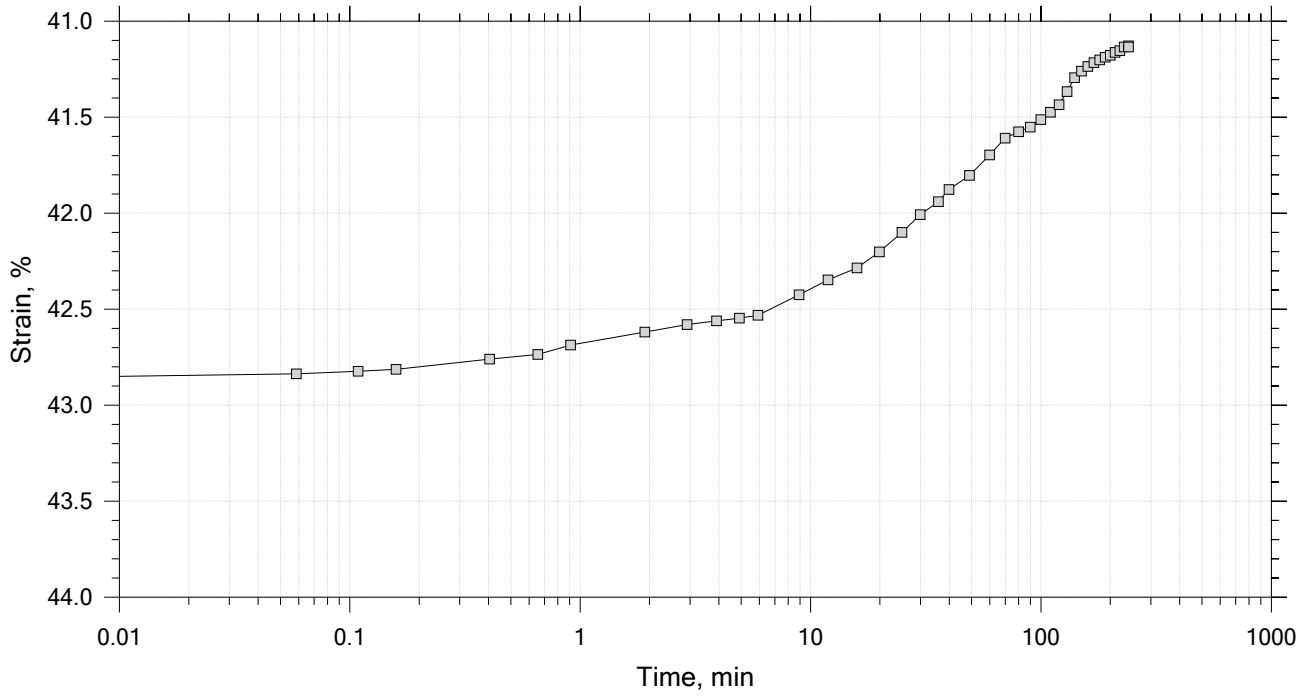
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 15

Constant Load Step

Stress: 0.125 tsf



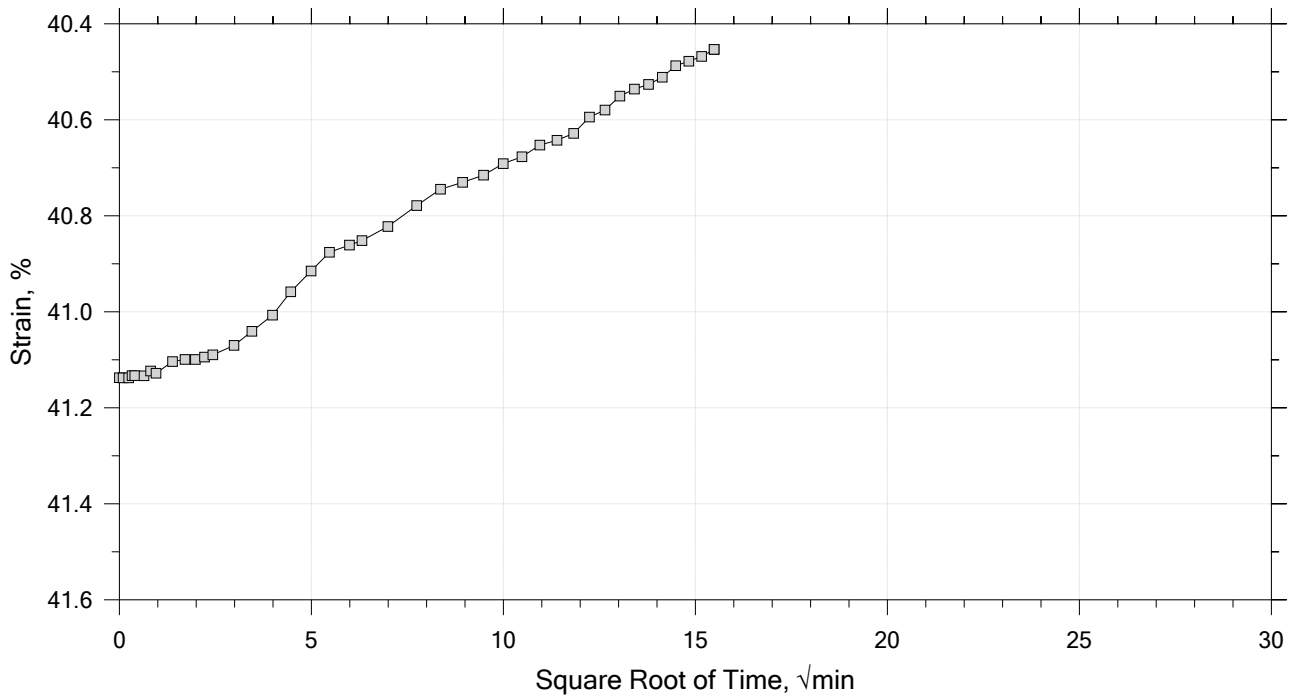
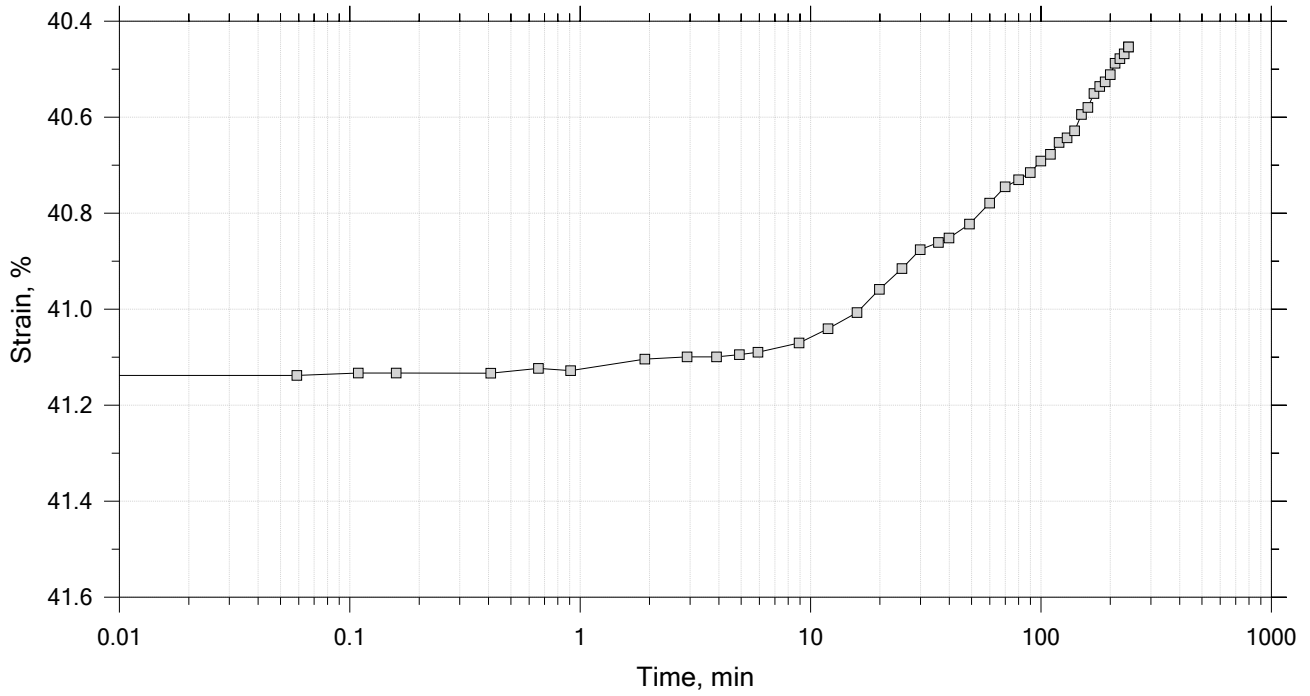
	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		


# One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 15 of 15

Constant Load Step

Stress: 0.0625 tsf




	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		

# One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Estimated Specific Gravity: 2.69	Liquid Limit: 50
Initial Height: 1.00 in	Initial Void Ratio: 2.04	Plastic Limit: 33
Final Height: 0.60 in	Final Void Ratio: 0.821	Plasticity Index: 17

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	D891	RING		B-2399
Mass Container, gm	8.37	112.4	112.4	9.31
Mass Container + Wet Soil, gm	196.24	236.54	205.38	101.76
Mass Container + Dry Soil, gm	116.71	183.62	183.62	80.12
Mass Dry Soil, gm	108.34	71.216	71.216	70.81
Water Content, %	73.41	74.31	30.56	30.56
Void Ratio	---	2.04	0.82	---
Degree of Saturation, %	---	98.12	100.00	---
Dry Unit Weight, pcf	---	55.269	92.116	---

Note: Specific Gravity and Void Ratios are calculated assuming the degree of saturation equals 100% at the end of the test. Therefore, values may not represent actual values for the specimen.


	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		



# One-Dimensional Consolidation by ASTM D2435 - Method B

## Log of Time Coefficients

Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Log T50 min	Cv ft <sup>2</sup> /s	Mv 1/tsf	k ft/day	Ca %
1	0.0670	0.02107	1.97	2.11	5.467	1.02e-06	3.14e-01	8.66e-04	0.00e+00
2	0.125	0.07188	1.82	7.19	31.574	1.64e-07	8.76e-01	3.88e-04	0.00e+00
3	0.250	0.1039	1.72	10.4	0.000	0.00e+00	2.56e-01	0.00e+00	0.00e+00
4	0.500	0.1360	1.62	13.6	0.000	0.00e+00	1.28e-01	0.00e+00	0.00e+00
5	1.00	0.1919	1.45	19.2	3.725	1.07e-06	1.12e-01	3.22e-04	0.00e+00
6	2.00	0.2468	1.29	24.7	3.773	9.21e-07	5.49e-02	1.36e-04	0.00e+00
7	4.00	0.3025	1.12	30.2	2.692	1.11e-06	2.78e-02	8.36e-05	0.00e+00
8	8.00	0.3559	0.955	35.6	2.615	9.81e-07	1.34e-02	3.53e-05	0.00e+00
9	16.0	0.4057	0.804	40.6	2.286	9.56e-07	6.23e-03	1.61e-05	0.00e+00
10	32.0	0.4545	0.656	45.5	2.134	8.68e-07	3.05e-03	7.13e-06	0.00e+00
11	8.00	0.4470	0.679	44.7	0.000	0.00e+00	3.14e-04	0.00e+00	0.00e+00
12	2.00	0.4379	0.706	43.8	4.047	4.38e-07	1.52e-03	1.80e-06	0.00e+00
13	0.500	0.4294	0.732	42.9	0.000	0.00e+00	5.66e-03	0.00e+00	0.00e+00
14	0.125	0.4113	0.787	41.1	0.000	0.00e+00	4.80e-02	0.00e+00	0.00e+00
15	0.0625	0.4045	0.808	40.5	0.000	0.00e+00	1.09e-01	0.00e+00	0.00e+00

	Project: Gasco PDI		Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT		Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924		Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B		Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt			
	Remarks: System JJ, Swell Pressure = 0.067 tsf			
Displacement at End of Increment				

# One-Dimensional Consolidation by ASTM D2435 - Method B

## Square Root of Time Coefficients

Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv ft <sup>2</sup> /s	Mv 1/tsf	k ft/day
1	0.0670	0.02107	1.97	2.11	31.257	7.69e-07	3.14e-01	6.52e-04
2	0.125	0.07188	1.82	7.19	120.733	1.85e-07	8.76e-01	4.37e-04
3	0.250	0.1039	1.72	10.4	21.662	9.42e-07	2.56e-01	6.52e-04
4	0.500	0.1360	1.62	13.6	34.061	5.58e-07	1.28e-01	1.93e-04
5	1.00	0.1919	1.45	19.2	22.369	7.67e-07	1.12e-01	2.31e-04
6	2.00	0.2468	1.29	24.7	16.263	9.20e-07	5.49e-02	1.36e-04
7	4.00	0.3025	1.12	30.2	16.588	7.78e-07	2.78e-02	5.84e-05
8	8.00	0.3559	0.955	35.6	16.801	6.57e-07	1.34e-02	2.37e-05
9	16.0	0.4057	0.804	40.6	12.123	7.76e-07	6.23e-03	1.30e-05
10	32.0	0.4545	0.656	45.5	11.467	6.95e-07	3.05e-03	5.71e-06
11	8.00	0.4470	0.679	44.7	8.666	8.54e-07	3.14e-04	7.22e-07
12	2.00	0.4379	0.706	43.8	20.035	3.81e-07	1.52e-03	1.56e-06
13	0.500	0.4294	0.732	42.9	42.100	1.87e-07	5.66e-03	2.86e-06
14	0.125	0.4113	0.787	41.1	149.871	5.50e-08	4.80e-02	7.13e-06
15	0.0625	0.4045	0.808	40.5	178.907	4.81e-08	1.09e-01	1.41e-05

	Project: Gasco PDI	Location: ---	Project No.: GTX-310685
	Boring No.: PDI-123-SPT	Tested By: trm	Checked By: anm
	Sample No.: 4.5-6.5-190924	Test Date: 12/4/19	Depth: ---
	Test No.: IP-3B	Sample Type: intact	Elevation: ---
	Description: Wet, olive gray silt		
	Remarks: System JJ, Swell Pressure = 0.067 tsf		
	Displacement at End of Increment		



Client:	Anchor QEA, LLC		
Project:	Gasco PDI		
Location:		Project No:	GTX-310685
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 No:	GTX-310685
Project:	Gasco PDI		
Location:			
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

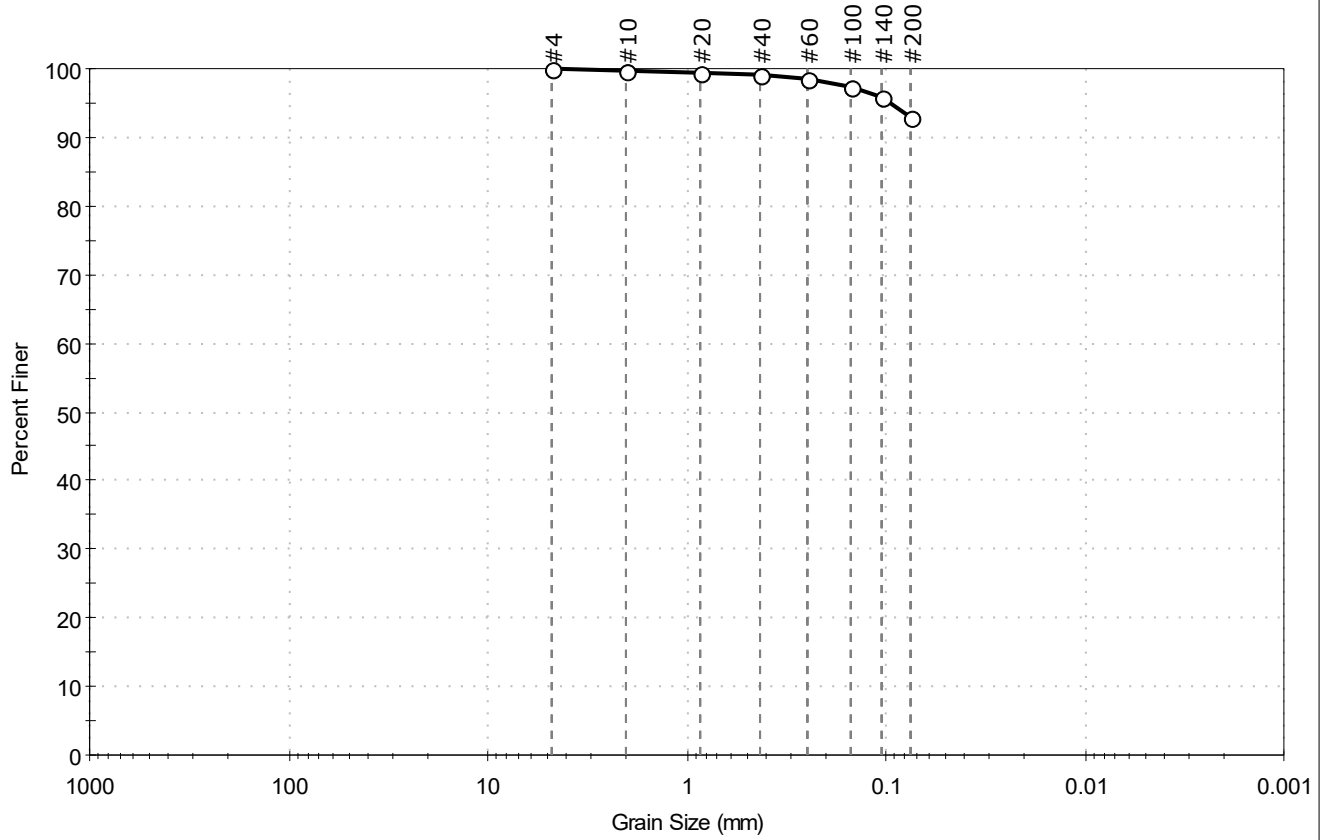
- (1): Method B-Cylinder, Intact
- (2): Sample contains organics  
Method B-Cylinder, Intact
- (3): Method B-Cylinder, Intact
- (4): Method B-Cylinder, Intact
- (5): Method B-Cylinder, Intact
- (6): Method B-Cylinder, Intact
- (7): Method B-Cylinder, Intact

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	Checked By: bfs
Sample ID: 6.5-8.5-191003	Test Date: 12/16/19	Test Id: 531045	
Depth: ---			
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 <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

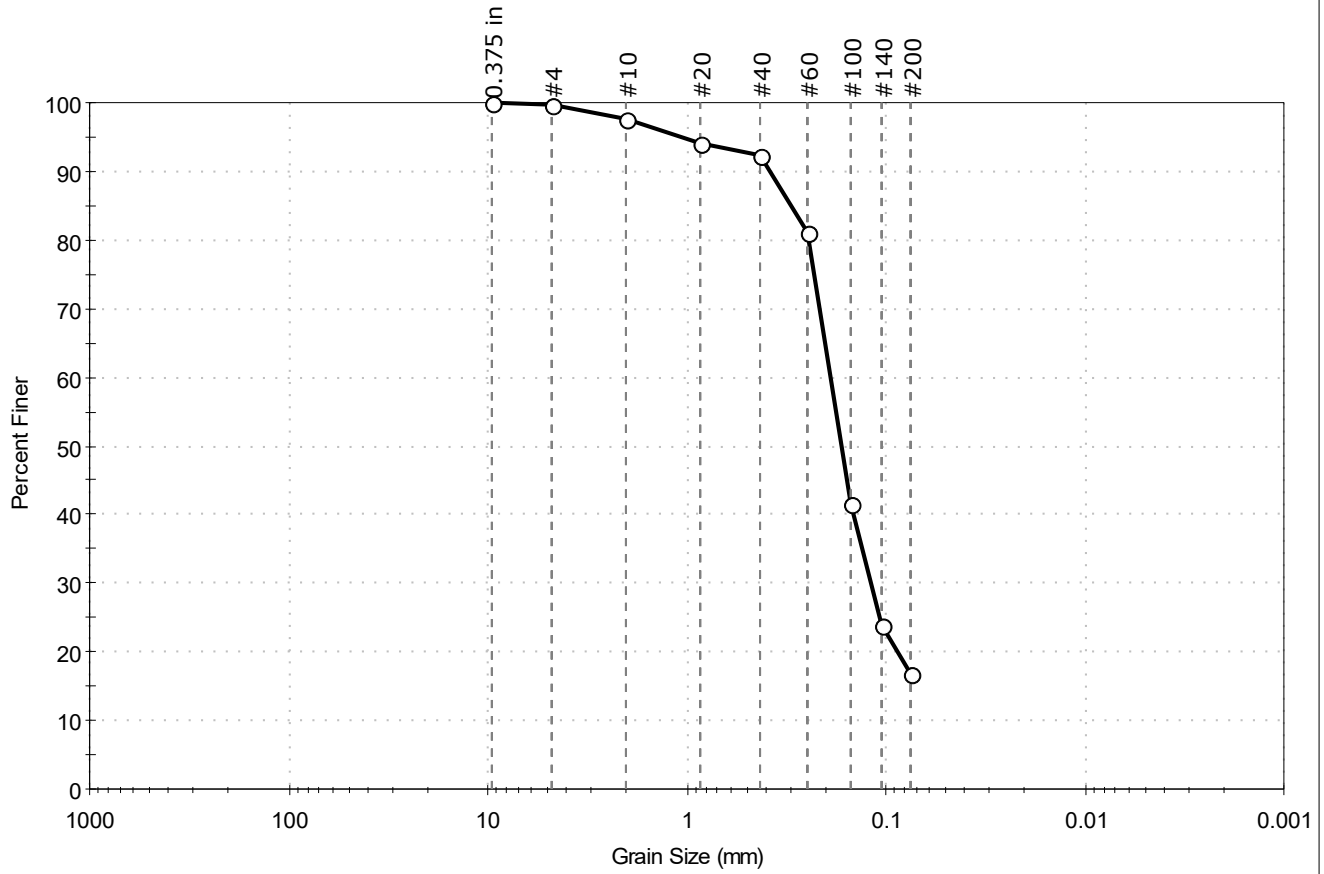
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: PDI-113SPT	Sample Type: tube
Sample ID: 47-49-191011	Test Date: 12/23/19
Depth: ---	Test Id: 531046
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark grayish brown silty sand	Checked By: bfs
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 <sub>85</sub> = 0.2993 mm	D <sub>30</sub> = 0.1197 mm
D <sub>60</sub> = 0.1902 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.1672 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

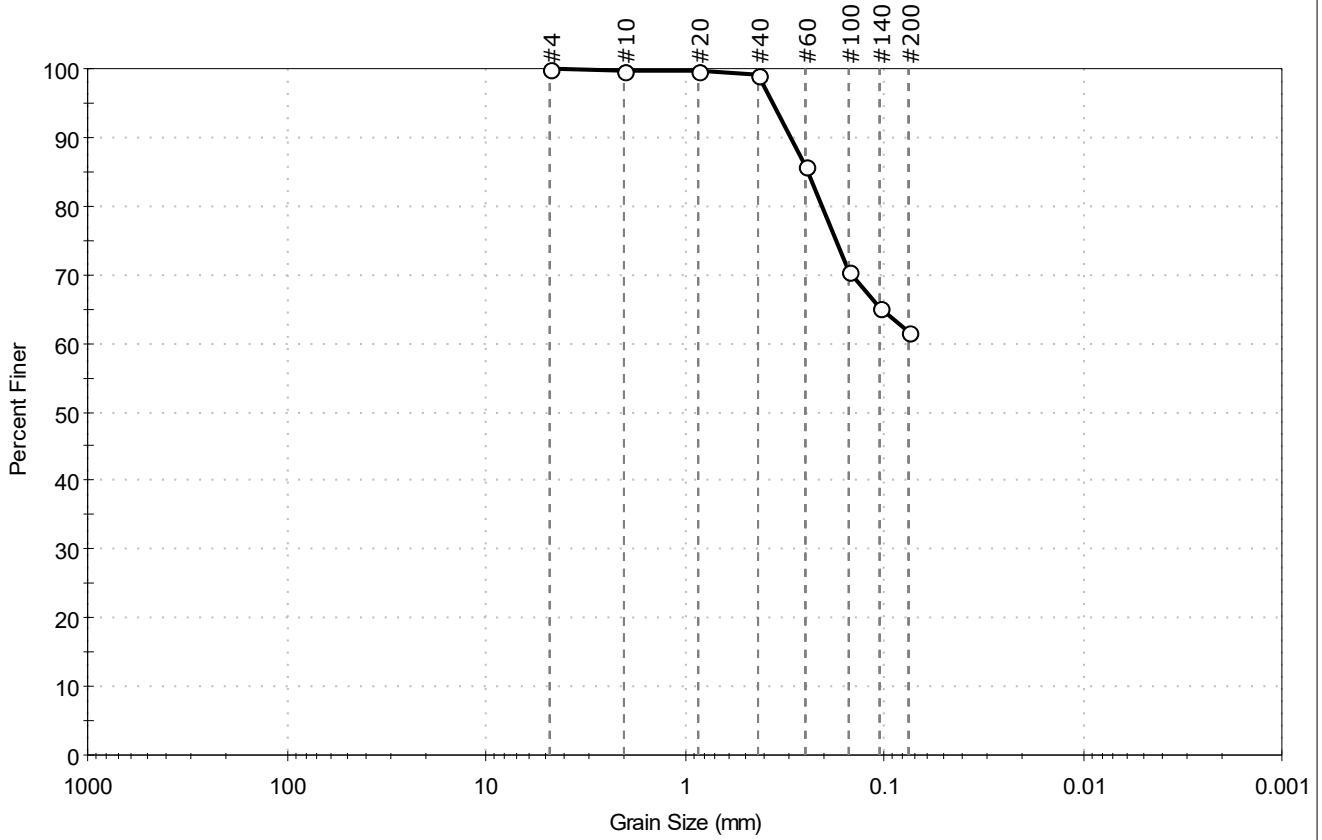
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<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		

**Coefficients**

D <sub>85</sub> = 0.2425 mm	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

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

**Sample/Test Description**

Sand/Gravel Particle Shape : ---

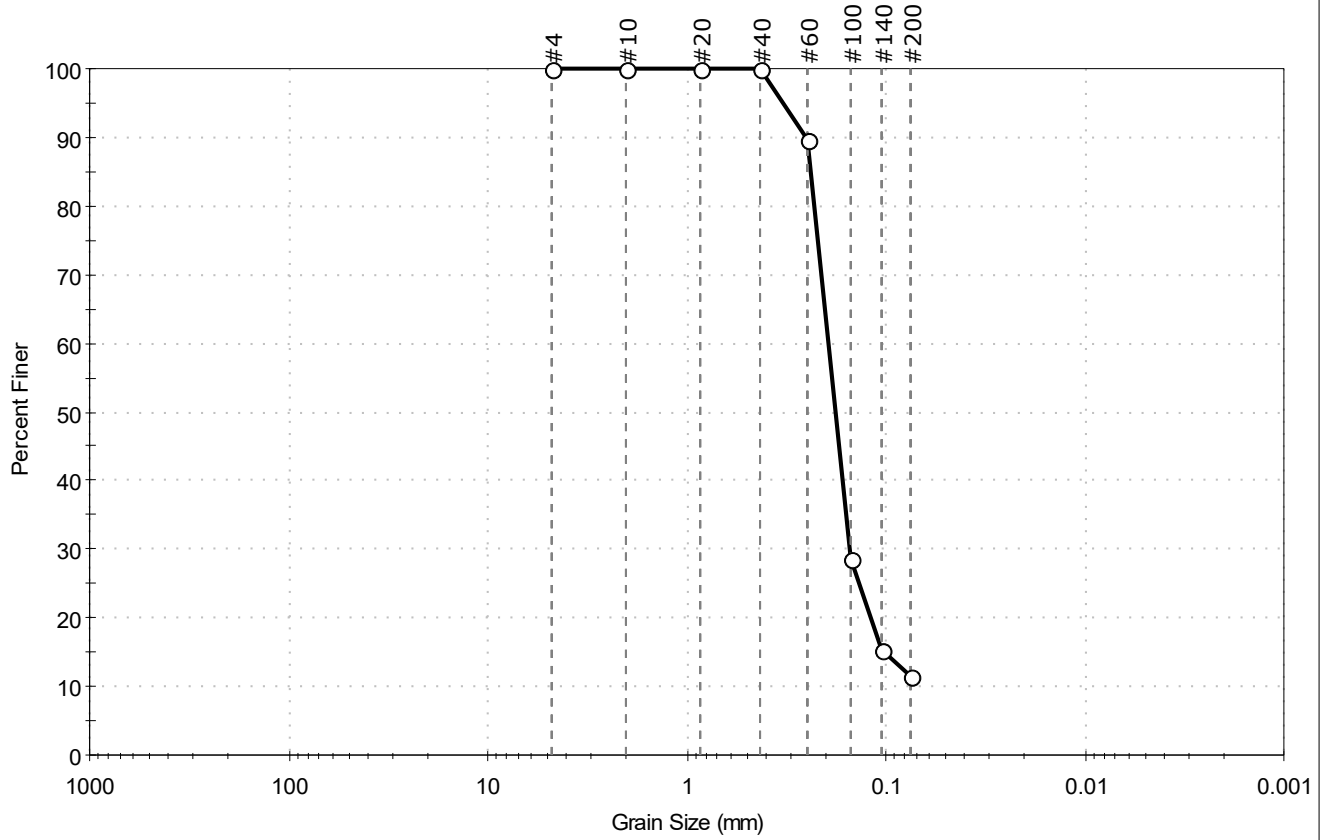
Sand/Gravel Hardness : ---





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-116SPT	Sample Type: tube	Tested By: ckg	Checked By: bfs
Sample ID: 30-32-190927	Test Date: 12/16/19	Test Id: 531048	
Depth: ---	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 <sub>85</sub> = 0.2403 mm	D <sub>30</sub> = 0.1516 mm
D <sub>60</sub> = 0.1949 mm	D <sub>15</sub> = 0.1019 mm
D <sub>50</sub> = 0.1792 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

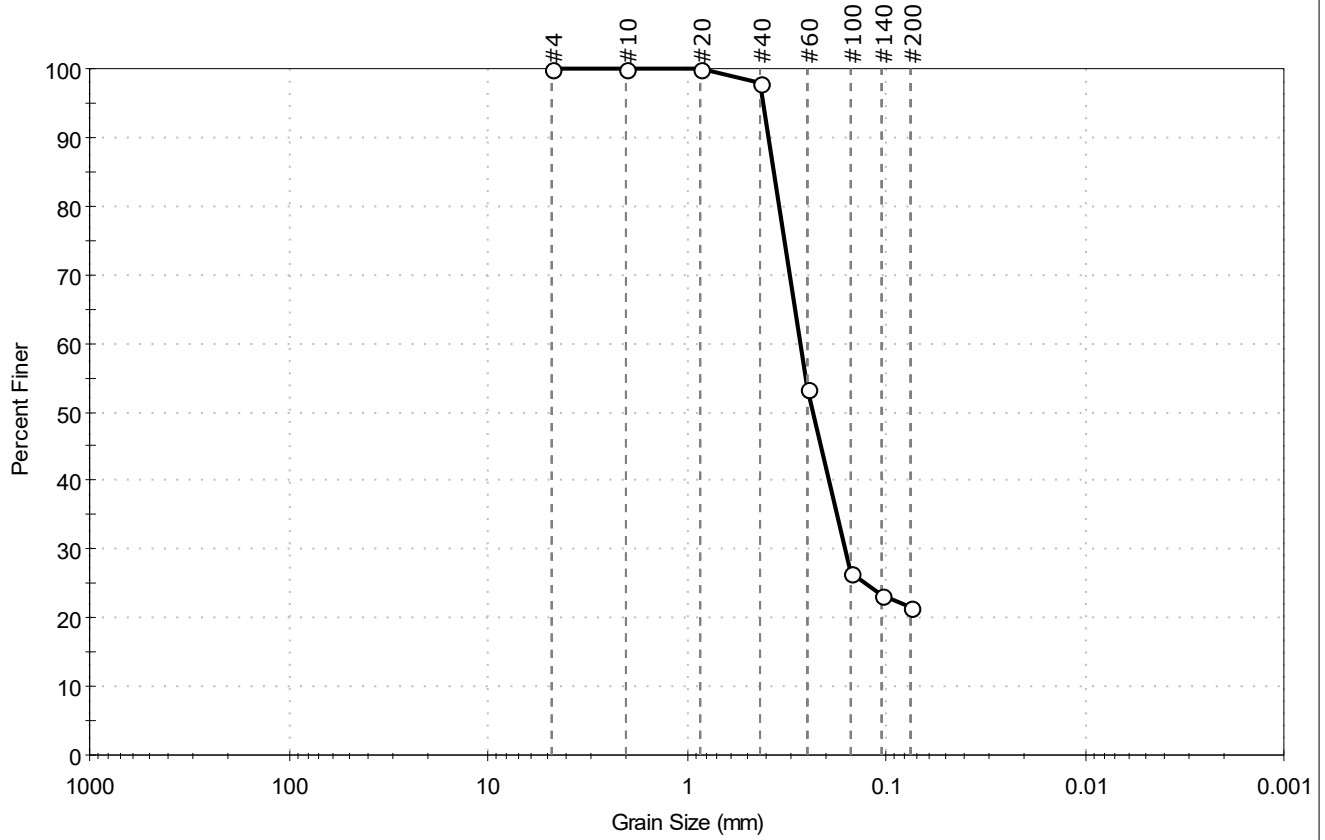
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<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	0.425	98		
#60	0.25	53		
#100	0.15	27		
#140	0.106	23		
#200	0.075	21		

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

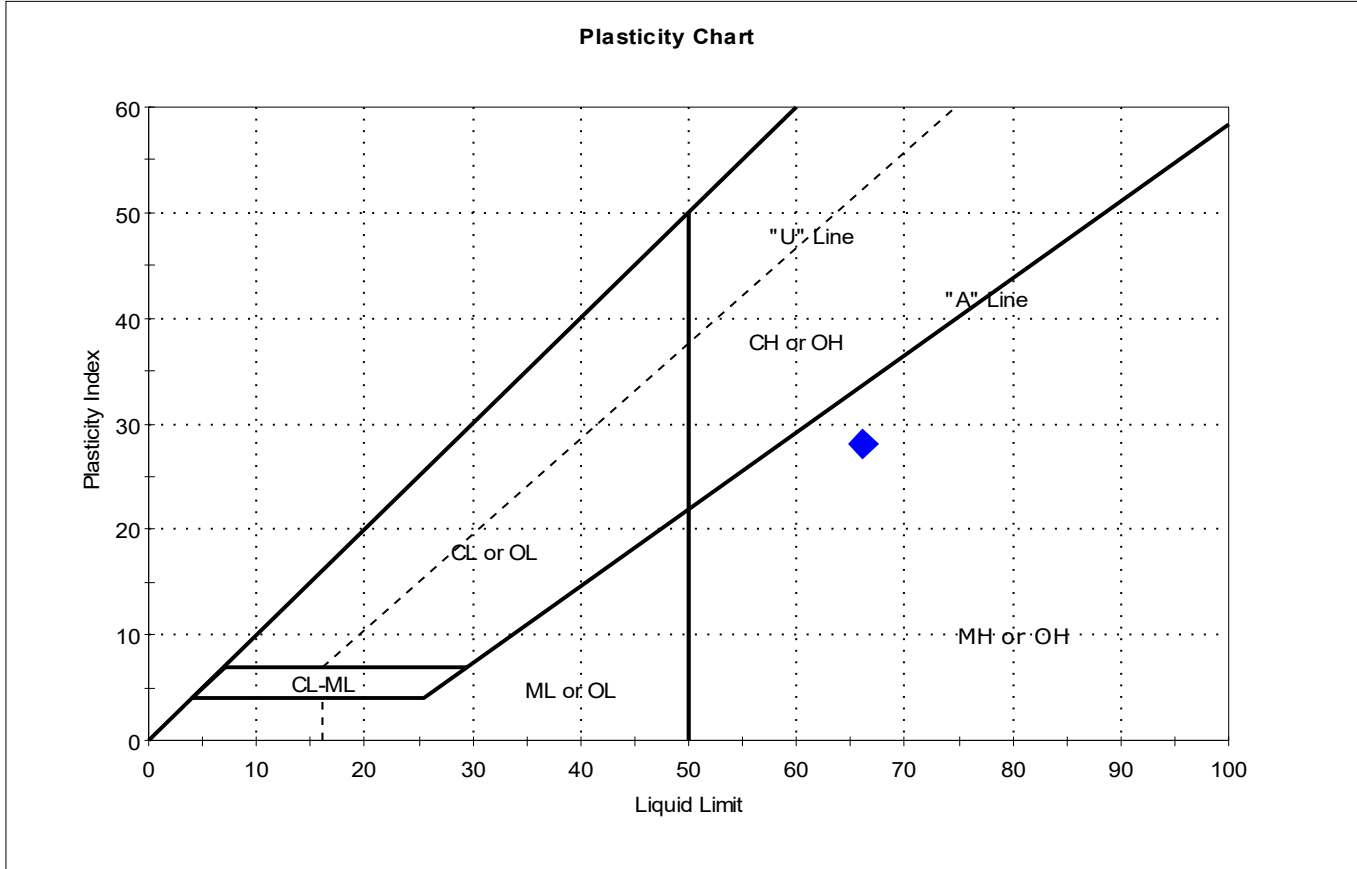
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<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

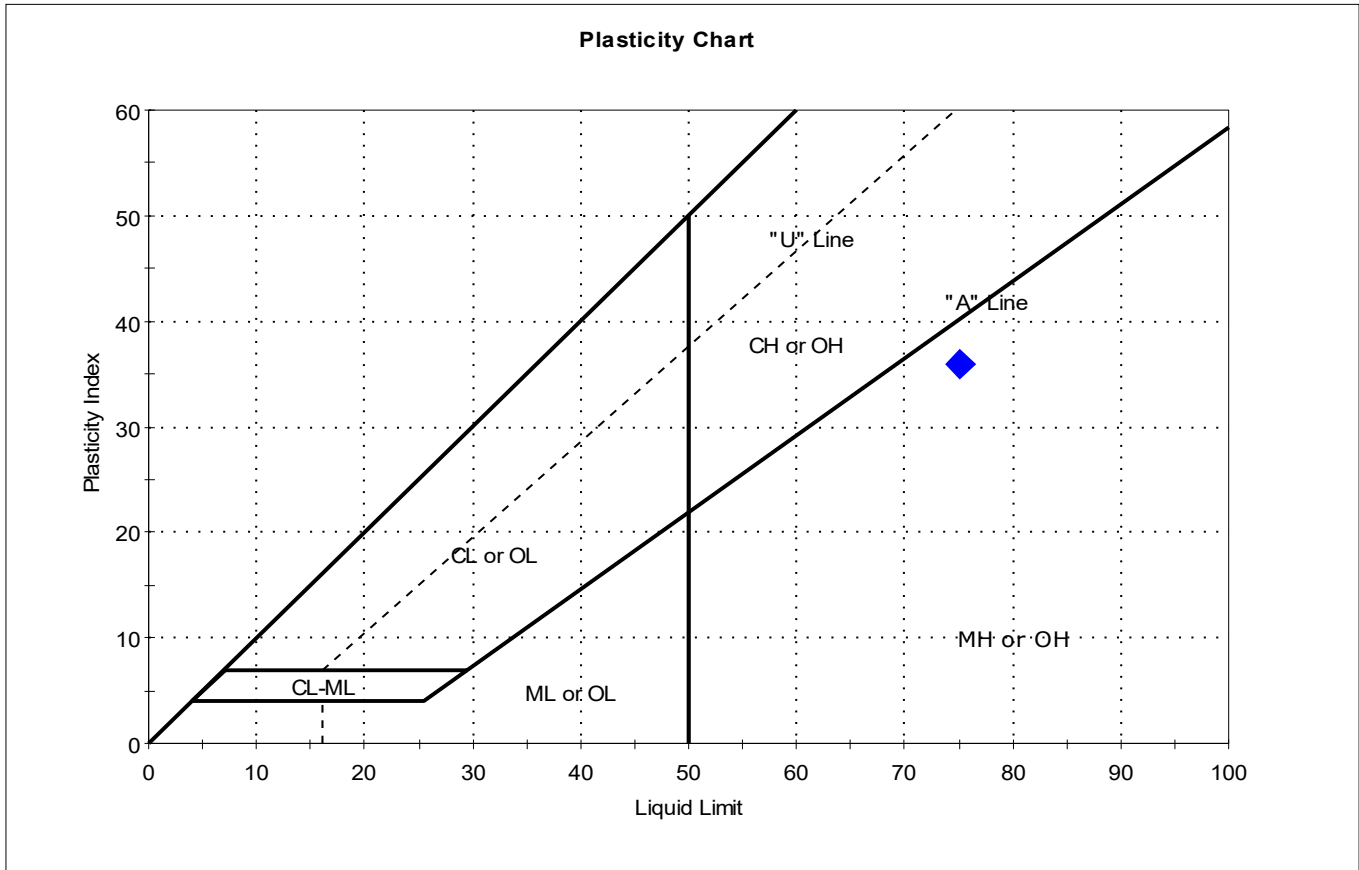
Dilatancy: SLOW

Toughness: LOW



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: tube	Tested By: cam
Boring ID: PDI-109SPT	Test Date: 12/11/19	Checked By: bfs
Sample ID: 6.5-8.5-191004	Test Id: 531040	
Depth: ---		
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

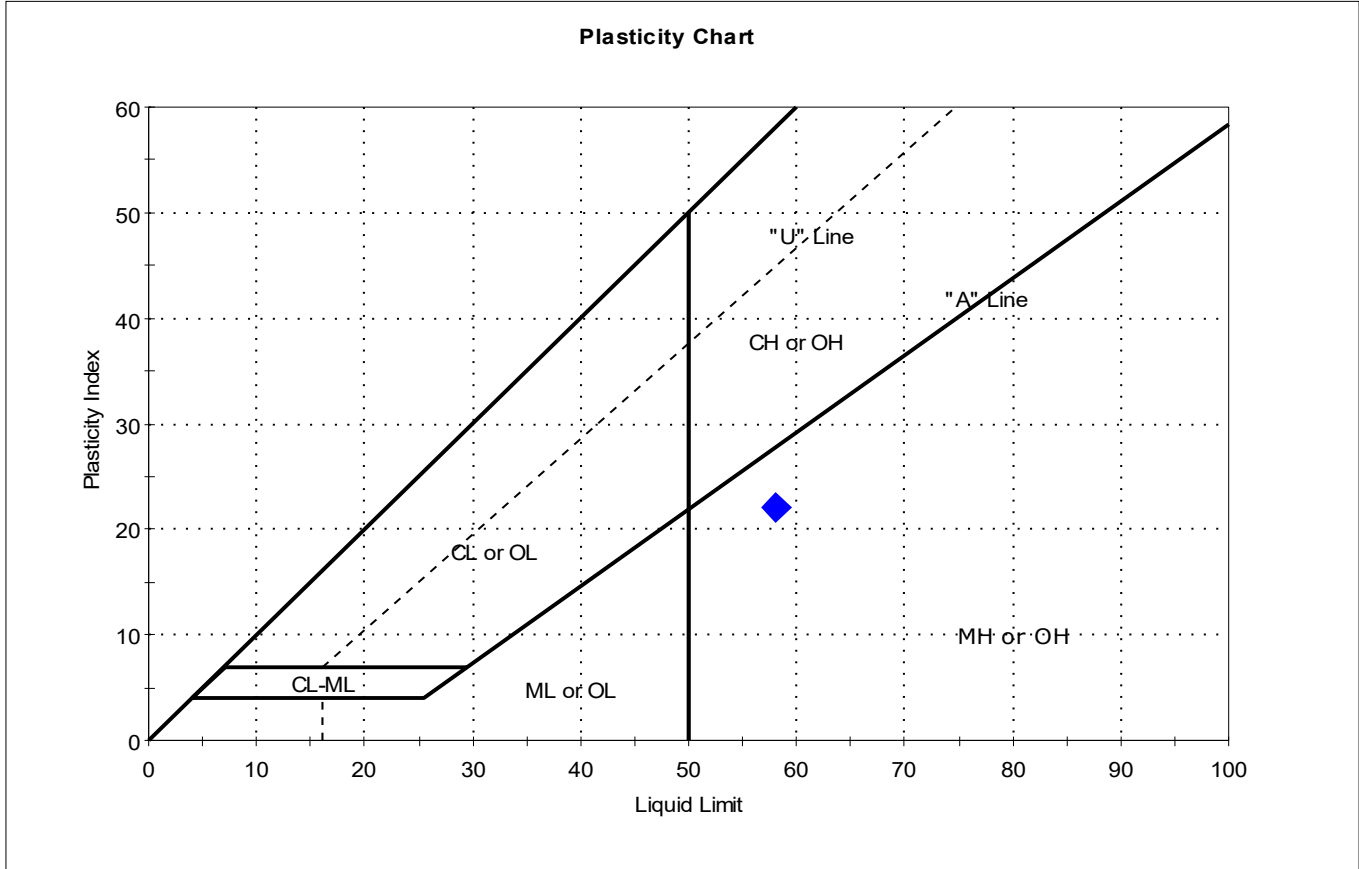
Dilatancy: SLOW

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

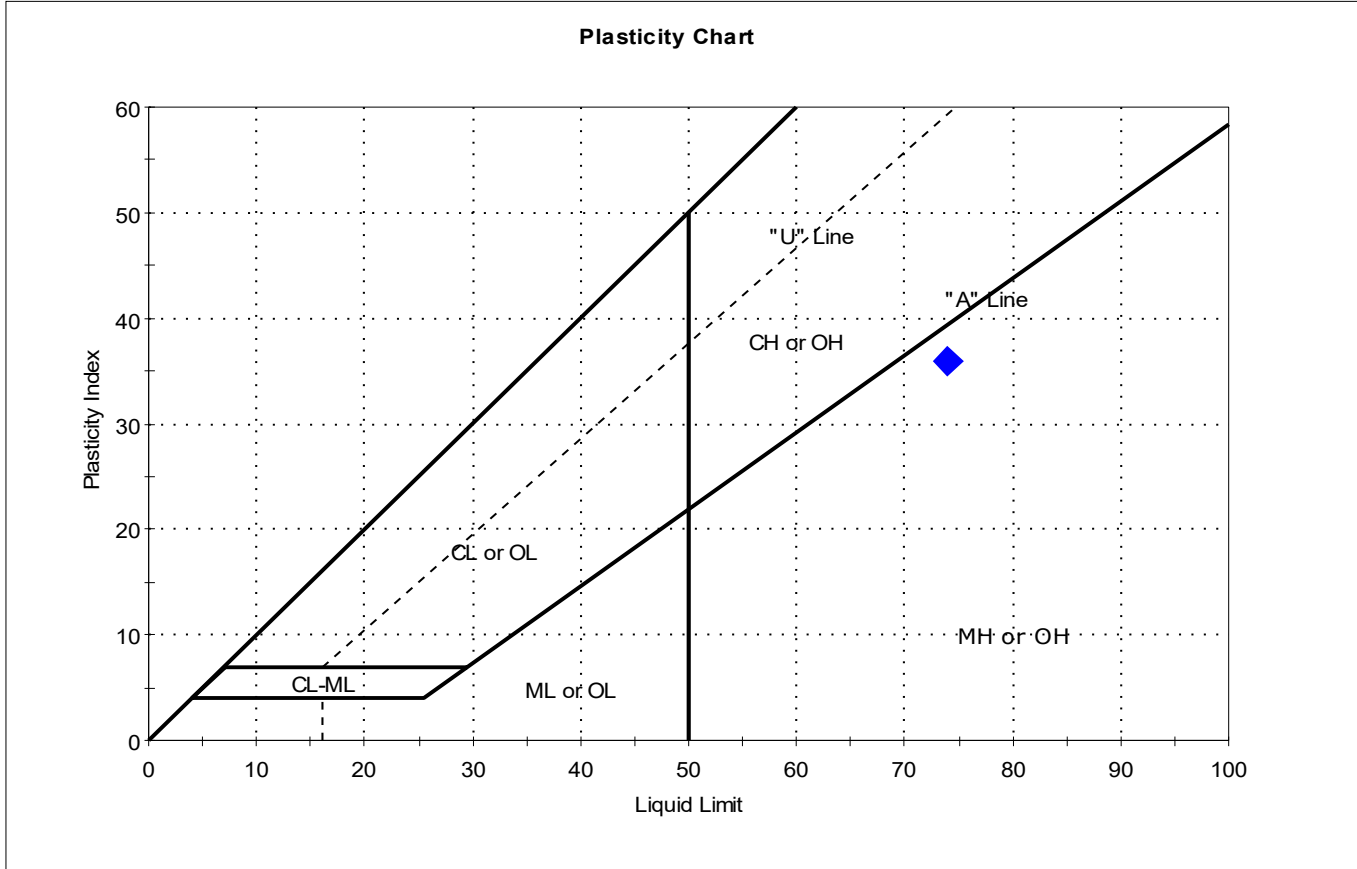
Dilatancy: SLOW

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	

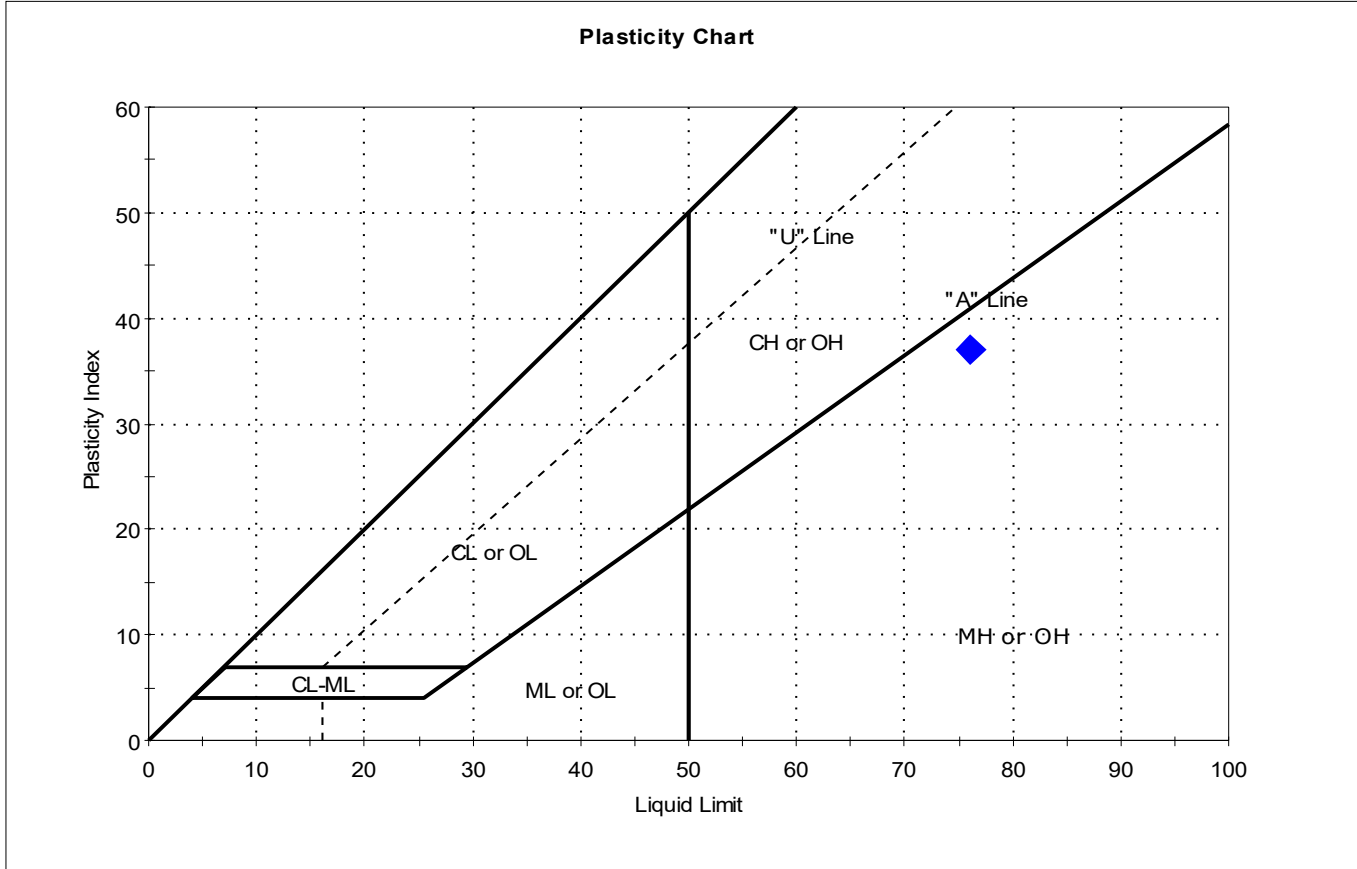
Sample Prepared using the WET method

Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: LOW



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-121SPT	Sample Type: tube	Tested By: cam	
Sample ID: 06-08-190930	Test Date: 12/13/19	Checked By: bfs	
Depth: ---	Test Id: 531043		
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	

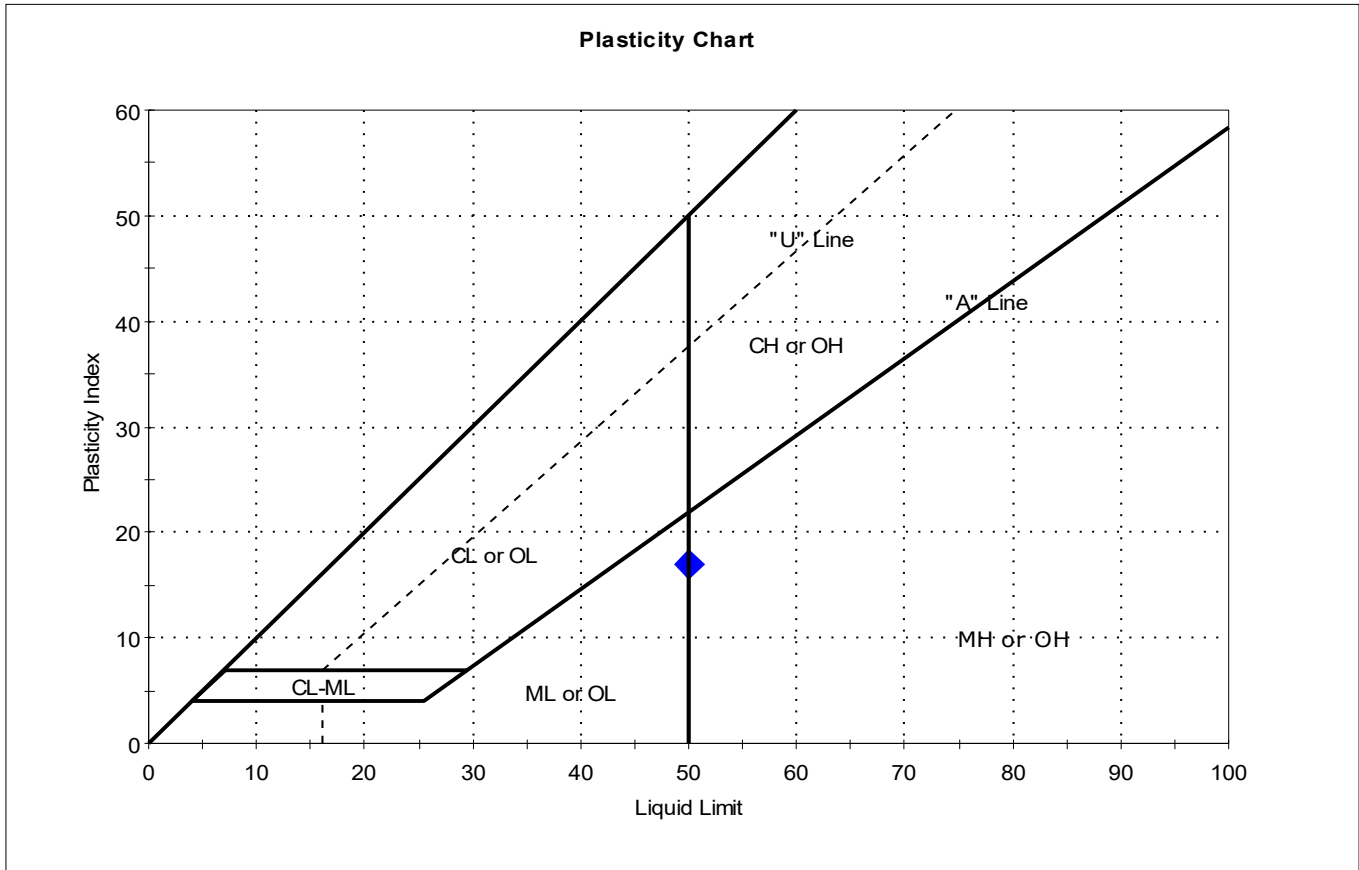
Sample Prepared using the WET method

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





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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	<b>November 2019 Laboratory Test Report</b>

REMARKS:

CC:

SIGNED:

Barbara Sanchez, Assistant Laboratory Manager

APPROVED BY :

Jonathan Campbell, Laboratory Manager

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.

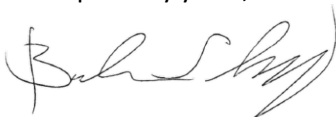
GTX performed the following tests on these samples:

- 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



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**Geotechnical Test Report**

**11/20/2019**

---

**GTX-310685**

**Gasco PDI**

Prepared for:

**Anchor QEA, LLC**

---



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 : 110° Celsius



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 : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
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 : 110° Celsius



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 : 110° Celsius



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

## 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 : 110° Celsius





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

## 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 : 110° Celsius



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 : 110° Celsius



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 : 110° Celsius



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 : 110° Celsius



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

## 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.



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

## 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-11-13.5-19	---	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 No:	GTX-310685
Project:	Gasco PDI		
Location:			
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.





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

## 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.



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.



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	

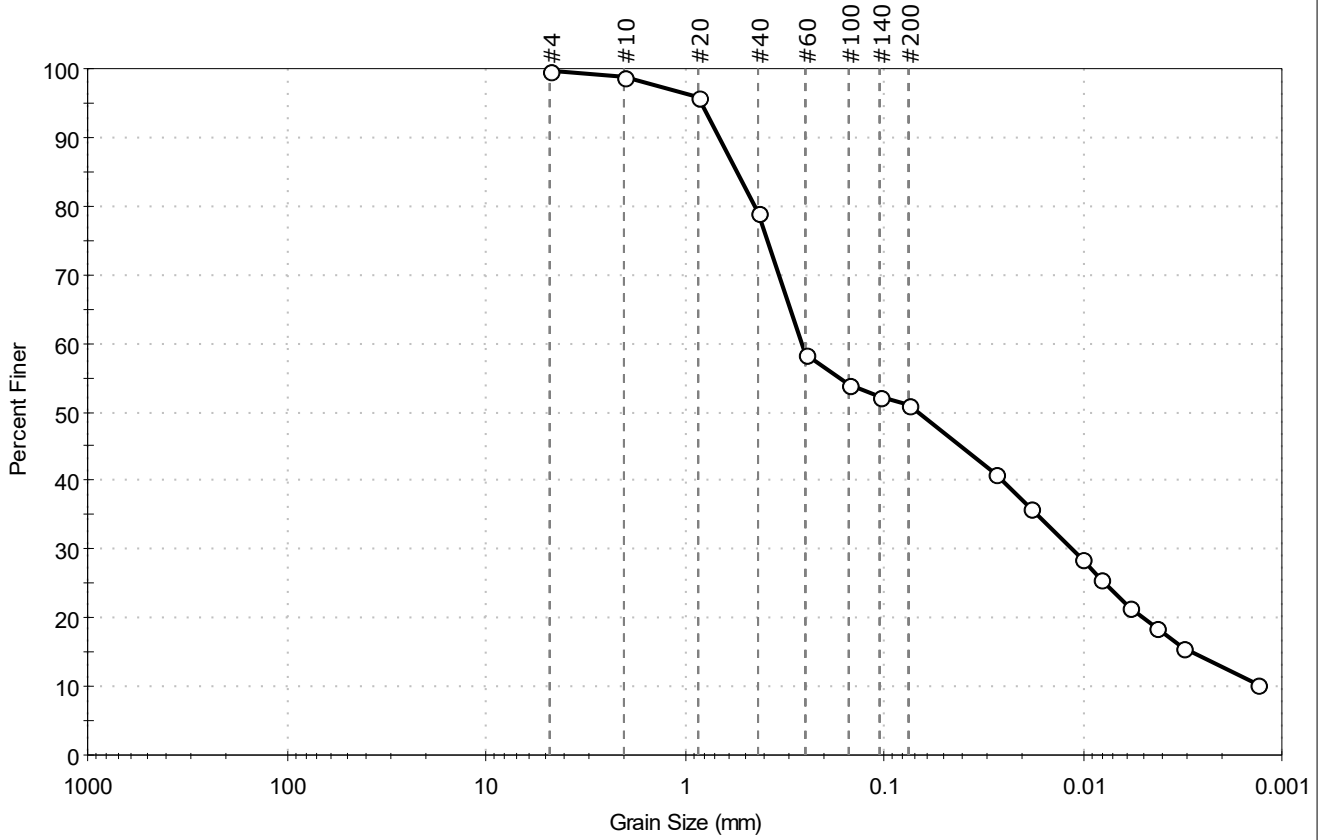
Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854  
 Moisture Content determined by ASTM D2216.



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: ---  
 Boring ID: ---  
 Sample ID: PDI-014SG-00-0.99-1909  
 Depth: ---  
 Test Comment: ---  
 Visual Description: Moist, very dark gray sandy silt  
 Sample Comment: ---

Project No: GTX-310685  
 Sample Type: bag  
 Test Date: 10/02/19  
 Test Id: 525297  
 Tested By: ckg  
 Checked By: jsc

## 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<sub>85</sub> = 0.5444 mm      D<sub>30</sub> = 0.0112 mm  
 D<sub>60</sub> = 0.2601 mm      D<sub>15</sub> = 0.0029 mm  
 D<sub>50</sub> = 0.0681 mm      D<sub>10</sub> = N/A  
 C<sub>u</sub> = N/A                  C<sub>c</sub> = N/A

**Classification**

ASTM      N/A

AASHTO      Silty Soils (A-4 (0))

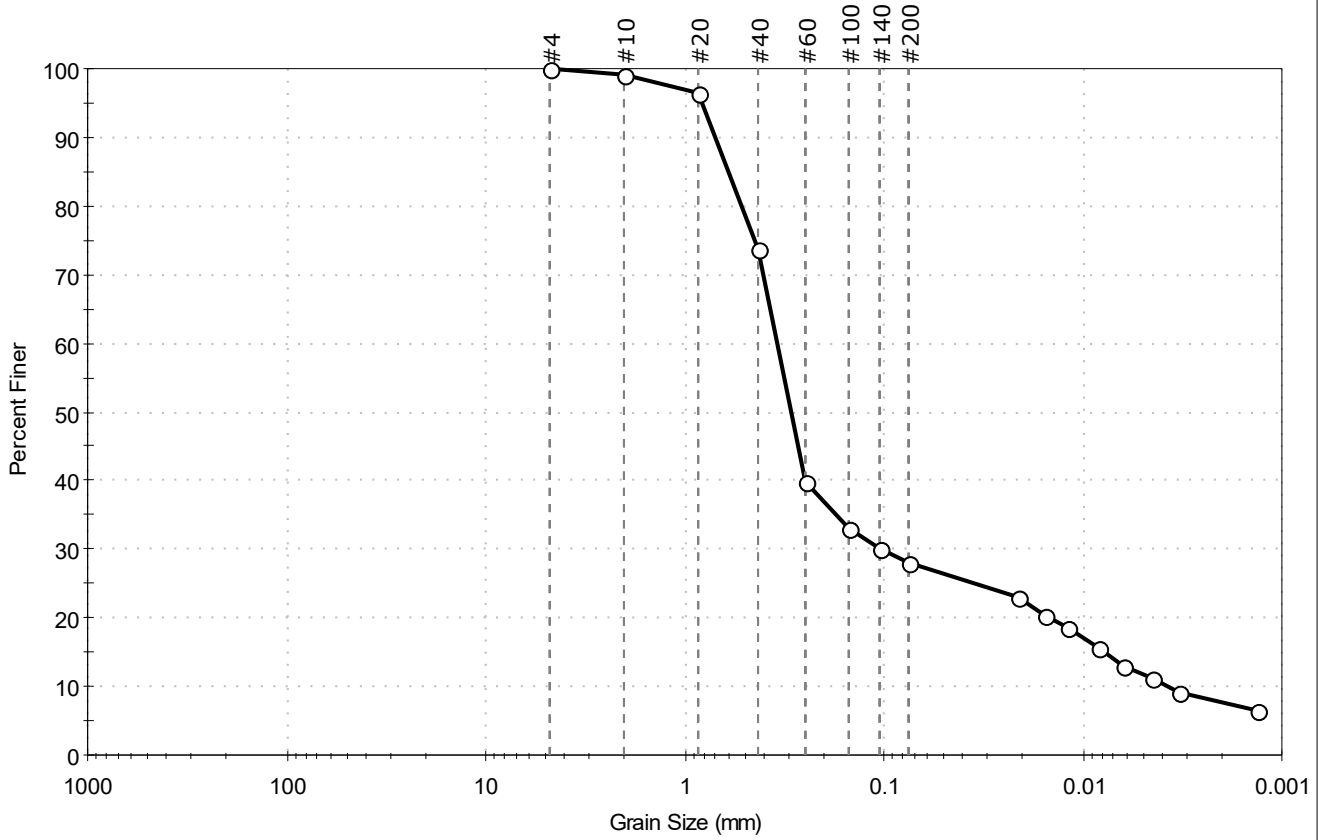
**Sample/Test Description**

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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5984 mm	D <sub>30</sub> = 0.1051 mm
D <sub>60</sub> = 0.3429 mm	D <sub>15</sub> = 0.0078 mm
D <sub>50</sub> = 0.2934 mm	D <sub>10</sub> = 0.0037 mm
C <sub>u</sub> = 92.676	C <sub>c</sub> = 8.706

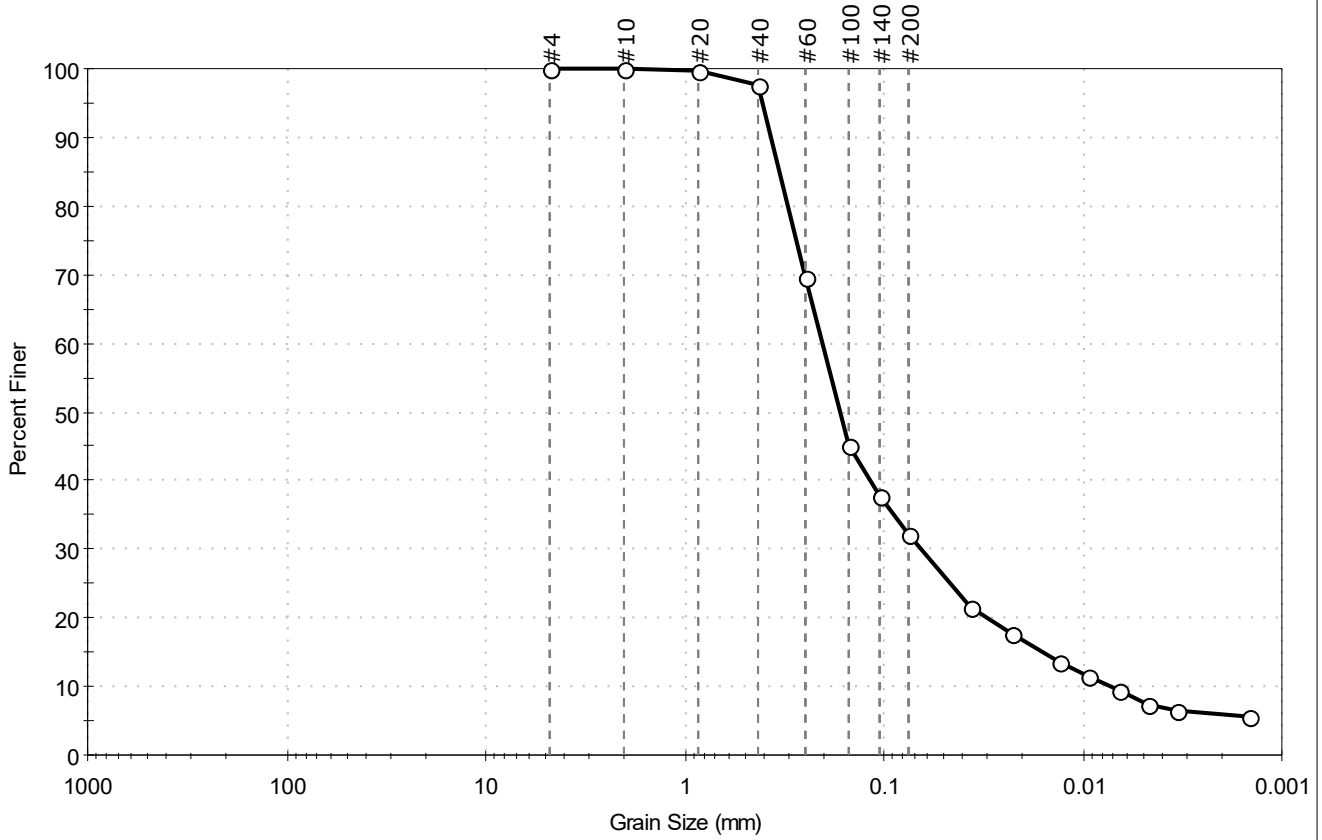
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-016SC-B-06-08-1910	Test Date: 10/29/19	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3339 mm	D <sub>30</sub> = 0.0651 mm
D <sub>60</sub> = 0.2042 mm	D <sub>15</sub> = 0.0161 mm
D <sub>50</sub> = 0.1659 mm	D <sub>10</sub> = 0.0072 mm
C <sub>u</sub> = 28.361	C <sub>c</sub> = 2.883

<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

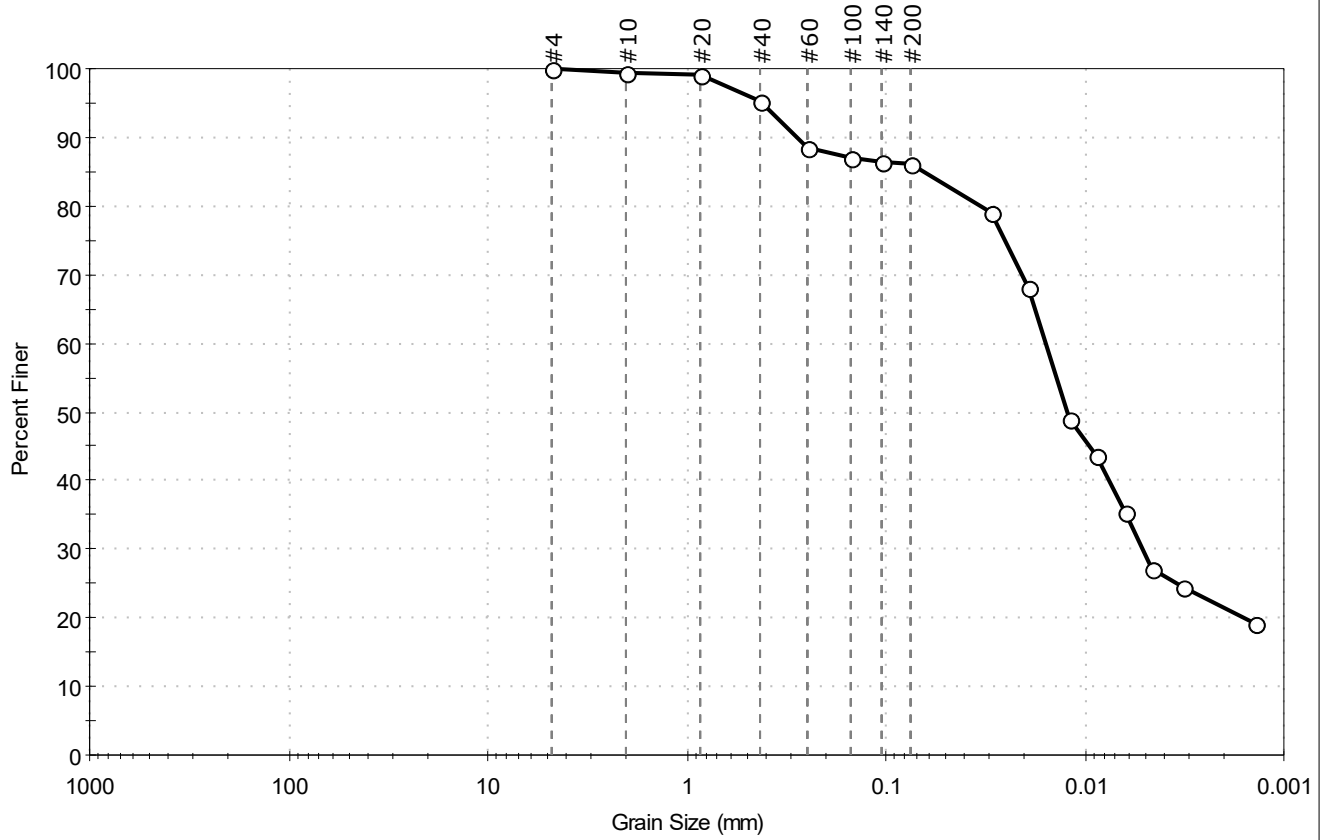
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0652 mm	D <sub>30</sub> = 0.0051 mm
D <sub>60</sub> = 0.0158 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0123 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

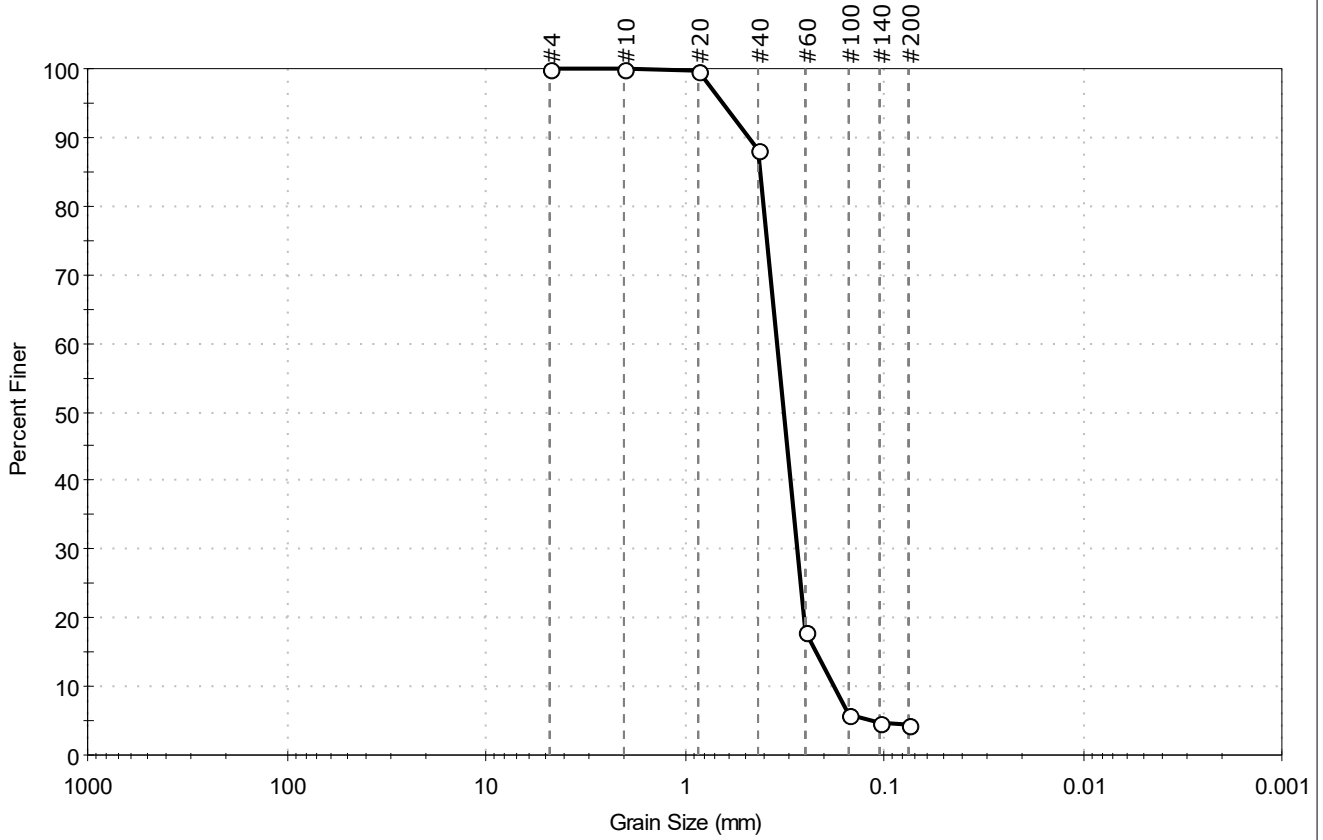
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (47))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-018SC-A-08-09-1909	Test Date: 10/08/19	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 <sub>85</sub> = 0.4149 mm	D <sub>30</sub> = 0.2738 mm
D <sub>60</sub> = 0.3434 mm	D <sub>15</sub> = 0.2203 mm
D <sub>50</sub> = 0.3184 mm	D <sub>10</sub> = 0.1781 mm
C <sub>u</sub> = 1.928	C <sub>c</sub> = 1.226

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

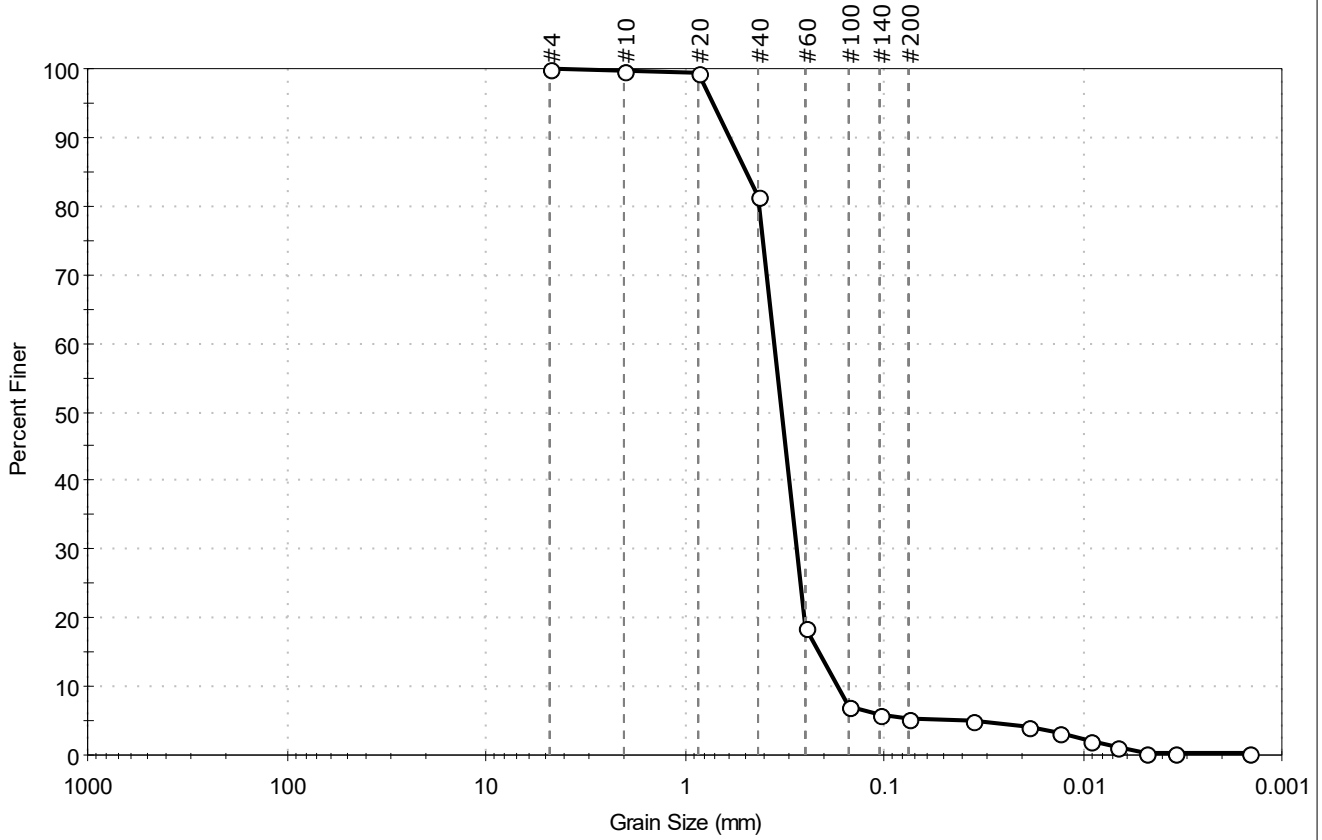
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-021SC-B-7.7-9.7-190	Test Date: 10/08/19	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 <sub>85</sub> = 0.4863 mm	D <sub>30</sub> = 0.2754 mm
D <sub>60</sub> = 0.3546 mm	D <sub>15</sub> = 0.2140 mm
D <sub>50</sub> = 0.3260 mm	D <sub>10</sub> = 0.1714 mm
C <sub>u</sub> = 2.069	C <sub>c</sub> = 1.248

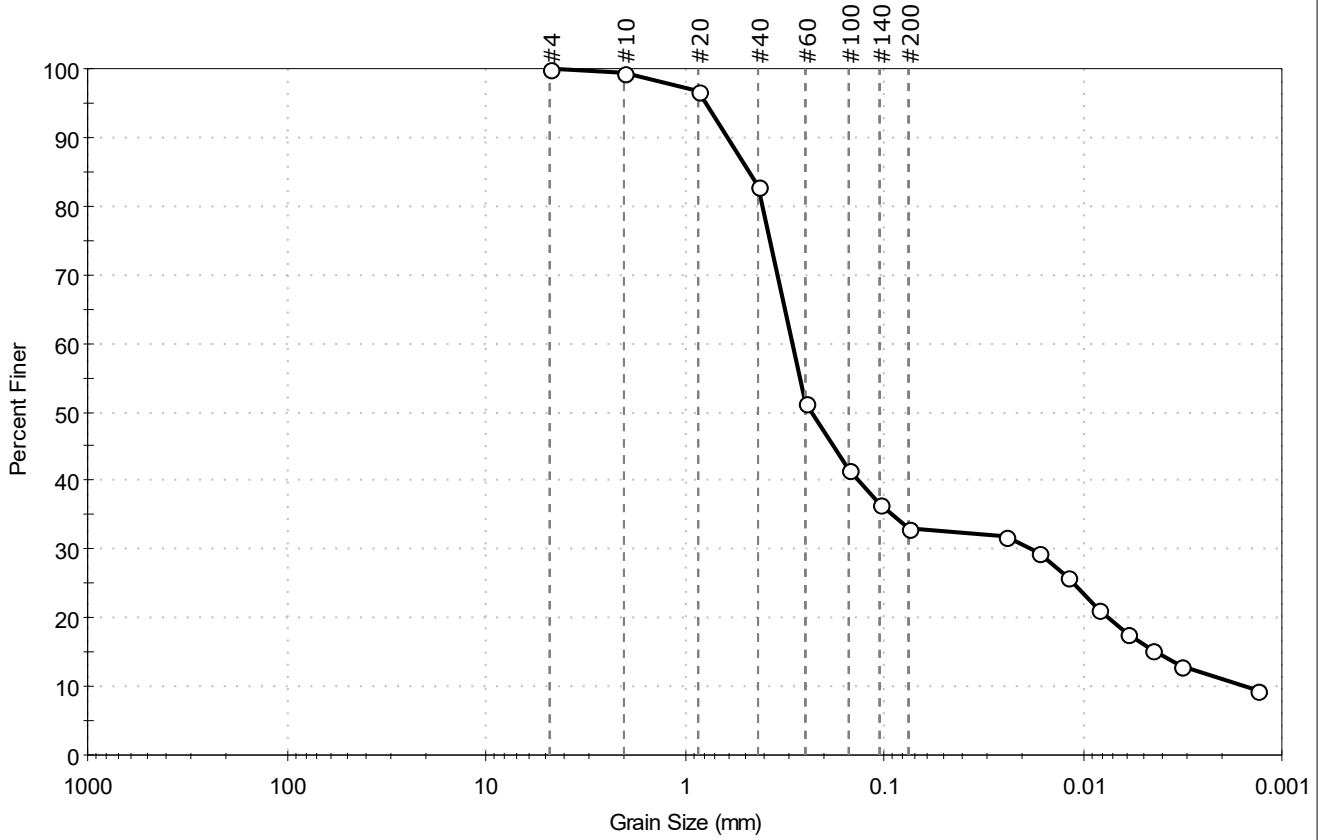
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-022SG-00-01-190924	Tested By: ckg
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.4712 mm	D <sub>30</sub> = 0.0185 mm
D <sub>60</sub> = 0.2896 mm	D <sub>15</sub> = 0.0043 mm
D <sub>50</sub> = 0.2342 mm	D <sub>10</sub> = 0.0016 mm
C <sub>u</sub> = 181.000	C <sub>c</sub> = 0.739

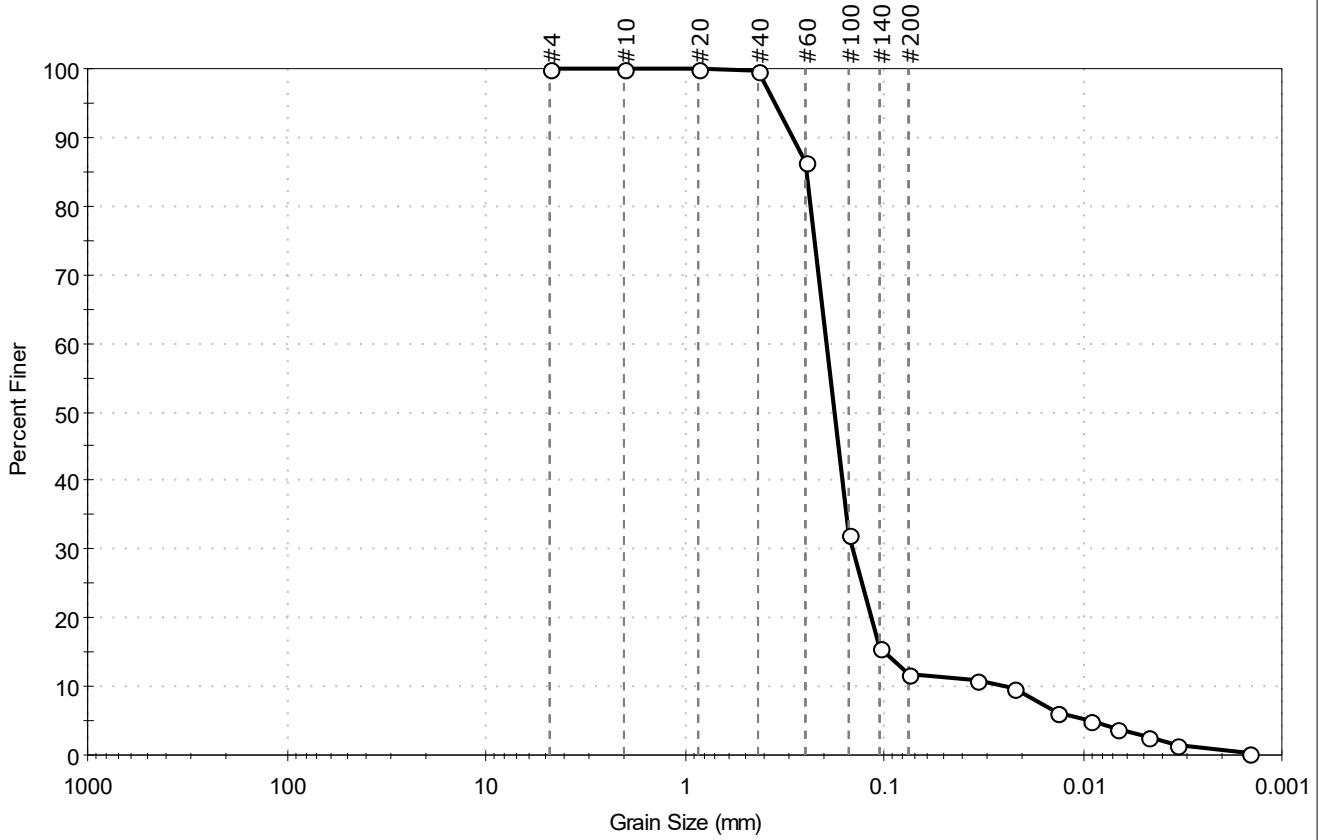
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2465 mm	D <sub>30</sub> = 0.1434 mm
D <sub>60</sub> = 0.1949 mm	D <sub>15</sub> = 0.0998 mm
D <sub>50</sub> = 0.1774 mm	D <sub>10</sub> = 0.0234 mm
C <sub>u</sub> = 8.329	C <sub>c</sub> = 4.509

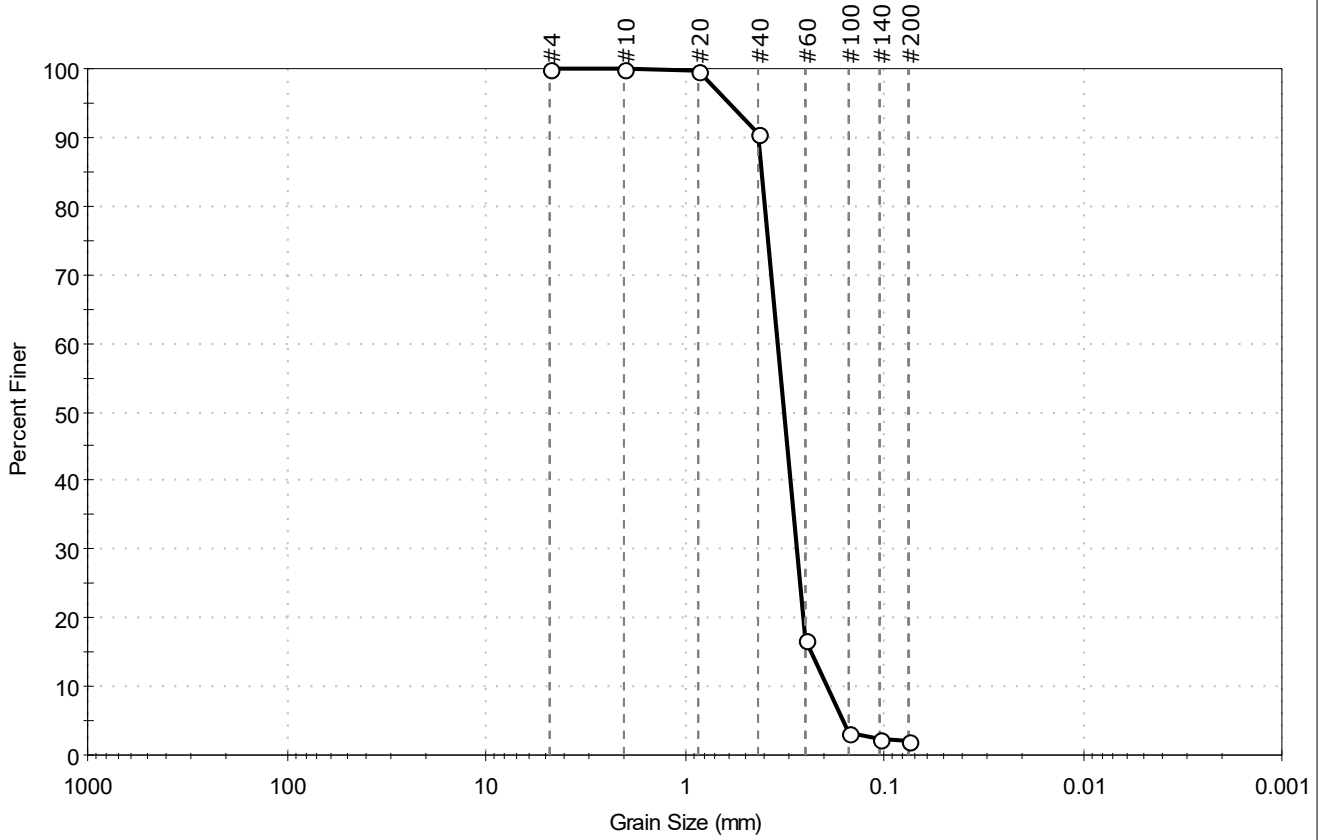
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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 <sub>85</sub> = 0.4084 mm	D <sub>30</sub> = 0.2747 mm
D <sub>60</sub> = 0.3411 mm	D <sub>15</sub> = 0.2327 mm
D <sub>50</sub> = 0.3173 mm	D <sub>10</sub> = 0.1931 mm
C <sub>u</sub> = 1.766	C <sub>c</sub> = 1.146

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

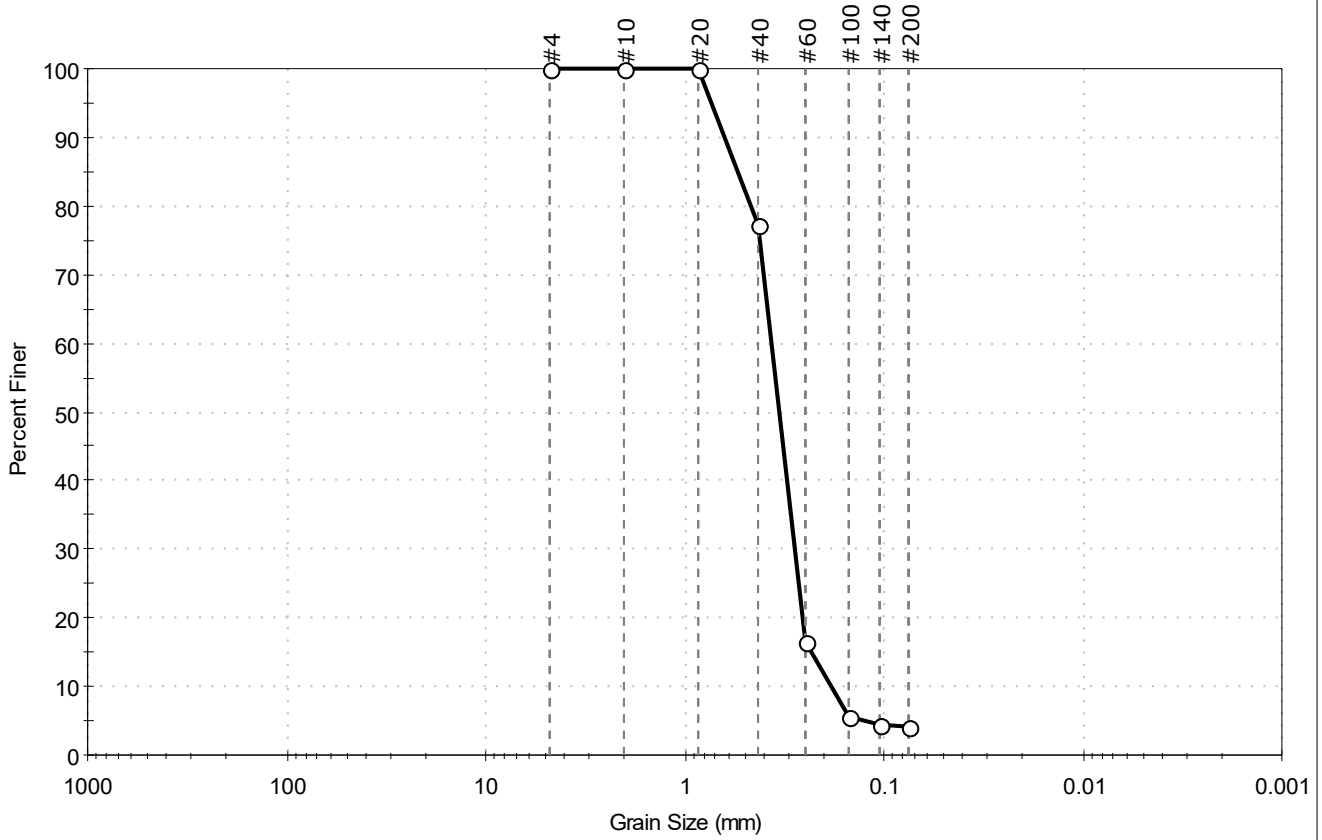
Sand/Gravel Particle Shape : ---

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-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 <sub>85</sub> = 0.5384 mm	D <sub>30</sub> = 0.2810 mm
D <sub>60</sub> = 0.3654 mm	D <sub>15</sub> = 0.2321 mm
D <sub>50</sub> = 0.3348 mm	D <sub>10</sub> = 0.1843 mm
C <sub>u</sub> = 1.983	C <sub>c</sub> = 1.173

**Classification**

<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

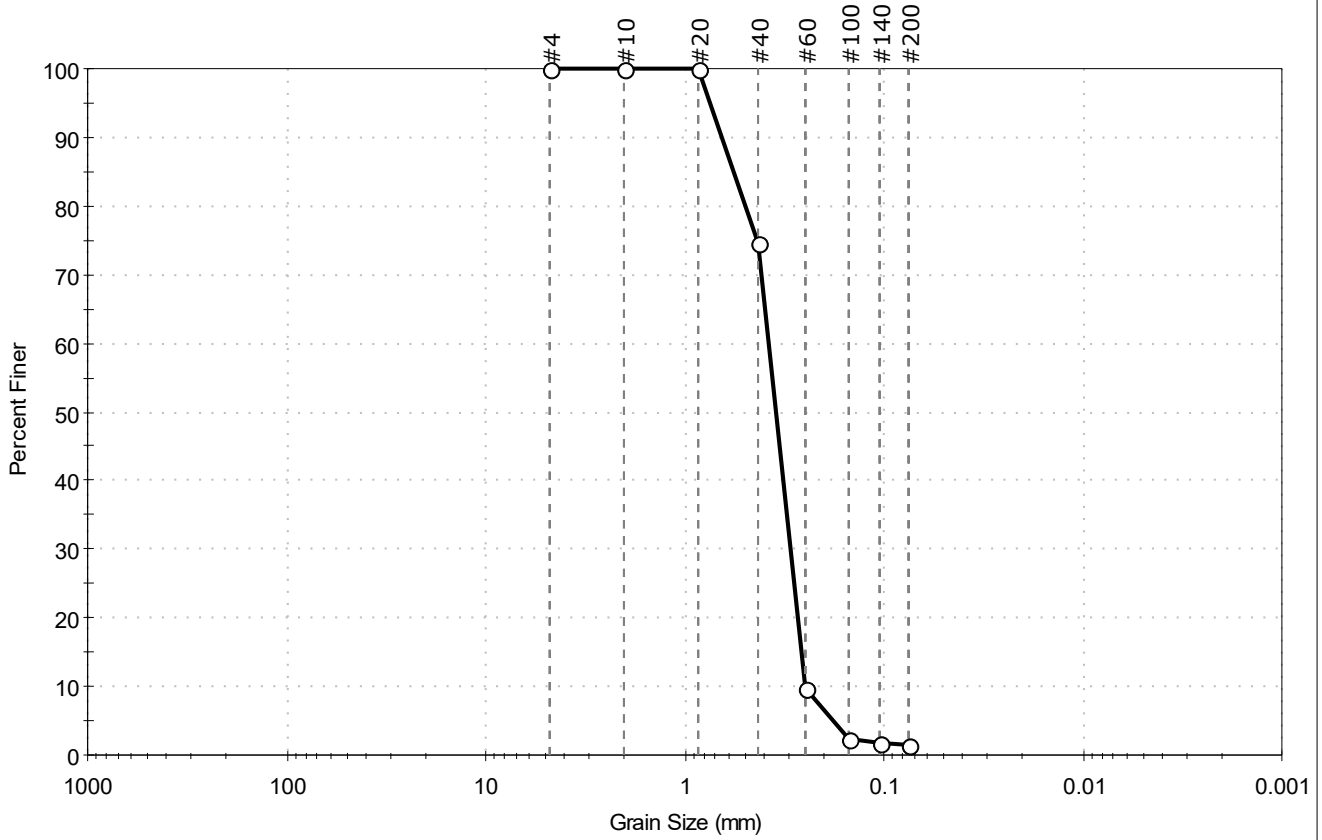
**Sample/Test Description**

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 <sub>85</sub> = 0.5635 mm	D <sub>30</sub> = 0.2948 mm
D <sub>60</sub> = 0.3767 mm	D <sub>15</sub> = 0.2608 mm
D <sub>50</sub> = 0.3471 mm	D <sub>10</sub> = 0.2503 mm
C <sub>u</sub> = 1.505	C <sub>c</sub> = 0.922

**Classification**

<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

**Sample/Test Description**

Sand/Gravel Particle Shape : ---

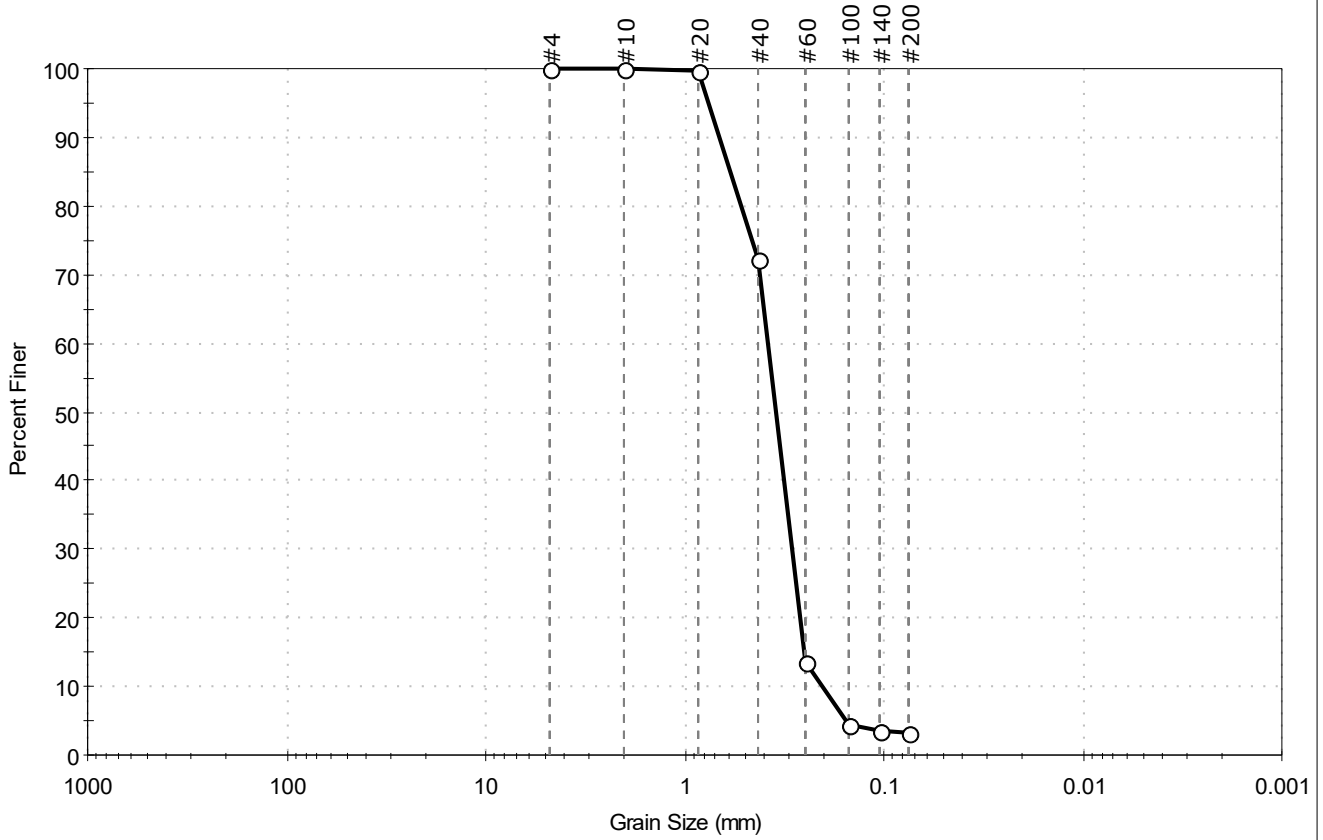
Sand/Gravel Hardness : ---





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

<b>Coefficients</b>	
D <sub>85</sub> = 0.5876 mm	D <sub>30</sub> = 0.2903 mm
D <sub>60</sub> = 0.3806 mm	D <sub>15</sub> = 0.2536 mm
D <sub>50</sub> = 0.3478 mm	D <sub>10</sub> = 0.2060 mm
C <sub>u</sub> = 1.848	C <sub>c</sub> = 1.075

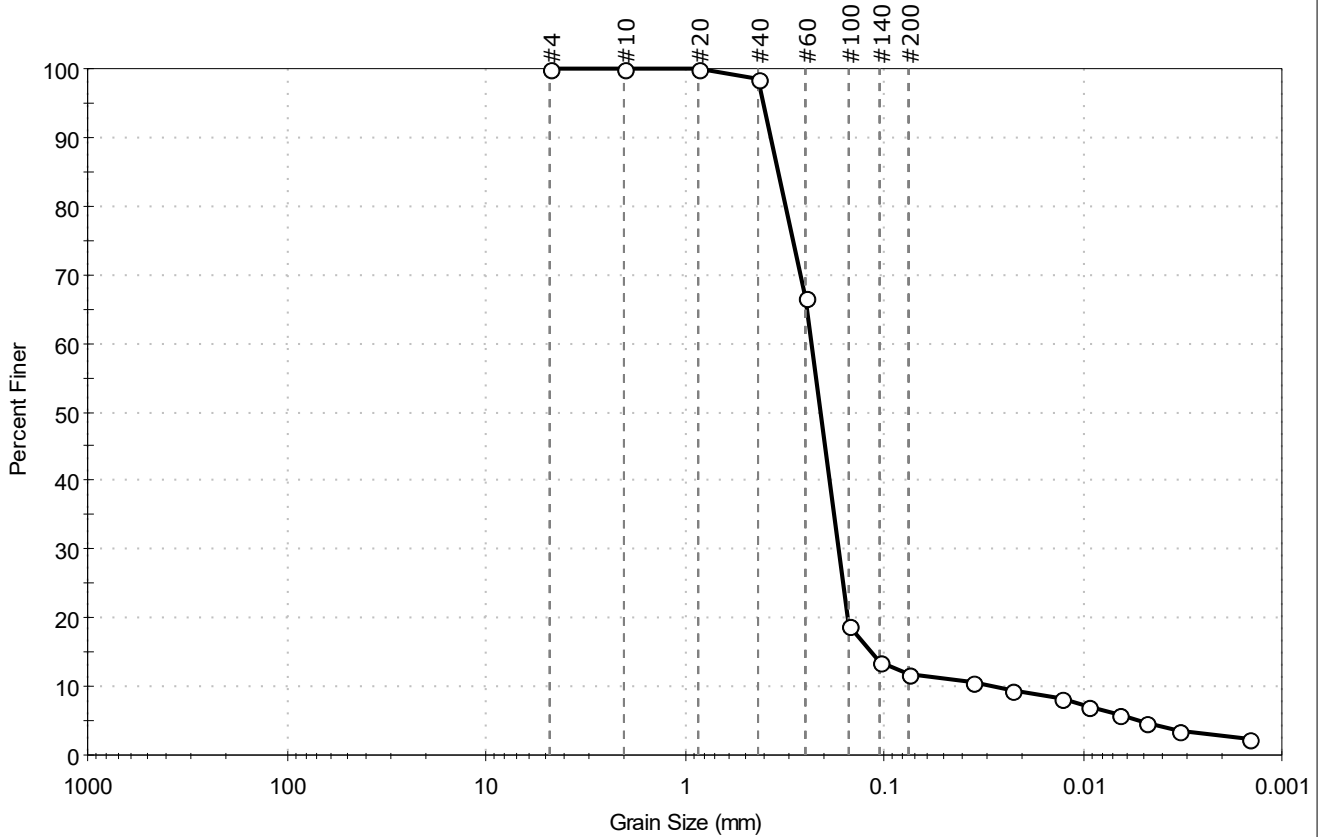
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-039SC-B-7.8-9.8-190	Tested By: ckg
Depth: ---	Test Date: 10/08/19
	Checked By: bfs
Test Comment: ---	Test Id: 525979
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 <sub>85</sub> = 0.3391 mm	D <sub>30</sub> = 0.1688 mm
D <sub>60</sub> = 0.2326 mm	D <sub>15</sub> = 0.1169 mm
D <sub>50</sub> = 0.2090 mm	D <sub>10</sub> = 0.0286 mm
C <sub>u</sub> = 8.133	C <sub>c</sub> = 4.283

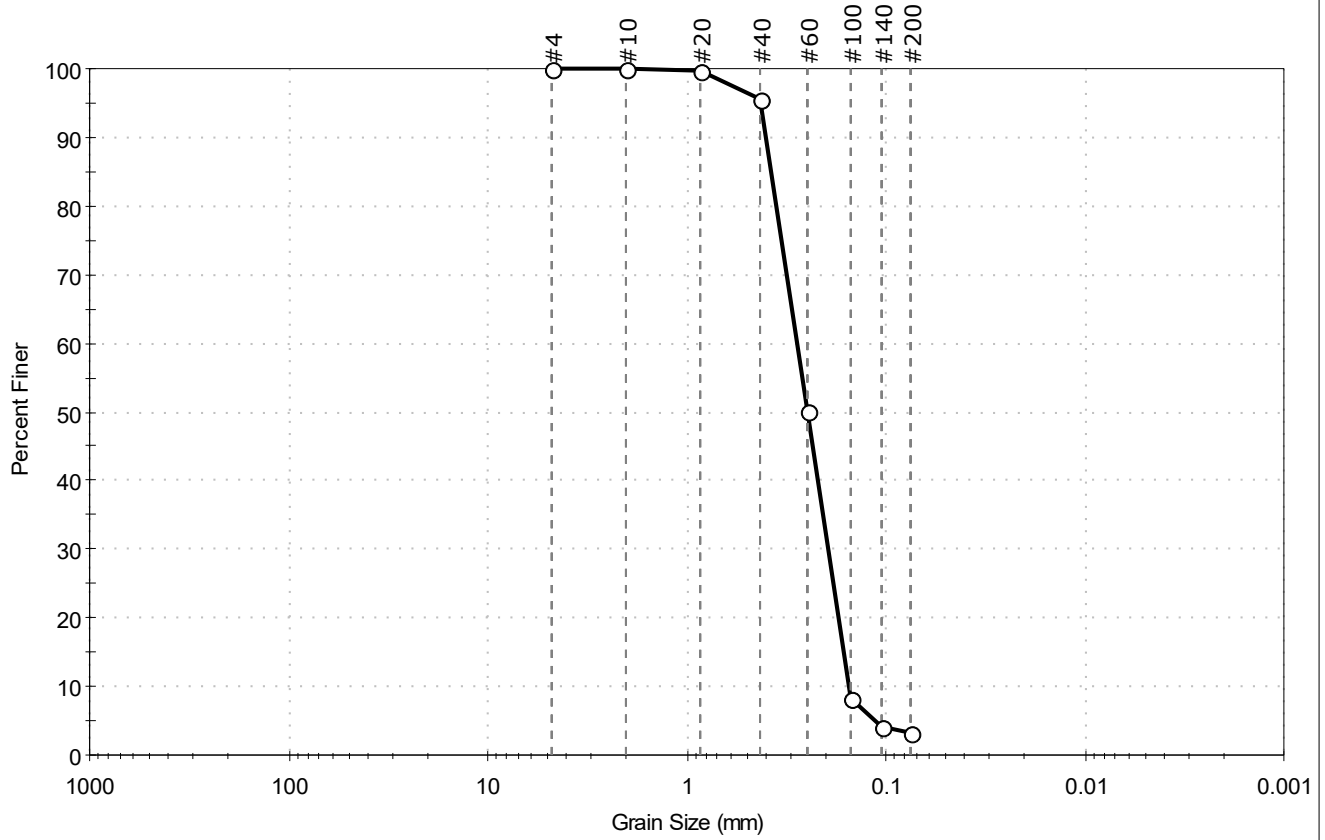
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-041SC-B-8.2-10.2-19	Tested By: ckg
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 <sub>85</sub> = 0.3758 mm	D <sub>30</sub> = 0.1957 mm
D <sub>60</sub> = 0.2808 mm	D <sub>15</sub> = 0.1629 mm
D <sub>50</sub> = 0.2500 mm	D <sub>10</sub> = 0.1532 mm
C <sub>u</sub> = 1.833	C <sub>c</sub> = 0.890

**Classification**

<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

**Sample/Test Description**

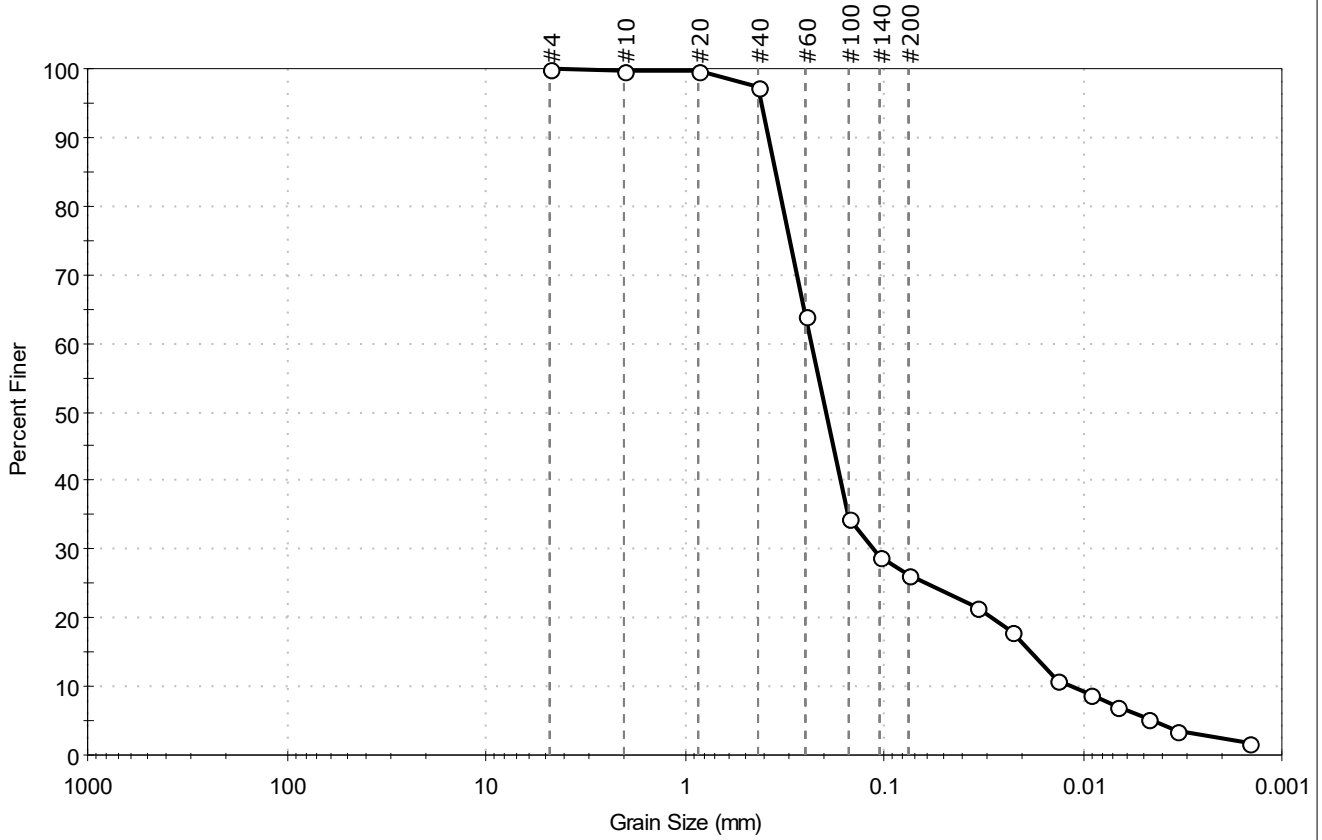
Sand/Gravel Particle Shape : ---

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-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 <sub>85</sub> = 0.3497 mm	D <sub>30</sub> = 0.1135 mm
D <sub>60</sub> = 0.2334 mm	D <sub>15</sub> = 0.0182 mm
D <sub>50</sub> = 0.1963 mm	D <sub>10</sub> = 0.0114 mm
C <sub>u</sub> = 20.474	C <sub>c</sub> = 4.842

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

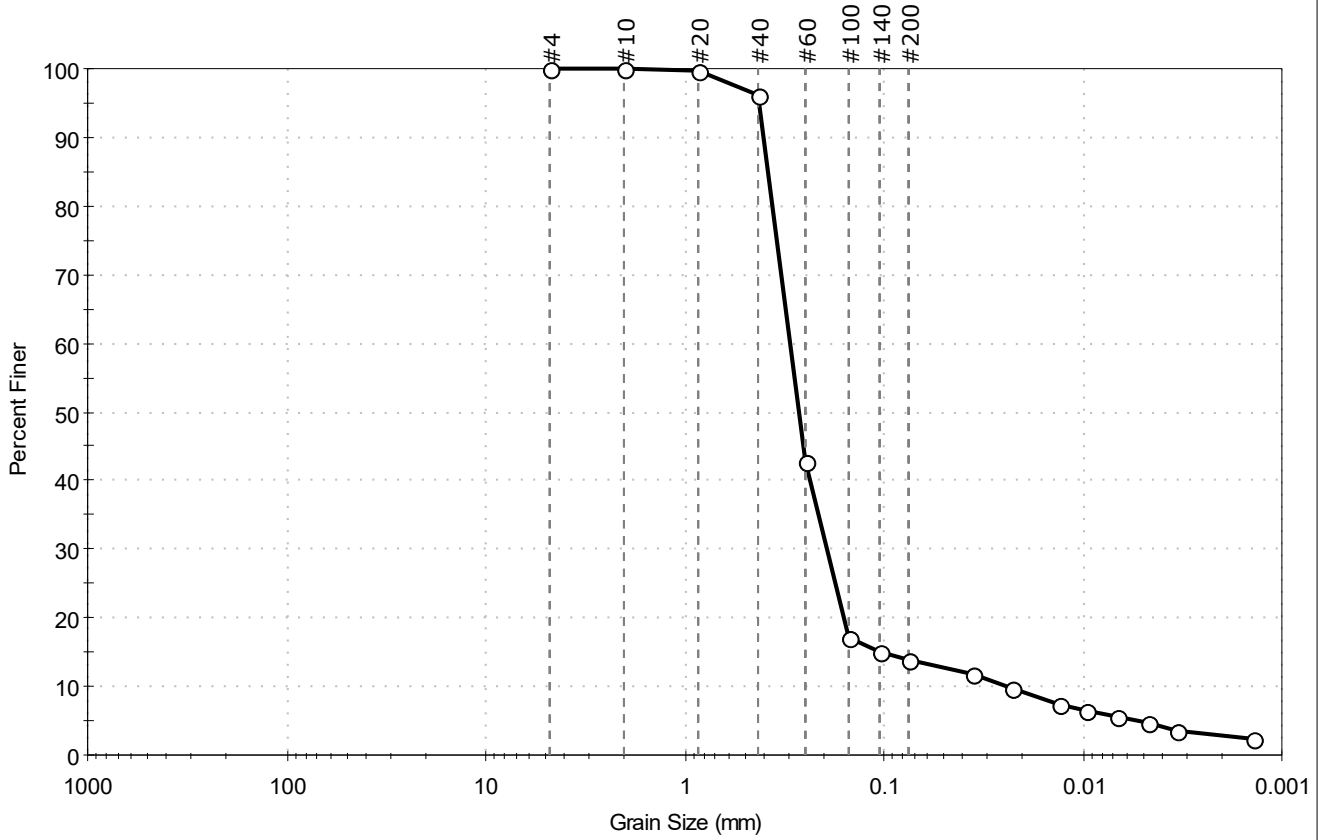
**Sample/Test Description**

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 No: GTX-310685
Project: Gasco PDI	
Location: ---	Sample Type: bag
Boring ID: ---	Tested By: ckg
Sample ID: PDI-049SC-B-06-08-1910	Test Date: 10/24/19
Depth: ---	Checked By: bfs
Test Comment: ---	Test Id: 527554
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 <sub>85</sub> = 0.3801 mm	D <sub>30</sub> = 0.1941 mm
D <sub>60</sub> = 0.2968 mm	D <sub>15</sub> = 0.1066 mm
D <sub>50</sub> = 0.2688 mm	D <sub>10</sub> = 0.0249 mm
C <sub>u</sub> = 11.920	C <sub>c</sub> = 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

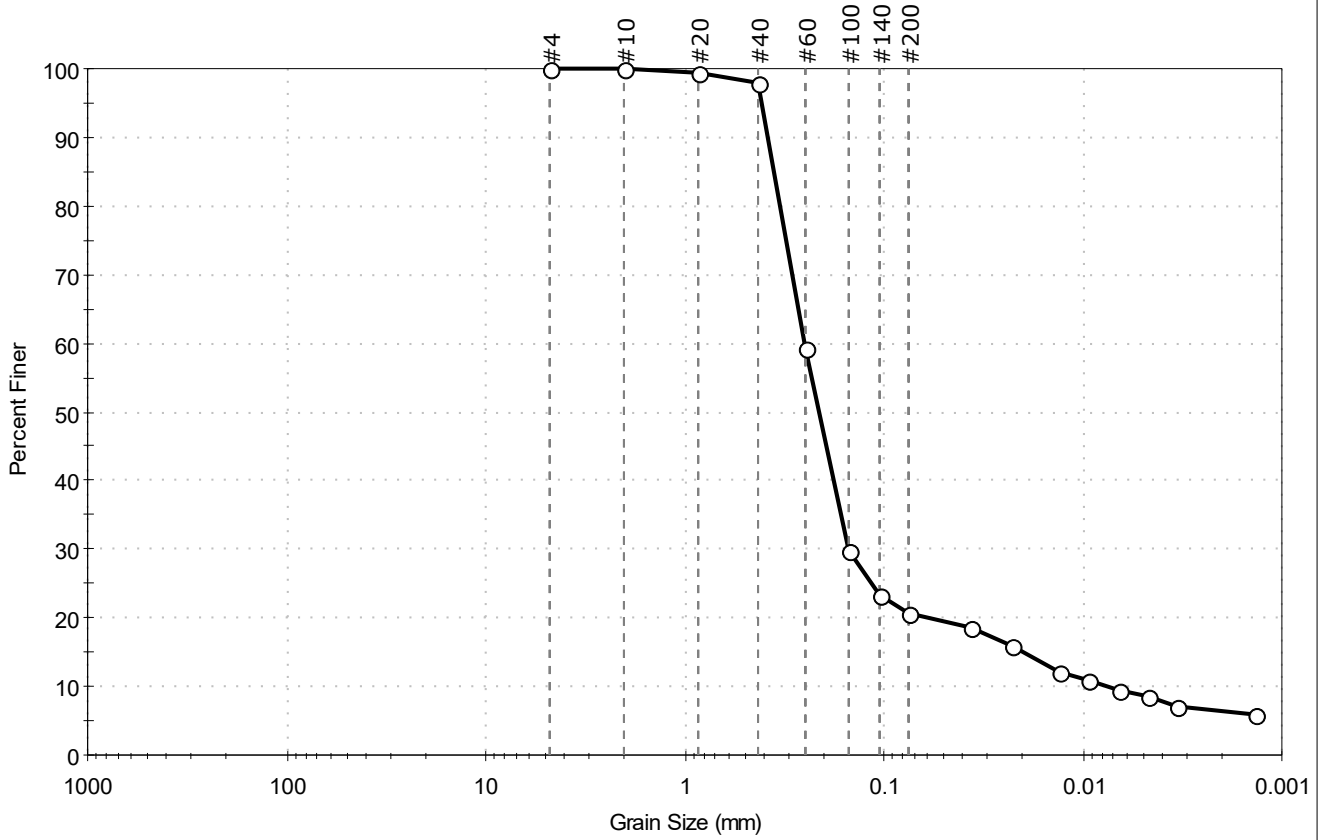
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-052SC-B-06-08-1910	Tested By: ckg
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3554 mm	D <sub>30</sub> = 0.1505 mm
D <sub>60</sub> = 0.2521 mm	D <sub>15</sub> = 0.0198 mm
D <sub>50</sub> = 0.2126 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 33.613	C <sub>c</sub> = 11.980

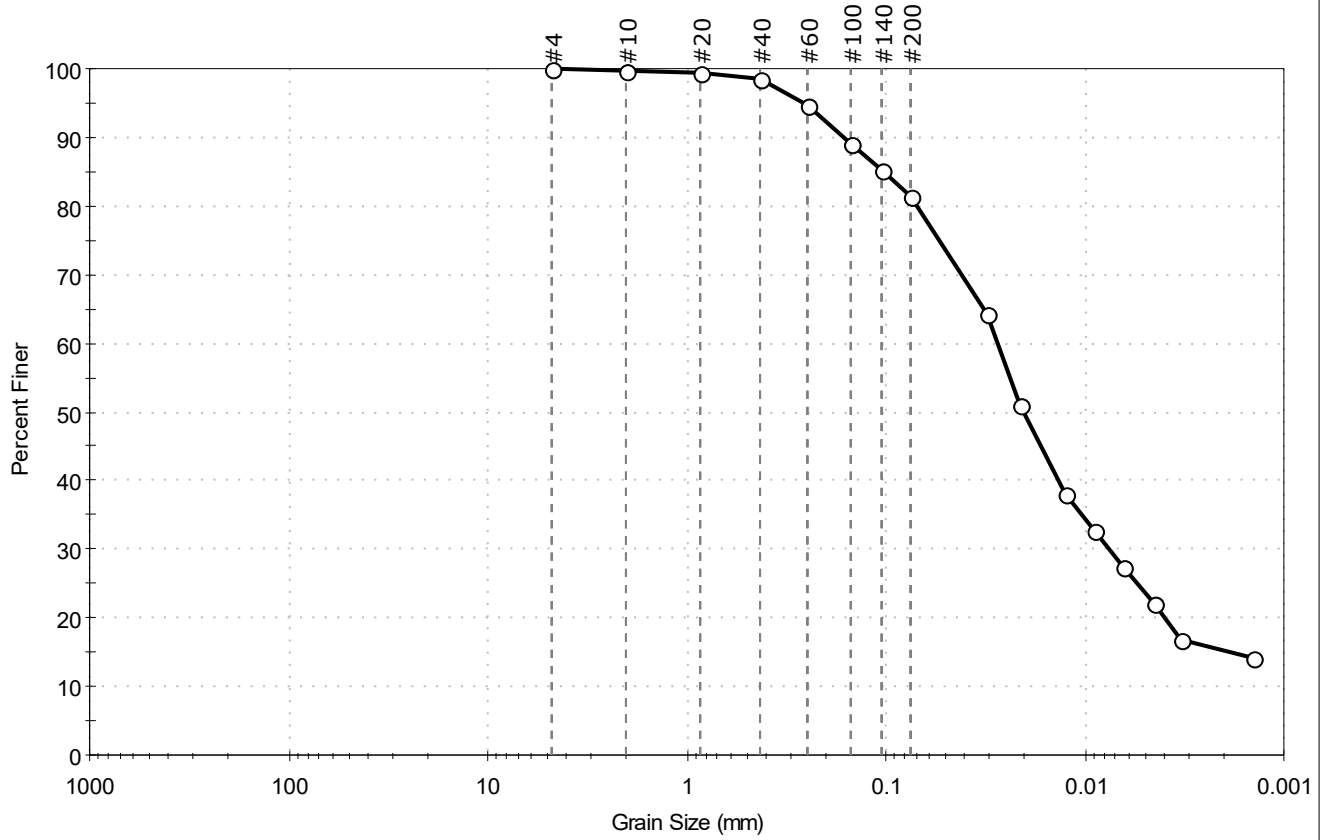
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1044 mm	D <sub>30</sub> = 0.0076 mm
D <sub>60</sub> = 0.0275 mm	D <sub>15</sub> = 0.0019 mm
D <sub>50</sub> = 0.0202 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

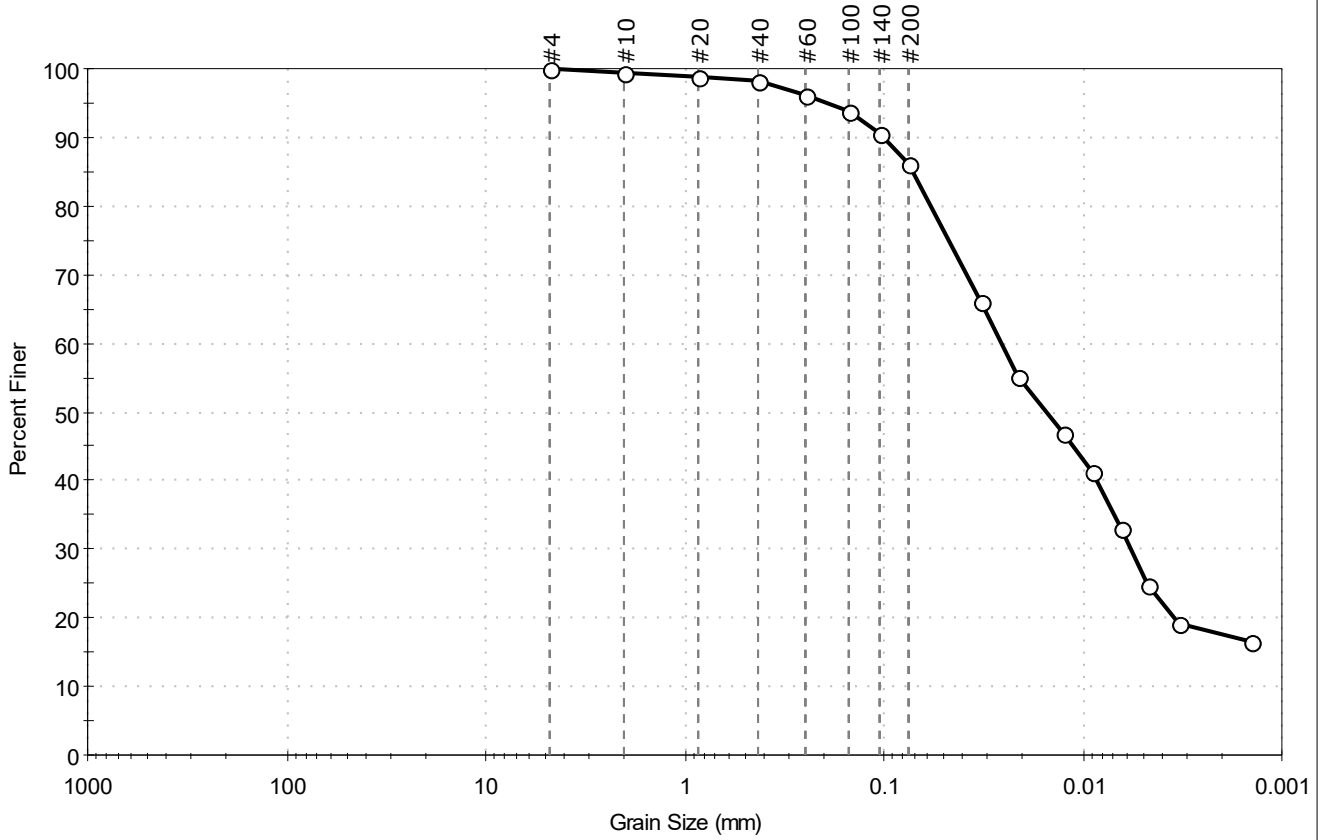
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

<b>Sample/Test Description</b>	
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0716 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0257 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0155 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (42))

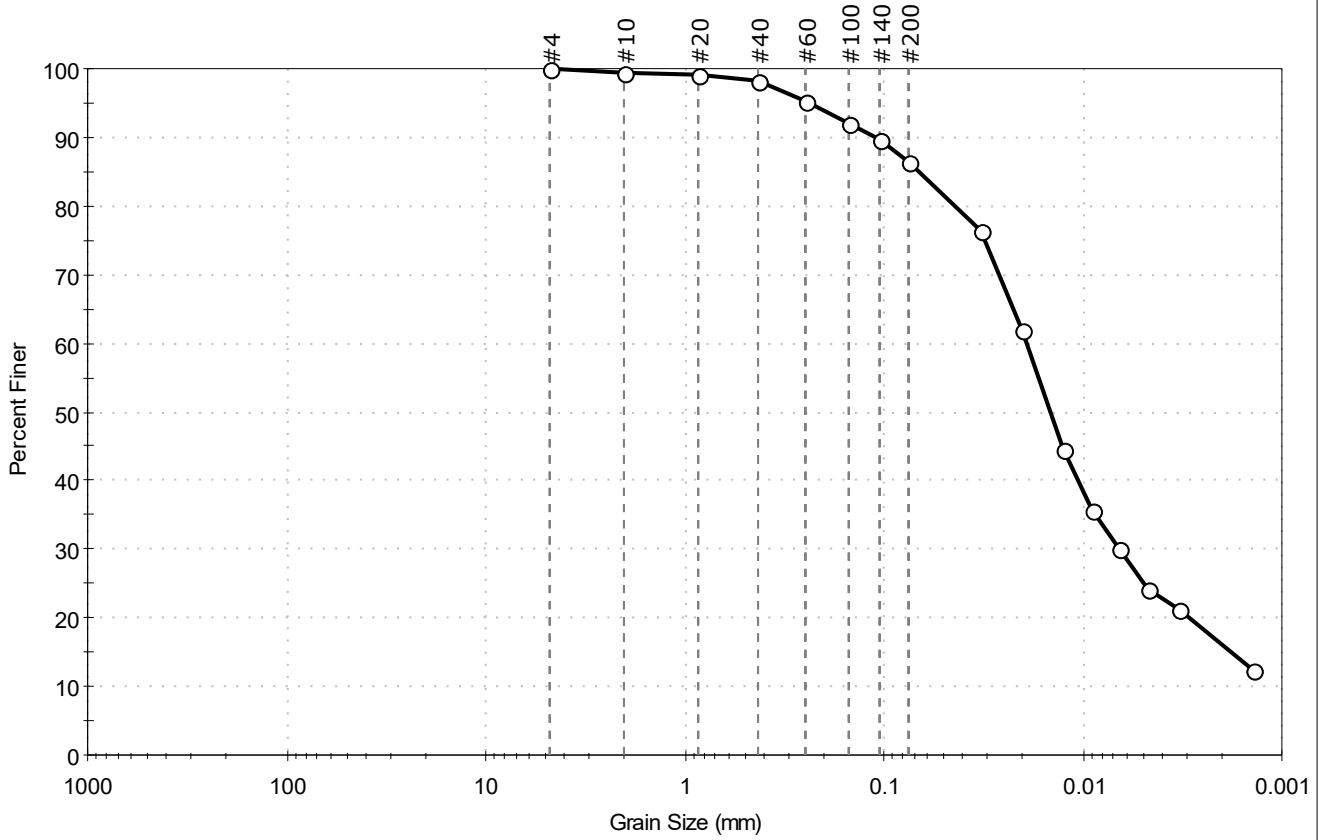
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0663 mm	D <sub>30</sub> = 0.0065 mm
D <sub>60</sub> = 0.0192 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0146 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

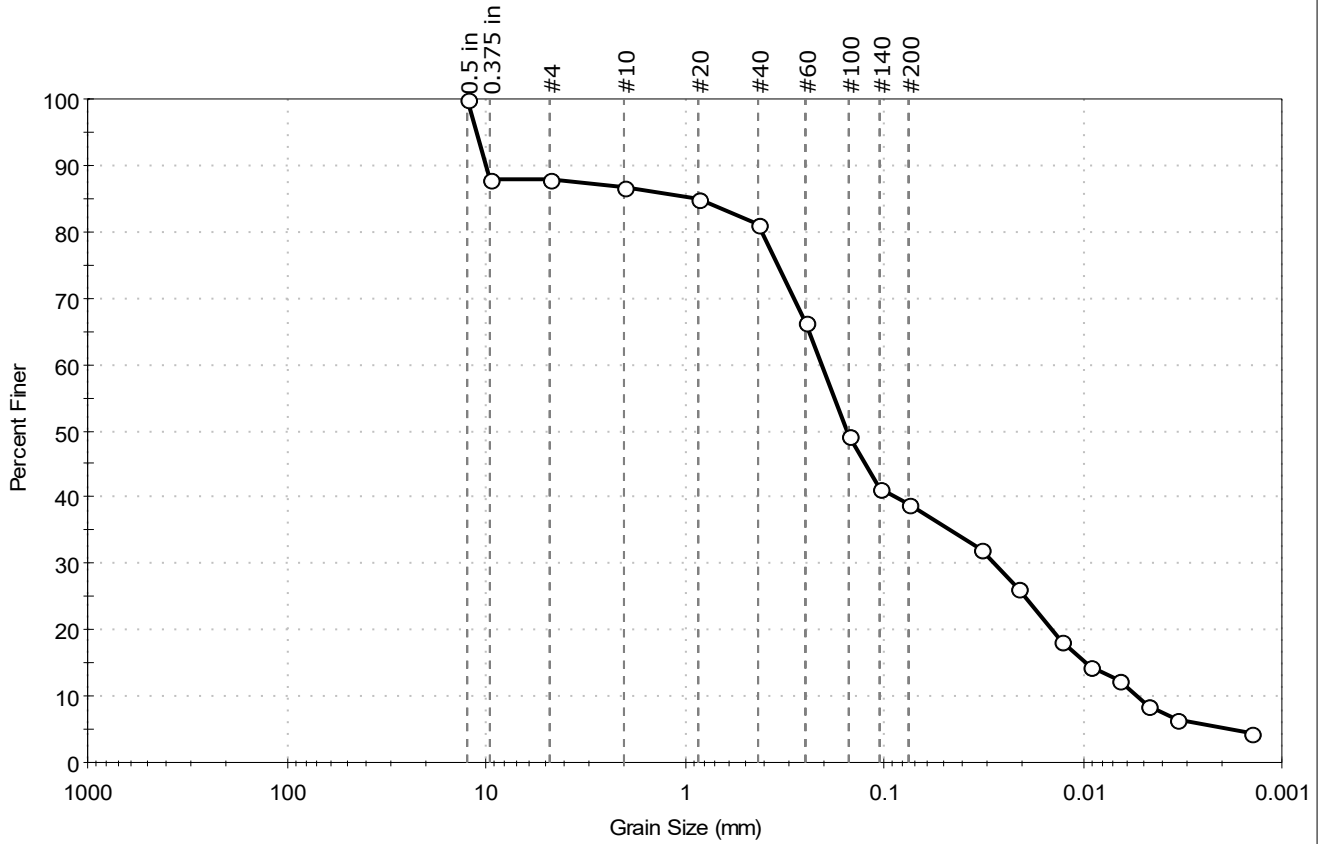
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (32))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-071SC-B-08-10-1910	Tested By: ckg
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 <sub>85</sub> = 0.8858 mm	D <sub>30</sub> = 0.0279 mm
D <sub>60</sub> = 0.2068 mm	D <sub>15</sub> = 0.0097 mm
D <sub>50</sub> = 0.1534 mm	D <sub>10</sub> = 0.0054 mm
C <sub>u</sub> = 38.296	C <sub>c</sub> = 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

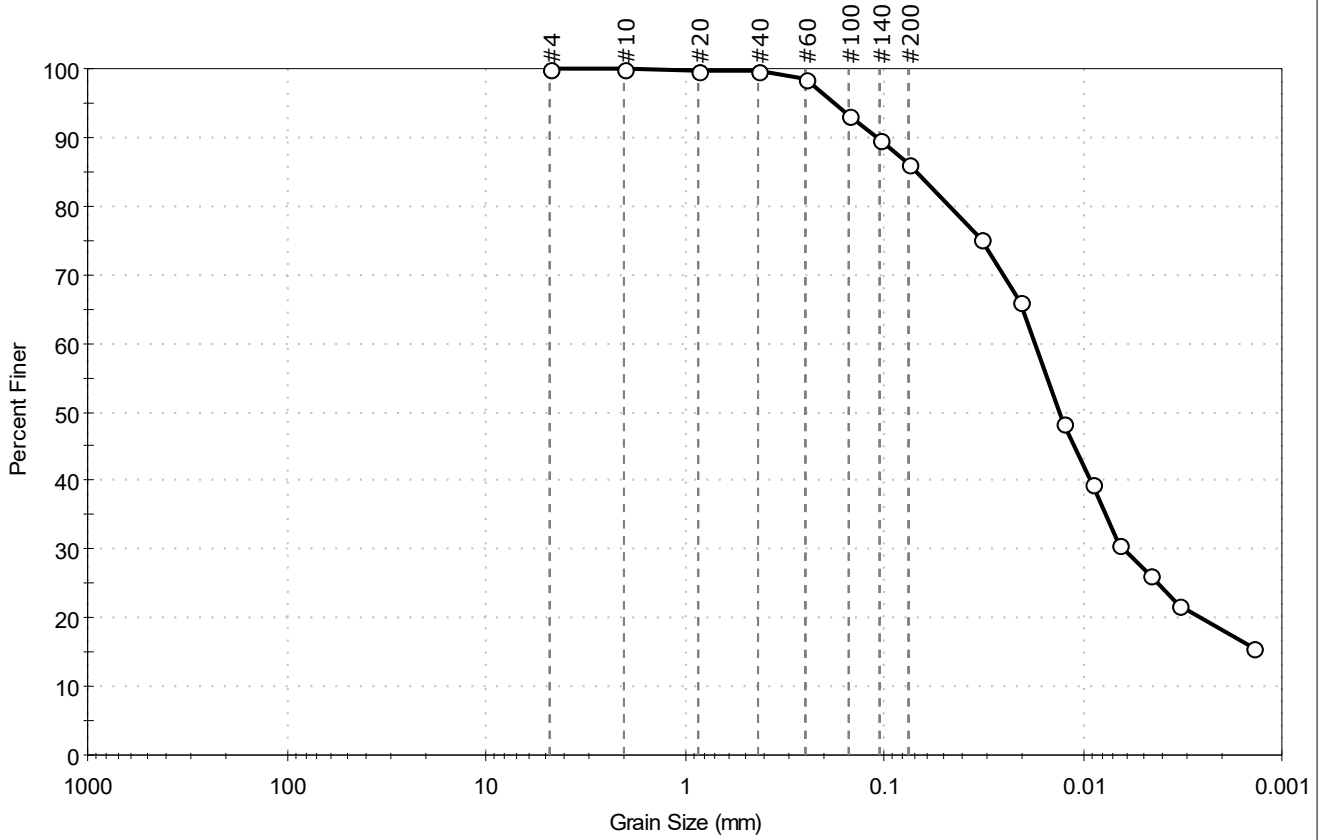
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0682 mm	D <sub>30</sub> = 0.0062 mm
D <sub>60</sub> = 0.0175 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0132 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

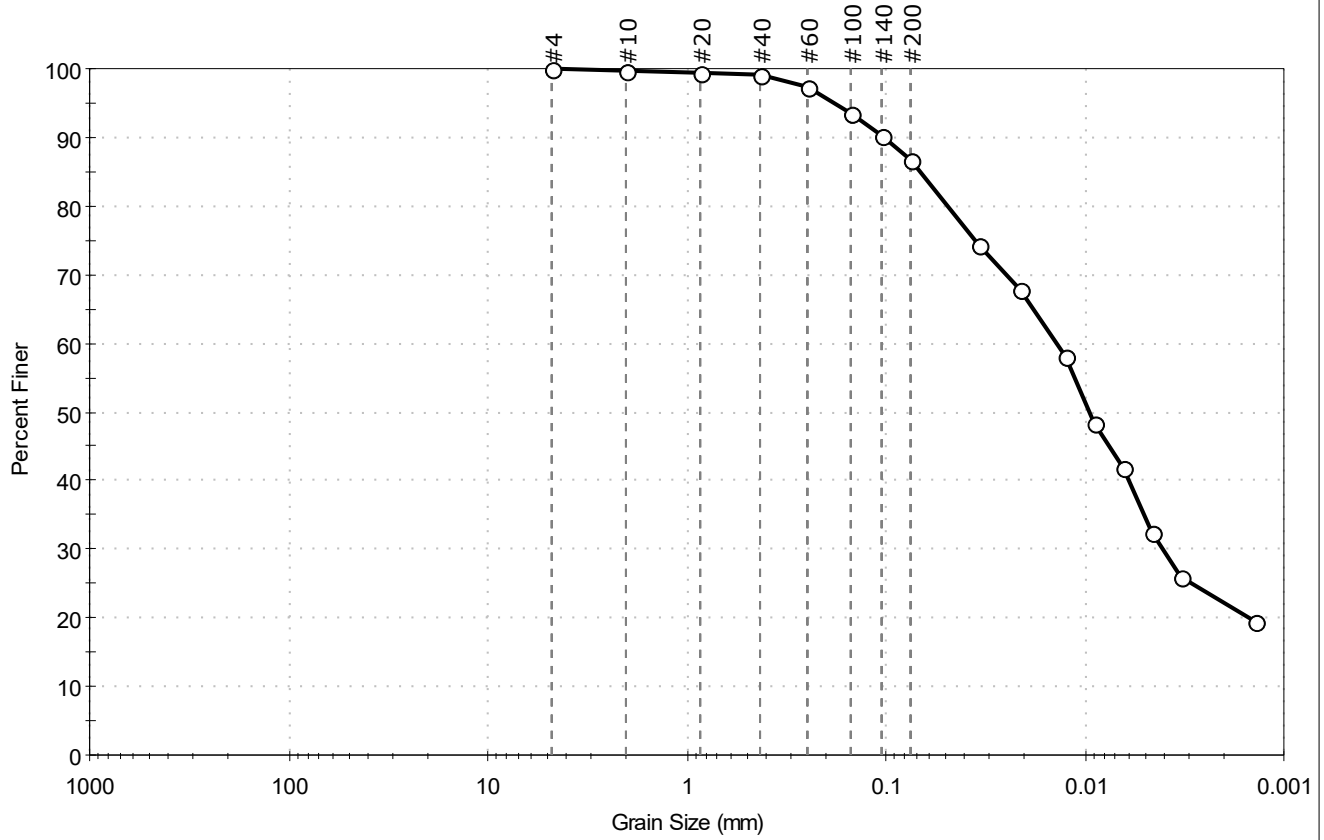
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-079SC-B-06-08-1910	Test Date: 10/24/19	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 <sub>85</sub> = 0.0677 mm	D <sub>30</sub> = 0.0041 mm
D <sub>60</sub> = 0.0138 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0095 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

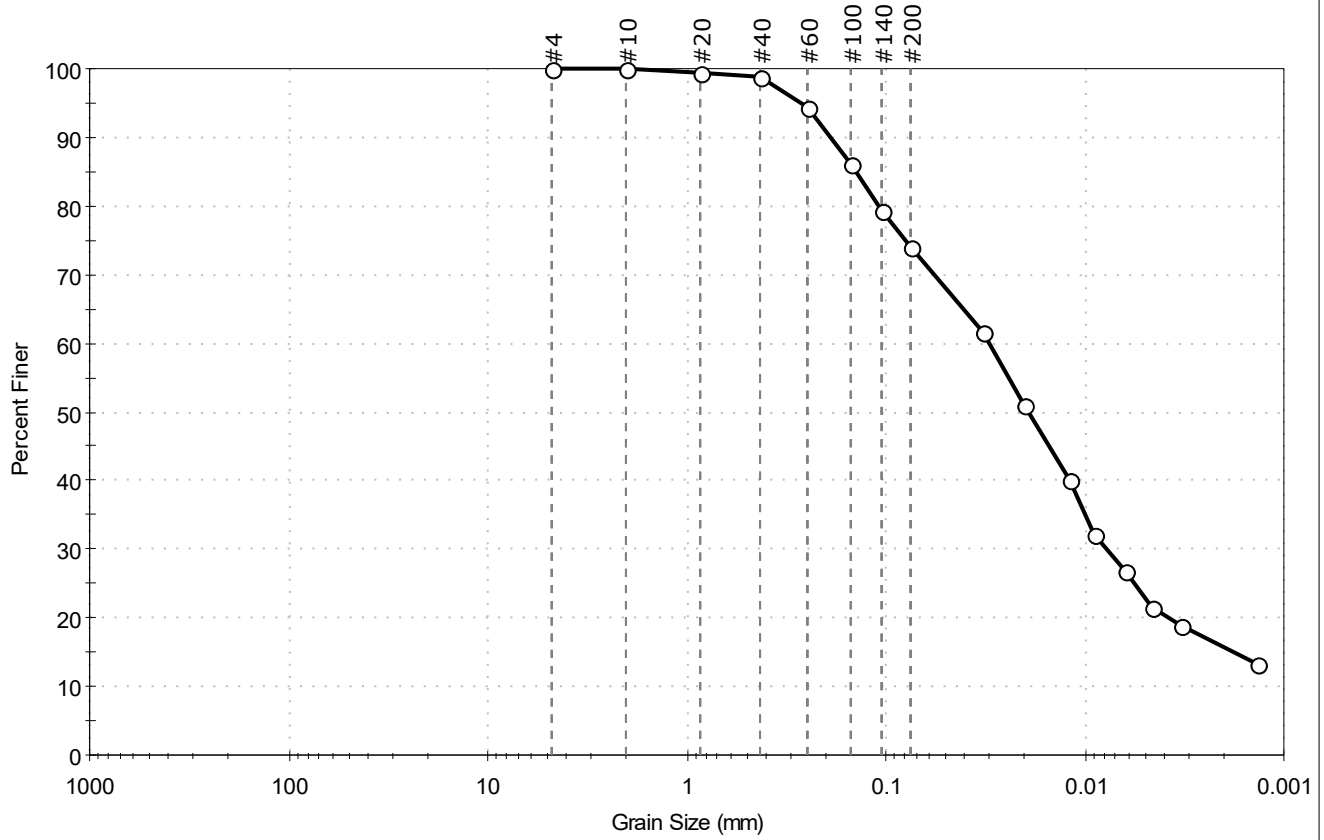
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (24))

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



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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1414 mm	D <sub>30</sub> = 0.0078 mm
D <sub>60</sub> = 0.0301 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0194 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

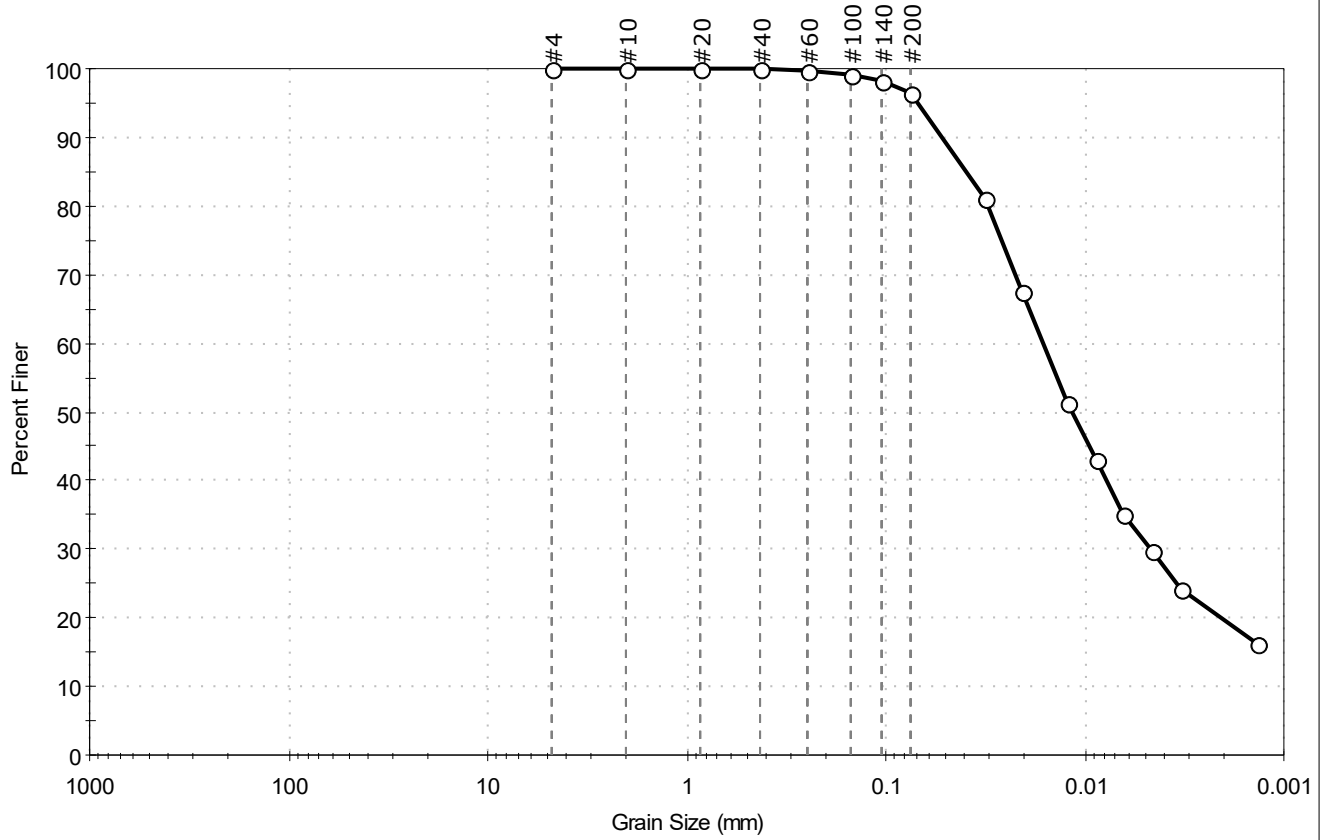
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (17))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-090SC-B-06-08-1910	Tested By: ckg
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0400 mm	D <sub>30</sub> = 0.0047 mm
D <sub>60</sub> = 0.0163 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0117 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (51))

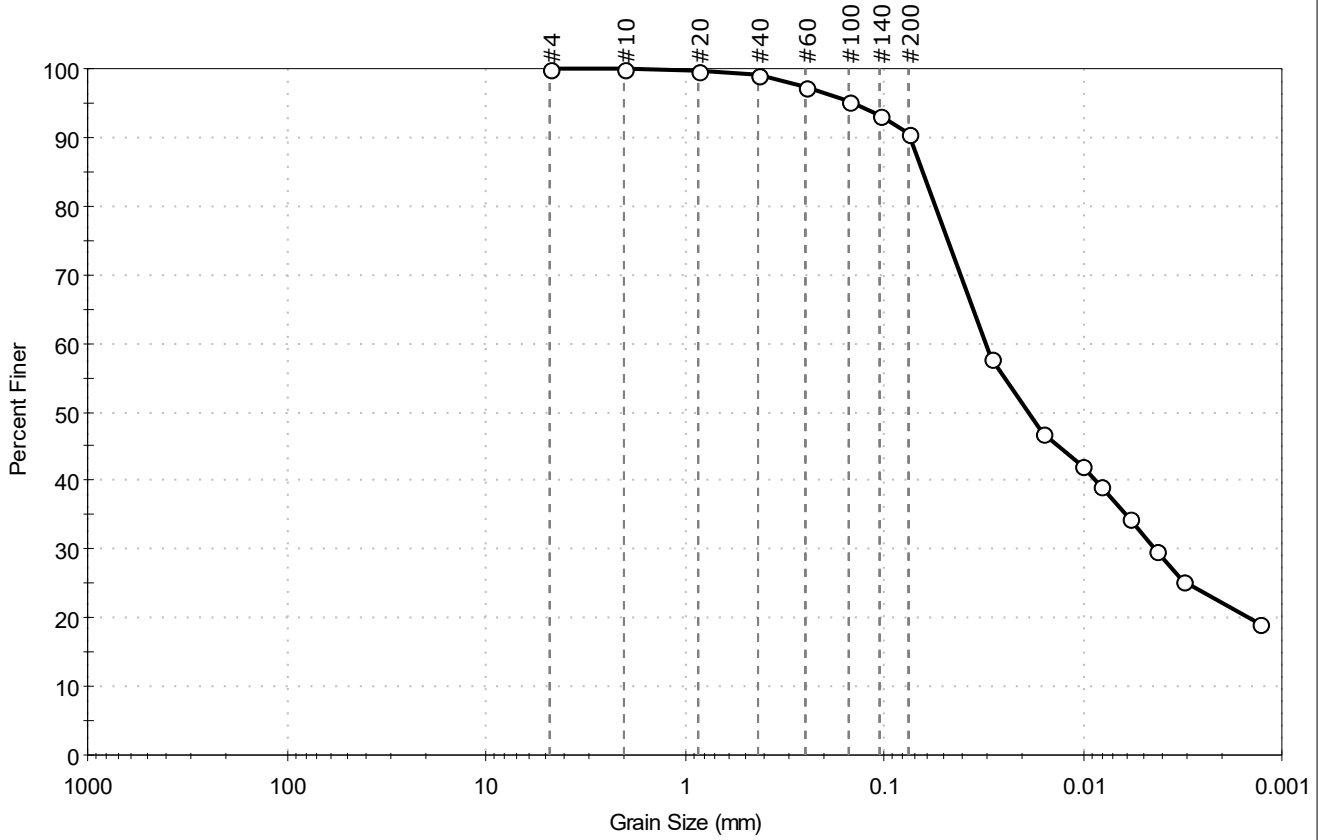
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: ---  
 Boring ID: ---  
 Sample ID: PDI-101SG-00-01-190924  
 Depth: ---  
 Test Comment: ---  
 Visual Description: Moist, very dark gray silt  
 Sample Comment: ---

Project No: GTX-310685  
 Sample Type: bag  
 Test Date: 10/02/19  
 Test Id: 525300  
 Tested By: ckg  
 Checked By: jsc

## 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<sub>85</sub> = 0.0637 mm      D<sub>30</sub> = 0.0043 mm  
 D<sub>60</sub> = 0.0308 mm      D<sub>15</sub> = N/A  
 D<sub>50</sub> = 0.0189 mm      D<sub>10</sub> = N/A  
 C<sub>u</sub> = N/A                  C<sub>c</sub> = N/A

**Classification**

ASTM      N/A

AASHTO      Silty Soils (A-4 (0))

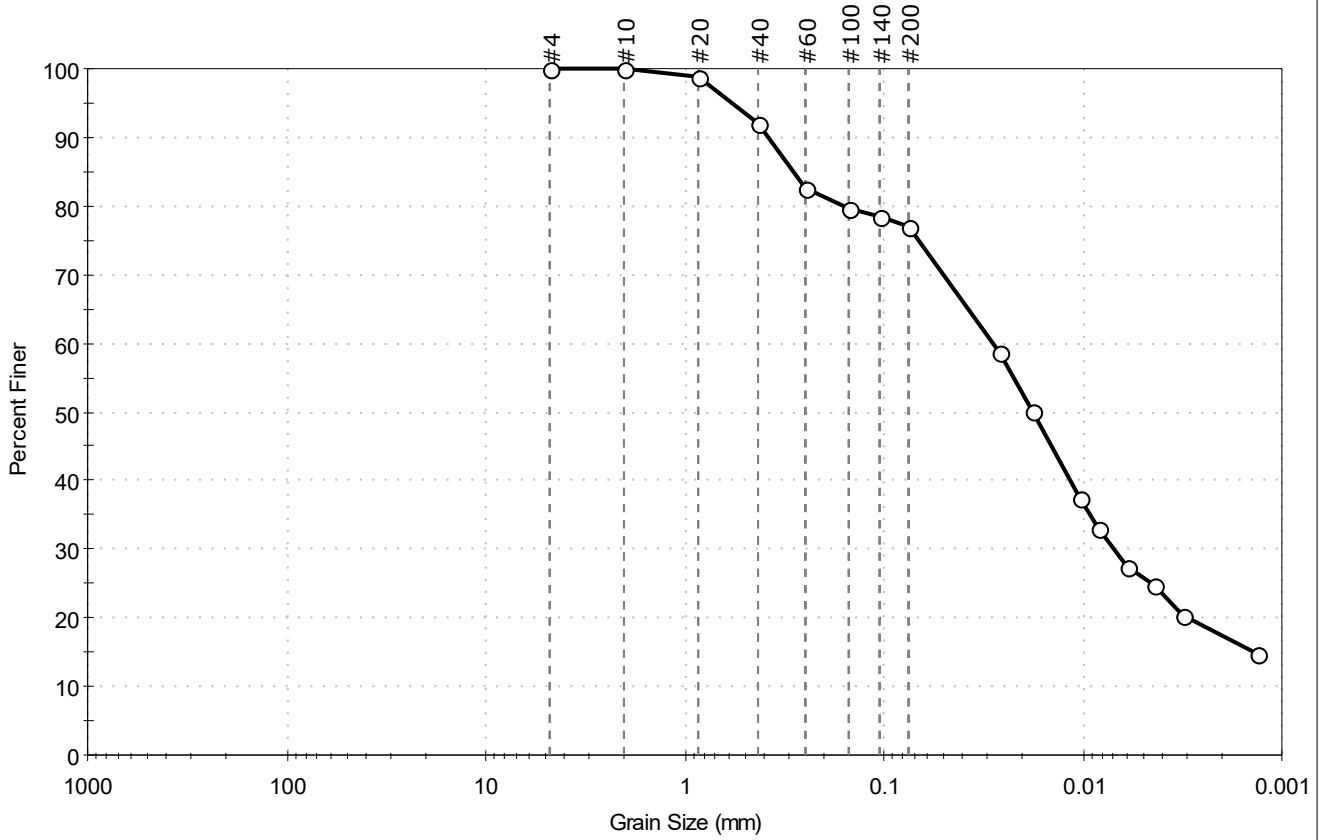
**Sample/Test Description**

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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2852 mm	D <sub>30</sub> = 0.0069 mm
D <sub>60</sub> = 0.0283 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0177 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

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

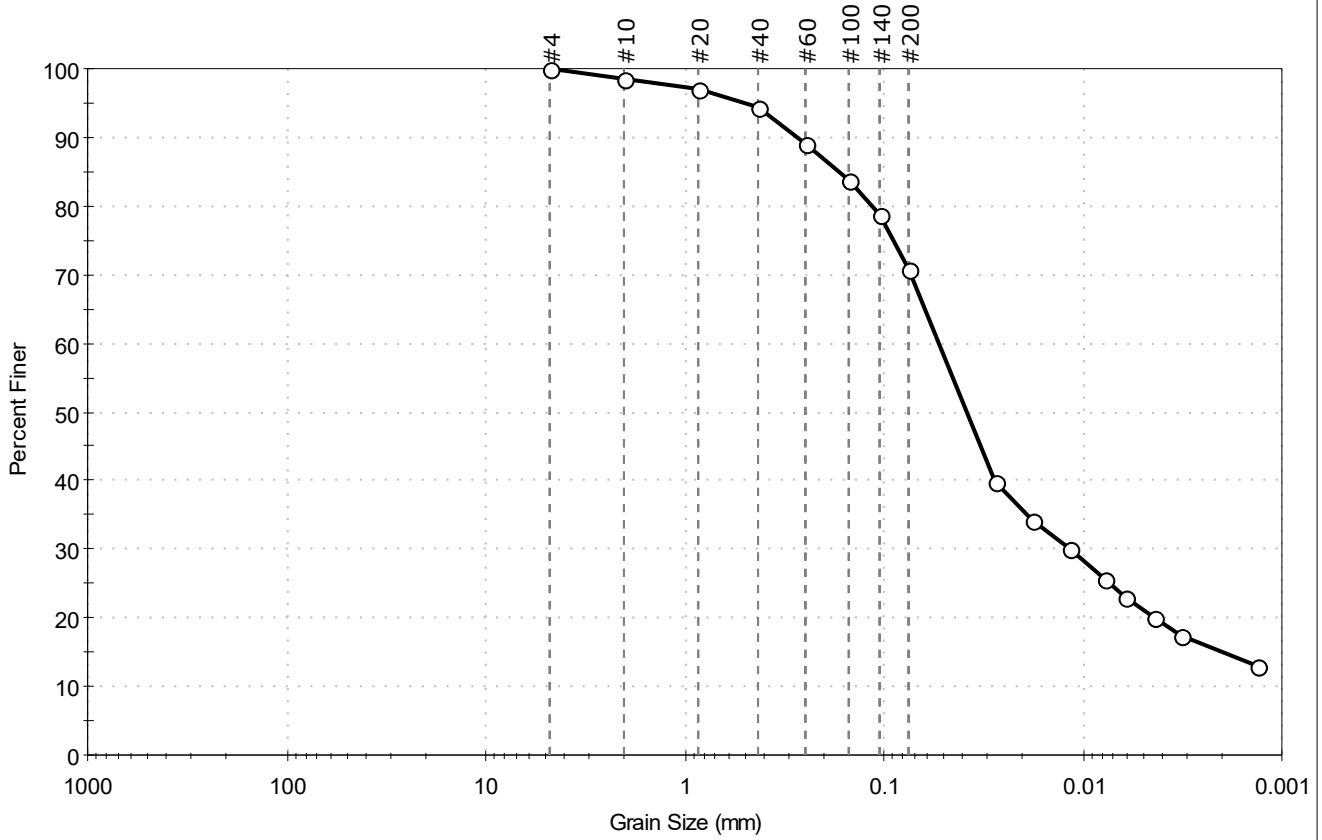
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1678 mm	D <sub>30</sub> = 0.0116 mm
D <sub>60</sub> = 0.0531 mm	D <sub>15</sub> = 0.0020 mm
D <sub>50</sub> = 0.0384 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

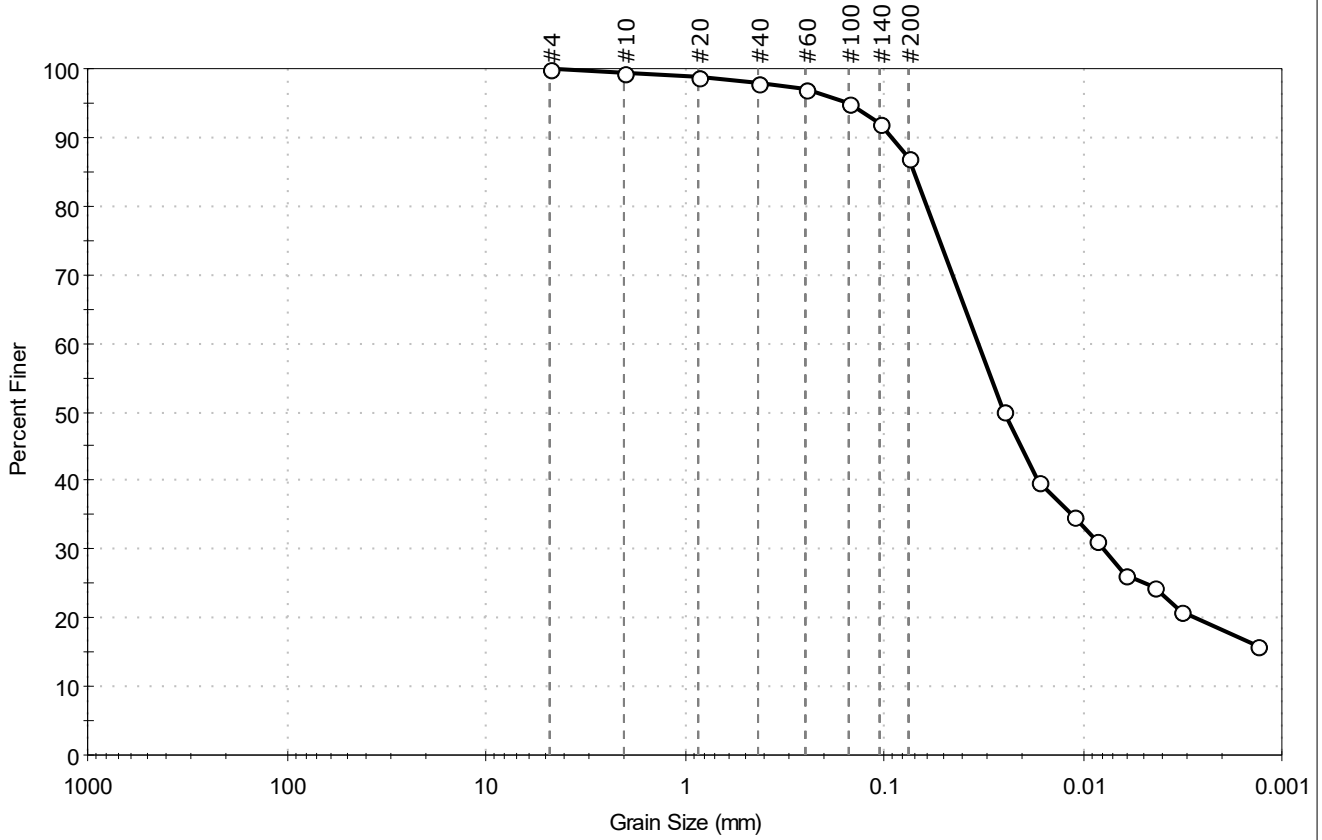
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-104SG-00-01-190924	Tested By: ckg
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0709 mm	D <sub>30</sub> = 0.0079 mm
D <sub>60</sub> = 0.0339 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0252 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

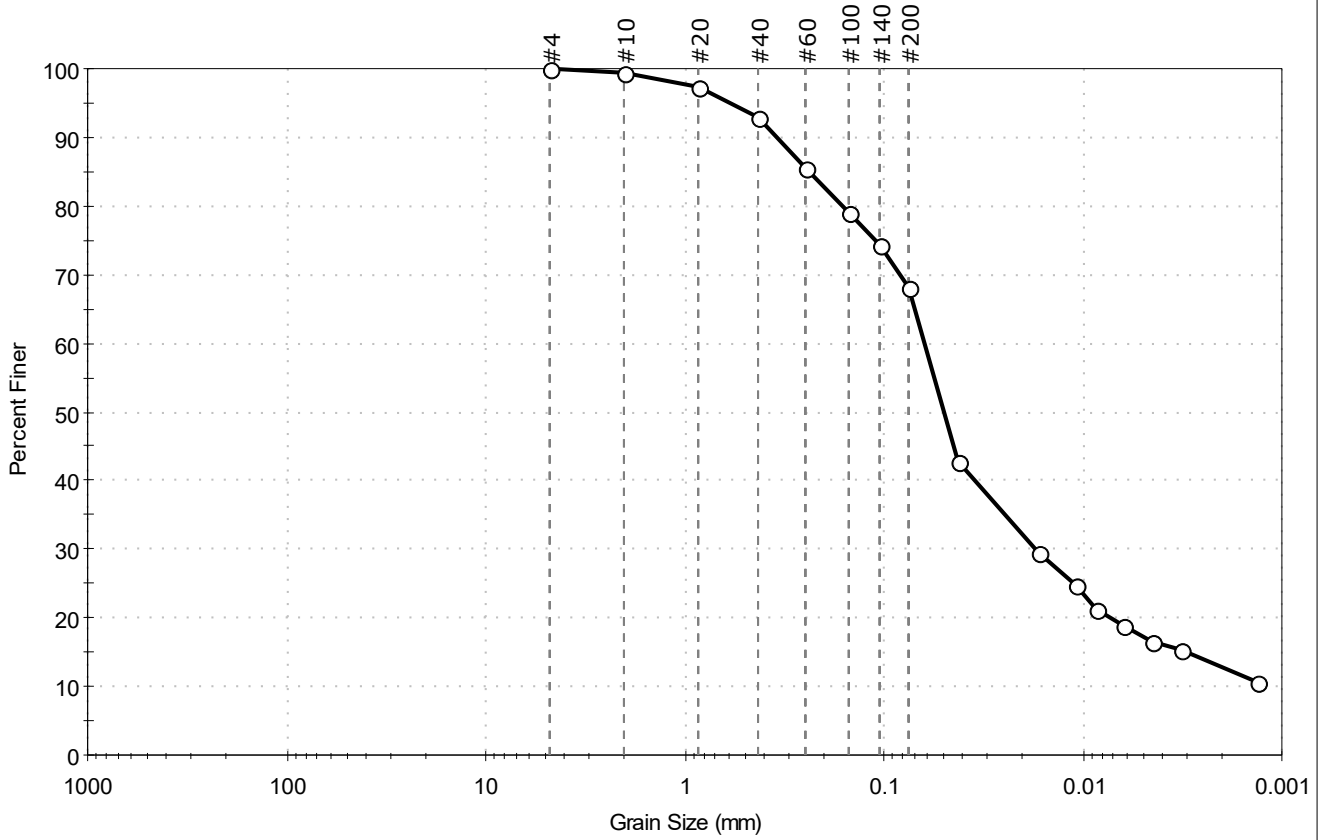
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2406 mm	D <sub>30</sub> = 0.0174 mm
D <sub>60</sub> = 0.0625 mm	D <sub>15</sub> = 0.0030 mm
D <sub>50</sub> = 0.0501 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

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

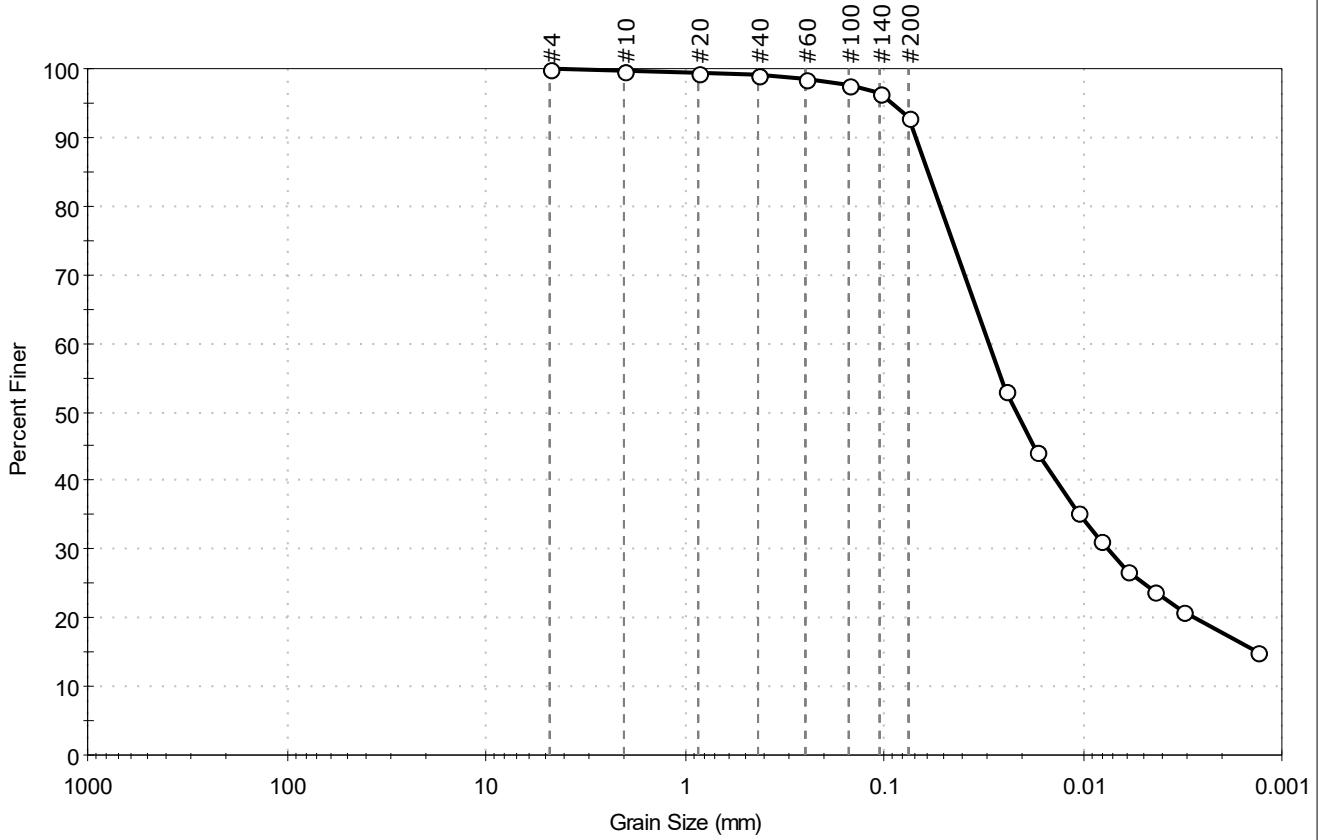
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: ---  
 Boring ID: ---  
 Sample ID: PDI-106SG-00-01-190924  
 Depth: ---  
 Test Comment: ---  
 Visual Description: Moist, very dark gray silt  
 Sample Comment: ---

Project No: GTX-310685  
 Sample Type: bag  
 Test Date: 10/02/19  
 Test Id: 525305  
 Tested By: ckg  
 Checked By: jsc

## 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<sub>85</sub> = 0.0598 mm      D<sub>30</sub> = 0.0075 mm  
 D<sub>60</sub> = 0.0295 mm      D<sub>15</sub> = N/A  
 D<sub>50</sub> = 0.0216 mm      D<sub>10</sub> = N/A  
 C<sub>u</sub> = N/A                  C<sub>c</sub> = N/A

**Classification**

ASTM      N/A

AASHTO      Silty Soils (A-4 (0))

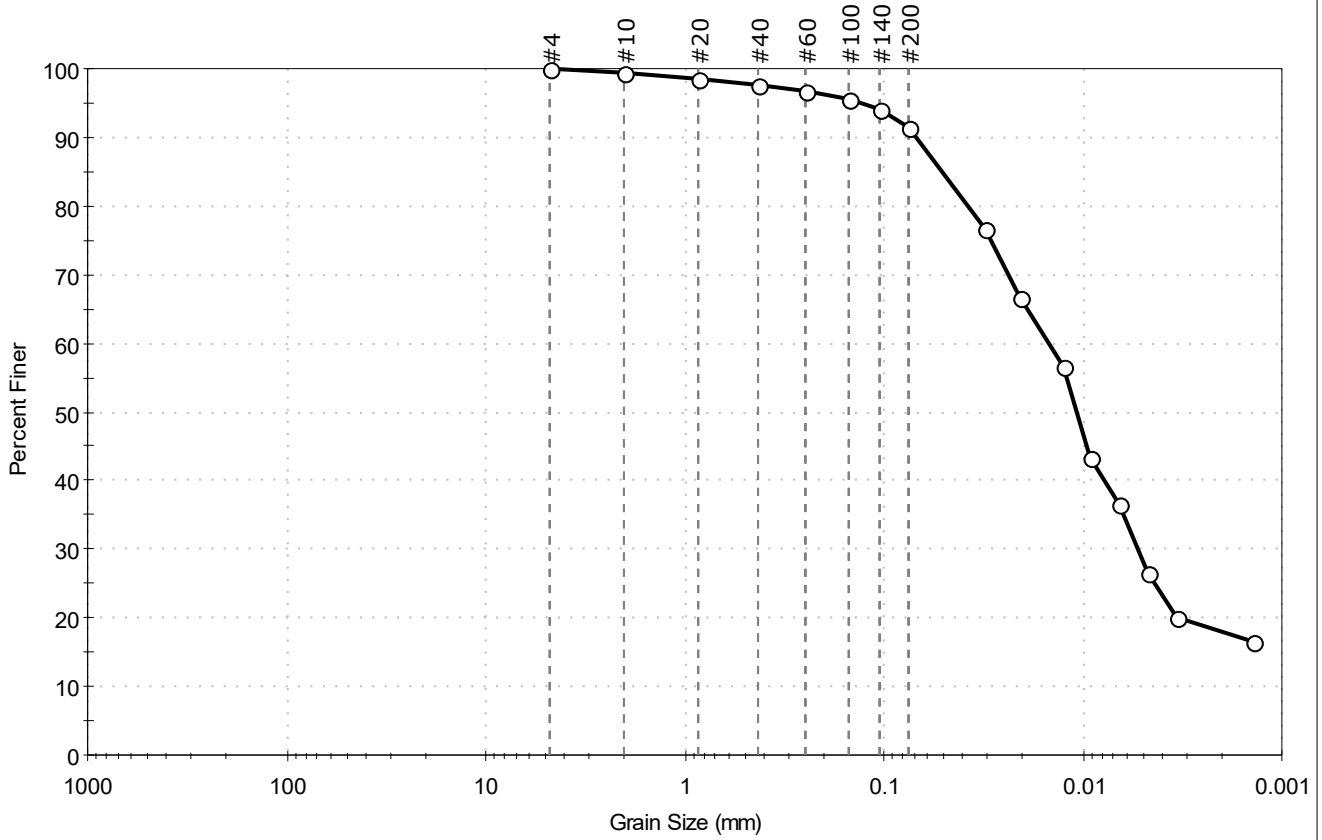
**Sample/Test Description**

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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0509 mm	D <sub>30</sub> = 0.0052 mm
D <sub>60</sub> = 0.0149 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0107 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

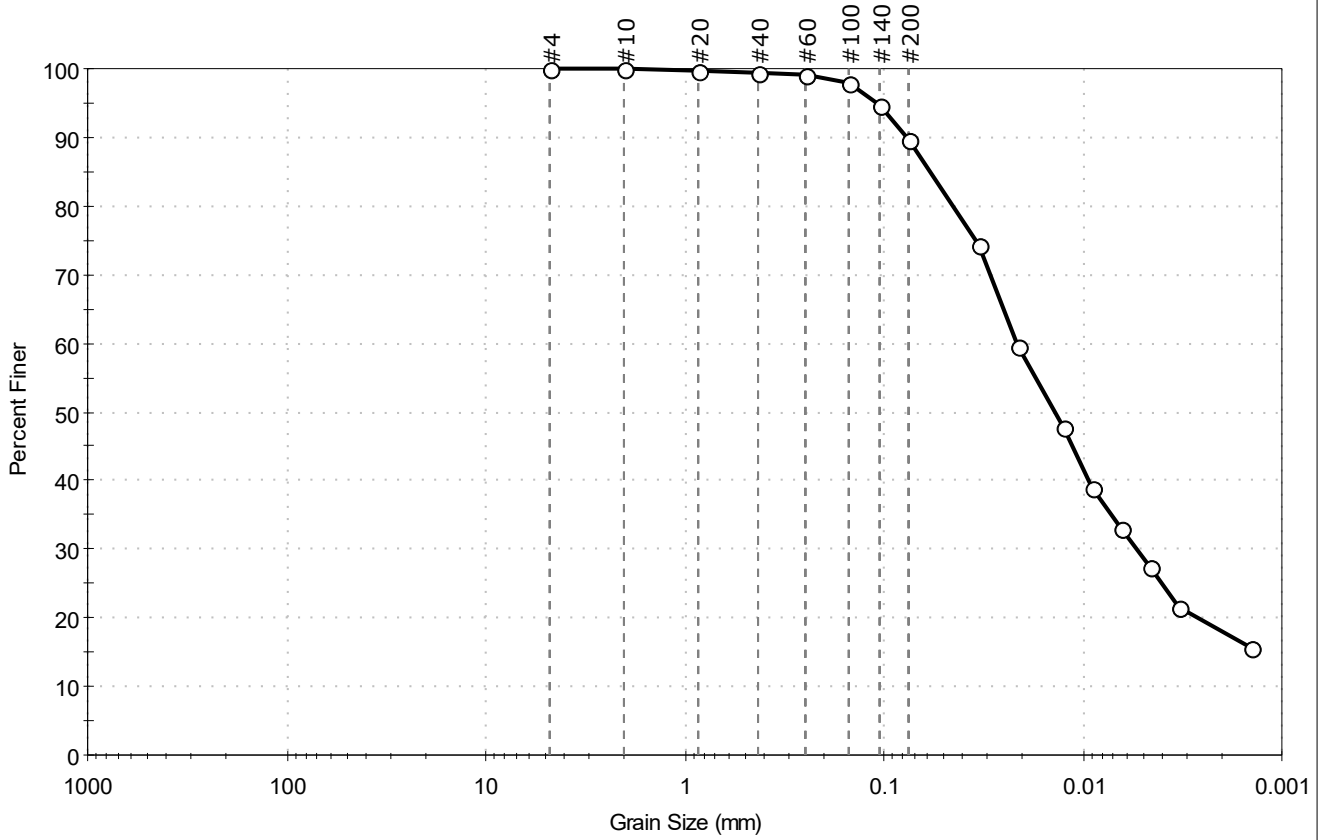
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (53))

<b>Sample/Test Description</b>
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0583 mm	D <sub>30</sub> = 0.0054 mm
D <sub>60</sub> = 0.0216 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0138 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

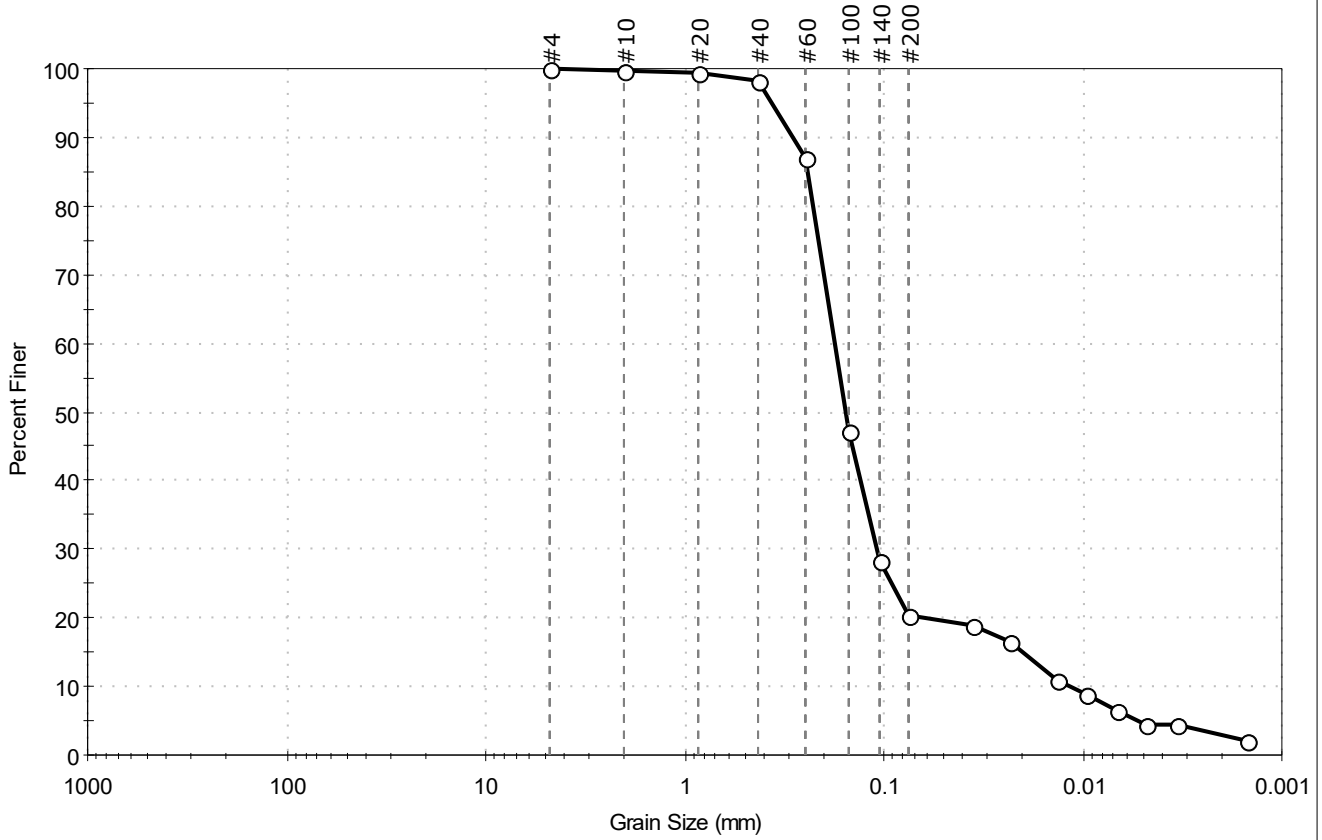
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (30))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-107SPT-17-18-19092	Test Date: 11/06/19	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2437 mm	D <sub>30</sub> = 0.1094 mm
D <sub>60</sub> = 0.1767 mm	D <sub>15</sub> = 0.0199 mm
D <sub>50</sub> = 0.1554 mm	D <sub>10</sub> = 0.0114 mm
C <sub>u</sub> = 15.500	C <sub>c</sub> = 5.941

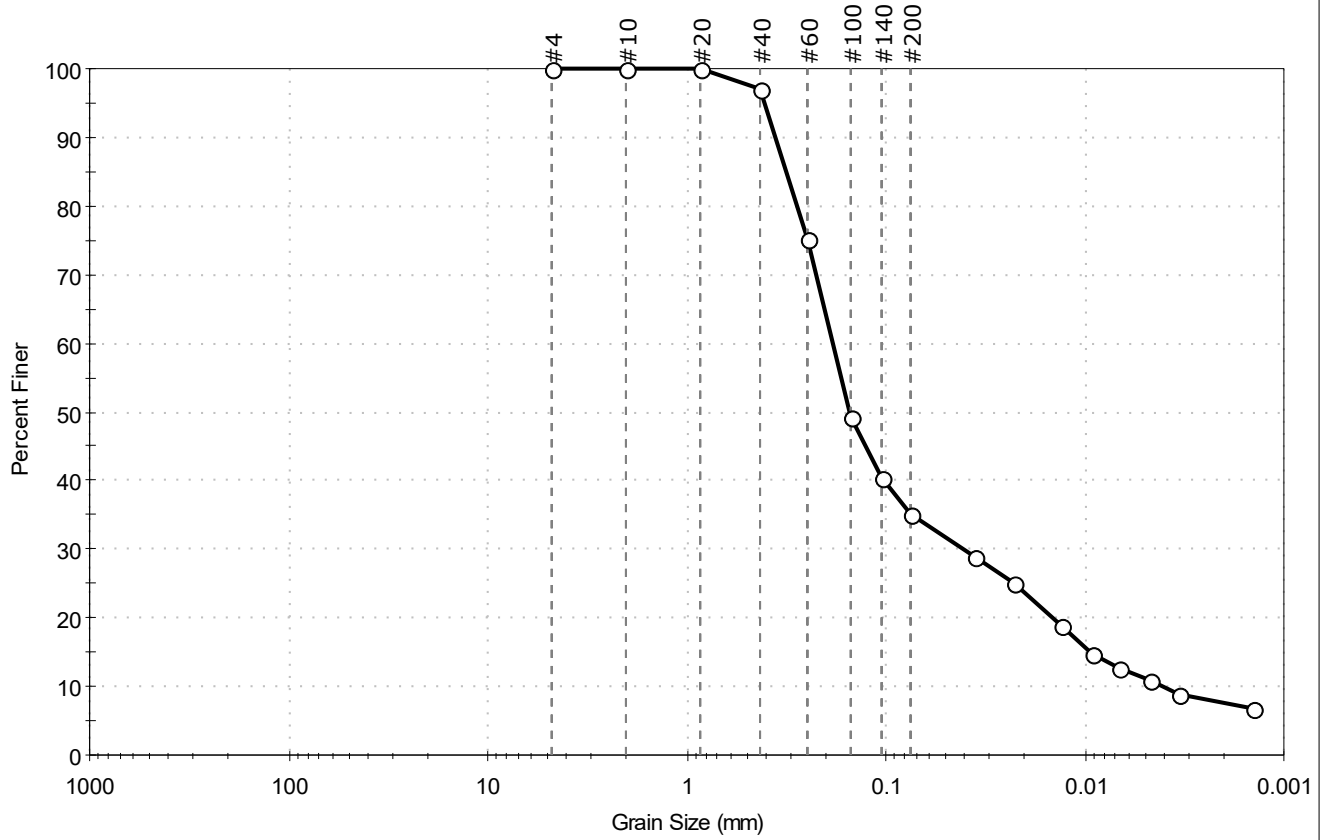
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-107SPT-62-64-19092	Tested By: ckg
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3165 mm	D <sub>30</sub> = 0.0401 mm
D <sub>60</sub> = 0.1854 mm	D <sub>15</sub> = 0.0094 mm
D <sub>50</sub> = 0.1524 mm	D <sub>10</sub> = 0.0042 mm
C <sub>u</sub> = 44.143	C <sub>c</sub> = 2.065

<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (0))

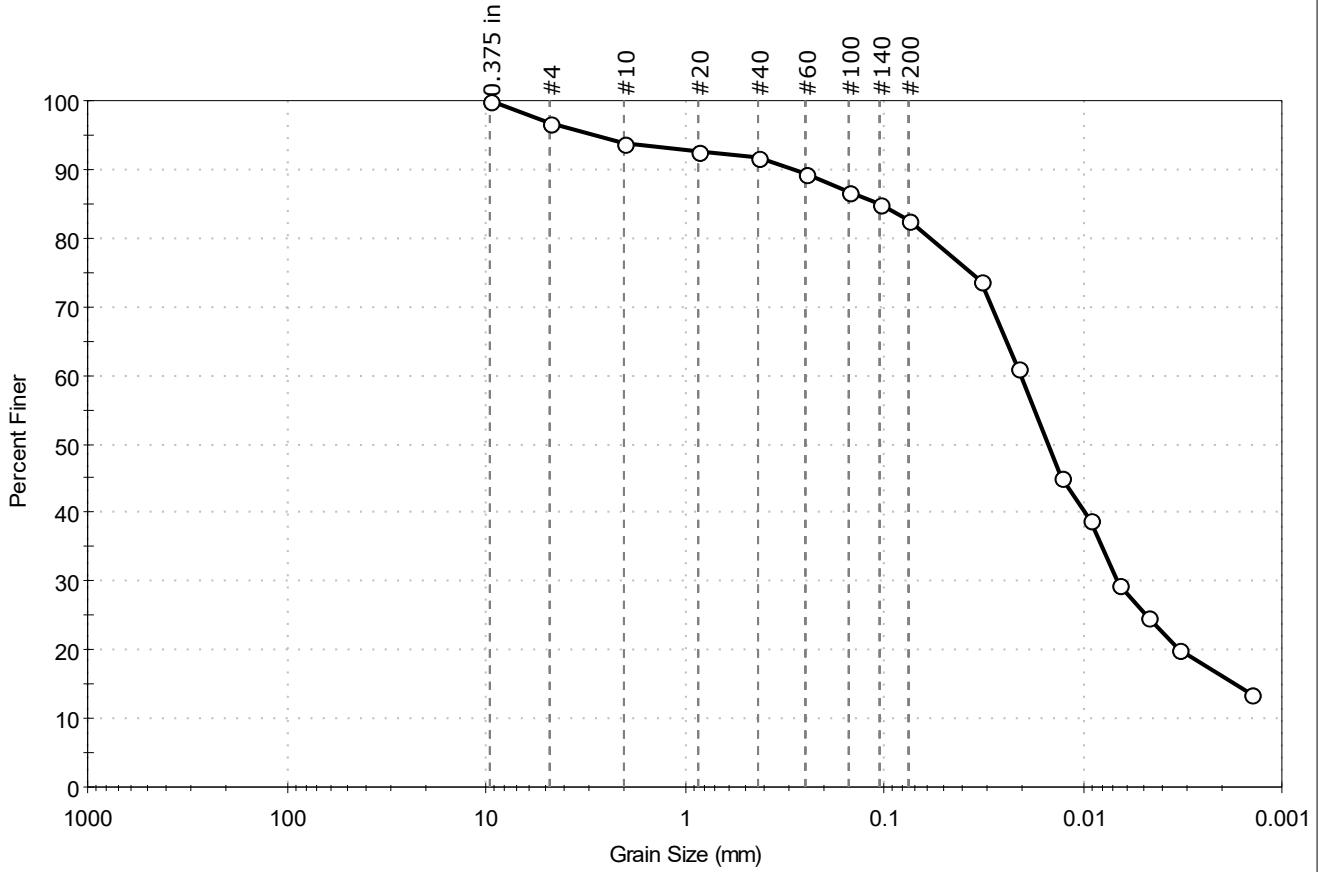
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-108SPT-00-6.4-1910	Tested By: ckg
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1081 mm	D <sub>30</sub> = 0.0067 mm
D <sub>60</sub> = 0.0206 mm	D <sub>15</sub> = 0.0017 mm
D <sub>50</sub> = 0.0149 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

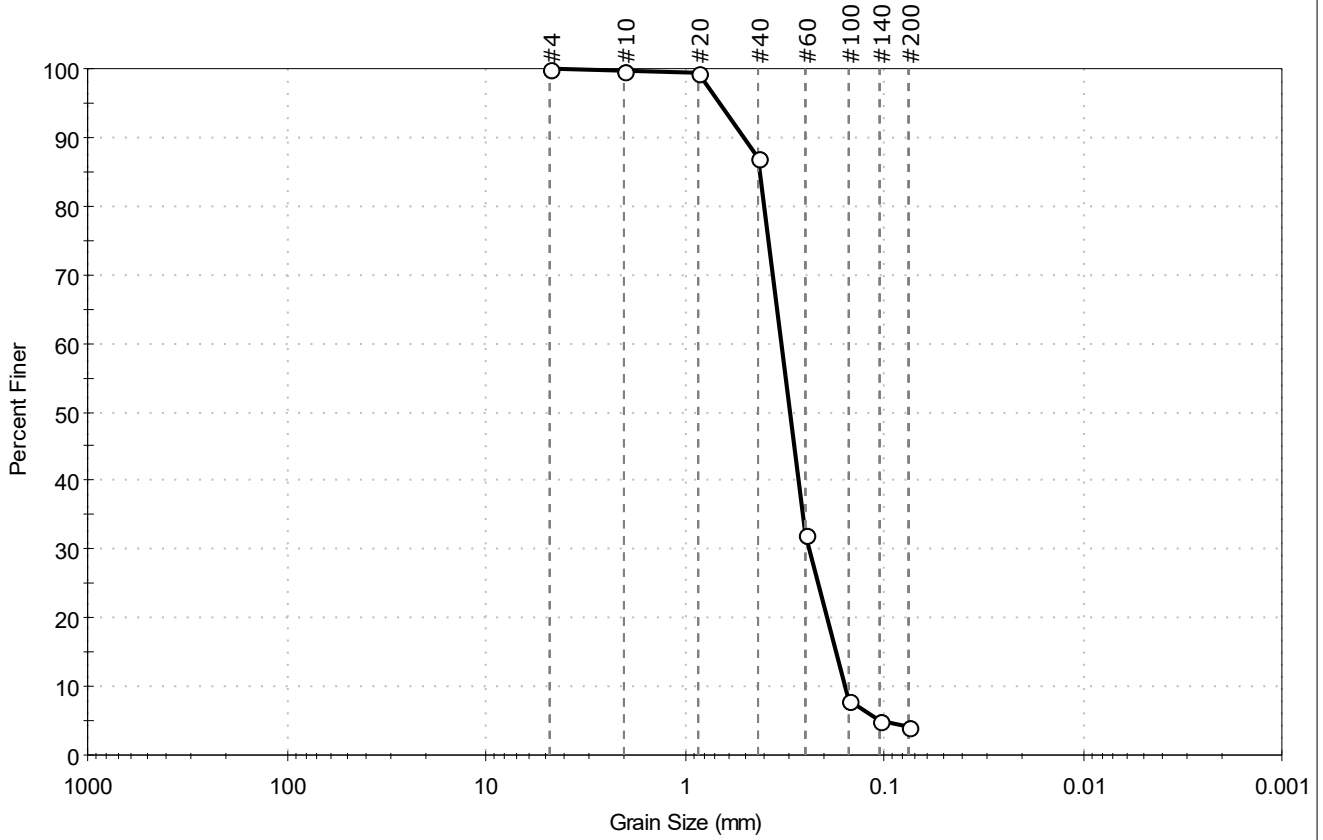
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (41))

<b>Sample/Test Description</b>	
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	



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-108SPT-14-33.5-191	Test Date: 11/01/19	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.4167 mm	D <sub>30</sub> = 0.2394 mm
D <sub>60</sub> = 0.3274 mm	D <sub>15</sub> = 0.1743 mm
D <sub>50</sub> = 0.2973 mm	D <sub>10</sub> = 0.1568 mm
C <sub>u</sub> = 2.088	C <sub>c</sub> = 1.116

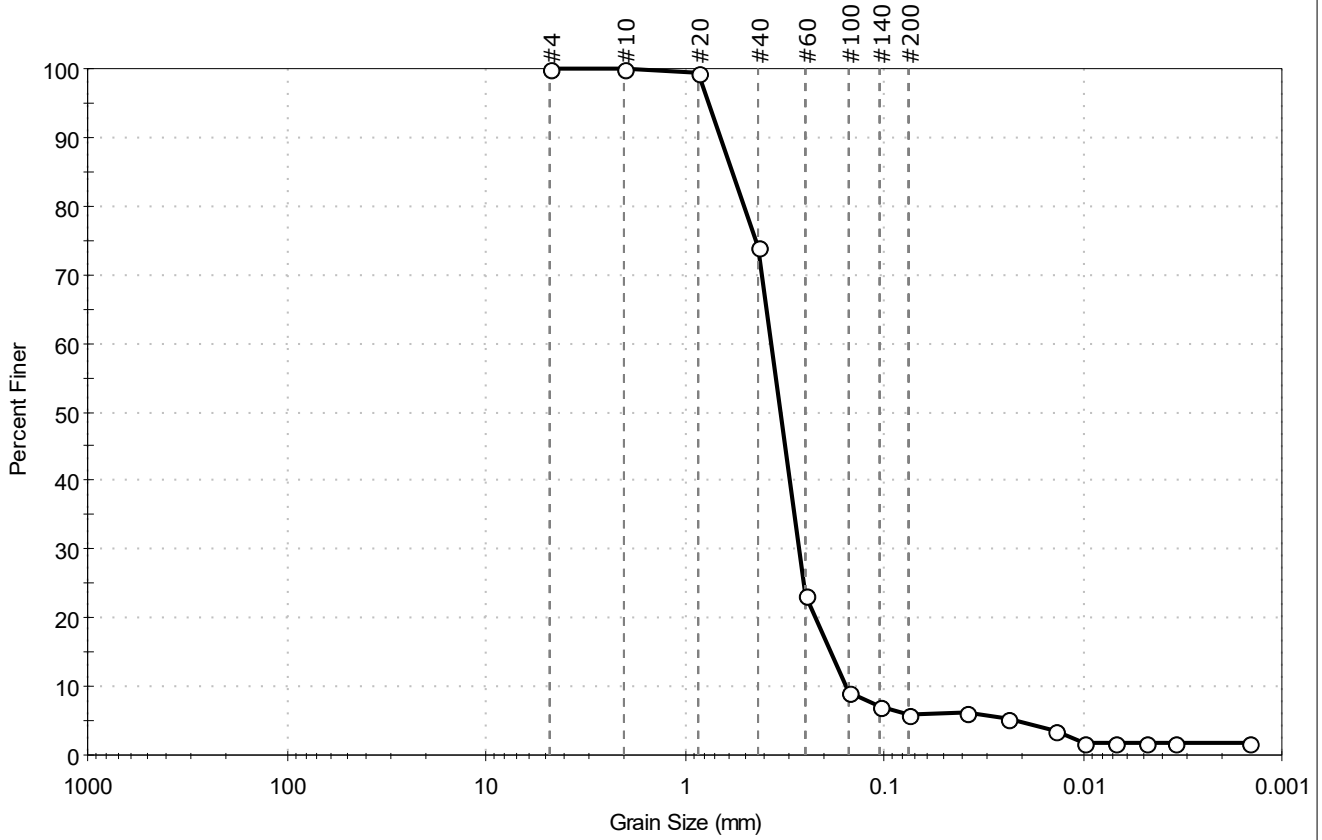
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-108SPT-33.5-66.5-19	Test Date: 11/01/19	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5740 mm	D <sub>30</sub> = 0.2682 mm
D <sub>60</sub> = 0.3670 mm	D <sub>15</sub> = 0.1849 mm
D <sub>50</sub> = 0.3306 mm	D <sub>10</sub> = 0.1541 mm
C <sub>u</sub> = 2.382	C <sub>c</sub> = 1.272

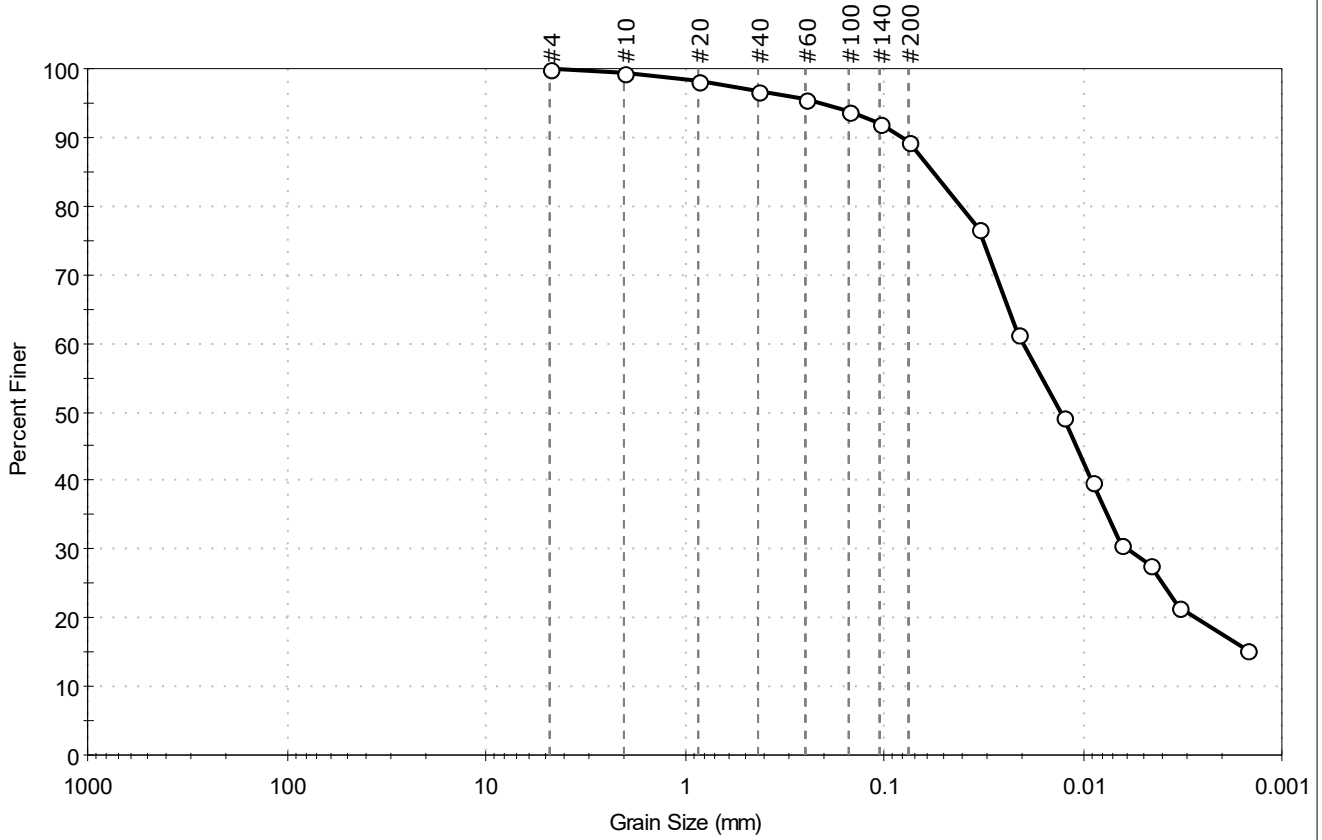
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-109SPT-00-6.5-1910	Test Date: 10/29/19	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 <sub>85</sub> = 0.0563 mm	D <sub>30</sub> = 0.0060 mm
D <sub>60</sub> = 0.0199 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0130 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

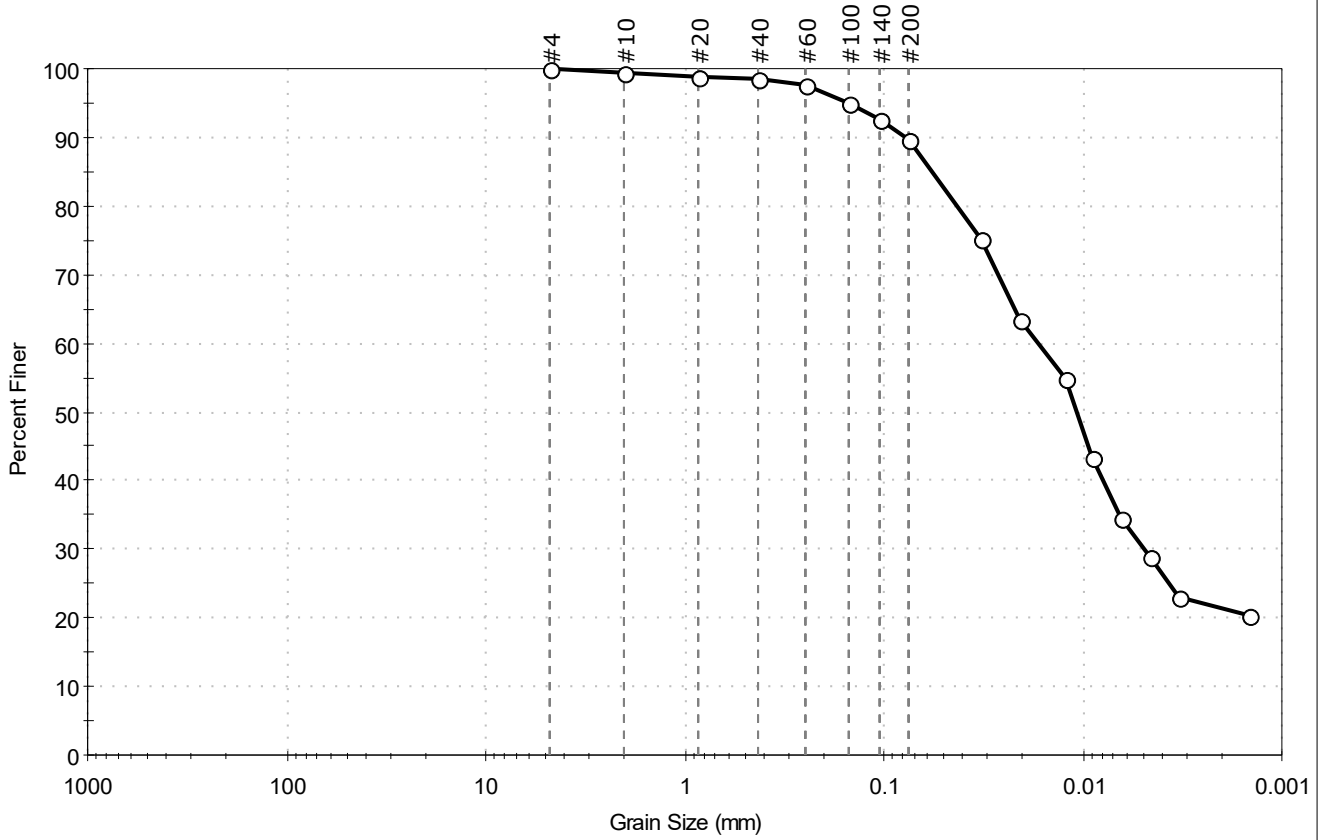
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (48))

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



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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0578 mm	D <sub>30</sub> = 0.0049 mm
D <sub>60</sub> = 0.0168 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0107 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

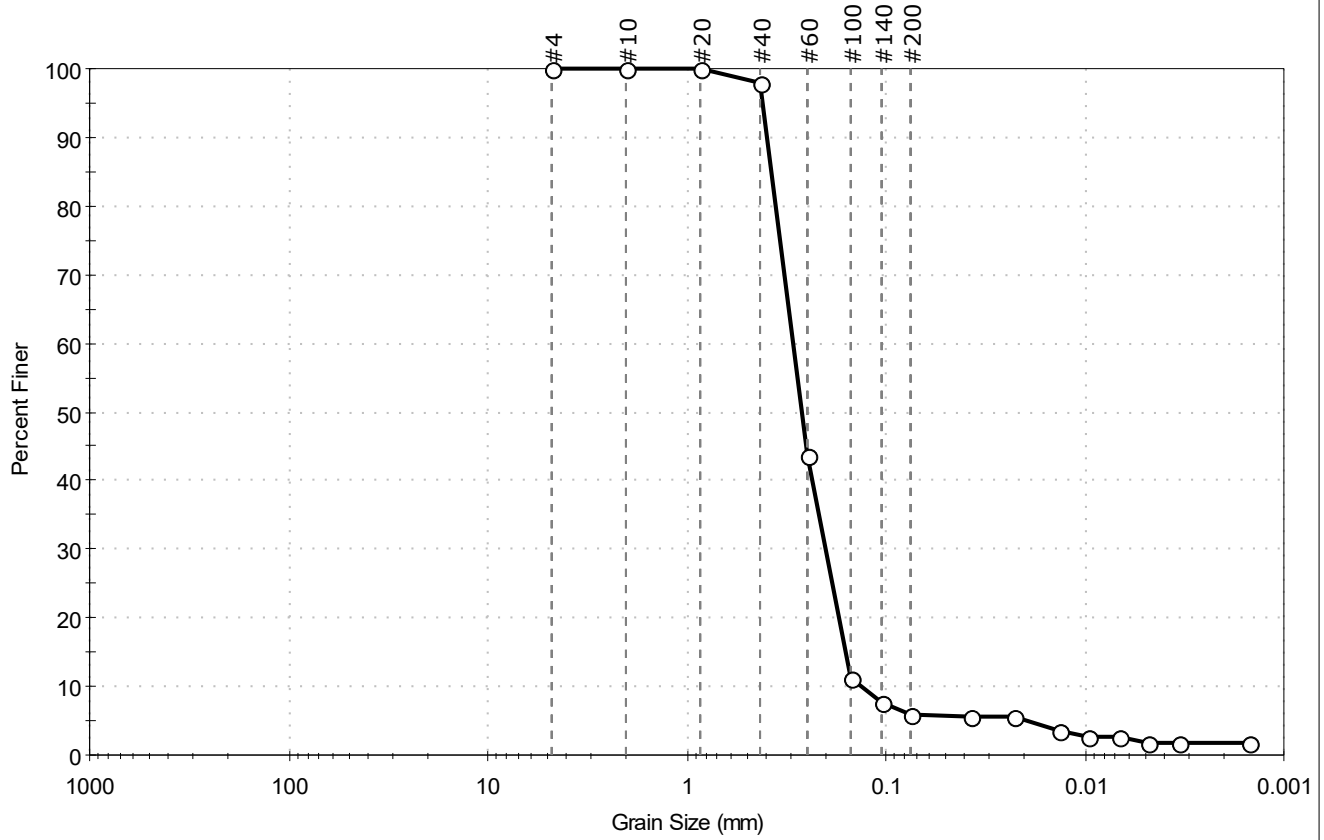
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (38))

<b>Sample/Test Description</b>
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3747 mm	D <sub>30</sub> = 0.2015 mm
D <sub>60</sub> = 0.2933 mm	D <sub>15</sub> = 0.1592 mm
D <sub>50</sub> = 0.2659 mm	D <sub>10</sub> = 0.1336 mm
C <sub>u</sub> = 2.195	C <sub>c</sub> = 1.036

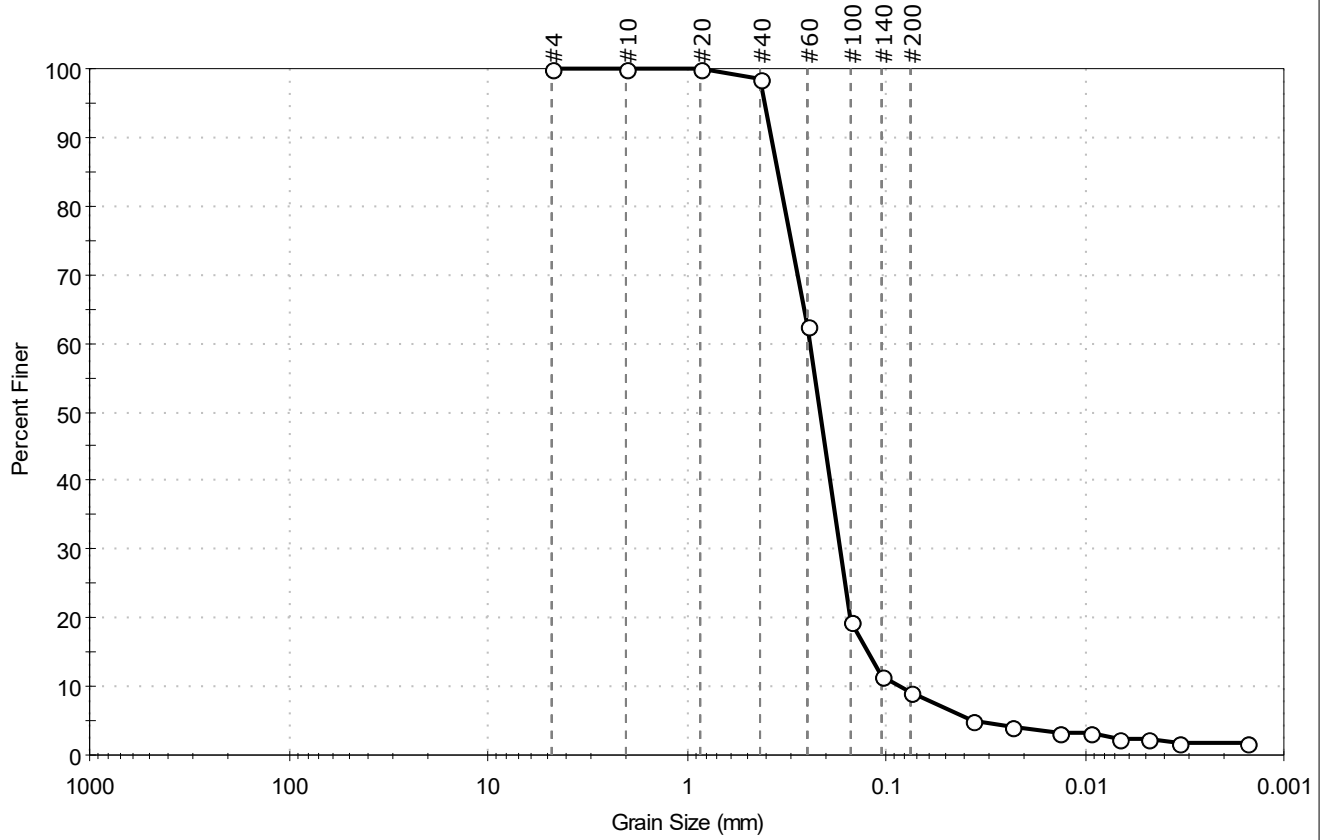
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3483 mm	D <sub>30</sub> = 0.1699 mm
D <sub>60</sub> = 0.2426 mm	D <sub>15</sub> = 0.1233 mm
D <sub>50</sub> = 0.2154 mm	D <sub>10</sub> = 0.0849 mm
C <sub>u</sub> = 2.857	C <sub>c</sub> = 1.401

<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

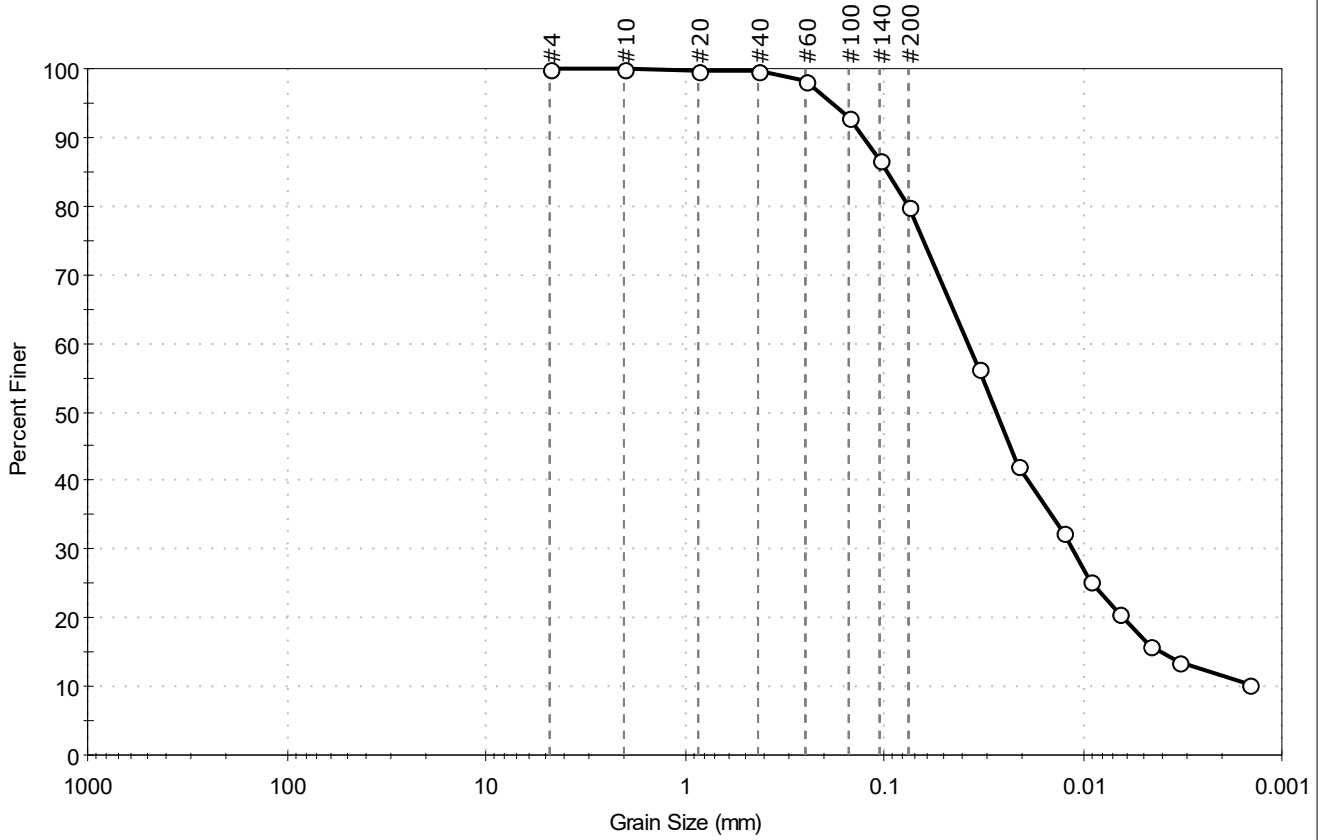
<b>Sample/Test Description</b>	
Sand/Gravel Particle Shape : ---	
Sand/Gravel Hardness : ---	
Dispersion Device : Apparatus A - Mech Mixer	
Dispersion Period : 1 minute	
Est. Specific Gravity : 2.65	
Separation of Sample: #200 Sieve	



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: ---  
 Boring ID: ---  
 Sample ID: PDI-109SPT-48.3-51-191  
 Depth: ---  
 Test Comment: ---  
 Visual Description: Moist, dark olive brown silt with sand  
 Sample Comment: ---

Project No: GTX-310685  
 Sample Type: bag  
 Test Date: 10/29/19  
 Test Id: 527567  
 Tested By: ckg  
 Checked By: bfs

## 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<sub>85</sub> = 0.0976 mm      D<sub>30</sub> = 0.0112 mm  
 D<sub>60</sub> = 0.0380 mm      D<sub>15</sub> = 0.0041 mm  
 D<sub>50</sub> = 0.0273 mm      D<sub>10</sub> = N/A  
 C<sub>u</sub> = N/A                  C<sub>c</sub> = N/A

**Classification**

ASTM      SILT with Sand (ML)

AASHTO      Silty Soils (A-4 (0))

**Sample/Test Description**

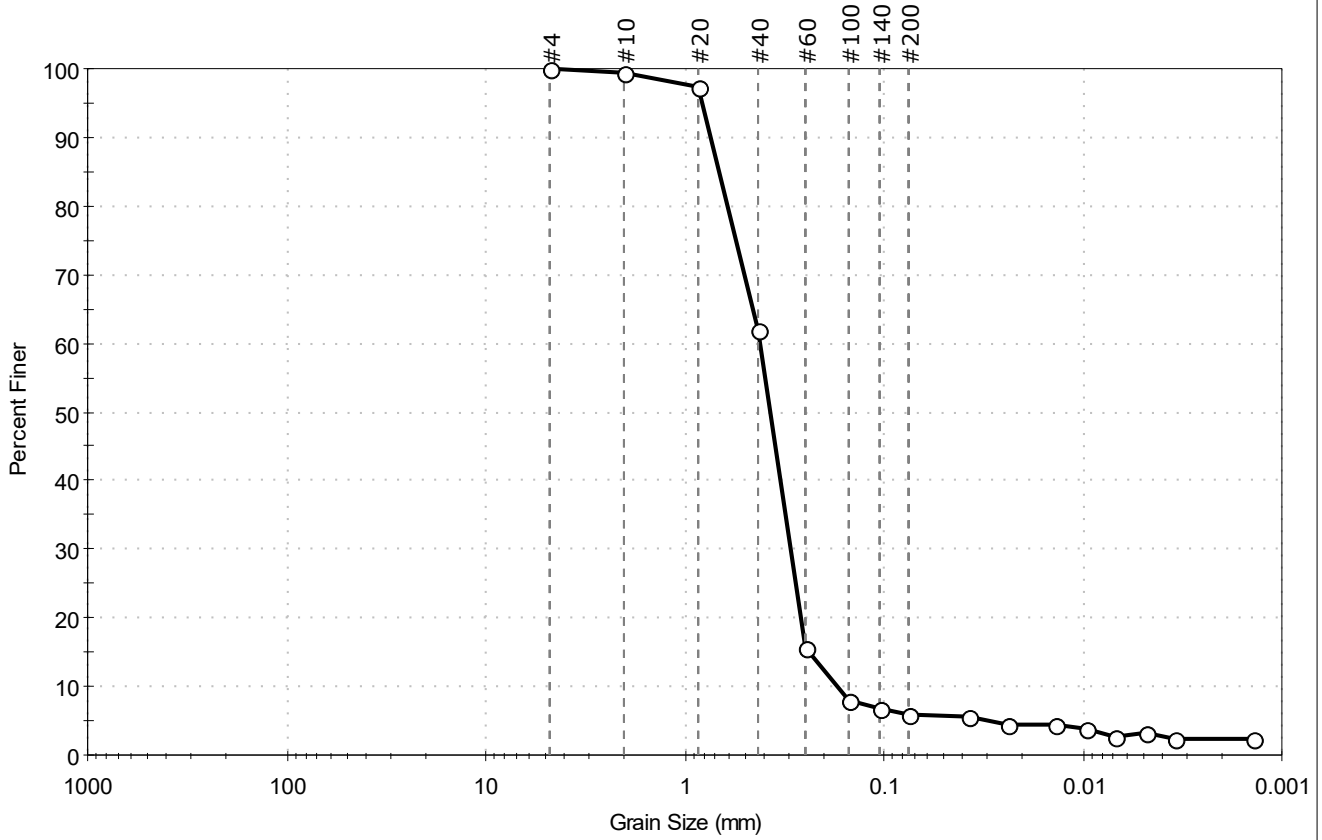
Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve





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

<b>Coefficients</b>	
D <sub>85</sub> = 0.6681 mm	D <sub>30</sub> = 0.2948 mm
D <sub>60</sub> = 0.4158 mm	D <sub>15</sub> = 0.2399 mm
D <sub>50</sub> = 0.3707 mm	D <sub>10</sub> = 0.1717 mm
C <sub>u</sub> = 2.422	C <sub>c</sub> = 1.217

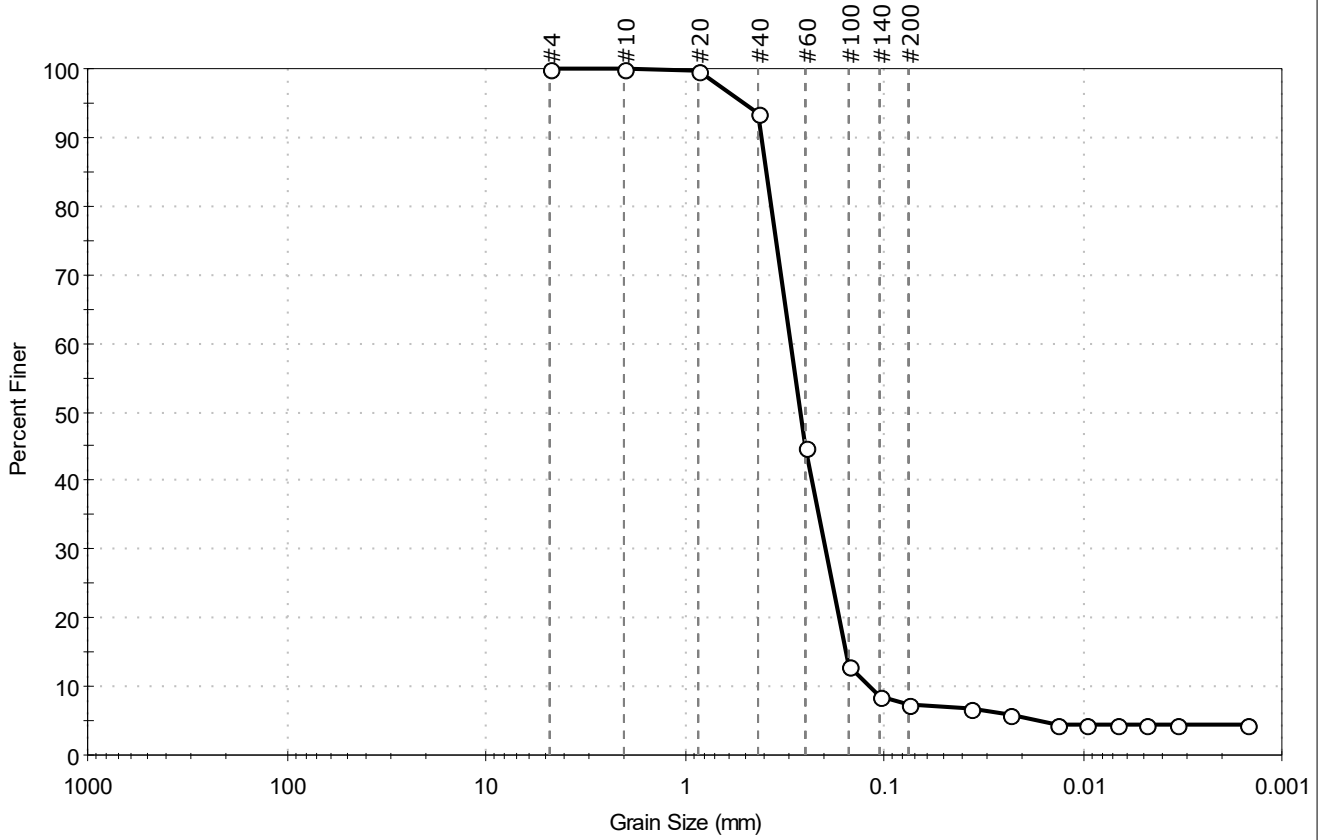
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3872 mm	D <sub>30</sub> = 0.1973 mm
D <sub>60</sub> = 0.2950 mm	D <sub>15</sub> = 0.1552 mm
D <sub>50</sub> = 0.2646 mm	D <sub>10</sub> = 0.1184 mm
C <sub>u</sub> = 2.492	C <sub>c</sub> = 1.115

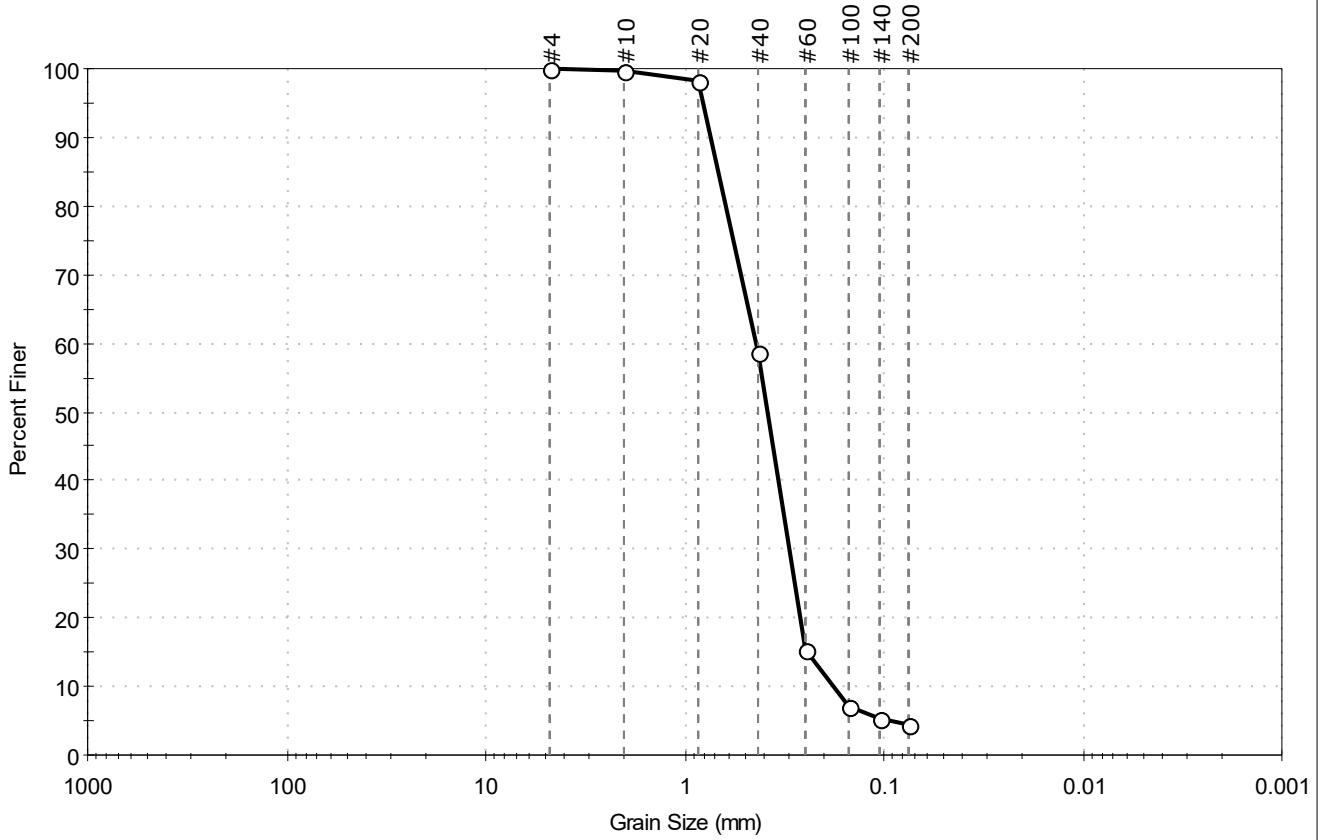
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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-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 <sub>85</sub> = 0.6746 mm	D <sub>30</sub> = 0.2994 mm
D <sub>60</sub> = 0.4347 mm	D <sub>15</sub> = 0.2464 mm
D <sub>50</sub> = 0.3821 mm	D <sub>10</sub> = 0.1799 mm
C <sub>u</sub> = 2.416	C <sub>c</sub> = 1.146

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

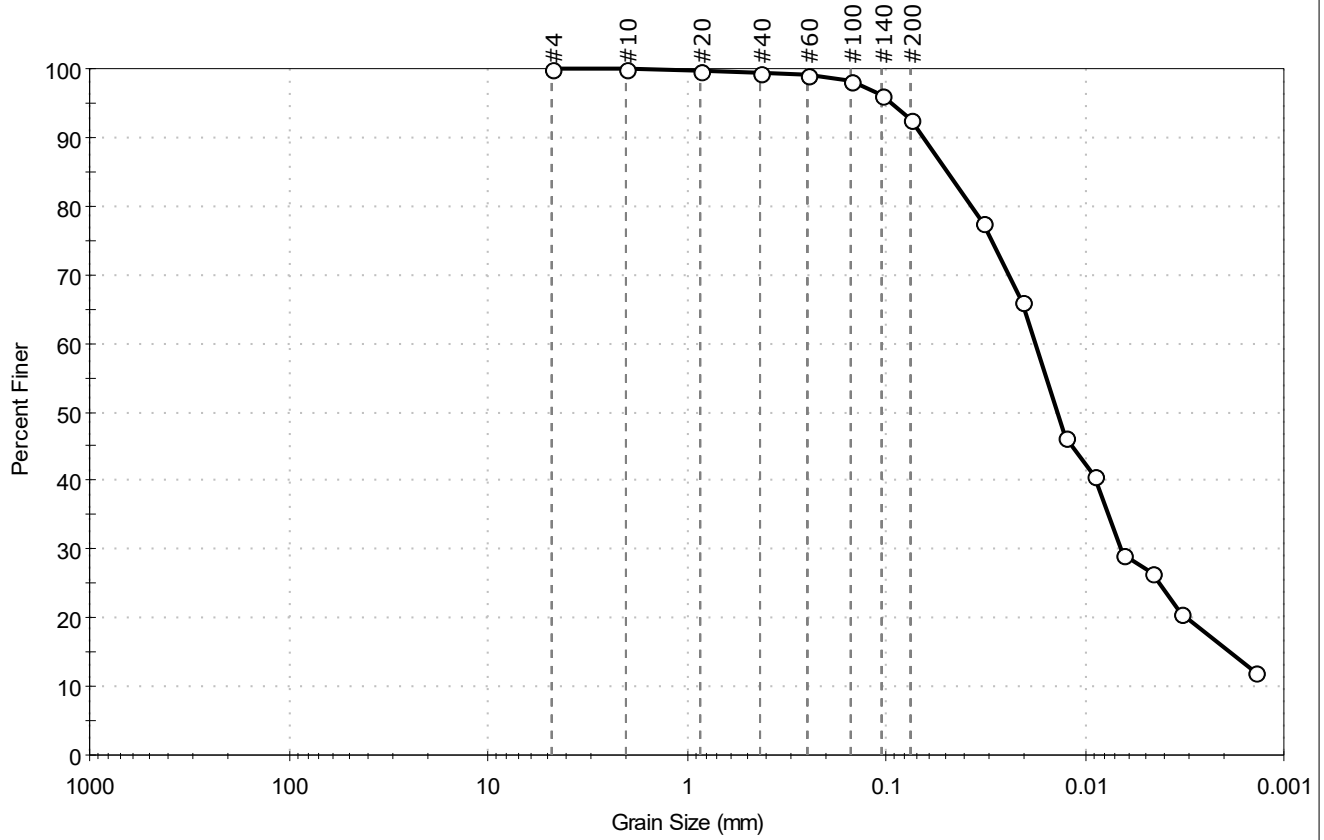
Sand/Gravel Particle Shape : ---

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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0488 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0138 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

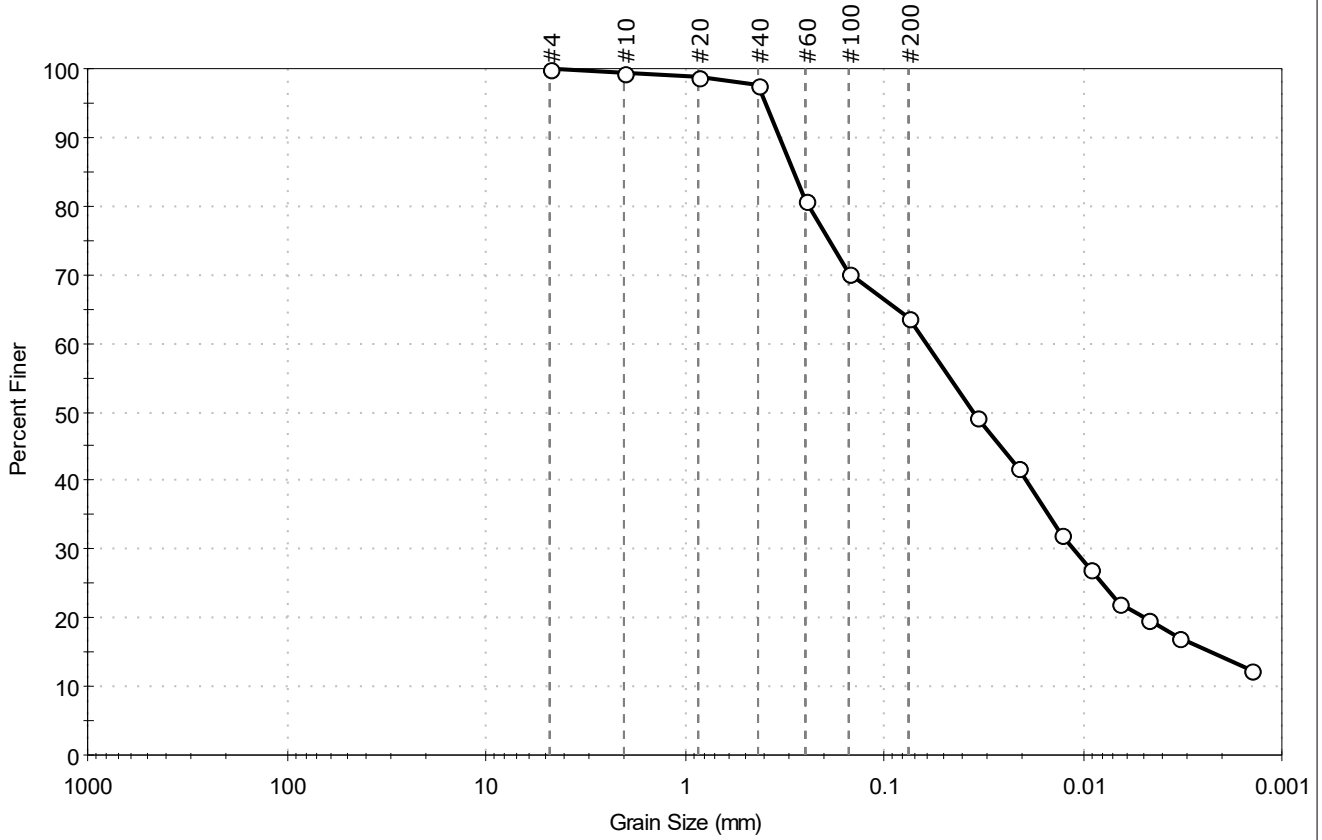
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (45))

<b>Sample/Test Description</b>
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 <sub>85</sub> = 0.2849 mm	D <sub>30</sub> = 0.0112 mm
D <sub>60</sub> = 0.0615 mm	D <sub>15</sub> = 0.0023 mm
D <sub>50</sub> = 0.0357 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

**ASTM**    Sandy Elastic SILT (MH)

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

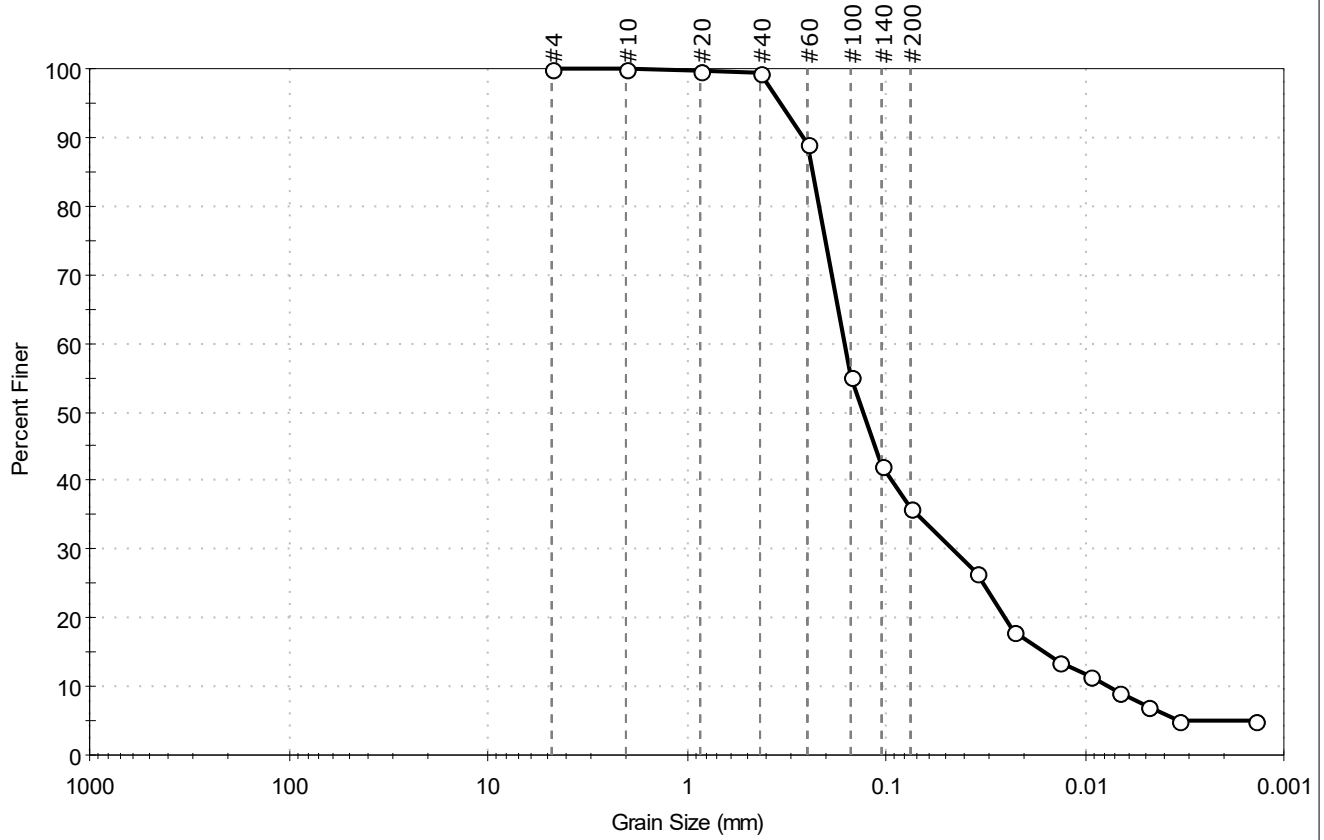
**Sample/Test Description**

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



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

<b>Coefficients</b>	
D <sub>85</sub> = 0.2350 mm	D <sub>30</sub> = 0.0465 mm
D <sub>60</sub> = 0.1614 mm	D <sub>15</sub> = 0.0159 mm
D <sub>50</sub> = 0.1309 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 21.520	C <sub>c</sub> = 1.786

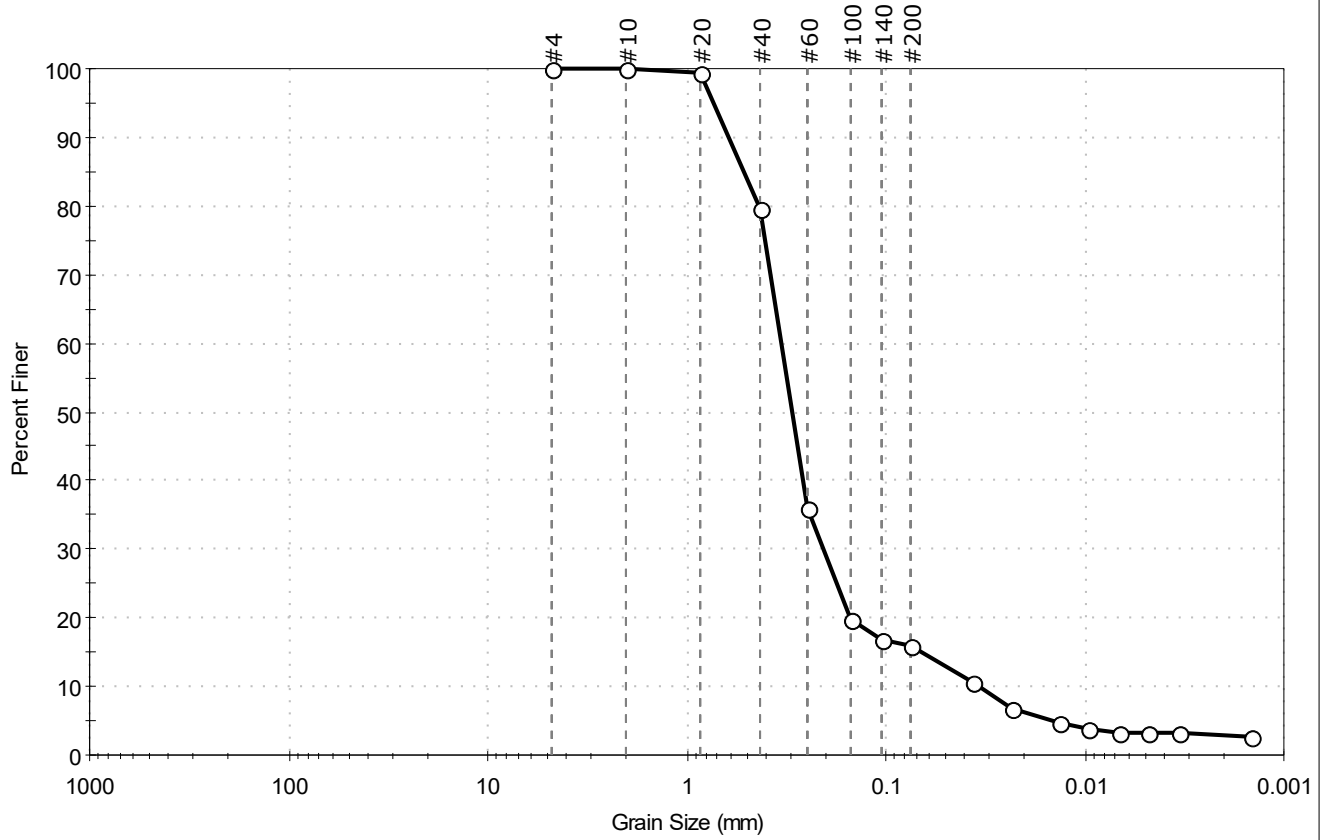
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location: ---	Sample Type: bag
Boring ID: ---	Tested By: ckg
Sample ID: PDI-112SPT-37.5-58-191	Test Date: 10/29/19
Depth: ---	Checked By: bfs
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	0.425	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 <sub>85</sub> = 0.5121 mm	D <sub>30</sub> = 0.2062 mm
D <sub>60</sub> = 0.3344 mm	D <sub>15</sub> = 0.0671 mm
D <sub>50</sub> = 0.2961 mm	D <sub>10</sub> = 0.0339 mm
C <sub>u</sub> = 9.864	C <sub>c</sub> = 3.751

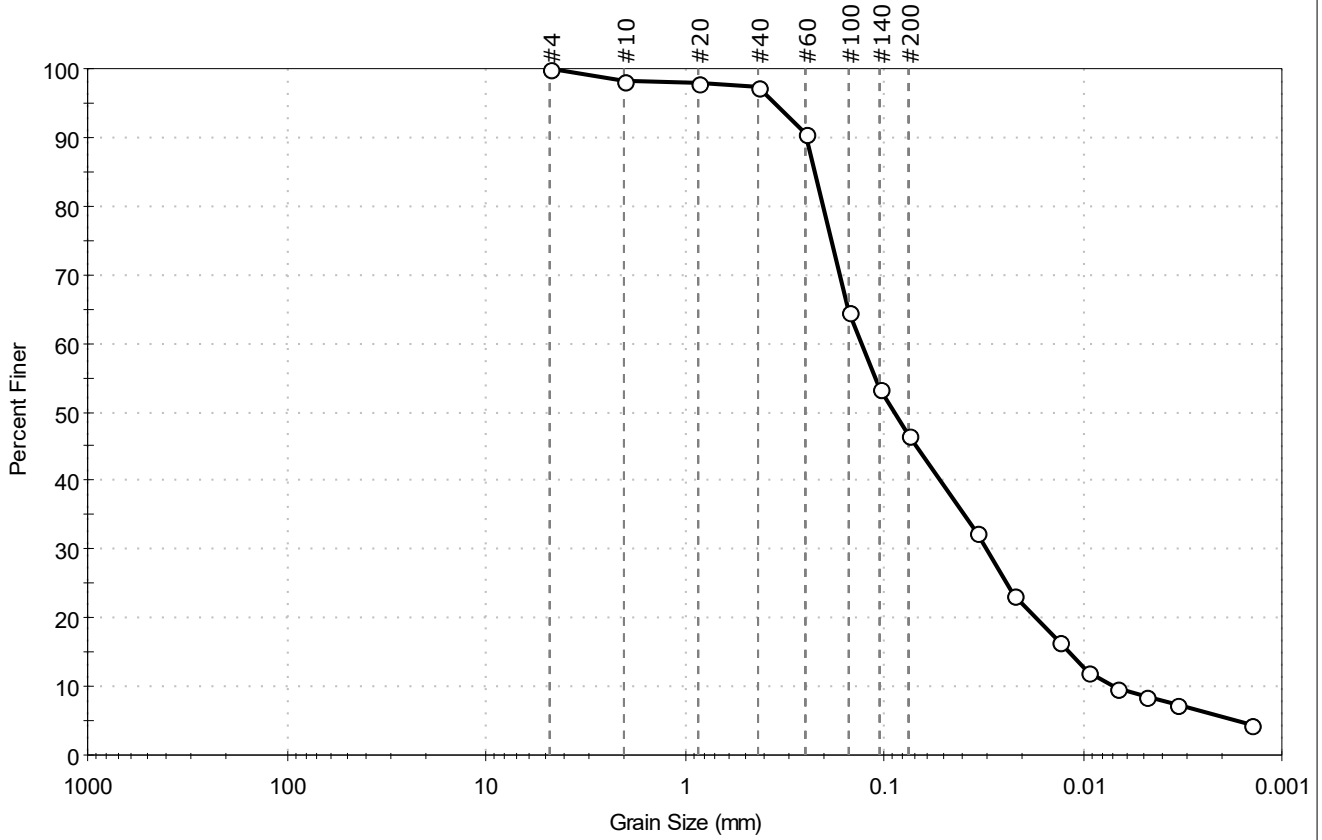
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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	Checked By: bfs
Sample ID: PDI-113SPT-06-16-19101	Test Date: 11/05/19	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2243 mm	D <sub>30</sub> = 0.0305 mm
D <sub>60</sub> = 0.1298 mm	D <sub>15</sub> = 0.0117 mm
D <sub>50</sub> = 0.0888 mm	D <sub>10</sub> = 0.0070 mm
C <sub>u</sub> = 18.543	C <sub>c</sub> = 1.024

<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (0))

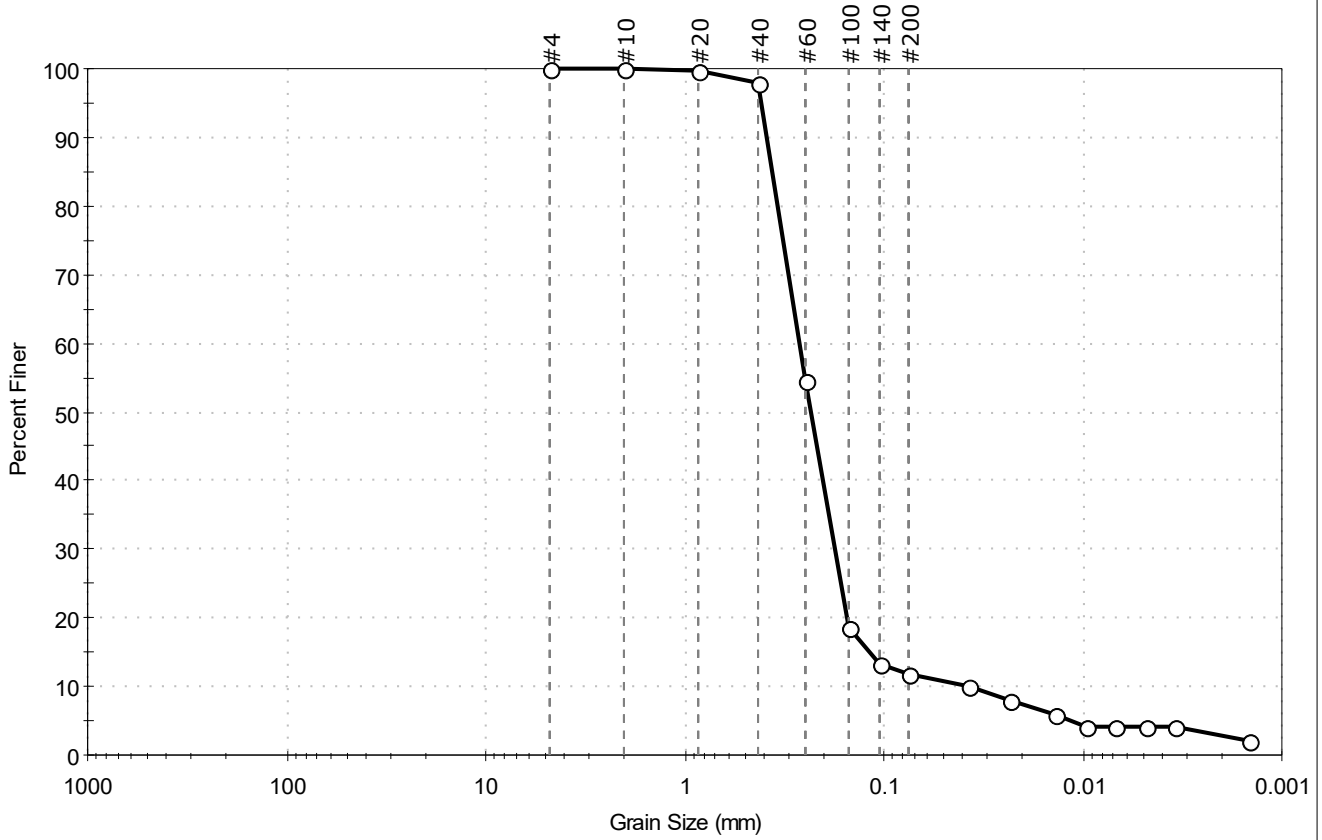
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: \_\_\_\_\_ Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-113SPT-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	0.425	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3627 mm	D <sub>30</sub> = 0.1766 mm
D <sub>60</sub> = 0.2675 mm	D <sub>15</sub> = 0.1182 mm
D <sub>50</sub> = 0.2347 mm	D <sub>10</sub> = 0.0377 mm
C <sub>u</sub> = 7.095	C <sub>c</sub> = 3.093

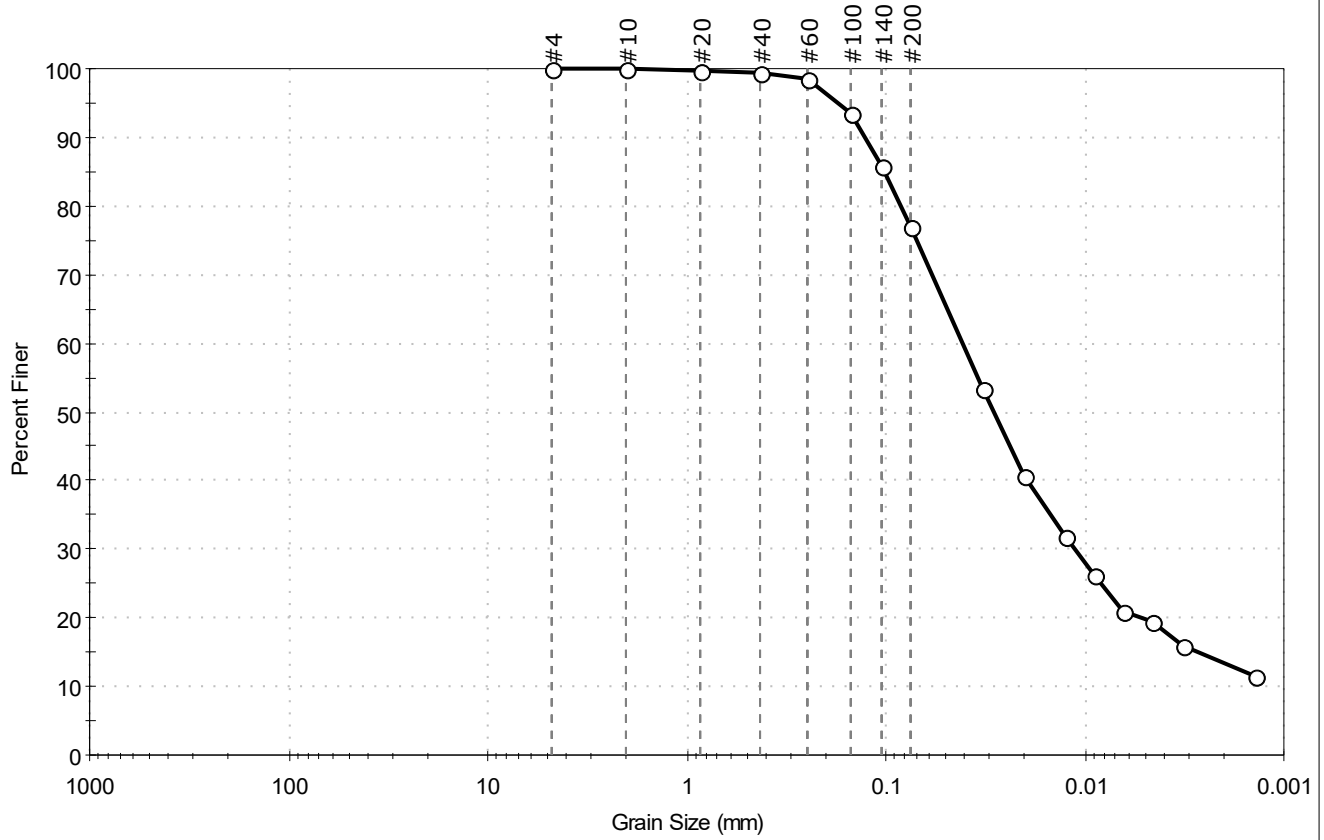
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-113SPT-22-25.2-191	Test Date: 10/24/19	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1025 mm	D <sub>30</sub> = 0.0111 mm
D <sub>60</sub> = 0.0407 mm	D <sub>15</sub> = 0.0028 mm
D <sub>50</sub> = 0.0283 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

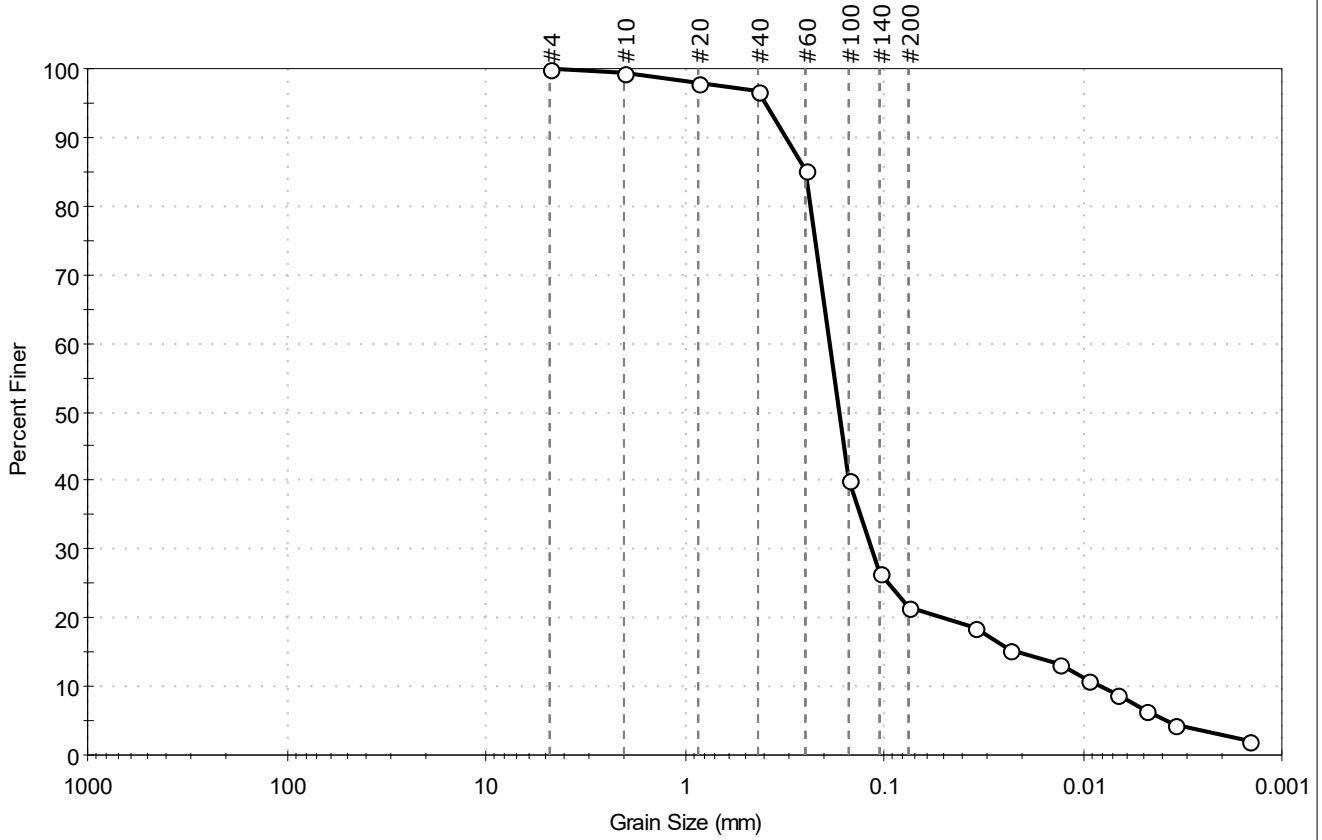
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (18))

<b>Sample/Test Description</b>
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2492 mm	D <sub>30</sub> = 0.1158 mm
D <sub>60</sub> = 0.1879 mm	D <sub>15</sub> = 0.0208 mm
D <sub>50</sub> = 0.1679 mm	D <sub>10</sub> = 0.0081 mm
C <sub>u</sub> = 23.198	C <sub>c</sub> = 8.811

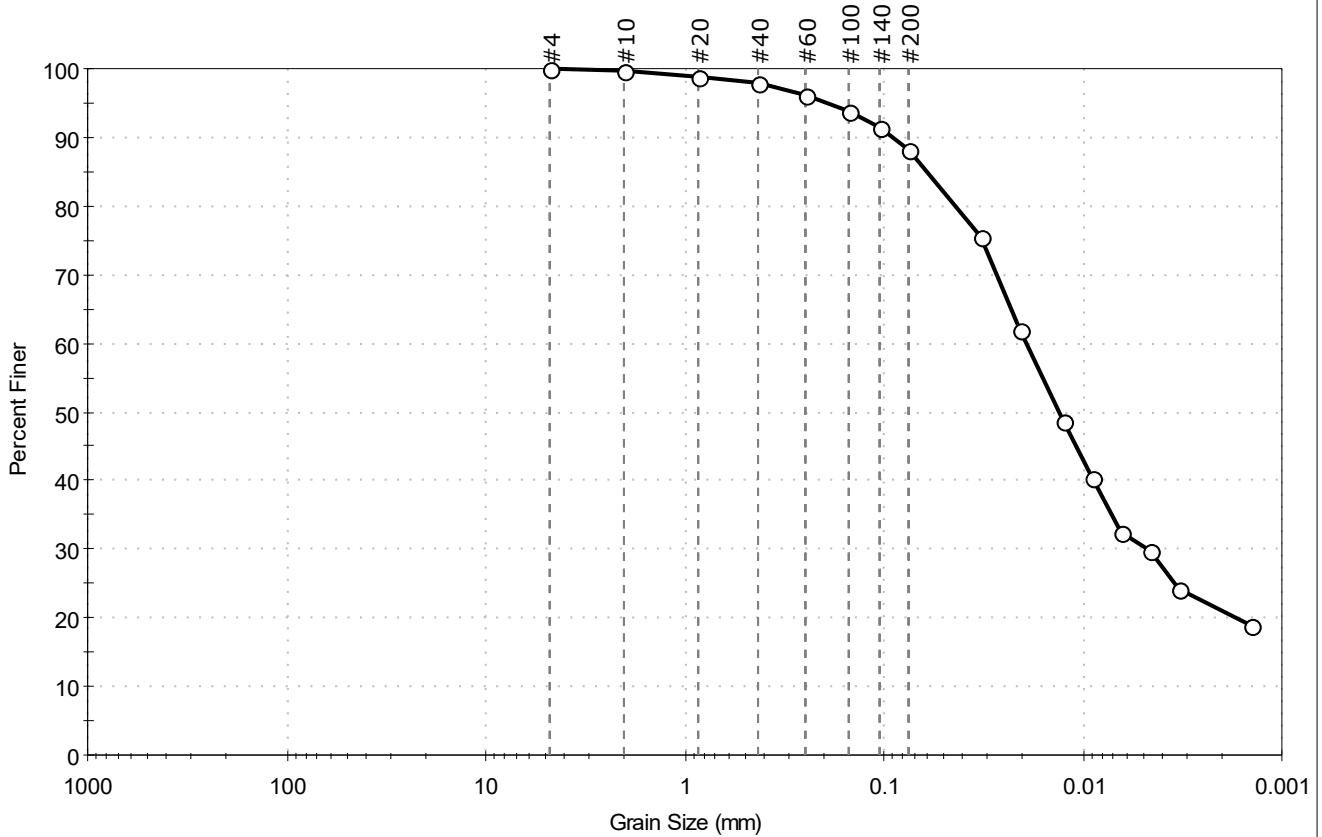
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0610 mm	D <sub>30</sub> = 0.0048 mm
D <sub>60</sub> = 0.0193 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0132 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

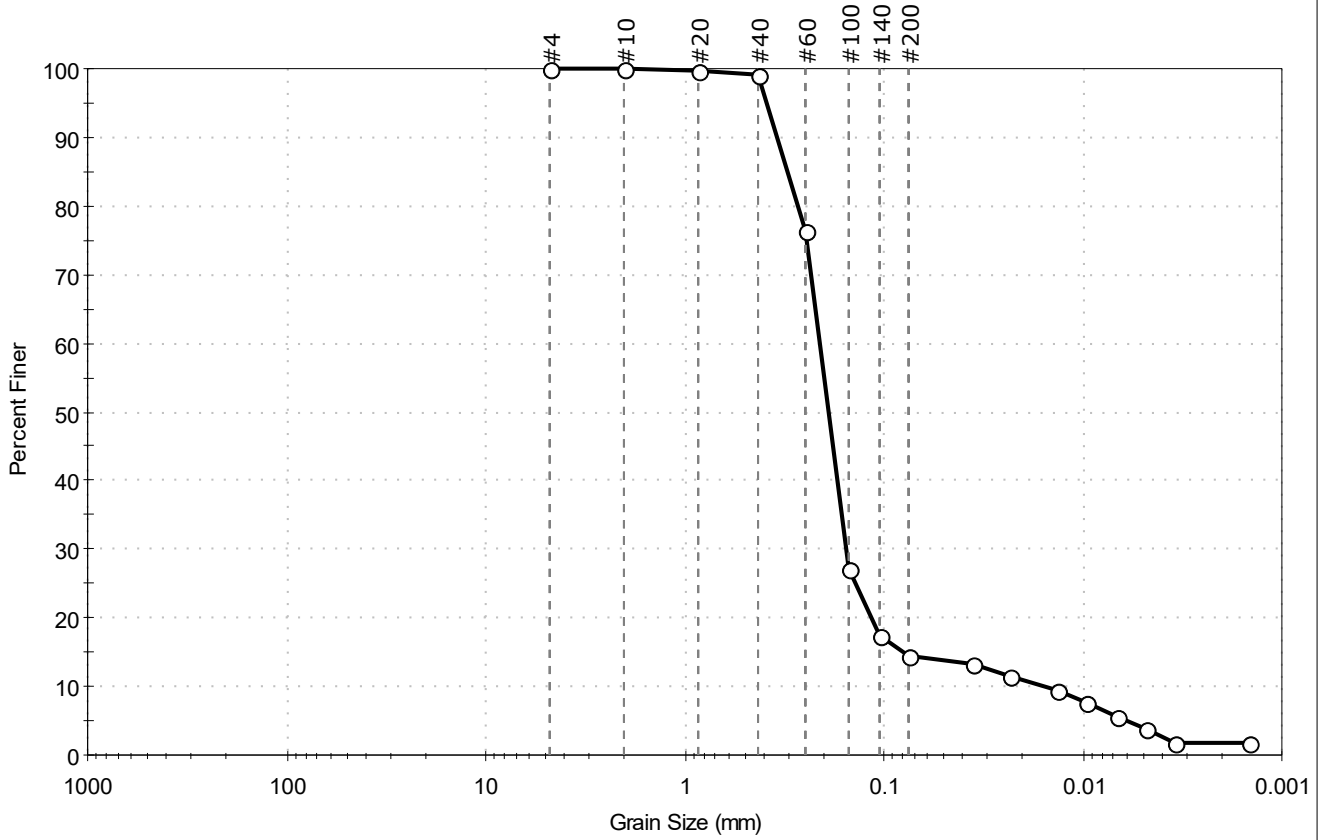
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

<b>Sample/Test Description</b>
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	0.425	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3059 mm	D <sub>30</sub> = 0.1547 mm
D <sub>60</sub> = 0.2111 mm	D <sub>15</sub> = 0.0809 mm
D <sub>50</sub> = 0.1903 mm	D <sub>10</sub> = 0.0157 mm
C <sub>u</sub> = 13.446	C <sub>c</sub> = 7.221

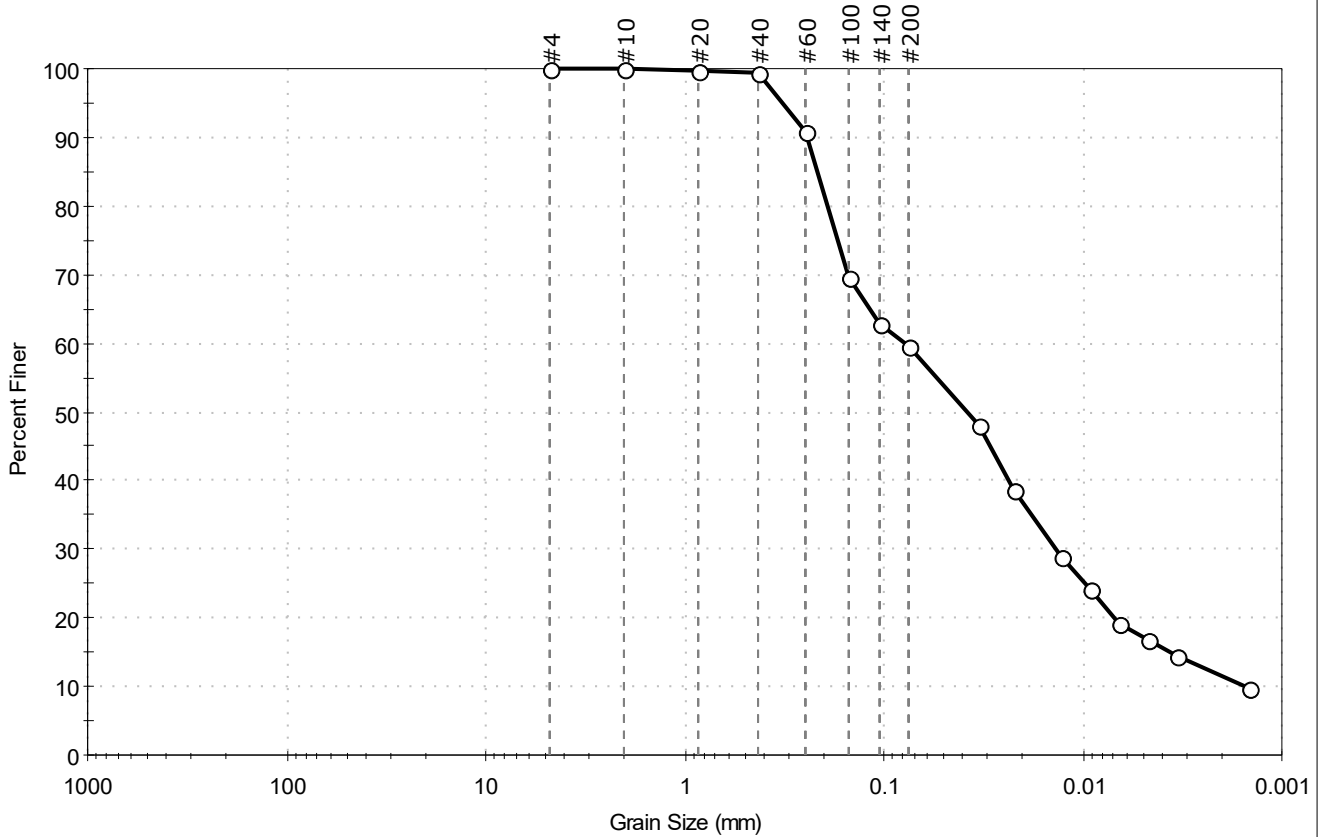
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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-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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2166 mm	D <sub>30</sub> = 0.0138 mm
D <sub>60</sub> = 0.0786 mm	D <sub>15</sub> = 0.0036 mm
D <sub>50</sub> = 0.0384 mm	D <sub>10</sub> = 0.0015 mm
C <sub>u</sub> = 52.400	C <sub>c</sub> = 1.615

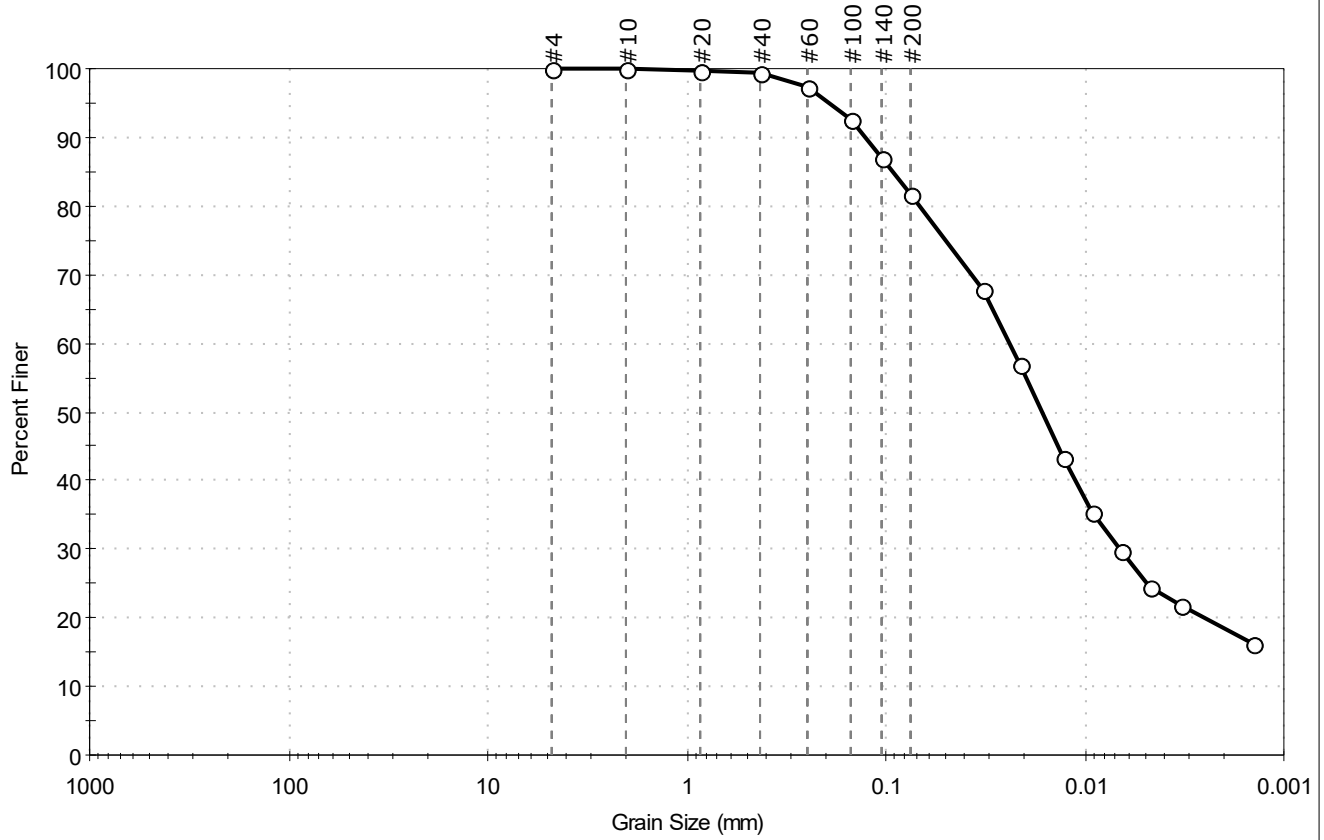
<u>Classification</u>	
<u>ASTM</u>	Sandy SILT (ML)
<u>AASHTO</u>	Silty Soils (A-5 (5))

<u>Sample/Test Description</u>	
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0928 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0239 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0163 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

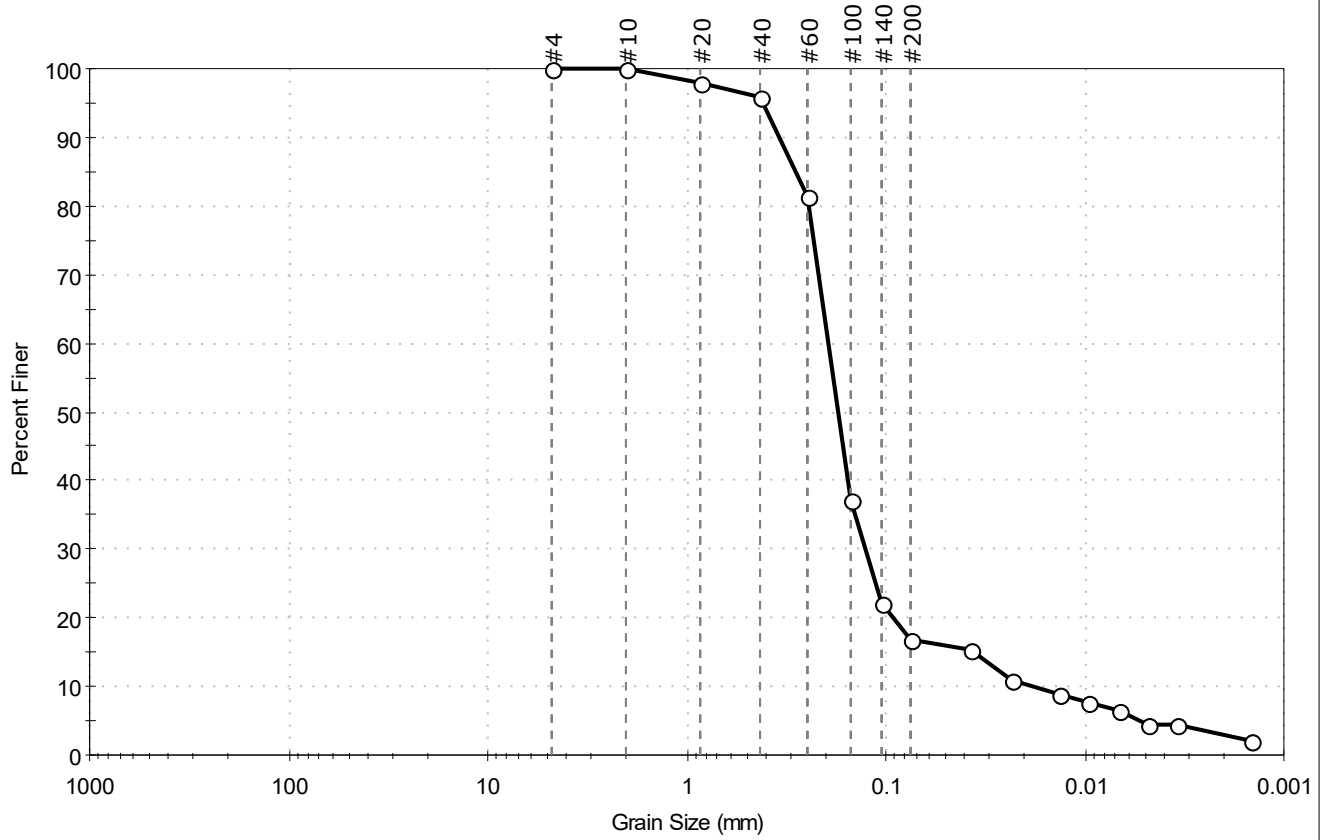
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (24))

<b>Sample/Test Description</b>
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 <sub>85</sub> = 0.2851 mm	D <sub>30</sub> = 0.1275 mm
D <sub>60</sub> = 0.1953 mm	D <sub>15</sub> = 0.0358 mm
D <sub>50</sub> = 0.1741 mm	D <sub>10</sub> = 0.0181 mm
C <sub>u</sub> = 10.790	C <sub>c</sub> = 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

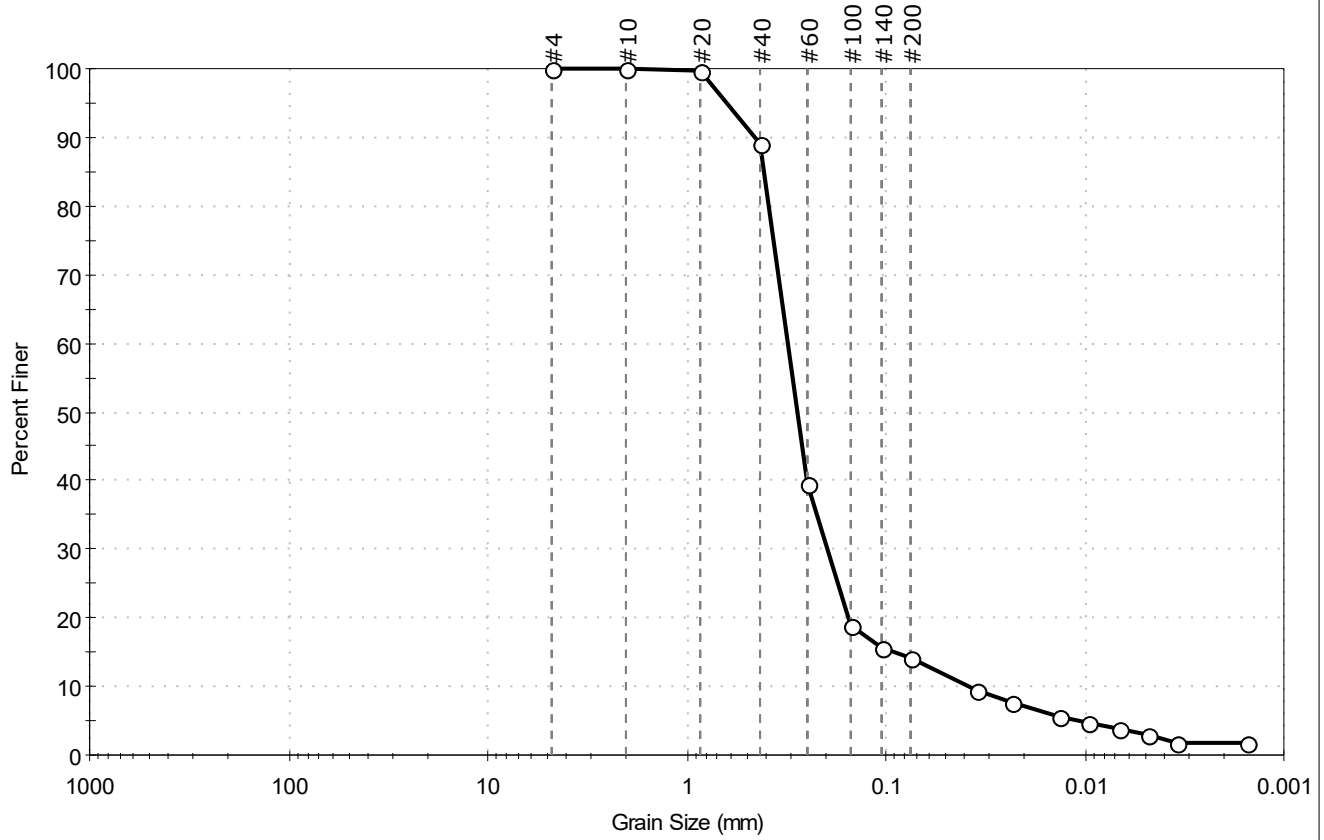
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-115SPT-06-11-19100	Test Date: 11/07/19	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 <sub>85</sub> = 0.4072 mm	D <sub>30</sub> = 0.1974 mm
D <sub>60</sub> = 0.3113 mm	D <sub>15</sub> = 0.0918 mm
D <sub>50</sub> = 0.2796 mm	D <sub>10</sub> = 0.0380 mm
C <sub>u</sub> = 8.192	C <sub>c</sub> = 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

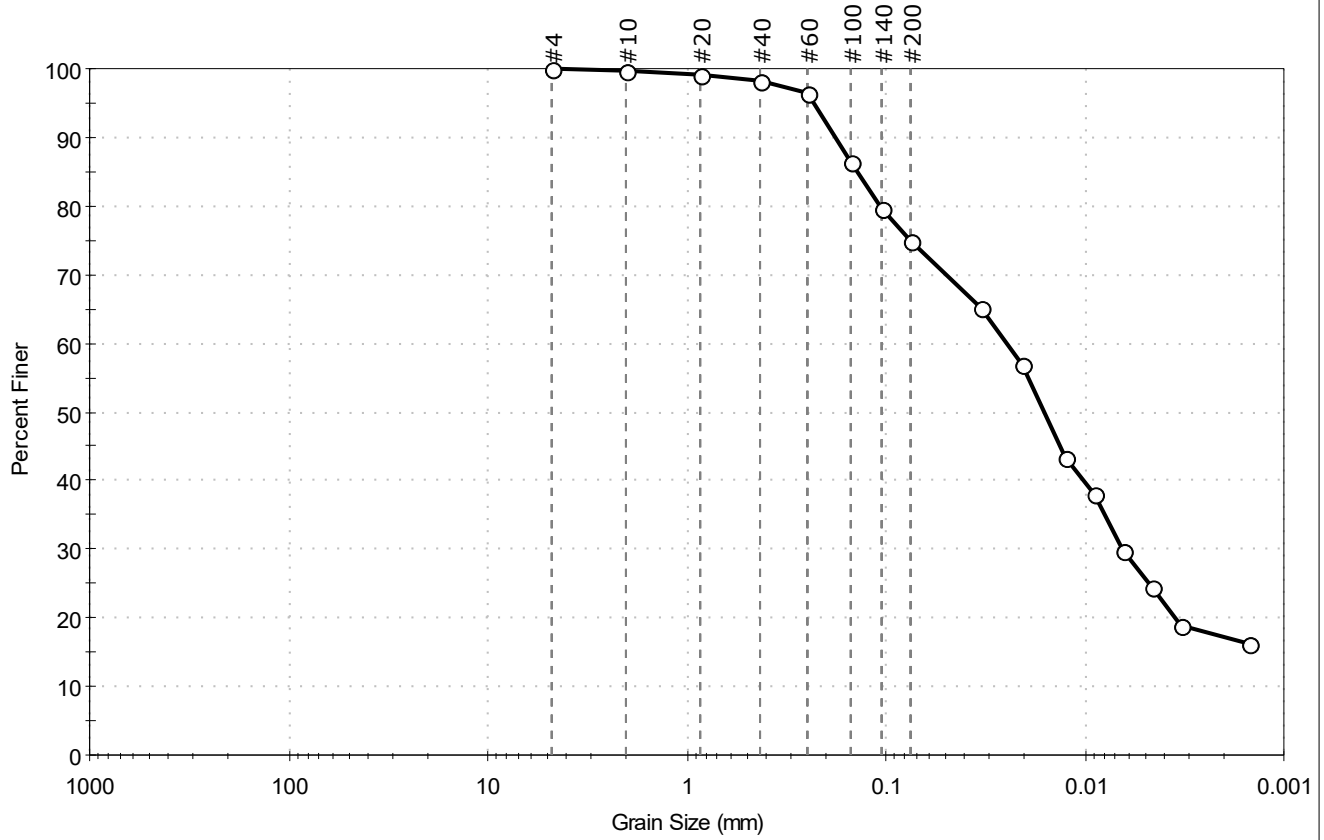
Est. Specific Gravity : 2.65

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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1387 mm	D <sub>30</sub> = 0.0065 mm
D <sub>60</sub> = 0.0249 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0160 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

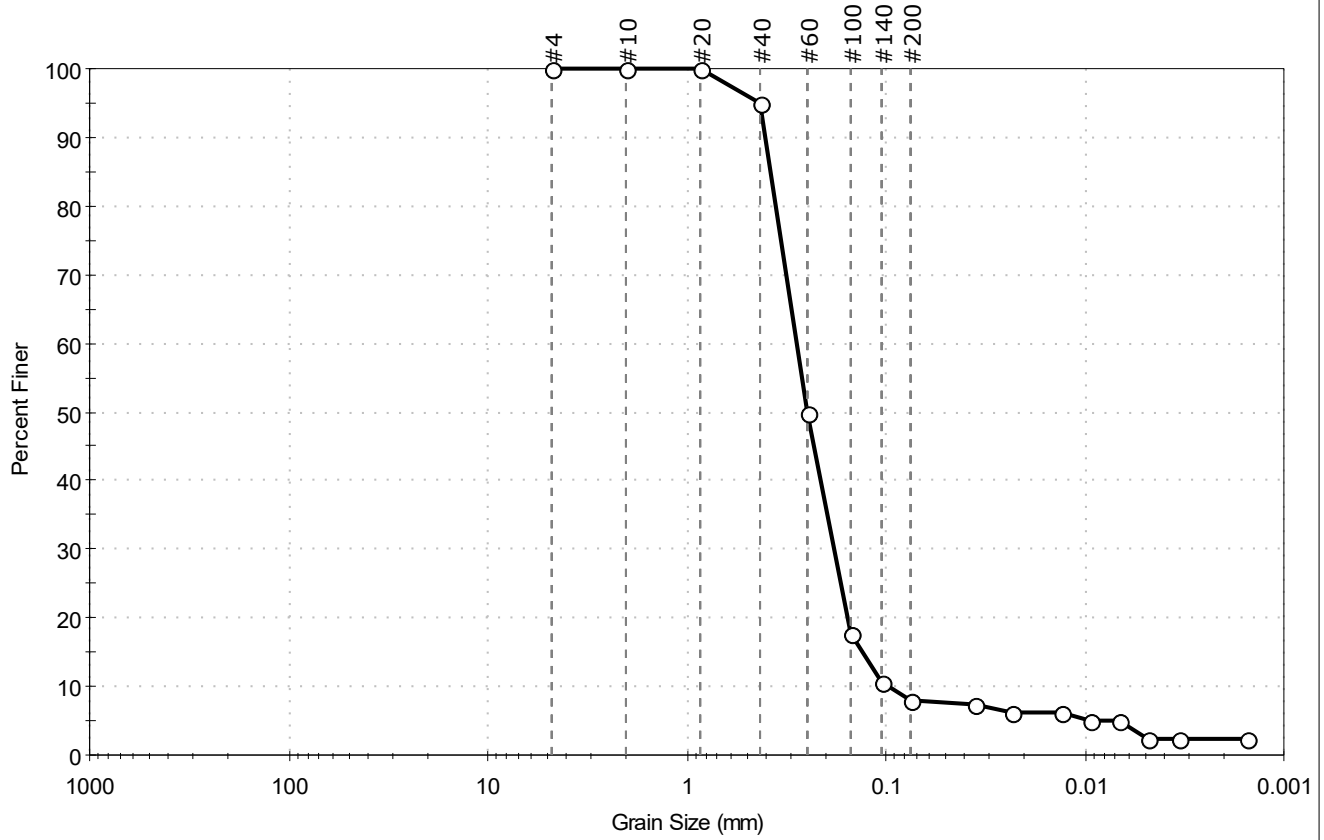
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (22))

<b>Sample/Test Description</b>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-115SPT-23-28.1-191	Tested By: ckg
Depth: ---	Test Date: 10/29/19
	Checked By: bfs
	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 <sub>85</sub> = 0.3780 mm	D <sub>30</sub> = 0.1827 mm
D <sub>60</sub> = 0.2820 mm	D <sub>15</sub> = 0.1316 mm
D <sub>50</sub> = 0.2508 mm	D <sub>10</sub> = 0.0970 mm
C <sub>u</sub> = 2.907	C <sub>c</sub> = 1.220

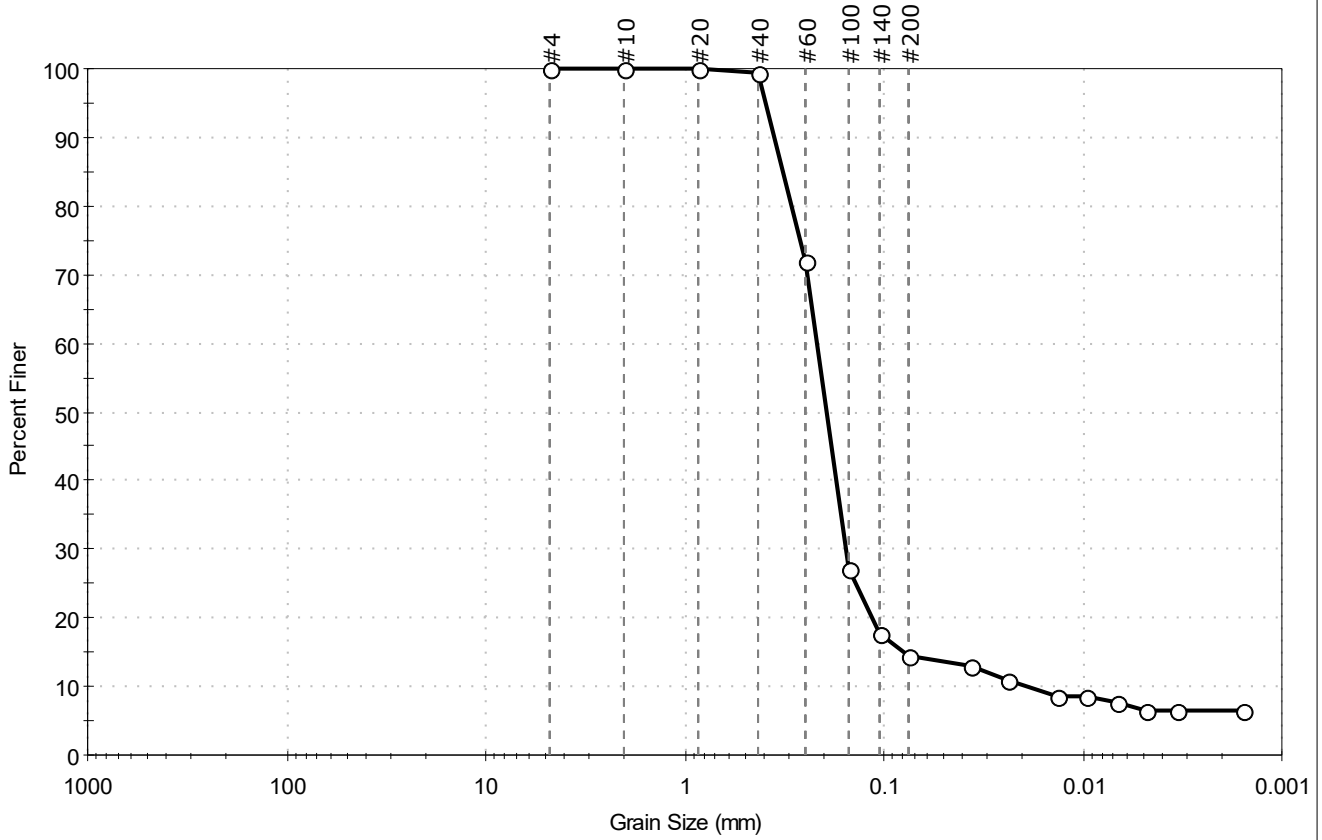
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



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

<b>Coefficients</b>	
D <sub>85</sub> = 0.3216 mm	D <sub>30</sub> = 0.1552 mm
D <sub>60</sub> = 0.2181 mm	D <sub>15</sub> = 0.0799 mm
D <sub>50</sub> = 0.1947 mm	D <sub>10</sub> = 0.0193 mm
C <sub>u</sub> = 11.301	C <sub>c</sub> = 5.722

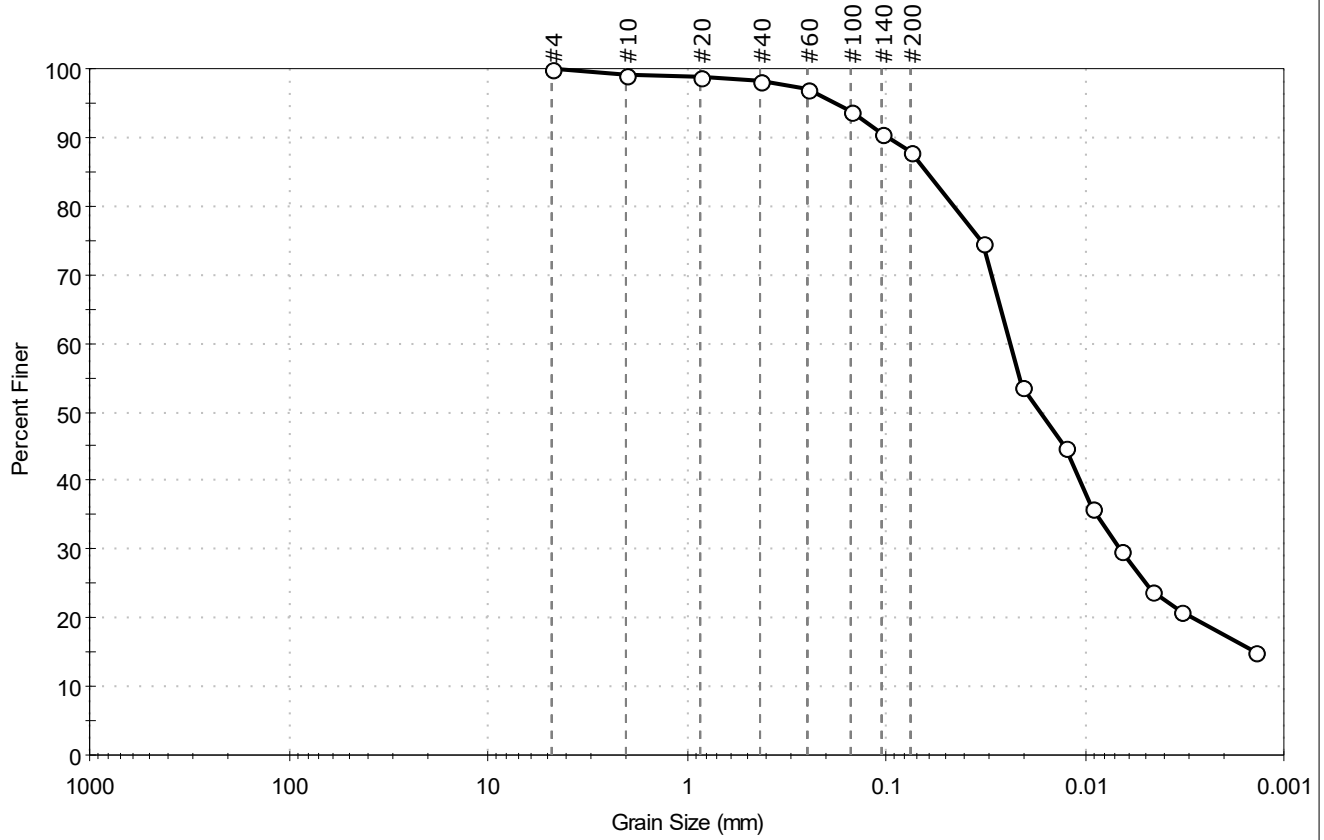
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-116SPT-00-4.5-1909	Tested By: ckg
Depth: ---	Test Date: 10/30/19
	Checked By: bfs
	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0627 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0238 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0169 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

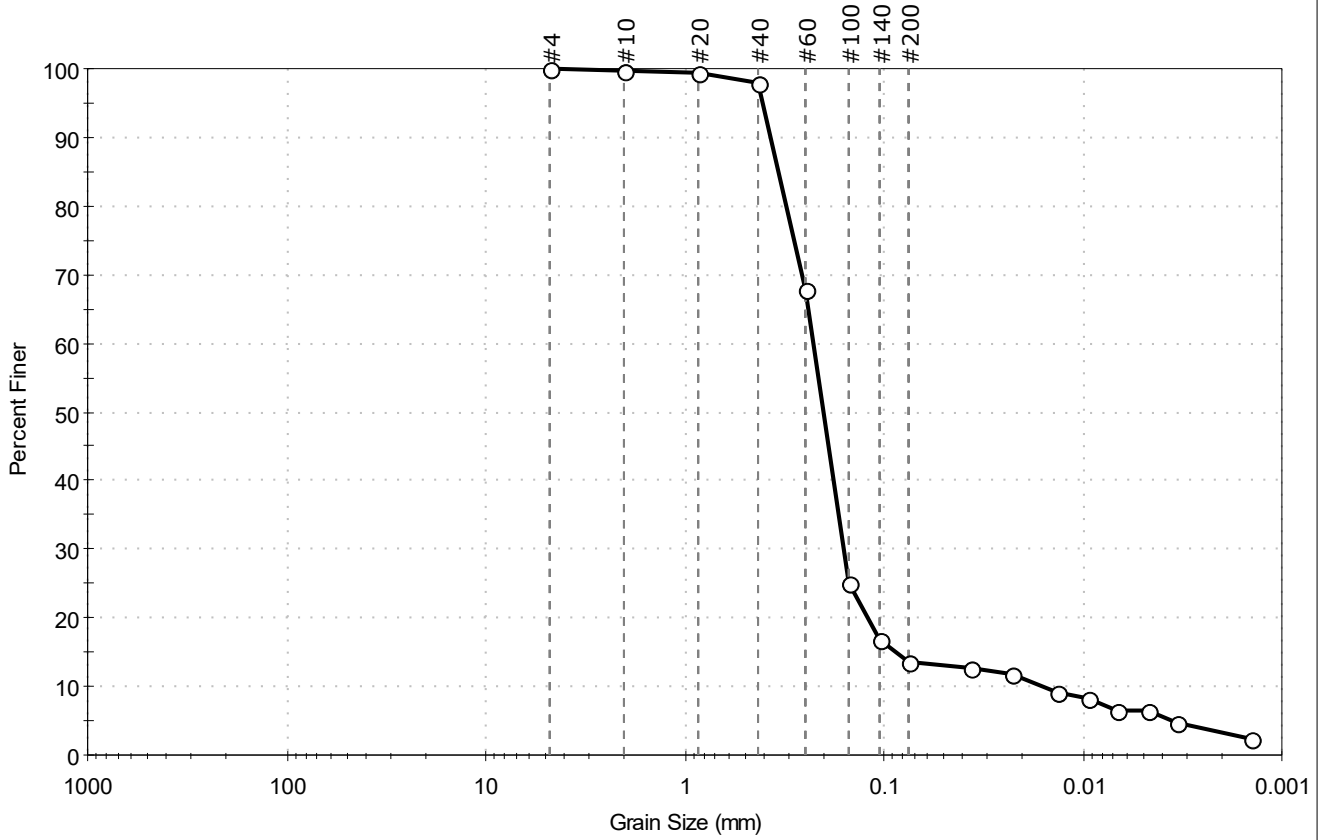
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (40))

<b>Sample/Test Description</b>
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-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	0.425	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 <sub>85</sub> = 0.3380 mm	D <sub>30</sub> = 0.1591 mm
D <sub>60</sub> = 0.2276 mm	D <sub>15</sub> = 0.0881 mm
D <sub>50</sub> = 0.2020 mm	D <sub>10</sub> = 0.0157 mm
C <sub>u</sub> = 14.497	C <sub>c</sub> = 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

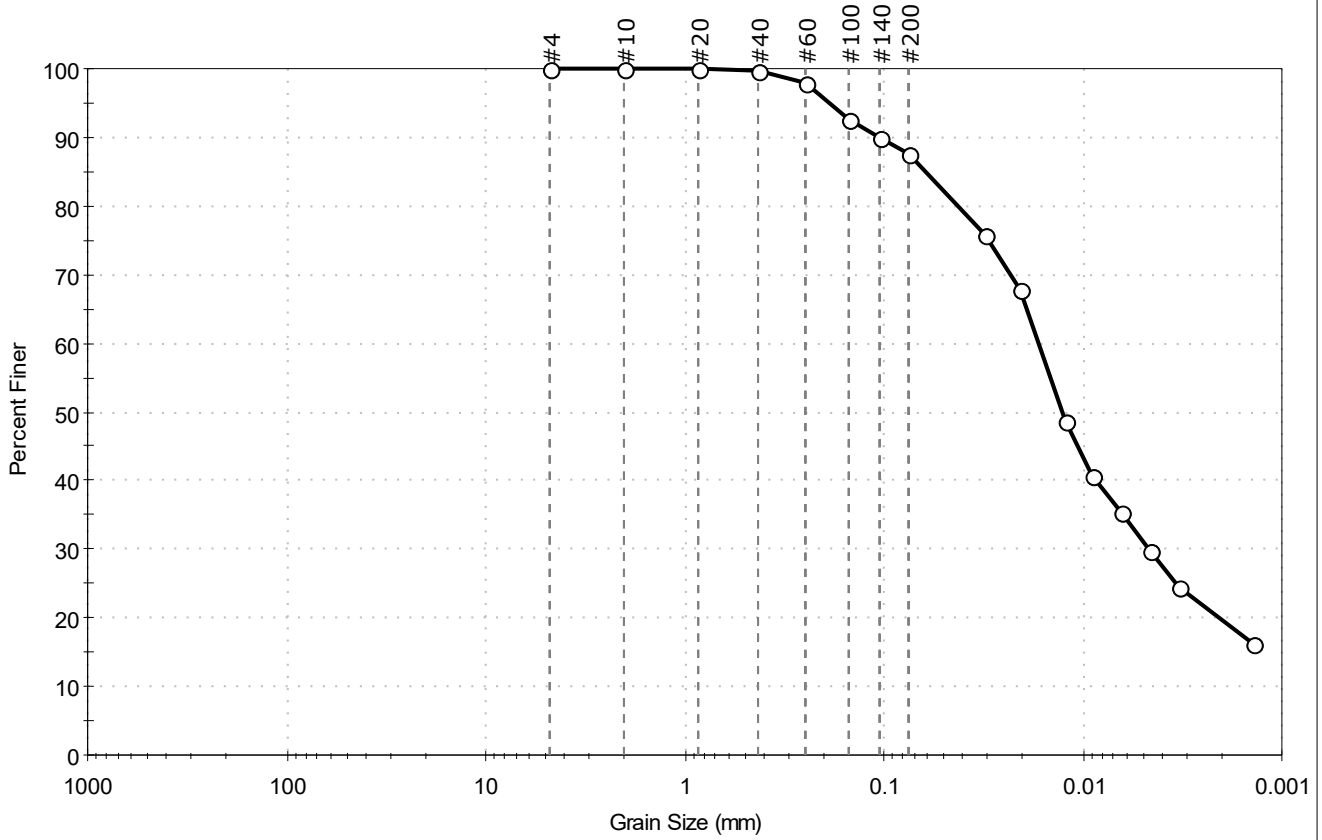
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0620 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0167 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0128 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

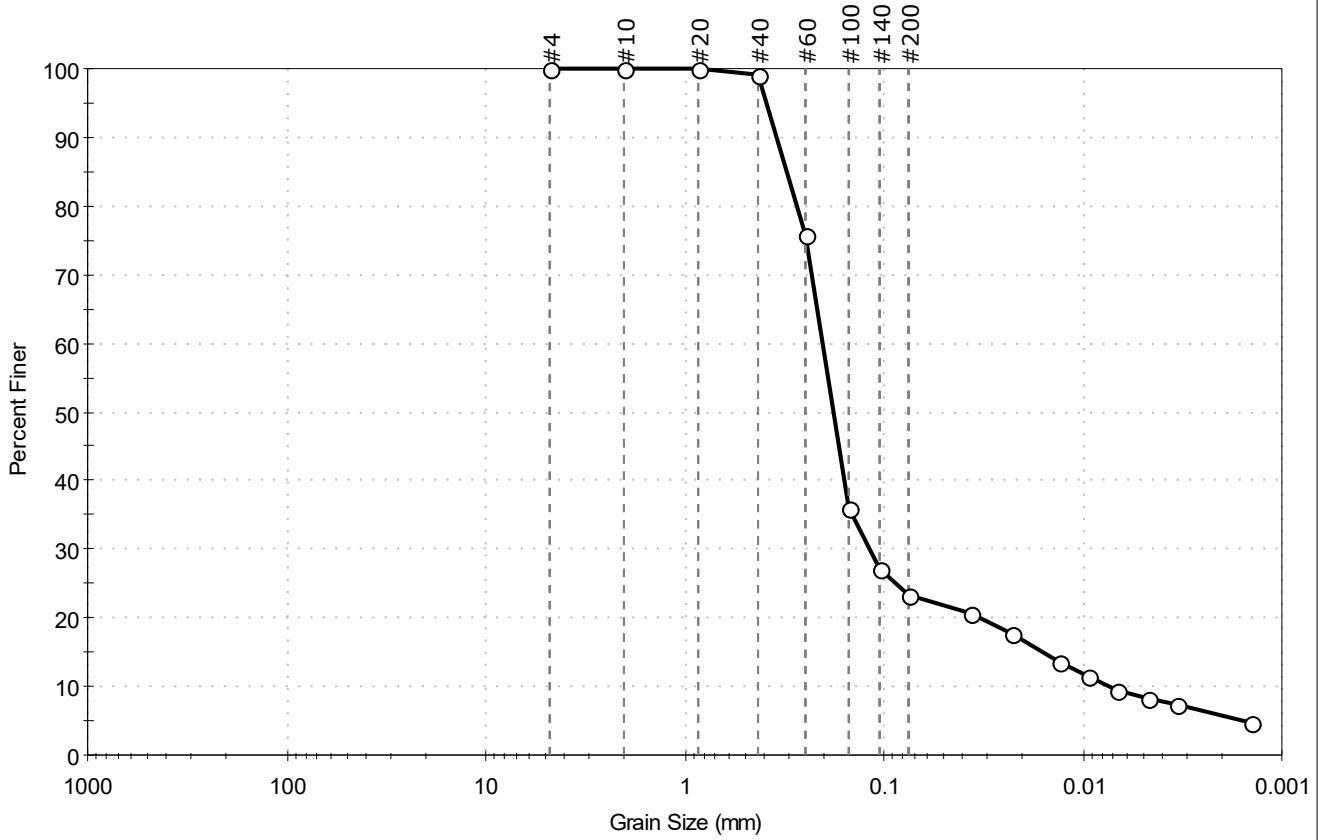
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (15))

<b>Sample/Test Description</b>
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-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 <sub>85</sub> = 0.3086 mm	D <sub>30</sub> = 0.1182 mm
D <sub>60</sub> = 0.2041 mm	D <sub>15</sub> = 0.0163 mm
D <sub>50</sub> = 0.1794 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 27.213	C <sub>c</sub> = 9.127

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

**Sample/Test Description**

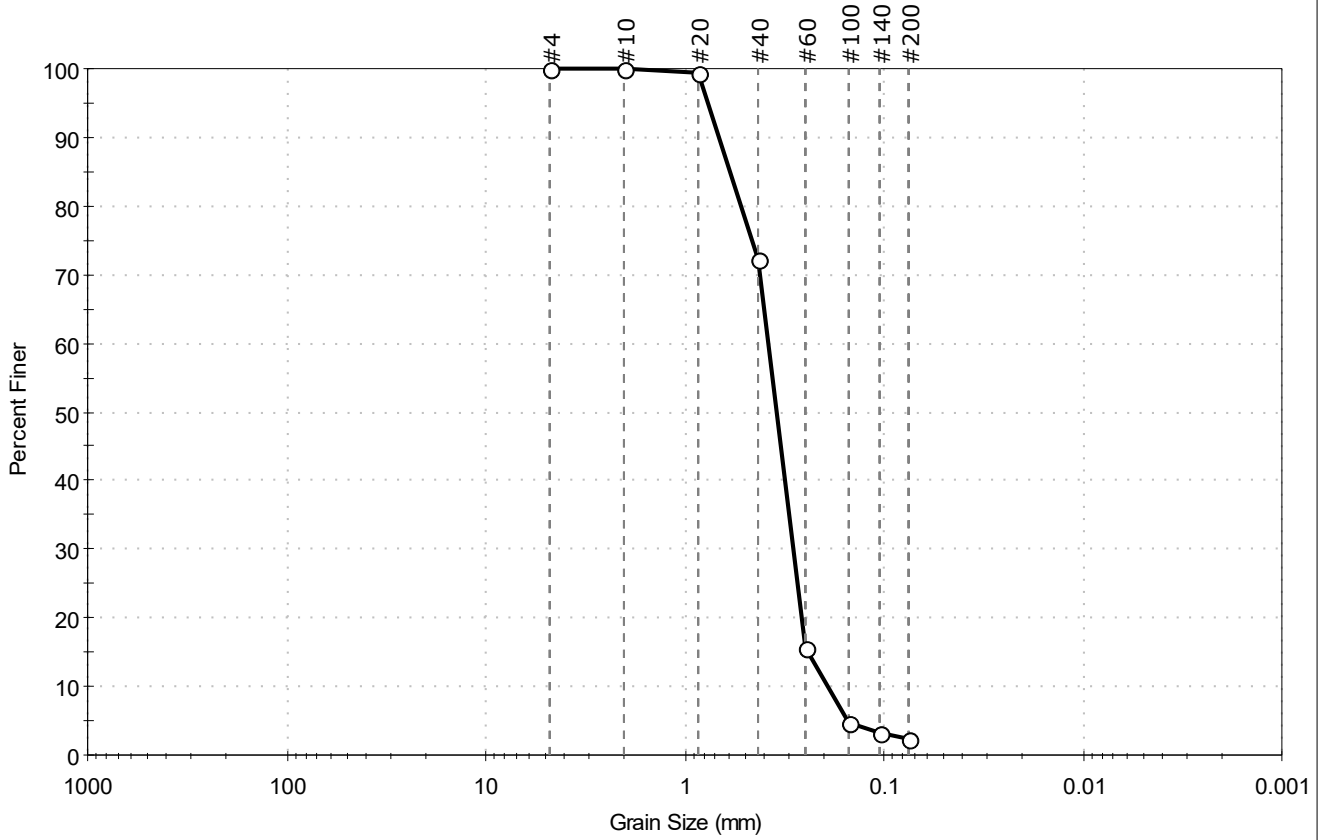
Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-117SPT-11-29.1-191	Test Date: 10/31/19	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 <sub>85</sub> = 0.5889 mm	D <sub>30</sub> = 0.2860 mm
D <sub>60</sub> = 0.3791 mm	D <sub>15</sub> = 0.2421 mm
D <sub>50</sub> = 0.3451 mm	D <sub>10</sub> = 0.1922 mm
C <sub>u</sub> = 1.972	C <sub>c</sub> = 1.123

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

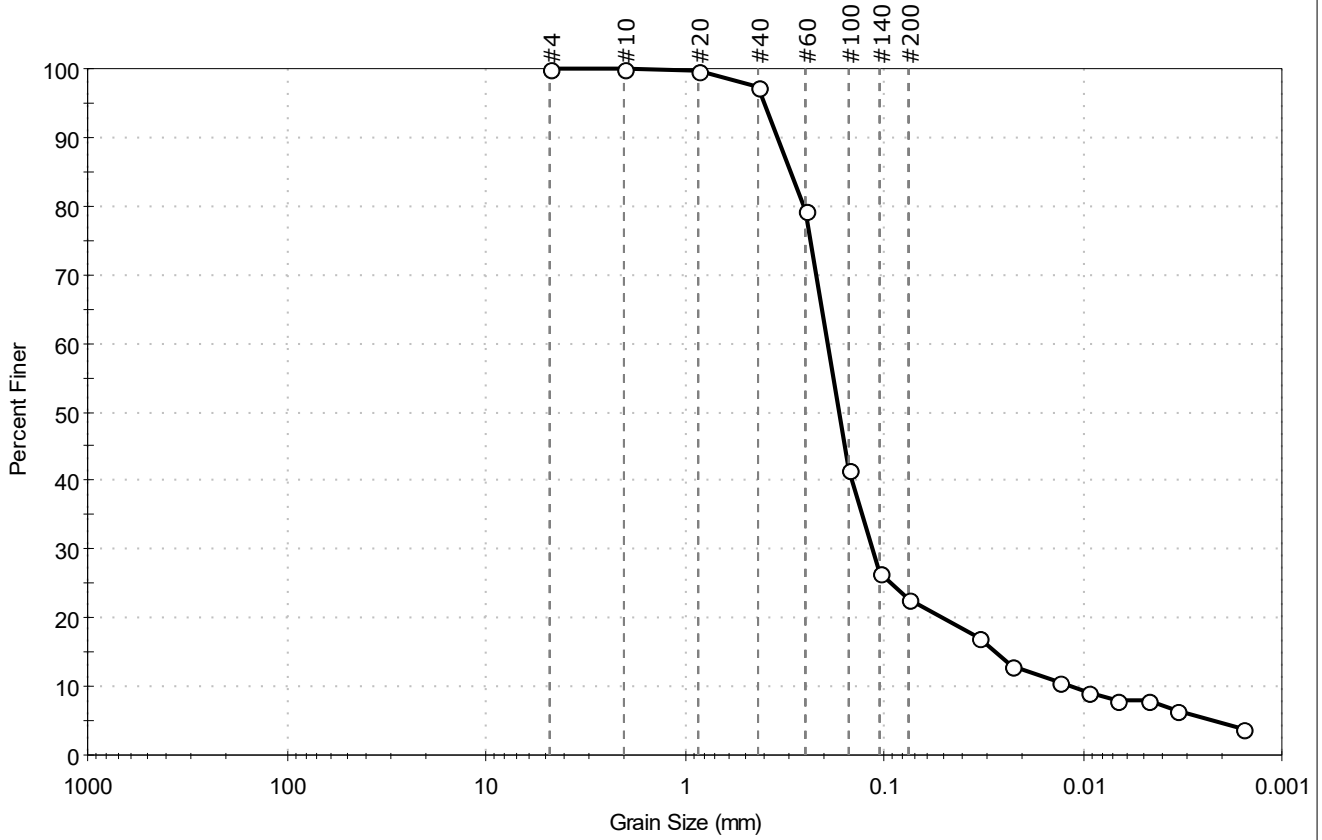
Sand/Gravel Particle Shape : ---

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 <sub>85</sub> = 0.2955 mm	D <sub>30</sub> = 0.1146 mm
D <sub>60</sub> = 0.1923 mm	D <sub>15</sub> = 0.0271 mm
D <sub>50</sub> = 0.1680 mm	D <sub>10</sub> = 0.0117 mm
C <sub>u</sub> = 16.436	C <sub>c</sub> = 5.837

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

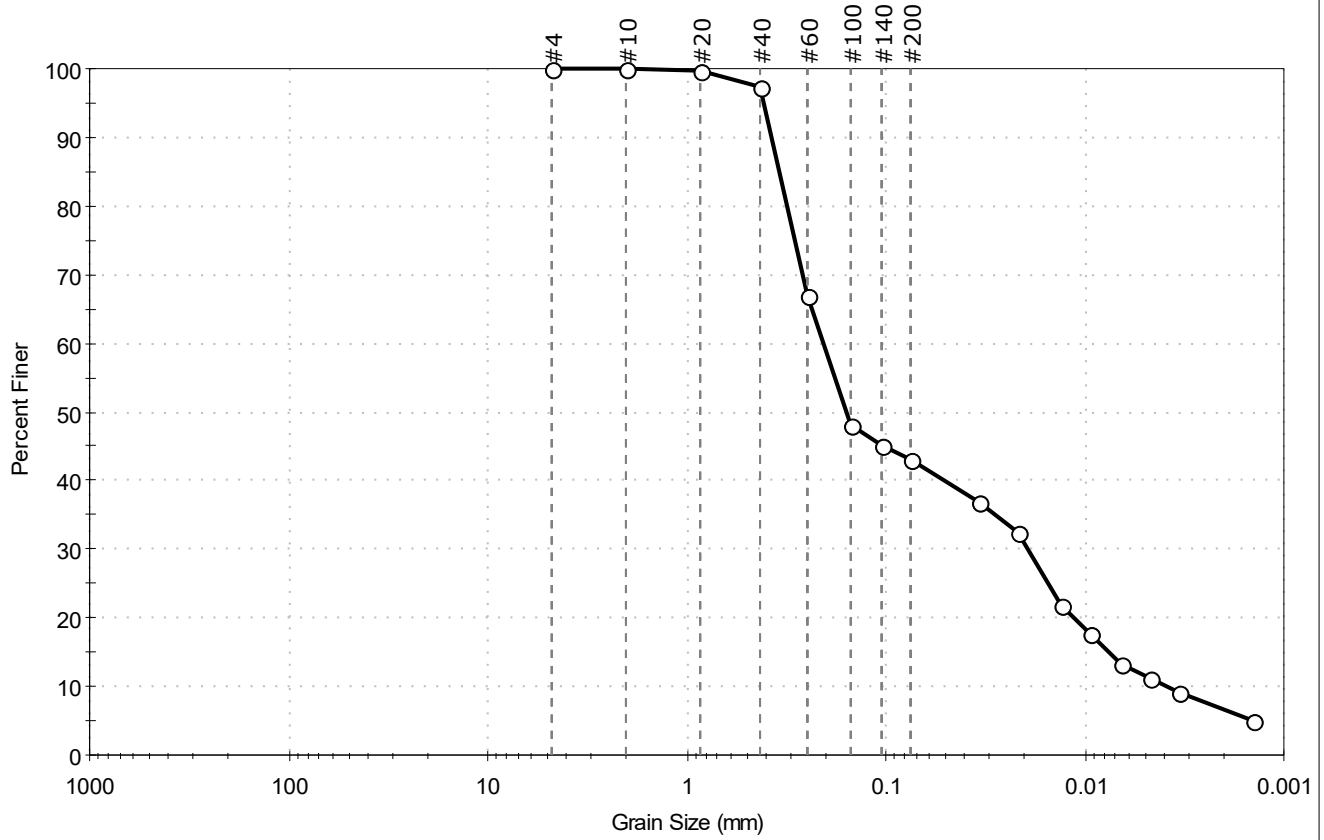
**Sample/Test Description**

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-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 <sub>85</sub> = 0.3430 mm	D <sub>30</sub> = 0.0193 mm
D <sub>60</sub> = 0.2072 mm	D <sub>15</sub> = 0.0076 mm
D <sub>50</sub> = 0.1576 mm	D <sub>10</sub> = 0.0039 mm
C <sub>u</sub> = 53.128	C <sub>c</sub> = 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

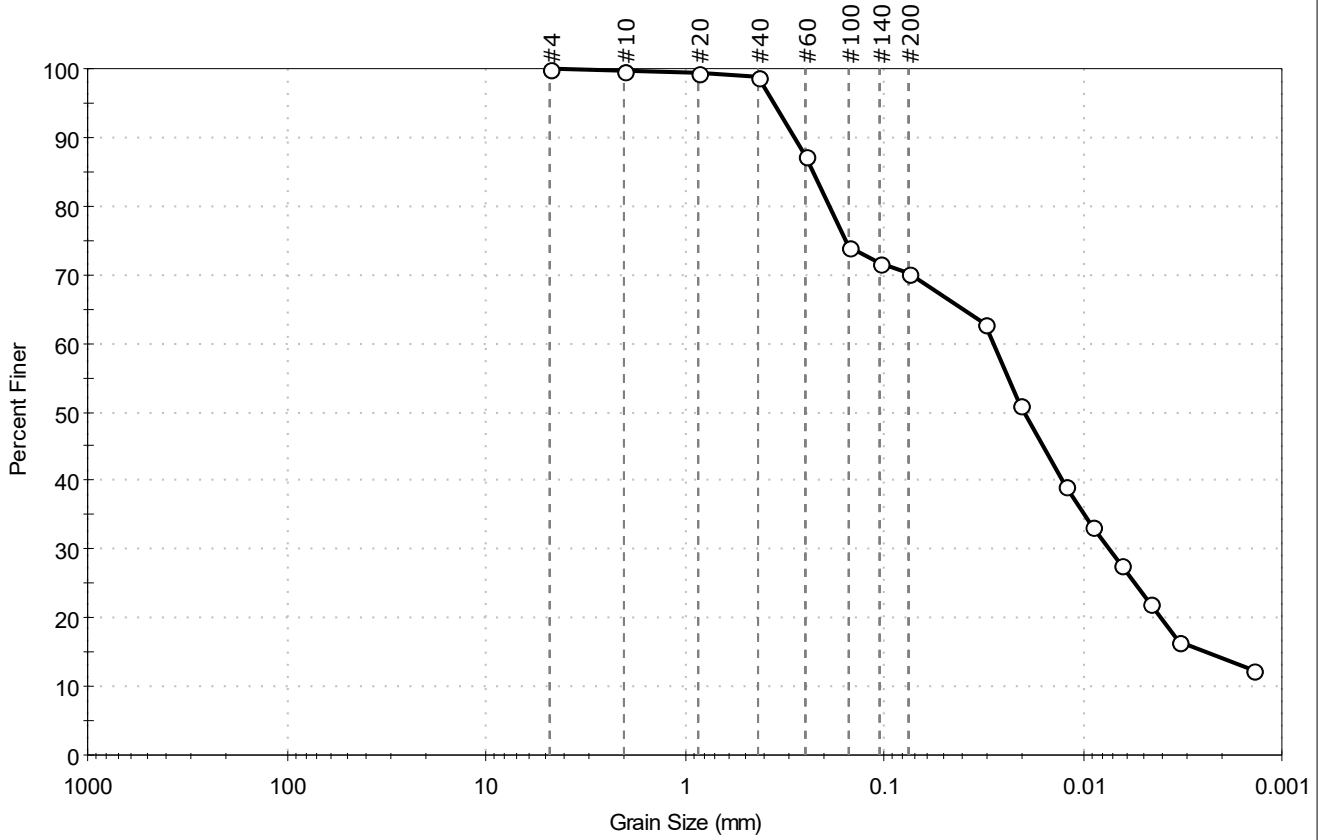
Est. Specific Gravity : 2.65

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 <sub>85</sub> = 0.2293 mm	D <sub>30</sub> = 0.0073 mm
D <sub>60</sub> = 0.0281 mm	D <sub>15</sub> = 0.0024 mm
D <sub>50</sub> = 0.0196 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

ASTM SILT with Sand (ML)

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

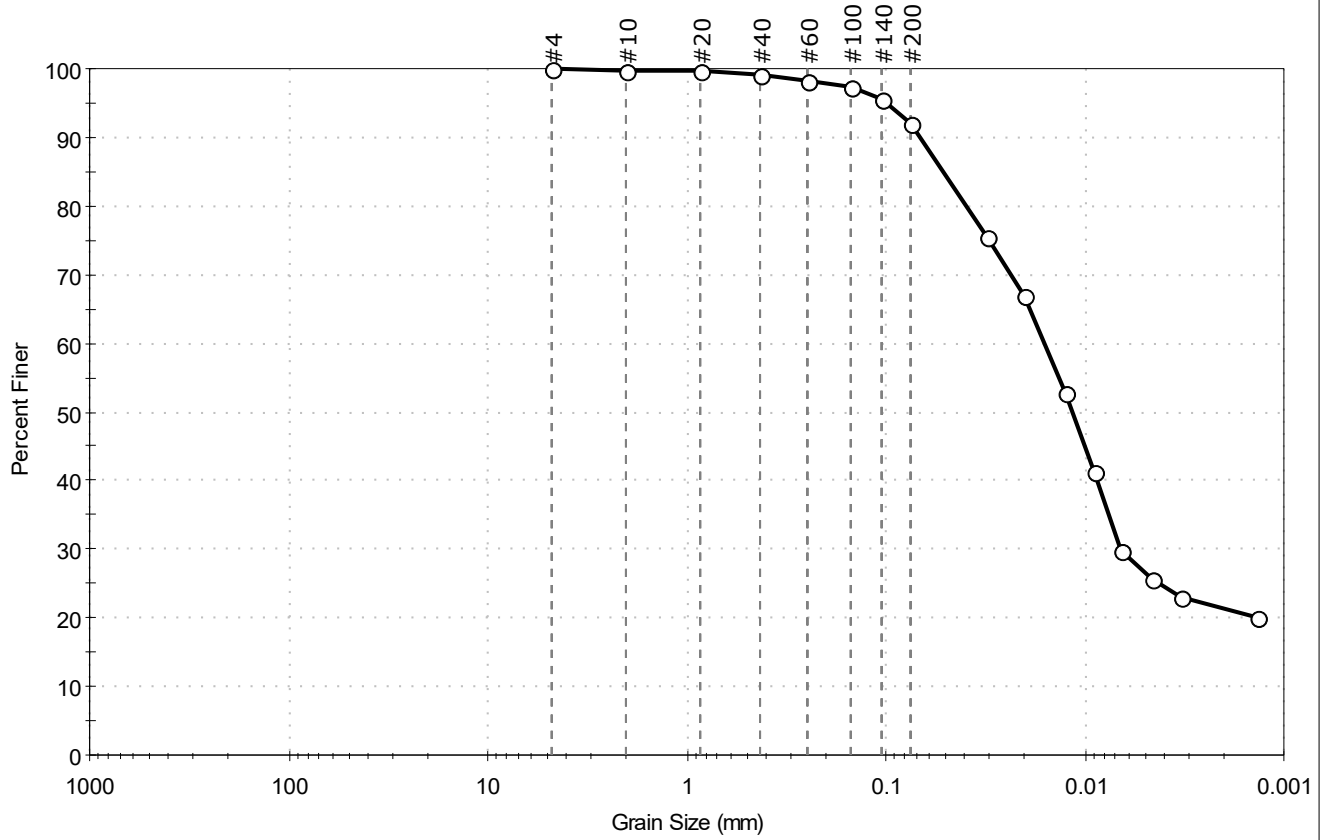
**Sample/Test Description**

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



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

<u>Coefficients</u>	
D <sub>85</sub> = 0.0518 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0161 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0116 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

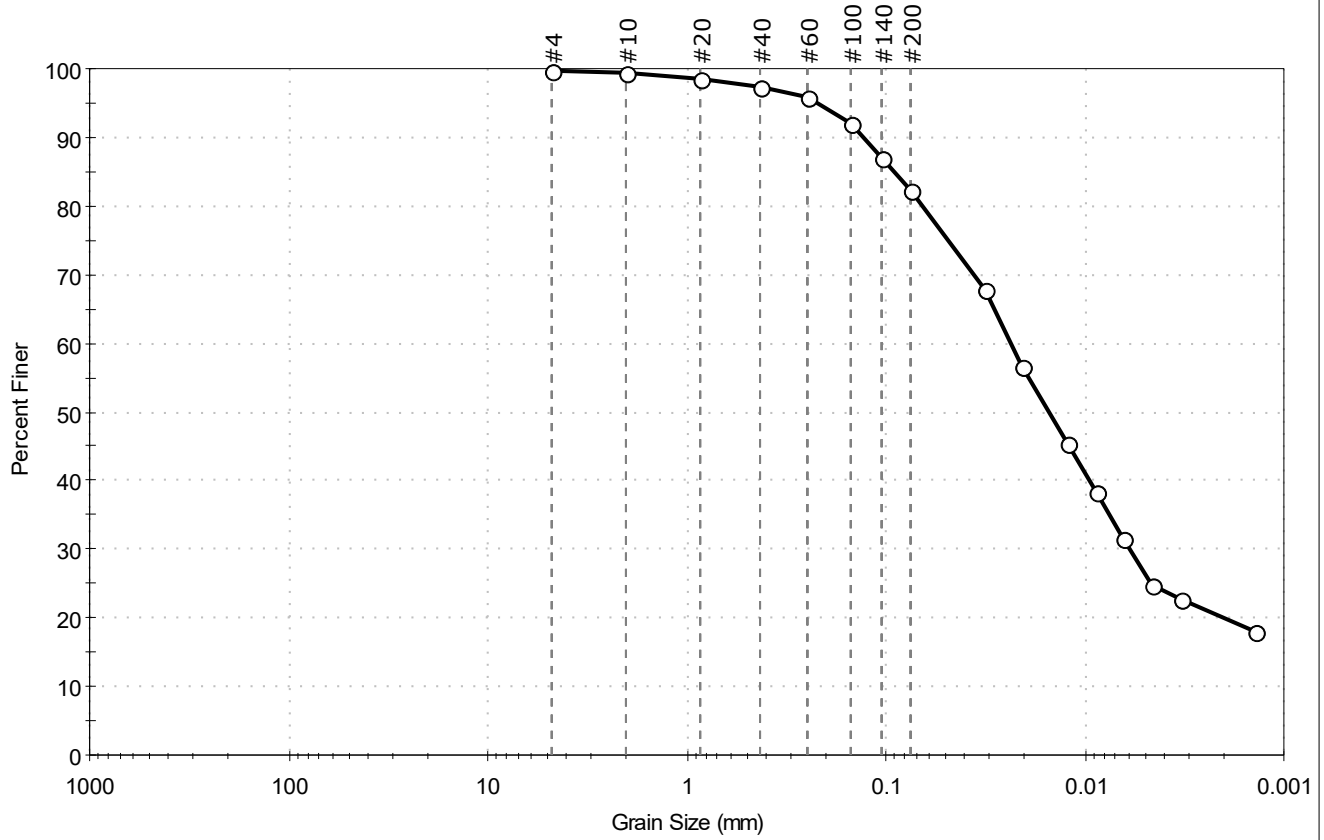
<u>Classification</u>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (37))

<u>Sample/Test Description</u>
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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0914 mm	D <sub>30</sub> = 0.0059 mm
D <sub>60</sub> = 0.0234 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0152 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

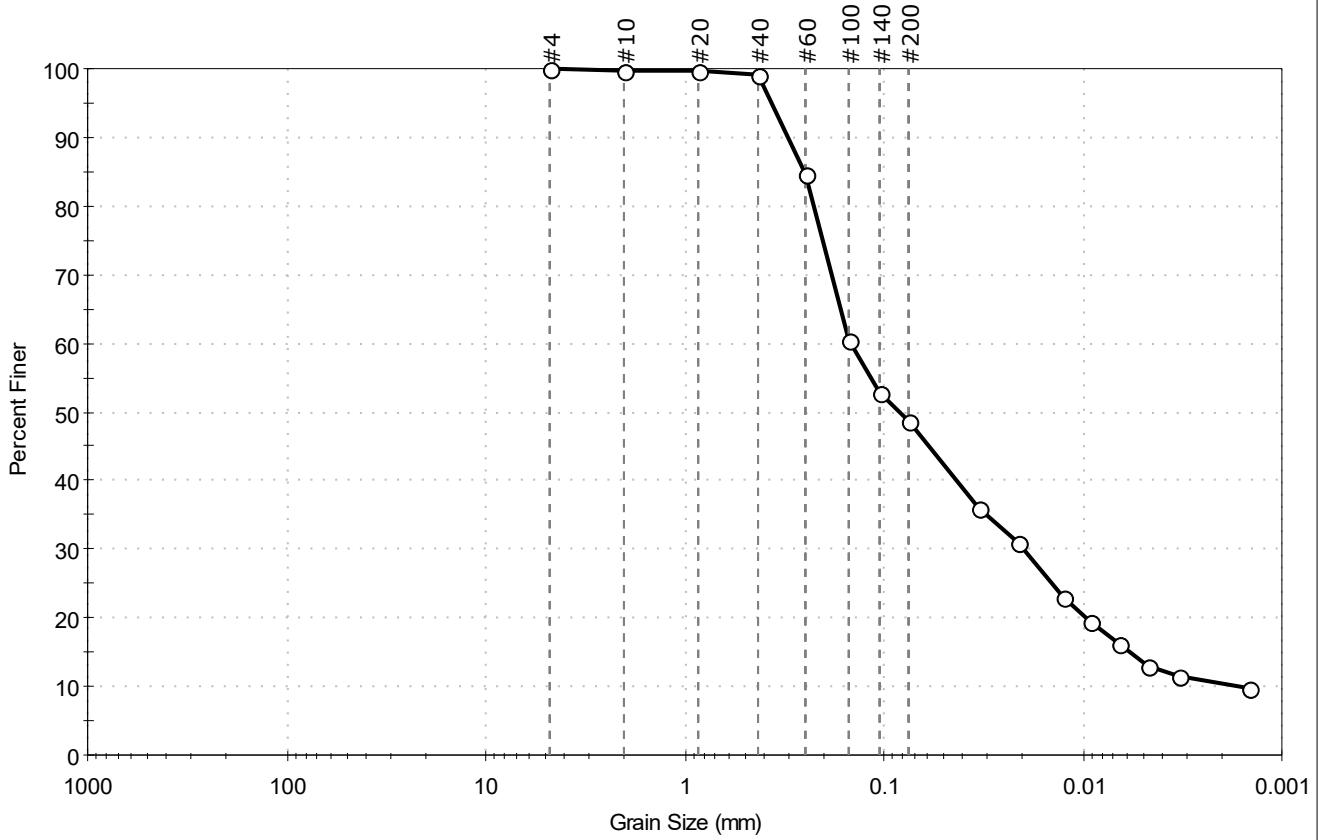
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (34))

<b>Sample/Test Description</b>	
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-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 <sub>85</sub> = 0.2537 mm	D <sub>30</sub> = 0.0197 mm
D <sub>60</sub> = 0.1474 mm	D <sub>15</sub> = 0.0057 mm
D <sub>50</sub> = 0.0832 mm	D <sub>10</sub> = 0.0016 mm
C <sub>u</sub> = 92.125	C <sub>c</sub> = 1.646

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (1))

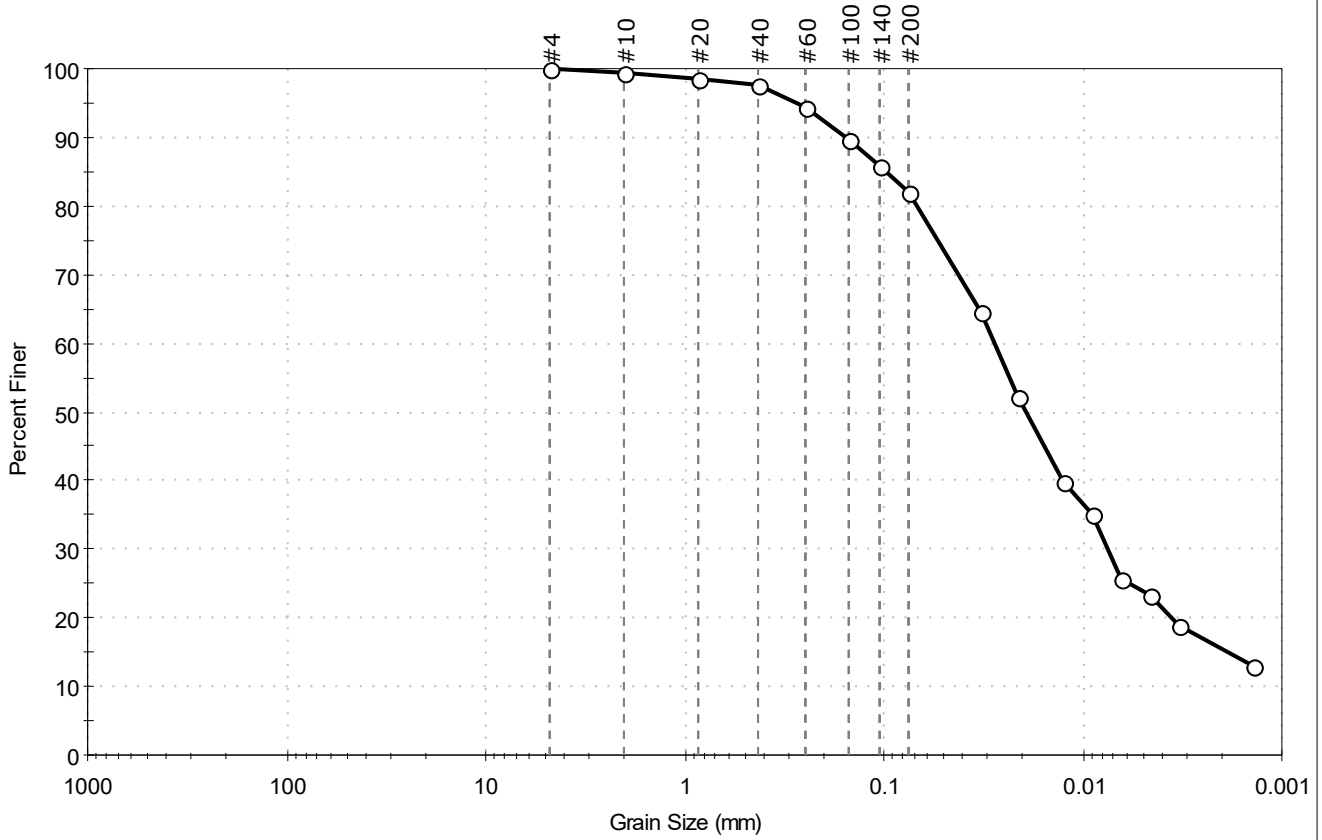
**Sample/Test Description**

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



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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0981 mm	D <sub>30</sub> = 0.0075 mm
D <sub>60</sub> = 0.0279 mm	D <sub>15</sub> = 0.0019 mm
D <sub>50</sub> = 0.0191 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (37))

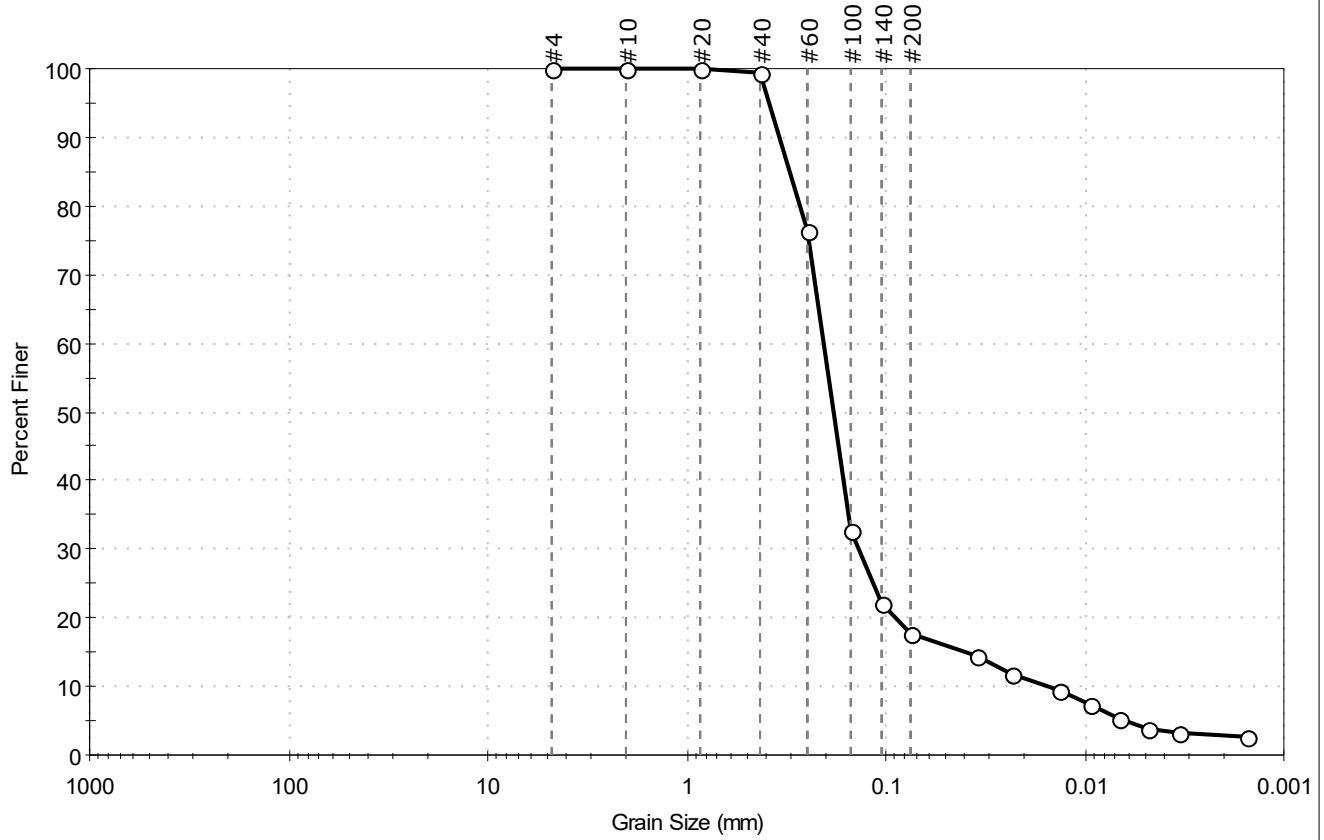
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-119SPT-18.3-31-191	Test Date: 10/29/19	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 <sub>85</sub> = 0.3051 mm	D <sub>30</sub> = 0.1369 mm
D <sub>60</sub> = 0.2063 mm	D <sub>15</sub> = 0.0393 mm
D <sub>50</sub> = 0.1835 mm	D <sub>10</sub> = 0.0149 mm
C <sub>u</sub> = 13.846	C <sub>c</sub> = 6.097

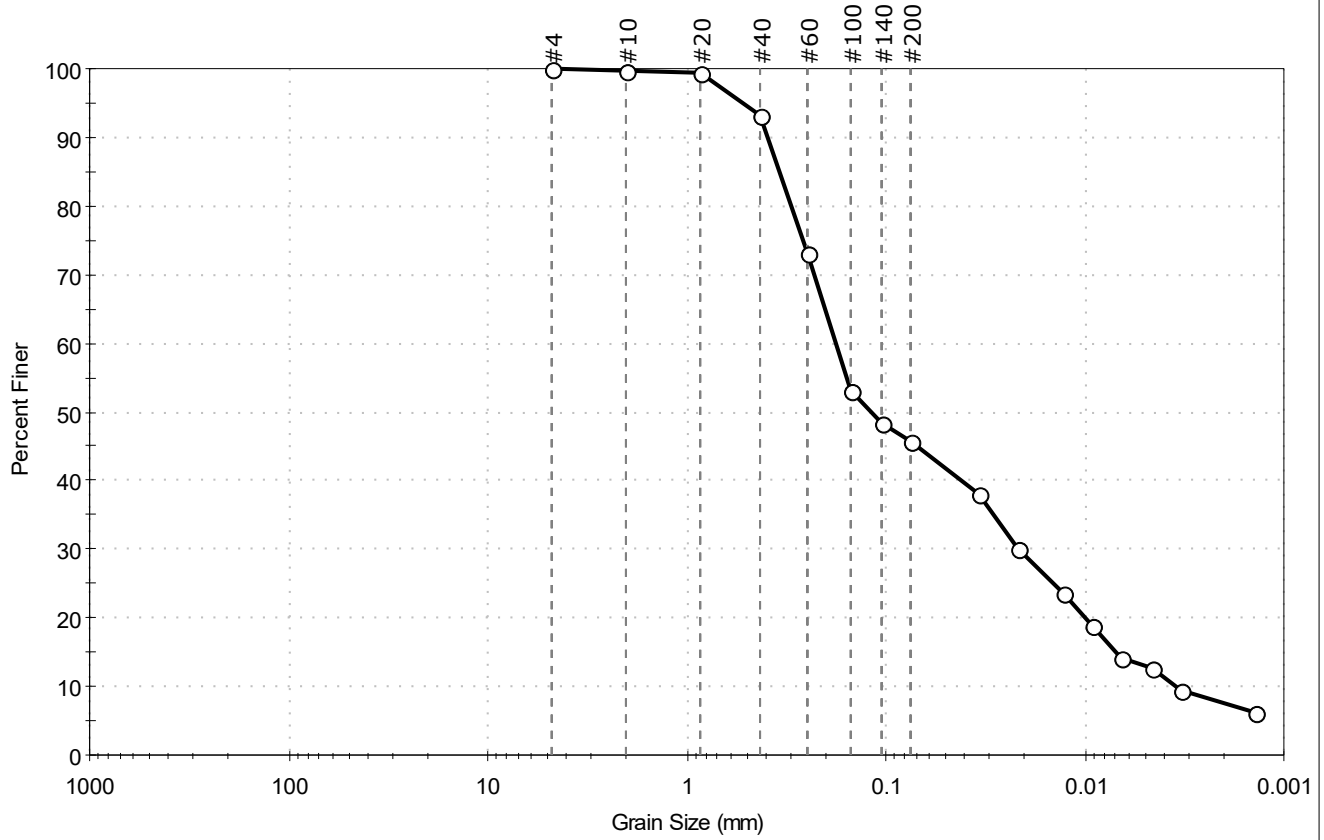
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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	Checked By: bfs
Sample ID: PDI-119SPT-47-52-19100	Test Date: 10/25/19	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 <sub>85</sub> = 0.3420 mm	D <sub>30</sub> = 0.0214 mm
D <sub>60</sub> = 0.1784 mm	D <sub>15</sub> = 0.0069 mm
D <sub>50</sub> = 0.1186 mm	D <sub>10</sub> = 0.0035 mm
C <sub>u</sub> = 50.971	C <sub>c</sub> = 0.733

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (1))

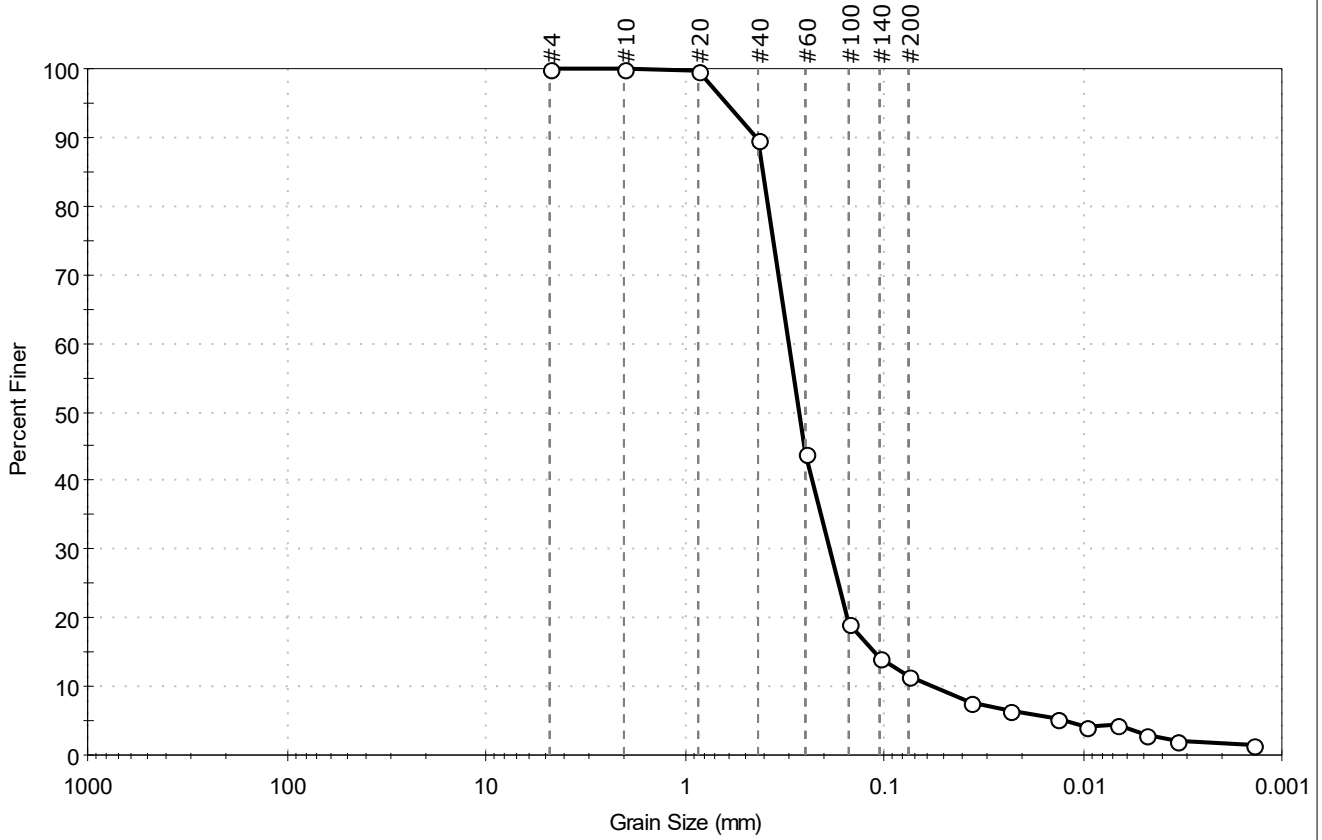
**Sample/Test Description**

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



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 <sub>85</sub> = 0.4029 mm	D <sub>30</sub> = 0.1875 mm
D <sub>60</sub> = 0.3010 mm	D <sub>15</sub> = 0.1128 mm
D <sub>50</sub> = 0.2679 mm	D <sub>10</sub> = 0.0555 mm
C <sub>u</sub> = 5.423	C <sub>c</sub> = 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

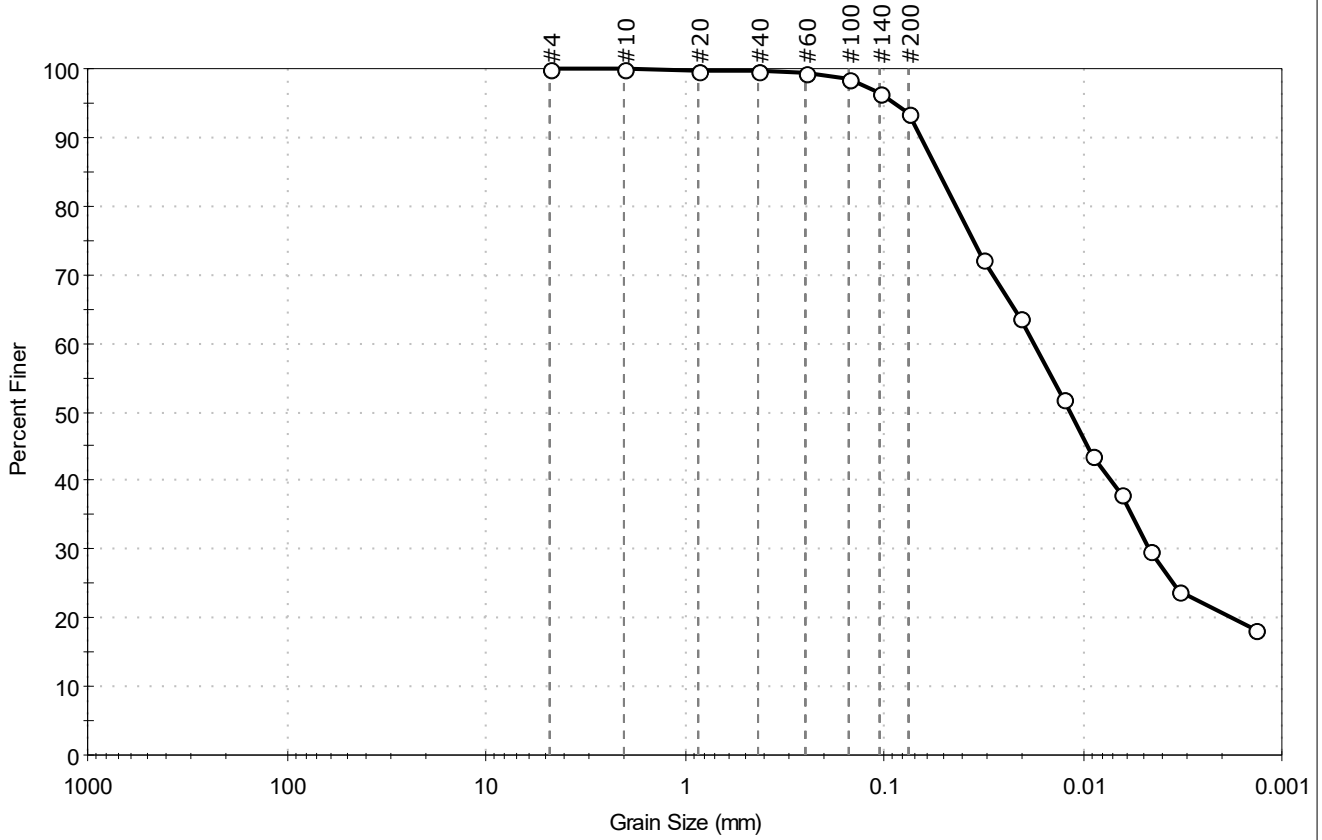
Est. Specific Gravity : 2.65

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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0532 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0115 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (38))

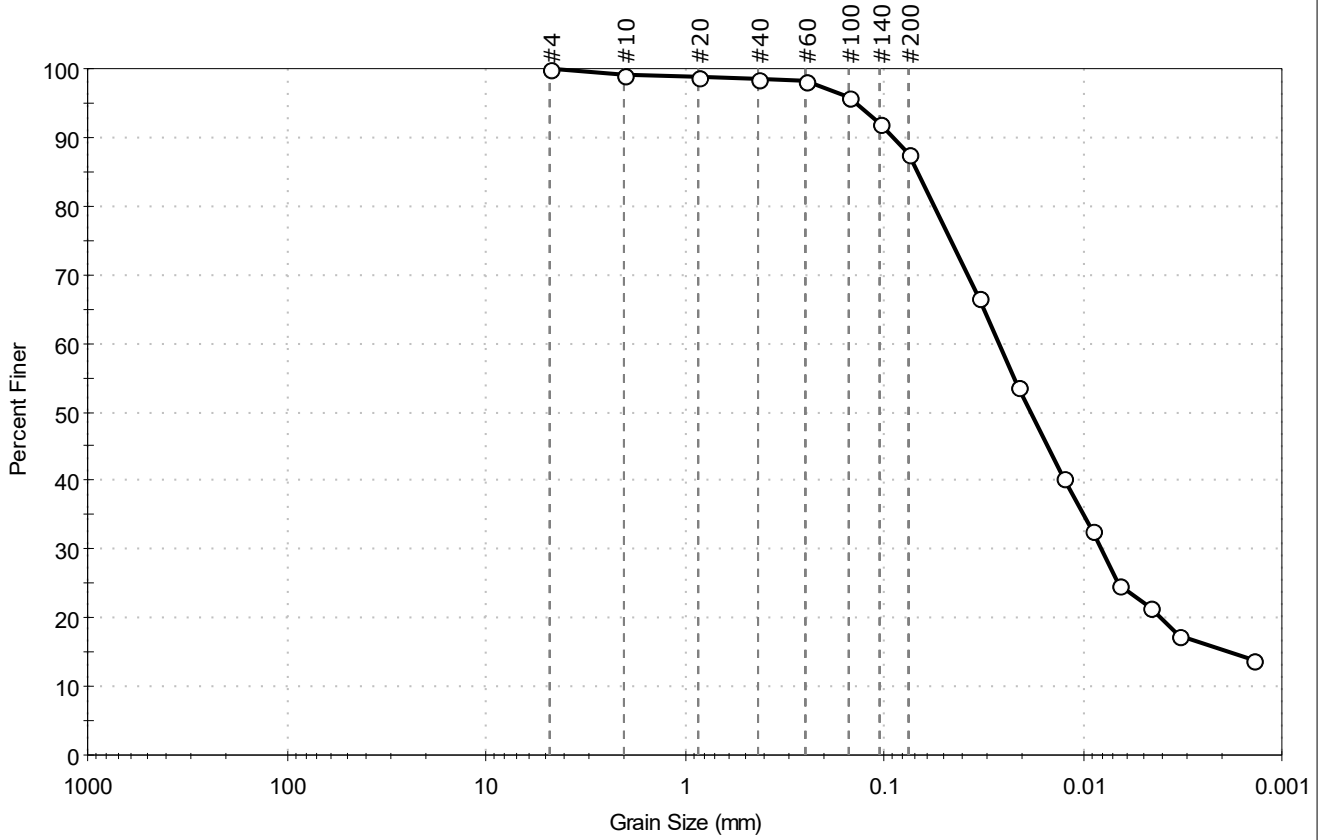
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: ---  
 Boring ID: ---  
 Sample ID: PDI-121SPT-11-20.7-1905  
 Depth: ---  
 Test Comment: ---  
 Visual Description: Moist, dark olive brown silt  
 Sample Comment: ---

Project No: GTX-310685  
 Sample Type: bag  
 Test Date: 10/30/19  
 Test Id: 527604  
 Tested By: ckg  
 Checked By: bfs

## 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<sub>85</sub> = 0.0679 mm      D<sub>30</sub> = 0.0081 mm  
 D<sub>60</sub> = 0.0264 mm      D<sub>15</sub> = 0.0018 mm  
 D<sub>50</sub> = 0.0184 mm      D<sub>10</sub> = N/A  
 C<sub>u</sub> = N/A                  C<sub>c</sub> = N/A

**Classification**

ASTM      Elastic SILT (MH)

AASHTO    Clayey Soils (A-7-5 (26))

**Sample/Test Description**

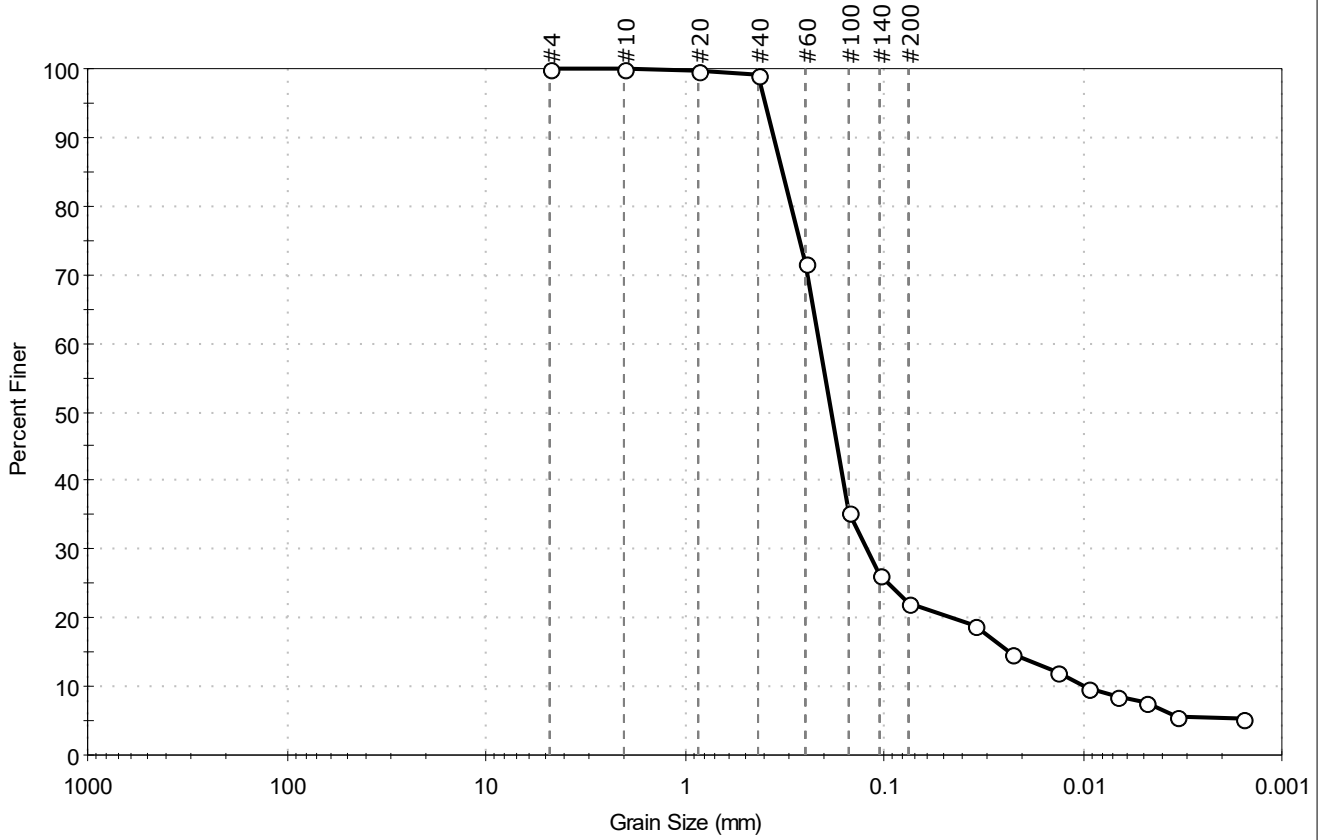
Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: ---  
 Boring ID: ---  
 Sample ID: PDI-121SPT-21-38-19093  
 Depth: ---  
 Test Comment: ---  
 Visual Description: Moist, dark olive gray silty sand  
 Sample Comment: ---

Project No: GTX-310685  
 Sample Type: bag  
 Test Date: 10/29/19  
 Test Id: 527605  
 Tested By: ckg  
 Checked By: bfs

## 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 <sub>85</sub> = 0.3231 mm	D <sub>30</sub> = 0.1227 mm
D <sub>60</sub> = 0.2122 mm	D <sub>15</sub> = 0.0231 mm
D <sub>50</sub> = 0.1844 mm	D <sub>10</sub> = 0.0098 mm
C <sub>u</sub> = 21.653	C <sub>c</sub> = 7.240

**Classification**

ASTM Silty SAND (SM)

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

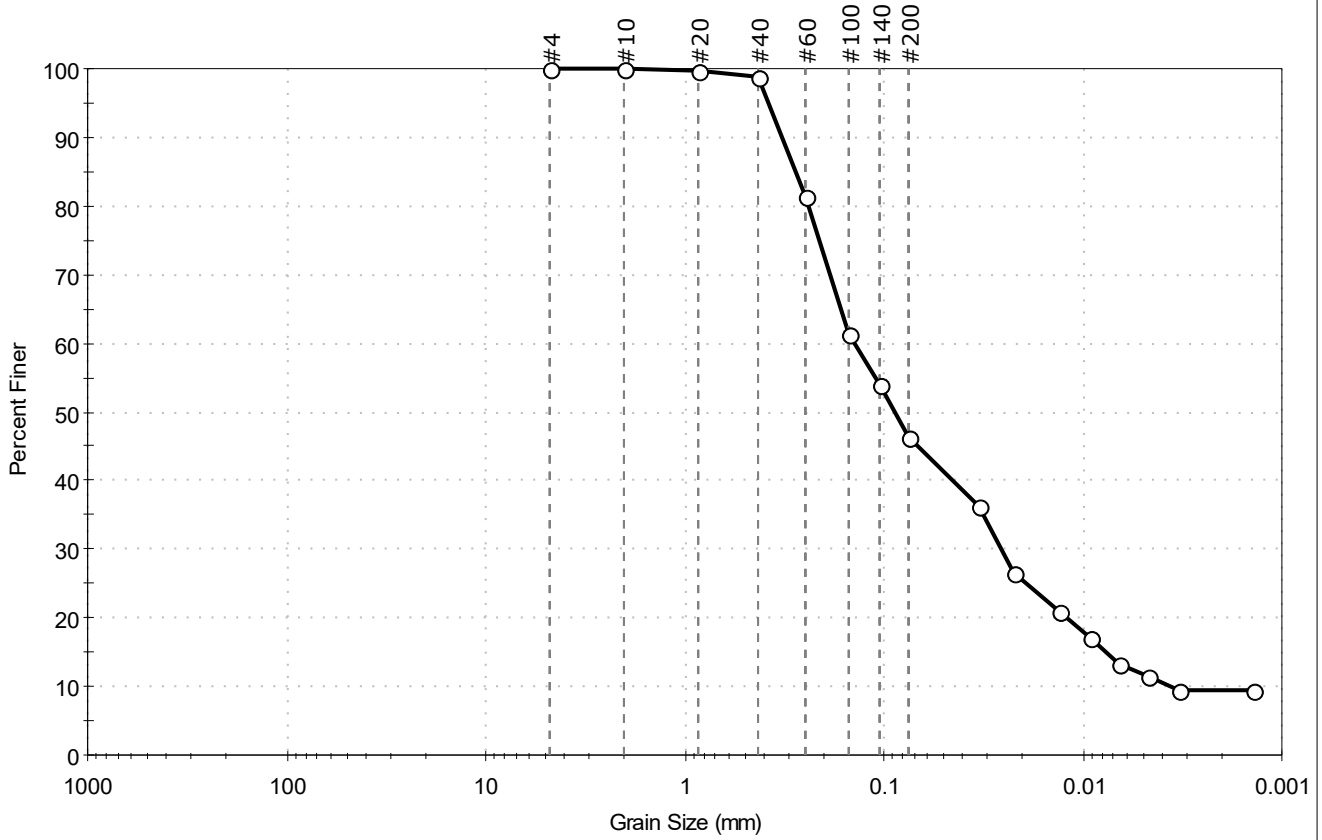
**Sample/Test Description**

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



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: \_\_\_\_\_ Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-121SPT-49.4-54-190 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 <sub>85</sub> = 0.2788 mm	D <sub>30</sub> = 0.0256 mm
D <sub>60</sub> = 0.1404 mm	D <sub>15</sub> = 0.0077 mm
D <sub>50</sub> = 0.0886 mm	D <sub>10</sub> = 0.0036 mm
C <sub>u</sub> = 39.000	C <sub>c</sub> = 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

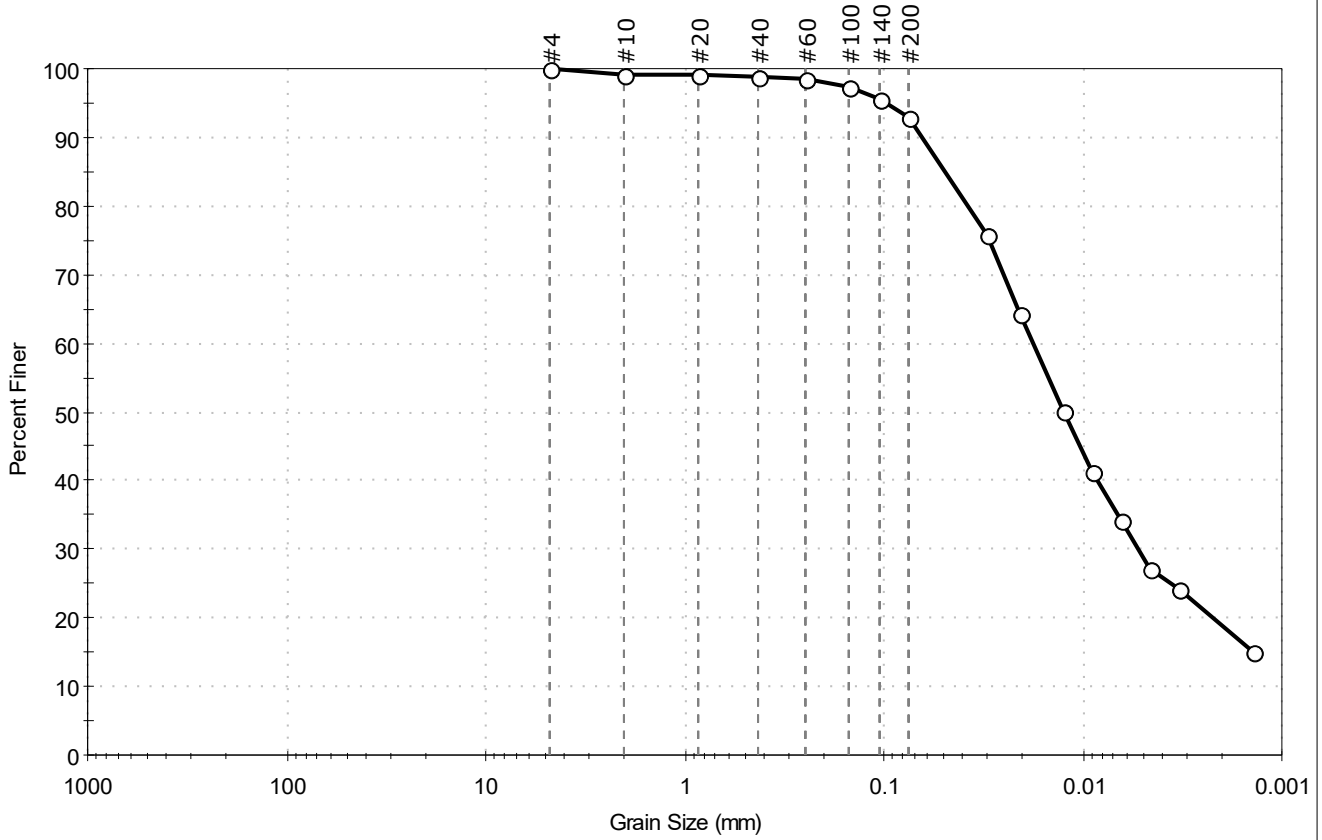
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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 <sub>85</sub> = 0.0494 mm	D <sub>30</sub> = 0.0053 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0124 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

ASTM Elastic SILT (MH)

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

**Sample/Test Description**

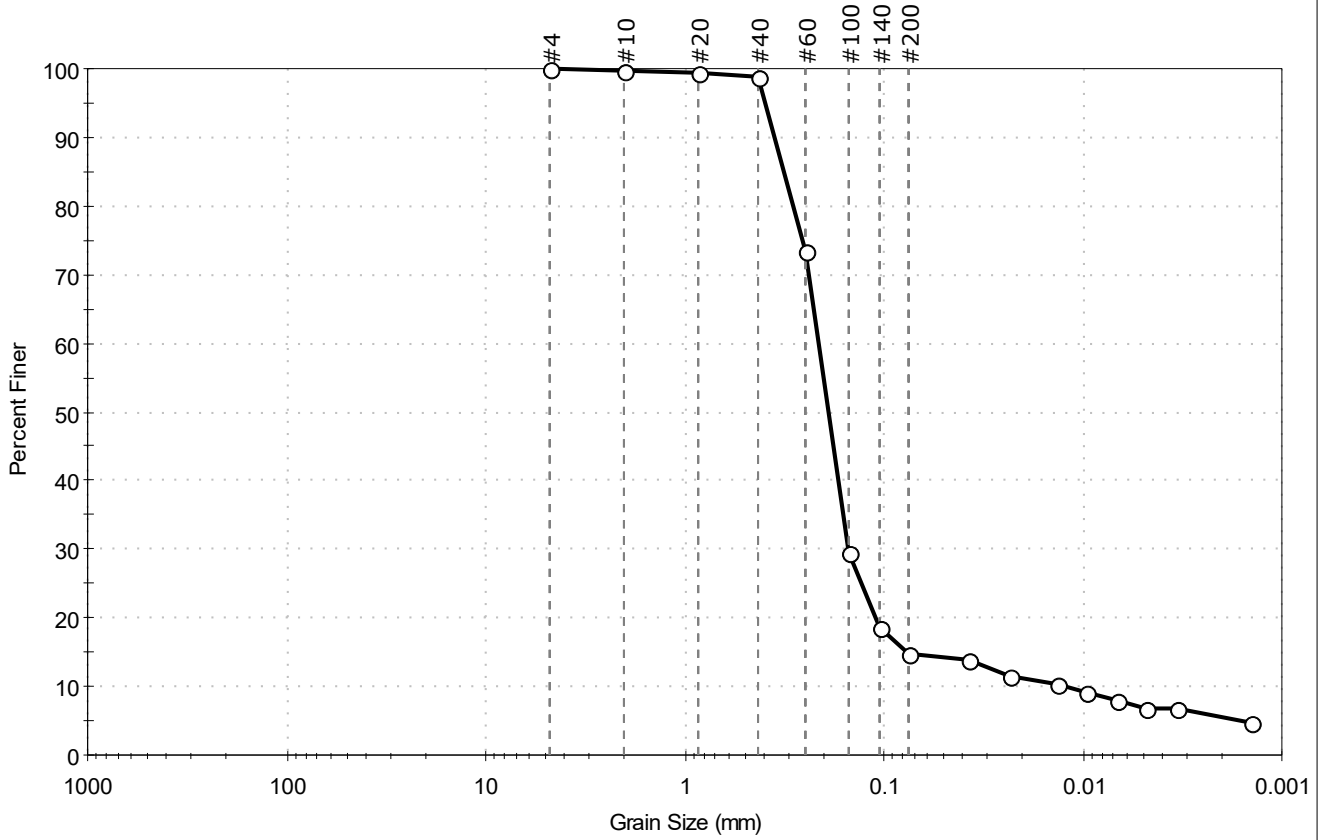
Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-122SPT-16.6-24-190 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 <sub>85</sub> = 0.3182 mm	D <sub>30</sub> = 0.1506 mm
D <sub>60</sub> = 0.2136 mm	D <sub>15</sub> = 0.0767 mm
D <sub>50</sub> = 0.1901 mm	D <sub>10</sub> = 0.0120 mm
C <sub>u</sub> = 17.800	C <sub>c</sub> = 8.848

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

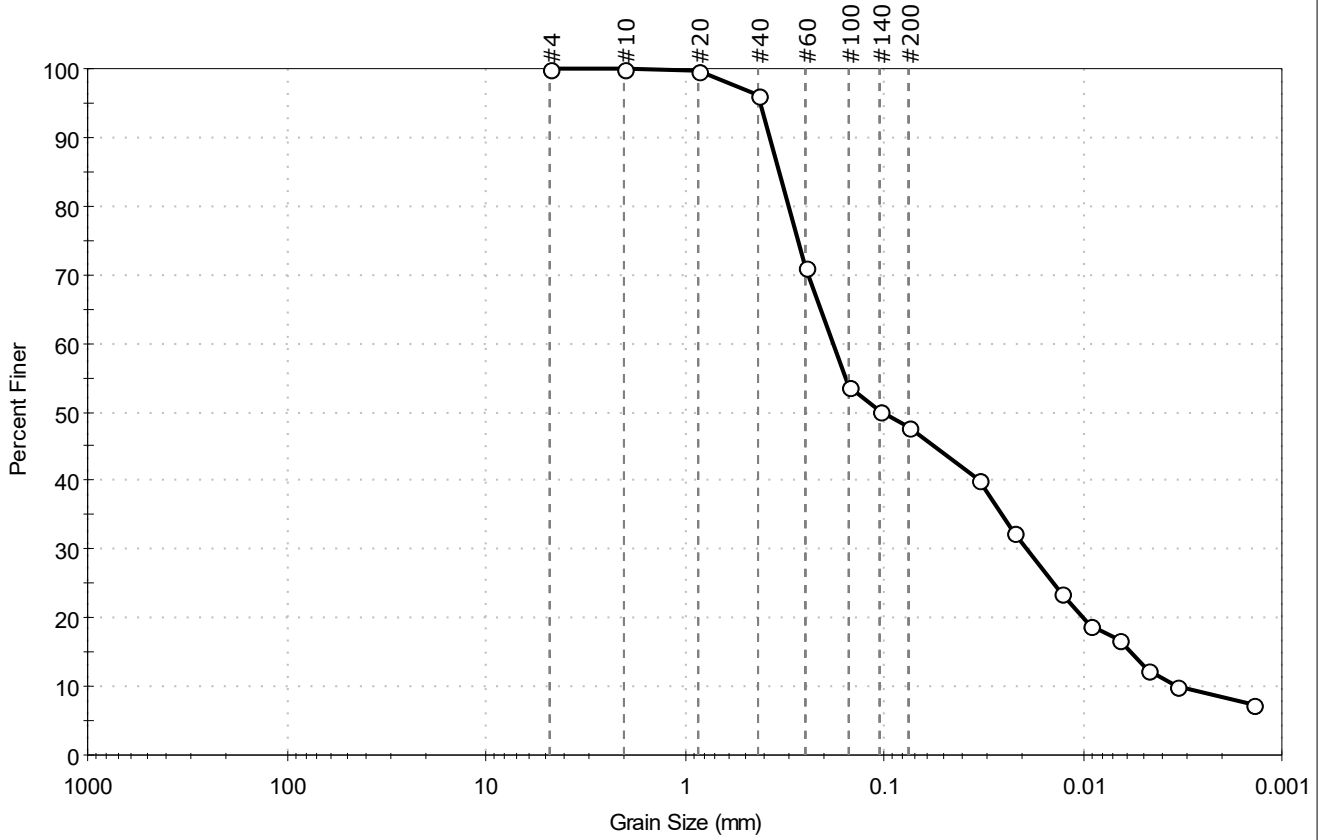
**Sample/Test Description**

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-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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3352 mm	D <sub>30</sub> = 0.0192 mm
D <sub>60</sub> = 0.1803 mm	D <sub>15</sub> = 0.0058 mm
D <sub>50</sub> = 0.1049 mm	D <sub>10</sub> = 0.0033 mm
C <sub>u</sub> = 54.636	C <sub>c</sub> = 0.620

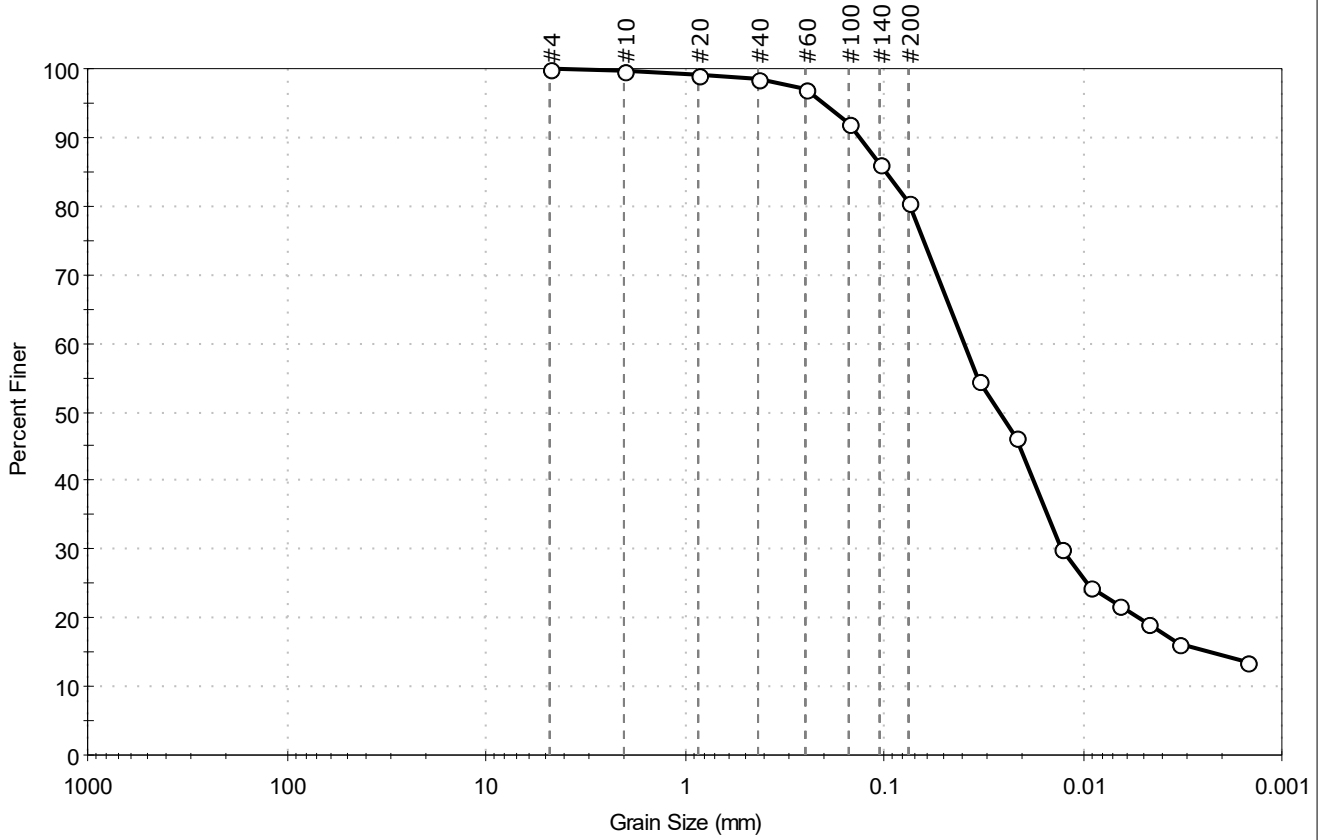
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Clayey Soils (A-6 (3))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-123SPT-00-4.5-1909	Tested By: ckg
Depth: ---	Test Date: 10/29/19
Test Comment: ---	Checked By: bfs
Visual Description: Wet, dark olive silt with sand	Test Id: 527610
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 <sub>85</sub> = 0.0992 mm	D <sub>30</sub> = 0.0129 mm
D <sub>60</sub> = 0.0398 mm	D <sub>15</sub> = 0.0022 mm
D <sub>50</sub> = 0.0264 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

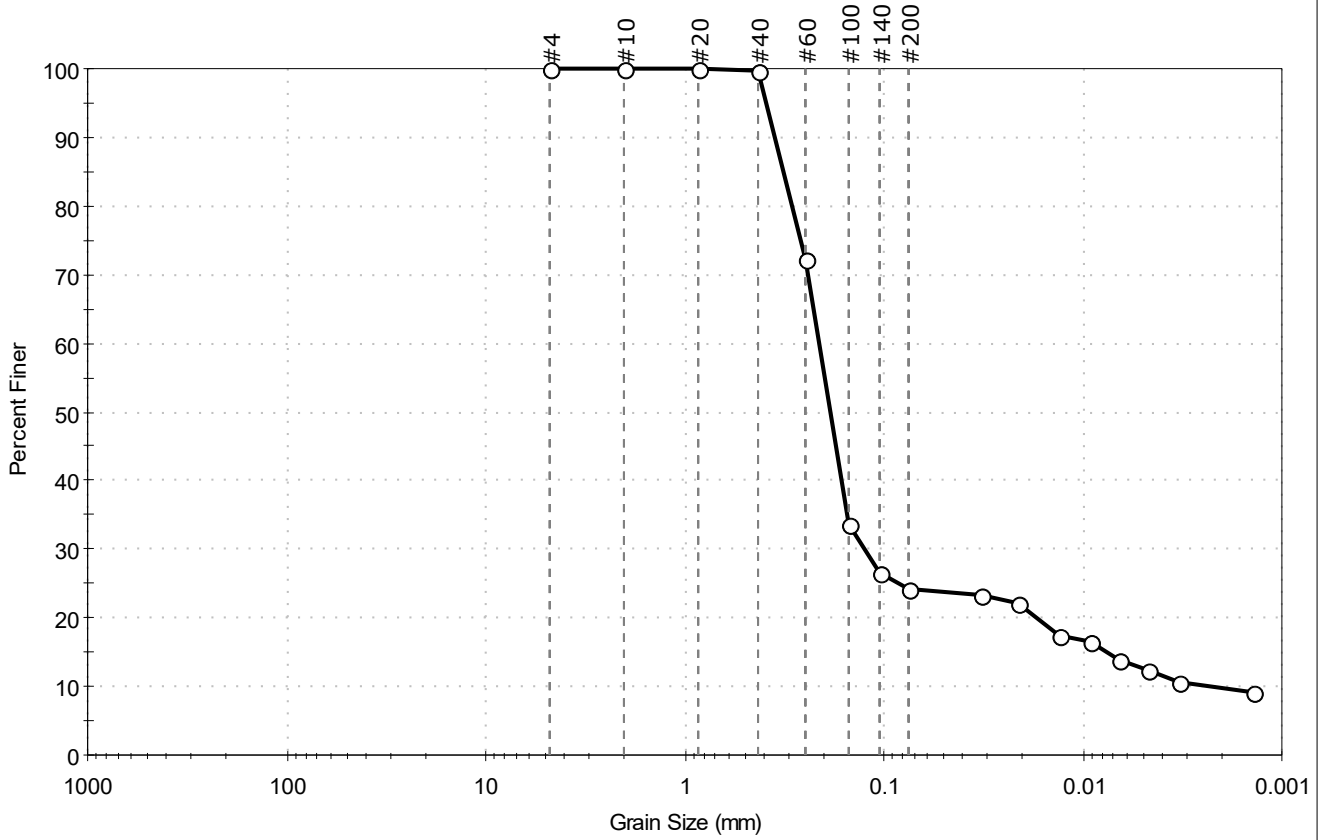
Classification	
ASTM	Elastic SILT with Sand (MH)
AASHTO	Clayey Soils (A-7-5 (23))

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



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 <sub>85</sub> = 0.3204 mm	D <sub>30</sub> = 0.1255 mm
D <sub>60</sub> = 0.2128 mm	D <sub>15</sub> = 0.0076 mm
D <sub>50</sub> = 0.1865 mm	D <sub>10</sub> = 0.0023 mm
C <sub>u</sub> = 92.522	C <sub>c</sub> = 32.180

**Classification**

ASTM Silty SAND (SM)

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

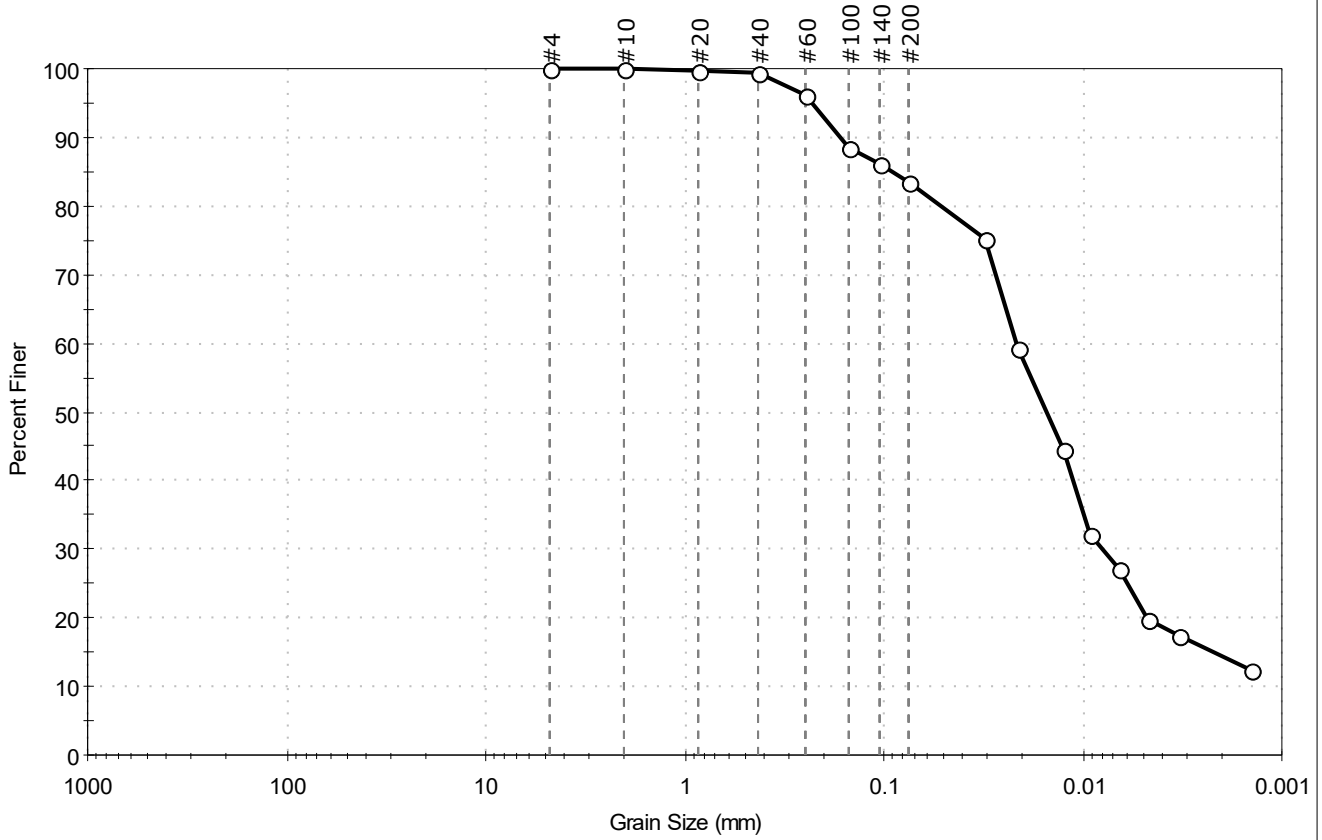
**Sample/Test Description**

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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0911 mm	D <sub>30</sub> = 0.0079 mm
D <sub>60</sub> = 0.0214 mm	D <sub>15</sub> = 0.0022 mm
D <sub>50</sub> = 0.0152 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

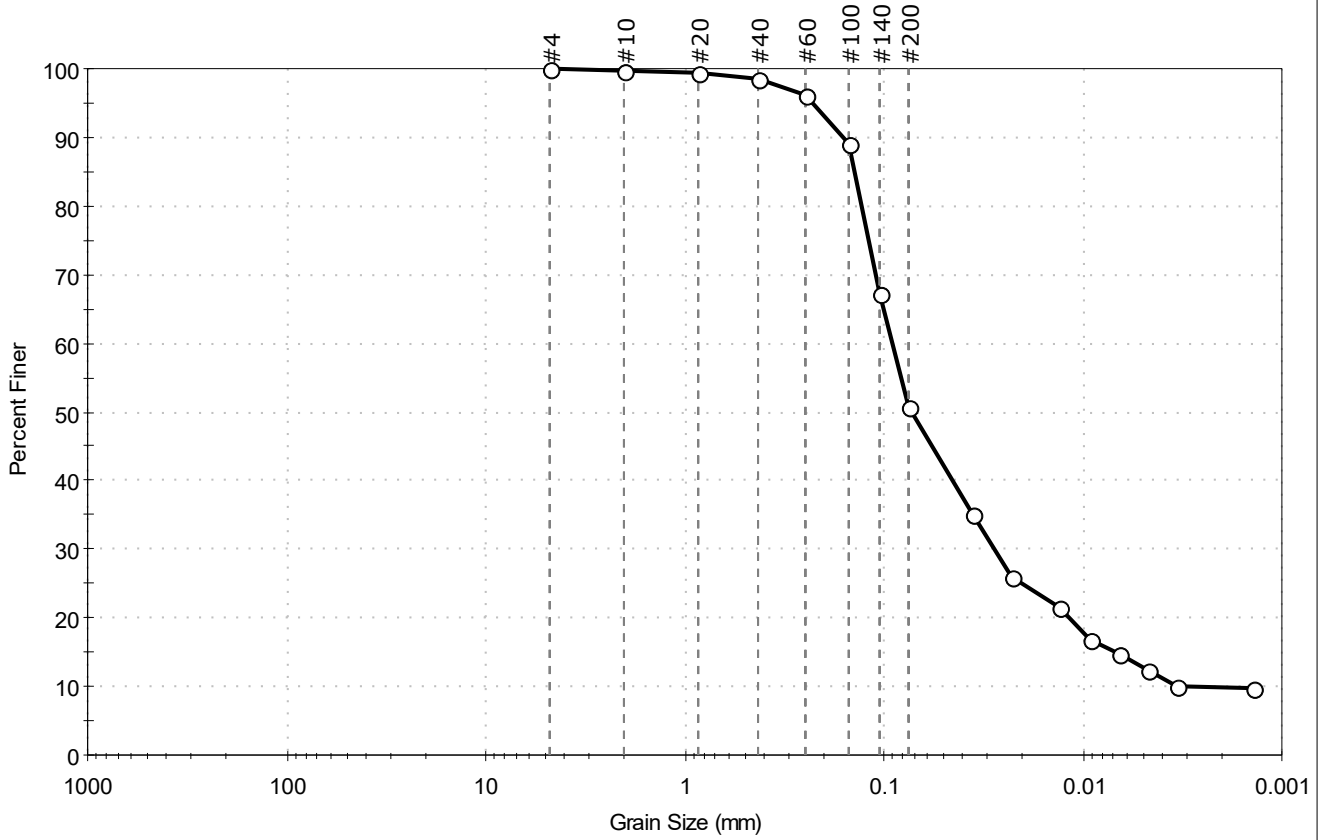
<b>Classification</b>	
<b>ASTM</b>	SILT with Sand (ML)
<b>AASHTO</b>	Clayey Soils (A-7-5 (13))

<b>Sample/Test Description</b>
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-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 <sub>85</sub> = 0.1405 mm	D <sub>30</sub> = 0.0277 mm
D <sub>60</sub> = 0.0909 mm	D <sub>15</sub> = 0.0070 mm
D <sub>50</sub> = 0.0722 mm	D <sub>10</sub> = 0.0024 mm
C <sub>u</sub> = 37.875	C <sub>c</sub> = 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

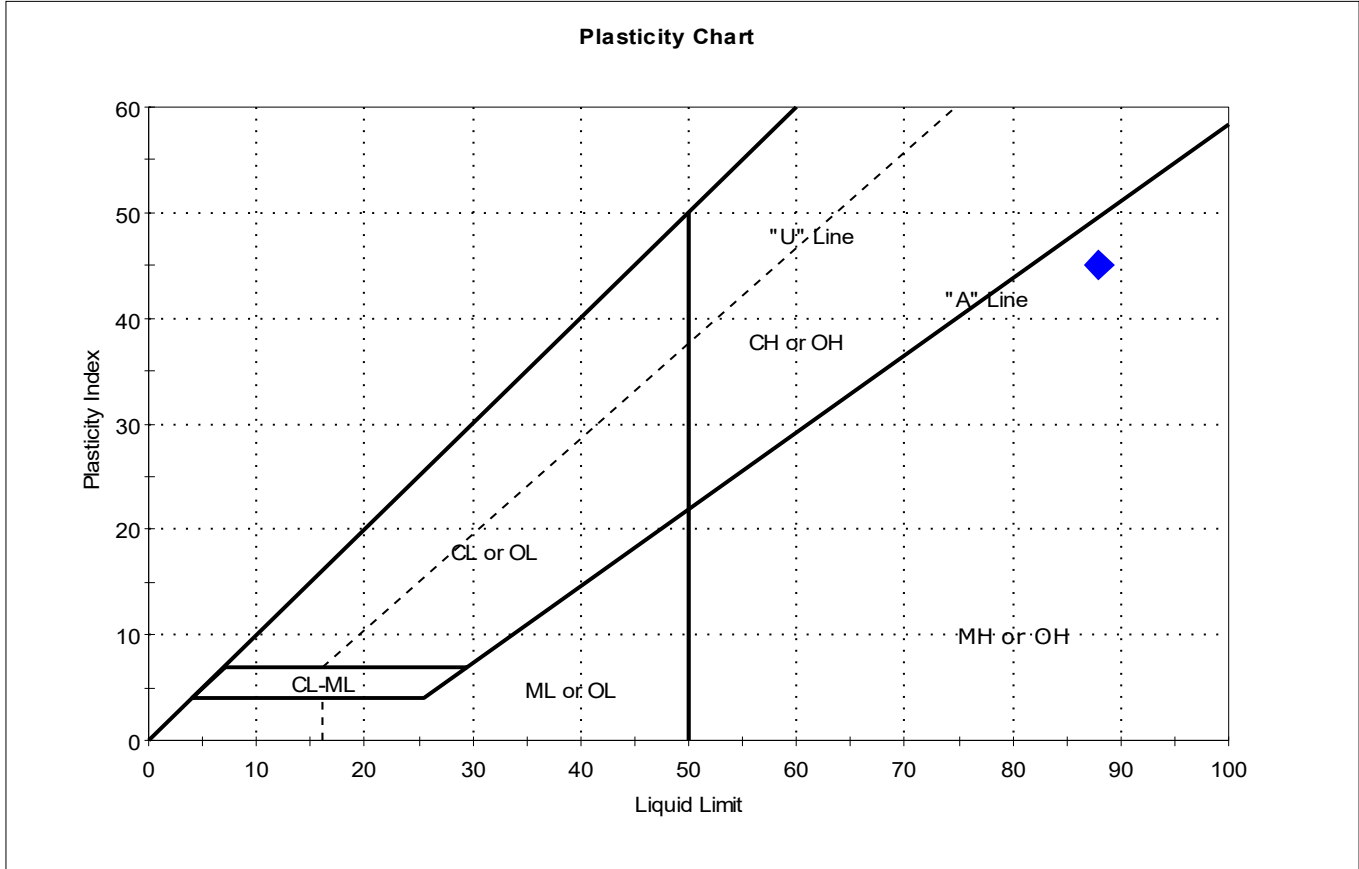
Est. Specific Gravity : 2.65

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	Checked By: bfs
Sample ID: PDI-018SC-A-06-07-1909	Test Date: 10/08/19	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
◆	PDI-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



Client:	Anchor QEA, LLC		
Project:	Gasco PDI		
Location:		Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag
Sample ID:	PDI-018SC-A-08-09-1909	Test Date:	10/09/19
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
Sample ID:	PDI-021SC-B-7.7-9.7-190	Tested By:	cam
Depth :	---	Test Date:	10/09/19
		Checked By:	bfs
		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-7.7-9.7-190	---	---	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
Sample ID:	PDI-024SC-B-10-12.1-19	Tested By:	cam
Depth :	---	Test Date:	10/09/19
		Checked By:	bfs
		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
◆	PDI-024SC-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
Sample ID:	PDI-028SC-10.7-12.7-191	Tested By:	cam
Depth :	---	Test Date:	10/14/19
		Checked By:	bfs
		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-10.7-12.7-191	---	---	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
Sample ID:	PDI-036SC-B-4.2-6.2-190	Tested By:	cam
Depth :	---	Test Date:	10/09/19
		Checked By:	bfs
		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-4.2-6.2-190	---	---	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
Sample ID:	PDI-039SC-B-7.8-9.8-190	Tested By:	cam
Depth :	---	Test Date:	10/09/19
		Checked By:	bfs
		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-7.8-9.8-190	---	---	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



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

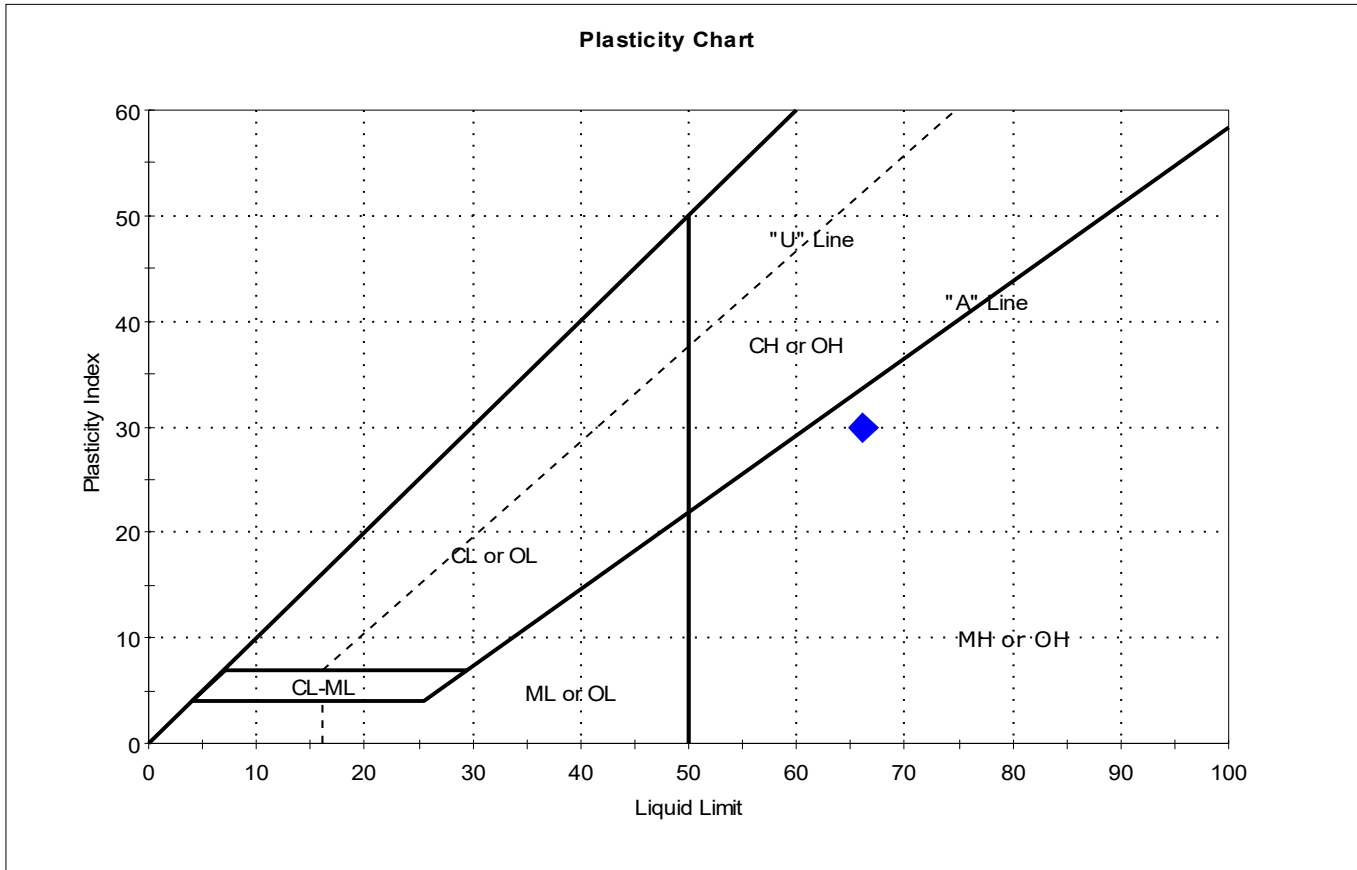
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	046SC-B-9.8-11.8-19	---	---	24	n/a	n/a	n/a	n/a	Silty SAND (SM)

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

## Atterberg Limits - ASTM D4318



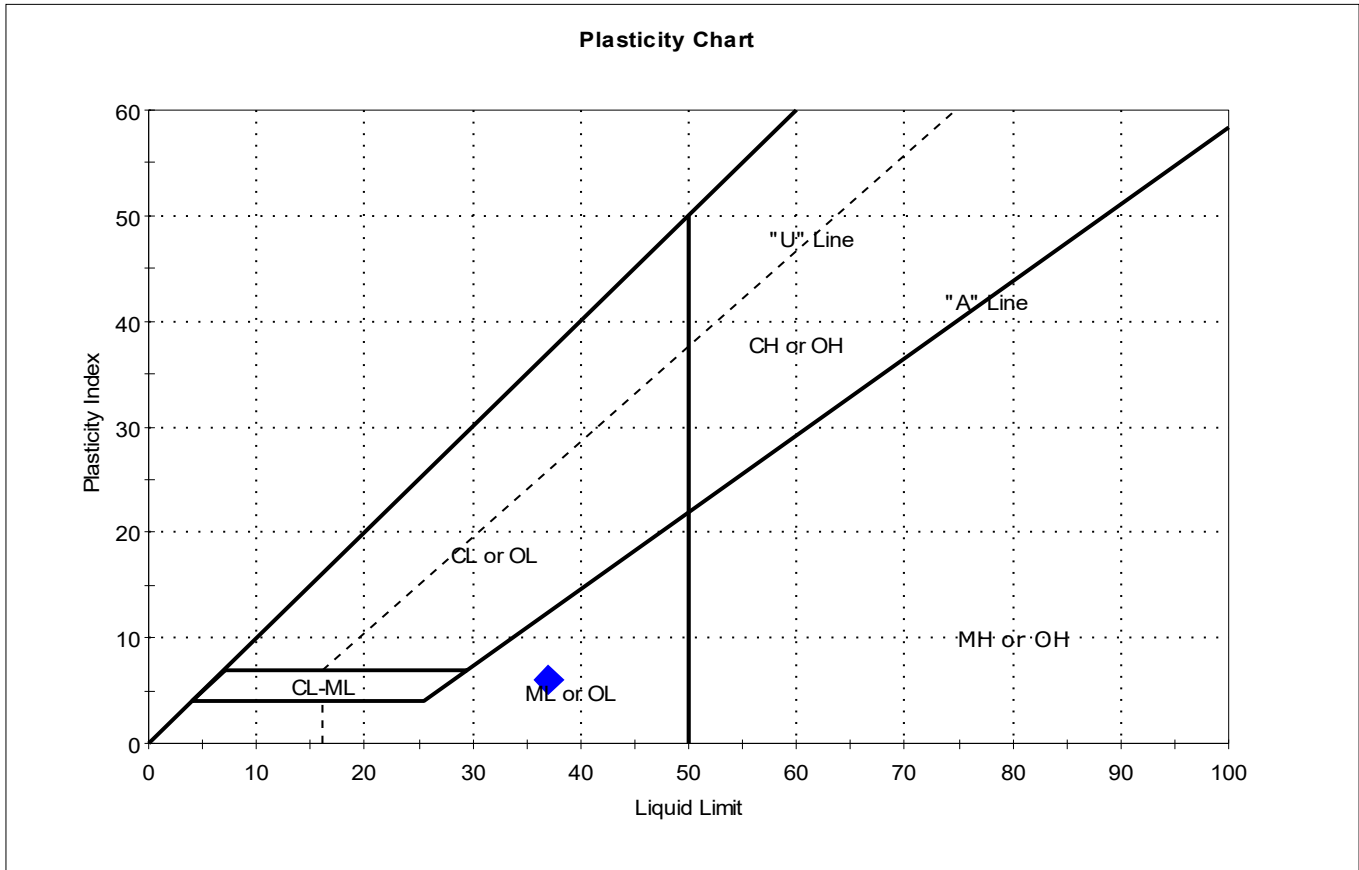
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-064SC-B-04-06-19	---	---	66	66	36	30	1	Elastic SILT with Sand (MH)

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



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-071SC-B-08-10-1910	Test Date:	10/15/19
Depth:	---	Checked By:	bfs
		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)

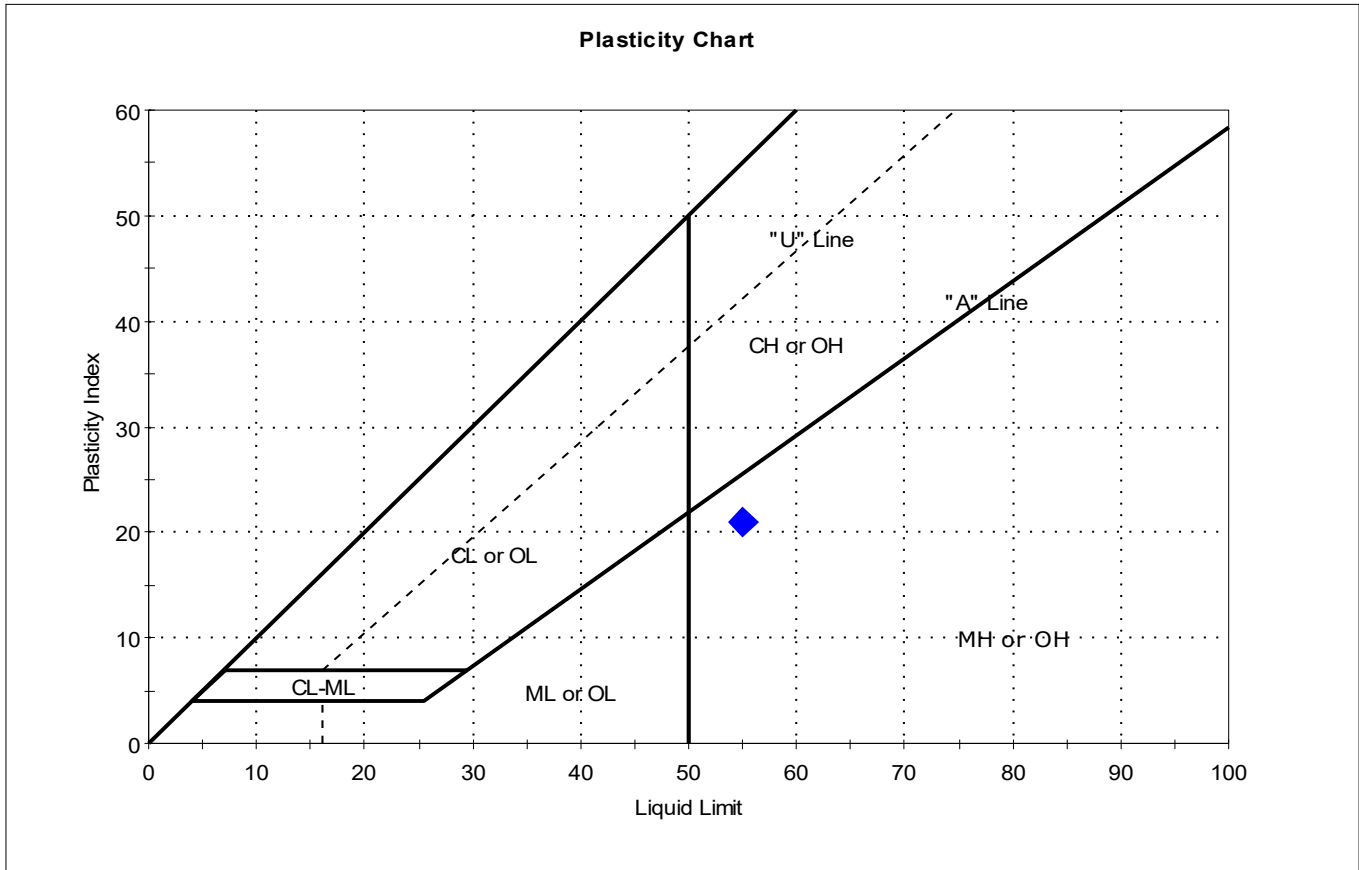
Sample Prepared using the WET method  
 19% Retained on #40 Sieve  
 Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location: ---	Sample Type: bag
Boring ID: ---	Tested By: cam
Sample ID: PDI-081SC-B-08-10-1910	Test Date: 10/14/19
Depth: ---	Checked By: bfs
	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
◆	PDI-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
Sample ID:	PDI-016SC-B-06-08-1910	Tested By:	cam
Depth :	---	Test Date:	11/06/19
		Checked By:	bfs
		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
Sample ID:	PDI-027SC-B-11-13.5-19	Tested By:	cam
Depth :	---	Test Date:	11/12/19
		Checked By:	bfs
		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
Sample ID:	PDI-033SC-B-8.7-10.7-19	Tested By:	cam
Depth :	---	Test Date:	11/01/19
		Checked By:	bfs
		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
◆	033SC-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



Client:	Anchor QEA, LLC		
Project:	Gasco PDI		
Location:		Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag
Sample ID:	PDI-038SC-B-7.1-9.1-191	Tested By:	cam
Depth :	---	Test Date:	10/25/19
		Checked By:	bfs
		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-7.1-9.1-191	---	---	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
Sample ID:	PDI-041SC-B-8.2-10.2-19	Tested By:	cam
Depth :	---	Test Date:	10/30/19
		Checked By:	bfs
		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
Sample ID:	PDI-049SC-B-06-08-1910	Tested By:	cam
Depth :	---	Test Date:	11/05/19
		Checked By:	bfs
		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
Sample ID:	PDI-052SC-B-06-08-1910	Tested By:	cam
Depth :	---	Test Date:	11/06/19
		Checked By:	bfs
		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)

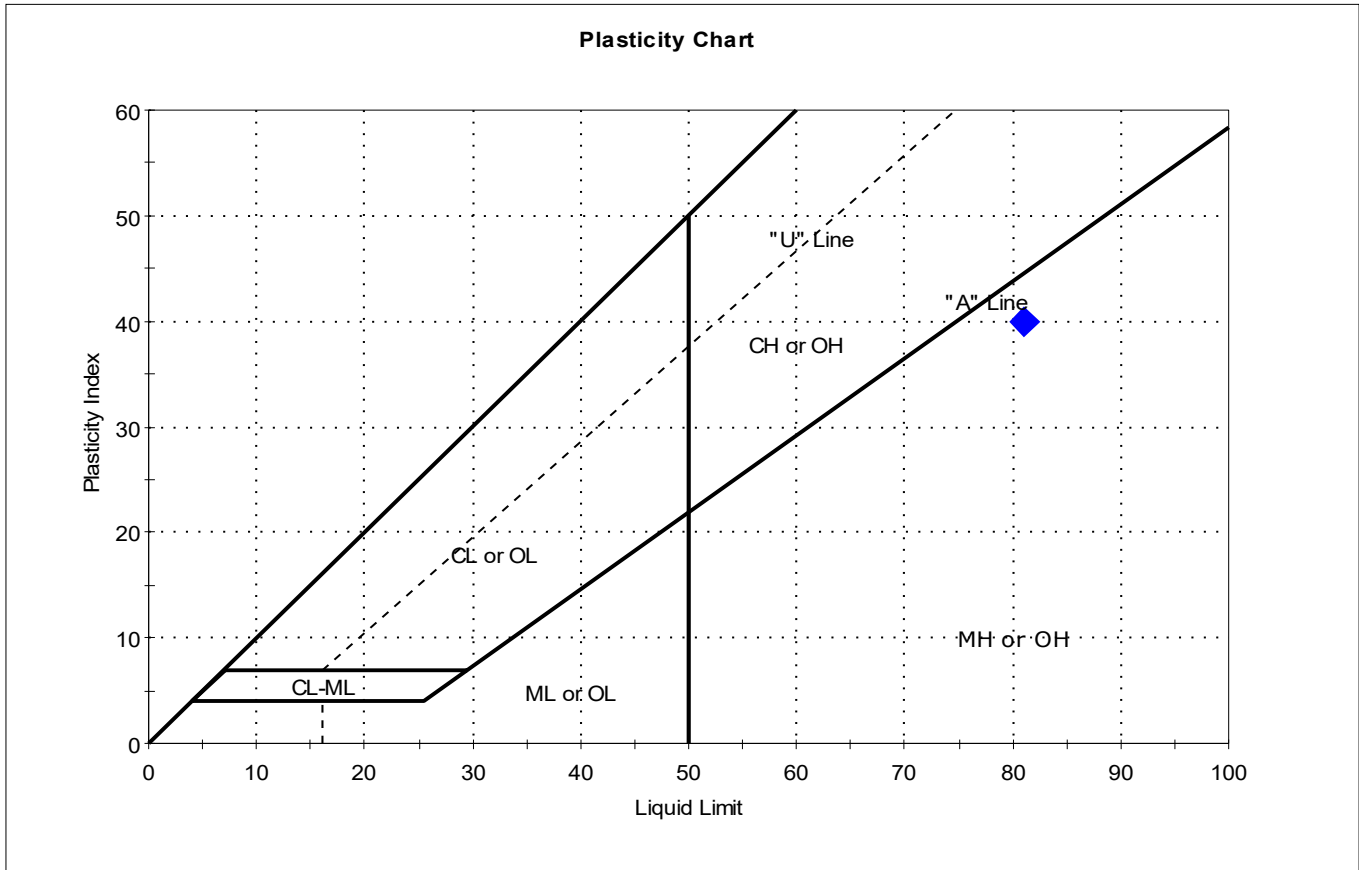
2% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





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

## Atterberg Limits - ASTM D4318



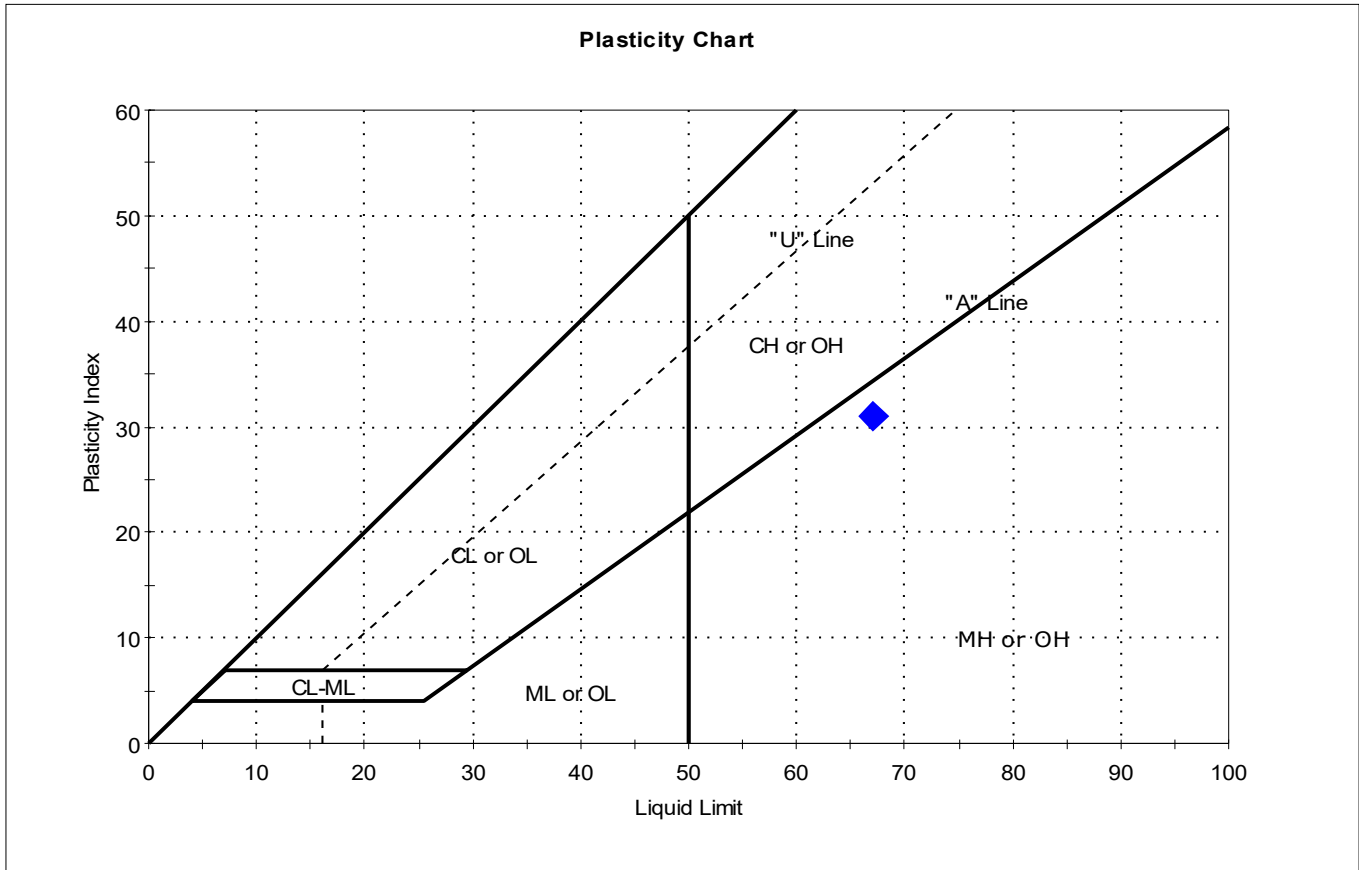
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	066SC-B-06-08-19	---	---	68	81	41	40	0.7	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-067SC-B-02-04-1910	Test Date: 11/11/19	Depth: ---	Test Id: 527476
Test Comment: ---	Visual Description: Wet, dark olive brown silt	Sample Comment: ---	

## Atterberg Limits - ASTM D4318



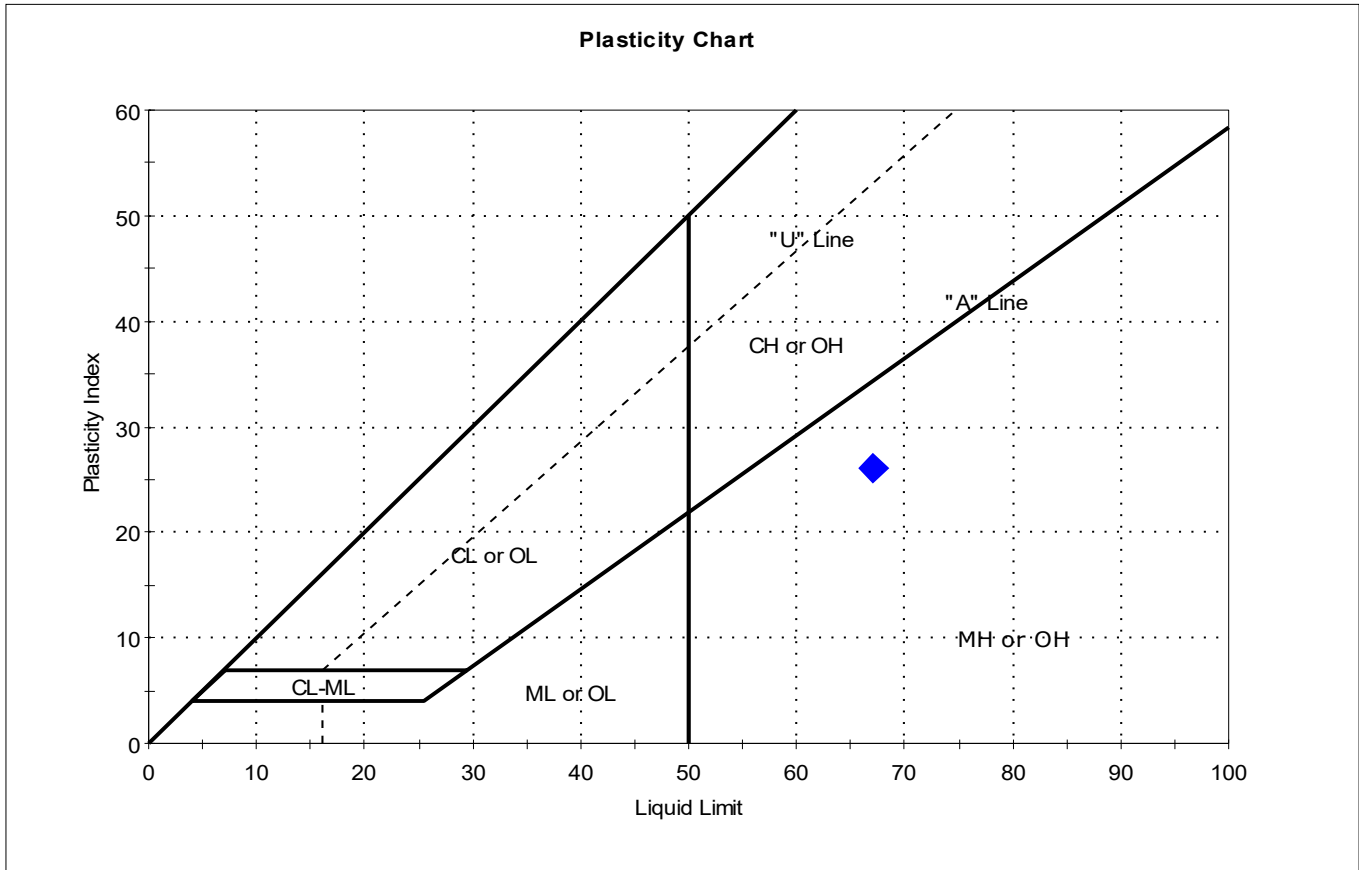
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-067SC-B-02-04-19	---	---	74	67	36	31	1.2	Elastic SILT (MH)

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



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

## Atterberg Limits - ASTM D4318



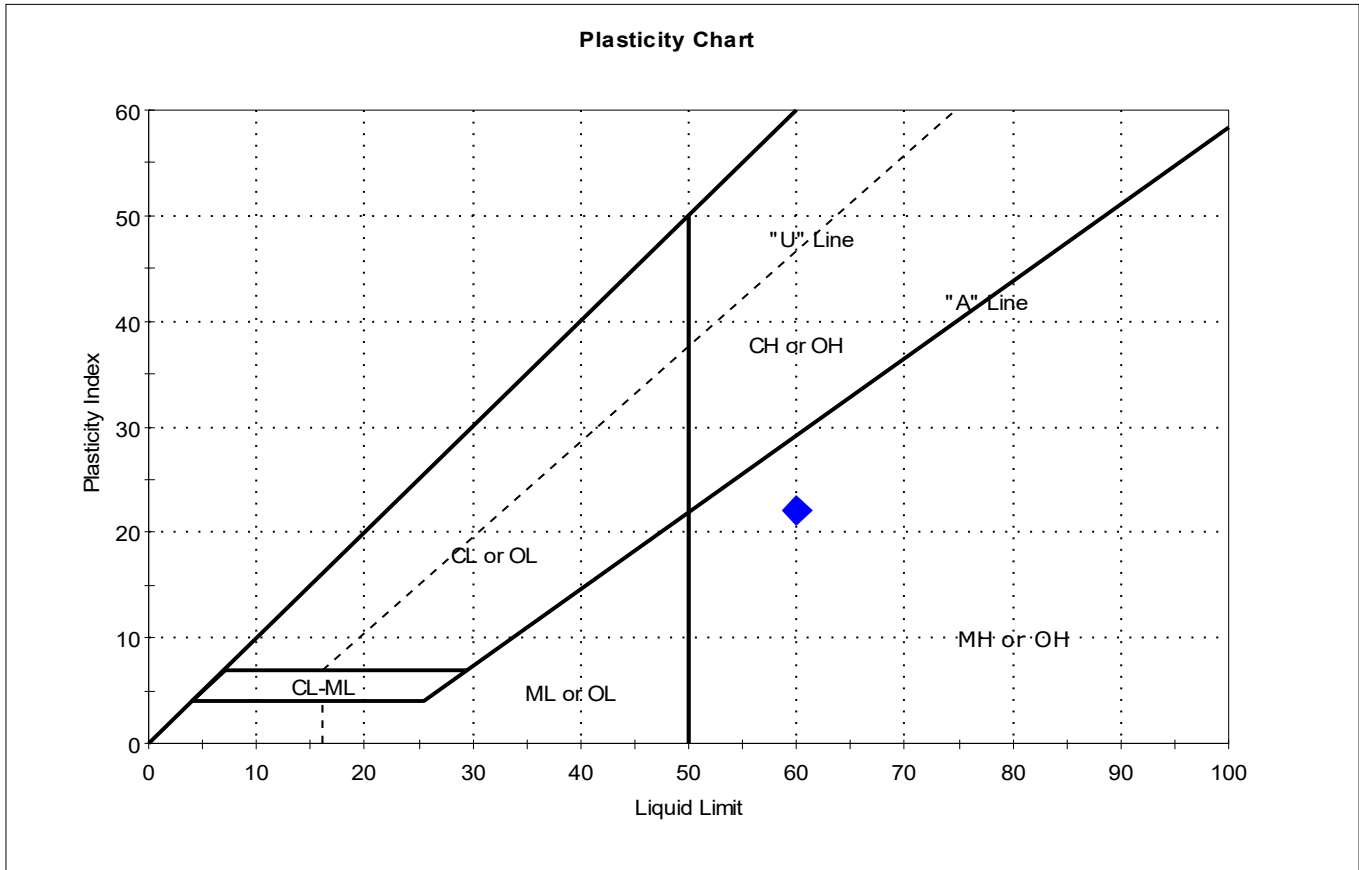
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-077SC-B-04-06-19	---	---	81	67	41	26	1.6	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-079SC-B-06-08-1910	Test Date: 11/18/19	Depth: ---	Test Id: 527474
Test Comment: ---	Visual Description: Wet, dark grayish brown silt	Sample Comment: ---	

## Atterberg Limits - ASTM D4318



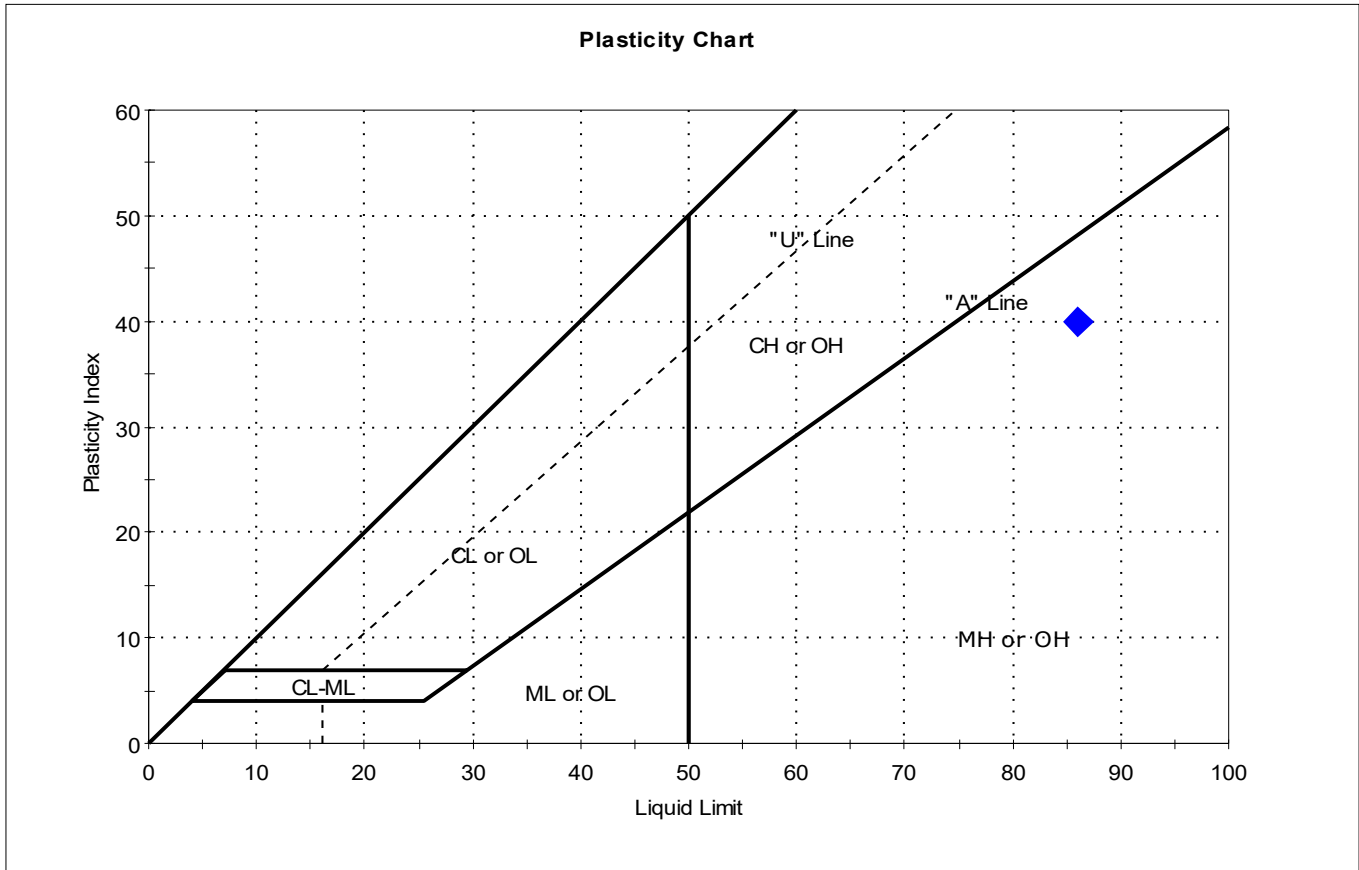
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-079SC-B-06-08-19	---	---	115	60	38	22	3.5	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-090SC-B-06-08-1910	Test Date: 11/11/19	Depth: ---	Test Id: 527483
Test Comment: ---	Visual Description: Moist, dark olive brown silt	Sample Comment: Sample contains organics	

## Atterberg Limits - ASTM D4318



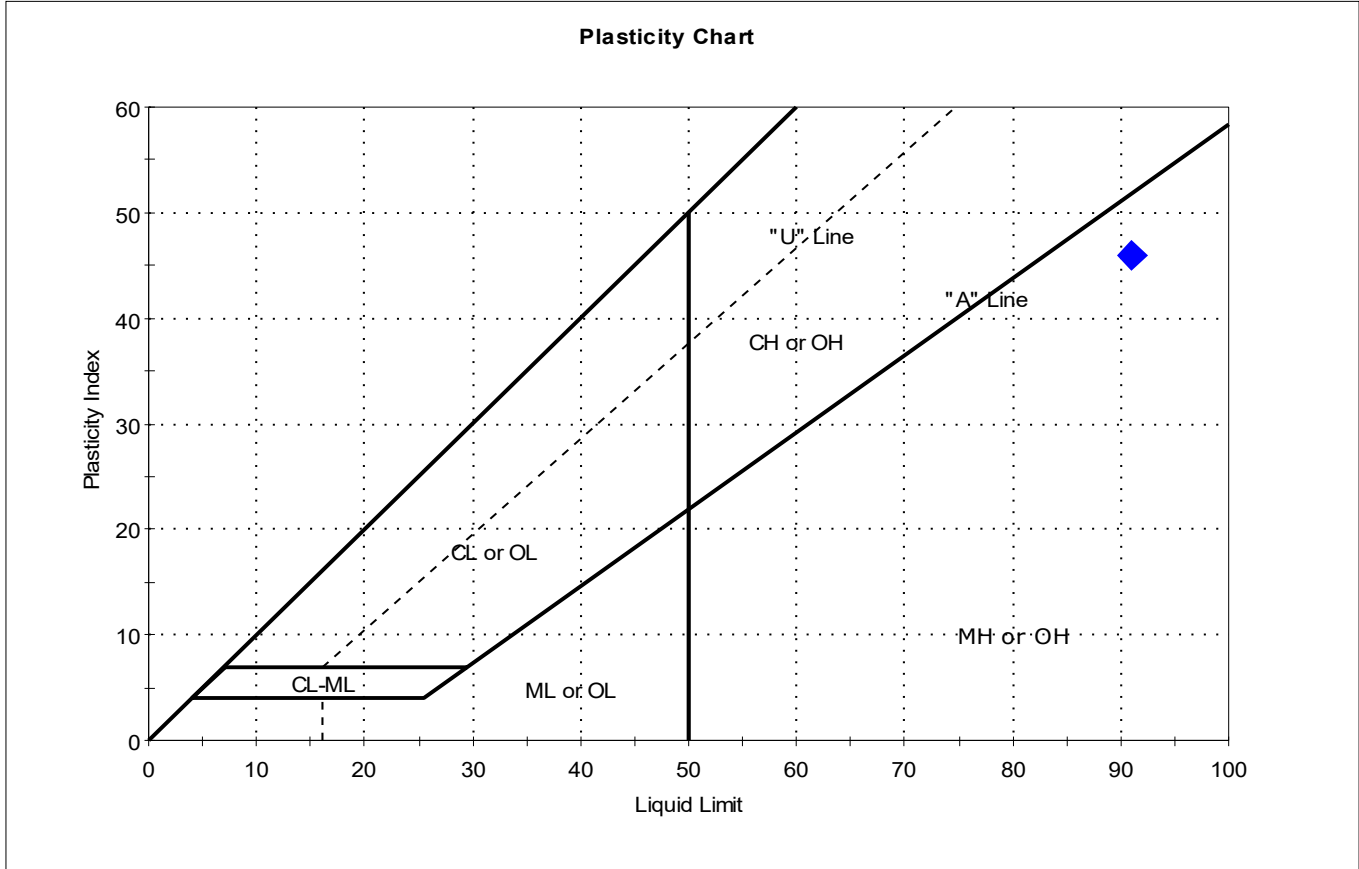
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-090SC-B-06-08-19	---	---	82	86	46	40	0.9	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-107SPT-00-04-19092	Test Date: 11/12/19	Depth: ---	Test Id: 527486
Test Comment: ---	Visual Description: Wet, dark olive brown silt	Sample Comment: ---	

## Atterberg Limits - ASTM D4318



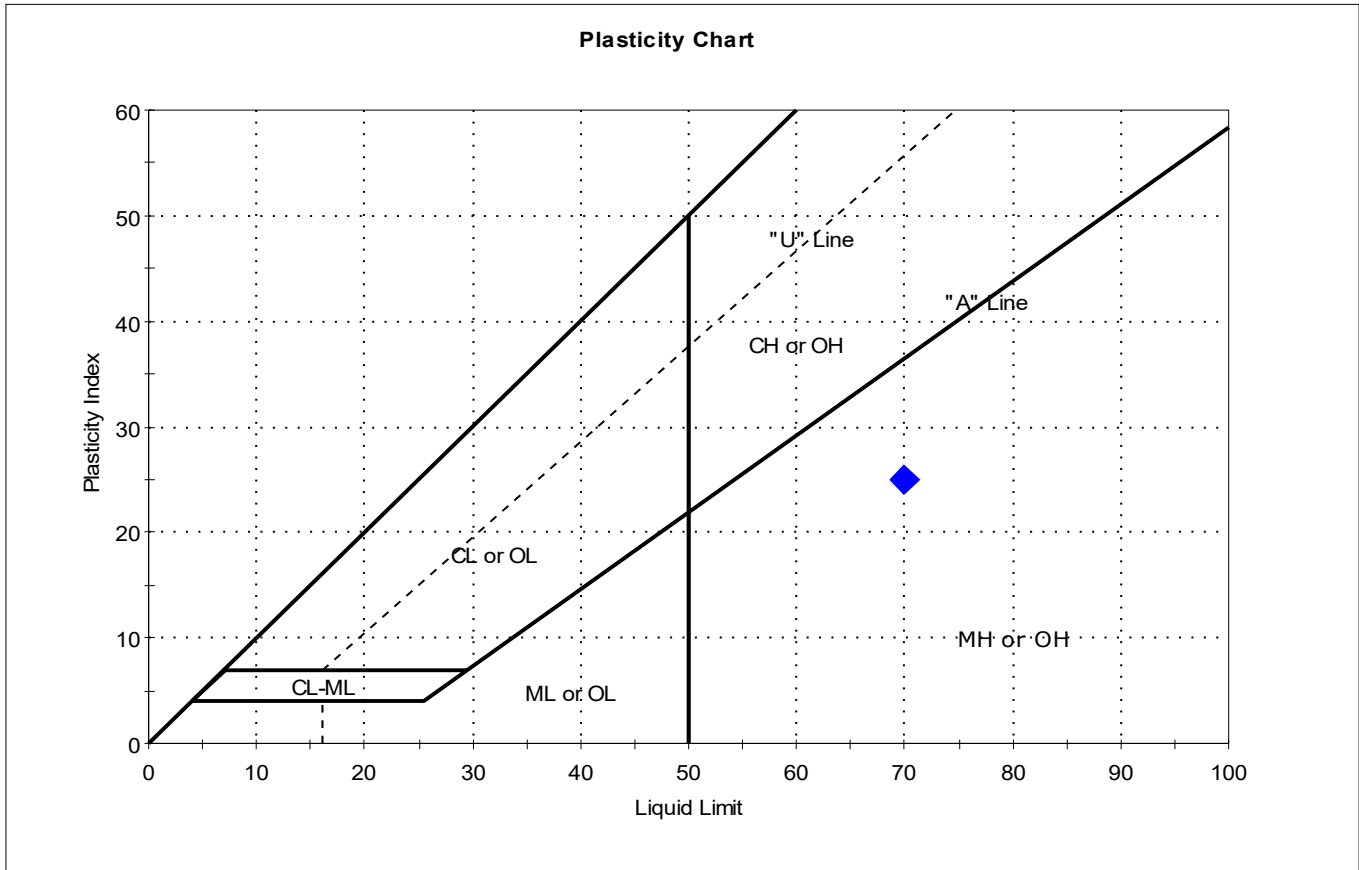
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-00-04-190	---	---	108	91	45	46	1.4	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-107SPT-04-09-19092	Test Date: 11/18/19	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
Sample ID:	PDI-107SPT-17-18-19092	Tested By:	cam
Depth :	---	Test Date:	11/11/19
		Checked By:	bfs
		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
Sample ID:	PDI-107SPT-62-64-19092	Test Date:	10/28/19
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

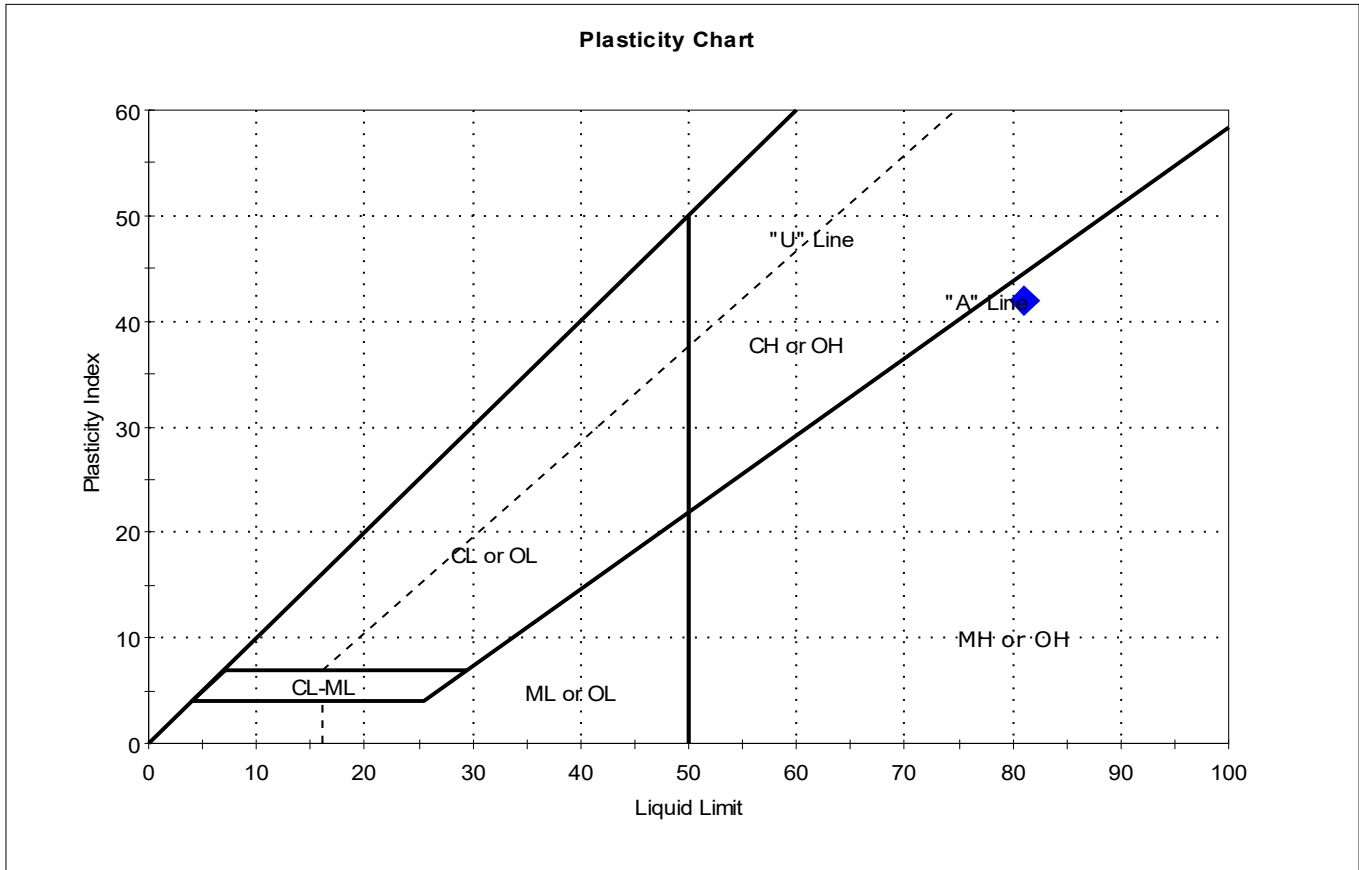
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-62-64-190	---	---	27	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-108SPT-00-6.4-1910	Tested By: cam
Depth: ---	Test Date: 11/11/19
	Checked By: bfs
	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
Sample ID:	PDI-108SPT-14-33.5-191	Tested By:	cam
Depth :	---	Test Date:	10/23/19
		Checked By:	bfs
		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
Sample ID:	PDI-108SPT-33.5-66.5-19	Test Date:	10/28/19
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

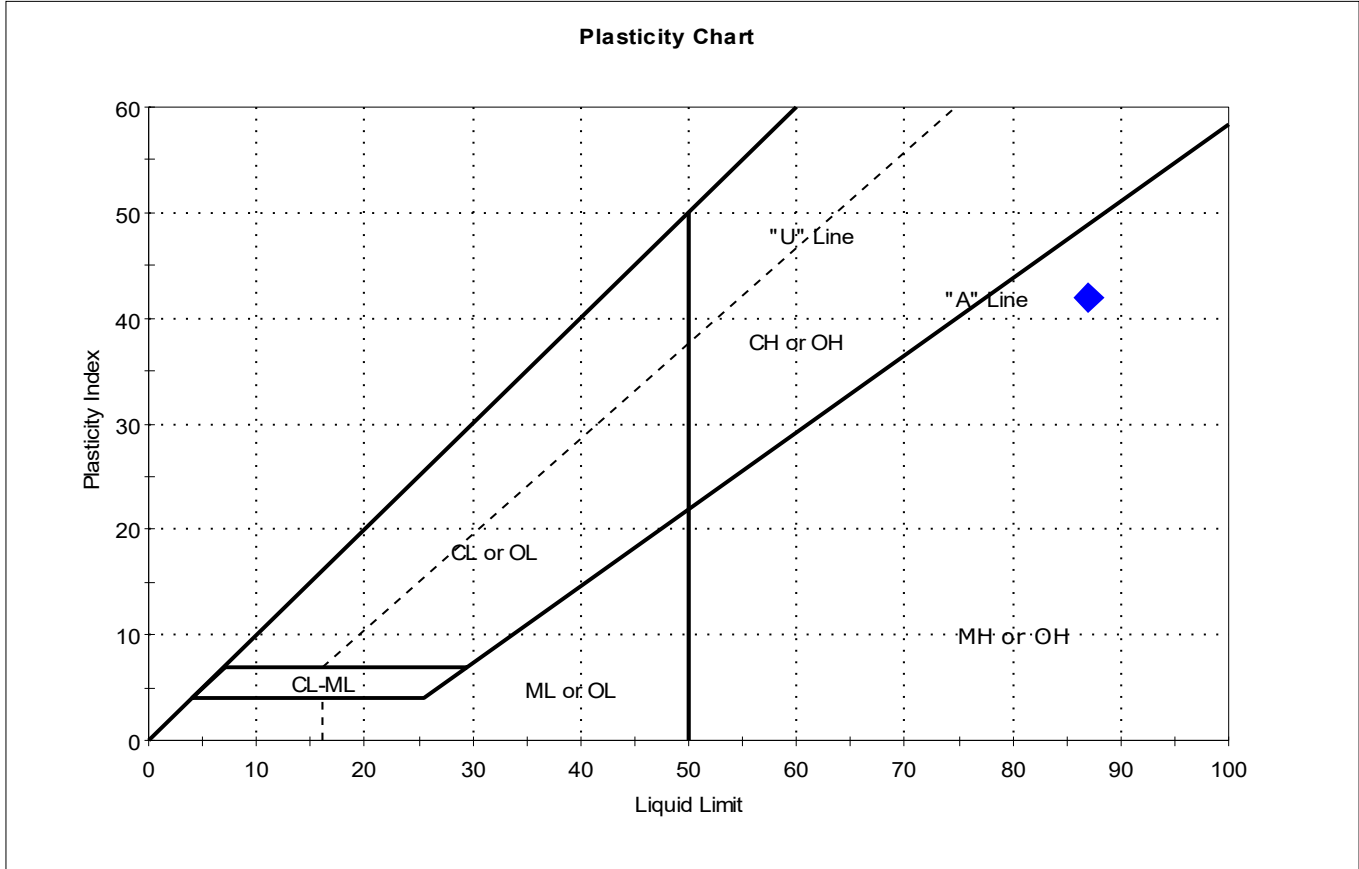
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	08SPT-33.5-66.5-1	---	---	30	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

26% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic



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

## Atterberg Limits - ASTM D4318



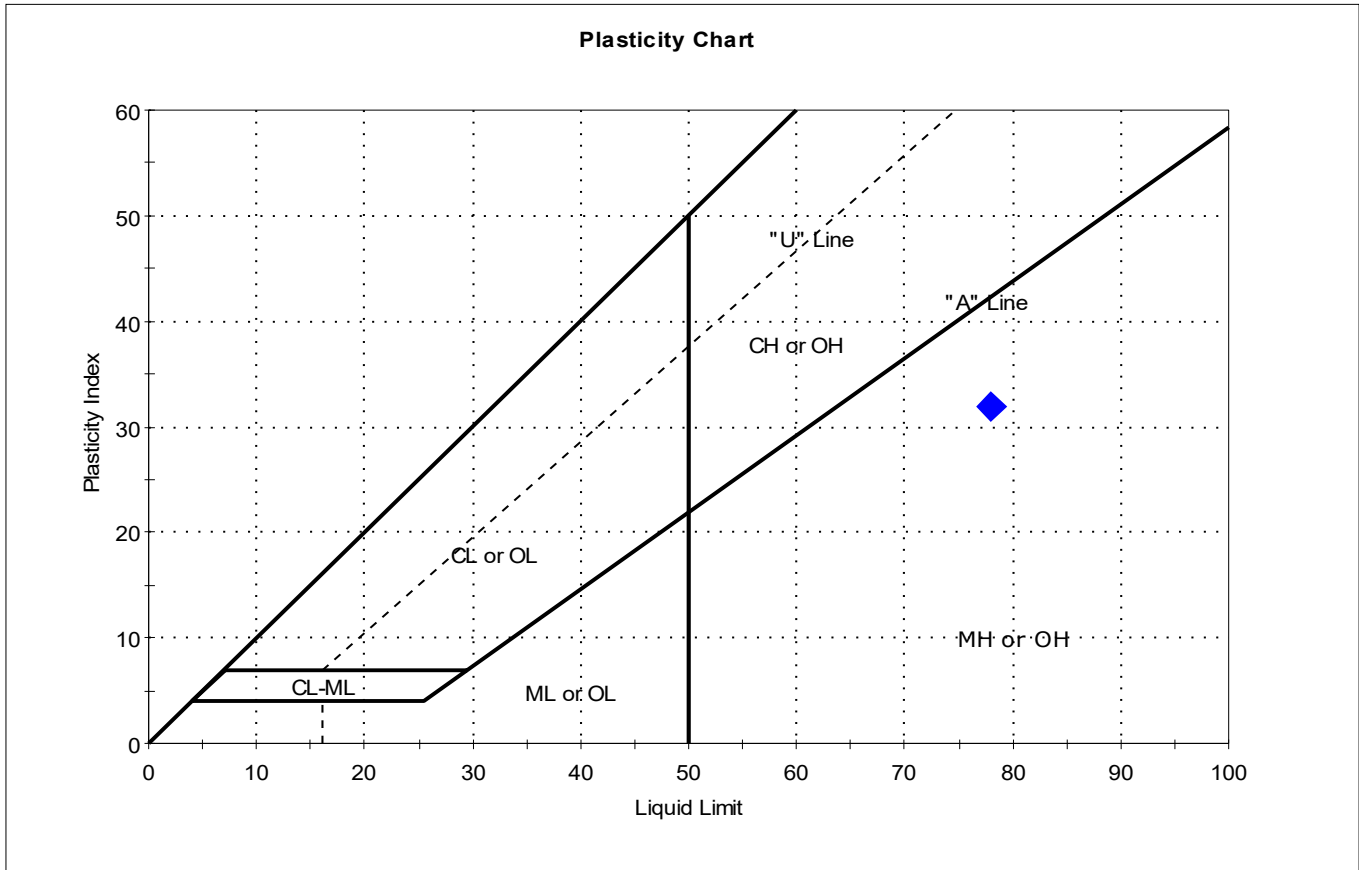
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	109SPT-00-6.5-19	---	---	93	87	45	42	1.1	Elastic SILT (MH)

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



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-109SPT-16.5-18.1-19	Test Date:	11/18/19
Depth:	---	Checked By:	bfs
		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
◆	PDI-109SPT-16.5-18.1-19	---	---	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
Sample ID:	PDI-109SPT-22-30-19100	Test Date:	10/25/19
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
Sample ID:	PDI-109SPT-35.5-48.3-19	Test Date:	10/24/19
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
◆	09SPT-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
Sample ID:	PDI-109SPT-48.3-51-191	Tested By:	cam
Depth :	---	Test Date:	11/12/19
		Checked By:	bfs
		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
Sample ID:	PDI-110 B-54-64.5-19101	Tested By:	cam
Depth :	---	Test Date:	10/24/19
		Checked By:	bfs
		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
Sample ID:	PDI-110SPT-21-32-19101	Test Date:	10/24/19
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
Sample ID:	PDI-110SPT-32-45-19101	Test Date:	10/24/19
Depth :	---	Test Id:	527500
Test Comment:	---		
Visual Description:	Moist, black sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

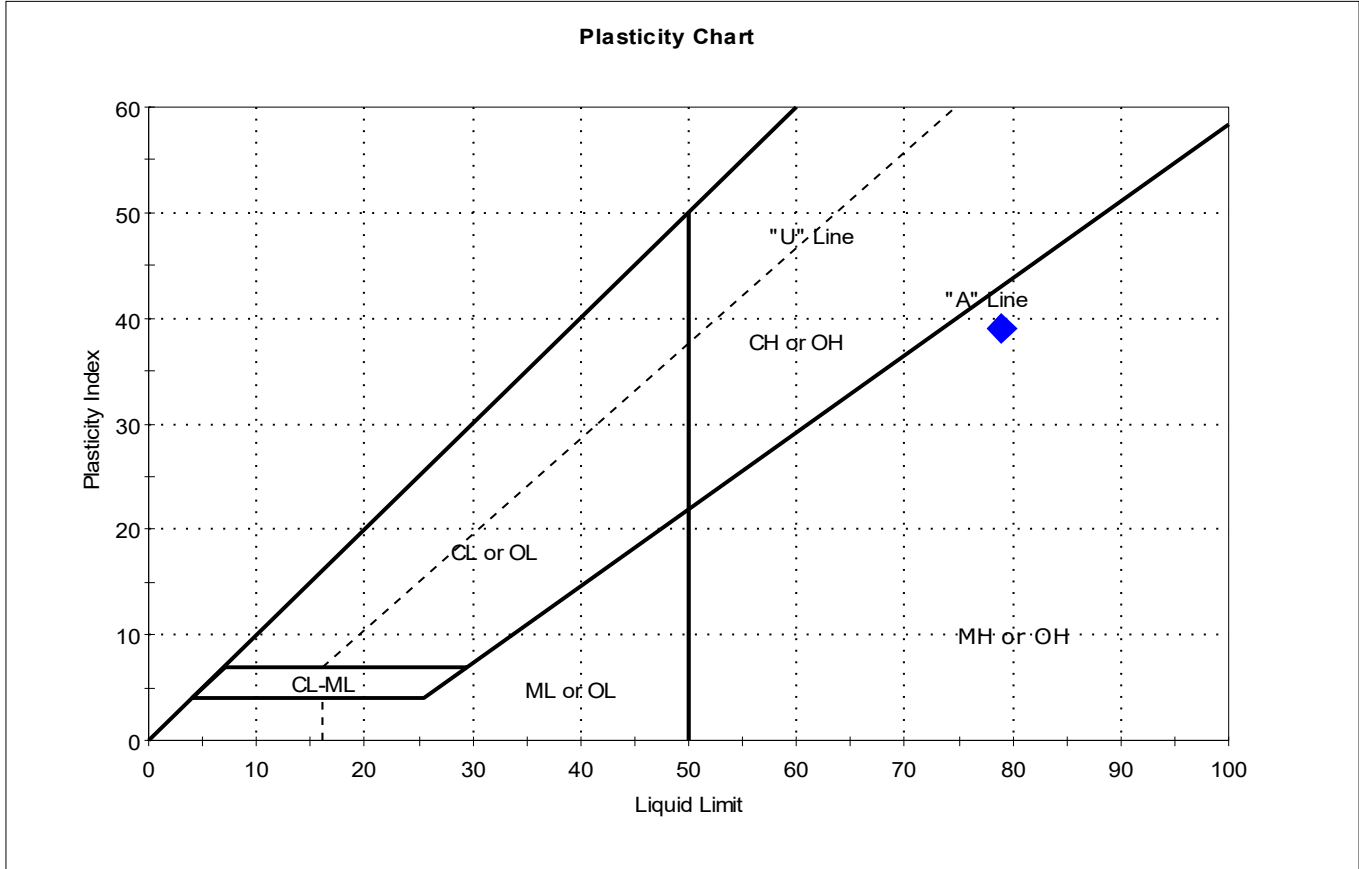
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	110SPT-32-45-191	---	---	28	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

41% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic



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

## Atterberg Limits - ASTM D4318



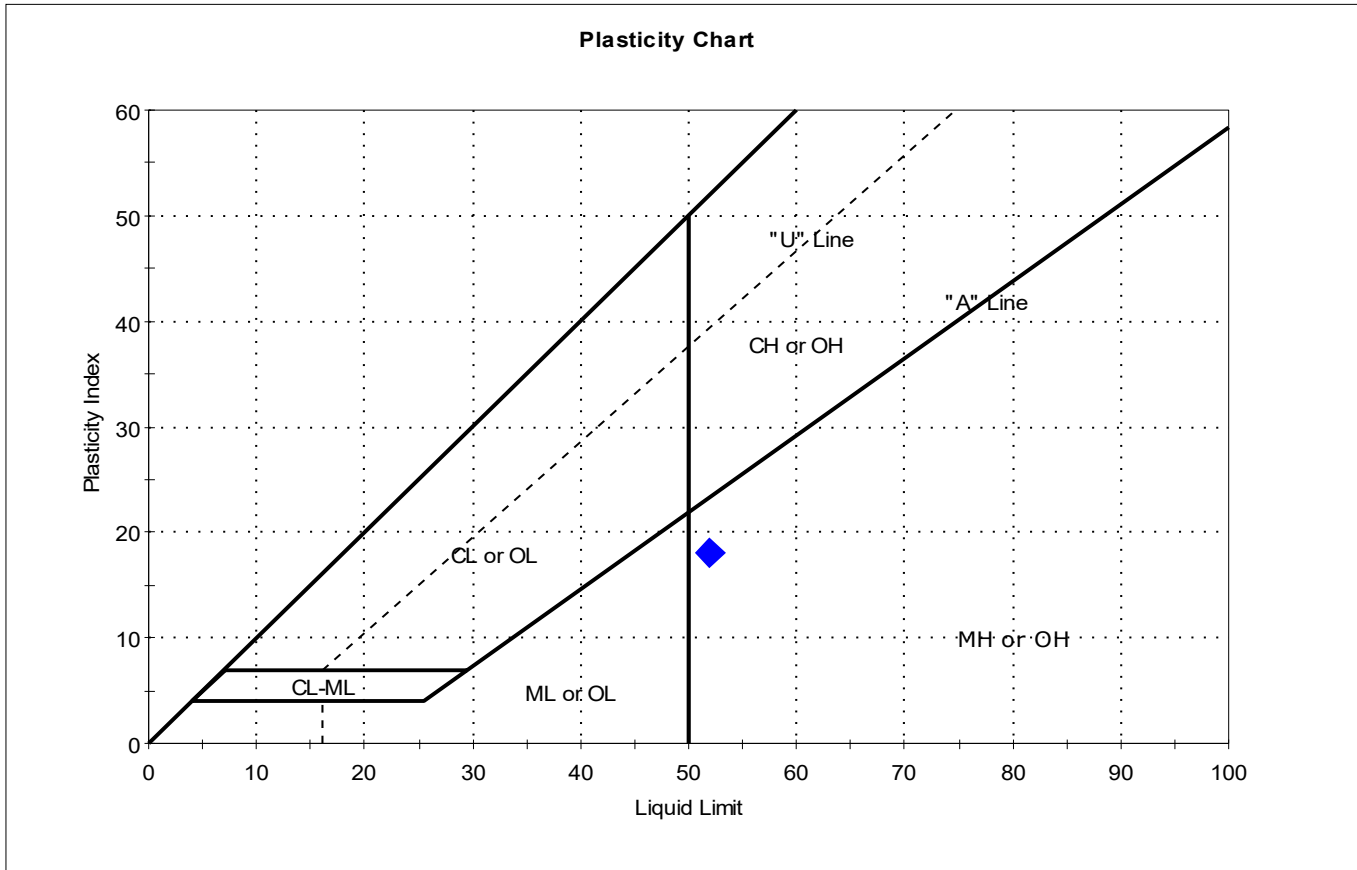
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	112SPT-00-6.5-19	---	---	77	79	40	39	0.9	Elastic SILT (MH)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-112SPT-07-11.5-191	Test Date: 11/15/19	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
Sample ID:	PDI-112SPT-11.5-26.5-19	Test Date:	11/12/19
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
Sample ID:	PDI-112SPT-37.5-58-191	Tested By:	cam
Depth :	---	Test Date:	10/28/19
		Checked By:	bfs
		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)

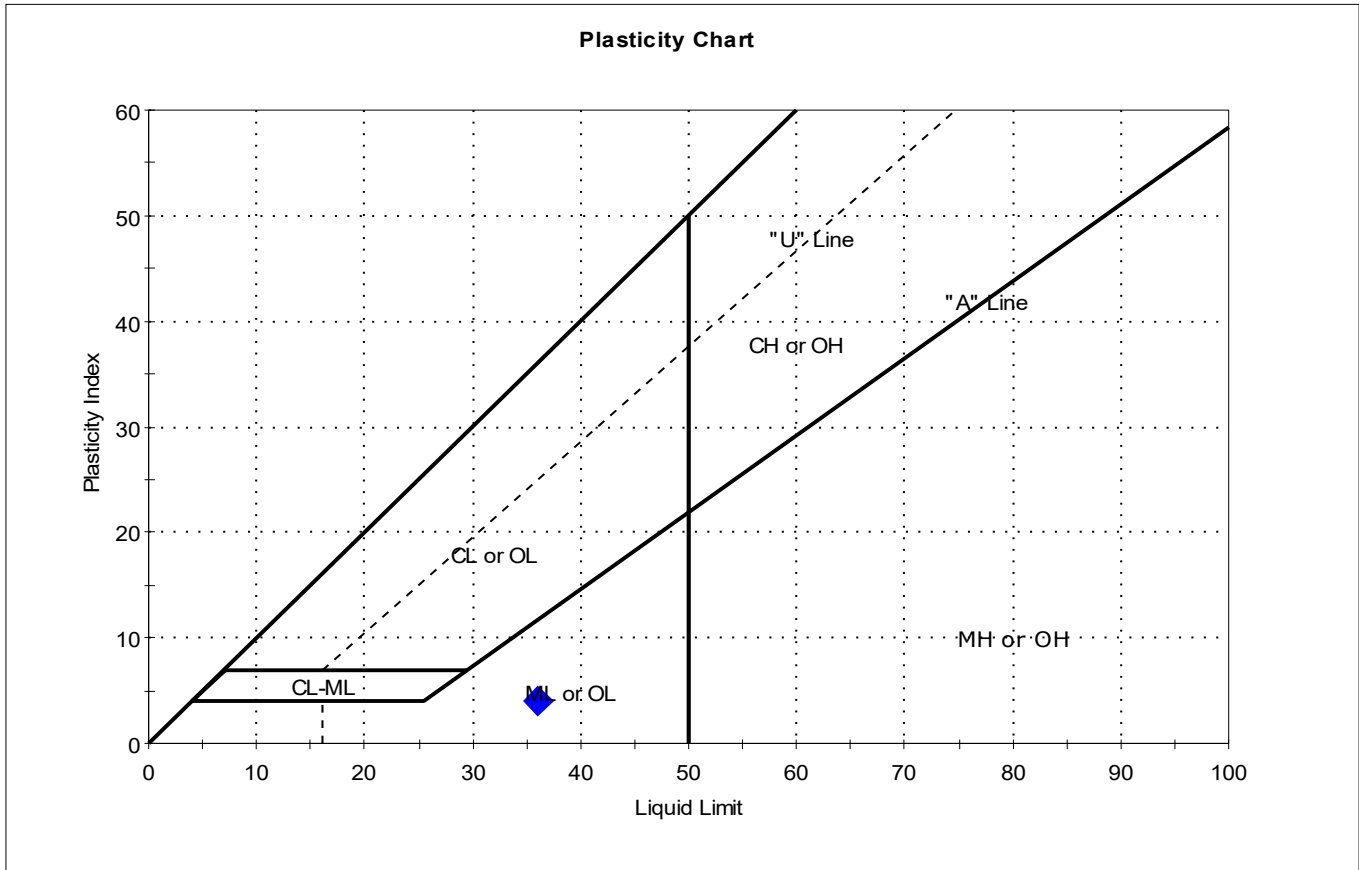
20% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-113SPT-06-16-19101	Test Date: 11/13/19	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
Sample ID:	PDI-113SPT-16-22-19101	Test Date:	10/23/19
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

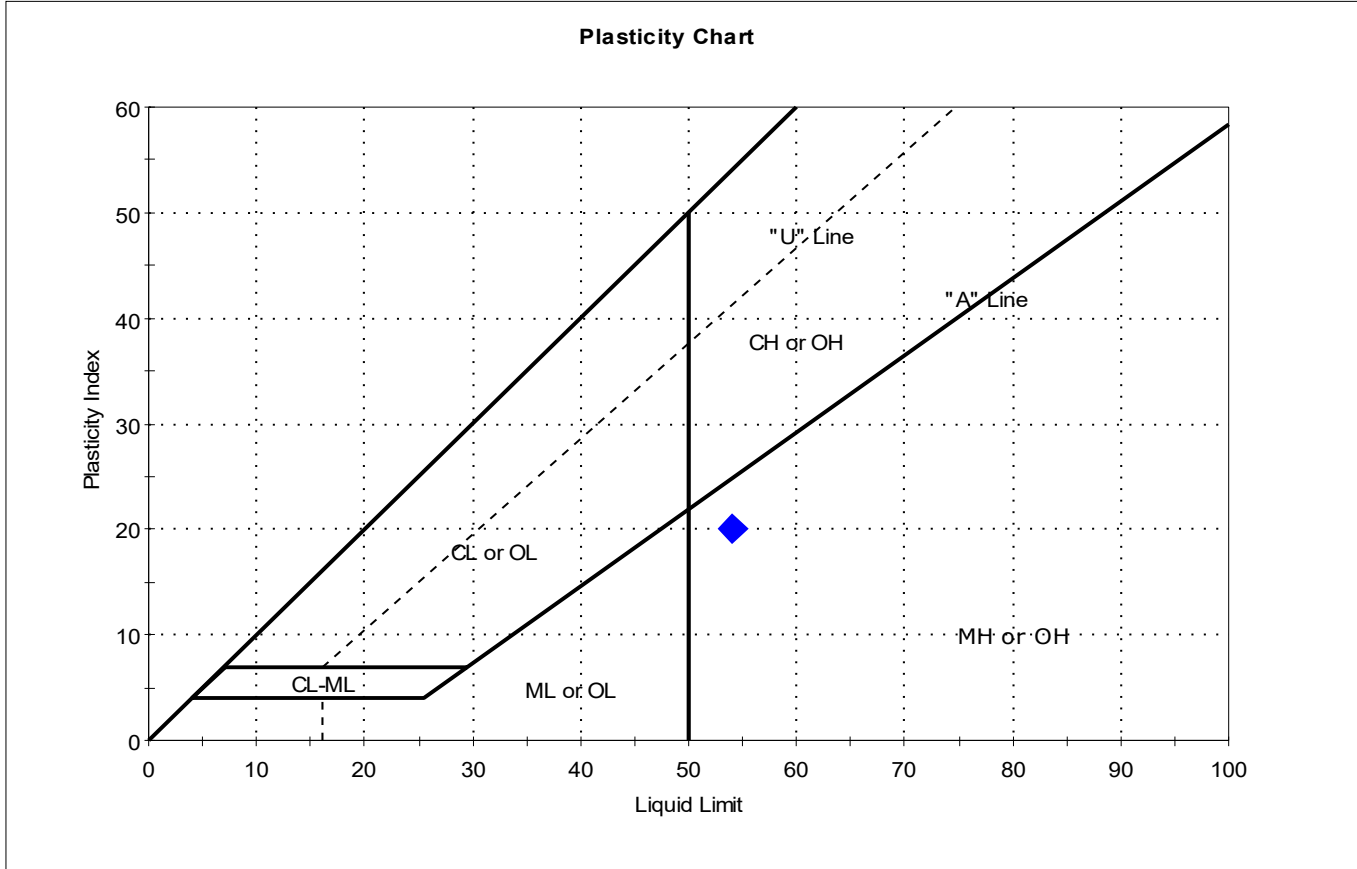
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	113SPT-16-22-191	---	---	37	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

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	Checked By: bfs
Sample ID: PDI-113SPT-22-25.2-191	Test Date: 11/12/19	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
Sample ID:	PDI-113SPT-31.9-39.4-19	Test Date:	10/23/19
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

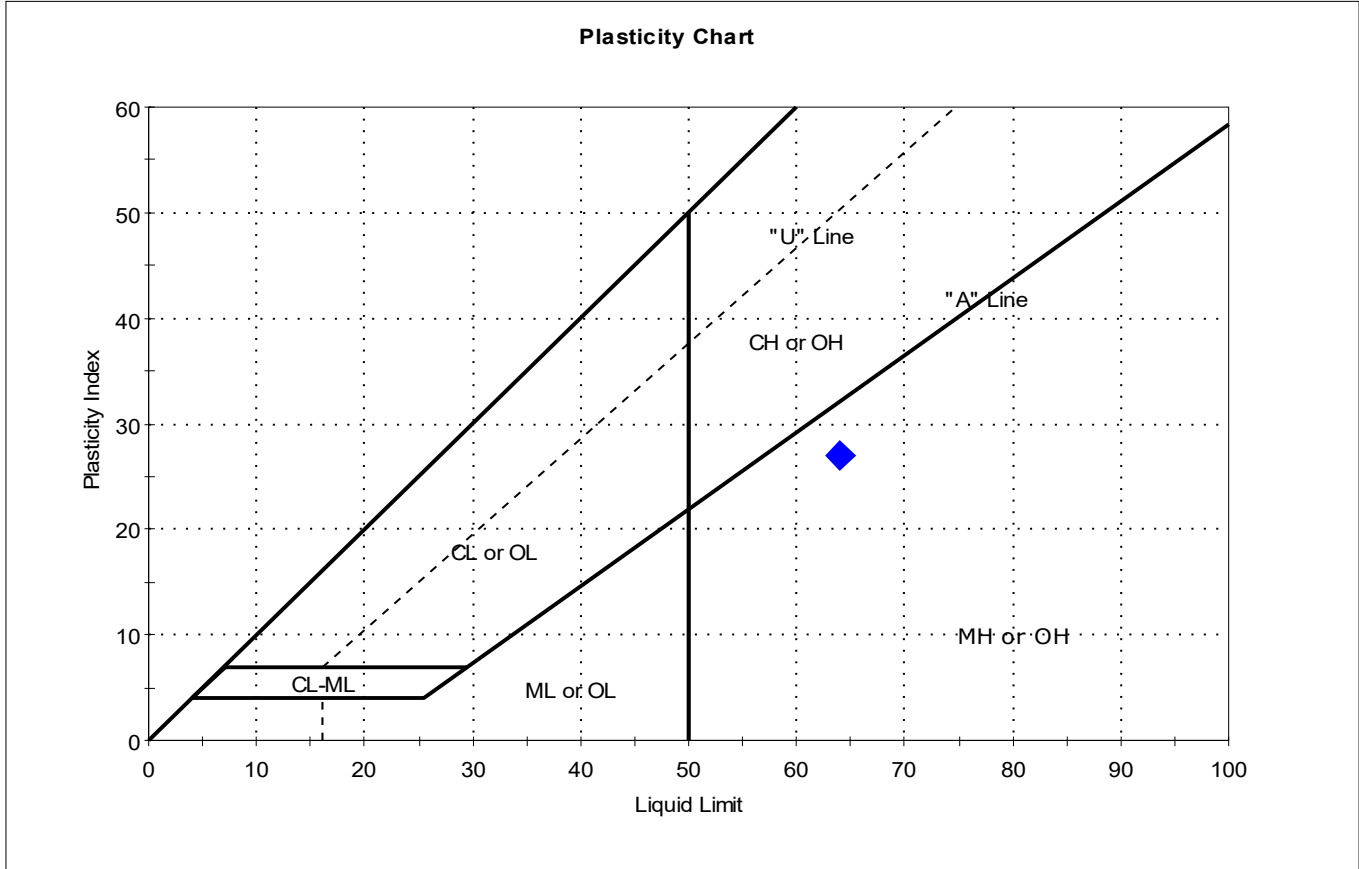
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	13SPT-31.9-39.4-1	---	---	33	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location: ---	Sample Type: bag
Boring ID: ---	Tested By: cam
Sample ID: PDI-114SPT-00-7.5-1910	Test Date: 11/11/19
Depth: ---	Checked By: bfs
Test Comment: ---	Test Id: 527509
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
Sample ID:	PDI-114SPT-25.5-28-191	Tested By:	cam
Depth :	---	Test Date:	10/30/19
		Checked By:	bfs
		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

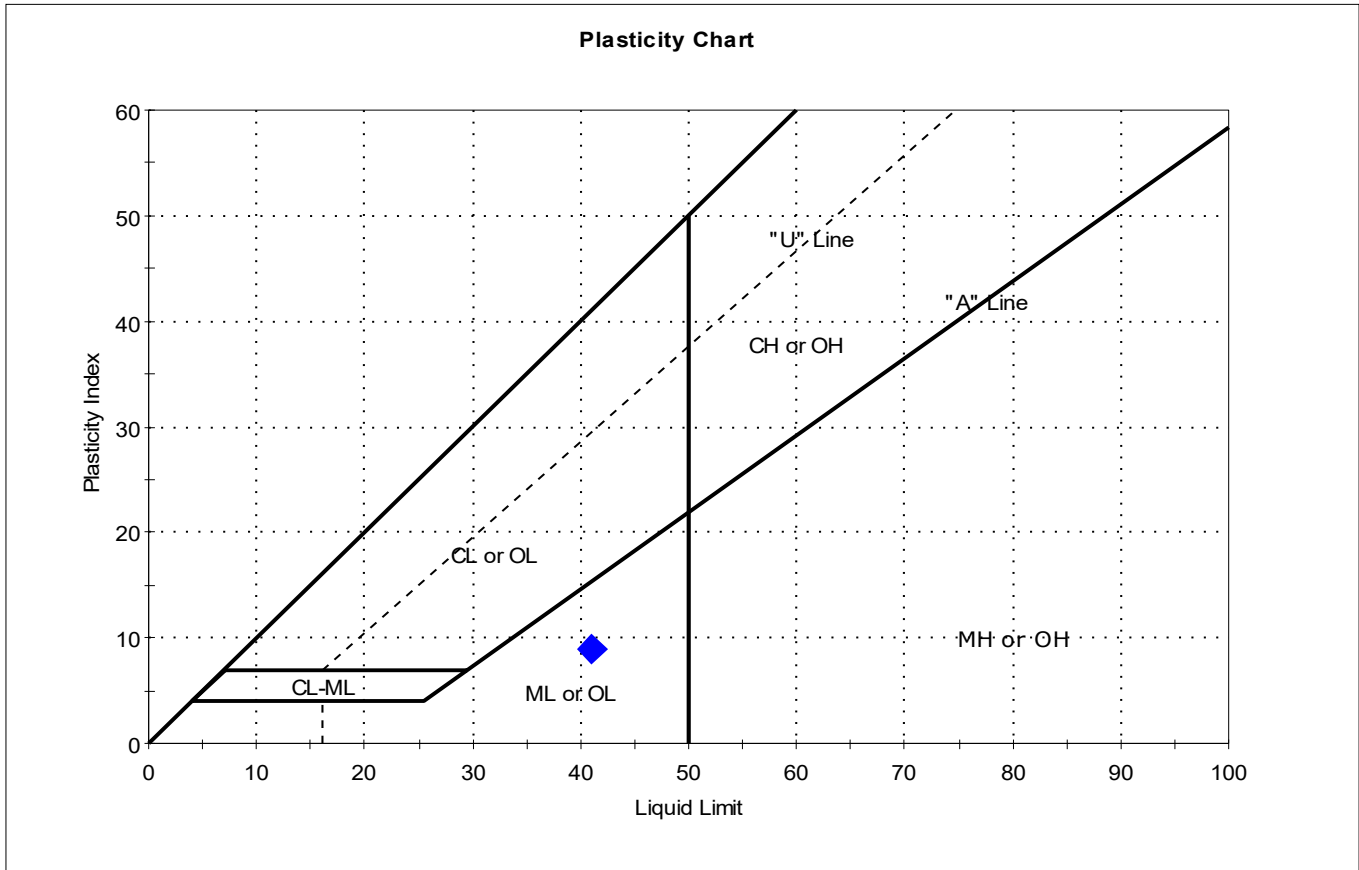
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	14SPT-25.5-28-19	---	---	31	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-114SPT-42-50.5-191	Test Date: 11/15/19	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
Sample ID:	PDI-114SPT-50.5-55-191	Tested By:	cam
Depth :	---	Test Date:	10/28/19
		Checked By:	bfs
		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)

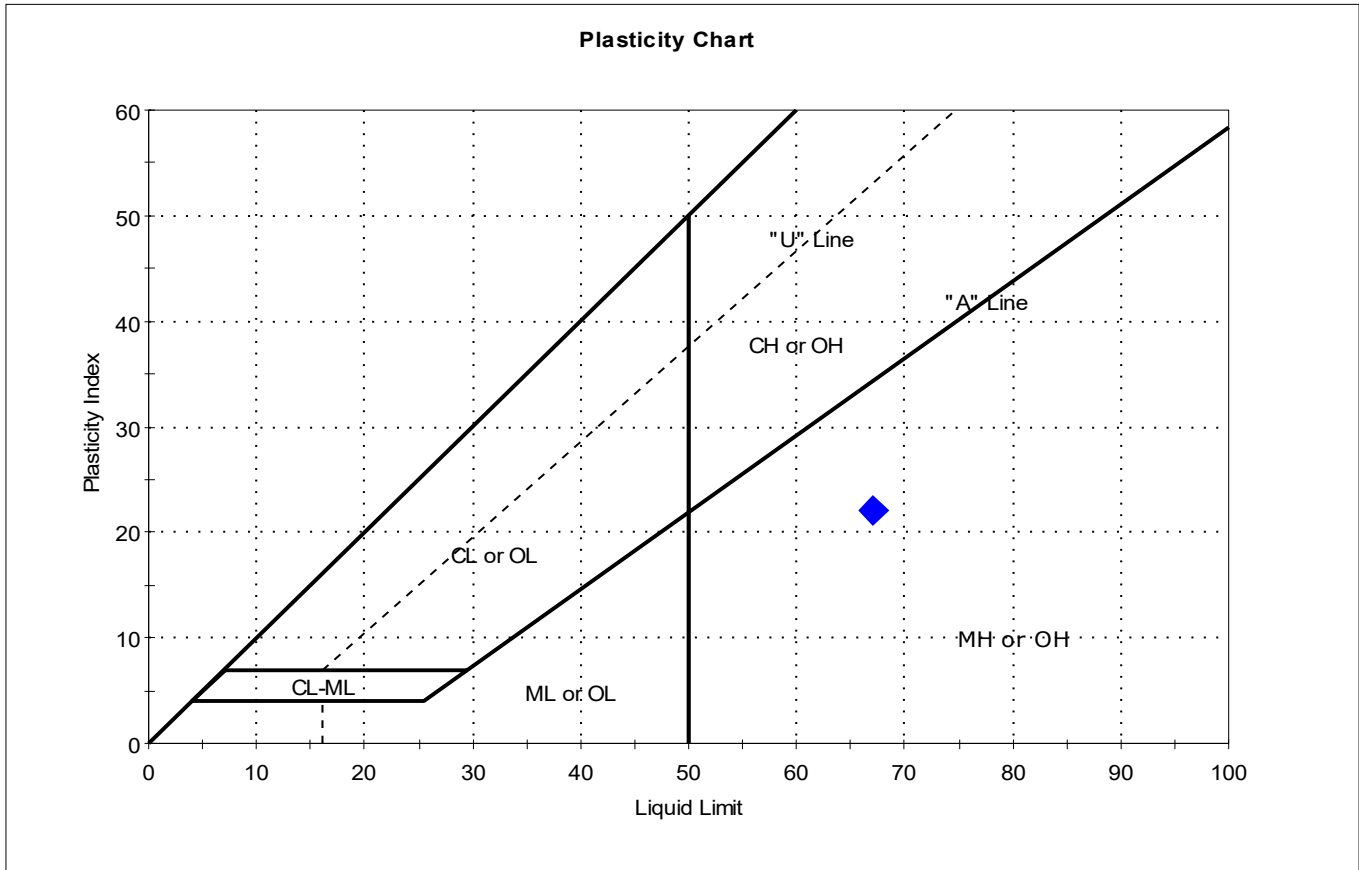
4% Retained on #40 Sieve  
 Dry Strength: MEDIUM  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-114SPT-7.5-12.5-19	Test Date:	11/18/19
Depth:	---	Checked By:	bfs
		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
Sample ID:	PDI-115SPT-06-11-19100	Test Date:	10/24/19
Depth :	---	Test Id:	527514
Test Comment:	---		
Visual Description:	Moist, very dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

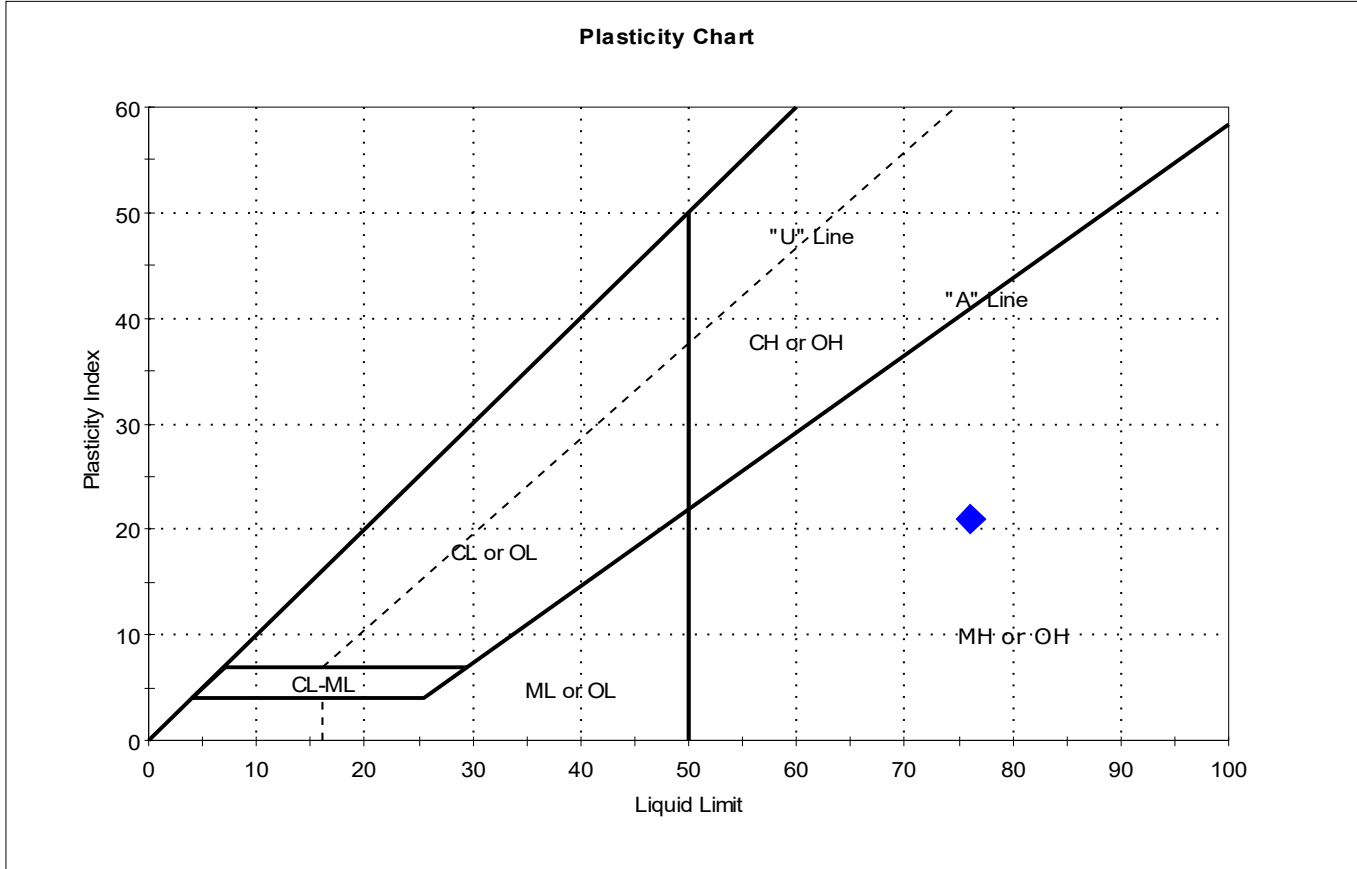
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	115SPT-06-11-191	---	---	17	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-115SPT-18.6-20.6-19	Test Date:	11/13/19
Depth:	---	Checked By:	bfs
		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
◆	PDI-115SPT-18.6-20.6-19	---	---	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
Sample ID:	PDI-115SPT-23-28.1-191	Tested By:	cam
Depth :	---	Test Date:	10/24/19
		Checked By:	bfs
		Test Id:	527516
Test Comment:	---		
Visual Description:	Moist, very dark 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
◆	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
Sample ID:	PDI-115SPT-41.5-49.3-19	Test Date:	10/25/19
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

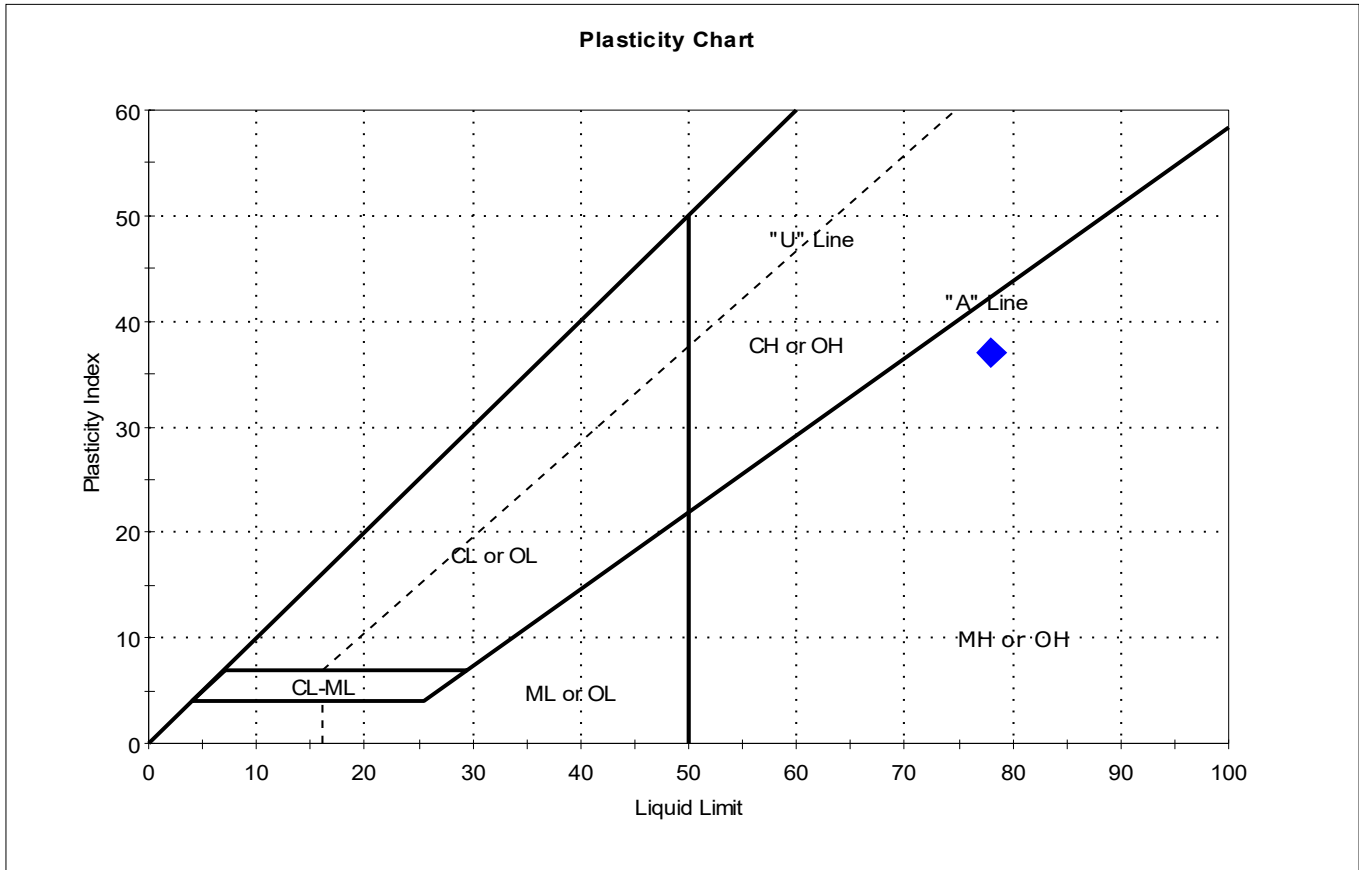
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	15SPT-41.5-49.3-1	---	---	39	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No: GTX-310685	
Project: Gasco PDI		
Location:		
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-00-4.5-1909	---	---	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
Sample ID:	PDI-116SPT-20-26.7-190	Tested By:	cam
Depth :	---	Test Date:	11/01/19
		Checked By:	bfs
		Test Id:	527519
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

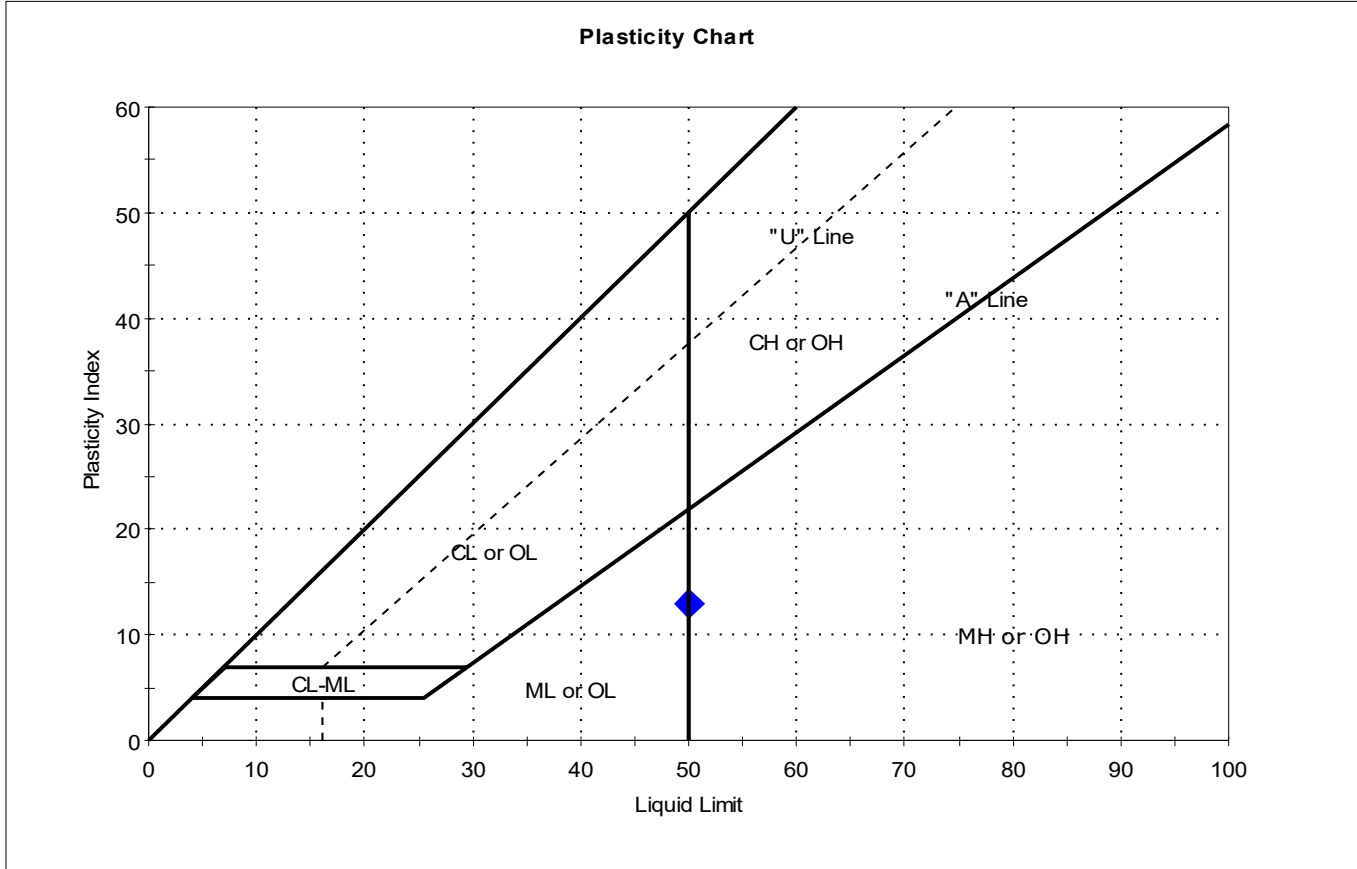
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	16SPT-20-26.7-19	---	---	26	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-116SPT-26.7-28.6-19	Test Date:	11/11/19
Depth:	---	Checked By:	bfs
		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
◆	PDI-116SPT-26.7-28.6-19	---	---	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
Sample ID:	PDI-116SPT-51.5-54.2-19	Test Date:	10/25/19
Depth :	---	Test Id:	527521
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
◆	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
Sample ID:	PDI-117SPT-11-29.1-191	Tested By:	cam
Depth :	---	Test Date:	10/28/19
		Checked By:	bfs
		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
Sample ID:	PDI-117SPT-29.1-32-191	Tested By:	cam
Depth :	---	Test Date:	11/05/19
		Checked By:	bfs
		Test Id:	527523
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

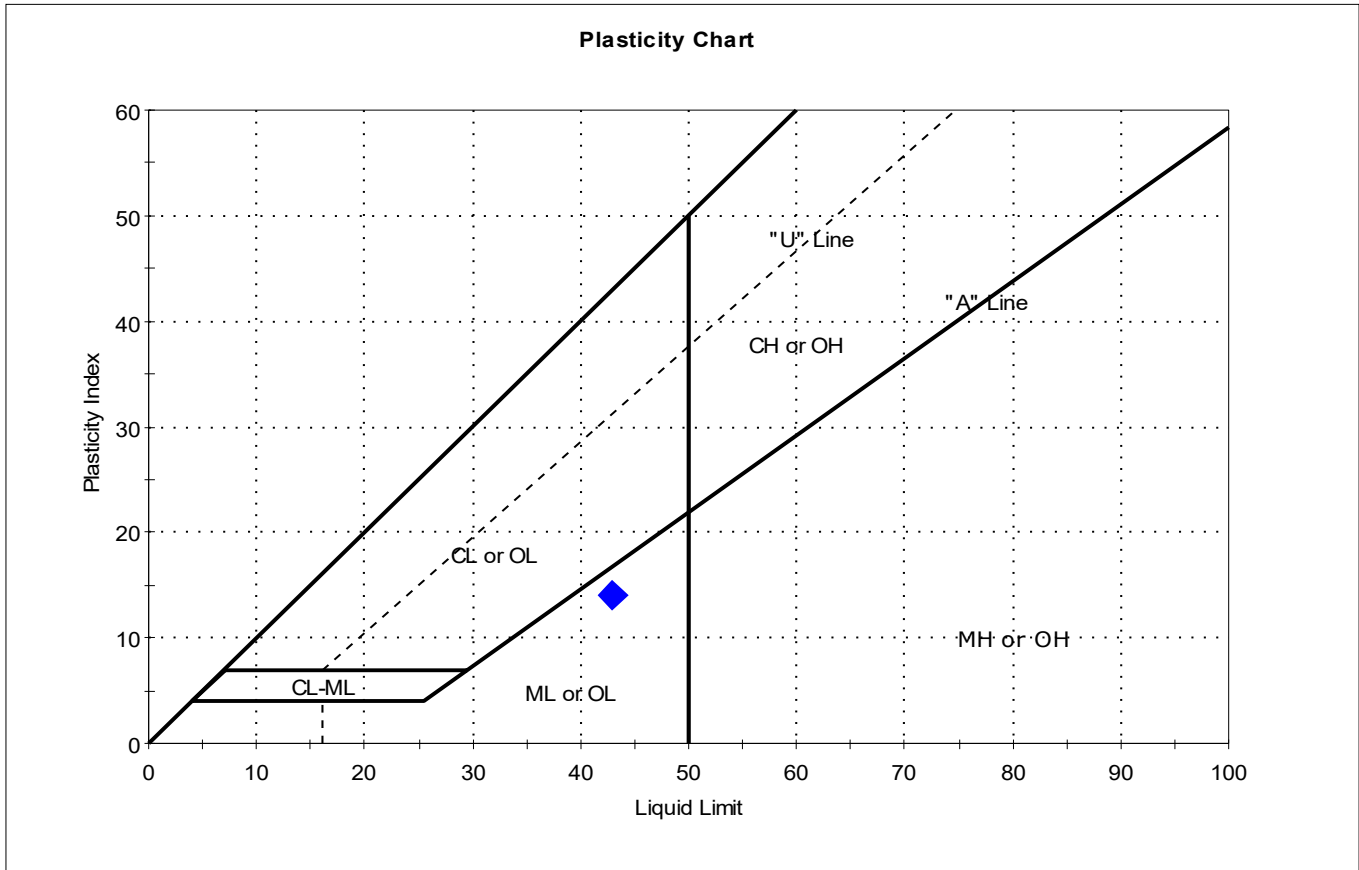
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	17SPT-29.1-32-19	---	---	45	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-117SPT-44.1-53.5-19	Test Date: 11/11/19	Depth: ---	Test Id: 527524
Test Comment: ---	Visual Description: Moist, dark gray silty sand	Sample Comment: ---	

## Atterberg Limits - ASTM D4318



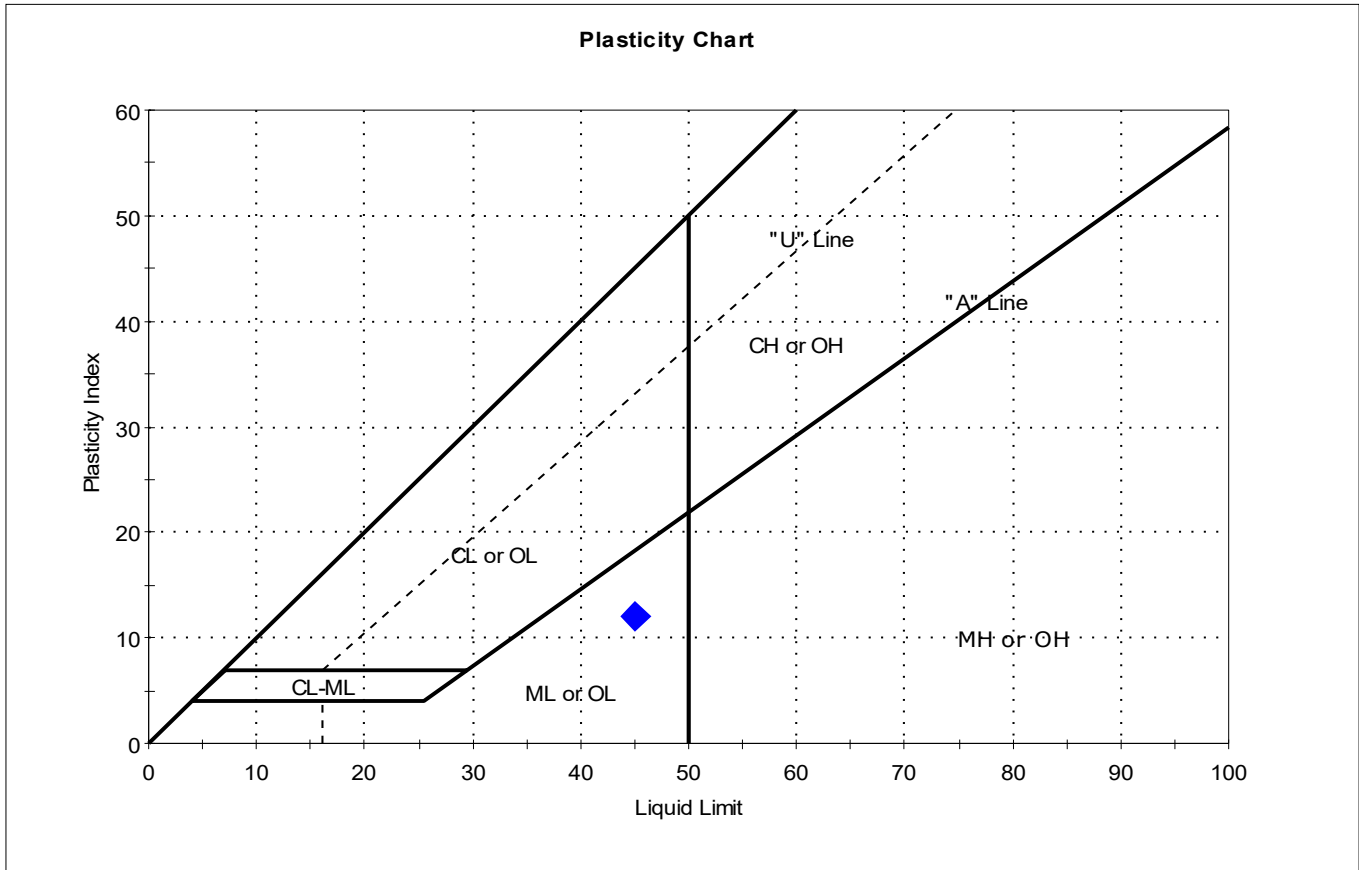
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-117SPT-44.1-53.5-19	---	---	46	43	29	14	1.2	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-117SPT-53.5-63.5-19	Test Date: 11/12/19	Depth: ---	Test Id: 527525
Test Comment: ---	Visual Description: Wet, dark grayish brown silt with sand	Sample Comment: ---	

## Atterberg Limits - ASTM D4318



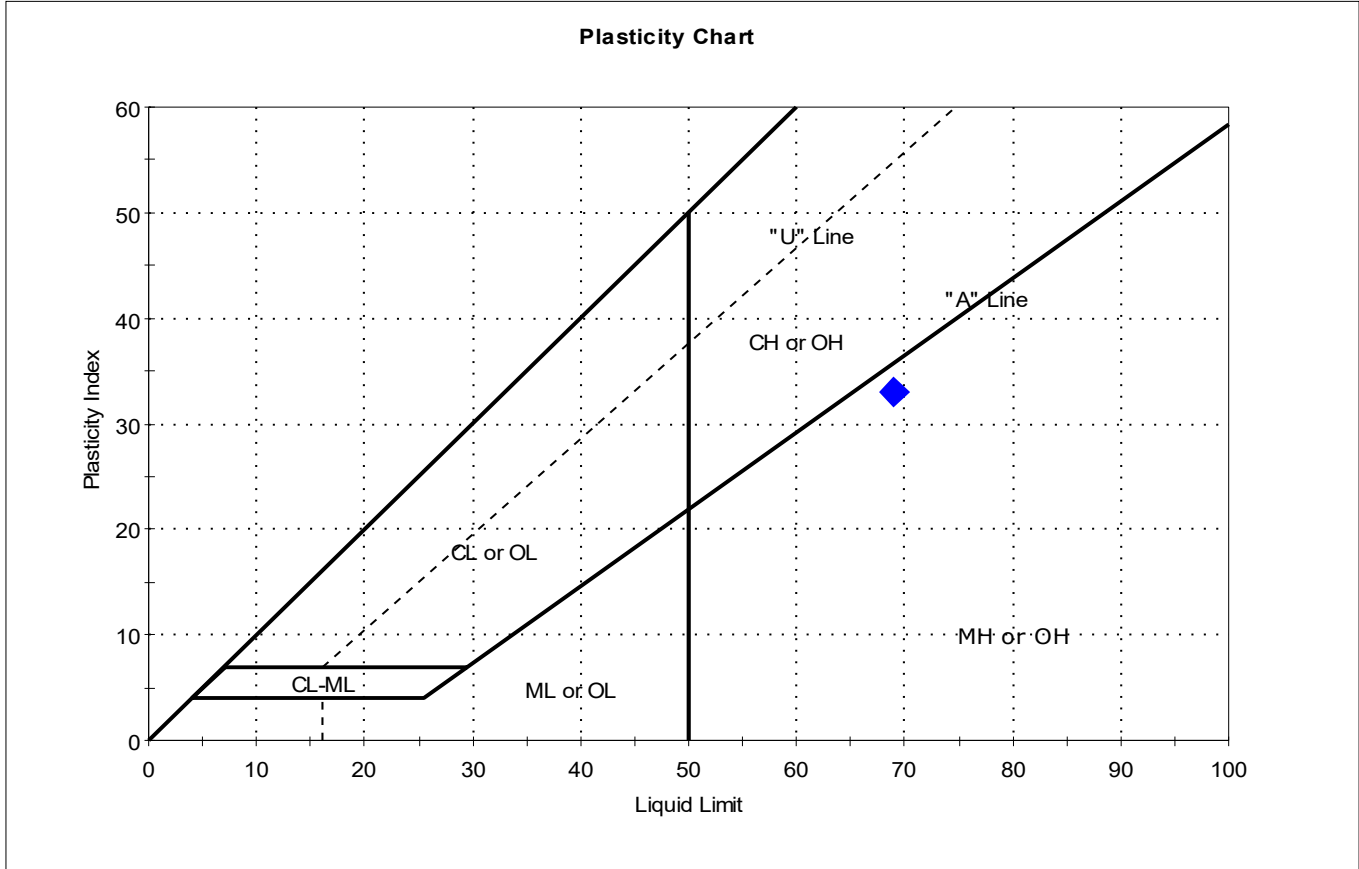
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-117SPT-53.5-63.5-19	---	---	83	45	33	12	4.2	SILT with Sand (ML)

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



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

## Atterberg Limits - ASTM D4318



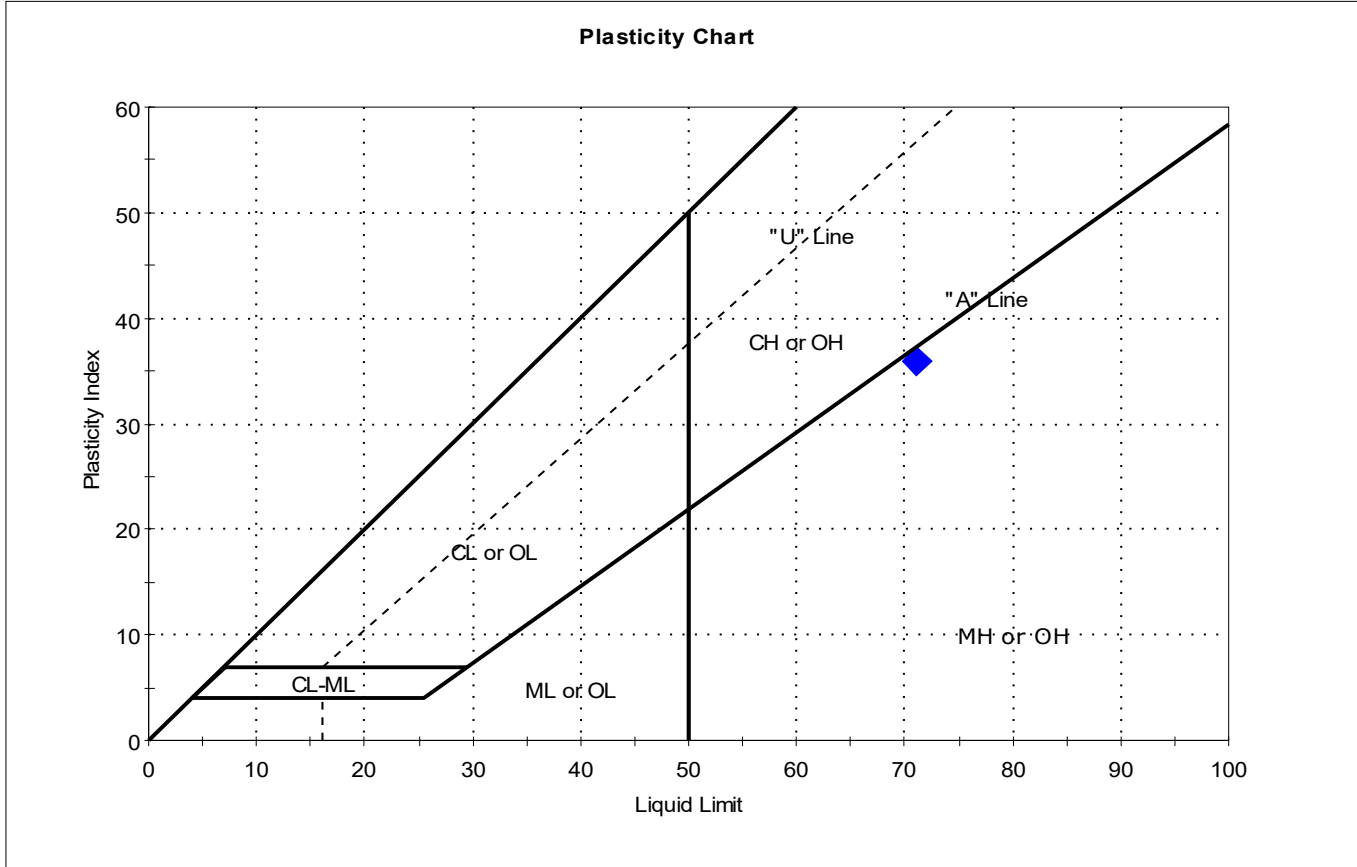
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	118SPT-00-4.5-1910	---	---	113	69	36	33	2.3	Elastic SILT (MH)

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
Sample ID:	PDI-118SPT-4.5-15-1910	Tested By:	cam
Depth:	---	Test Date:	11/12/19
		Checked By:	bfs
		Test Id:	527527
Test Comment:	---		
Visual Description:	Moist, dark grayish brown silt with sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318



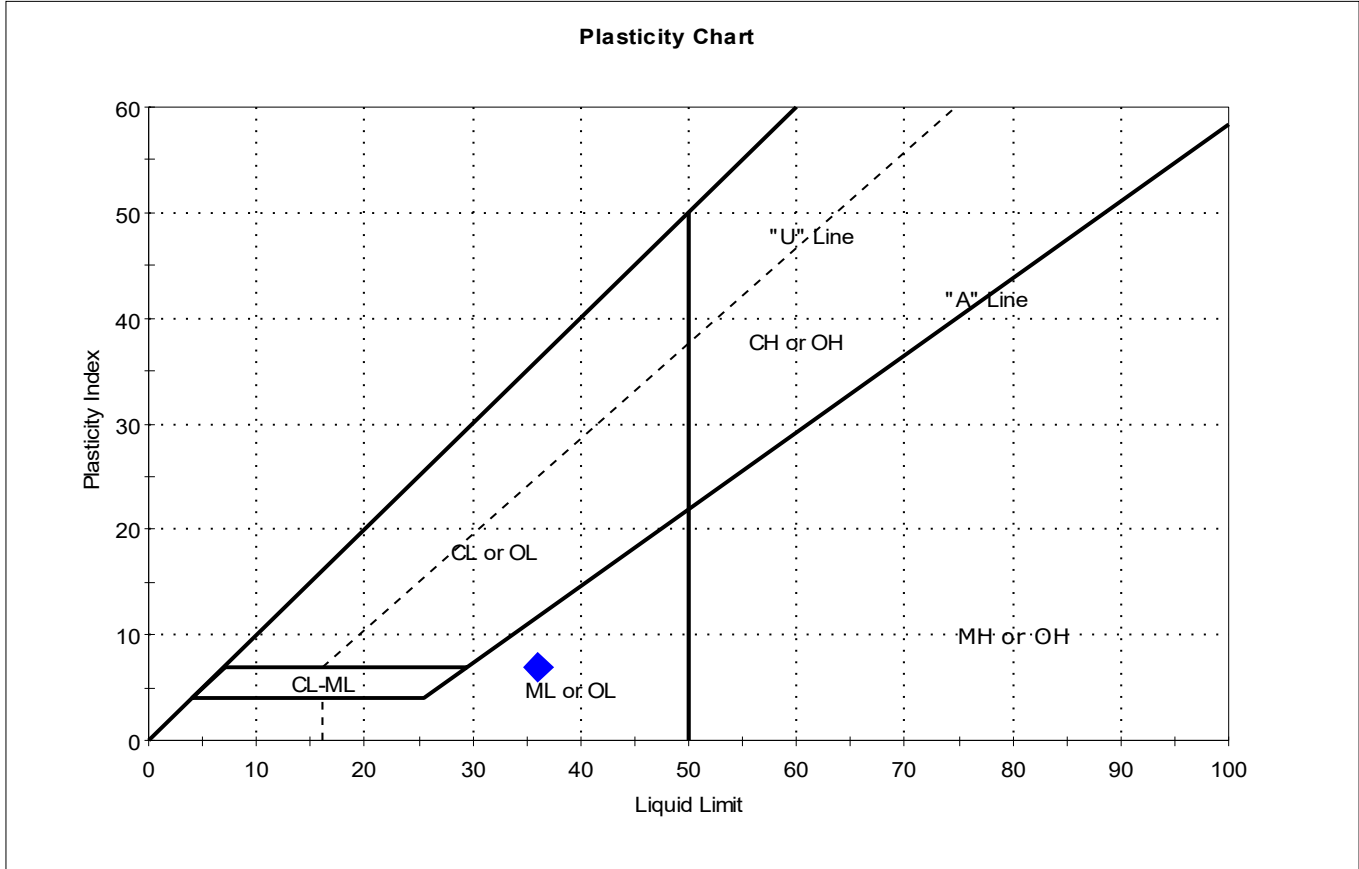
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	118SPT-4.5-15-19	---	---	70	71	35	36	1	Elastic SILT with Sand (MH)

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	Checked By: bfs
Sample ID: PDI-118SPT-46.5-61-191	Test Date: 11/11/19	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)

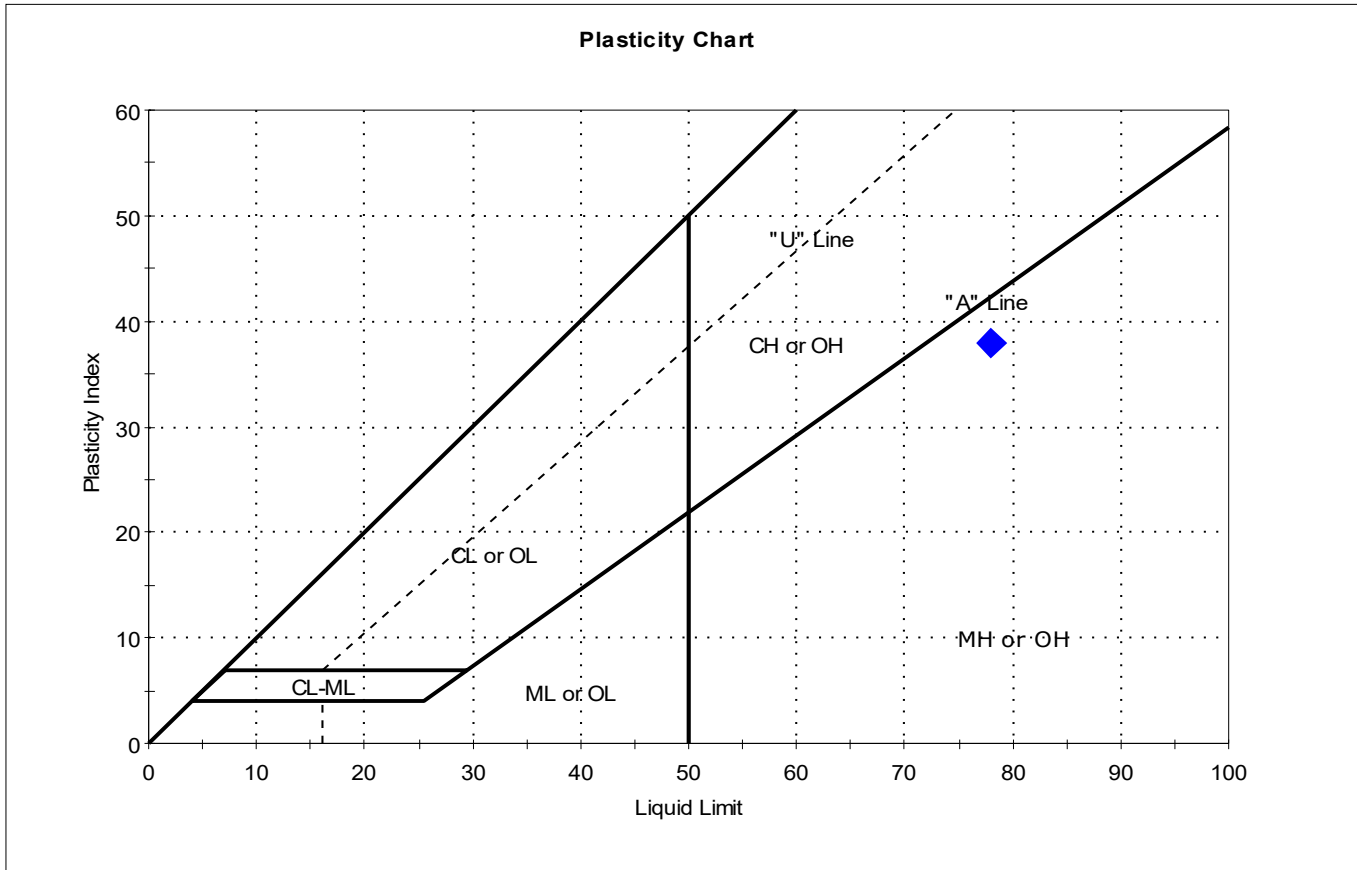
Sample Prepared using the WET method  
 1% Retained on #40 Sieve  
 Dry Strength: VERY HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





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

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

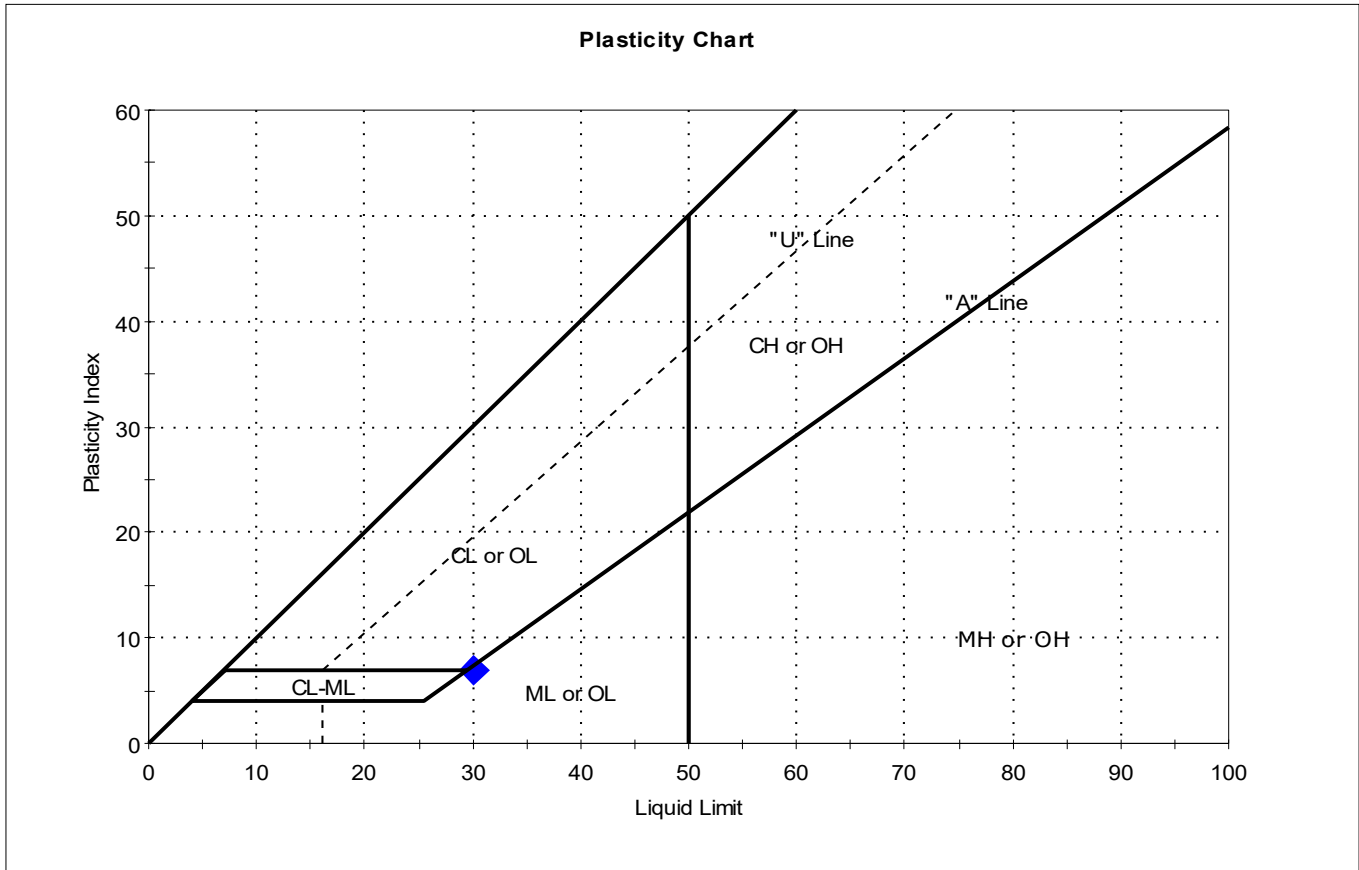
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	19SPT-18.3-31-19	---	---	30	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-119SPT-47-52-19100	Test Date: 11/11/19	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
Sample ID:	PDI-119SPT-9.5-18.3-191	Tested By:	cam
Depth :	---	Test Date:	11/12/19
		Checked By:	bfs
		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

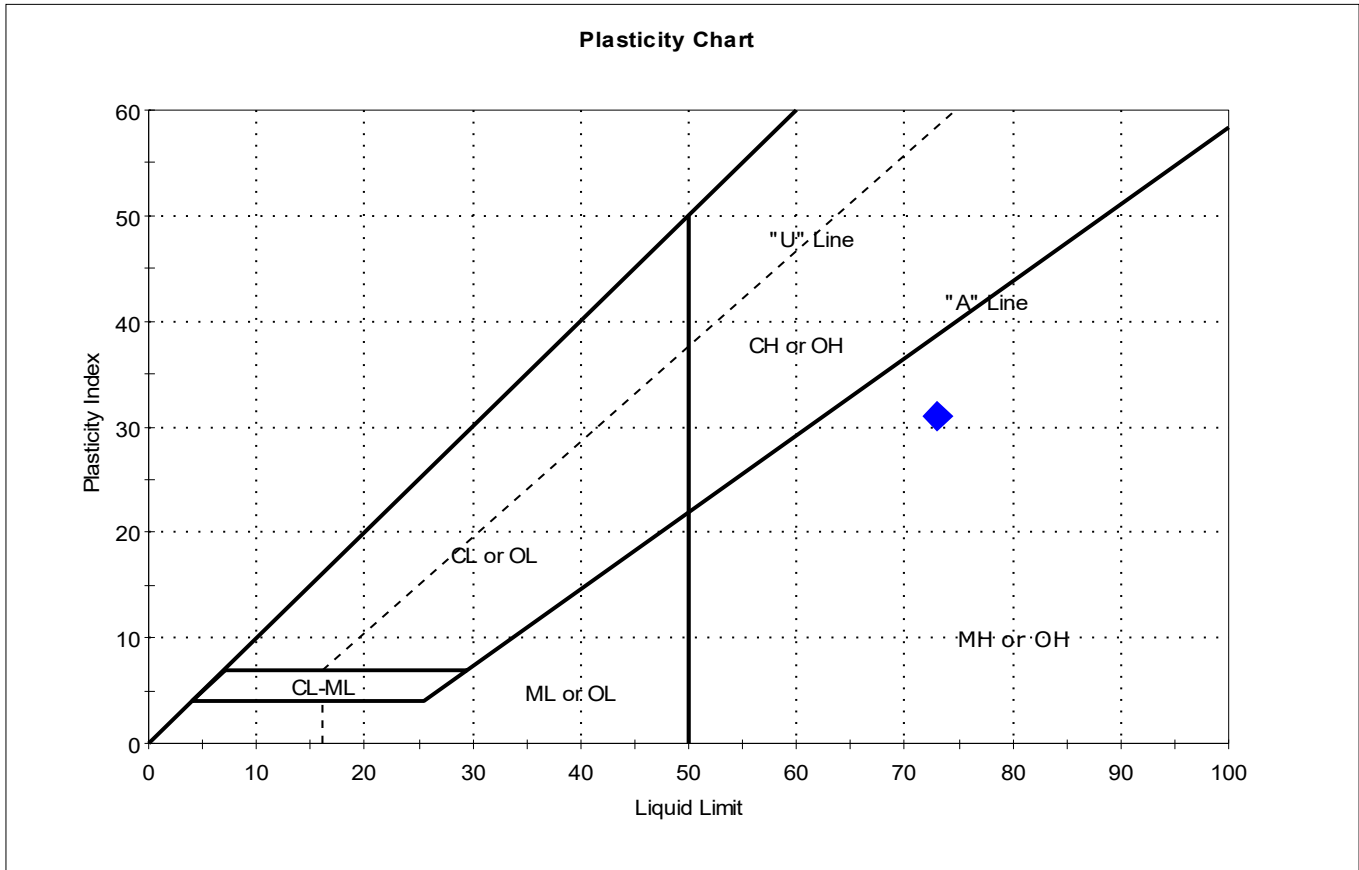
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	19SPT-9.5-18.3-19	---	---	37	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

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	Checked By: bfs
Sample ID: PDI-121SPT-00-06-19093	Test Date: 11/15/19	Depth: ---	Test Id: 527533
Test Comment: ---	Visual Description: Moist, olive brown silt	Sample Comment: ---	

## Atterberg Limits - ASTM D4318



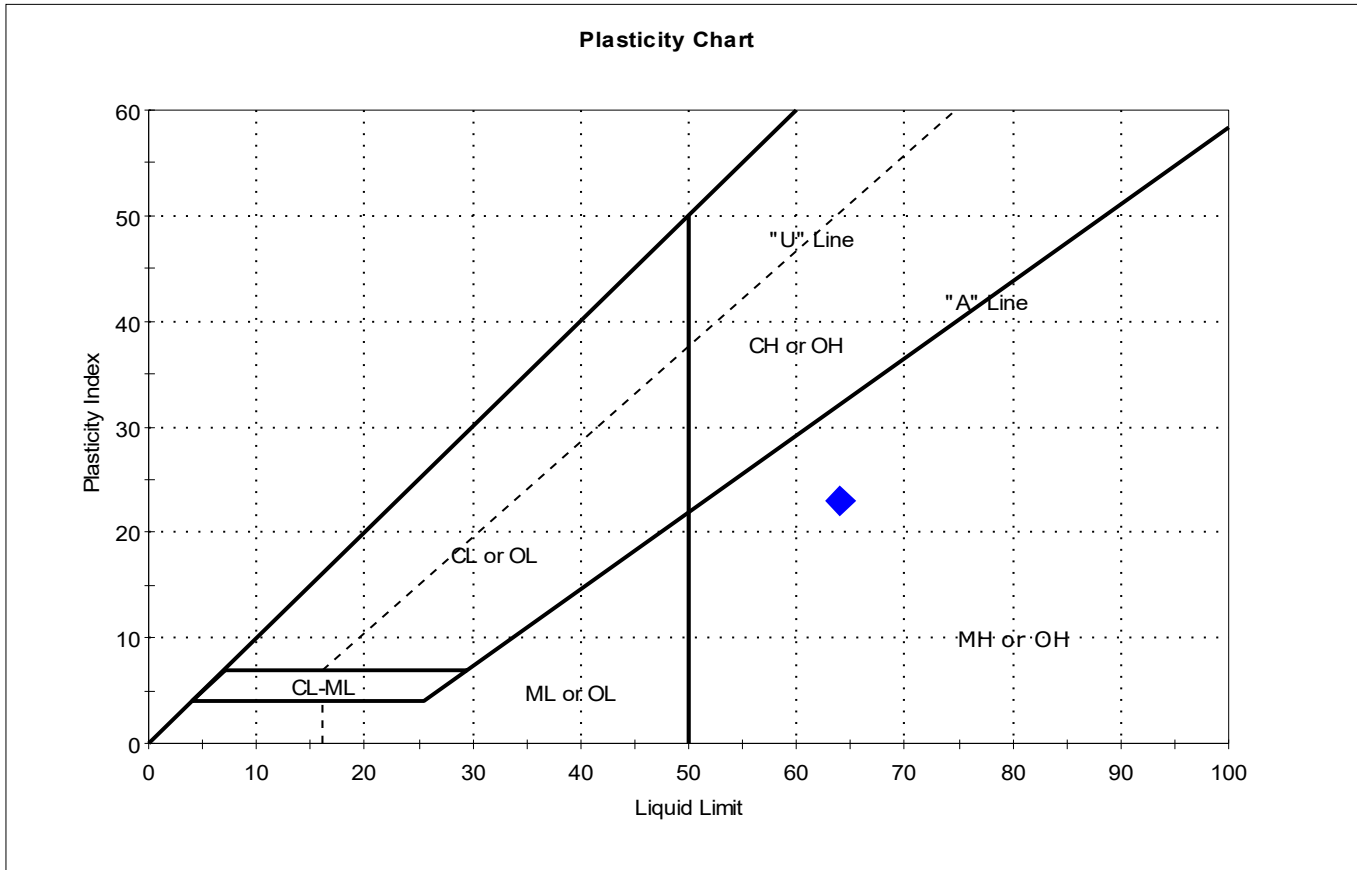
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	121SPT-00-06-190	---	---	76	73	42	31	1.1	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-121SPT-11-20.7-190	Test Date: 11/11/19	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
Sample ID:	PDI-121SPT-21-38-19093	Tested By:	cam
Depth :	---	Test Date:	10/28/19
		Checked By:	bfs
		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

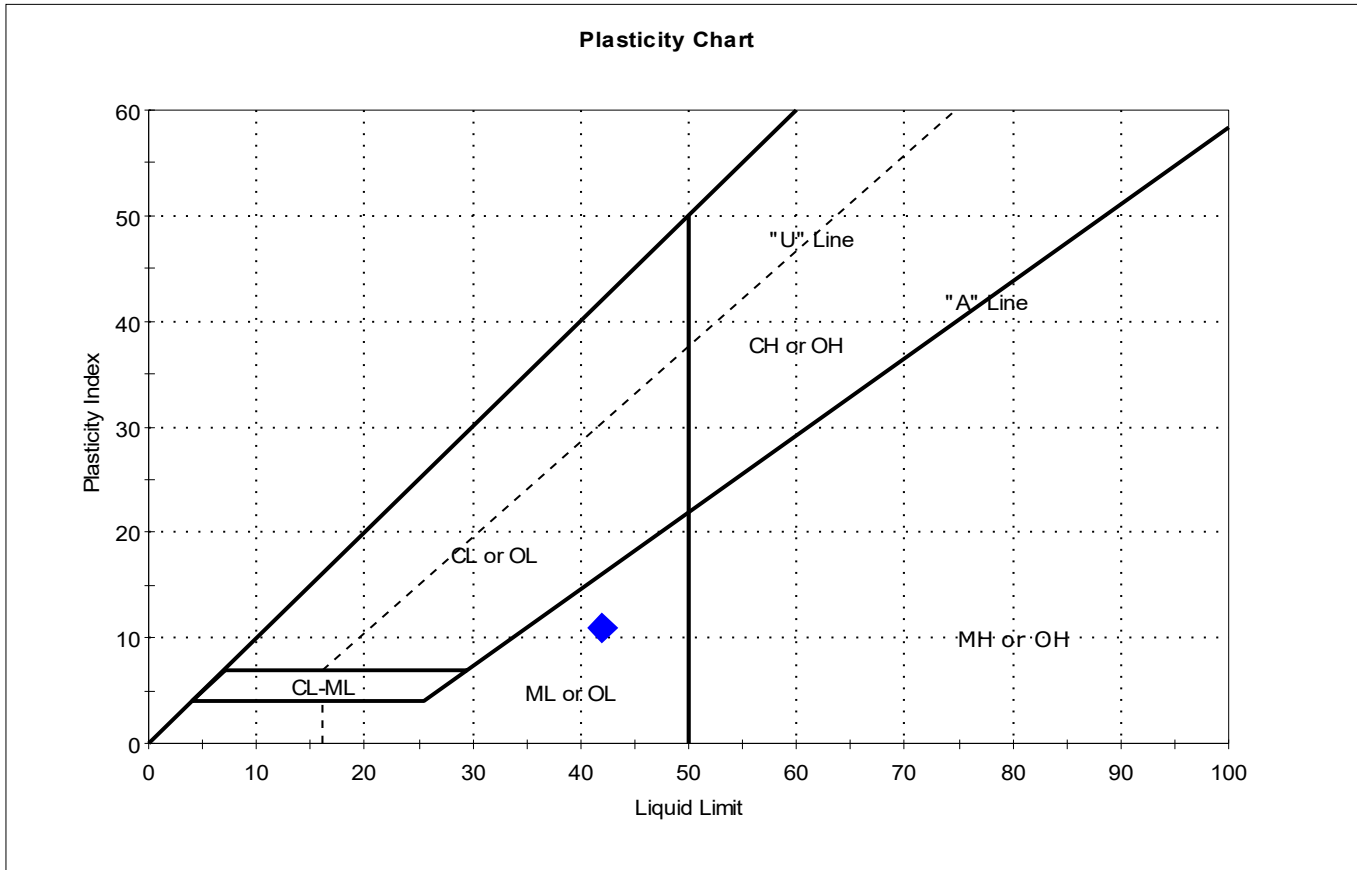
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	121SPT-21-38-190	---	---	43	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-121SPT-49.4-54-190	Test Date: 11/18/19	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)

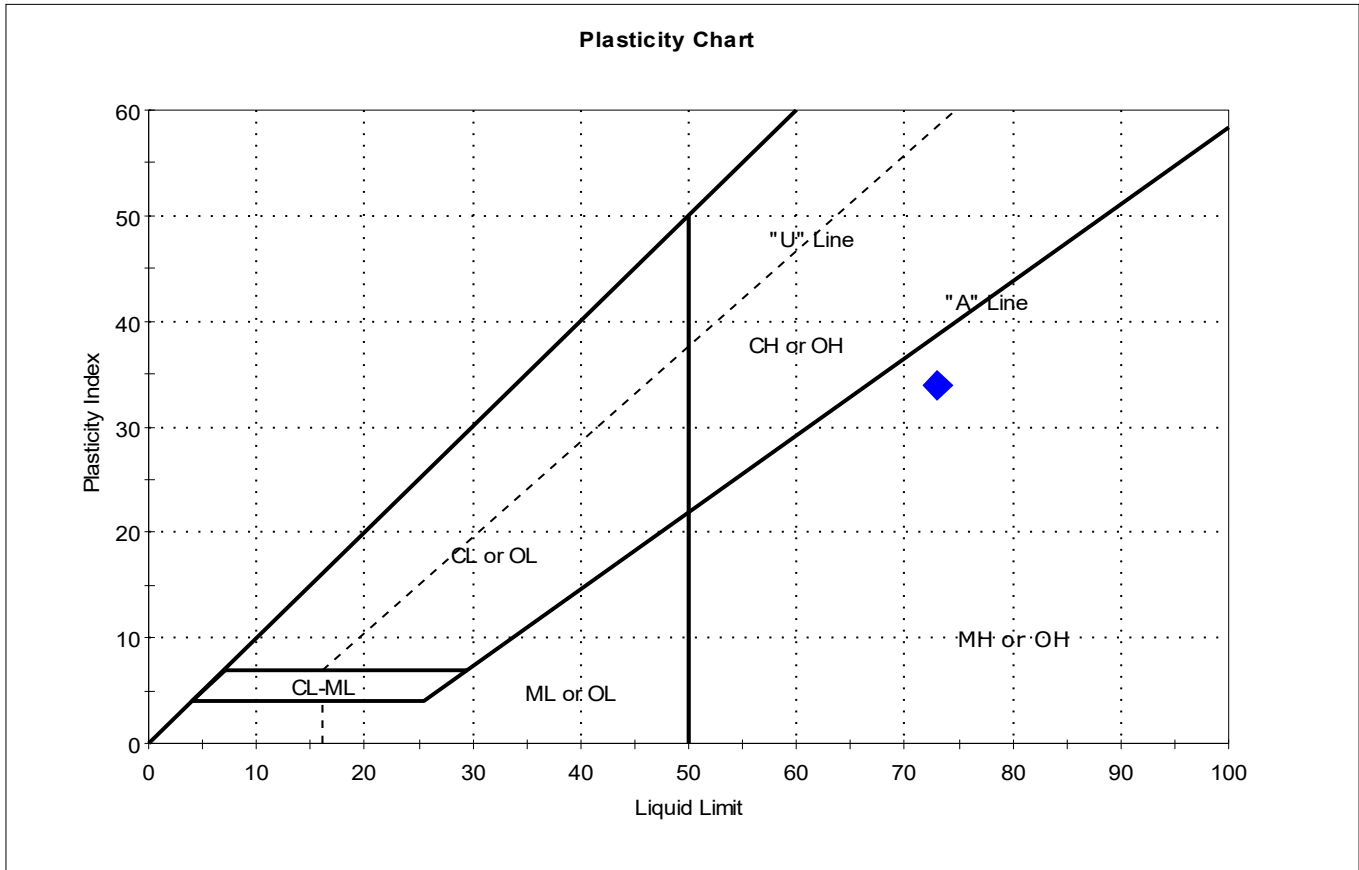
Sample Prepared using the WET method  
 1% Retained on #40 Sieve  
 Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: MEDIUM





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-122SPT-04-09-19092	Test Date: 11/12/19	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
Sample ID:	PDI-122SPT-16.6-24-190	Test Date:	11/11/19
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

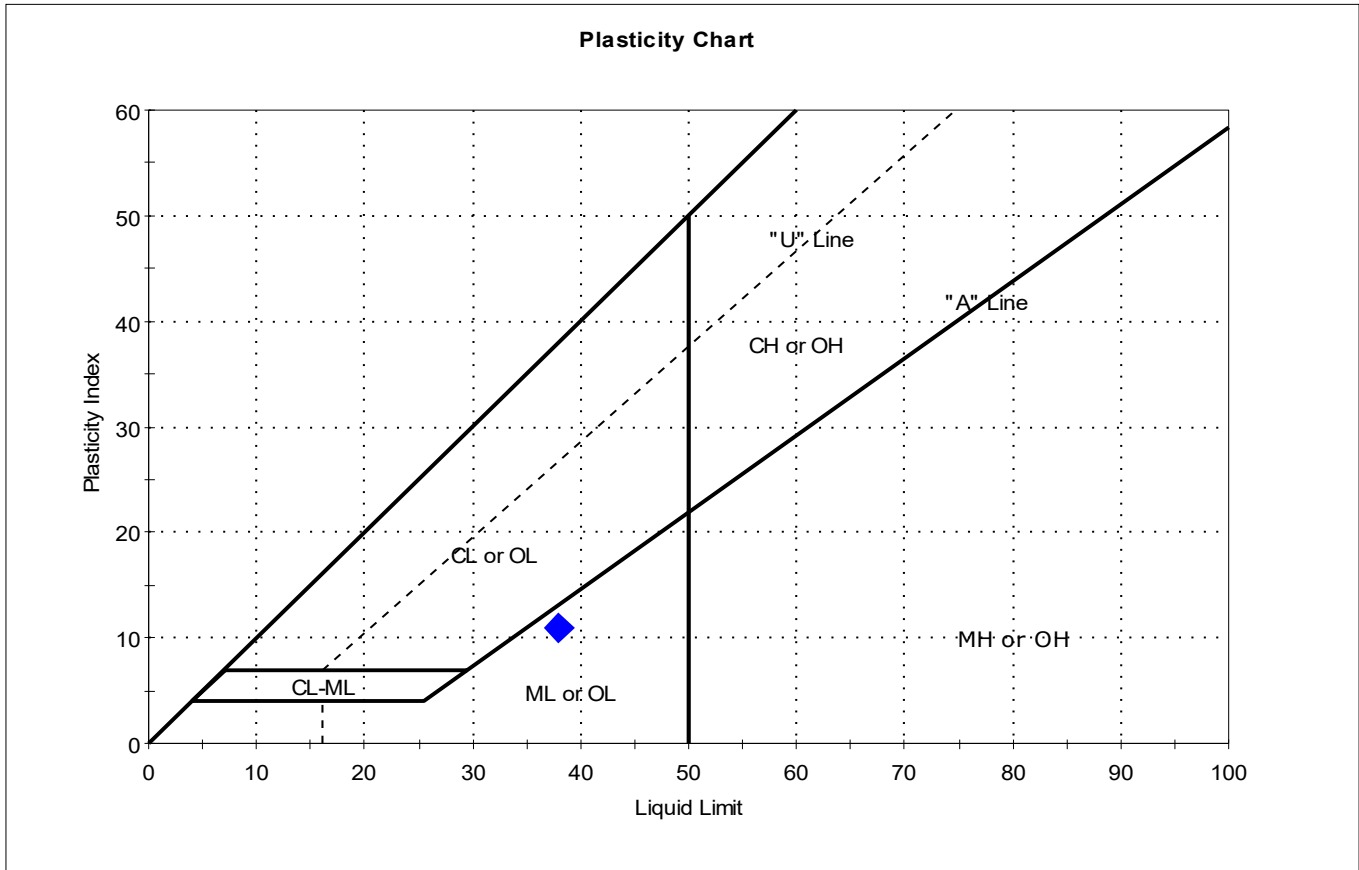
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	22SPT-16.6-24-19	---	---	49	n/a	n/a	n/a	n/a	Silty SAND (SM)

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

## Atterberg Limits - ASTM D4318



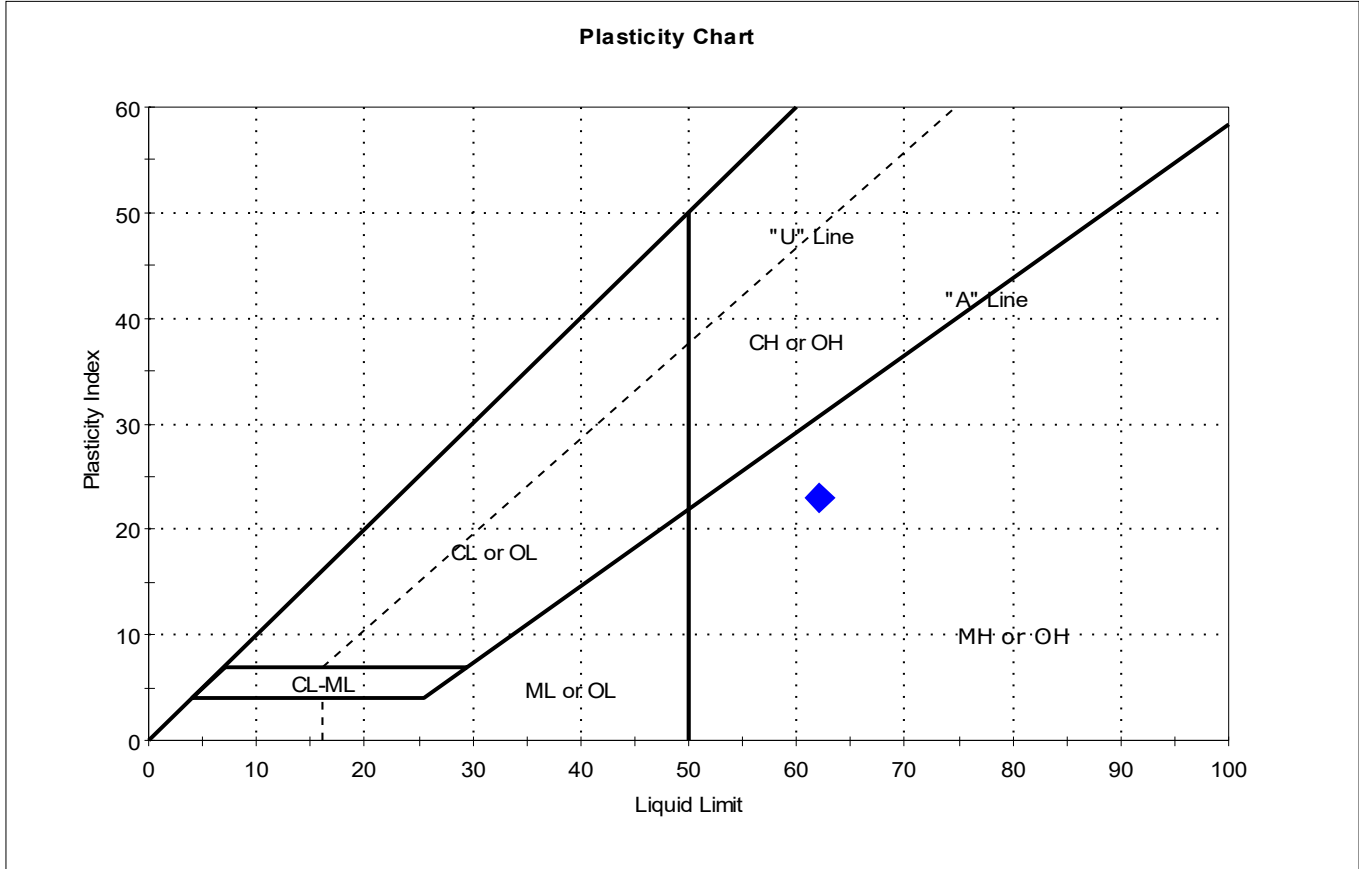
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	122SPT-61-66-190	---	---	42	38	27	11	1.3	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-123SPT-00-4.5-1909	Test Date: 11/11/19	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
◆	PDI-123SPT-00-4.5-1909	---	---	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
Sample ID:	PDI-123SPT-25.5-30.5-19	Test Date:	10/25/19
Depth :	---	Test Id:	527541
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

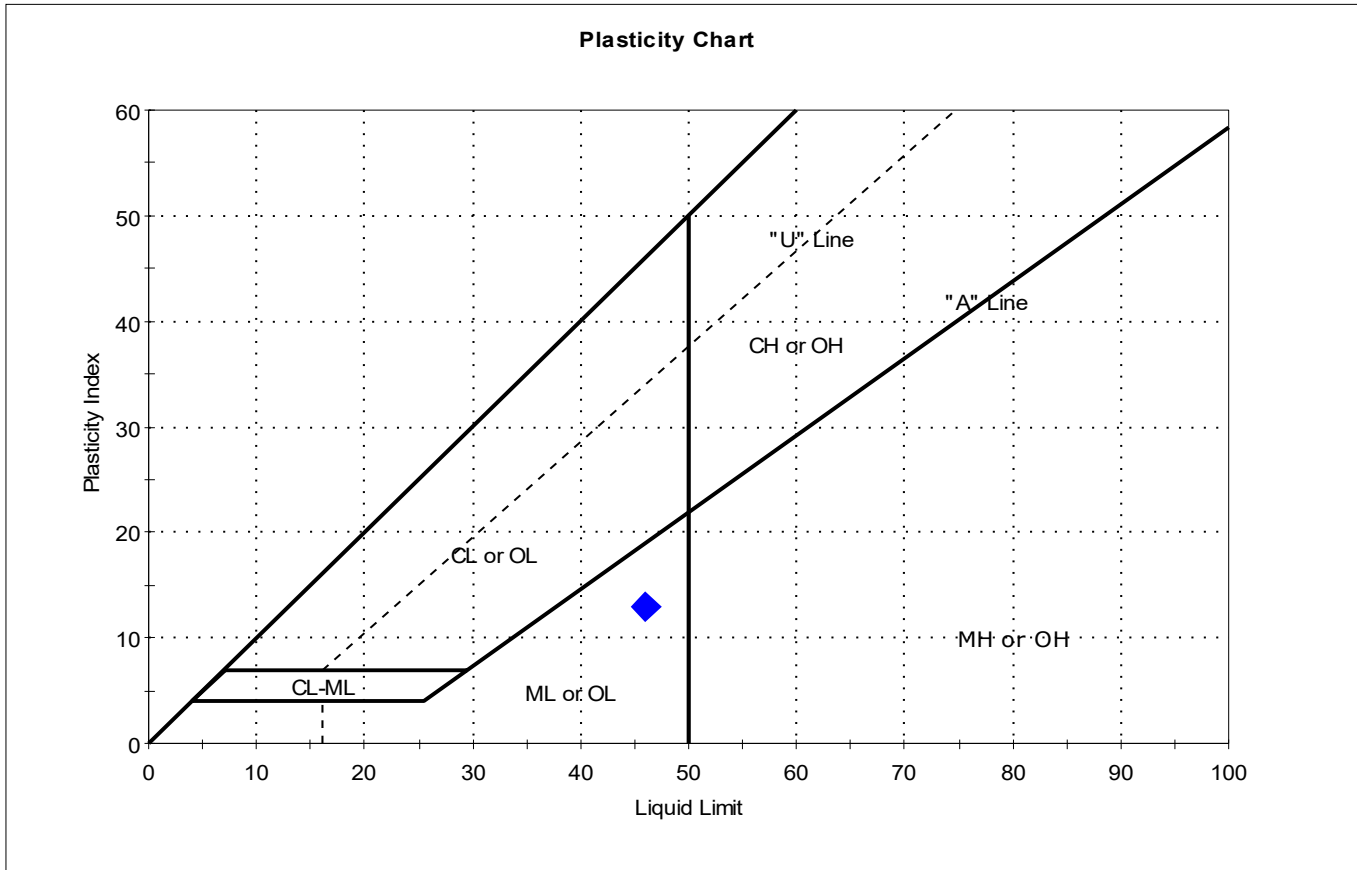
Sample Determined to be non-plastic

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 No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-123SPT-63.2-65.5-19	Test Date:	11/13/19
Depth:	---	Checked By:	bfs
		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
◆	PDI-123SPT-63.2-65.5-19	---	---	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
Sample ID:	PDI-19SC-B-05-07-19100	Tested By:	cam
Depth :	---	Test Date:	11/05/19
		Checked By:	bfs
		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



# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

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

COC ID: NWGEO-20190924-170421

POC: \* Delaney Peterson (360-715-2707)

Project: Gasco PDI

BJ

Sample Custodian:

1605 Cornwell Avenue, Bellingham, WA 98225

Client: NW Natural

Lab:

Northwest Geotech. *GTX*

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

Comment:

Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: _____
Print Name: Delaney Peterson	Print Name: _____
Company: AQP	Company: _____
Date/Time: 9.25.19 1000	Date/Time: _____





1201 3rd Avenue, Suite 2800, Seattle, WA 98101

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20190926-165106

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI 1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural  
 Sample Custodian: dep Lab: Northwest Geotech

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers	Lab QC* #	Test Request	Method	TAT**	Preservative
001	PDI-018SC-A-06-07-190926	N	SE	09/26/2019	8:54	21	<input type="checkbox"/>	Atterberg Limits <del>Bulk Density</del> Grain Size Moisture Content Specific gravity	D4318 D7263 D6913/D7928 D2216 D854	30 30 30 30 30	4°C 4°C 4°C 4°C 4°C
002	PDI-018SC-A-08-09-190926	N	SE	09/26/2019	8:54	21	<input type="checkbox"/>	Atterberg Limits <del>Bulk Density</del> Grain Size Moisture Content Specific gravity	D4318 D7263 D6913/D7928 D2216 D854	30 30 30 30 30	4°C 4°C 4°C 4°C 4°C
003	PDI-021SC-B-7-9-7-190927	N	SE	09/27/2019	9:22	21	<input type="checkbox"/>	Atterberg Limits <del>Bulk Density</del> Grain Size Moisture Content Specific gravity	D4318 D7263 D6913/D7928 D2216 D854	30 30 30 30 30	4°C 4°C 4°C 4°C 4°C
004	PDI-024SC-B-10-12-1-190927	N	SE	09/27/2019	11:31	21	<input type="checkbox"/>	Atterberg Limits <del>Bulk Density</del> Grain Size Moisture Content	D4318 D7263 D6913/D7928 D2216	30 30 30 30	4°C 4°C 4°C 4°C

Comment: All changes DP 10.2.19

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: D. Peterson	Print Name: Shannon Piccuch	Print Name: Shannon Piccuch	Print Name: Shannon Piccuch
Company: AG	Company: GIX	Company: GIX	Company: GIX
Date/Time: 10.2.19 1000	Date/Time: 10/3/19 10:30	Date/Time: 10/3/19 10:30	Date/Time: 10/3/19 10:30



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

ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20190926-165106  
 Sample Custodian: dep  
 Lab: Northwest Geotech

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI  
 1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

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

Comment: All changes DF 10.2.19

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: D. Peterson	Print Name: Shannon P. Couch	Print Name: <i>[Signature]</i>	Print Name: <i>[Signature]</i>
Company: AR	Company: GTX	Company: <i>[Signature]</i>	Company: <i>[Signature]</i>
Date/Time: 10.2.19 1000	Date/Time: 10/3/19 10:30	Date/Time: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191001-164659

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI Client: NW Natural  
 1605 Cornwall Avenue, Bellingham, WA 98225

Sample Custodian: dep Lab: Northwest Geotech

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

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: D. Peterson	Print Name: Shannon Piercech	Print Name: <i>[Print Name]</i>	Print Name: <i>[Print Name]</i>
Company: AGP	Company: <i>[Company]</i>	Company: <i>[Company]</i>	Company: <i>[Company]</i>
Date/Time: 10.2.19 1000	Date/Time: 10/3/19 10:30	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191001-170018  
Sample Custodian: dep  
Lab: Northwest Geotech

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI Client: NW Natural  
1605 Cornwall Avenue, Bellingham, WA 98225

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-039SC-B-7.8-9.8-190930	N	SE	09/30/2019	9:17	1	<input type="checkbox"/>	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:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature:	Signature:
Print Name: D. Peterson	Print Name: Shannon Piccuch	Print Name:	Print Name:
Company: A-Q	Company:	Company:	Company:
Date/Time: 10-2-19 1000	Date/Time: 10/3/19 10:30	Date/Time:	Date/Time:

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



1201 3rd Avenue, Suite 2800, Seattle, WA 98101

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191003-134441

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI

Sample Custodian: dep

1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	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	<input type="checkbox"/>	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

Atterbergs  
Grain Size  
Moisture Content  
Sp. Gravity

D4318  
D6913/D7928  
D2216  
D854

Comment:	
Relinquished By: Signature: <i>[Signature]</i> Print Name: <i>Shannon Peterson</i> Company: <i>AG</i> Date/Time: <i>10.4.19 1000</i>	Received By: Signature: <i>[Signature]</i> Print Name: <i>Shannon Peterson</i> Company: <i>GTX</i> Date/Time: <i>10/8/19 11am</i>
Relinquished By: Signature: _____ Print Name: _____ Company: _____ Date/Time: _____	Received By: Signature: _____ Print Name: _____ Company: _____ Date/Time: _____



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

**COC ID:** NWGEO-20191014-145320  
**Sample Custodian:** CO, SN, BJ, DL  
**Lab:** Geotesting Express

**POC: #** Delaney Peterson (360-715-2707) **Project:** Gasco PDI  
**Client:** NW Natural  
 1605 Cornwall Avenue, Bellingham, WA 98225

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

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature:	Signature:	Signature: _____	Signature: _____
Print Name: Delaney Peterson	Print Name: Delaney Peterson	Print Name: _____	Print Name: _____
Company: GTC	Company: GTC	Company: _____	Company: _____
Date/Time: 10/15/19 15:35	Date/Time: 10/21/19 8:55	Date/Time: _____	Date/Time: _____

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191010-175158

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI Client: NW Natural  
1605 Cornwall Avenue, Bellingham, WA 98225

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

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	# Containers	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-041SC-B-8.2-10.2-191010	N	SE	10/10/2019	9:42	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-067SC-B-02-04-191010	N	SE	10/10/2019	15:48	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191009-171243

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI Client: NW Natural  
 1605 Cornwall Avenue, Bellingham, WA 98225

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

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-016SC-B-06-08-191009	N	SE	10/09/2019	9:41	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-038SC-B-7.1-9.1-191009	N	SE	10/09/2019	15:56	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature <i>[Signature]</i>	Signature <i>[Signature]</i>	Signature <i>[Signature]</i>	Signature <i>[Signature]</i>
Print Name CORREIRO	Print Name Shannon Pritchard	Print Name Shannon Pritchard	Print Name Shannon Pritchard
Company AQ	Company GTX	Company GTX	Company GTX
Date/Time 10/15/19 1535	Date/Time 10/12/19 8:55	Date/Time 10/12/19 8:55	Date/Time 10/12/19 8:55

Date Printed: 10/9/2019 \* Lab QC Requested for sample when box is checked \*\* TAT = Turn Around Time in DAYS # POC = Project Point of Contact





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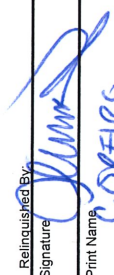
# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

**COC ID:** NWGEO-20191008-163122  
**Sample Custodian:** CO, SN, BJ, NB, DL  
**Lab:** Geotesting Express

**POC:** # Delaney Peterson (360-715-2707) **Project:** Gasco PDI  
 1605 Cornwall Avenue, Bellingham, WA 98225 **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-019SC-B-05-07-191008	N	SE	10/08/2019	14:55	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-033SC-B-8-7-10-7-191008	N	SE	10/08/2019	13:08	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Received By:		Relinquished By:		Received By:	
Signature	Print Name	Signature	Print Name	Signature	Print Name
	Shannon P. Kuch				
Company	ETA	Company		Company	
Date/Time	10/15/19 8:55	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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191011-174305

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI Client: NW Natural  
 1605 Cornwall Avenue, Bellingham, WA 98225

Sample Custodian: SN  
 Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	# Containers	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-027SC-B-11-13.5-191011	N	SE	10/11/2019	14:25	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-066SC-B-06-08-191011	N	SE	10/11/2019	8:40	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Shannon Peterson	Print Name: Shannon Peterson	Print Name: Shannon Peterson	Print Name: Shannon Peterson
Company: AQ	Company: AQ	Company: AQ	Company: AQ
Date/Time: 10/15/19 1535	Date/Time: 10/22/19 8:55	Date/Time: 10/22/19 8:55	Date/Time: 10/22/19 8:55

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191012-174803

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI

Sample Custodian: SN

1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers	Lab QC* #	Test Request	Method	TAT**	Preservative
001	PDI-090SC-B-06-08-191012	N	SE	10/12/2019	14:22	1	<input type="checkbox"/>	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:

Received By:		Relinquished By:		Received By:	
Signature	<i>[Signature]</i>	Signature	<i>[Signature]</i>	Signature	
Print Name	Shannon Beach	Print Name	Shannon Beach	Print Name	
Company	COX	Company	COX	Company	
Date/Time	10/15/19 1535	Date/Time	10/21/19 8:55	Date/Time	



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191015-152359

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI

Sample Custodian: CO, SN, BJ, DL

1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	# Containers	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-0495C-B-06-08-191015	N	SE	10/15/2019	13:32	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-0529C-B-06-08-191015	N	SE	10/15/2019	8:54	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: C. OREIRO	Print Name: Shannon Pierceh	Print Name: <i>[Print Name]</i>	Print Name: <i>[Print Name]</i>
Company: <i>[Company]</i>	Company: GTX	Company: <i>[Company]</i>	Company: <i>[Company]</i>
Date/Time: 10/15/19 1535	Date/Time: 10/21/19 8:55	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

Sample Custodian: CJ

Lab: Geotesting Express

Project: Gasco PDI

Client: NW Natural

POC: \* Delaney Peterson (360-715-2707)

1605 Cornwall Avenue, Bellingham, WA 98225

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
001	PDI-107SPT-00-04-190923	N	SE	09/23/2019	12:35	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-107SPT-04-09-190923	N	SE	09/23/2019	13:00	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
003	PDI-107SPT-17-18-190923	N	SE	09/23/2019	14:55	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
004	PDI-107SPT-62-64-190923	N	SE	09/23/2019	13:35	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
005	PDI-108SPT-00-6-4-191007	N	SE	10/07/2019	13:25	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Garrett Timm	Print Name: Scott Ferguson	Print Name: Scott Ferguson	Print Name: Scott Ferguson
Company: Anchor OEA	Company: GTX	Company: GTX	Company: GTX
Date/Time: 10/16/19, 1400	Date/Time: 10/21/19, 8 AM	Date/Time: 10/21/19, 8 AM	Date/Time: 10/21/19, 8 AM

Comment:

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

Sample Custodian: CJ  
Lab: Geotesting Express

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI  
1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

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	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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

Received By:	Received By:	Received By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <i>Delaney Peterson</i>	Print Name: <i>Scott Ferguson</i>	Print Name: <i>Scott Ferguson</i>	Print Name: <i>[Signature]</i>
Company: <i>Anchor OEA</i>	Company: <i>ETA</i>	Company: <i>ETA</i>	Company: <i>[Signature]</i>
Date/Time: <i>10/16/19; 1400</i>	Date/Time: <i>10/16/19; 1100</i>	Date/Time: <i>10/16/19; 8AM</i>	Date/Time: <i>[Signature]</i>

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



# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

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

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI 1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural  
 Sample Custodian: CJ Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
009	PDI-109SPT-16.5-18.1-191004	N	SE	10/04/2019	10:30	1	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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

Relinquished By:	Relinquished By:	Relinquished By:	Relinquished By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Garrett Timmer	Print Name: Scott Ferguson	Print Name: Scott Ferguson	Print Name: [Blank]
Company: Anchor OEA	Company: GTH	Company: [Blank]	Company: [Blank]
Date/Time: 10/16/19; 1700	Date/Time: 10/16/19; 8AM	Date/Time: [Blank]	Date/Time: [Blank]

Comment: \_\_\_\_\_

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: CJ

1605 Cornwall Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
013	PDI-110 B-54-64.5-191015	N	SE	10/15/2019	9:50	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
014	PDI-110SPT-21-32-191010	N	SE	10/10/2019	11:20	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
015	PDI-110SPT-32-45-191010	N	SE	10/10/2019	13:05	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
016	PDI-112SPT-00-6.5-191003	N	SE	10/03/2019	8:30	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
017	PDI-112SPT-07-11.5-191003	N	SE	10/03/2019	9:30	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Received By:	Relinquished By:	Received By:	Relinquished By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Garrett Timm	Print Name: Scott Ferguson	Print Name: Scott Ferguson	Print Name: [Blank]
Company: Anchor QEA	Company: G+X	Company: G+X	Company: [Blank]
Date/Time: 10/16/19; 1400	Date/Time: 10/21/19 8AM	Date/Time: 10/21/19 8AM	Date/Time: [Blank]

\* 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

Page 4 of 15





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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI 1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

Sample Custodian: CJ Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
017	PDI-112SPT-07-11.5-191003	N	SE	10/03/2019	9:30	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
018	PDI-112SPT-11.5-26.5-191003	N	SE	10/03/2019	9:40	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
019	PDI-112SPT-37.5-58-191003	N	SE	10/03/2019	12:50	2	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
020	PDI-113SPT-06-16-191011	N	SE	10/11/2019	9:00	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
021	PDI-113SPT-16-22-191011	N	SE	10/11/2019	9:50	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:			
Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>Coy Lee</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <i>Coy Lee</i>	Print Name: <i>Scott Ferguson</i>	Print Name: <i>[Name]</i>	Print Name: <i>[Name]</i>
Company: <i>Anchor QEA</i>	Company: <i>[Company]</i>	Company: <i>[Company]</i>	Company: <i>[Company]</i>
Date/Time: <i>10/16/19 1400</i>	Date/Time: <i>10/21/19 8AM</i>	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: CJ

1605 Cornwall Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
021	PDI-113SPT-16-22-191011	N	SE	10/11/2019	9:50	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
022	PDI-113SPT-22-25.2-191011	N	SE	10/11/2019	10:15	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
023	PDI-113SPT-31.9-39.4-191011	N	SE	10/11/2019	11:20	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
024	PDI-114SPT-00-7.5-191008	N	SE	10/08/2019	8:20	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
025	PDI-114SPT-25.5-28-191008	N	SE	10/08/2019	10:40	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C

Received By:	Relinquished By:	Received By:	Relinquished By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Casey J. Smith	Print Name: Fed Ex	Print Name: Scott Ferguson	Print Name: [Blank]
Company: Anchor QEA	Company: [Blank]	Company: GTR	Company: [Blank]
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time: 10/12/19 8 AM	Date/Time: [Blank]

Comment:

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

Sample Custodian: CJ  
 Lab: Geotesting Express

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI  
 1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC*	Test Request	Method	TAT**	Preservative
025	PDI-114SPT-25.5-28-191008	N	SE	10/08/2019	10:40	1	<input type="checkbox"/>	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	1	<input type="checkbox"/>	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	1	<input type="checkbox"/>	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	1	<input type="checkbox"/>	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	1	<input type="checkbox"/>	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

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>Cyber</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <i>Cory Twizich</i>	Print Name: <i>Fed Ex</i>	Print Name: <i>[Print Name]</i>	Print Name: <i>[Print Name]</i>
Company: <i>Anchor QEA</i>	Company: <i>[Company]</i>	Company: <i>[Company]</i>	Company: <i>[Company]</i>
Date/Time: <i>10/16/19 1400</i>	Date/Time: <i>10/16/19 1400</i>	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>

Comment:

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: \* Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: CJ

1605 Cornwall Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
029	PDI-115SPT-06-11-191009	N	SE	10/09/2019	9:00	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
030	PDI-115SPT-18-6-20-6-191009	N	SE	10/09/2019	10:00	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
031	PDI-115SPT-23-28-1-191009	N	SE	10/09/2019	10:35	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
032	PDI-115SPT-41-5-49-3-191009	N	SE	10/09/2019	13:30	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
033	PDI-116SPT-00-4-5-190926	N	SE	09/26/2019	16:05	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Received By:	Received By:	Received By:	Received By:
Signature: <i>Casey Jursich</i>	Signature: <i>FedEx</i>	Signature: <i>Scott Ferguson</i>	Signature: <i>[Signature]</i>
Print Name: Casey Jursich	Print Name: FedEx	Print Name: Scott Ferguson	Print Name: [Name]
Company: Anchor QEA	Company: [Company]	Company: [Company]	Company: [Company]
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time: 10/16/19 8AM	Date/Time: [Date/Time]

Comment: \_\_\_\_\_

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: CJ

1605 Cornwall Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
033	PDI-116SPT-00-4.5-190926	N	SE	09/26/2019	16:05	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
034	PDI-116SPT-20-26.7-190927	N	SE	09/27/2019	9:15	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
035	PDI-116SPT-26.7-28.6-190926	N	SE	09/26/2019	10:30	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
036	PDI-116SPT-51.5-54.2-190927	N	SE	09/27/2019	14:10	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
037	PDI-117SPT-11-29.1-191002	N	SE	10/02/2019	10:05	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>Cathy Tomisch</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Cathy Tomisch	Print Name: Scott Ferguson	Print Name: Scott Ferguson	Print Name: [Print Name]
Company: Anchor OEA	Company: GSA	Company: GSA	Company: [Company]
Date/Time: 10/16/19 1400	Date/Time: 10/16/19 1400	Date/Time: 10/16/19 9AM	Date/Time: [Date/Time]

Comment:

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI 1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

Sample Custodian: CJ Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
037	PDI-117SPT-11-29.1-191002	N	SE	10/02/2019	10:05	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
038	PDI-117SPT-29.1-32-191002	N	SE	10/02/2019	11:30	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
039	PDI-117SPT-44.1-53.5-191002	N	SE	10/02/2019	13:25	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
040	PDI-117SPT-53.5-63.5-191002	N	SE	10/02/2019	14:40	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
041	PDI-118SPT-00.4-5-191014	N	SE	10/14/2019	8:45	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Relinquished By:	Signature	Print Name	Company	Date/Time	Relinquished By:	Signature	Print Name	Company	Date/Time
Casey Jones	<i>[Signature]</i>	Casey Jones	OEA	10/16/19 1400	Casey Jones	<i>[Signature]</i>	Casey Jones	OEA	10/16/19 1400
Casey Jones	<i>[Signature]</i>	Casey Jones	OEA	10/16/19 1400	Casey Jones	<i>[Signature]</i>	Casey Jones	OEA	10/16/19 1400
Anchor OEA	<i>[Signature]</i>	Anchor OEA	OEA	10/16/19 1400	Anchor OEA	<i>[Signature]</i>	Anchor OEA	OEA	10/16/19 1400

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



1201 3rd Avenue, Suite 2500, Seattle, WA 98101

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: CJ

1605 Cornwall Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
041	PDI-118SPT-00-4.5-191014	N	SE	10/14/2019	8:45	11	<input type="checkbox"/>	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	11	<input type="checkbox"/>	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	11	<input type="checkbox"/>	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-118SPT-00-4.5-191001	N	SE	10/01/2019	8:40	11	<input type="checkbox"/>	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-118SPT-18.3-31-191001	N	SE	10/01/2019	10:05	11	<input type="checkbox"/>	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

Relinquished By	Received By	Relinquished By	Received By
Signature: <i>Handwritten Signature</i>	Signature: <i>Handwritten Signature</i>	Signature: <i>Handwritten Signature</i>	Signature: <i>Handwritten Signature</i>
Print Name: <i>Garred Timm</i>	Print Name: <i>Garred Timm</i>	Print Name: <i>Garred Timm</i>	Print Name: <i>Garred Timm</i>
Company: <i>Anchor OEA</i>	Company: <i>Anchor OEA</i>	Company: <i>Anchor OEA</i>	Company: <i>Anchor OEA</i>
Date/Time: <i>10/16/19; 1400</i>	Date/Time: <i>10/16/19; 1400</i>	Date/Time: <i>10/16/19; 1400</i>	Date/Time: <i>10/16/19; 1400</i>

Comment:

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



# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

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

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: CJ

1605 Cornwell Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
045	PDI-119SPT-18.3-31-191001	N	SE	10/01/2019	10:05	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
046	PDI-119SPT-47-52-191001	N	SE	10/01/2019	14:00	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
047	PDI-119SPT-9.5-18.3-191001	N	SE	10/01/2019	9:35	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
048	PDI-121SPT-00-06-190930	N	SE	09/30/2019	8:30	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C
049	PDI-121SPT-11-20.7-190930	N	SE	09/30/2019	9:25	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30	4°C

Received By:	Relinquished By:	Received By:	Relinquished By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Garrett Timmer	Print Name: Scott Ferguson	Print Name: Scott Ferguson	Print Name: [Blank]
Company: Anchor OEA	Company: GTS	Company: GTS	Company: [Blank]
Date/Time: 10/16/19, 1400	Date/Time: 10/16/19, 8AM	Date/Time: 10/16/19, 8AM	Date/Time: [Blank]

Comment:

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





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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI Client: NW Natural  
 1605 Cornwell Avenue, Bellingham, WA 98225

Sample Custodian: CJ Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
049	PDI-121SPT-11-20.7-190930	N	SE	09/30/2019	9:25	1	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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	<input type="checkbox"/>	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

Received By:	Received By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Gret Tunin	Print Name: Scott Ferguson	Print Name: [Blank]
Company: Anelco OEA	Company: STX	Company: [Blank]
Date/Time: 10/16/19; 1400	Date/Time: 10/16/19; 8AM	Date/Time: [Blank]

Comment: [Blank]

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



# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

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

**COC ID:** NWGEO-20191016-101220

**POC:** # Delaney Peterson (360-715-2707)

**Project:** Gasco PDI

**Sample Custodian:** CJ

1605 Cornwall Avenue, Bellingham, WA 98225

**Client:** NW Natural

**Lab:** Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
053	PDI-122SPT-16.6-24-190925	N	SE	09/25/2019	16:55	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
054	PDI-122SPT-61.66-190926	N	SE	09/26/2019	14:00	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
055	PDI-123SPT-00-4.5-190924	N	SE	09/24/2019	15:15	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
056	PDI-123SPT-25.5-30.5-190925	N	SE	09/25/2019	9:10	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
057	PDI-123SPT-63.2-65.5-190925	N	SE	09/25/2019	13:15	11	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Relinquished By:	Signature	Print Name	Company	Date/Time	Relinquished By:	Signature	Print Name	Company	Date/Time
Received By:	<i>[Signature]</i>	Scott Ferguson	GTA	10/16/19	Received By:	<i>[Signature]</i>	Print Name	Company	Date/Time
Signature	<i>[Signature]</i>	Print Name	Company	Date/Time	Signature	<i>[Signature]</i>	Print Name	Company	Date/Time
Signature	<i>[Signature]</i>	Print Name	Company	Date/Time	Signature	<i>[Signature]</i>	Print Name	Company	Date/Time
Signature	<i>[Signature]</i>	Print Name	Company	Date/Time	Signature	<i>[Signature]</i>	Print Name	Company	Date/Time

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



1201 3rd Avenue, Suite 2800, Seattle, WA 98101

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191016-101220

POC: # Delaney Peterson (360-715-2707)

Project: Gasco PDI

Sample Custodian: CJ

1605 Cornwall Avenue, Bellingham, WA 98225

Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
057	PDI-123SPT-63.2-65.5-190925	N	SE	09/25/2019	13:15	1	<input type="checkbox"/>	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:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: <i>[Name]</i>	Print Name: <i>[Name]</i>	Print Name: <i>[Name]</i>	Print Name: <i>[Name]</i>
Company: <i>[Company]</i>	Company: <i>[Company]</i>	Company: <i>[Company]</i>	Company: <i>[Company]</i>
Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-201910.  
 Sample Custodian: CO, SN, BJ, SS  
 Lab: Geotesting Express

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI Client: NW Natural  
 1605 Cornwall Avenue, Bellingham, WA 98225

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-057SC-B-06-08-191023	N	SE	10/23/2019	12:46	1	<input type="checkbox"/>	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:

Received By:	Relinquished By:	Received By:	Relinquished By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Ben Johnson	Print Name: Scott Ferguson	Print Name: <i>[Signature]</i>	Print Name: <i>[Signature]</i>
Company: Anchor OEA	Company: GTX	Company: <i>[Signature]</i>	Company: <i>[Signature]</i>
Date/Time: 10/29/19 08:15	Date/Time: 11/16/19 18:00	Date/Time: <i>[Signature]</i>	Date/Time: <i>[Signature]</i>

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



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) **Project:** Gasco PDI  
 1605 Cornwall Avenue, Bellingham, WA 98225 **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	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-099SC-B-02-04-191022	N	SE	10/22/2019	10:48	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Relinquished By:		Received By:		Relinquished By:		Received By:	
Signature	Print Name	Signature	Print Name	Signature	Print Name	Signature	Print Name
	Ben Johnson		Scott Ferguson				
	AnchorSEA		G. H. H. H.				
	10/29/19 09:15		M. K. H. H.				

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191017-123936

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI

Sample Custodian: SN

1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	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	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-097SC-B-02-04-191017	N	SE	10/17/2019	10:46	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Ben Johnson	Print Name: Scott Ferguson	Print Name: <i>[Print Name]</i>	Print Name: <i>[Print Name]</i>
Company: Archer OEA	Company: GTH	Company: <i>[Company]</i>	Company: <i>[Company]</i>
Date/Time: 10/29/19 09:15	Date/Time: 11/16/19 18:00	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

**COC ID:** NWGEO-20191016-143858  
**Sample Custodian:** CO, SN, BJ, DL  
**Lab:** Geotesting Express

**POC: #** Delaney Peterson (360-715-2707) **Project:** Gasco PDI  
**Client:** NW Natural

1605 Cornwall Avenue, Bellingham, WA 98225

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Collected Time	# Containers	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-022SC-B-5-7.5-191016	N	SE	10/16/2019	13:41	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-059SC-B-06-08-191016	N	SE	10/16/2019	7:57	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
003	PDI-069SC-B-10-12-191016	N	SE	10/16/2019	10:38	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Received By:		Relinquished By:		Received By:		Relinquished By:	
Signature		Signature		Signature		Signature	
Print Name	Ben Johnson	Print Name	Scott Ferguson	Print Name		Print Name	
Company	Anchor O&E	Company	ATA	Company		Company	
Date/Time	10/29/19 12:15	Date/Time	10/16/19 12:00	Date/Time		Date/Time	

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

## 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 $\Delta\sigma_1 - \Delta\sigma_3$	$S_r$	Post cyclic undrained shear strength
B	pore pressure parameter for $\Delta\sigma_3$	T	temperature
CAI	CERCHAR Abrasiveness Index	t	time
CIU	isotropically consolidated undrained triaxial shear test	U, UC	unconfined compression test
CR	compression ratio for one dimensional consolidation	UU, Q	unconsolidated undrained triaxial test
CSR	cyclic stress ratio	$u_a$	pore gas pressure
$C_c$	coefficient of curvature, $(D_{30})^2 / (D_{10} \times D_{60})$	$u_e$	excess pore water pressure
$C_u$	coefficient of uniformity, $D_{60}/D_{10}$	u, $u_w$	pore water pressure
$C_c$	compression index for one dimensional consolidation	V	total volume
$C_a$	coefficient of secondary compression	$V_g$	volume of gas
$c_v$	coefficient of consolidation	$V_s$	volume of solids
c	cohesion intercept for total stresses	$V_s$	shear wave velocity
$c'$	cohesion intercept for effective stresses	$V_v$	volume of voids
D	diameter of specimen	$V_w$	volume of water
D	damping ratio	$V_o$	initial volume
$D_{10}$	diameter at which 10% of soil is finer	v	velocity
$D_{15}$	diameter at which 15% of soil is finer	W	total weight
$D_{30}$	diameter at which 30% of soil is finer	$W_s$	weight of solids
$D_{50}$	diameter at which 50% of soil is finer	$W_w$	weight of water
$D_{60}$	diameter at which 60% of soil is finer	w	water content
$D_{85}$	diameter at which 85% of soil is finer	$w_c$	water content at consolidation
$d_{50}$	displacement for 50% consolidation	$w_f$	final water content
$d_{90}$	displacement for 90% consolidation	$w_l$	liquid limit
$d_{100}$	displacement for 100% consolidation	$w_n$	natural water content
E	Young's modulus	$w_p$	plastic limit
e	void ratio	$w_s$	shrinkage limit
$e_c$	void ratio after consolidation	$w_o, w_i$	initial water content
$e_o$	initial void ratio	$\alpha$	slope of $q_f$ versus $p_f$
G	shear modulus	$\alpha'$	slope of $q_f$ versus $p_f'$
$G_s$	specific gravity of soil particles	$\gamma_t$	total unit weight
H	height of specimen	$\gamma_d$	dry unit weight
$H_R$	Rebound Hardness number	$\gamma_s$	unit weight of solids
i	gradient	$\gamma_w$	unit weight of water
$I_S$	Uncorrected point load strength	$\epsilon$	strain
$I_{S(50)}$	Size corrected point load strength index	$\epsilon_{vol}$	volume strain
$H_A$	Modified Taber Abrasion	$\epsilon_h, \epsilon_v$	horizontal strain, vertical strain
$H_T$	Total hardness	$\mu$	Poisson's ratio, also viscosity
$K_o$	lateral stress ratio for one dimensional strain	$\sigma$	normal stress
k	permeability	$\sigma'$	effective normal stress
LI	Liquidity Index	$\sigma_c, \sigma'_c$	consolidation stress in isotropic stress system
$m_v$	coefficient of volume change	$\sigma_h, \sigma'_h$	horizontal normal stress
n	porosity	$\sigma_v, \sigma'_v$	vertical normal stress
PI	plasticity index	$\sigma'_{vc}$	Effective vertical consolidation stress
$P_c$	preconsolidation pressure	$\sigma_1$	major principal stress
p	$(\sigma_1 + \sigma_3) / 2, (\sigma_v + \sigma_h) / 2$	$\sigma_2$	intermediate principal stress
$p'$	$(\sigma'_1 + \sigma'_3) / 2, (\sigma'_v + \sigma'_h) / 2$	$\sigma_3$	minor principal stress
$p'_c$	$p'$ at consolidation	$\tau$	shear stress
Q	quantity of flow	$\phi$	friction angle based on total stresses
q	$(\sigma_1 - \sigma_3) / 2$	$\phi'$	friction angle based on effective stresses
$q_f$	q at failure	$\phi'_r$	residual friction angle
$q_o, q_i$	initial q	$\phi_{ult}$	$\phi$ for ultimate strength
$q_c$	q at consolidation		





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# Transmittal

TO:

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

DATE: 11/26/2019	GTX NO: 310685
RE: Gasco PDI	

COPIES	DATE	DESCRIPTION
	11/26/2019	<b>November 2019 Laboratory Test Report</b>

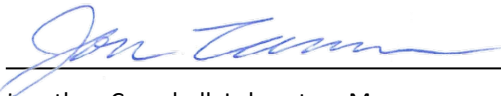
REMARKS:

CC:

SIGNED:

  
Barbara Sanchez, Assistant Laboratory Manager

APPROVED BY :

  
Jonathan Campbell, Laboratory Manager

November 26, 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 eight samples from you on 11/1/2019. These samples were labeled as follows:

Sample Number  
PDI-022SC-B-5.5-7.5-191016  
PDI-031SC-B-8.9-10.9-191017  
PDI-057SC-B-06-08-191023  
PDI-059SC-B-06-08-191016  
PDI-069SC-B-10-12-191016  
PDI-083SC-B-08-10-191022  
PDI-097SC-B-02-04-191017  
PDI-099SC-B-02-04-191022

GTX performed the following tests on these samples:

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

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.



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Respectfully yours,

A handwritten signature in black ink, appearing to read "Barbara Sanchez".

Barbara Sanchez  
Assistant Laboratory Manager



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**Geotechnical Test Report**

**11/26/2019**

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**GTX-310685**

**Gasco PDI**

Prepared for:

**Anchor QEA, LLC**

---



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: ---	Tested By: ckg	
Sample ID: ---	Test Date: 11/19/19	Checked By: bfs	
Depth: ---	Test Id: 529668		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
---	PDI-2SC-B-5.5-7.5-1910	---	Moist, dark gray sand	10.7
---	PDI-SC-B-8.9-10.9-1910	---	Moist, dark gray sand	16.0
---	PDI-57SC-B-06-08-19102	---	Wet, dark gray clay	77.2
---	PDI-59SC-B-06-08-19101	---	Moist, dark grayish brown silty sand	38.4
---	PDI-69SC-B-10-12-19101	---	Moist, very dark gray silt	67.2
---	PDI-83SC-B-08-10-19102	---	Moist, dark gray clay	76.2
---	PDI-97SC-B-02-04-19101	---	Wet, dark gray silt	86.8
---	PDI-99SC-B-02-04-19102	---	Moist, very dark gray clay	79.6

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 11/19/19	Checked By:	bfs
Depth : ---	Test Id: 529676		

## Specific Gravity of Soils by ASTM D854

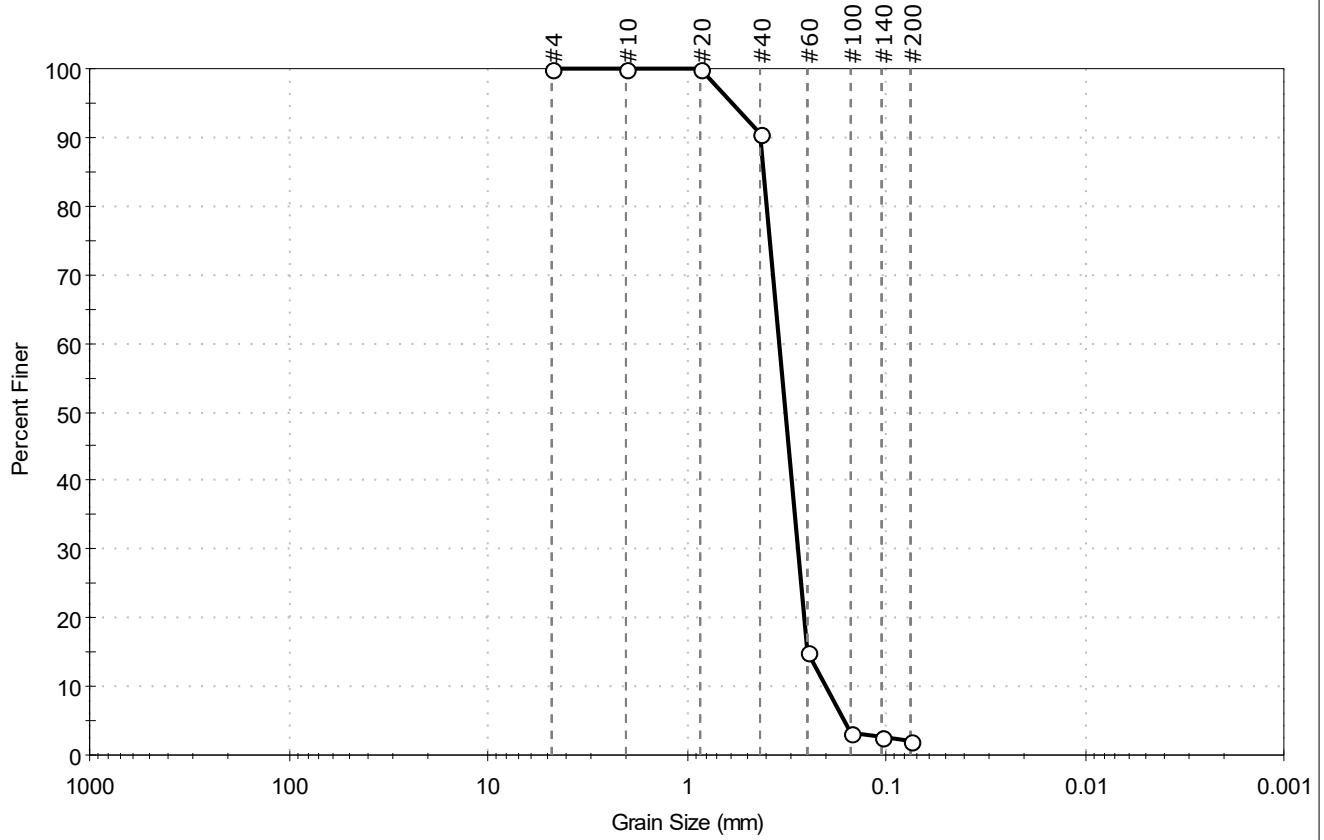
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI- C-B-5.5-7.5-19	---	Moist, dark gray sand	2.75	
---	PDI- C-B-8.9-10.9-19	---	Moist, dark gray sand	2.75	
---	PDI- SC-B-06-08-191	---	Wet, dark gray clay	2.71	
---	PDI- SC-B-06-08-191	---	Moist, dark grayish brown silty sand	2.80	
---	PDI- SC-B-10-12-191	---	Moist, very dark gray silt	2.73	
---	PDI- SC-B-08-10-191	---	Moist, dark gray clay	2.65	
---	PDI- SC-B-02-04-191	---	Wet, dark gray silt	2.66	
---	PDI- SC-B-02-04-191	---	Moist, very dark gray clay	2.71	

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-022SC-B-5.5-7.5-191 Test Date: 11/19/19 Checked By: bfs  
 Depth: --- Test Id: 529663  
 Test Comment: ---  
 Visual Description: Moist, dark gray sand  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	97.8	2.2

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	90		
#60	0.25	15		
#100	0.15	3		
#140	0.11	3		
#200	0.075	2.2		

**Coefficients**

D <sub>85</sub> = 0.4090 mm	D <sub>30</sub> = 0.2779 mm
D <sub>60</sub> = 0.3431 mm	D <sub>15</sub> = 0.2500 mm
D <sub>50</sub> = 0.3198 mm	D <sub>10</sub> = 0.2015 mm
C <sub>u</sub> = 1.703	C <sub>c</sub> = 1.117

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

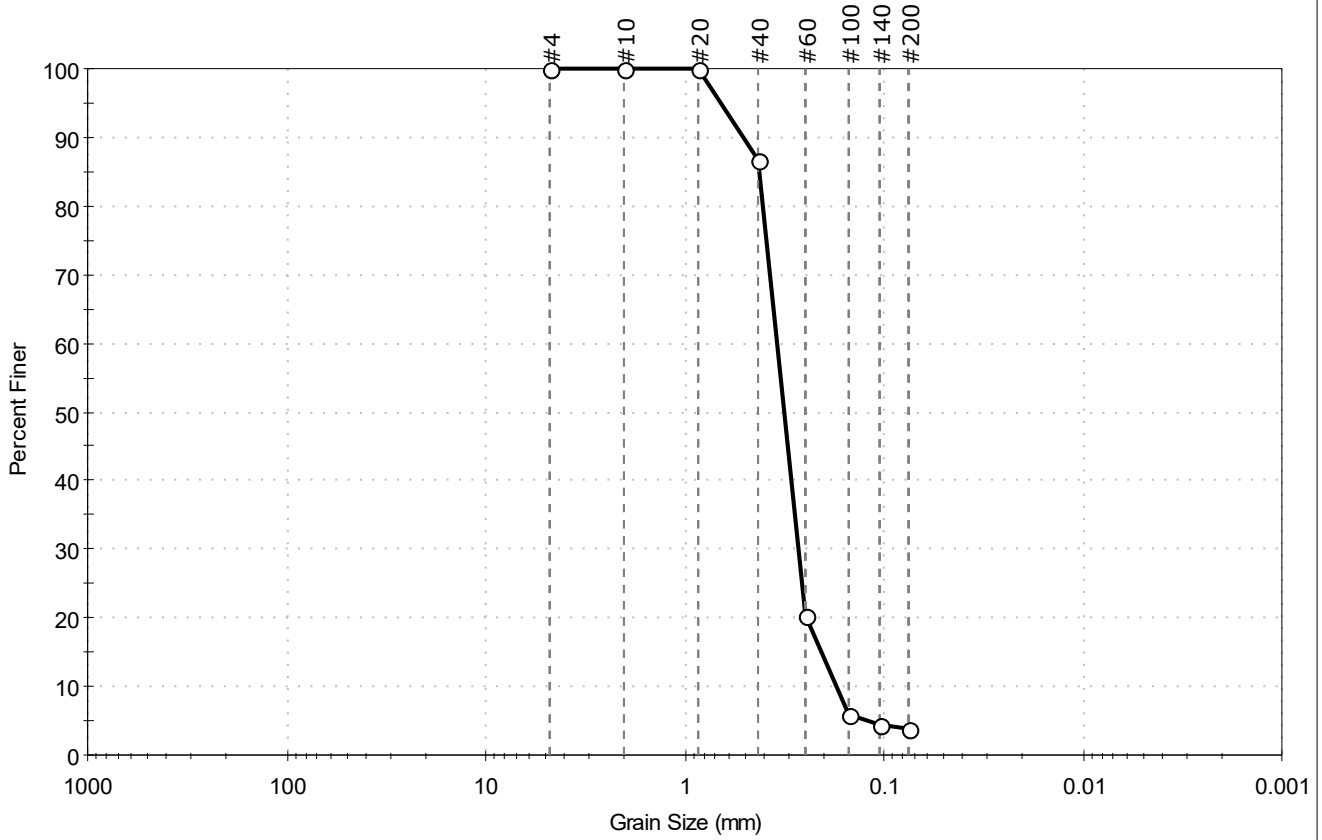
Sand/Gravel Particle Shape : ---

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-031SC-B-8.9-10.9-19 Test Date: 11/19/19 Checked By: bfs  
 Depth: --- Test Id: 529661  
 Test Comment: ---  
 Visual Description: Moist, dark gray sand  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	96.1	3.9

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	87		
#60	0.25	20		
#100	0.15	6		
#140	0.11	4		
#200	0.075	3.9		

**Coefficients**

D <sub>85</sub> = 0.4188 mm	D <sub>30</sub> = 0.2702 mm
D <sub>60</sub> = 0.3432 mm	D <sub>15</sub> = 0.2076 mm
D <sub>50</sub> = 0.3169 mm	D <sub>10</sub> = 0.1740 mm
C <sub>u</sub> = 1.972	C <sub>c</sub> = 1.223

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

Sand/Gravel Particle Shape : ---

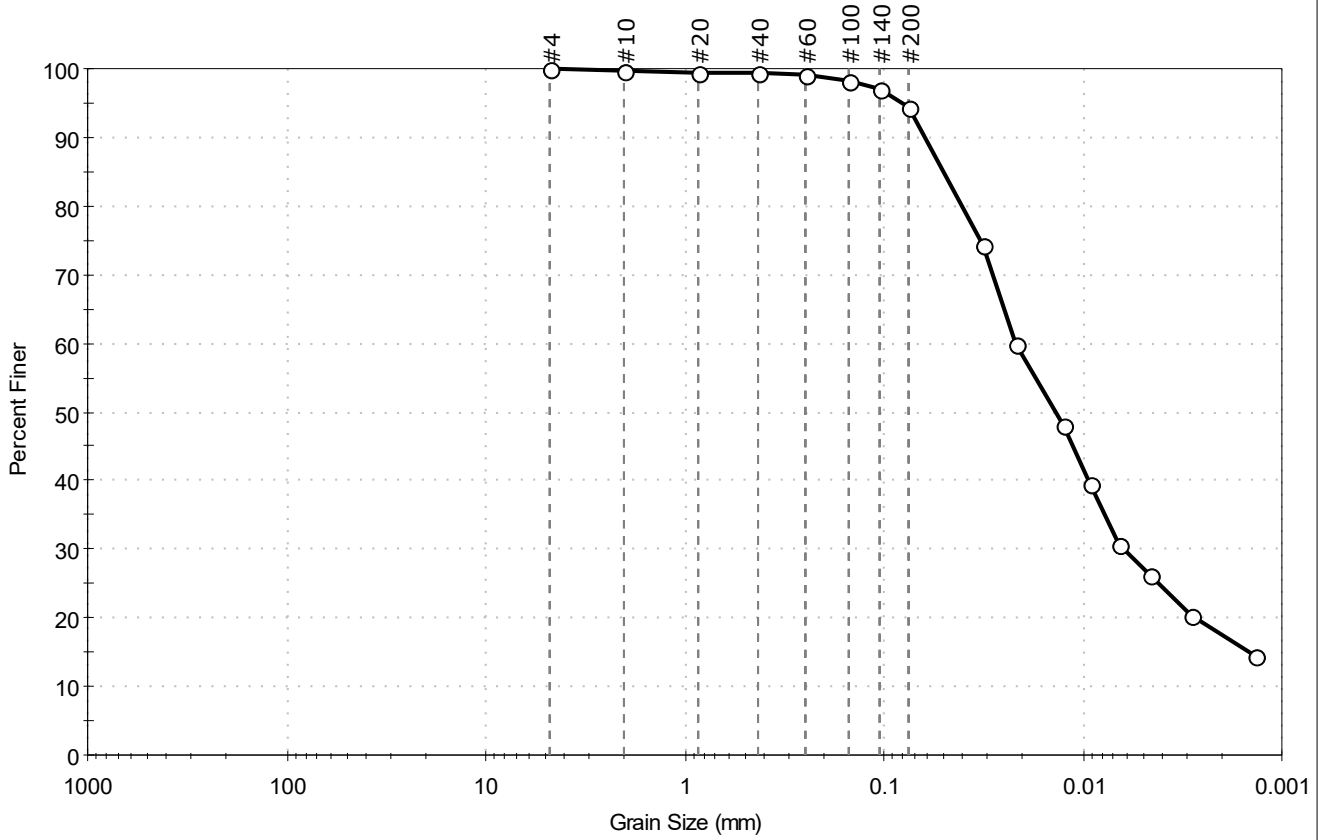
Sand/Gravel Hardness : ---





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-057SC-B-06-08-1910 Test Date: 11/19/19 Checked By: bfs  
 Depth: --- Test Id: 529658  
 Test Comment: ---  
 Visual Description: Wet, dark gray clay  
 Sample Comment: Sample contains organics

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	5.5	94.5

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	99		
#100	0.15	98		
#140	0.11	97		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0320	74		
---	0.0215	60		
---	0.0126	48		
---	0.0091	39		
---	0.0065	31		
---	0.0047	26		
---	0.0029	20		
---	0.0014	15		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0502 mm	D <sub>30</sub> = 0.0062 mm
D <sub>60</sub> = 0.0216 mm	D <sub>15</sub> = 0.0015 mm
D <sub>50</sub> = 0.0137 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

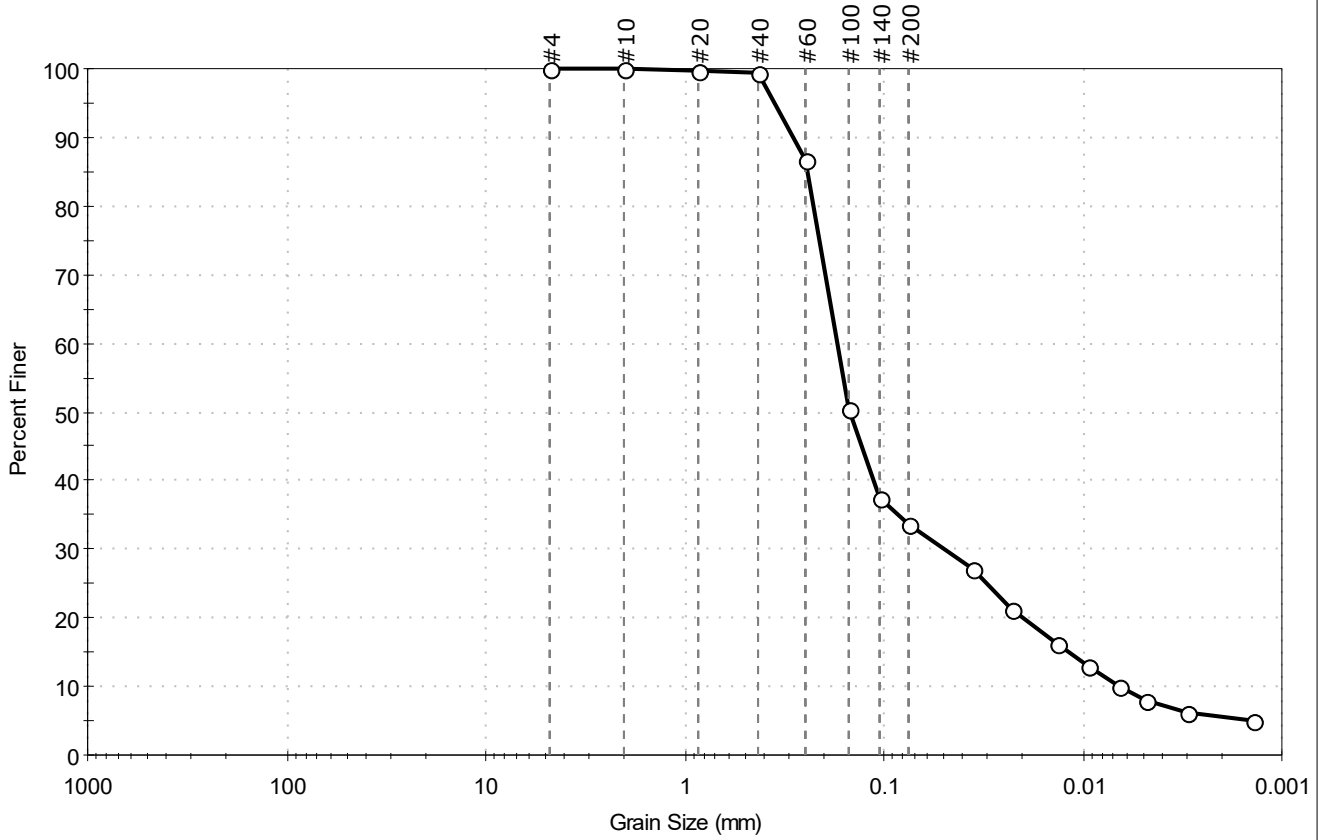
<b>Classification</b>	
<b>ASTM</b>	Fat CLAY (CH)
<b>AASHTO</b>	Clayey Soils (A-7-6 (49))

<b>Sample/Test Description</b>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-059SC-B-06-08-1910	Tested By: ckg
Test Date: 11/19/19	Checked By: bfs
Depth: ---	Test Id: 529664
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	66.4	33.6

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	87		
#100	0.15	51		
#140	0.11	37		
#200	0.075	34		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0356	27		
---	0.0229	21		
---	0.0133	16		
---	0.0095	13		
---	0.0067	10		
---	0.0048	8		
---	0.0030	6		
---	0.0014	5		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2437 mm	D <sub>30</sub> = 0.0492 mm
D <sub>60</sub> = 0.1713 mm	D <sub>15</sub> = 0.0117 mm
D <sub>50</sub> = 0.1477 mm	D <sub>10</sub> = 0.0066 mm
C <sub>u</sub> = 25.955	C <sub>c</sub> = 2.141

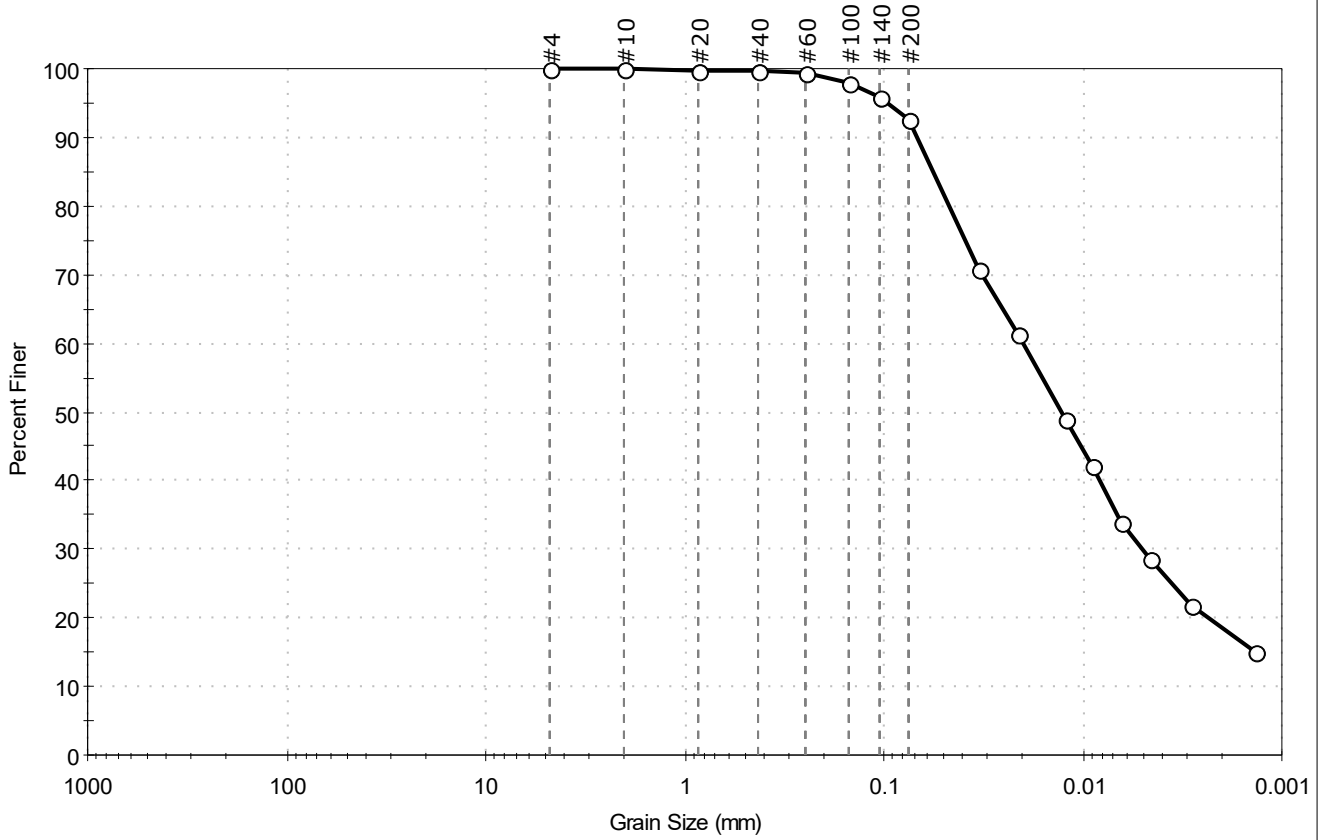
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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-069SC-B-10-12-1910 Test Date: 11/19/19 Checked By: bfs  
 Depth: --- Test Id: 529665  
 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	7.4	92.6

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	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0330	71		
---	0.0210	61		
---	0.0124	49		
---	0.0090	42		
---	0.0065	34		
---	0.0046	29		
---	0.0029	22		
---	0.0014	15		

**Coefficients**

D <sub>85</sub> = 0.0563 mm	D <sub>30</sub> = 0.0050 mm
D <sub>60</sub> = 0.0199 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0129 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = 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

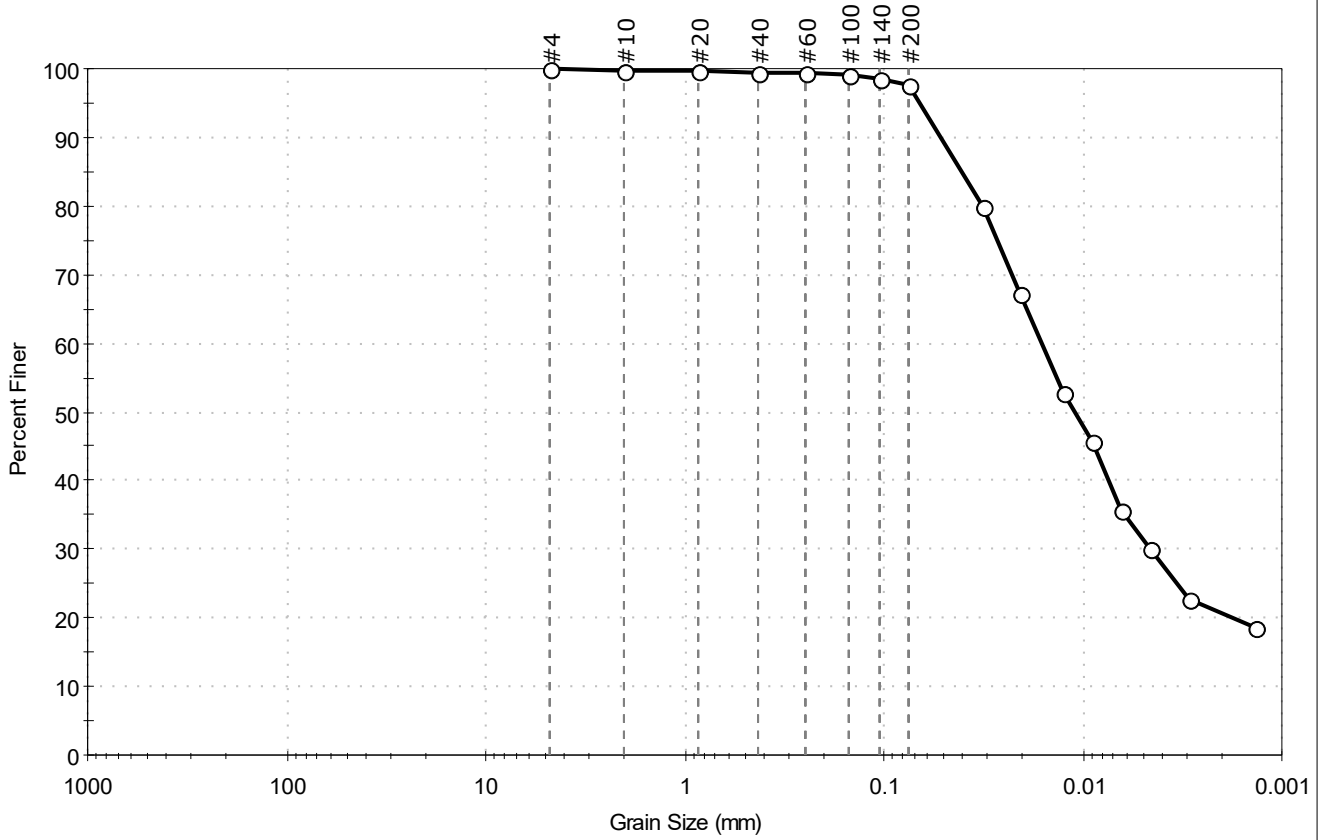
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: --- Sample Type: bag Tested By: ckg  
 Sample ID: PDI-083SC-B-08-10-1910 Test Date: 11/19/19 Checked By: bfs  
 Depth: --- Test Id: 529659  
 Test Comment: ---  
 Visual Description: Moist, dark gray clay  
 Sample Comment: Sample contains organics

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	2.5	97.5

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	99		
#100	0.15	99		
#140	0.11	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0320	80		
---	0.0208	67		
---	0.0125	53		
---	0.0089	46		
---	0.0065	36		
---	0.0046	30		
---	0.0029	23		
---	0.0014	19		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0408 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0161 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0109 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

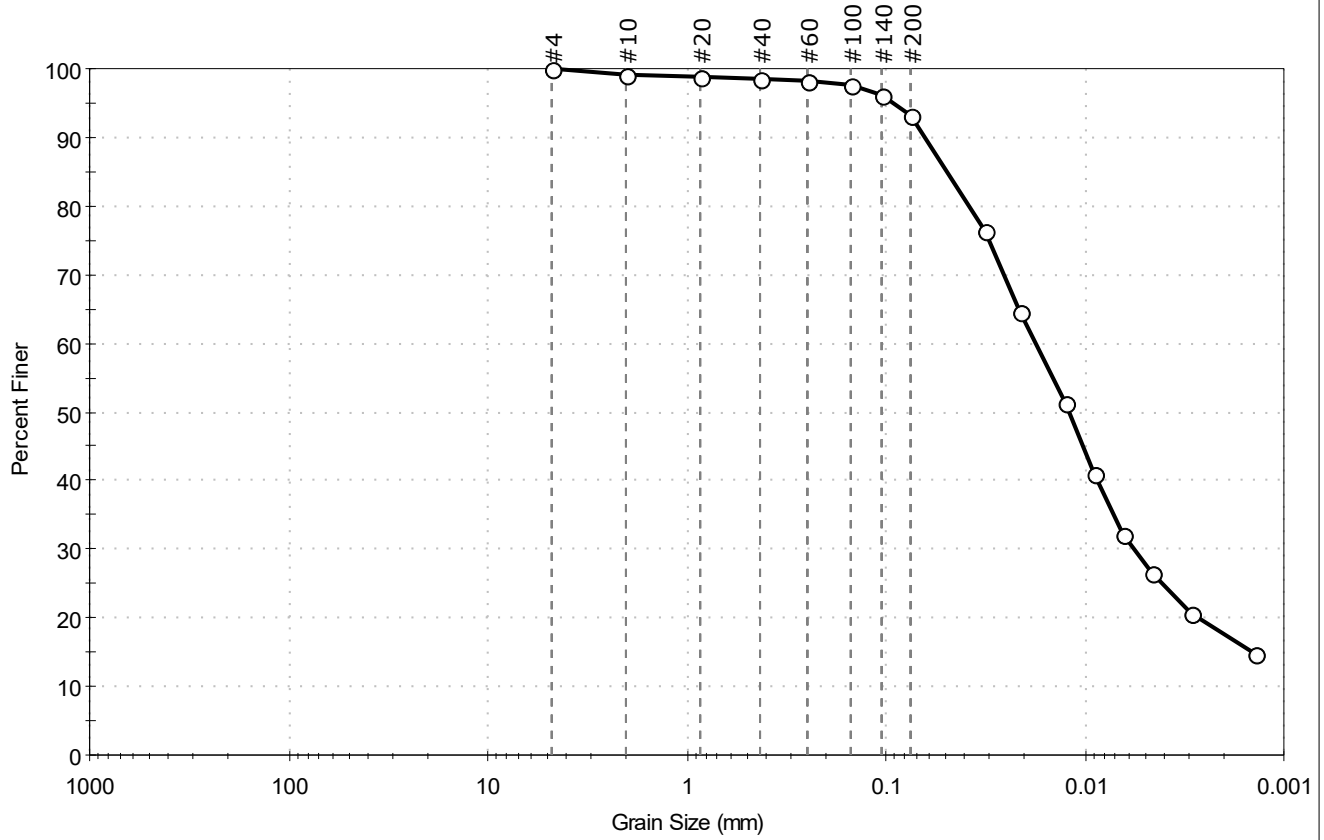
<b>Classification</b>	
<b>ASTM</b>	Fat CLAY (CH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (55))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-097SC-B-02-04-1910	Test Date: 11/19/19	Test Id: 529662	
Depth: ---	Test Comment: ---	Visual Description: Wet, dark gray silt	Sample Comment: Sample contains organics

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	6.7	93.3

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	98		
#100	0.15	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0318	76		
---	0.0212	65		
---	0.0125	51		
---	0.0091	41		
---	0.0065	32		
---	0.0047	26		
---	0.0030	21		
---	0.0014	15		

<u>Coefficients</u>	
D <sub>85</sub> = 0.0493 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0177 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0120 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

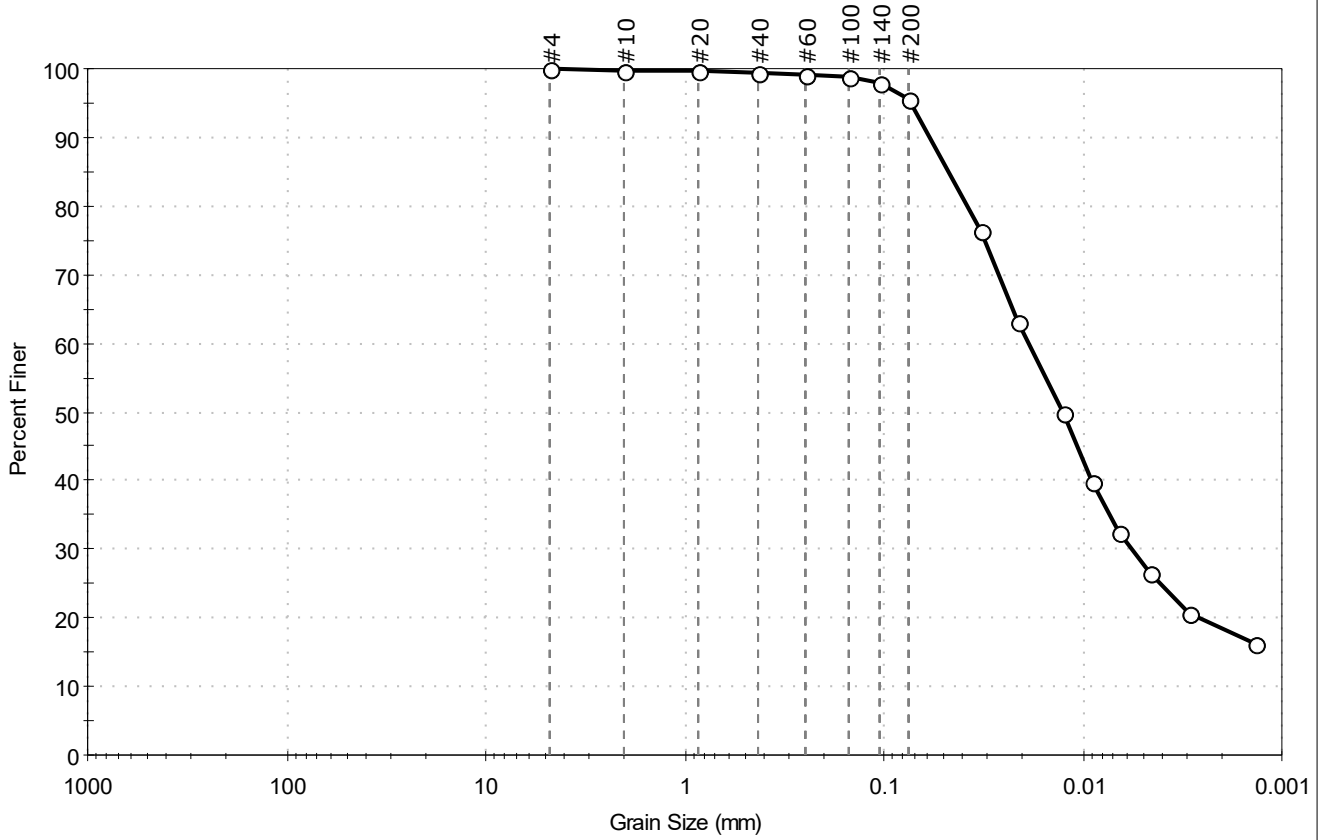
<u>Classification</u>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (39))

<u>Sample/Test Description</u>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-099SC-B-02-04-1910	Tested By: ckg
Test Date: 11/19/19	Checked By: bfs
Depth: ---	Test Id: 529660
Test Comment: ---	
Visual Description: Moist, very dark gray clay	
Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



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

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	99		
#100	0.15	99		
#140	0.11	98		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0326	76		
---	0.0214	63		
---	0.0126	50		
---	0.0091	40		
---	0.0065	32		
---	0.0047	26		
---	0.0029	21		
---	0.0014	16		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0472 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0188 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0126 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Fat CLAY (CH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (54))

<b>Sample/Test Description</b>	
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
Sample ID:	PDI-022SC-B-5.5-7.5-191	Tested By:	cam
Depth :	---	Test Date:	11/18/19
		Checked By:	bfs
		Test Id:	529655
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
◆	22SC-B-5.5-7.5-191	---	---	11	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

10% 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
Sample ID:	PDI-031SC-B-8.9-10.9-19	Tested By:	cam
Depth :	---	Test Date:	11/18/19
		Checked By:	bfs
		Test Id:	529653
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
◆	31SC-B-8.9-10.9-1	---	---	16	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

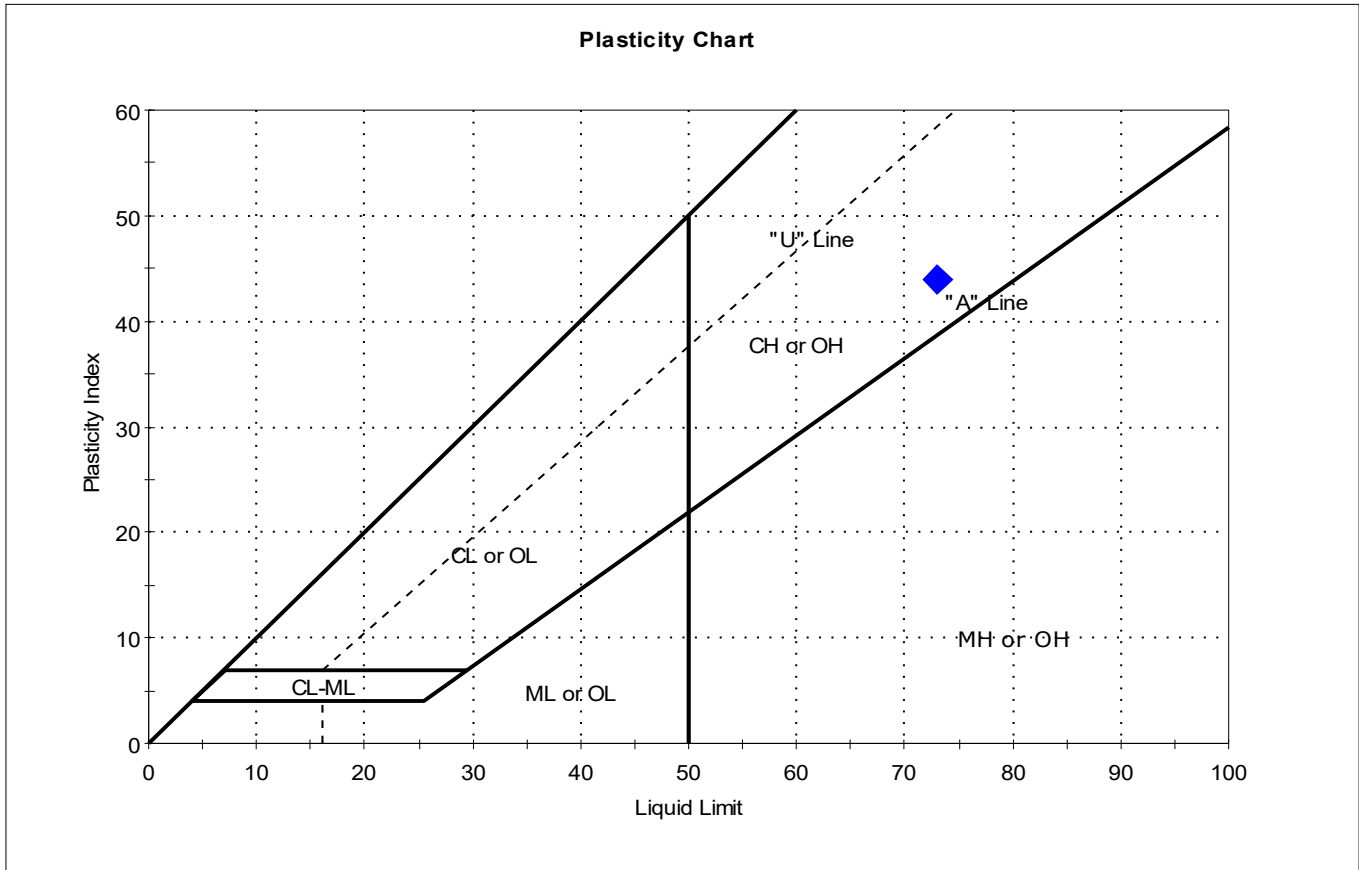
13% Retained on #40 Sieve  
 Dry Strength: NONE  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-057SC-B-06-08-1910	Test Date:	11/21/19
Depth :	---	Checked By:	bfs
		Test Id:	529650
Test Comment:	---		
Visual Description:	Wet, dark gray clay		
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
◆	PDI-057SC-B-06-08-19	---	---	77	73	29	44	1.1	Fat CLAY (CH)

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
Sample ID:	PDI-059SC-B-06-08-1910	Tested By:	cam
Depth :	---	Test Date:	11/19/19
		Checked By:	bfs
		Test Id:	529656
Test Comment:	---		
Visual Description:	Moist, dark grayish brown silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

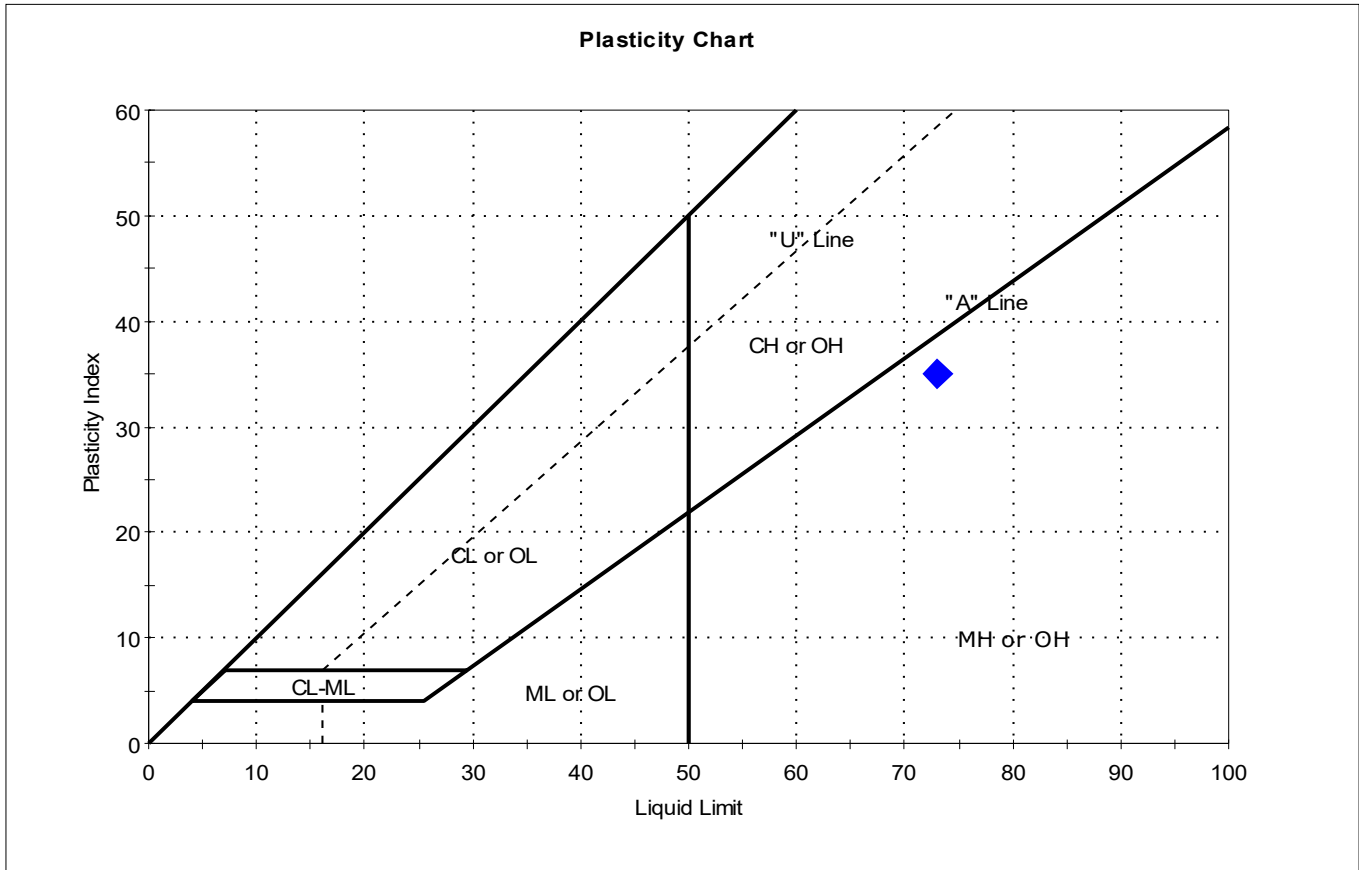
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	059SC-B-06-08-19	---	---	38	n/a	n/a	n/a	n/a	Silty SAND (SM)

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
Sample ID:	PDI-069SC-B-10-12-19	Test Date:	11/20/19
Depth:	---	Test Id:	529657
Test Comment:	---		
Visual Description:	Moist, very dark gray silt		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318



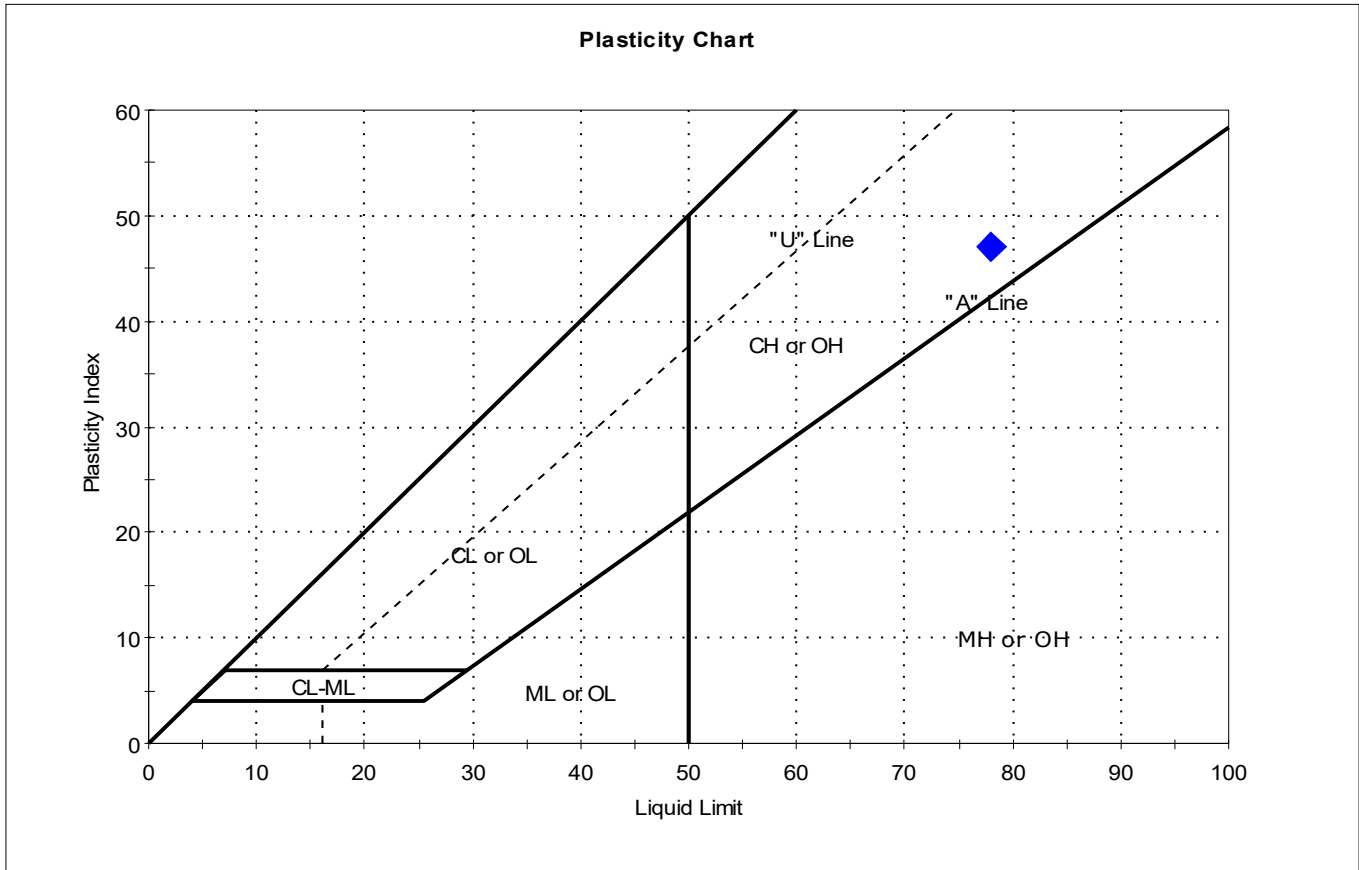
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	069SC-B-10-12-19	---	---	67	73	38	35	0.8	Elastic SILT (MH)

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



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-083SC-B-08-10-1910	Test Date:	11/20/19
Depth:	---	Checked By:	bfs
		Test Id:	529651
Test Comment:	---		
Visual Description:	Moist, dark gray clay		
Sample Comment:	Sample contains organics		

## Atterberg Limits - ASTM D4318



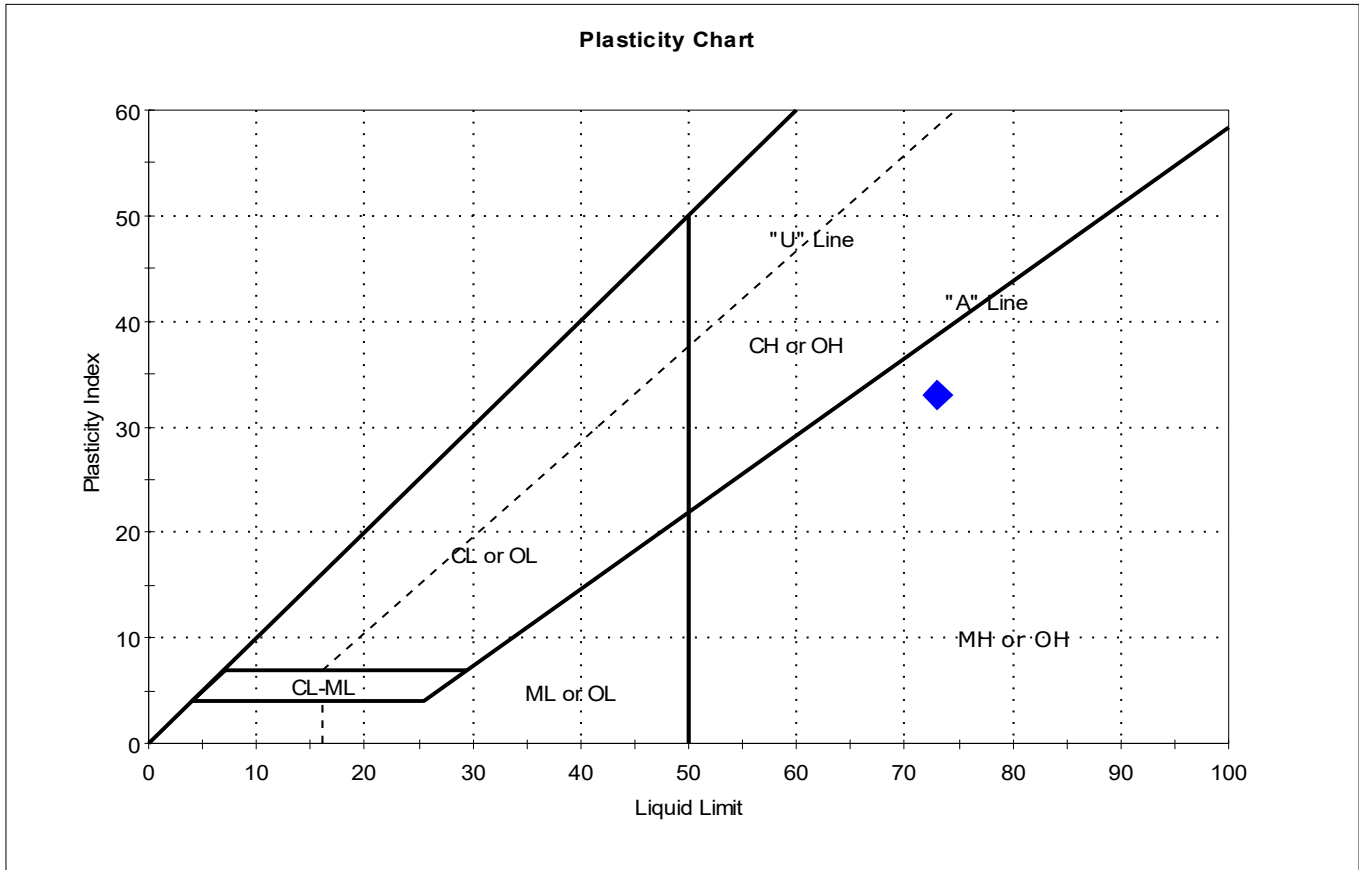
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-083SC-B-08-10-19	---	---	76	78	31	47	1	Fat CLAY (CH)

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



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-097SC-B-02-04-1910	Test Date:	11/19/19
Depth:	---	Checked By:	bfs
		Test Id:	529654
Test Comment:	---		
Visual Description:	Wet, dark gray silt		
Sample Comment:	Sample contains organics		

## Atterberg Limits - ASTM D4318



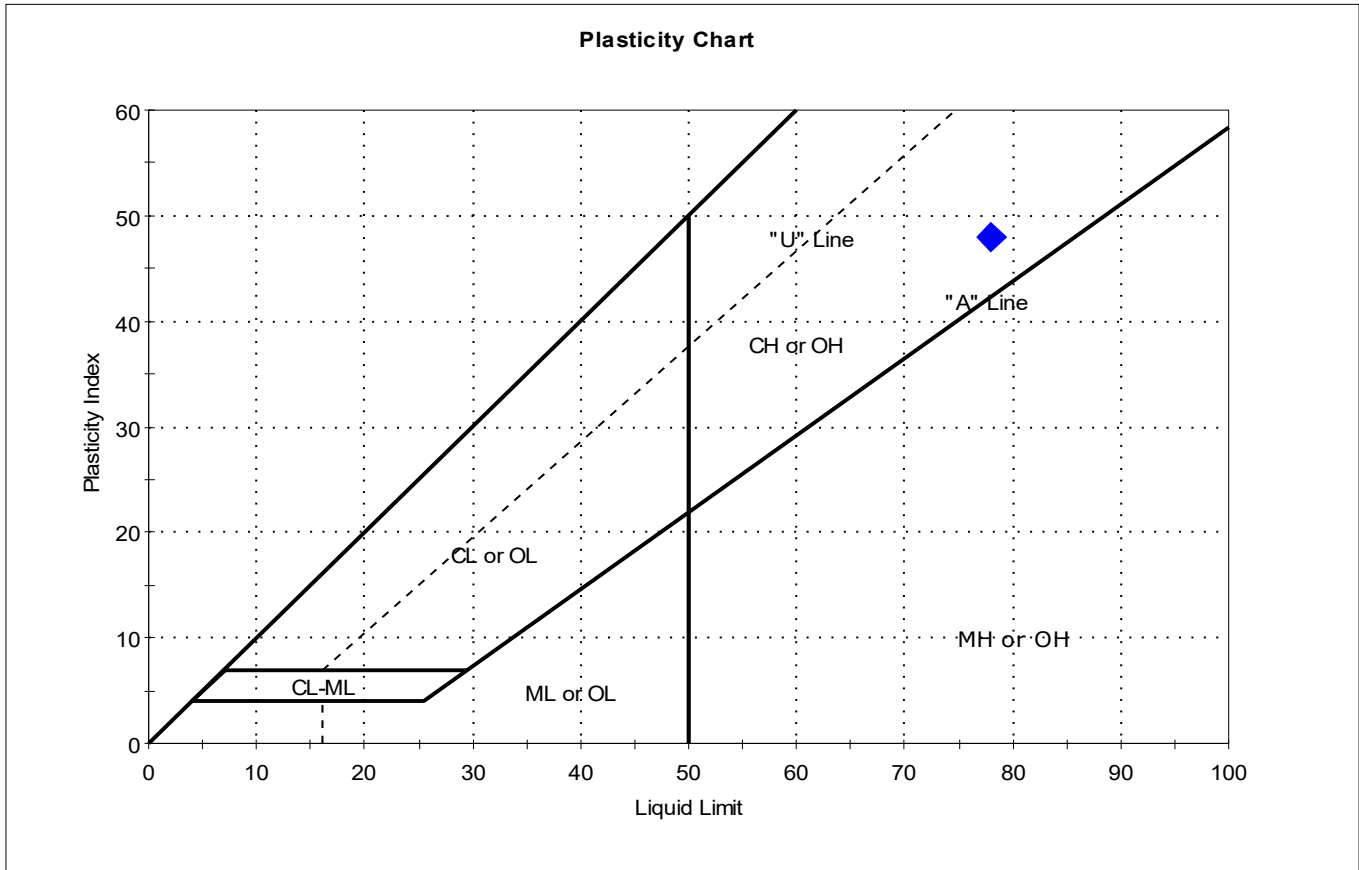
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-097SC-B-02-04-19	---	---	87	73	40	33	1.4	Elastic SILT (MH)

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



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:		Sample Type:	bag
Boring ID:	---	Tested By:	cam
Sample ID:	PDI-099SC-B-02-04-1910	Test Date:	11/20/19
Depth:	---	Checked By:	bfs
		Test Id:	529652
Test Comment:	---		
Visual Description:	Moist, very dark gray clay		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-099SC-B-02-04-19	---	---	80	78	30	48	1	Fat CLAY (CH)

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

**COC ID:** NWGEO-201910.  
**Sample Custodian:** CO, SN, BJ, SS  
**Lab:** Geotesting Express

**POC:** # Delaney Peterson (360-715-2707) **Project:** Gasco PDI  
 1605 Cornwall Avenue, Bellingham, WA 98225 **Client:** NW Natural

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	Time	Containers #	Lab QC* <input type="checkbox"/>	Test Request	Method	TAT**	Preservative
001	PDI-057SC-B-06-08-191023	N	SE	10/23/2019	12:46	1	<input type="checkbox"/>	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

Received By:		Relinquished By:		Received By:	
Signature	Print Name	Signature	Print Name	Signature	Print Name
	Ben Johnson		Scott Ferguson		
	Anchor OEA		Anchor OEA		
	10/29/19 9:15		11/16/19 12:00		

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



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) Project: Gasco PDI  
1605 Cornwall Avenue, Bellingham, WA 98225 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	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-099SC-B-02-04-191022	N	SE	10/22/2019	10:48	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Relinquished By:		Received By:		Relinquished By:		Received By:	
Signature	Print Name	Signature	Print Name	Signature	Print Name	Signature	Print Name
	Ben Johnson		Scott Ferguson				
	Anchorage		GTH				
10/29/19 09:15		11/16/19 12:00					

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





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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

COC ID: NWGEO-20191017-123936

POC: # Delaney Peterson (360-715-2707) Project: Gasco PDI

Sample Custodian: SN

1605 Cornwall Avenue, Bellingham, WA 98225 Client: NW Natural

Lab: Geotesting Express

COC Sample Number	Field Sample ID	Sample Type	Matrix	Collected Date	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	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-097SC-B-02-04-191017	N	SE	10/17/2019	10:46	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Print Name: Ben Johnson	Print Name: Scott Ferguson	Print Name: <i>[Print Name]</i>	Print Name: <i>[Print Name]</i>
Company: Archer OEA	Company: GTH	Company: <i>[Company]</i>	Company: <i>[Company]</i>
Date/Time: 10/29/19 09:15	Date/Time: 11/16/19 18:00	Date/Time: <i>[Date/Time]</i>	Date/Time: <i>[Date/Time]</i>

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



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

# ENVIRONMENTAL SAMPLE CHAIN OF CUSTODY

**COC ID:** NWGEO-20191016-143858  
**Sample Custodian:** CO, SN, BJ, DL  
**Lab:** Geotesting Express

**POC:** # Delaney Peterson (360-715-2707) **Project:** Gasco PDI  
 1605 Cornwall Avenue, Bellingham, WA 98225 **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-022SC-B-5-7.5-191016	N	SE	10/16/2019	13:41	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
002	PDI-059SC-B-06-08-191016	N	SE	10/16/2019	7:57	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C
003	PDI-069SC-B-10-12-191016	N	SE	10/16/2019	10:38	1	<input type="checkbox"/>	Atterberg Limits Grain Size Moisture Content Specific gravity	D4318 D6913/D7928 D2216 D854	30 30 30 30	4°C 4°C 4°C 4°C

Comment:

Received By:		Relinquished By:		Received By:	
Signature		Signature		Signature	
Print Name	Ben Johnson	Print Name	Scott Ferguson	Print Name	
Company	Anchor O&E	Company	ATA	Company	
Date/Time	10/29/19 12:15	Date/Time	10/16/19 12:00	Date/Time	

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

## 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.

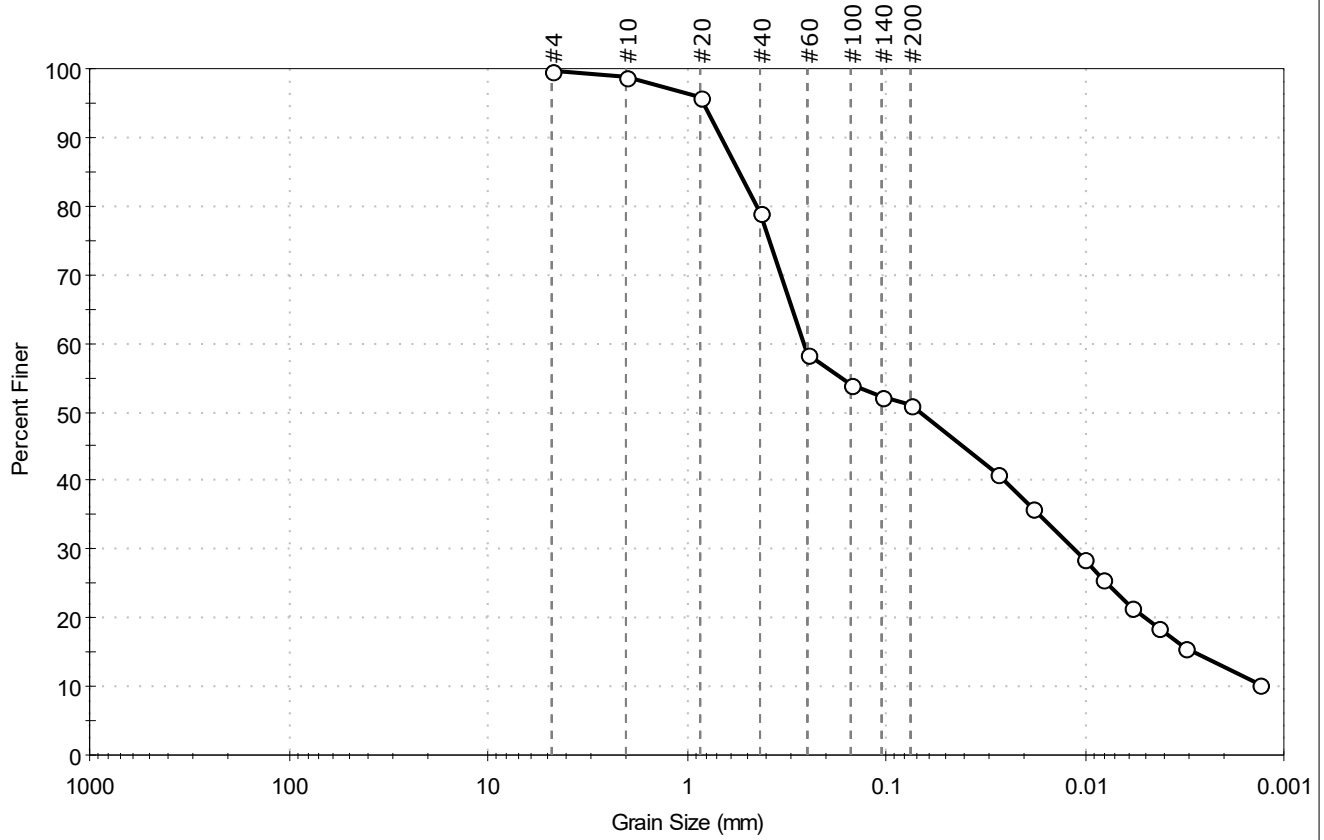
## Commonly Used Symbols

A	pore pressure parameter for $\Delta\sigma_1 - \Delta\sigma_3$	$S_r$	Post cyclic undrained shear strength
B	pore pressure parameter for $\Delta\sigma_3$	T	temperature
CAI	CERCHAR Abrasiveness Index	t	time
CIU	isotropically consolidated undrained triaxial shear test	U, UC	unconfined compression test
CR	compression ratio for one dimensional consolidation	UU, Q	unconsolidated undrained triaxial test
CSR	cyclic stress ratio	$u_a$	pore gas pressure
$C_c$	coefficient of curvature, $(D_{30})^2 / (D_{10} \times D_{60})$	$u_e$	excess pore water pressure
$C_u$	coefficient of uniformity, $D_{60}/D_{10}$	u, $u_w$	pore water pressure
$C_c$	compression index for one dimensional consolidation	V	total volume
$C_a$	coefficient of secondary compression	$V_g$	volume of gas
$c_v$	coefficient of consolidation	$V_s$	volume of solids
c	cohesion intercept for total stresses	$V_s$	shear wave velocity
$c'$	cohesion intercept for effective stresses	$V_v$	volume of voids
D	diameter of specimen	$V_w$	volume of water
D	damping ratio	$V_o$	initial volume
$D_{10}$	diameter at which 10% of soil is finer	v	velocity
$D_{15}$	diameter at which 15% of soil is finer	W	total weight
$D_{30}$	diameter at which 30% of soil is finer	$W_s$	weight of solids
$D_{50}$	diameter at which 50% of soil is finer	$W_w$	weight of water
$D_{60}$	diameter at which 60% of soil is finer	w	water content
$D_{85}$	diameter at which 85% of soil is finer	$w_c$	water content at consolidation
$d_{50}$	displacement for 50% consolidation	$w_f$	final water content
$d_{90}$	displacement for 90% consolidation	$w_l$	liquid limit
$d_{100}$	displacement for 100% consolidation	$w_n$	natural water content
E	Young's modulus	$w_p$	plastic limit
e	void ratio	$w_s$	shrinkage limit
$e_c$	void ratio after consolidation	$w_o, w_i$	initial water content
$e_o$	initial void ratio	$\alpha$	slope of $q_f$ versus $p_f$
G	shear modulus	$\alpha'$	slope of $q_f$ versus $p_f'$
$G_s$	specific gravity of soil particles	$\gamma_t$	total unit weight
H	height of specimen	$\gamma_d$	dry unit weight
$H_R$	Rebound Hardness number	$\gamma_s$	unit weight of solids
i	gradient	$\gamma_w$	unit weight of water
$I_S$	Uncorrected point load strength	$\epsilon$	strain
$I_{S(50)}$	Size corrected point load strength index	$\epsilon_{vol}$	volume strain
$H_A$	Modified Taber Abrasion	$\epsilon_h, \epsilon_v$	horizontal strain, vertical strain
$H_T$	Total hardness	$\mu$	Poisson's ratio, also viscosity
$K_o$	lateral stress ratio for one dimensional strain	$\sigma$	normal stress
k	permeability	$\sigma'$	effective normal stress
LI	Liquidity Index	$\sigma_c, \sigma'_c$	consolidation stress in isotropic stress system
$m_v$	coefficient of volume change	$\sigma_h, \sigma'_h$	horizontal normal stress
n	porosity	$\sigma_v, \sigma'_v$	vertical normal stress
PI	plasticity index	$\sigma'_{vc}$	Effective vertical consolidation stress
$P_c$	preconsolidation pressure	$\sigma_1$	major principal stress
p	$(\sigma_1 + \sigma_3) / 2, (\sigma_v + \sigma_h) / 2$	$\sigma_2$	intermediate principal stress
$p'$	$(\sigma'_1 + \sigma'_3) / 2, (\sigma'_v + \sigma'_h) / 2$	$\sigma_3$	minor principal stress
$p'_c$	$p'$ at consolidation	$\tau$	shear stress
Q	quantity of flow	$\phi$	friction angle based on total stresses
q	$(\sigma_1 - \sigma_3) / 2$	$\phi'$	friction angle based on effective stresses
$q_f$	q at failure	$\phi'_r$	residual friction angle
$q_o, q_i$	initial q	$\phi_{ult}$	$\phi$ for ultimate strength
$q_c$	q at consolidation		



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: jsc
Sample ID: PDI-014SG-00-0.99	est Date: 10/02/19	Test Id: 525297	
-19092T Depth : ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5444 mm	D <sub>30</sub> = 0.0112 mm
D <sub>60</sub> = 0.2601 mm	D <sub>15</sub> = 0.0029 mm
D <sub>50</sub> = 0.0681 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

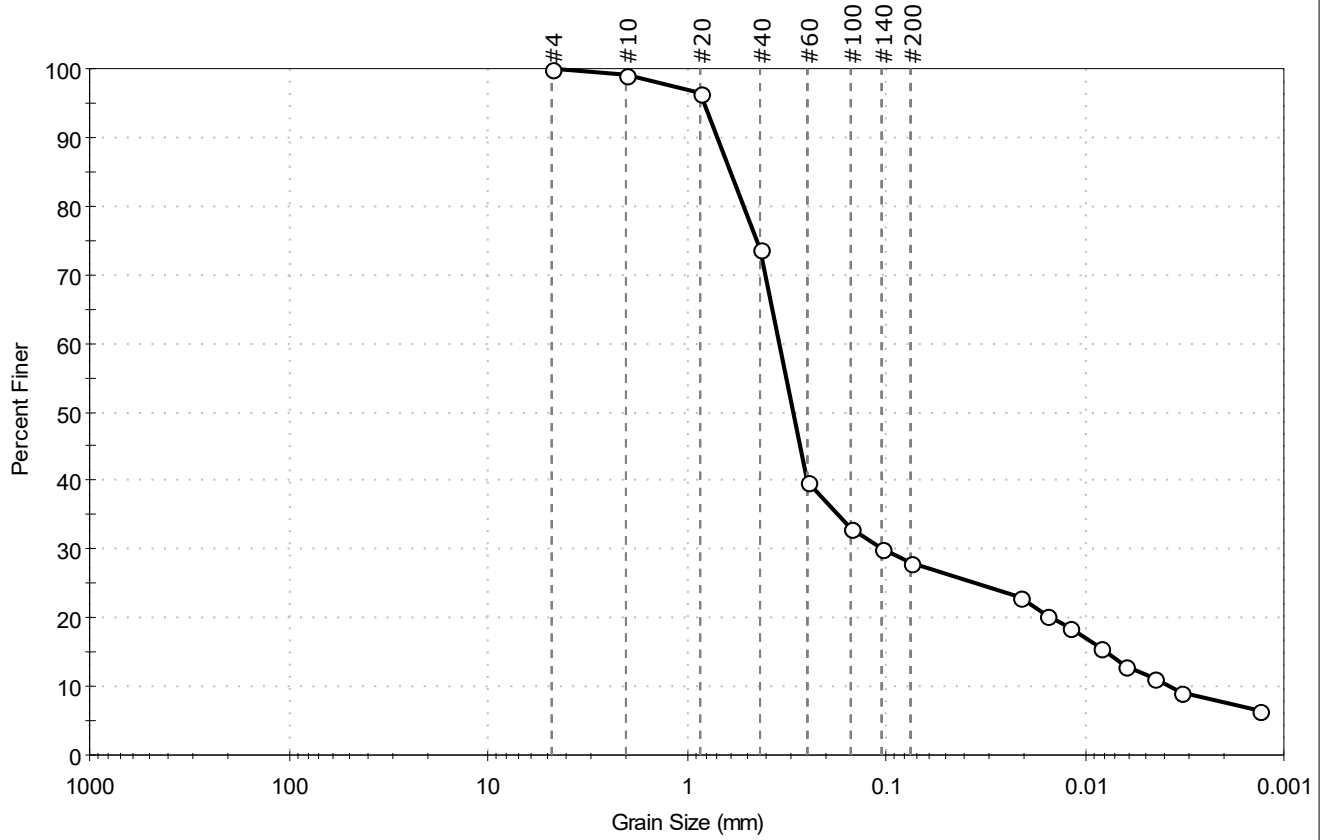
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-015SG-00-0.87	Tested By: ckg
-19092T Depth: ---	est Date: 10/02/19
	Checked By: jsc
	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	0.425	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5984 mm	D <sub>30</sub> = 0.1051 mm
D <sub>60</sub> = 0.3429 mm	D <sub>15</sub> = 0.0078 mm
D <sub>50</sub> = 0.2934 mm	D <sub>10</sub> = 0.0037 mm
C <sub>u</sub> = 92.676	C <sub>c</sub> = 8.706

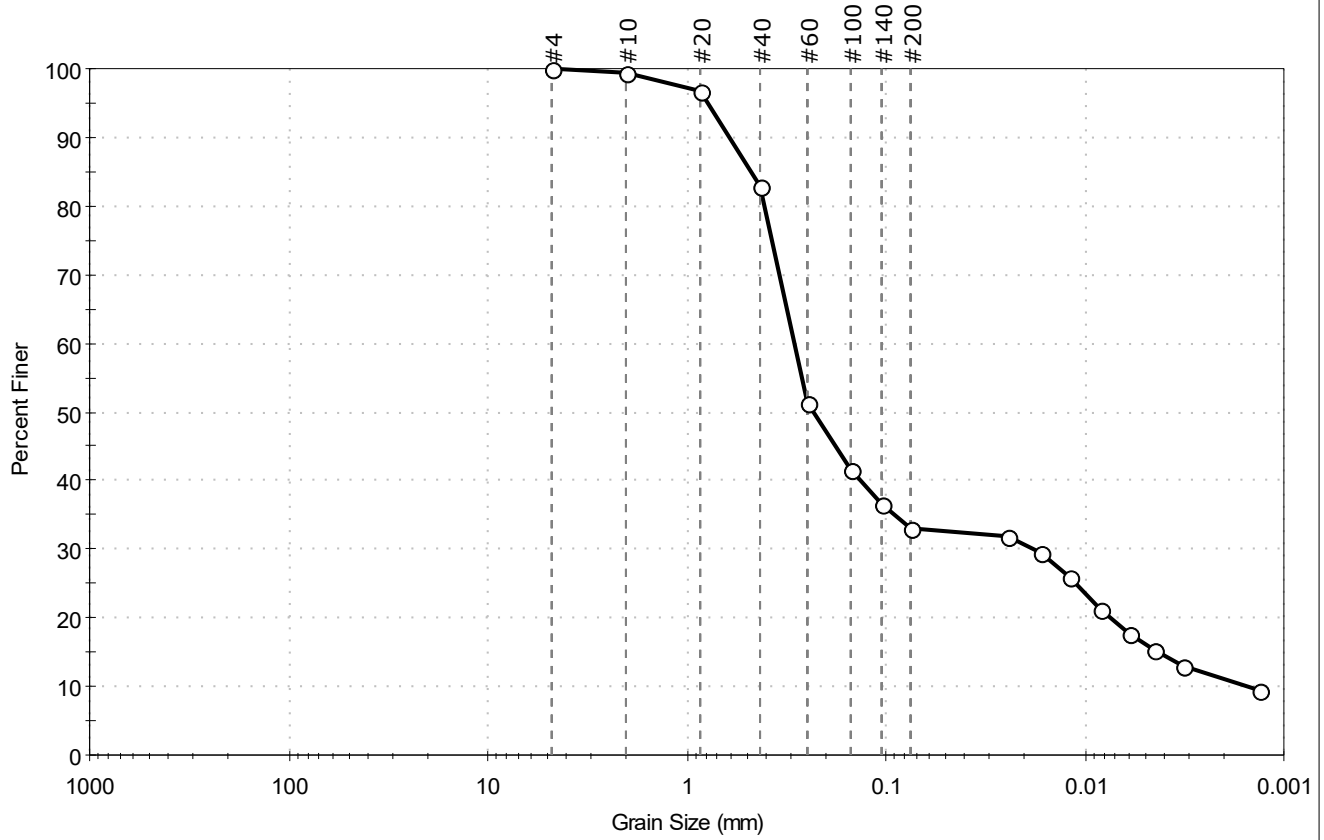
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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

<b>Coefficients</b>	
D <sub>85</sub> = 0.4712 mm	D <sub>30</sub> = 0.0185 mm
D <sub>60</sub> = 0.2896 mm	D <sub>15</sub> = 0.0043 mm
D <sub>50</sub> = 0.2342 mm	D <sub>10</sub> = 0.0016 mm
C <sub>u</sub> = 181.000	C <sub>c</sub> = 0.739

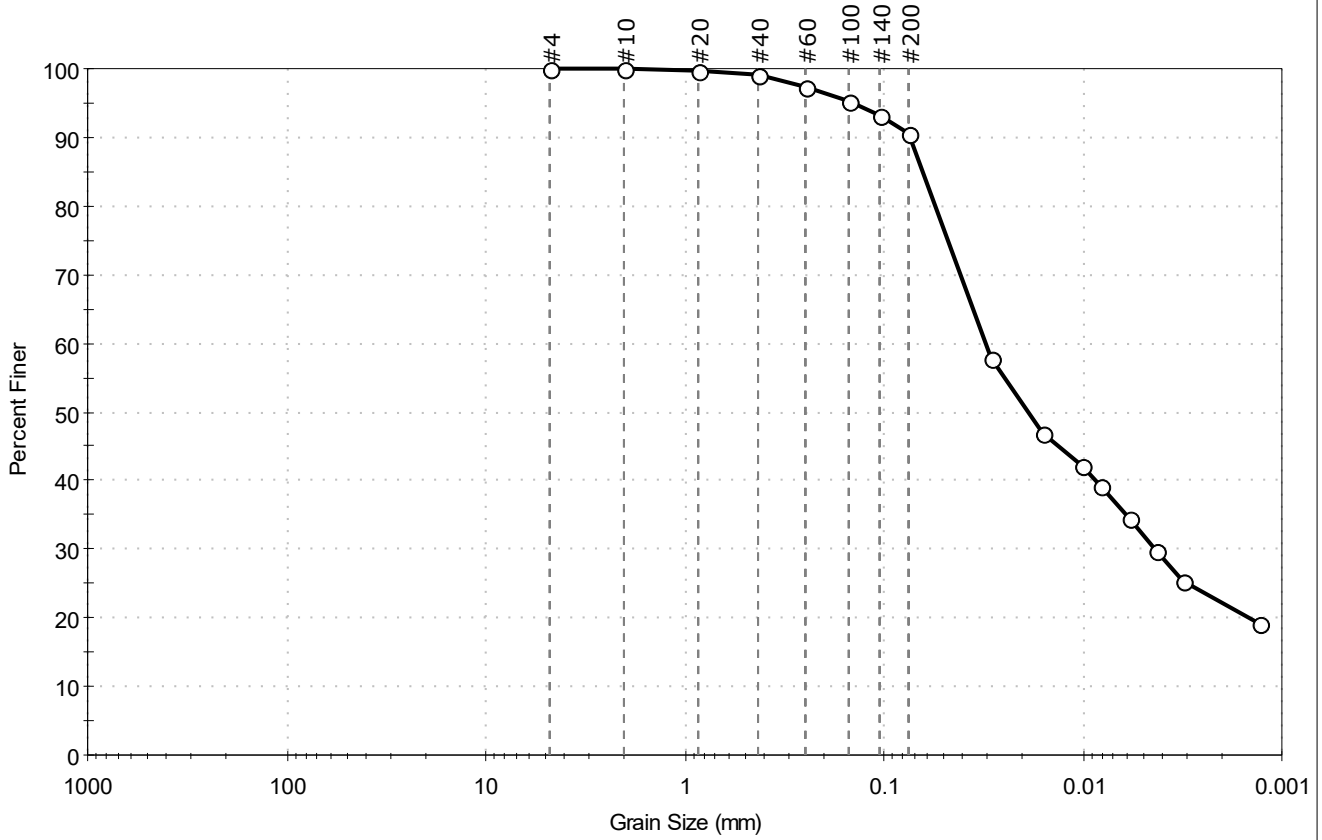
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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-101SG-00-01 Test Date: 10/02/19 Checked By: jsc  
 -190924 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0637 mm	D <sub>30</sub> = 0.0043 mm
D <sub>60</sub> = 0.0308 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0189 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

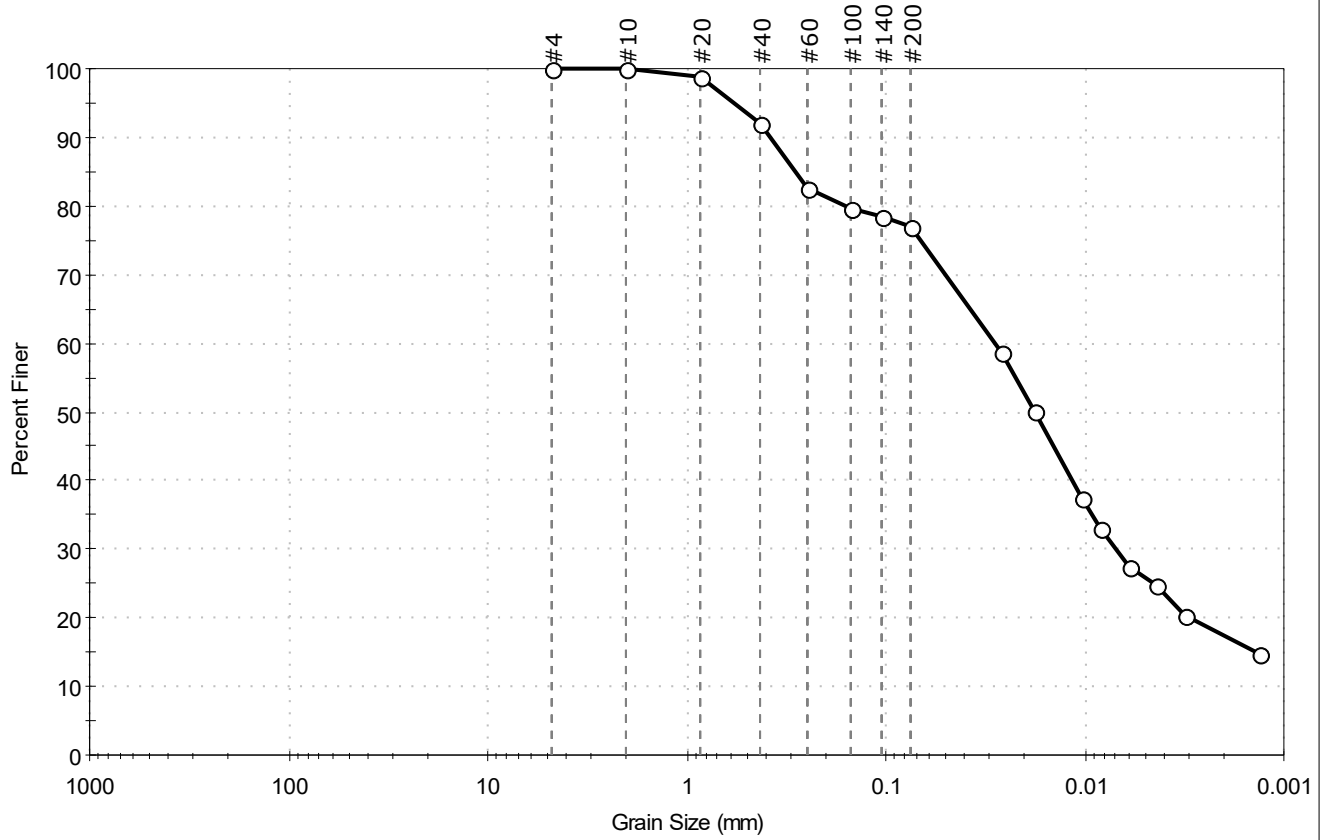
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-102SG-00-01	Test Date: 10/02/19
-190924 Depth: ---	Test Id: 525301
Test Comment: ---	Tested By: ckg
Visual Description: Moist, very dark gray silt with sand	Checked By: jsc
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 <sub>85</sub> = 0.2852 mm	D <sub>30</sub> = 0.0069 mm
D <sub>60</sub> = 0.0283 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0177 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

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

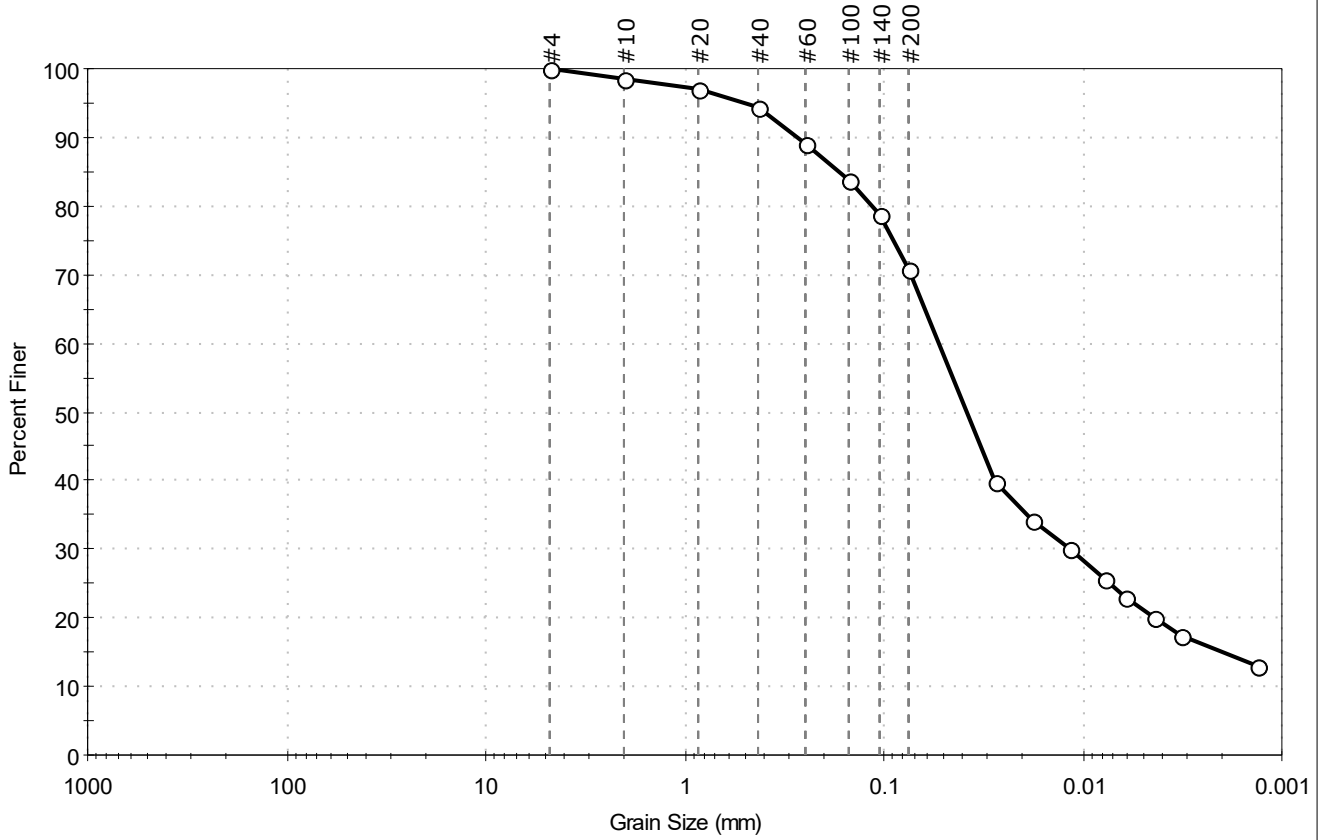
Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





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

<b>Coefficients</b>	
D <sub>85</sub> = 0.1678 mm	D <sub>30</sub> = 0.0116 mm
D <sub>60</sub> = 0.0531 mm	D <sub>15</sub> = 0.0020 mm
D <sub>50</sub> = 0.0384 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

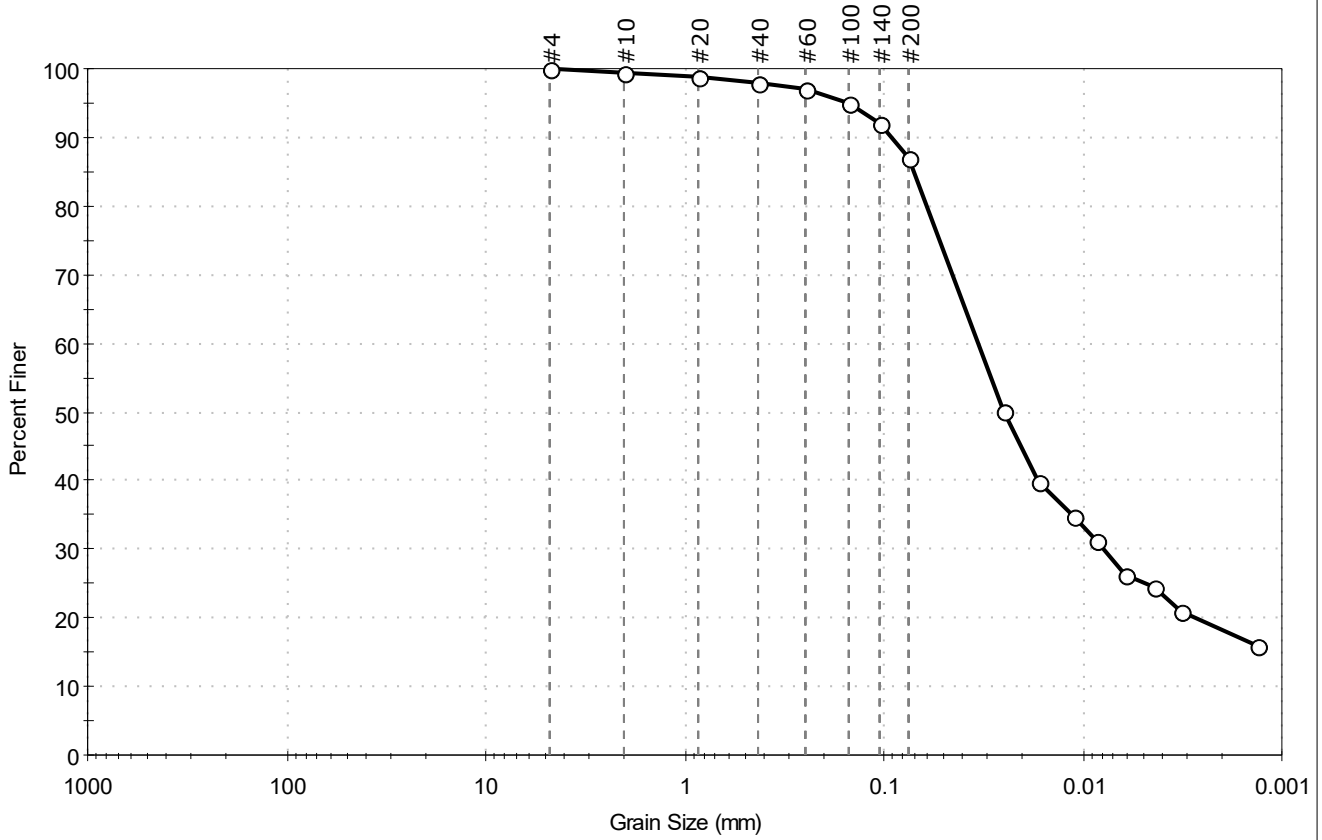
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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 Test Date: 10/02/19 Checked By: jsc  
 -190924 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0709 mm	D <sub>30</sub> = 0.0079 mm
D <sub>60</sub> = 0.0339 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0252 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

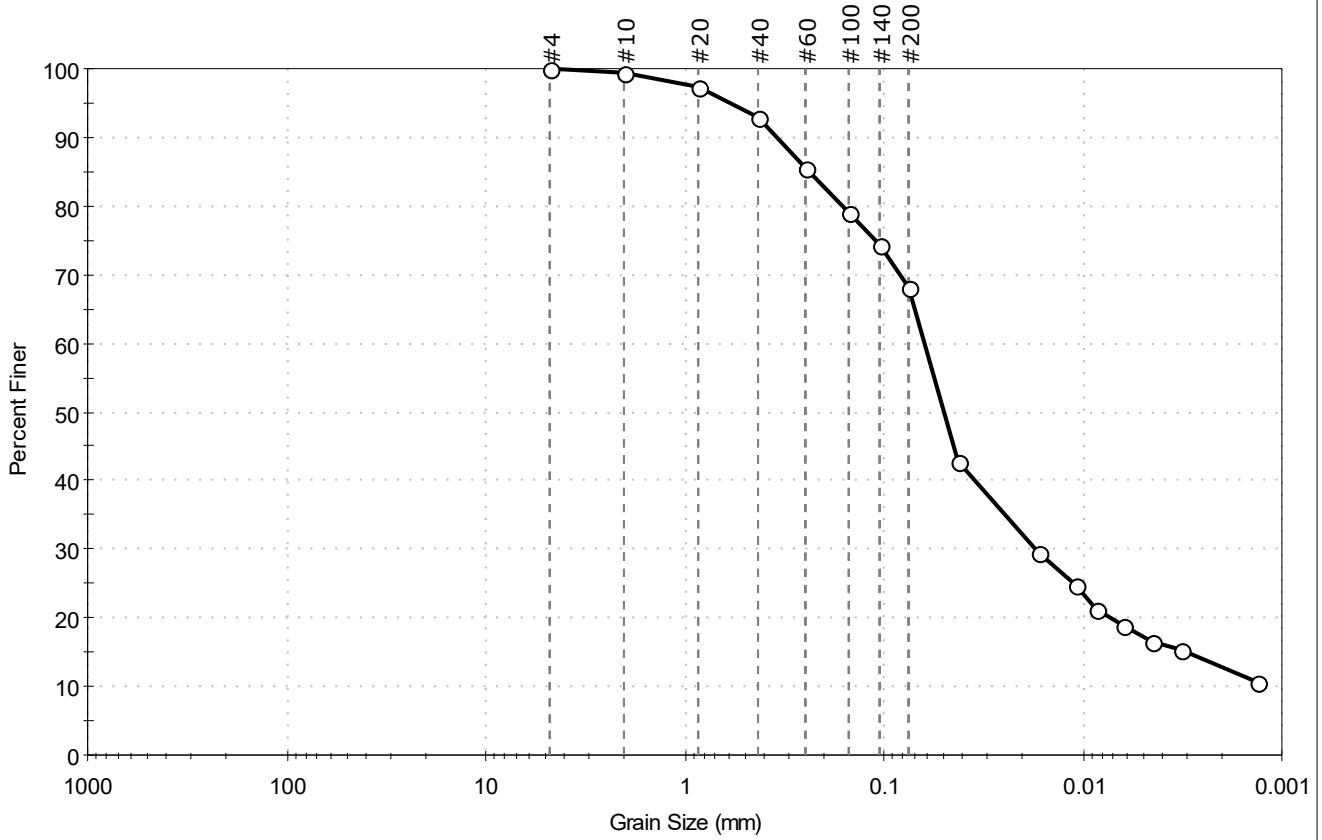
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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	Checked By: jsc
Sample ID: PDI-105SG-00-0.99	est Date: 10/02/19	Test Id: 525304	
-19092T Depth : ---			
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 <sub>85</sub> = 0.2406 mm	D <sub>30</sub> = 0.0174 mm
D <sub>60</sub> = 0.0625 mm	D <sub>15</sub> = 0.0030 mm
D <sub>50</sub> = 0.0501 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

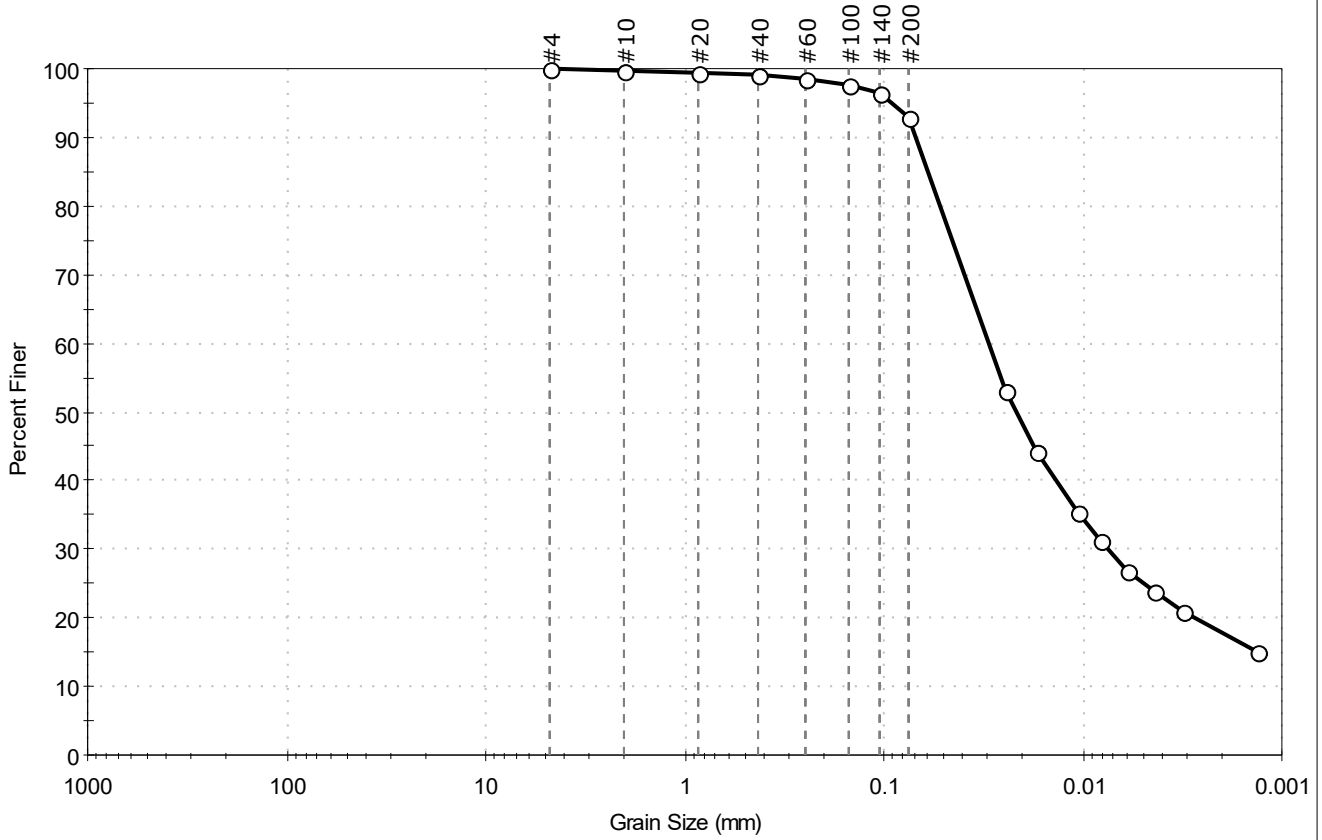
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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	Checked By: jsc
Sample ID: PDI-106SG-00-01	Test Date: 10/02/19	Test Id: 525305	
-190924 Depth : ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0598 mm	D <sub>30</sub> = 0.0075 mm
D <sub>60</sub> = 0.0295 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0216 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

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

<b>Sample/Test Description</b>
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: ---	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 : 110° Celsius



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 : 110° Celsius



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	

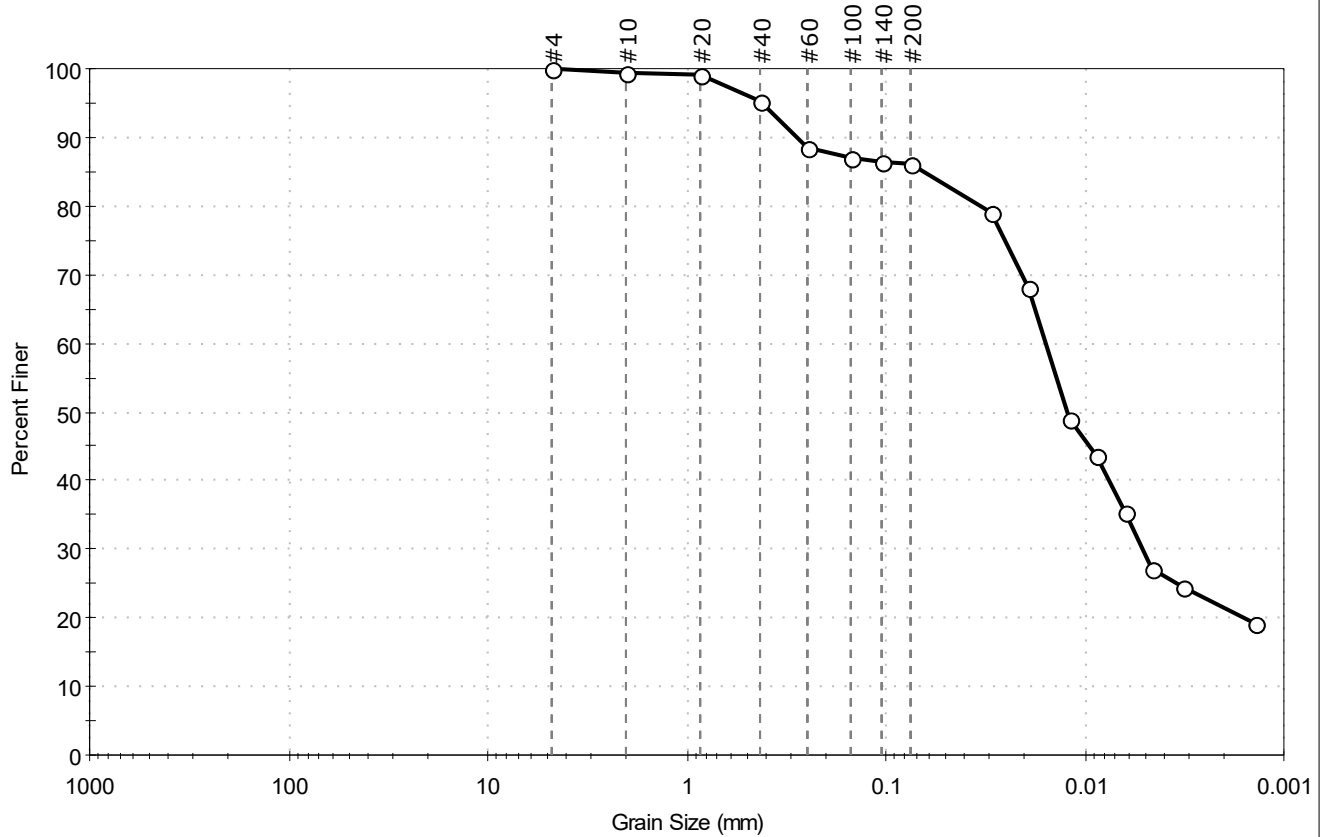
Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854  
 Moisture Content determined by ASTM D2216.





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- est Date: 10/08/19 Checked By: bfs  
 19092T 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0652 mm	D <sub>30</sub> = 0.0051 mm
D <sub>60</sub> = 0.0158 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0123 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

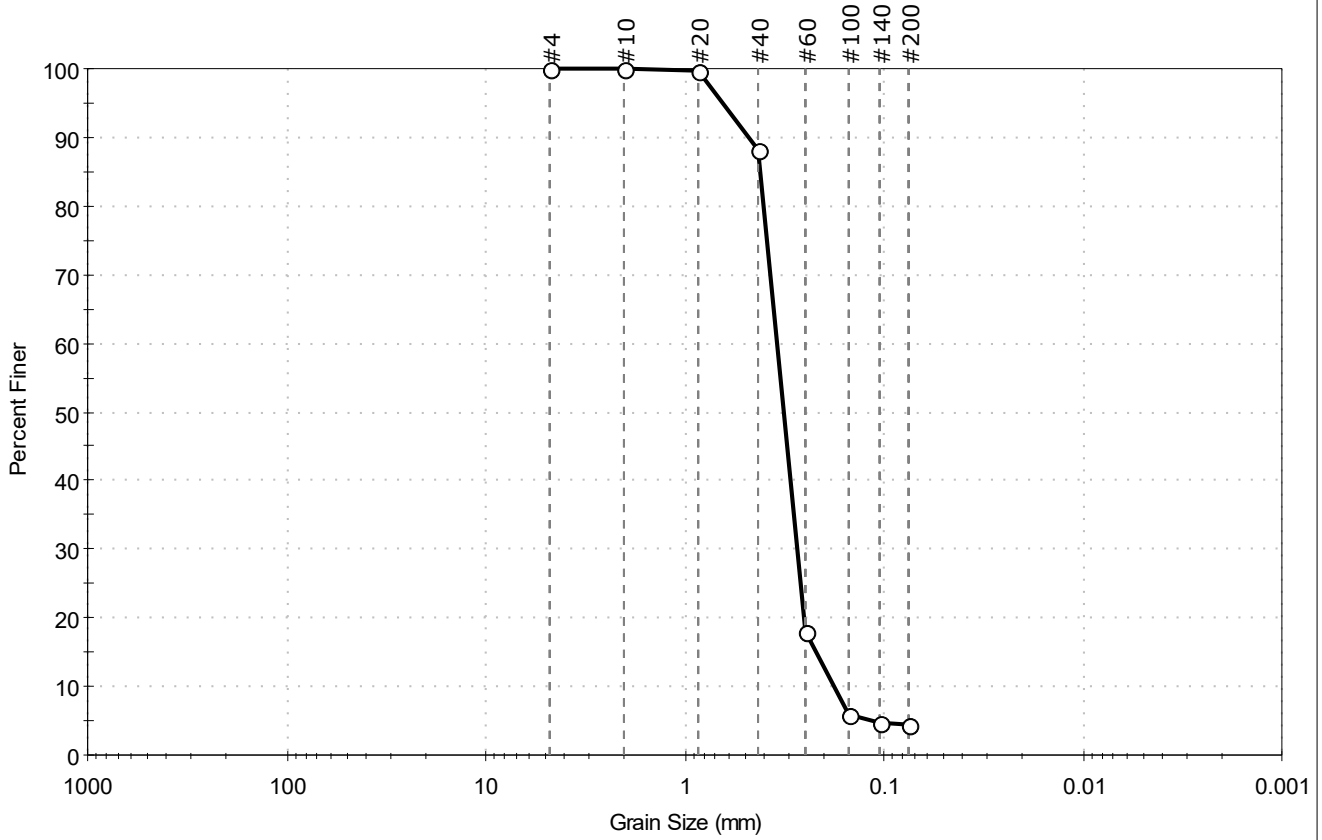
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (47))

<b>Sample/Test Description</b>
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-018SC-A-08-09 est Date: 10/08/19 Checked By: bfs  
 -19092T 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 <sub>85</sub> = 0.4149 mm	D <sub>30</sub> = 0.2738 mm
D <sub>60</sub> = 0.3434 mm	D <sub>15</sub> = 0.2203 mm
D <sub>50</sub> = 0.3184 mm	D <sub>10</sub> = 0.1781 mm
C <sub>u</sub> = 1.928	C <sub>c</sub> = 1.226

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

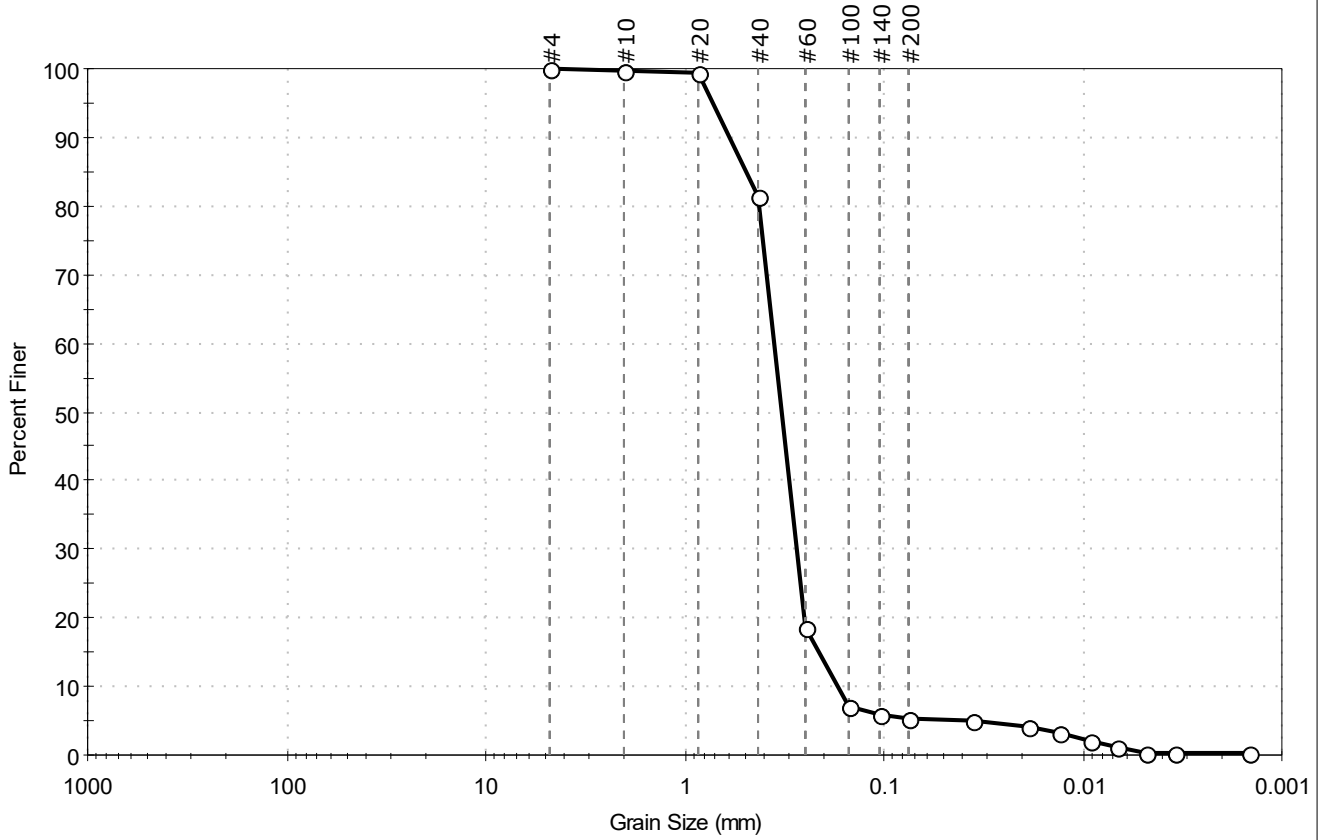
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-021SC-B-7.7-9.7-190 Depth: ---	Test Date: 10/08/19	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 <sub>85</sub> = 0.4863 mm	D <sub>30</sub> = 0.2754 mm
D <sub>60</sub> = 0.3546 mm	D <sub>15</sub> = 0.2140 mm
D <sub>50</sub> = 0.3260 mm	D <sub>10</sub> = 0.1714 mm
C <sub>u</sub> = 2.069	C <sub>c</sub> = 1.248

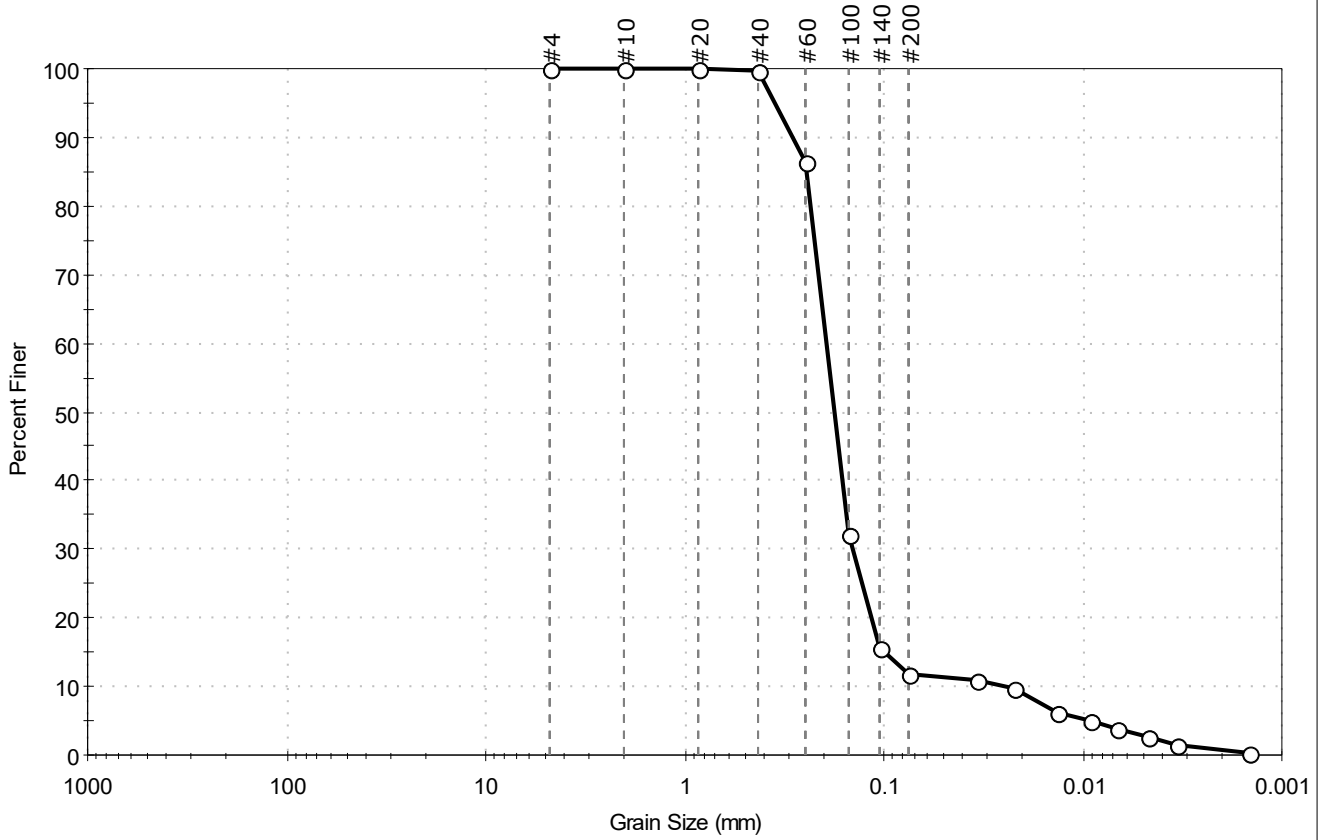
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



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 Test Date: 10/08/19 Checked By: bfs  
 -190 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2465 mm	D <sub>30</sub> = 0.1434 mm
D <sub>60</sub> = 0.1949 mm	D <sub>15</sub> = 0.0998 mm
D <sub>50</sub> = 0.1774 mm	D <sub>10</sub> = 0.0234 mm
C <sub>u</sub> = 8.329	C <sub>c</sub> = 4.509

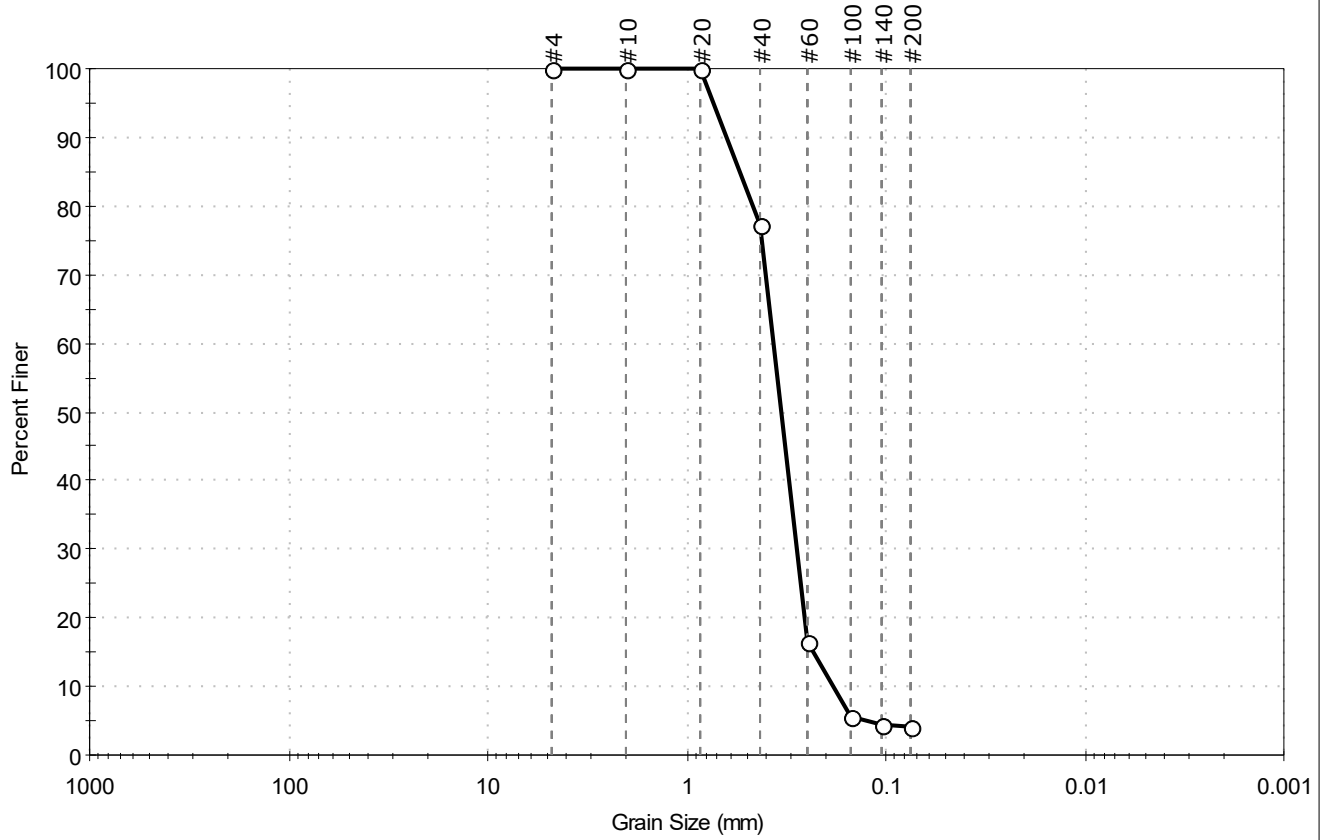
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-028SC-10.7-12.7-191	Test Date: 10/14/19	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.5384 mm	D <sub>30</sub> = 0.2810 mm
D <sub>60</sub> = 0.3654 mm	D <sub>15</sub> = 0.2321 mm
D <sub>50</sub> = 0.3348 mm	D <sub>10</sub> = 0.1843 mm
C <sub>u</sub> = 1.983	C <sub>c</sub> = 1.173

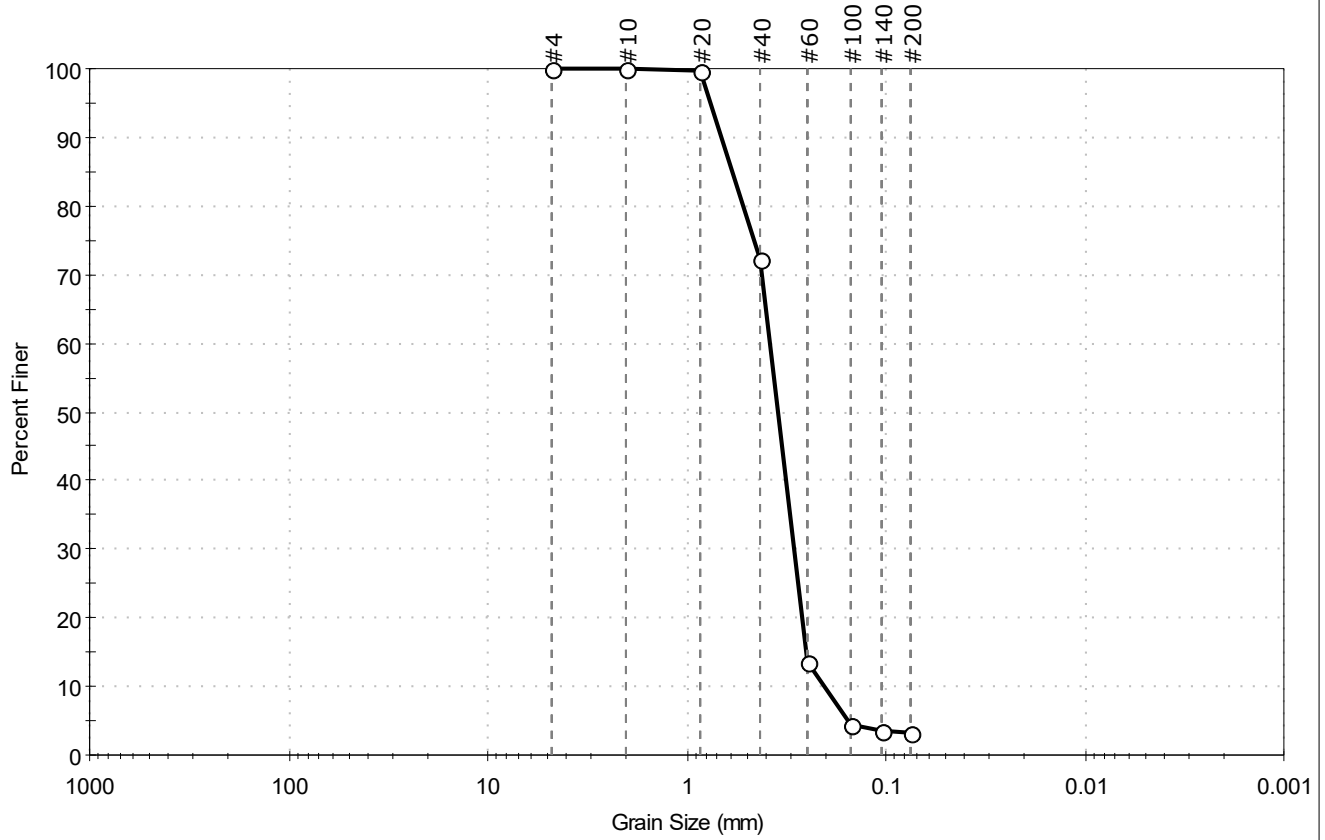
<u>Classification</u>	
<u>ASTM</u>	Poorly graded SAND (SP)
<u>AASHTO</u>	Fine Sand (A-3 (1))

<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: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-036SC-B-4.2-6.2	Test Date: 10/08/19	Test Id: 525975	
-190 Depth: ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5876 mm	D <sub>30</sub> = 0.2903 mm
D <sub>60</sub> = 0.3806 mm	D <sub>15</sub> = 0.2536 mm
D <sub>50</sub> = 0.3478 mm	D <sub>10</sub> = 0.2060 mm
C <sub>u</sub> = 1.848	C <sub>c</sub> = 1.075

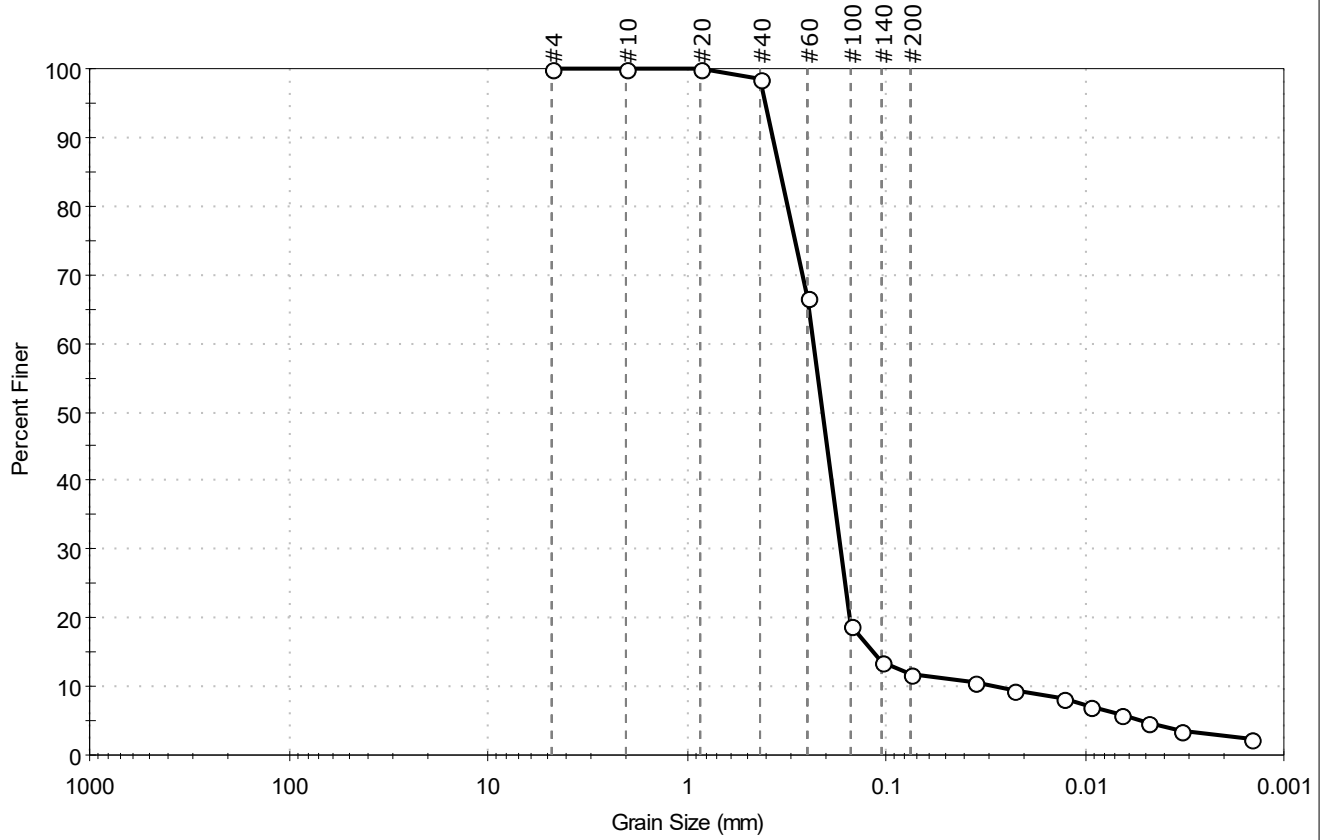
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-039SC-B-7.8-9.8	Test Date: 10/08/19
-190 Depth: ---	Test Id: 525979
Test Comment: ---	Tested By: ckg
Visual Description: Moist, very dark gray sand with silt	Checked By: bfs
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3391 mm	D <sub>30</sub> = 0.1688 mm
D <sub>60</sub> = 0.2326 mm	D <sub>15</sub> = 0.1169 mm
D <sub>50</sub> = 0.2090 mm	D <sub>10</sub> = 0.0286 mm
C <sub>u</sub> = 8.133	C <sub>c</sub> = 4.283

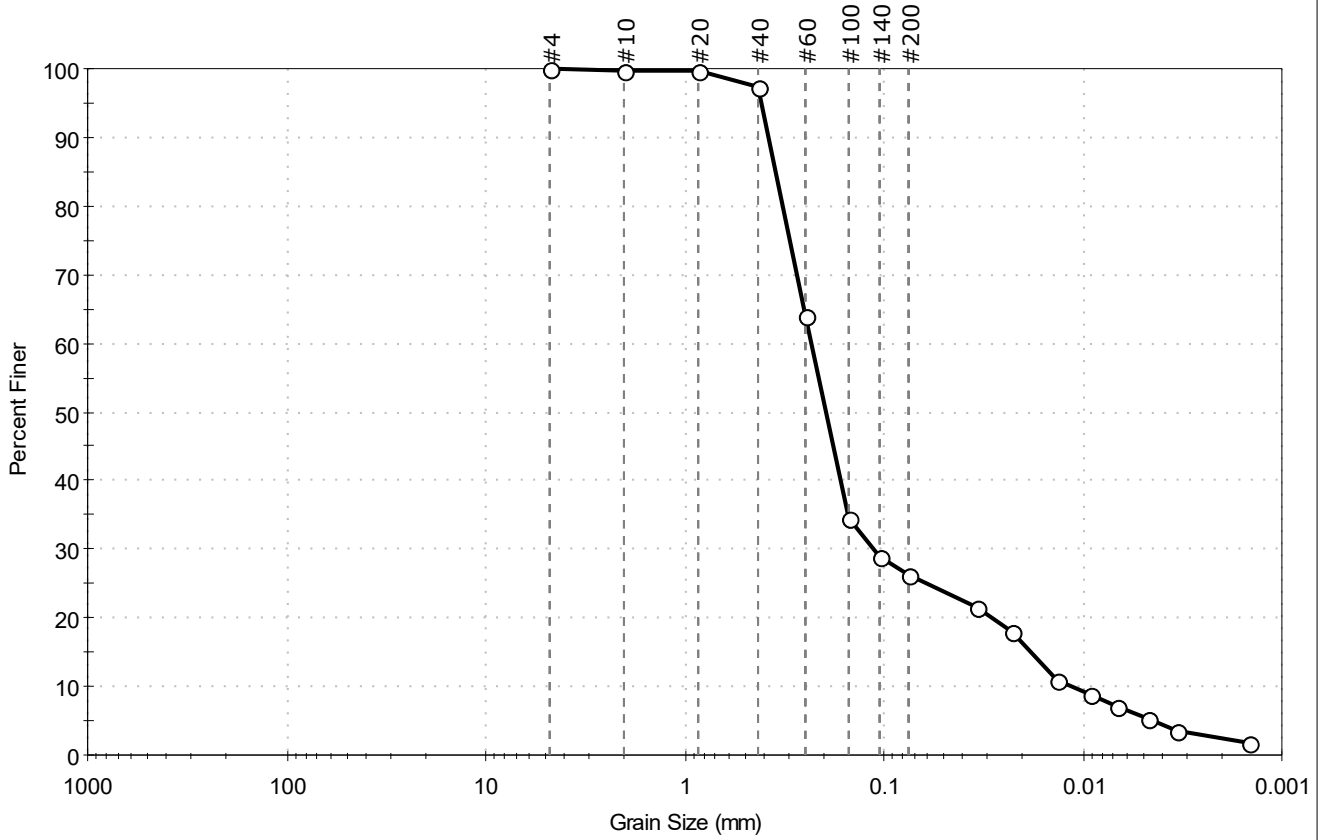
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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-046SC-B-9.8-11.8 Test Date: 10/08/19 Checked By: bfs  
 -19 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 <sub>85</sub> = 0.3497 mm	D <sub>30</sub> = 0.1135 mm
D <sub>60</sub> = 0.2334 mm	D <sub>15</sub> = 0.0182 mm
D <sub>50</sub> = 0.1963 mm	D <sub>10</sub> = 0.0114 mm
C <sub>u</sub> = 20.474	C <sub>c</sub> = 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

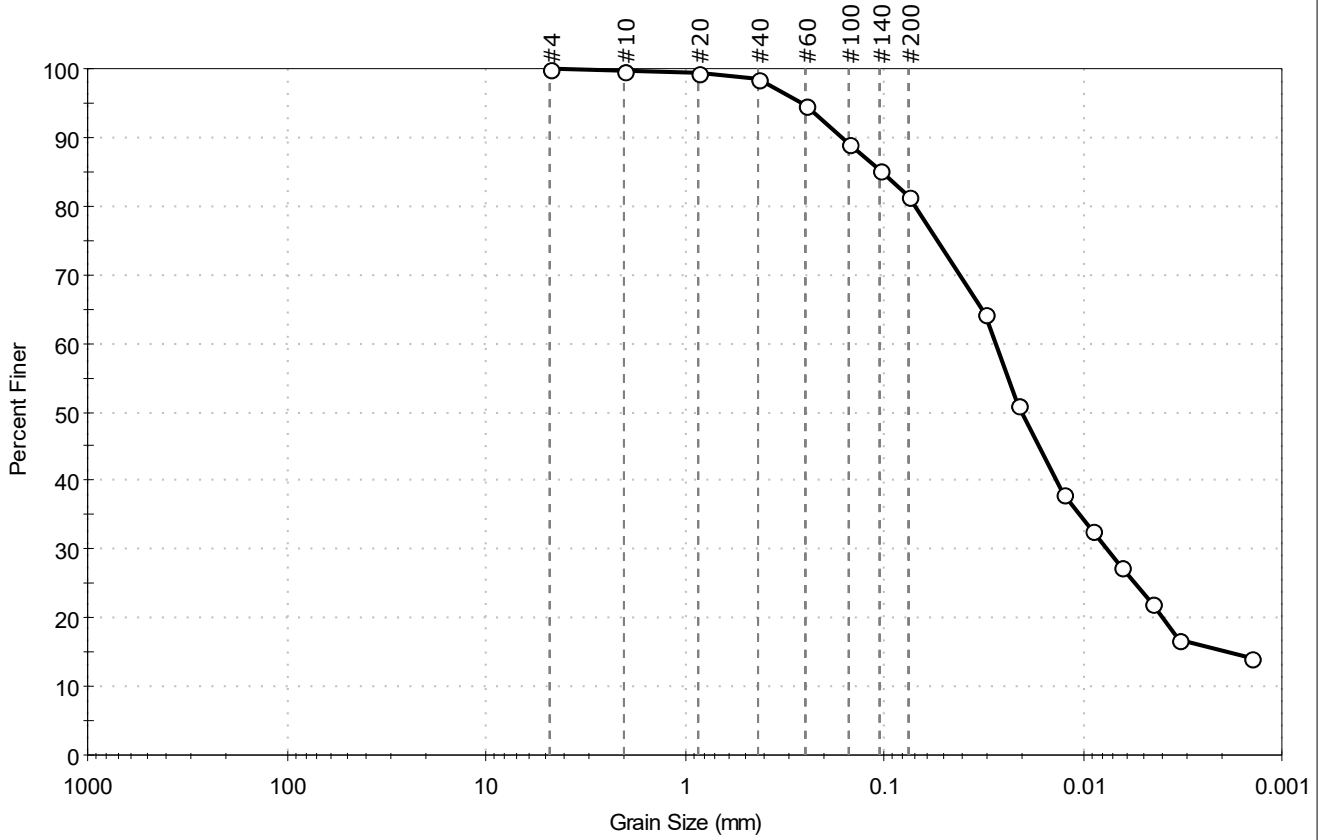
Separation of Sample: #200 Sieve





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

<b>Coefficients</b>	
D <sub>85</sub> = 0.1044 mm	D <sub>30</sub> = 0.0076 mm
D <sub>60</sub> = 0.0275 mm	D <sub>15</sub> = 0.0019 mm
D <sub>50</sub> = 0.0202 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

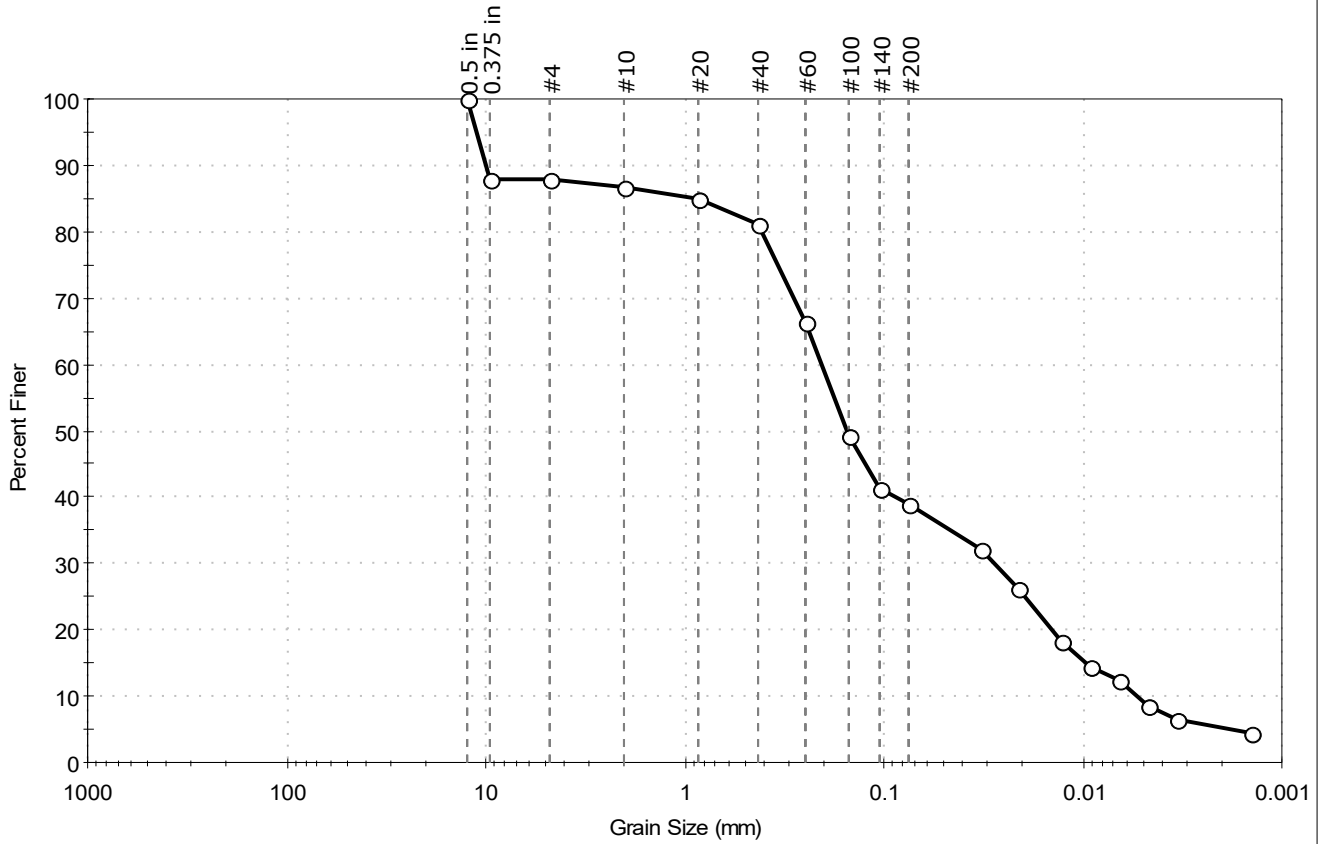
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

<b>Sample/Test Description</b>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-071SC-B-08-10	Test Date: 10/08/19
-1910 Depth: ---	Test Id: 525978
Test Comment: ---	Tested By: ckg
Visual Description: Wet, very dark gray silty sand	Checked By: bfs
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 <sub>85</sub> = 0.8858 mm	D <sub>30</sub> = 0.0279 mm
D <sub>60</sub> = 0.2068 mm	D <sub>15</sub> = 0.0097 mm
D <sub>50</sub> = 0.1534 mm	D <sub>10</sub> = 0.0054 mm
C <sub>u</sub> = 38.296	C <sub>c</sub> = 0.697

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	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

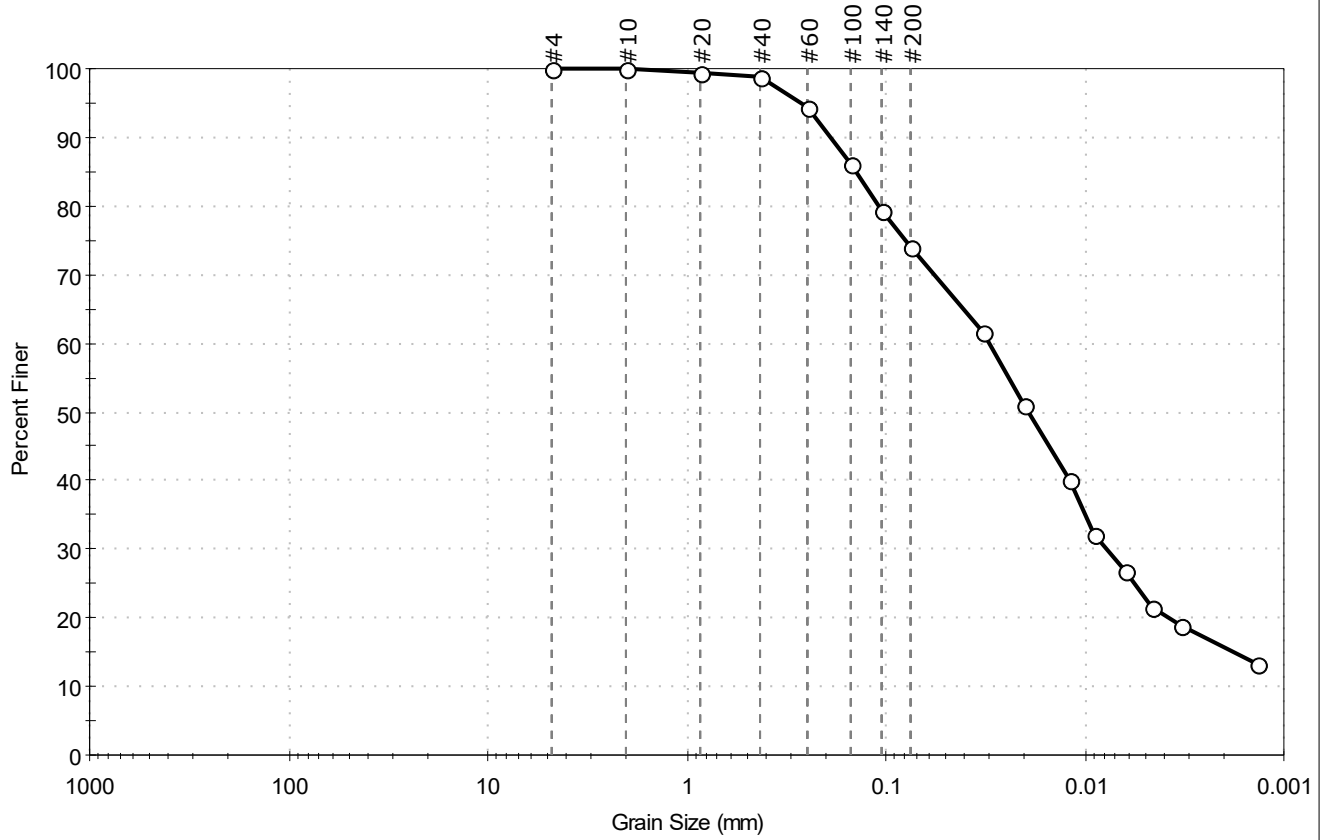
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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 Test Date: 10/14/19 Checked By: bfs  
 -1910 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1414 mm	D <sub>30</sub> = 0.0078 mm
D <sub>60</sub> = 0.0301 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0194 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

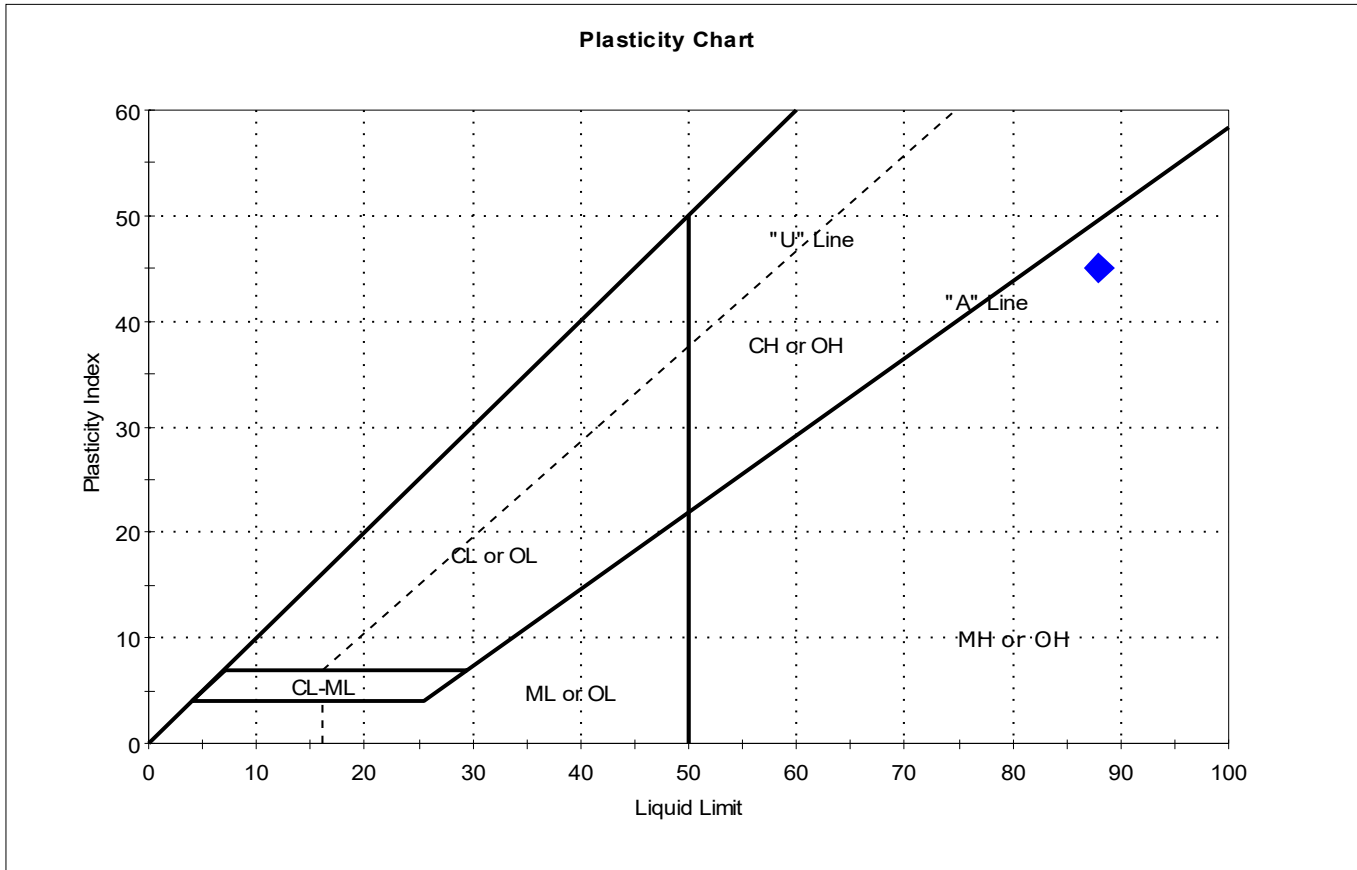
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (17))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-018SC-A-06-07	est Date: 10/08/19	Test Id: 525962	
-19092T Depth : ---			
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
◆	PDI-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



Client:	Anchor QEA, LLC		
Project:	Gasco PDI		
Location:		Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag
Sample ID:	PDI-018SC-A-08-09	est Date:	10/09/19
-1909T Depth :	---	Tested By:	cam
		Checked By:	bfs
		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
Sample ID:	PDI-021SC-B-7.7-9.7	Test Date:	10/09/19
-190 Depth :	---	Checked By:	bfs
		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	Test Date: 10/09/19	Checked By: bfs	
-190 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
◆	PDI-024SC-B-10-12.1-190	---	---	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
Sample ID:	PDI-028SC-10.7-12.7	Test Date:	10/14/19
-191 Depth :	---	Checked By:	bfs
		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
Sample ID:	PDI-036SC-B-4.2-6.2	Test Date:	10/09/19
-190 Depth :	---	Checked By:	bfs
		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
Sample ID:	PDI-039SC-B-7.8-9.8	Test Date:	10/09/19
-190 Depth :	---	Checked By:	bfs
		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



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

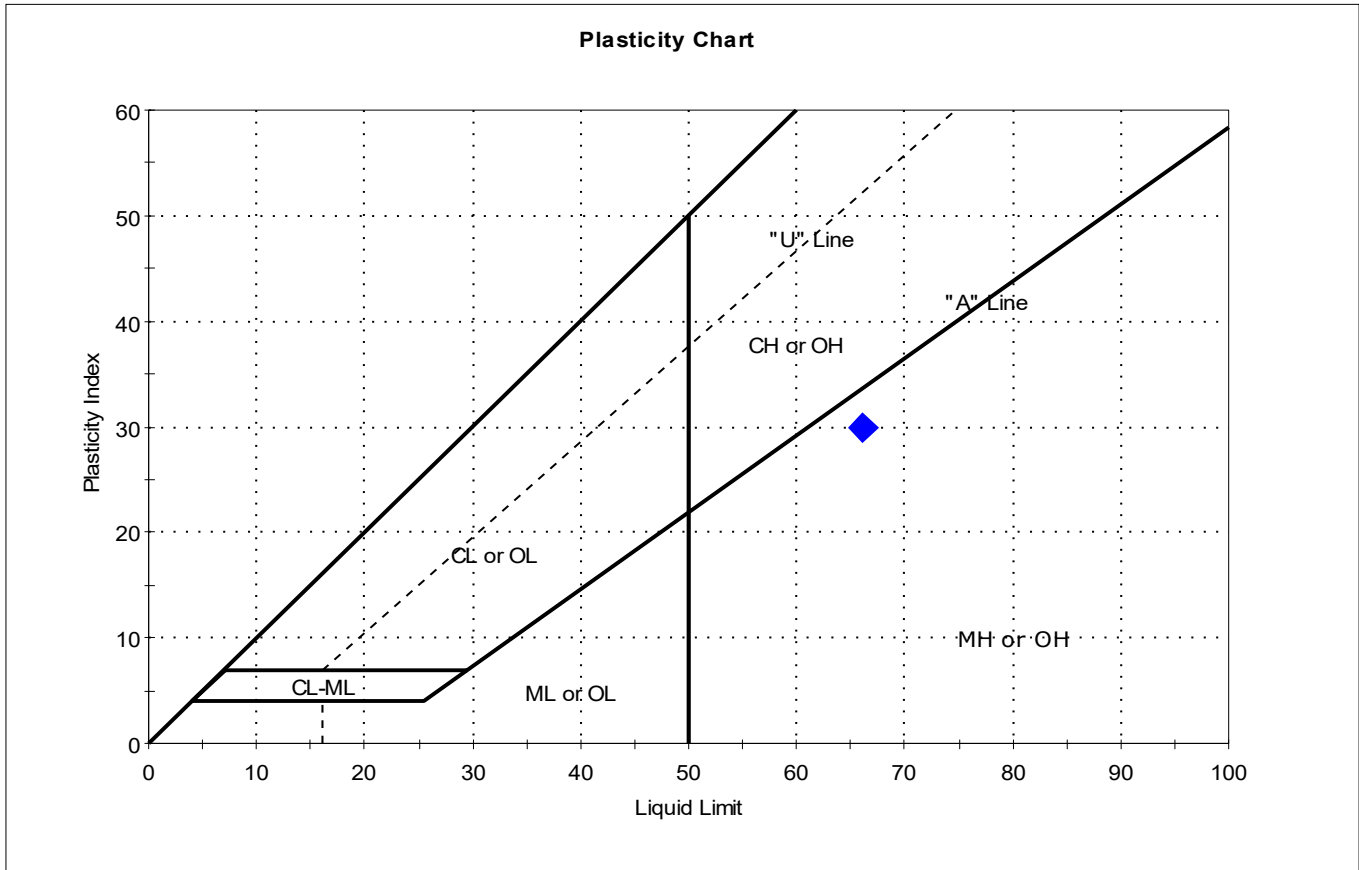
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	046SC-B-9.8-11.8-1	---	---	24	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-064SC-B-04-06	Test Date: 10/11/19	Test Id: 525967	
-1909 Depth: ---			
Test Comment: ---			
Visual Description: Moist, very dark gray silt with sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318

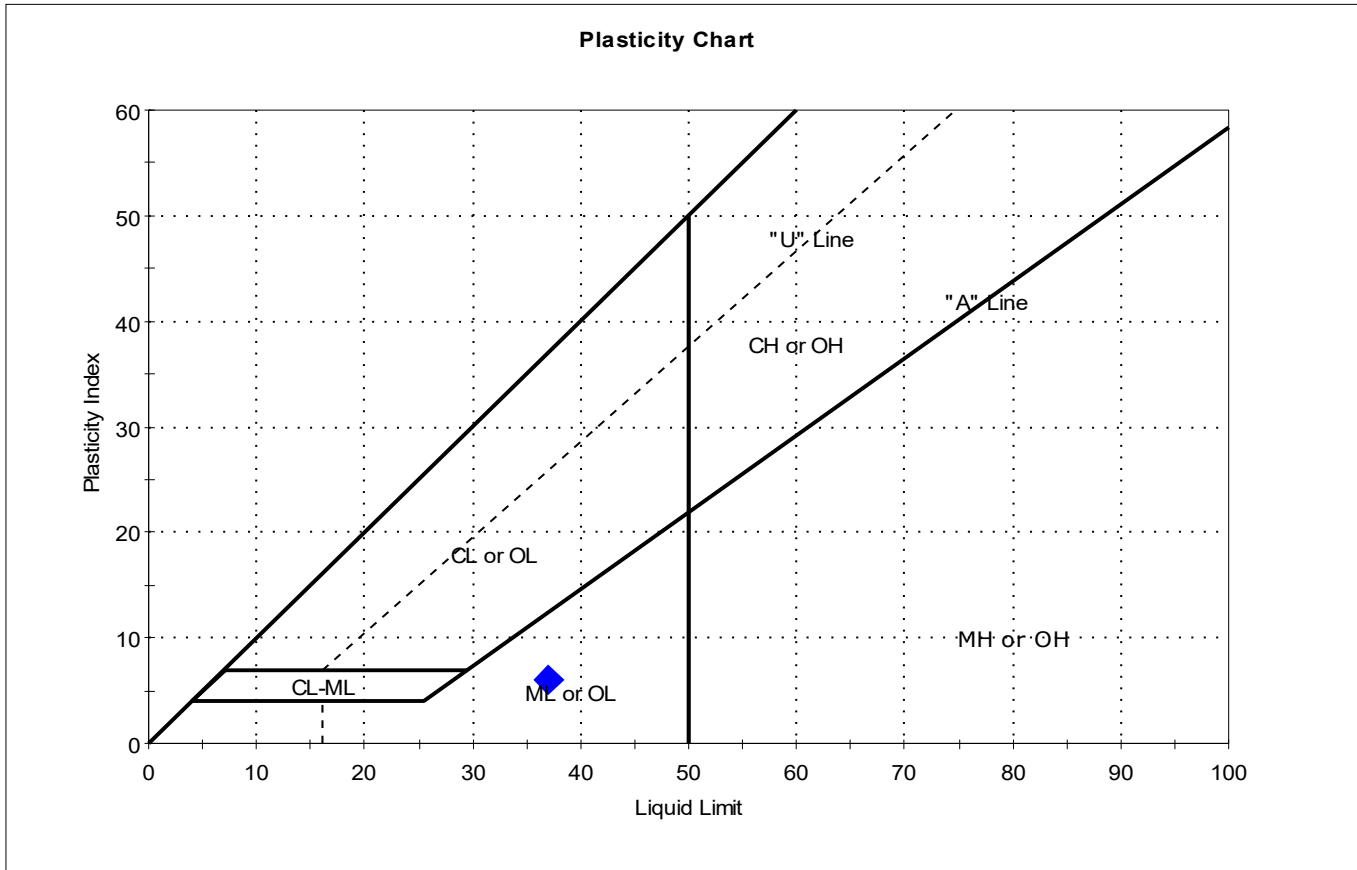


Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-064SC-B-04-06-19	---	---	66	66	36	30	1	Elastic SILT with Sand (MH)

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	Checked By: bfs
Sample ID: PDI-071SC-B-08-10	Test Date: 10/15/19	Test Id: 525969	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Wet, very dark gray silty sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



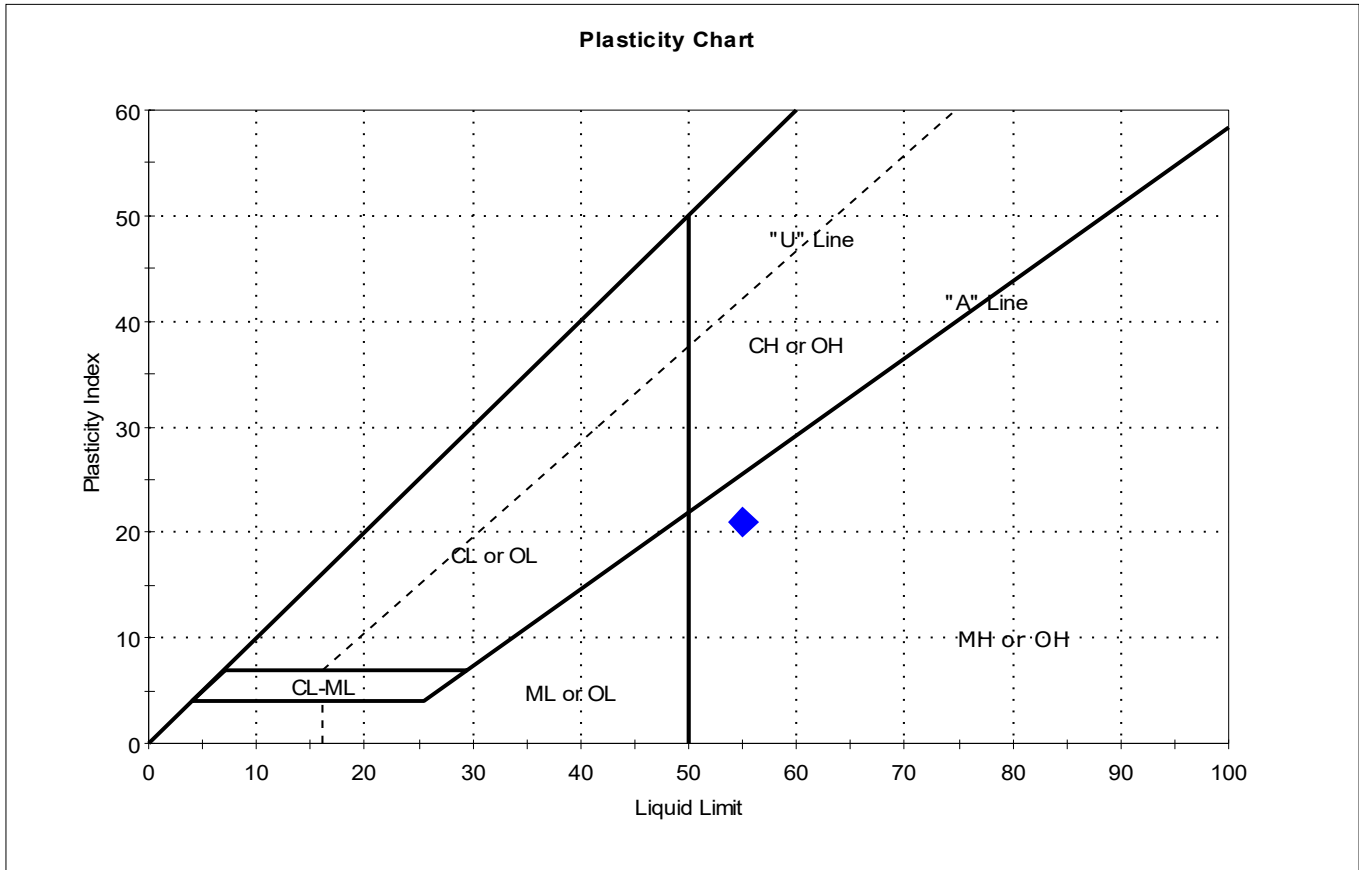
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-071SC-B-08-10-19	---	---	43	37	31	6	2	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-081SC-B-08-10	Test Date: 10/14/19	Test Id: 526419	
-1910 Depth: ---			
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
◆	PDI-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 No:	GTX-310685
Project:	Gasco PDI		
Location:			
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 : 110° Celsius



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 : 110° Celsius





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 : 110° Celsius



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 : 110° Celsius



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 : 110° Celsius



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 : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
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 : 110° Celsius



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-11-13.5-19	---	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:	---
Sample ID:	---	Test Date:	11/07/19
Depth :	---	Test Id:	527704
		Tested By:	ckg
		Checked By:	bfs

## 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.



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
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.



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.



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

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

## Specific Gravity of Soils by ASTM D854

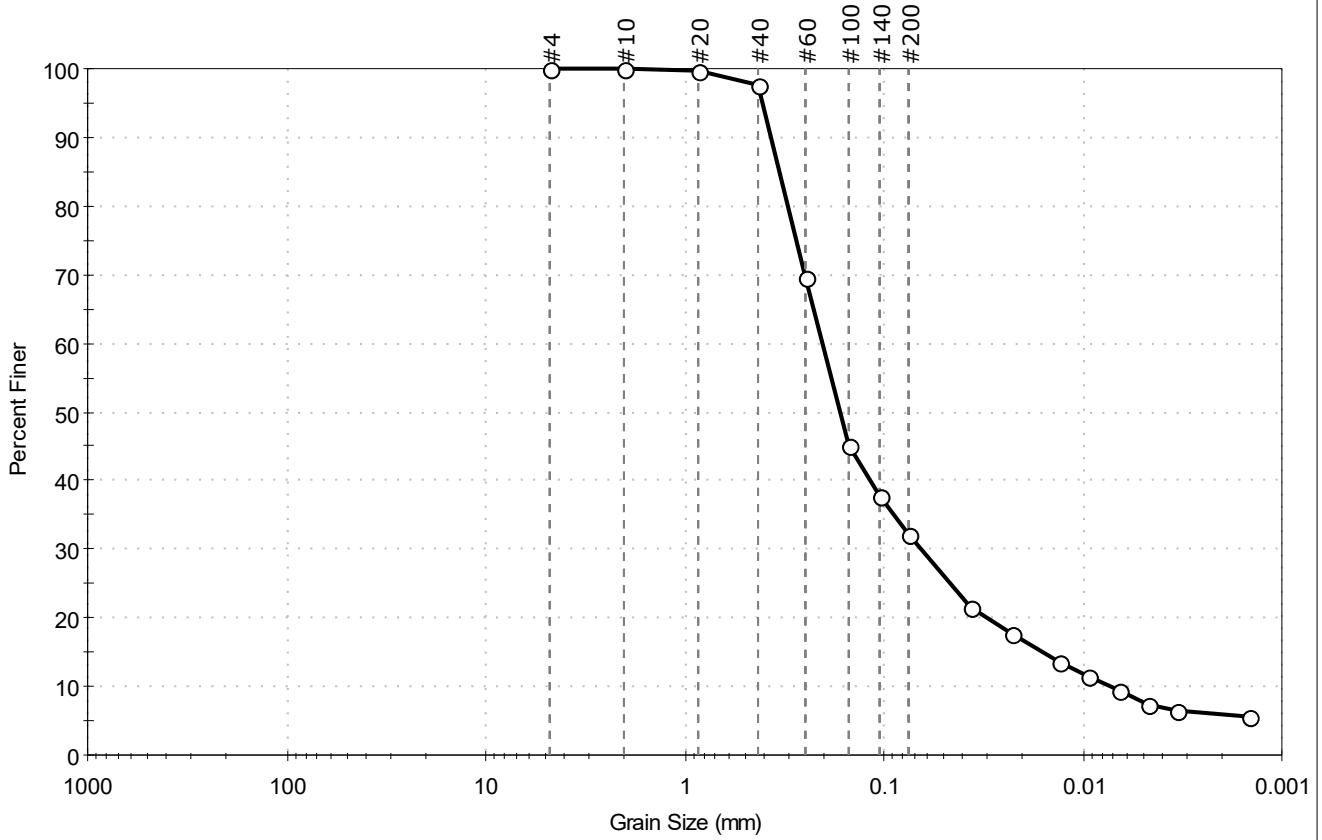
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-1SPT-21-38-1909	---	Moist, dark olive gray silty sand	2.73	
---	PDI-SPT-49.4-54-190	---	Moist, dark grayish brown silty sand	2.70	
---	PDI-2SPT-04-09-1909	---	Wet, olive brown silt	2.71	
---	PDI-SPT-16.6-24-190	---	Moist, dark 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	Checked By: bfs
Sample ID: PDI-016SC-B-06-08	Test Date: 10/29/19	Test Id: 527547	
-1910 Depth: ---			
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	0.425	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3339 mm	D <sub>30</sub> = 0.0651 mm
D <sub>60</sub> = 0.2042 mm	D <sub>15</sub> = 0.0161 mm
D <sub>50</sub> = 0.1659 mm	D <sub>10</sub> = 0.0072 mm
C <sub>u</sub> = 28.361	C <sub>c</sub> = 2.883

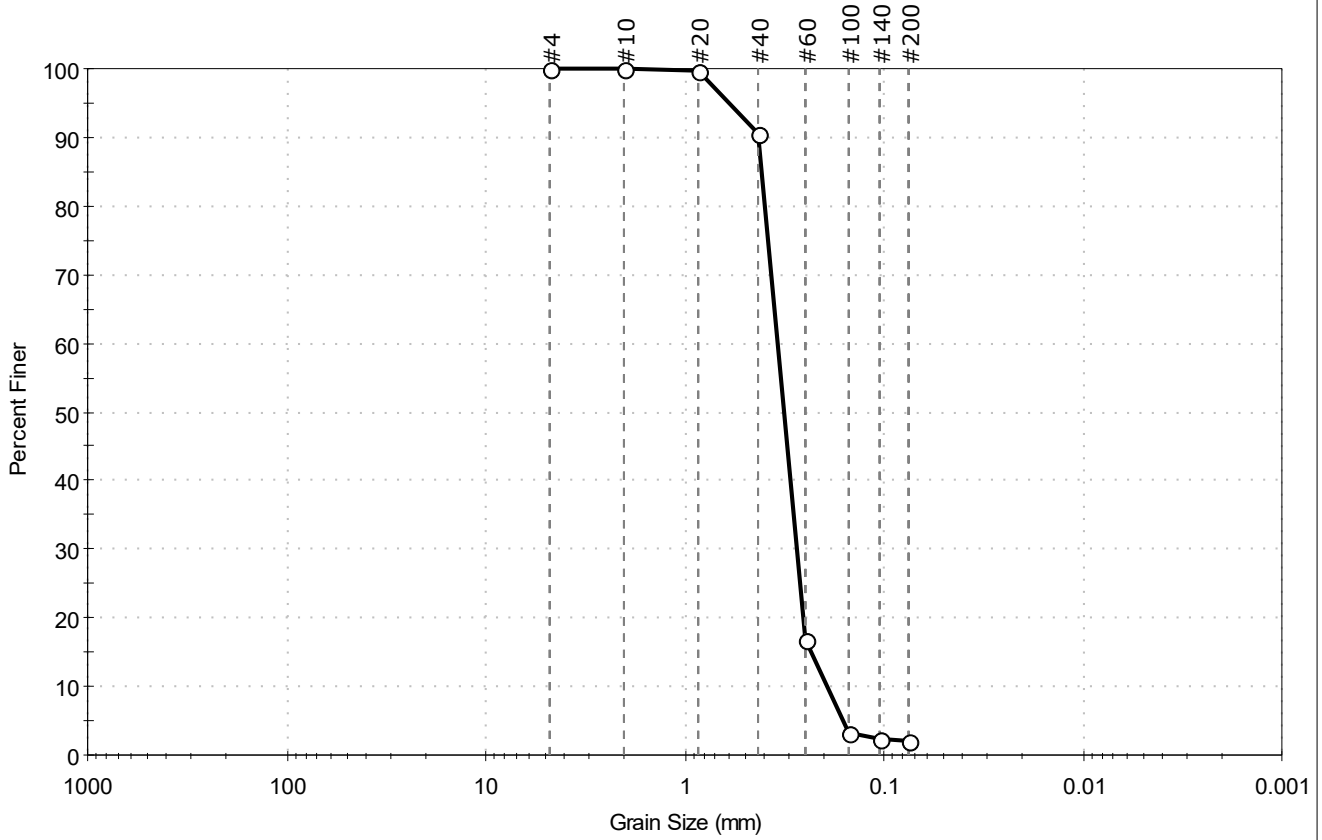
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-027SC-B-11-13.5	Test Date: 10/25/19	Test Id: 527551	
-191 Depth: ---			
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	0.425	91		
#60	0.25	17		
#100	0.15	3		
#140	0.106	2		
#200	0.075	2		

<b>Coefficients</b>	
D <sub>85</sub> = 0.4084 mm	D <sub>30</sub> = 0.2747 mm
D <sub>60</sub> = 0.3411 mm	D <sub>15</sub> = 0.2327 mm
D <sub>50</sub> = 0.3173 mm	D <sub>10</sub> = 0.1931 mm
C <sub>u</sub> = 1.766	C <sub>c</sub> = 1.146

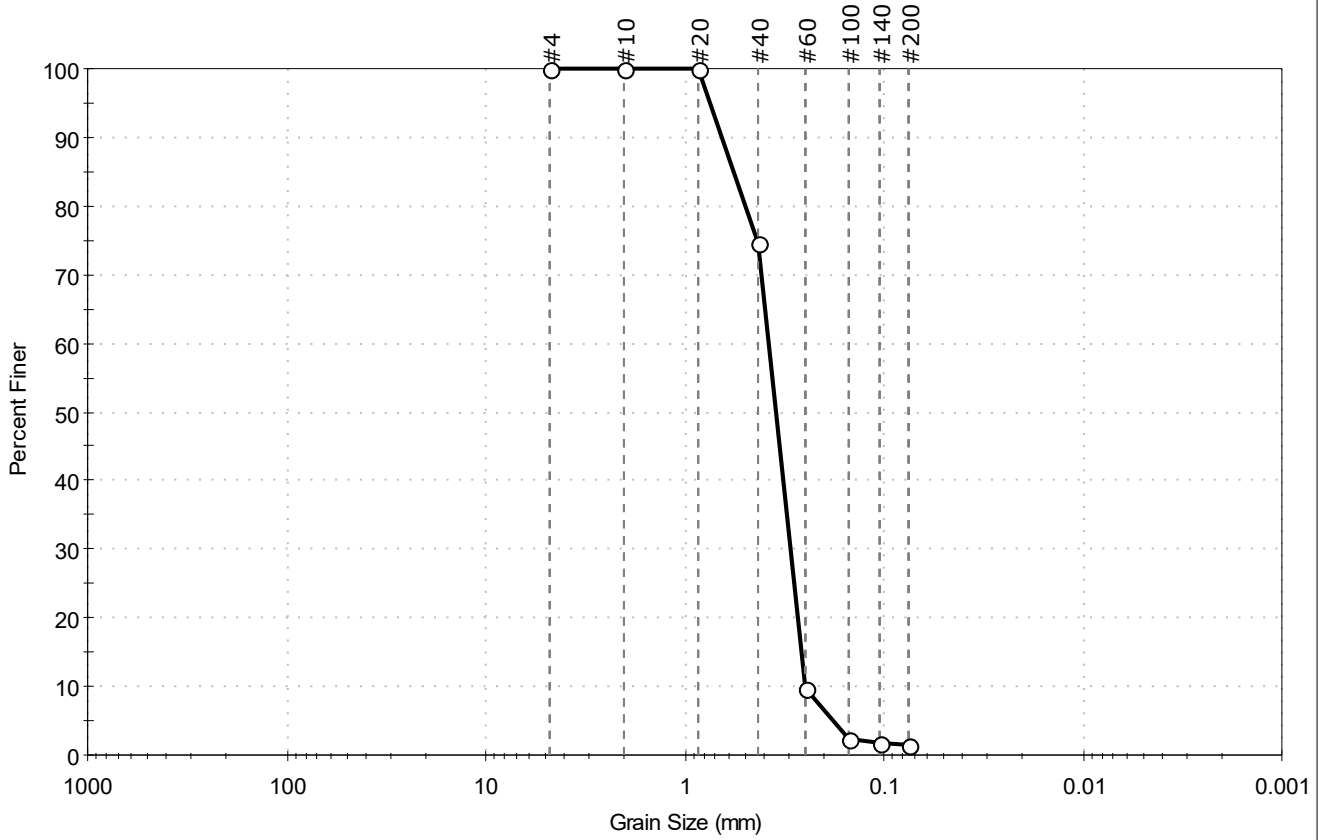
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-033SC-B-8.7-10.7	Test Date: 11/05/19	Test Id: 527550	
-19 Depth: ---			
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 <sub>85</sub> = 0.5635 mm	D <sub>30</sub> = 0.2948 mm
D <sub>60</sub> = 0.3767 mm	D <sub>15</sub> = 0.2608 mm
D <sub>50</sub> = 0.3471 mm	D <sub>10</sub> = 0.2503 mm
C <sub>u</sub> = 1.505	C <sub>c</sub> = 0.922

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

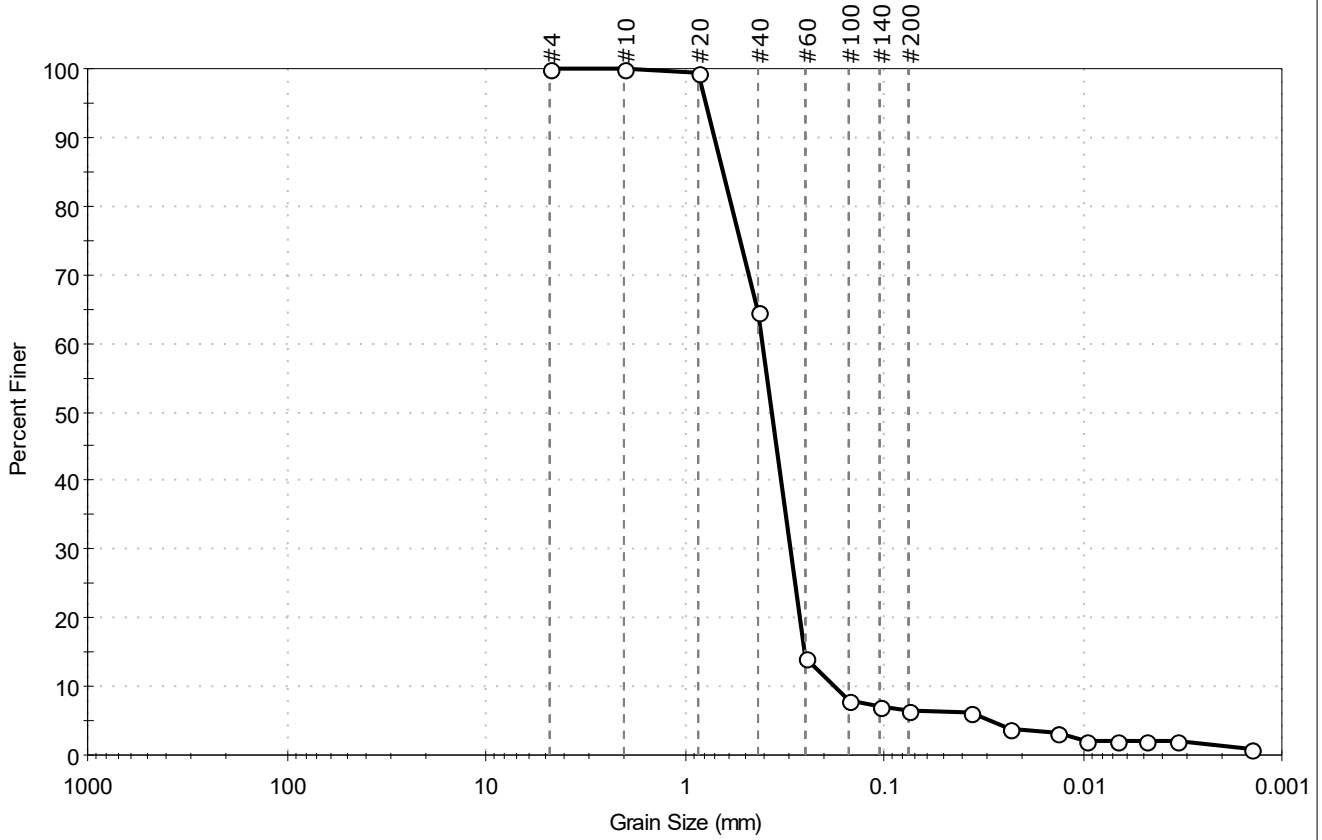
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-038SC-B-7.1-9.1	Test Date: 10/24/19
-191 Depth: ---	Test Id: 527548
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark gray sand with silt	Checked By: bfs
Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



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

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	65		
#60	0.25	14		
#100	0.15	8		
#140	0.11	7		
#200	0.075	6.4		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0370	6		
---	0.0235	4		
---	0.0136	3		
---	0.0096	2		
---	0.0068	2		
---	0.0048	2		
---	0.0034	2		
---	0.0014	1		

Coefficients	
D <sub>85</sub> = 0.6378 mm	D <sub>30</sub> = 0.2953 mm
D <sub>60</sub> = 0.4052 mm	D <sub>15</sub> = 0.2521 mm
D <sub>50</sub> = 0.3646 mm	D <sub>10</sub> = 0.1779 mm
C <sub>u</sub> = 2.278	C <sub>c</sub> = 1.210

Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

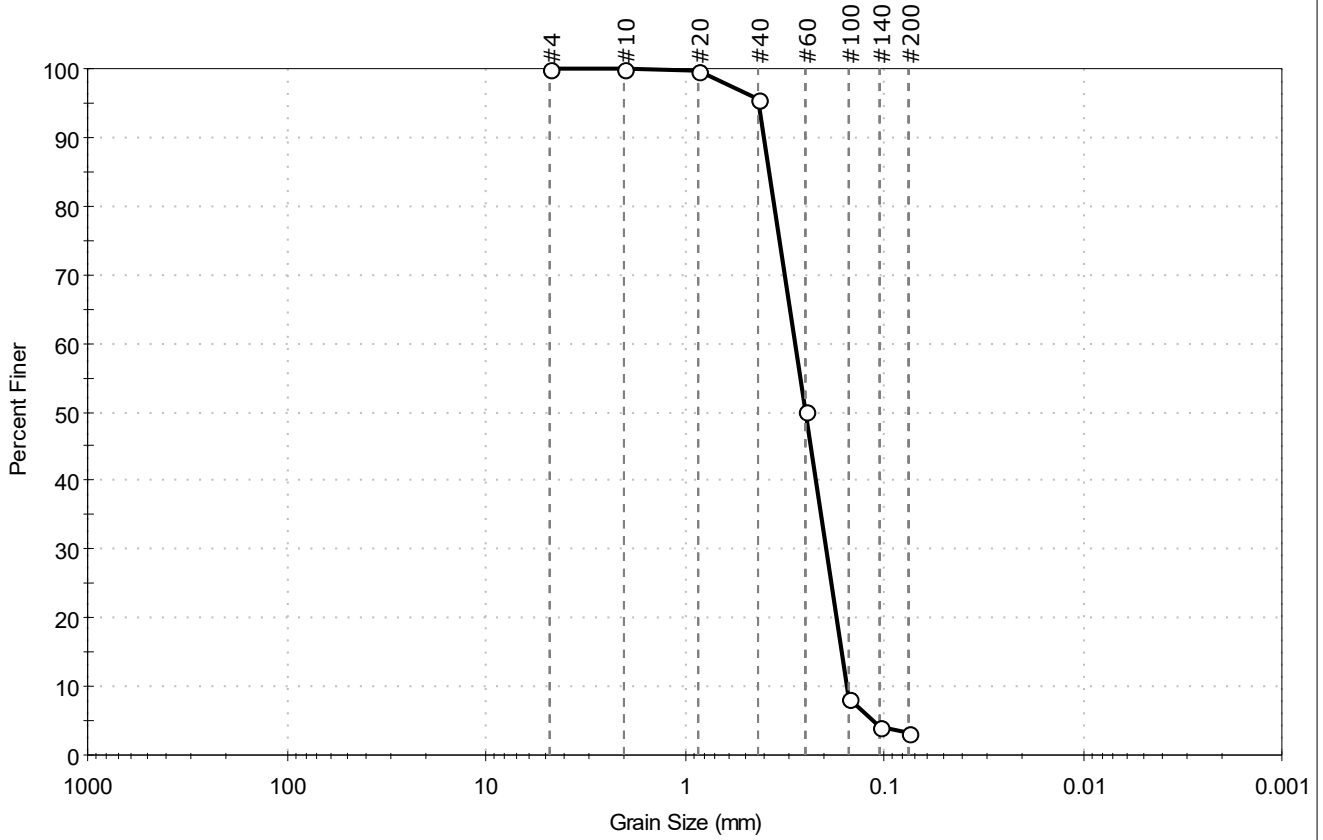
Sample/Test Description	
Sand/Gravel Particle Shape	: ---
Sand/Gravel Hardness	: ---
Dispersion Device	: Apparatus A - Mech Mixer
Dispersion Period	: 1 minute
Est. Specific Gravity	: 2.65
Separation of Sample	: #200 Sieve





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

<b>Coefficients</b>	
D <sub>85</sub> = 0.3758 mm	D <sub>30</sub> = 0.1957 mm
D <sub>60</sub> = 0.2808 mm	D <sub>15</sub> = 0.1629 mm
D <sub>50</sub> = 0.2500 mm	D <sub>10</sub> = 0.1532 mm
C <sub>u</sub> = 1.833	C <sub>c</sub> = 0.890

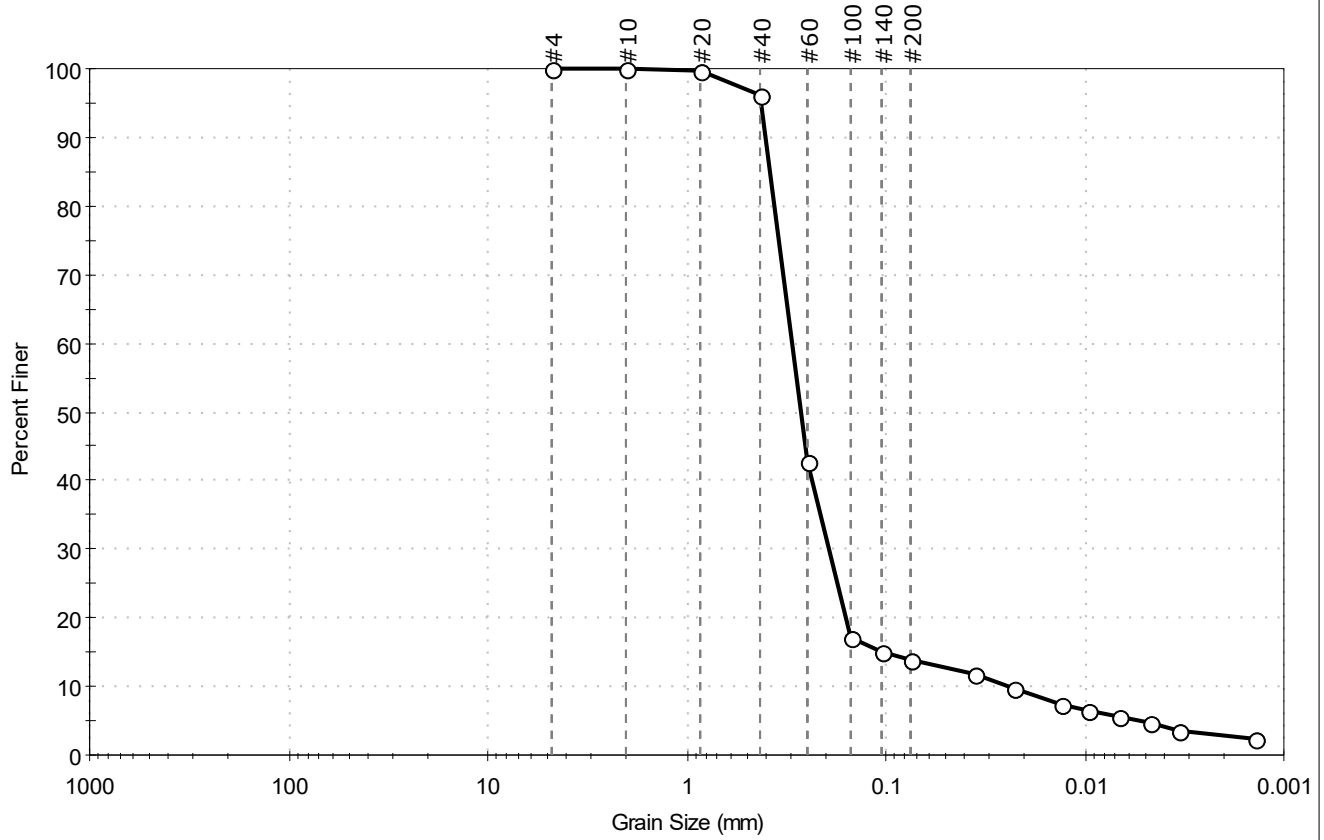
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-049SC-B-06-08	Test Date: 10/24/19	Test Id: 527554	
-1910 Depth: ---			
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 <sub>85</sub> = 0.3801 mm	D <sub>30</sub> = 0.1941 mm
D <sub>60</sub> = 0.2968 mm	D <sub>15</sub> = 0.1066 mm
D <sub>50</sub> = 0.2688 mm	D <sub>10</sub> = 0.0249 mm
C <sub>u</sub> = 11.920	C <sub>c</sub> = 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

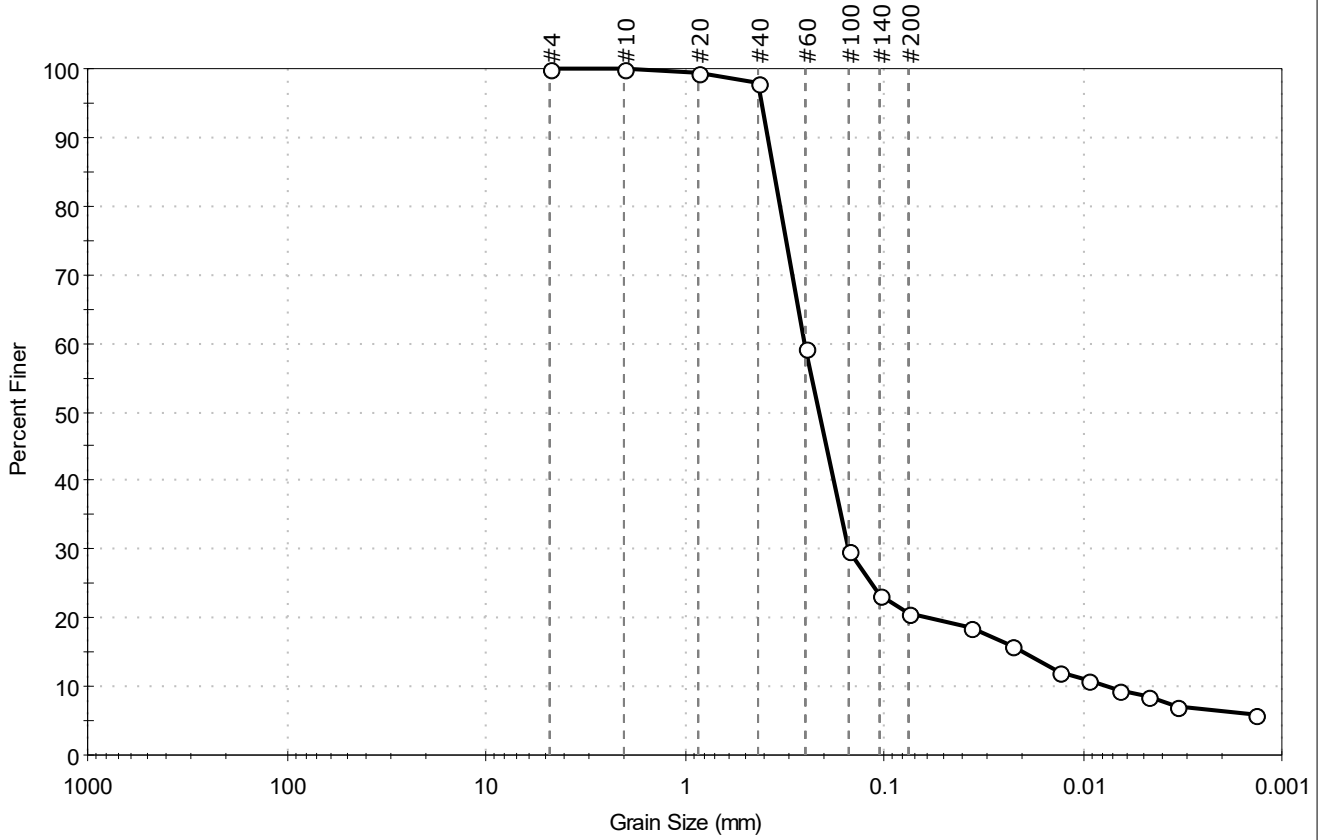
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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 Test Date: 10/24/19 Checked By: bfs  
 -1910 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 <sub>85</sub> = 0.3554 mm	D <sub>30</sub> = 0.1505 mm
D <sub>60</sub> = 0.2521 mm	D <sub>15</sub> = 0.0198 mm
D <sub>50</sub> = 0.2126 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 33.613	C <sub>c</sub> = 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

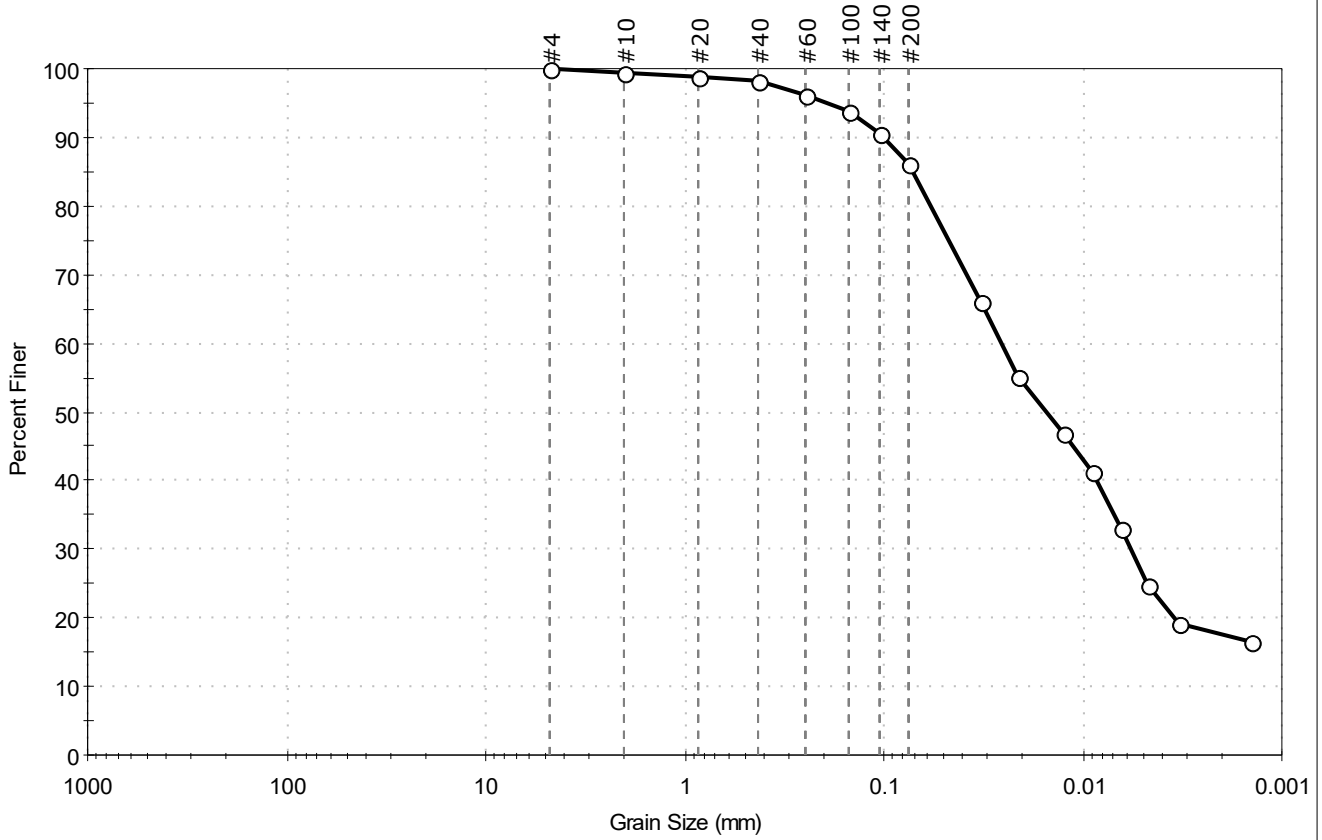
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-066SC-B-06-08	Test Date: 10/29/19	Test Id: 527552	
-1910 Depth: ---			
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.0716 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0257 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0155 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

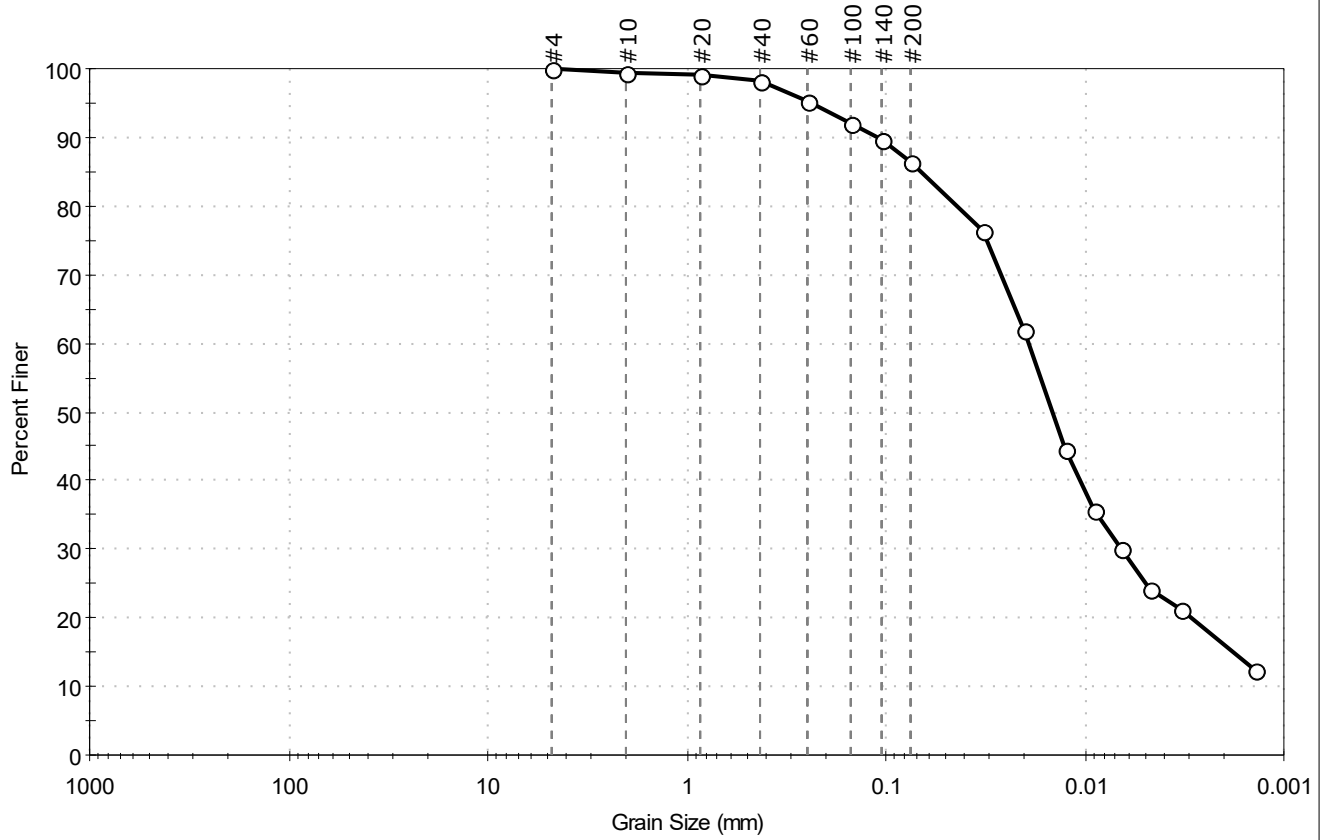
<u>Classification</u>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (42))

<u>Sample/Test Description</u>	
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-067SC-B-02-04 Test Date: 10/29/19 Checked By: bfs  
 -1910 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0663 mm	D <sub>30</sub> = 0.0065 mm
D <sub>60</sub> = 0.0192 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0146 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

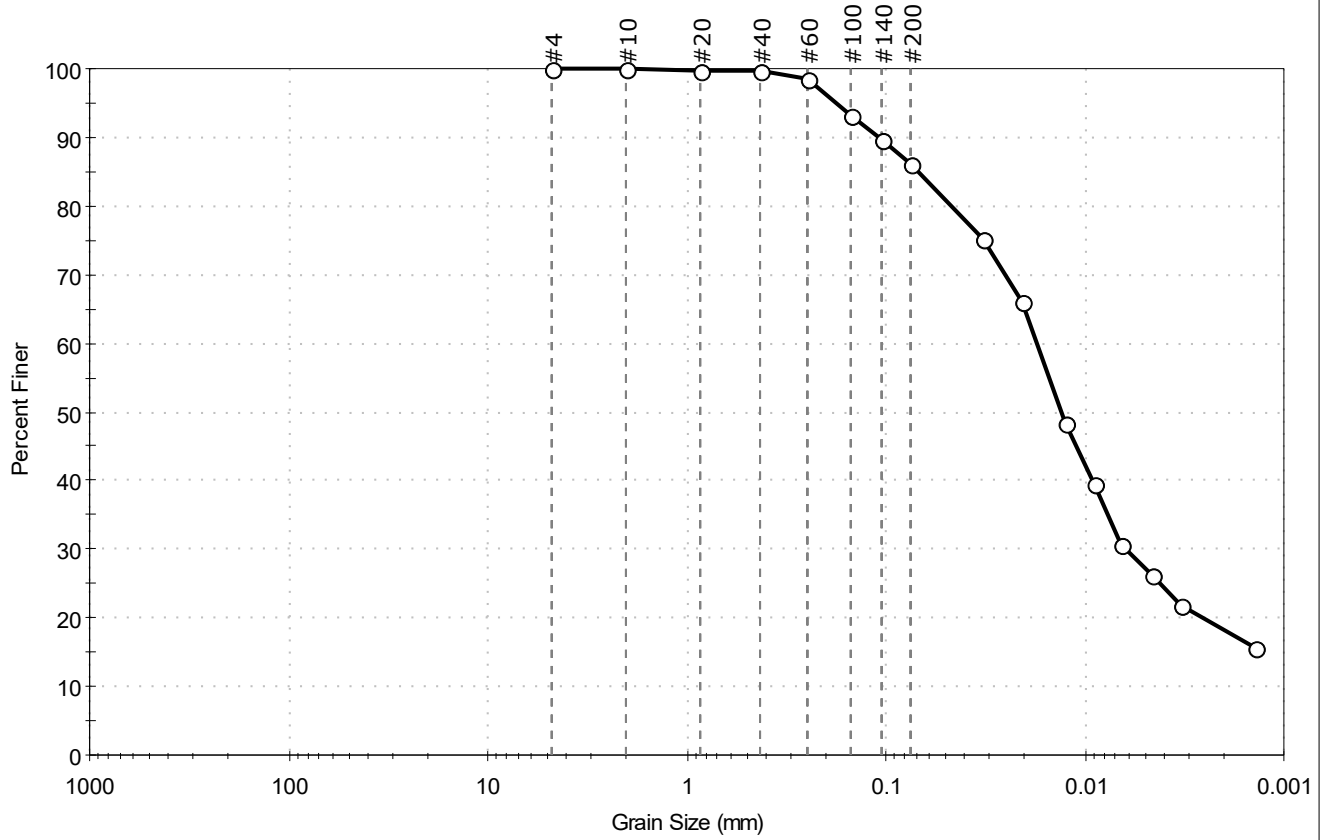
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (32))

<b>Sample/Test Description</b>
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	Checked By: bfs
Sample ID: PDI-077SC-B-04-06	Test Date: 10/29/19	Test Id: 527543	
-1910 Depth: ---			
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 <sub>85</sub> = 0.0682 mm	D <sub>30</sub> = 0.0062 mm
D <sub>60</sub> = 0.0175 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0132 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

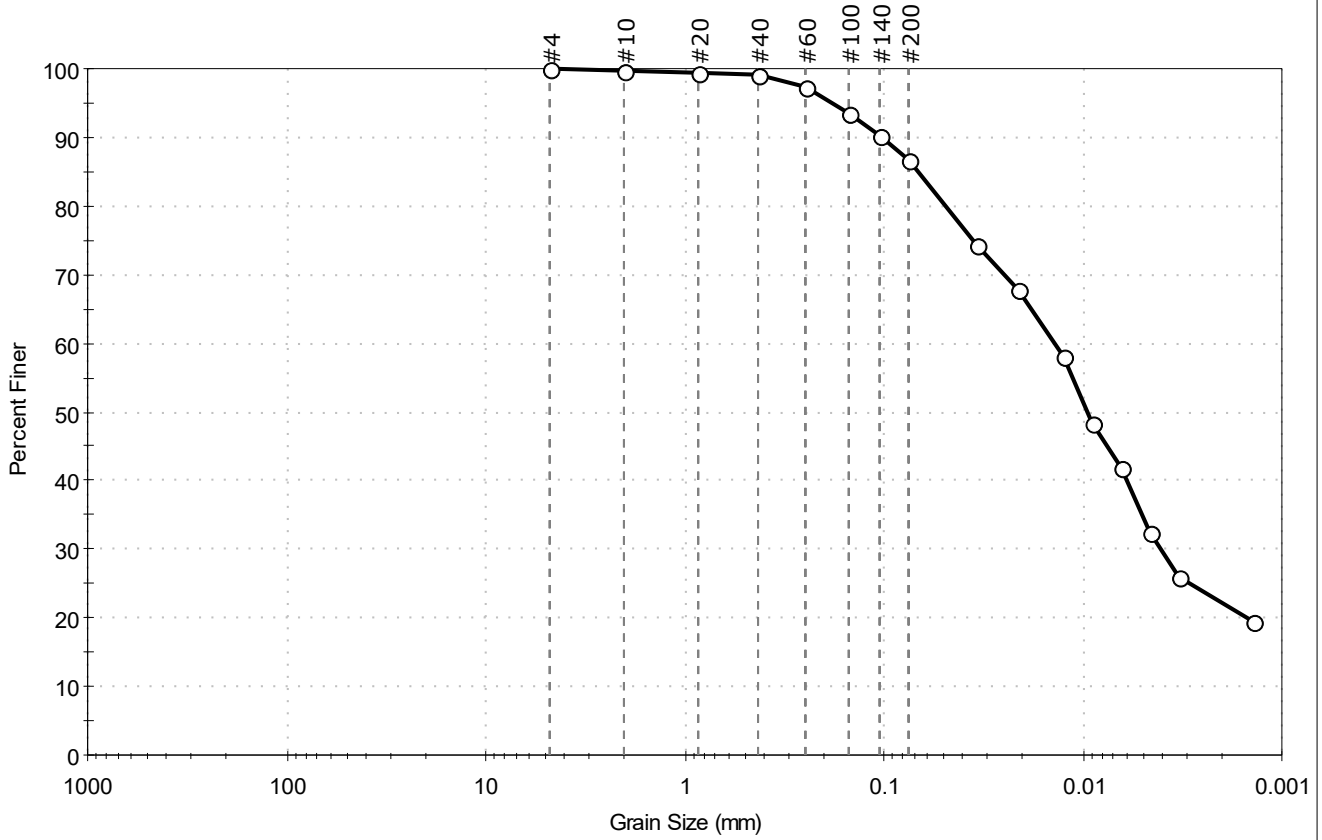
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (29))

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 Test Date: 10/24/19 Checked By: bfs  
 -1910 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0677 mm	D <sub>30</sub> = 0.0041 mm
D <sub>60</sub> = 0.0138 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0095 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

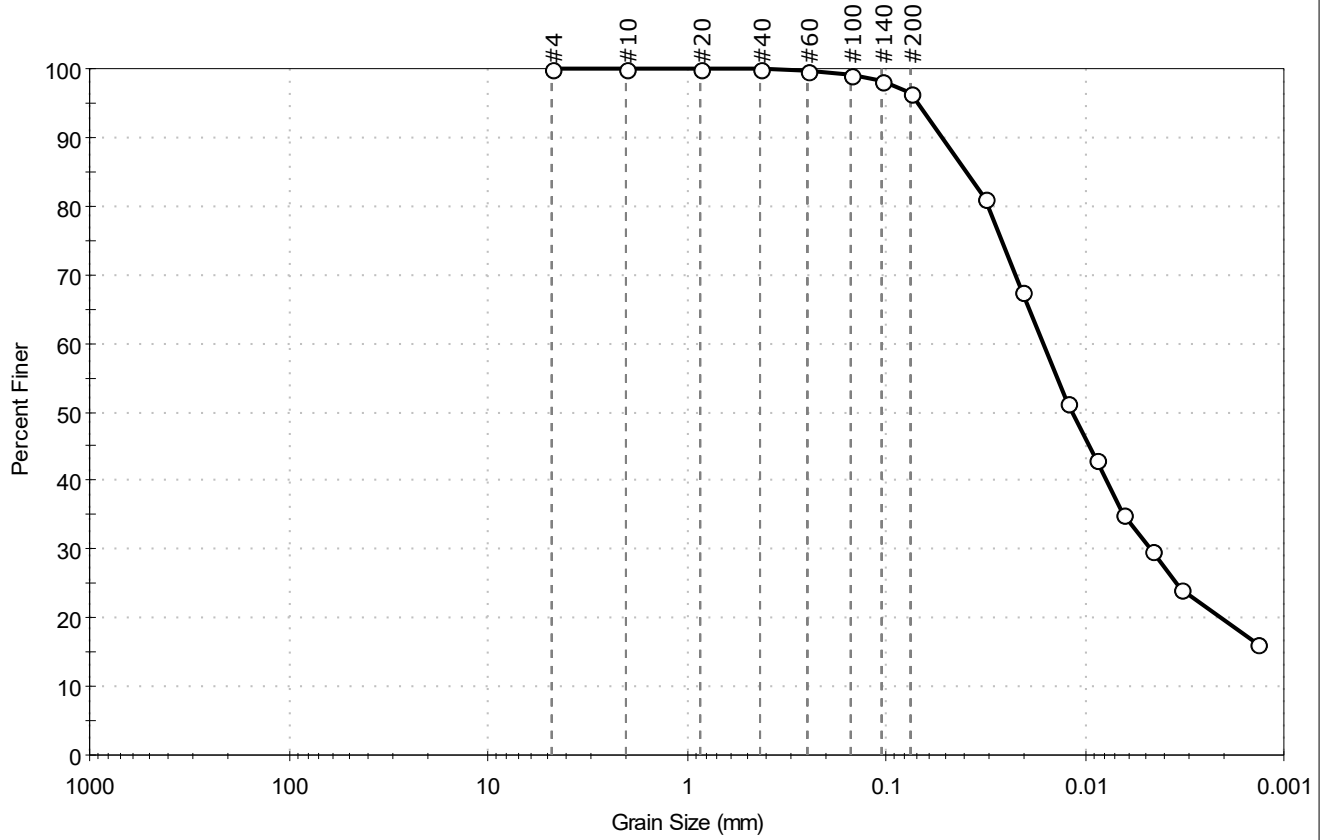
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (24))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-090SC-B-06-08	Test Date: 10/29/19
-1910 Depth: ---	Test Id: 527553
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark olive brown silt	Checked By: bfs
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 <sub>85</sub> = 0.0400 mm	D <sub>30</sub> = 0.0047 mm
D <sub>60</sub> = 0.0163 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0117 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (51))

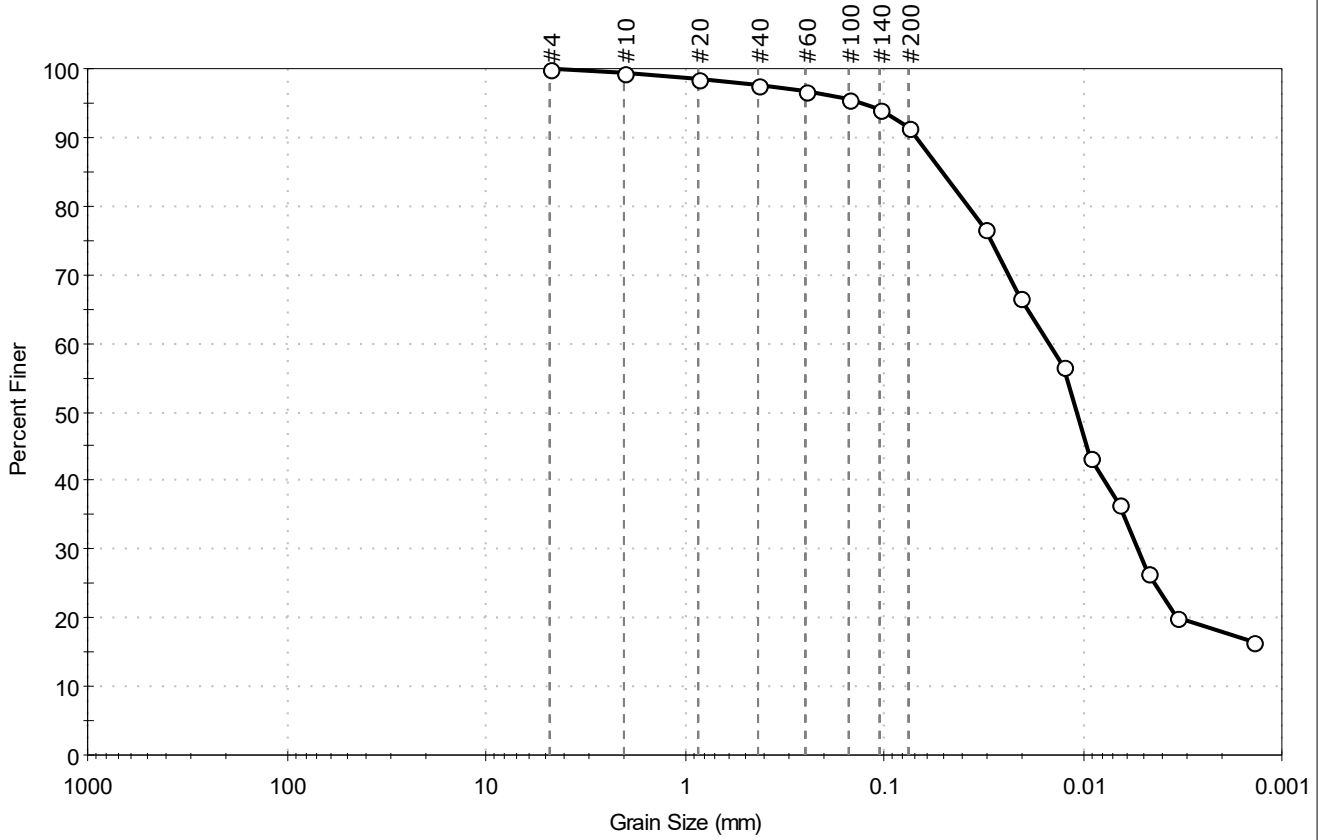
Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





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 est Date: 11/06/19 Checked By: bfs  
 -190923T 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0509 mm	D <sub>30</sub> = 0.0052 mm
D <sub>60</sub> = 0.0149 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0107 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

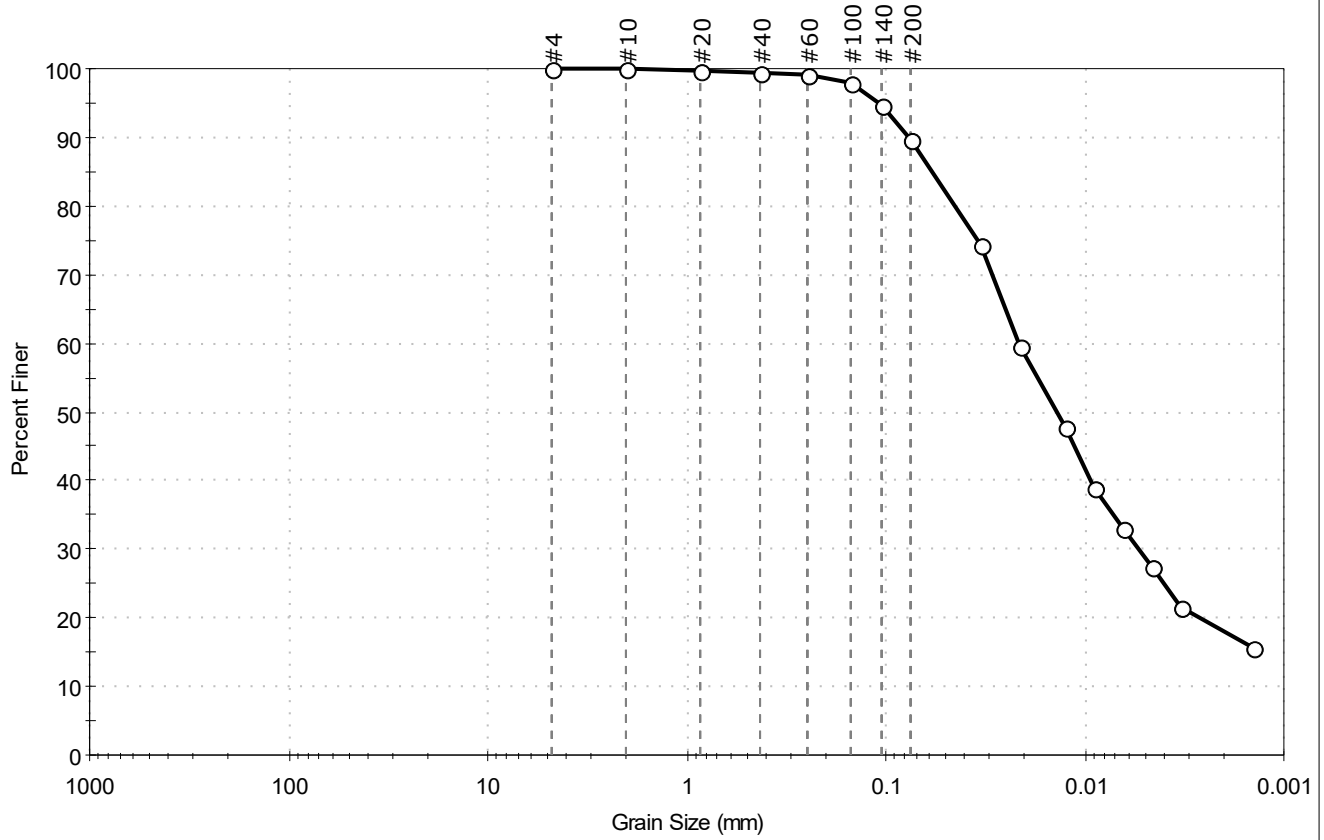
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (53))

<b>Sample/Test Description</b>
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-04-09 est Date: 11/06/19 Checked By: bfs  
 -190923T 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 <sub>85</sub> = 0.0583 mm	D <sub>30</sub> = 0.0054 mm
D <sub>60</sub> = 0.0216 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0138 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = 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

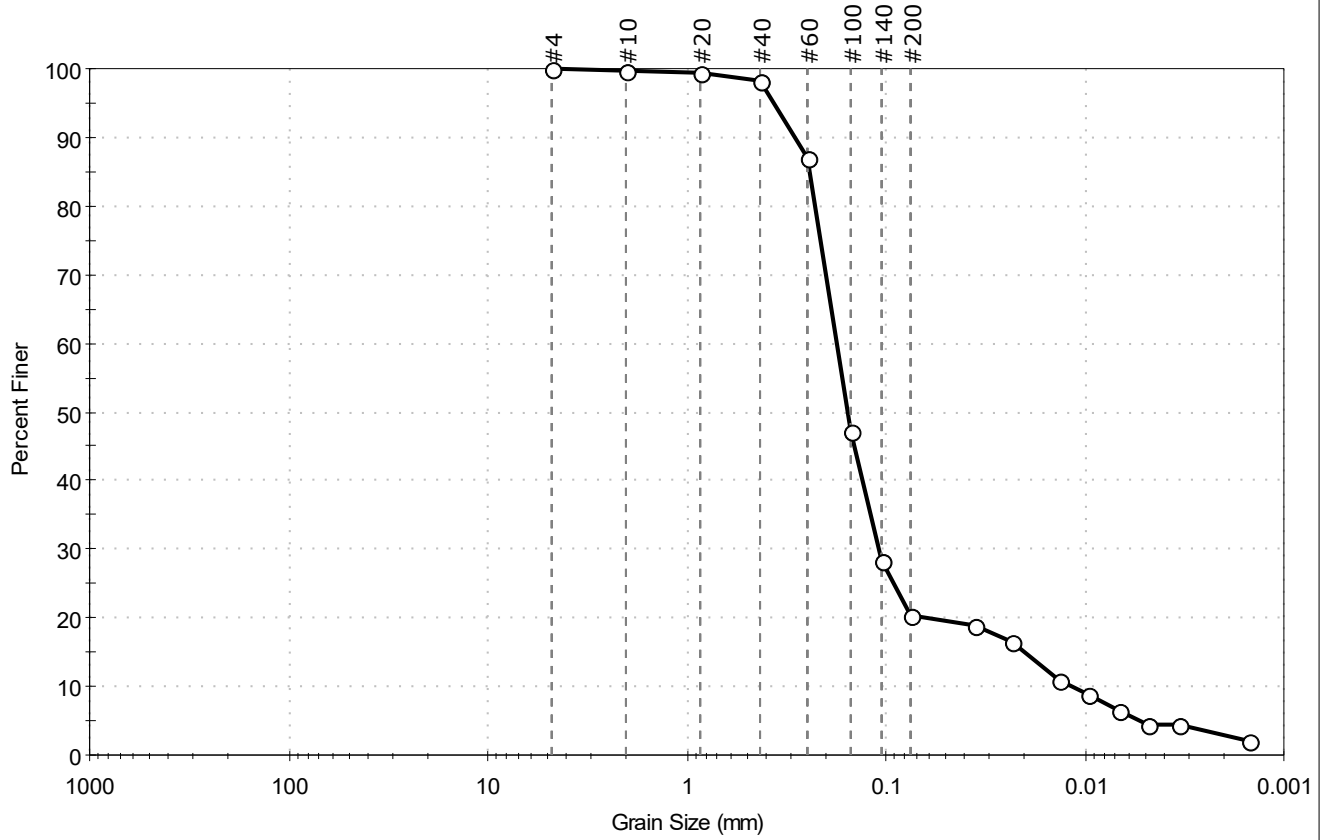
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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 est Date: 11/06/19 Checked By: bfs  
 -190923T 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2437 mm	D <sub>30</sub> = 0.1094 mm
D <sub>60</sub> = 0.1767 mm	D <sub>15</sub> = 0.0199 mm
D <sub>50</sub> = 0.1554 mm	D <sub>10</sub> = 0.0114 mm
C <sub>u</sub> = 15.500	C <sub>c</sub> = 5.941

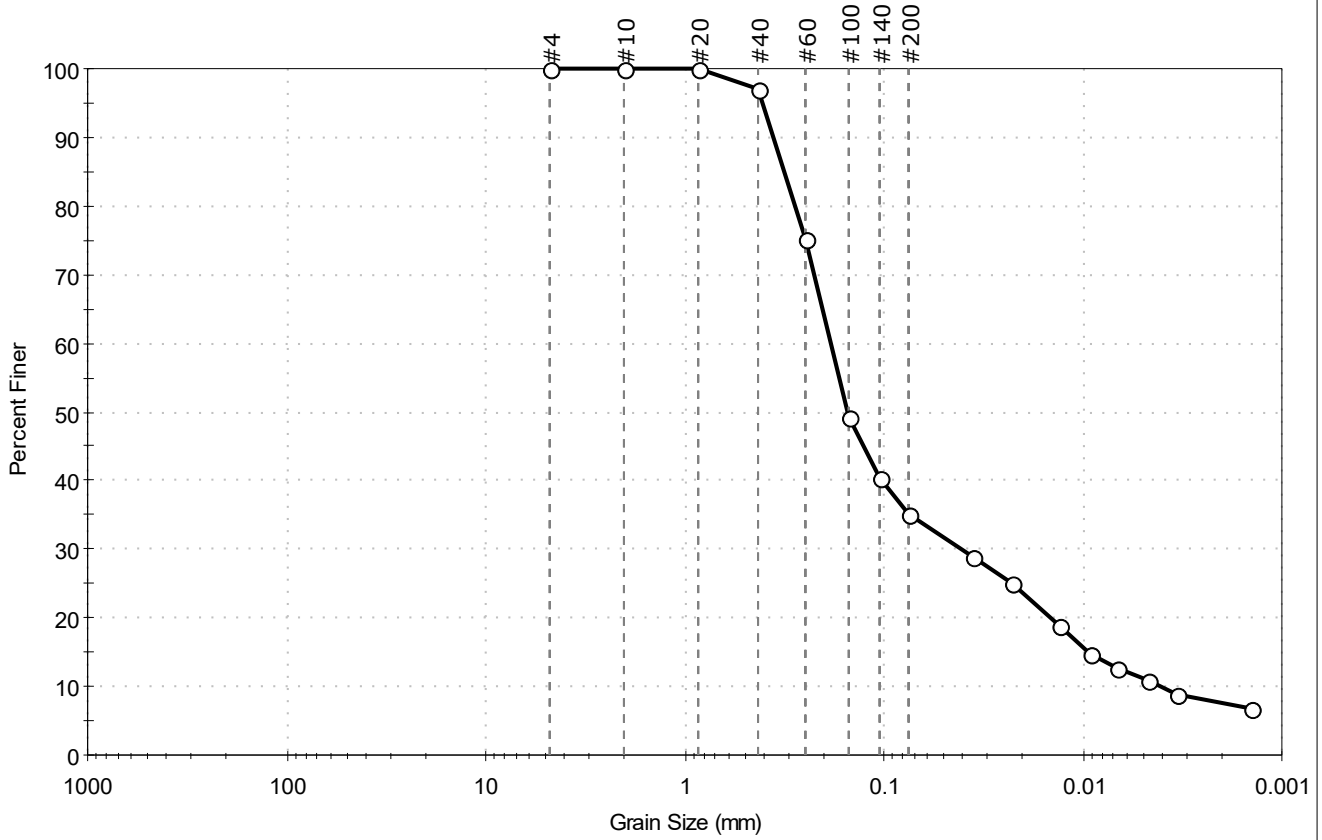
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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-62-64 est Date: 11/06/19 Checked By: bfs  
 -190923T 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 <sub>85</sub> = 0.3165 mm	D <sub>30</sub> = 0.0401 mm
D <sub>60</sub> = 0.1854 mm	D <sub>15</sub> = 0.0094 mm
D <sub>50</sub> = 0.1524 mm	D <sub>10</sub> = 0.0042 mm
C <sub>u</sub> = 44.143	C <sub>c</sub> = 2.065

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (0))

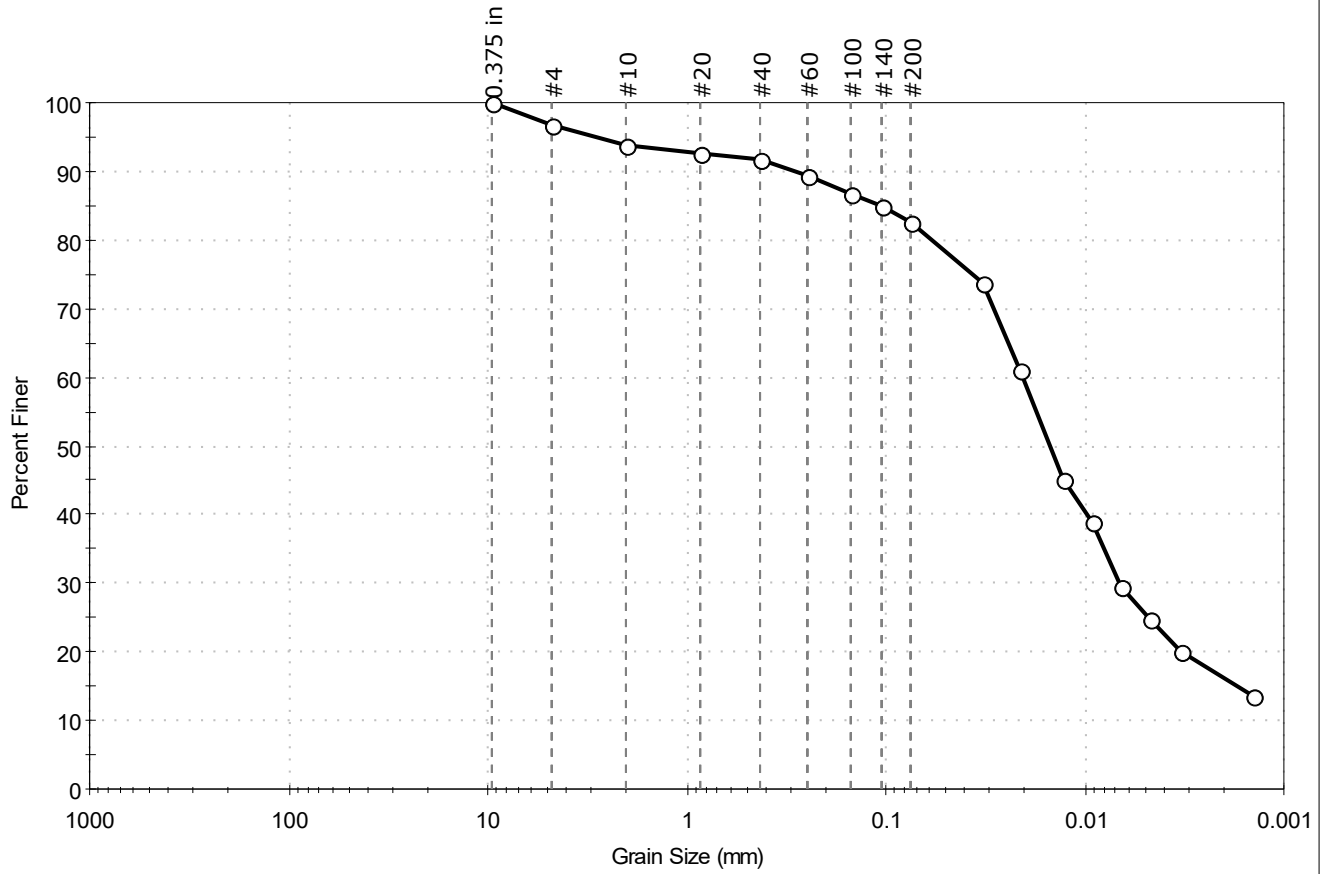
**Sample/Test Description**

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	Checked By: bfs
Sample ID: PDI-108SPT-00-6.4	Test Date: 11/01/19	Test Id: 527560	
-19100 Depth : ---			
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 <sub>85</sub> = 0.1081 mm	D <sub>30</sub> = 0.0067 mm
D <sub>60</sub> = 0.0206 mm	D <sub>15</sub> = 0.0017 mm
D <sub>50</sub> = 0.0149 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

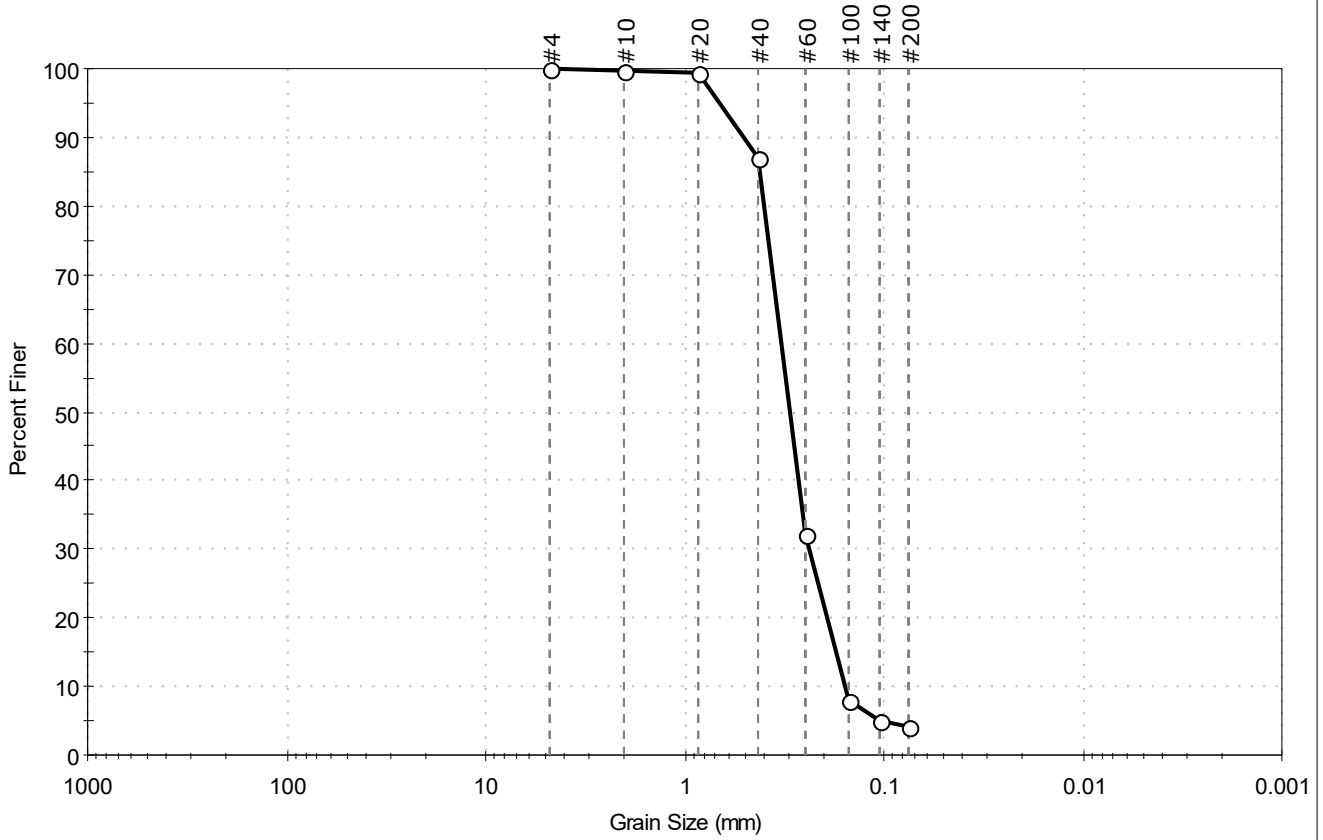
Classification	
ASTM	Elastic SILT with Sand (MH)
AASHTO	Clayey Soils (A-7-5 (41))

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	



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-108SPT-14-33.5	Test Date: 11/01/19	Test Id: 527561	
-1910 Depth: ---			
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 <sub>85</sub> = 0.4167 mm	D <sub>30</sub> = 0.2394 mm
D <sub>60</sub> = 0.3274 mm	D <sub>15</sub> = 0.1743 mm
D <sub>50</sub> = 0.2973 mm	D <sub>10</sub> = 0.1568 mm
C <sub>u</sub> = 2.088	C <sub>c</sub> = 1.116

**Classification**

ASTM Poorly graded SAND (SP)

AASHTO Fine Sand (A-3 (1))

**Sample/Test Description**

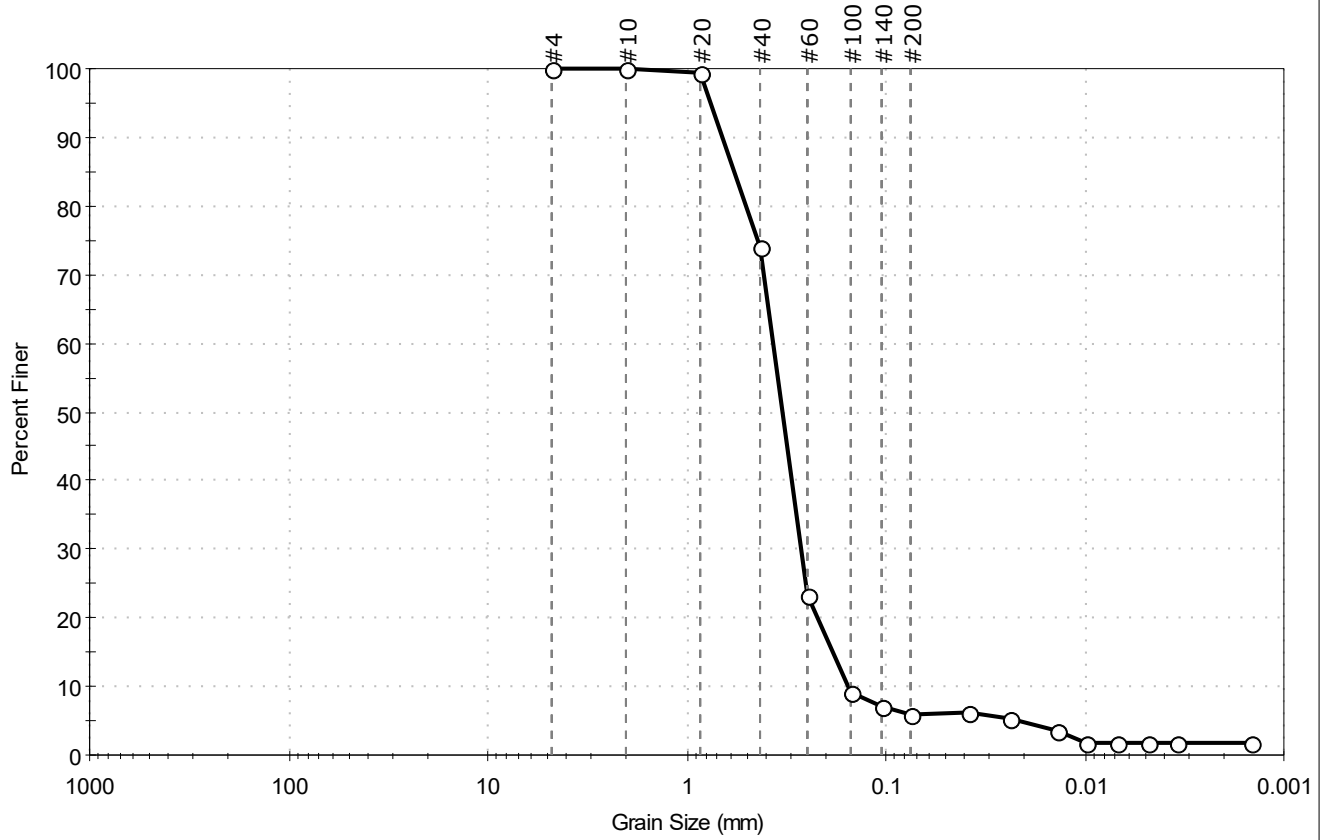
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-108SPT-33.5-66.5	Test Date: 11/01/19	Test Id: 527562	
-19 Depth: ---			
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		
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 <sub>85</sub> = 0.5740 mm	D <sub>30</sub> = 0.2682 mm
D <sub>60</sub> = 0.3670 mm	D <sub>15</sub> = 0.1849 mm
D <sub>50</sub> = 0.3306 mm	D <sub>10</sub> = 0.1541 mm
C <sub>u</sub> = 2.382	C <sub>c</sub> = 1.272

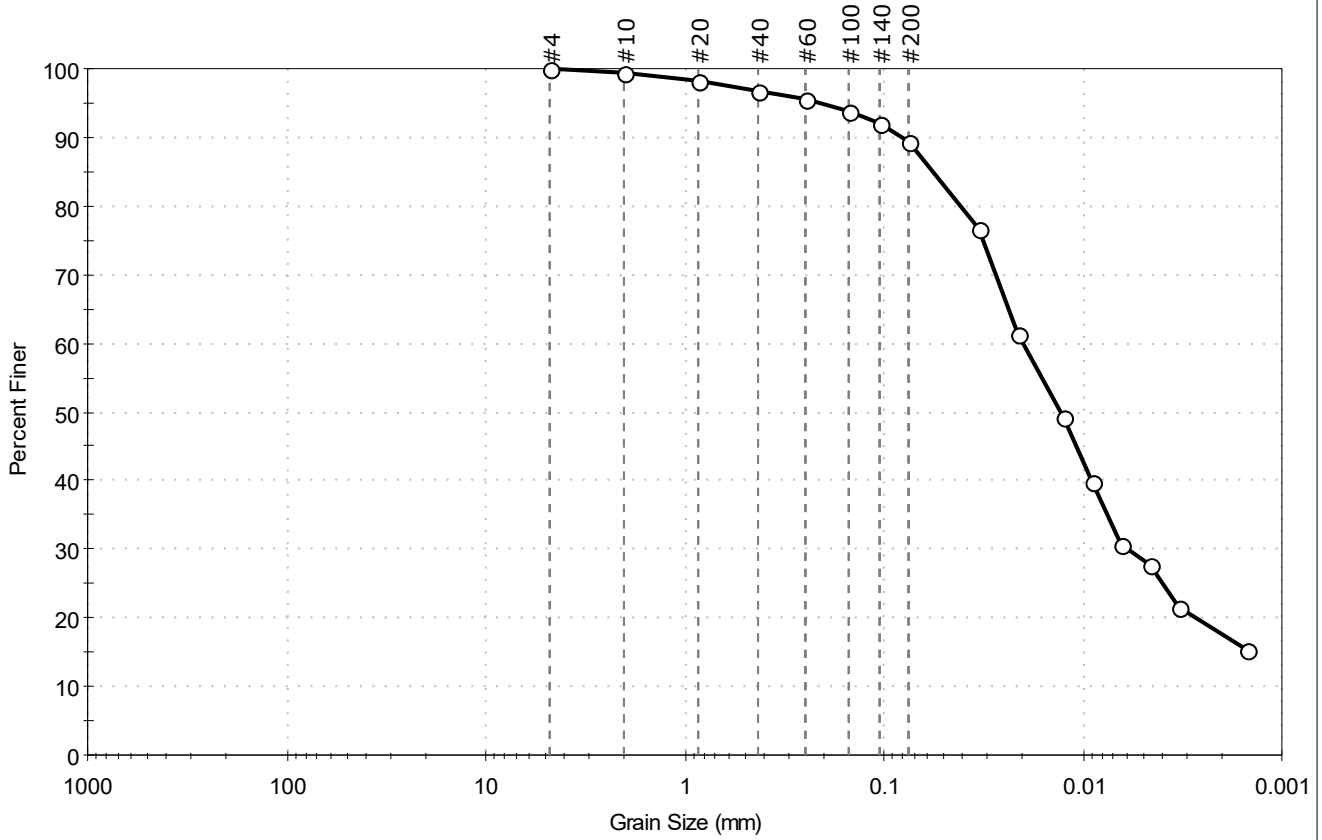
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



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 Test Date: 10/29/19 Checked By: bfs  
 -19100 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0563 mm	D <sub>30</sub> = 0.0060 mm
D <sub>60</sub> = 0.0199 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0130 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (48))

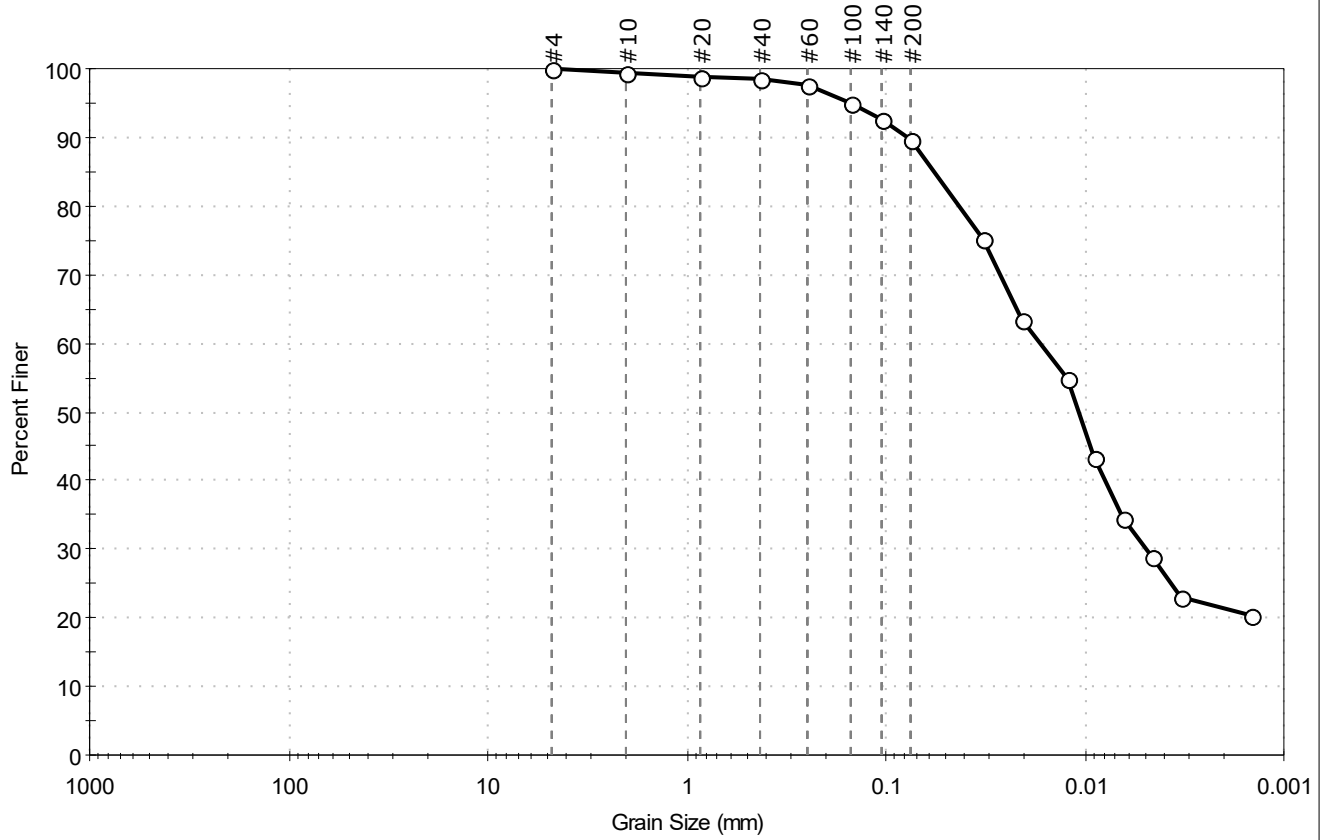
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





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

<b>Coefficients</b>	
D <sub>85</sub> = 0.0578 mm	D <sub>30</sub> = 0.0049 mm
D <sub>60</sub> = 0.0168 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0107 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

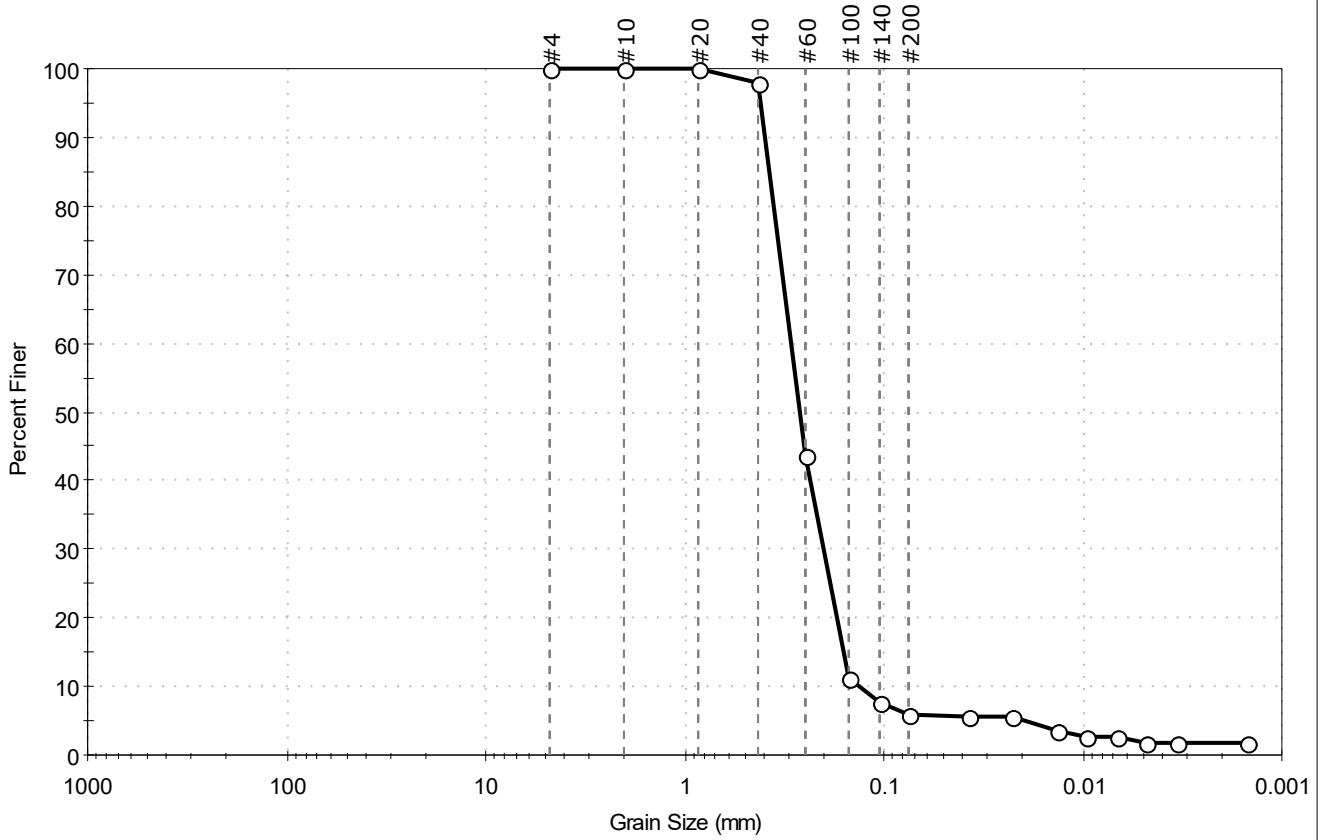
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (38))

<b>Sample/Test Description</b>
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-22-30 est Date: 10/29/19 Checked By: bfs  
 -191004T 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3747 mm	D <sub>30</sub> = 0.2015 mm
D <sub>60</sub> = 0.2933 mm	D <sub>15</sub> = 0.1592 mm
D <sub>50</sub> = 0.2659 mm	D <sub>10</sub> = 0.1336 mm
C <sub>u</sub> = 2.195	C <sub>c</sub> = 1.036

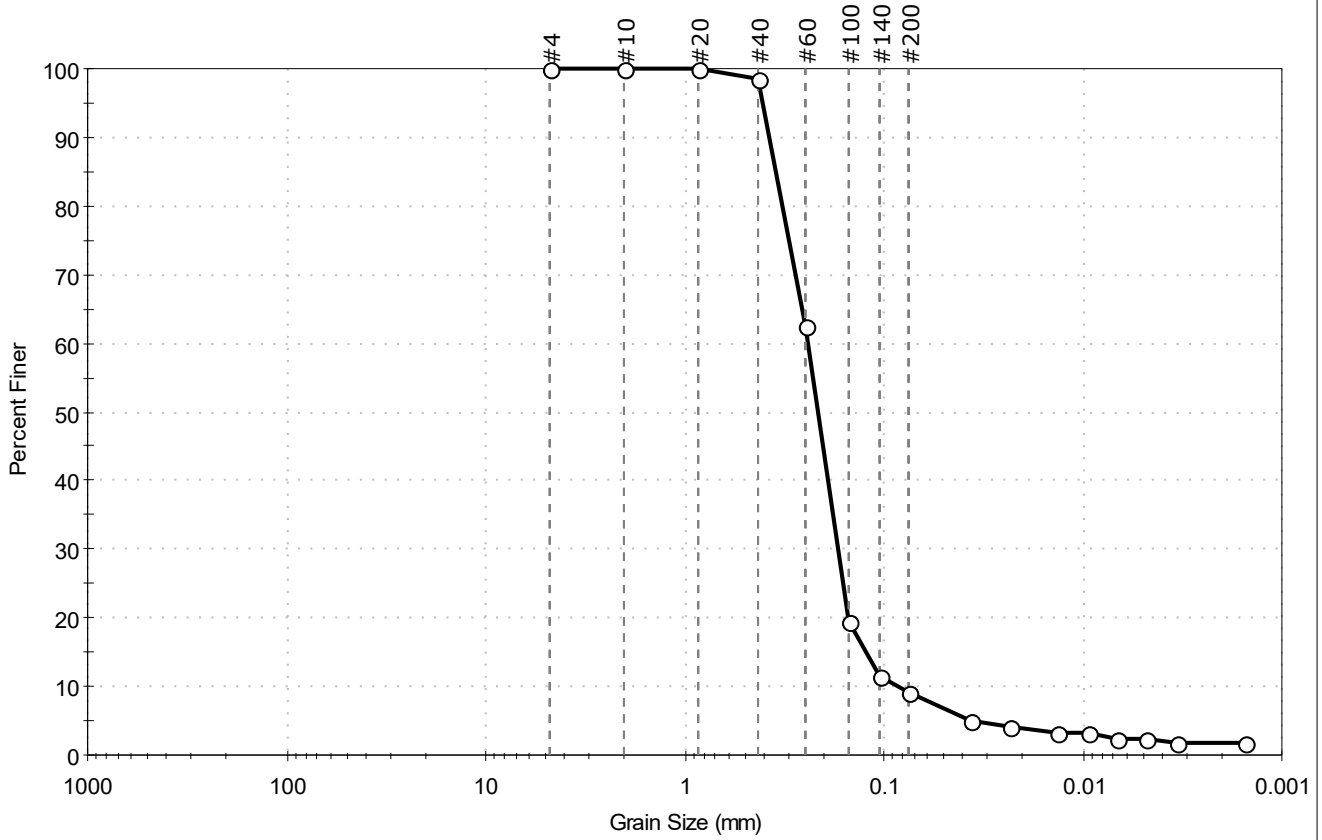
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

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

<b>Coefficients</b>	
D <sub>85</sub> = 0.3483 mm	D <sub>30</sub> = 0.1699 mm
D <sub>60</sub> = 0.2426 mm	D <sub>15</sub> = 0.1233 mm
D <sub>50</sub> = 0.2154 mm	D <sub>10</sub> = 0.0849 mm
C <sub>u</sub> = 2.857	C <sub>c</sub> = 1.401

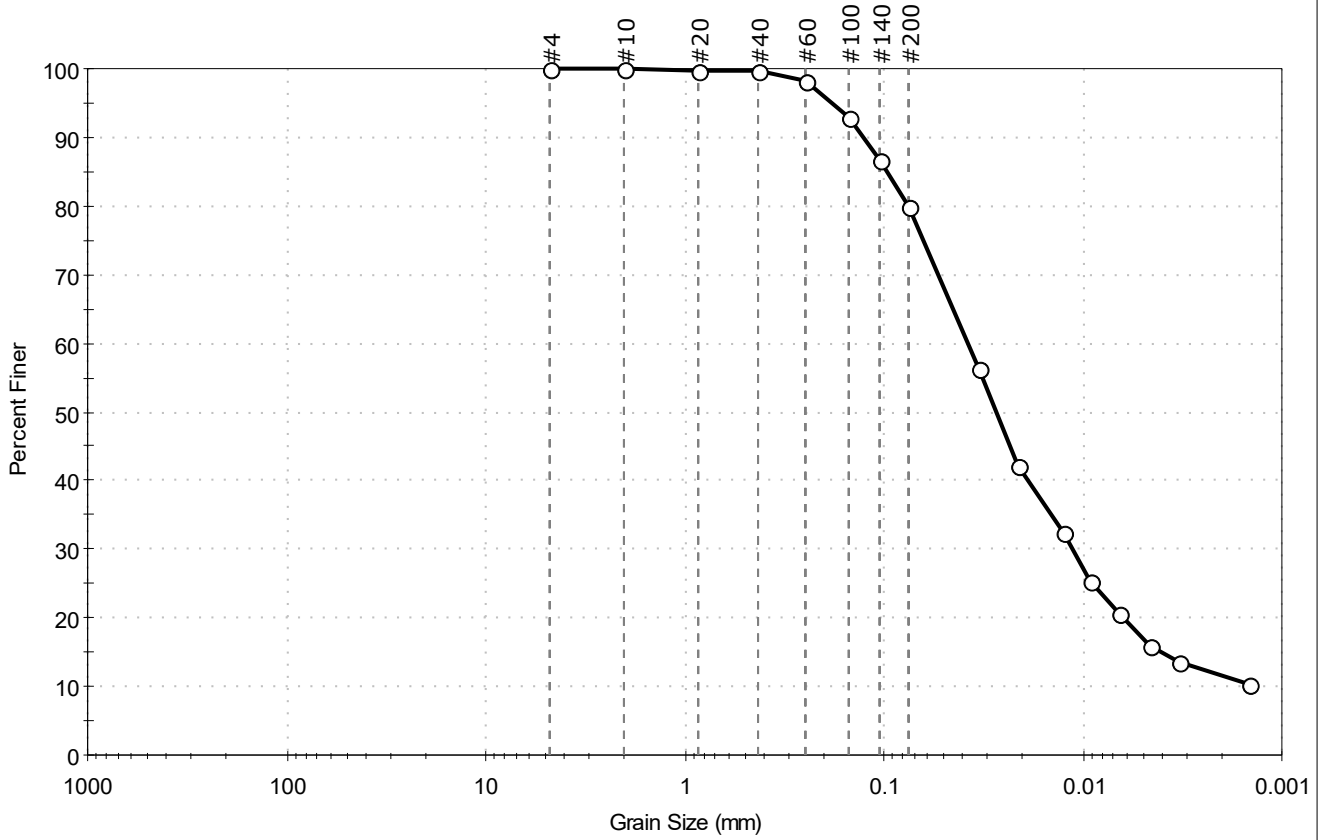
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-109SPT-48.3-51	Test Date: 10/29/19	Test Id: 527567	
-1910 Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0976 mm	D <sub>30</sub> = 0.0112 mm
D <sub>60</sub> = 0.0380 mm	D <sub>15</sub> = 0.0041 mm
D <sub>50</sub> = 0.0273 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

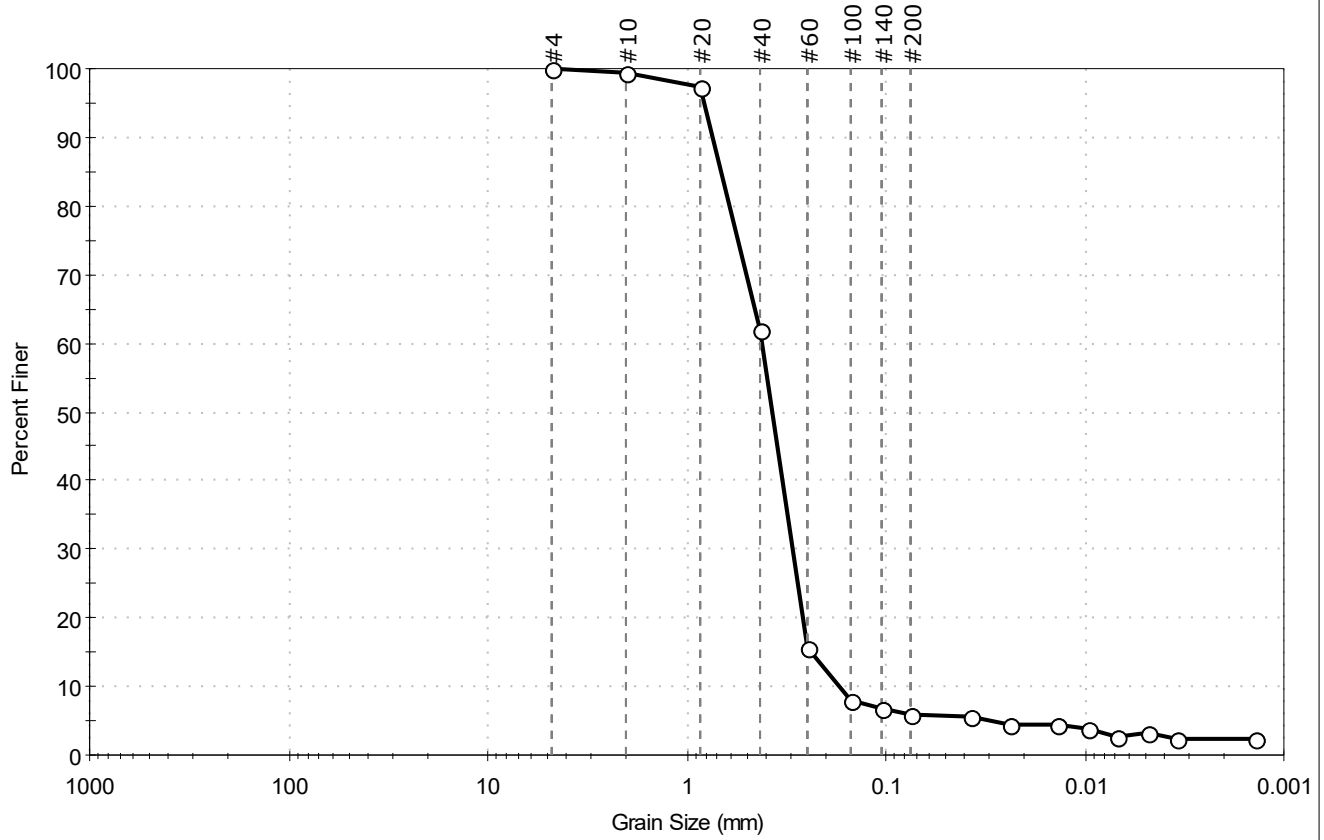
<b>Classification</b>	
<b>ASTM</b>	SILT with Sand (ML)
<b>AASHTO</b>	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-110 B-54-64.5	Test Date: 10/29/19
-19101 Depth: ---	Test Id: 527568
Test Comment: ---	Tested By: ckg
Visual Description: Moist, black sand with silt	Checked By: bfs
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		
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 <sub>85</sub> = 0.6681 mm	D <sub>30</sub> = 0.2948 mm
D <sub>60</sub> = 0.4158 mm	D <sub>15</sub> = 0.2399 mm
D <sub>50</sub> = 0.3707 mm	D <sub>10</sub> = 0.1717 mm
C <sub>u</sub> = 2.422	C <sub>c</sub> = 1.217

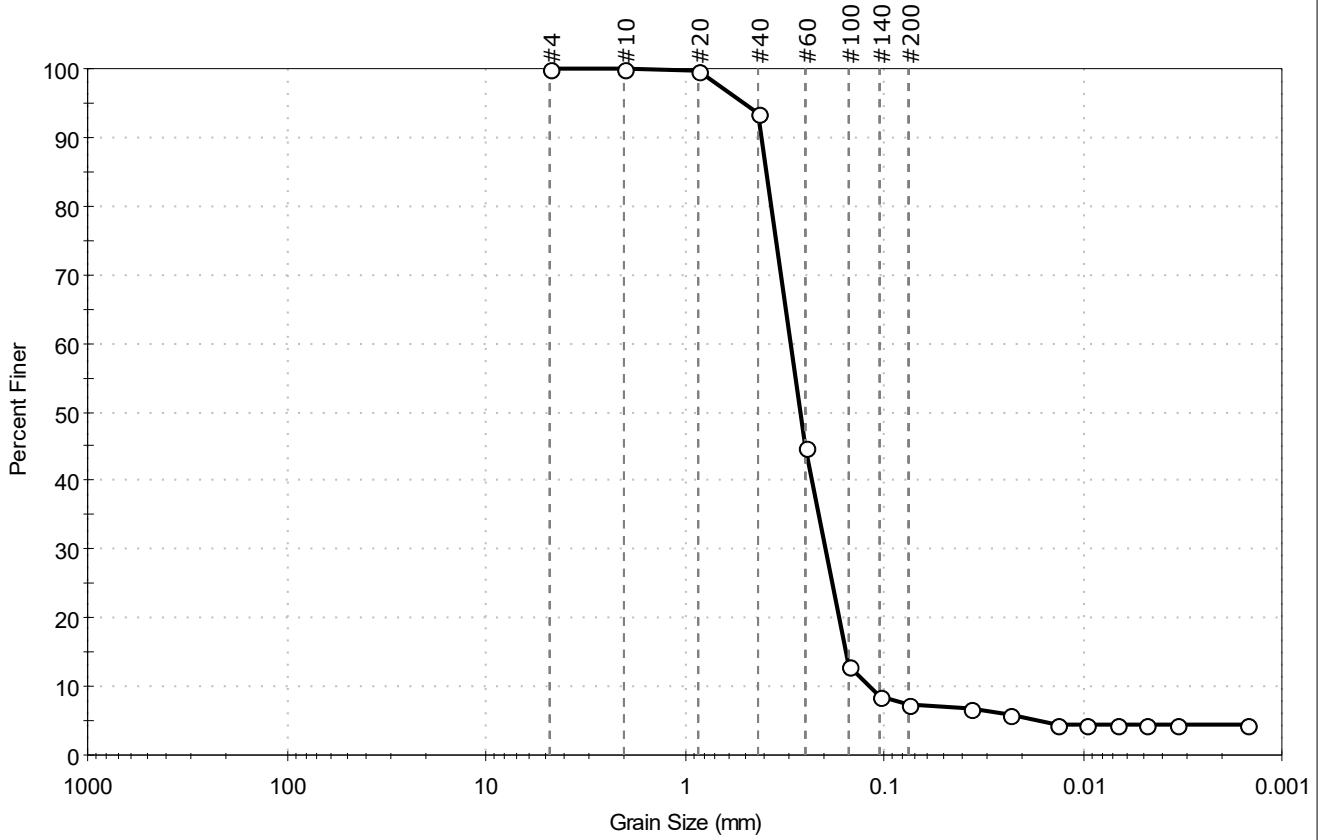
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



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 est Date: 10/29/19 Checked By: bfs  
 -191010T 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3872 mm	D <sub>30</sub> = 0.1973 mm
D <sub>60</sub> = 0.2950 mm	D <sub>15</sub> = 0.1552 mm
D <sub>50</sub> = 0.2646 mm	D <sub>10</sub> = 0.1184 mm
C <sub>u</sub> = 2.492	C <sub>c</sub> = 1.115

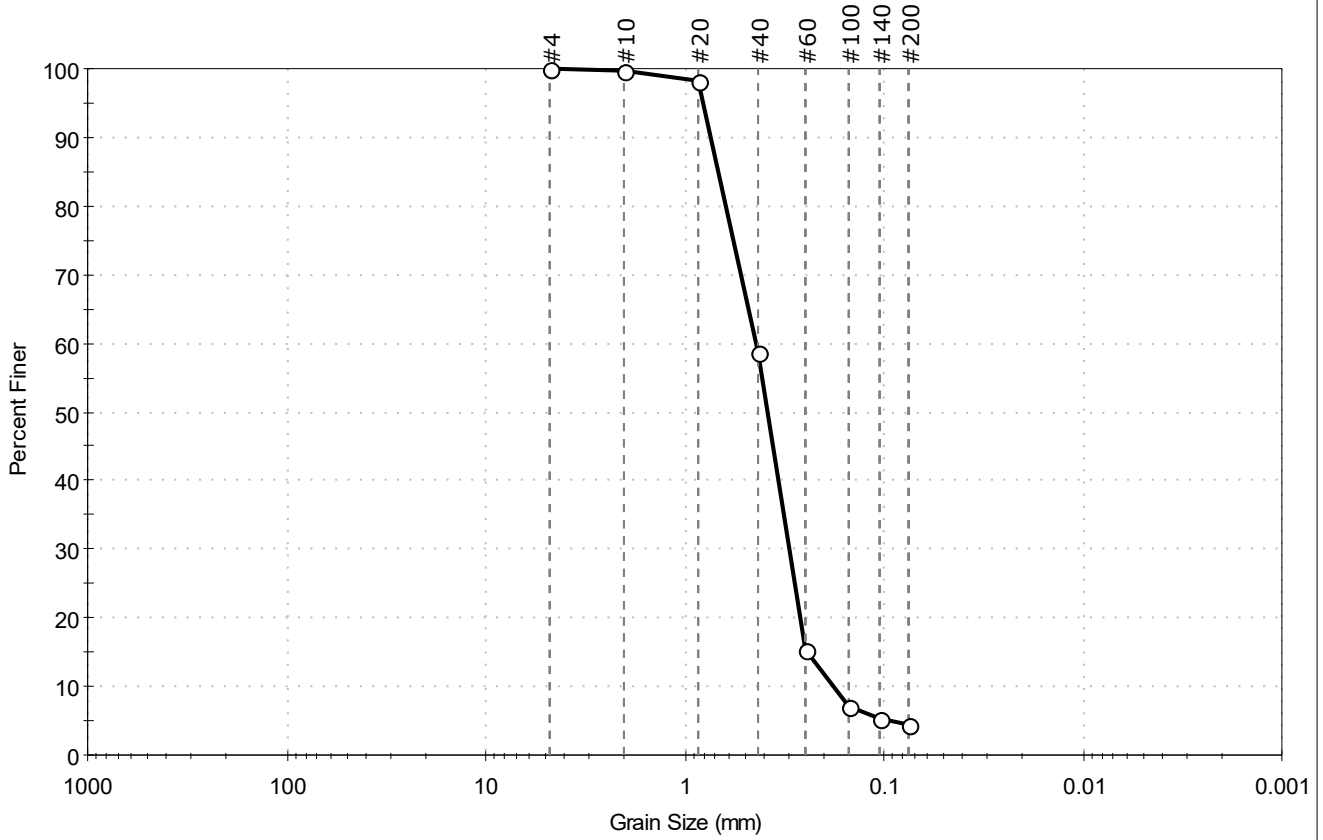
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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-110SPT-32-45 est Date: 10/30/19 Checked By: bfs  
 -191010T 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 <sub>85</sub> = 0.6746 mm	D <sub>30</sub> = 0.2994 mm
D <sub>60</sub> = 0.4347 mm	D <sub>15</sub> = 0.2464 mm
D <sub>50</sub> = 0.3821 mm	D <sub>10</sub> = 0.1799 mm
C <sub>u</sub> = 2.416	C <sub>c</sub> = 1.146

**Classification**

<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

**Sample/Test Description**

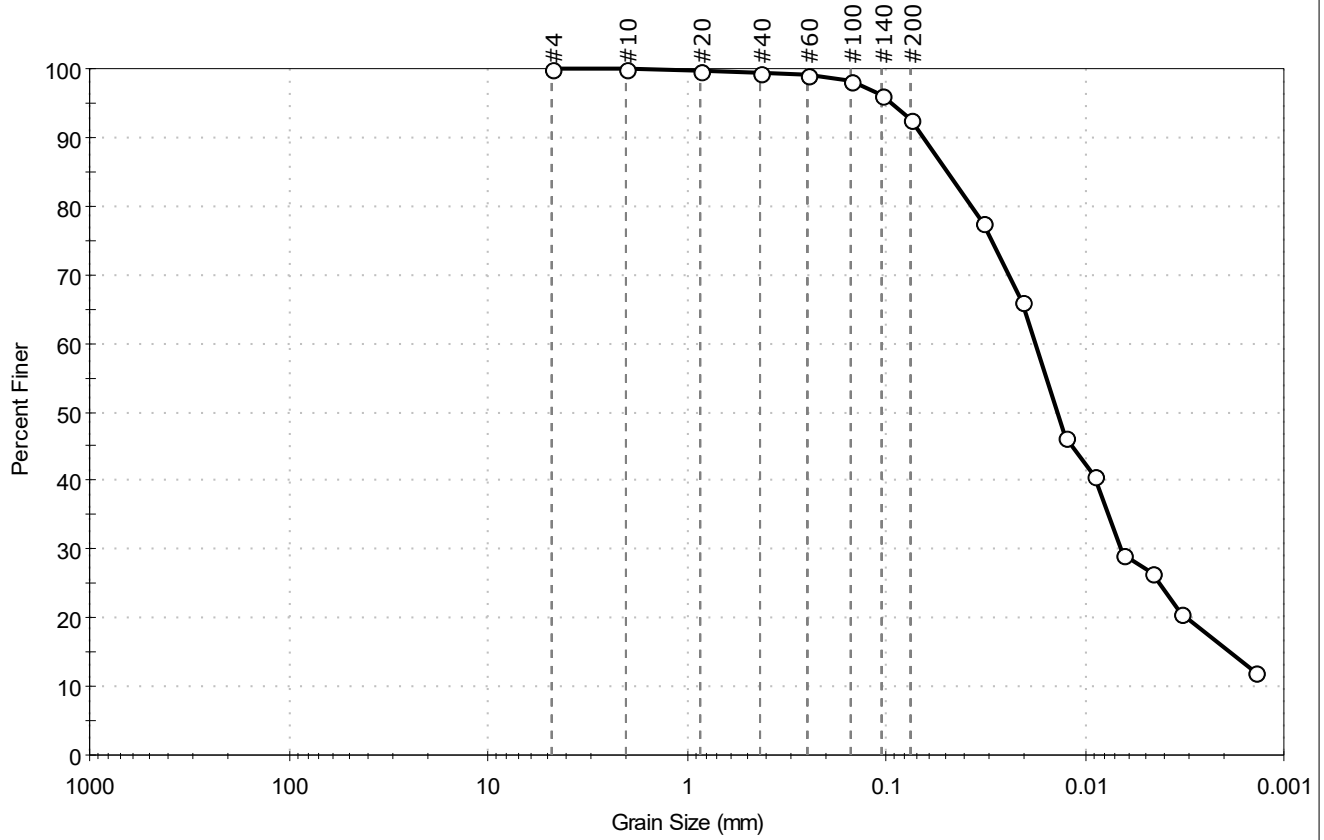
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-112SPT-00-6.5	Test Date: 11/05/19
-19100 Depth: ---	Test Id: 527571
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark brown silt	Checked By: bfs
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.0488 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0138 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<u>Classification</u>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (45))

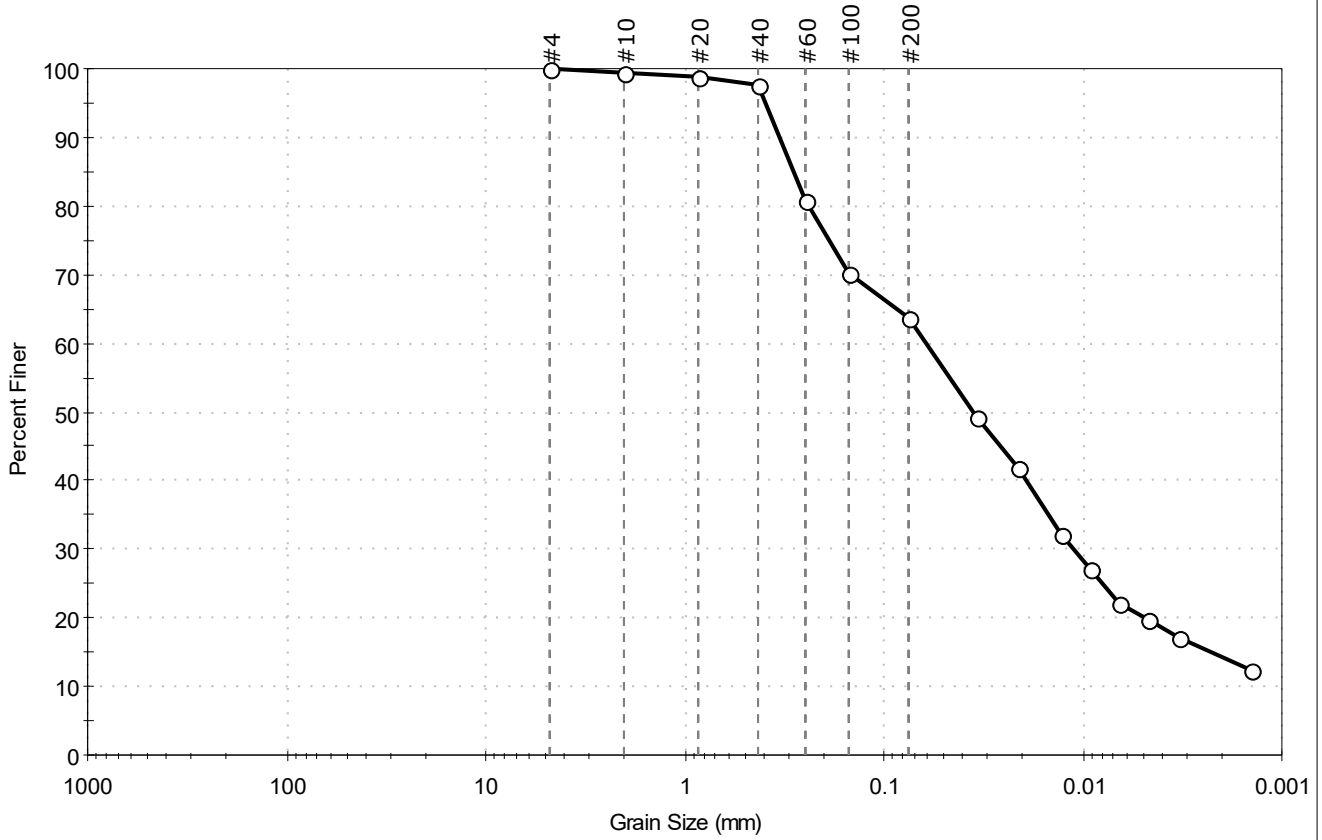
<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-112SPT-07-11.5	Test Date: 11/01/19	Test Id: 527572	
-1910 Depth: ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2849 mm	D <sub>30</sub> = 0.0112 mm
D <sub>60</sub> = 0.0615 mm	D <sub>15</sub> = 0.0023 mm
D <sub>50</sub> = 0.0357 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

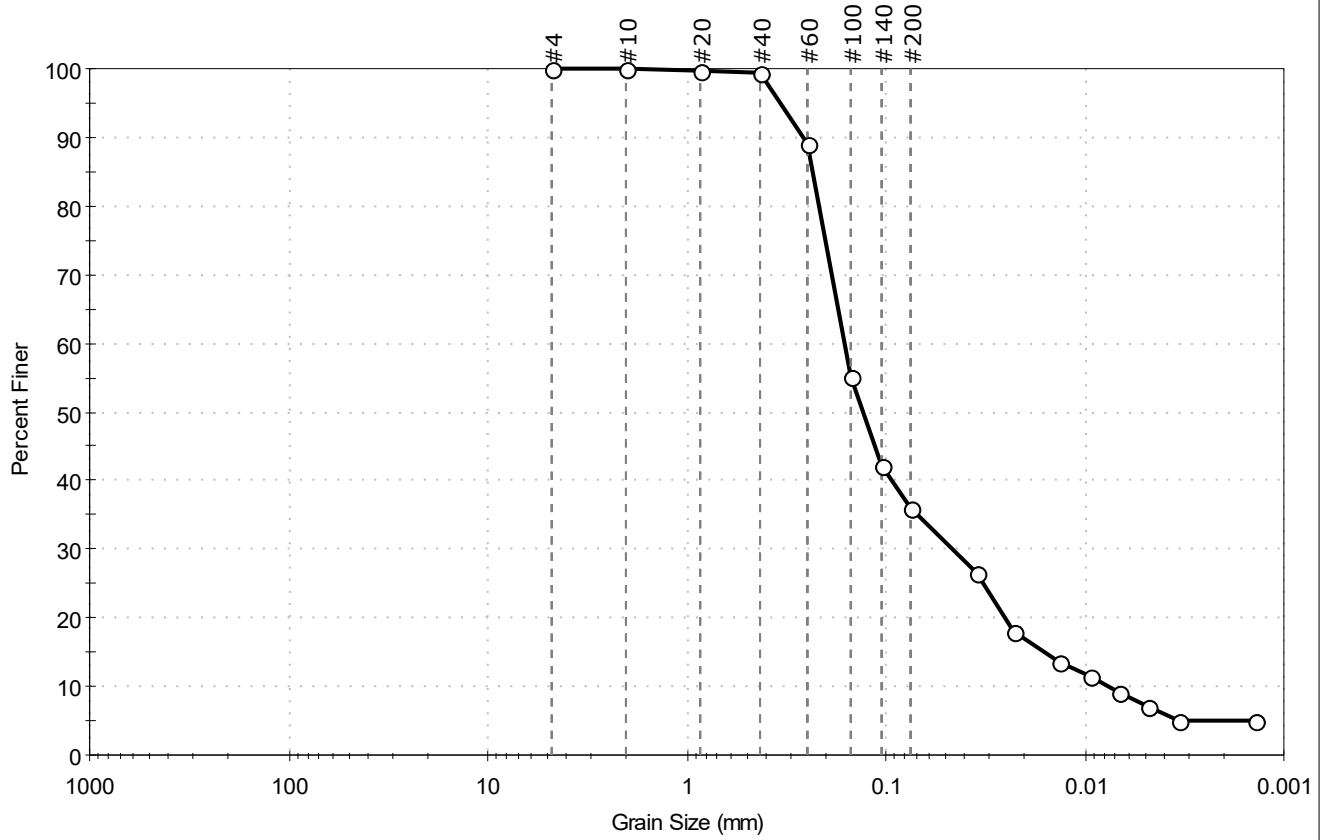
<b>Classification</b>	
<b>ASTM</b>	Sandy Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (11))

<b>Sample/Test Description</b>
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-11.5-26.5 Test Date: 10/31/19 Checked By: bfs  
 -19 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 <sub>85</sub> = 0.2350 mm	D <sub>30</sub> = 0.0465 mm
D <sub>60</sub> = 0.1614 mm	D <sub>15</sub> = 0.0159 mm
D <sub>50</sub> = 0.1309 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 21.520	C <sub>c</sub> = 1.786

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (0))

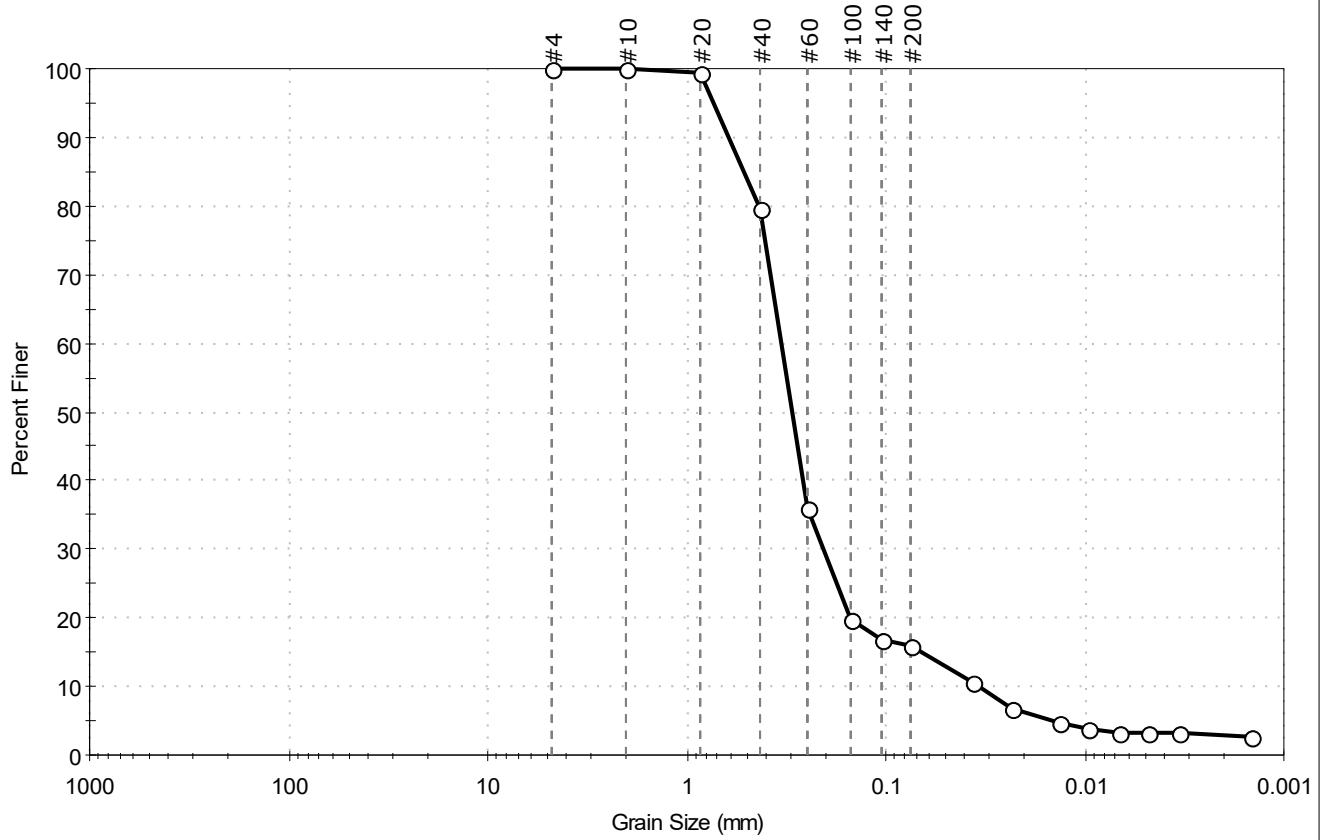
**Sample/Test Description**

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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-112SPT-37.5-58	Test Date: 10/29/19
-1910 Depth: ---	Test Id: 527574
Test Comment: ---	Tested By: ckg
Visual Description: Moist, very dark olive gray silty sand	Checked By: bfs
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.5121 mm	D <sub>30</sub> = 0.2062 mm
D <sub>60</sub> = 0.3344 mm	D <sub>15</sub> = 0.0671 mm
D <sub>50</sub> = 0.2961 mm	D <sub>10</sub> = 0.0339 mm
C <sub>u</sub> = 9.864	C <sub>c</sub> = 3.751

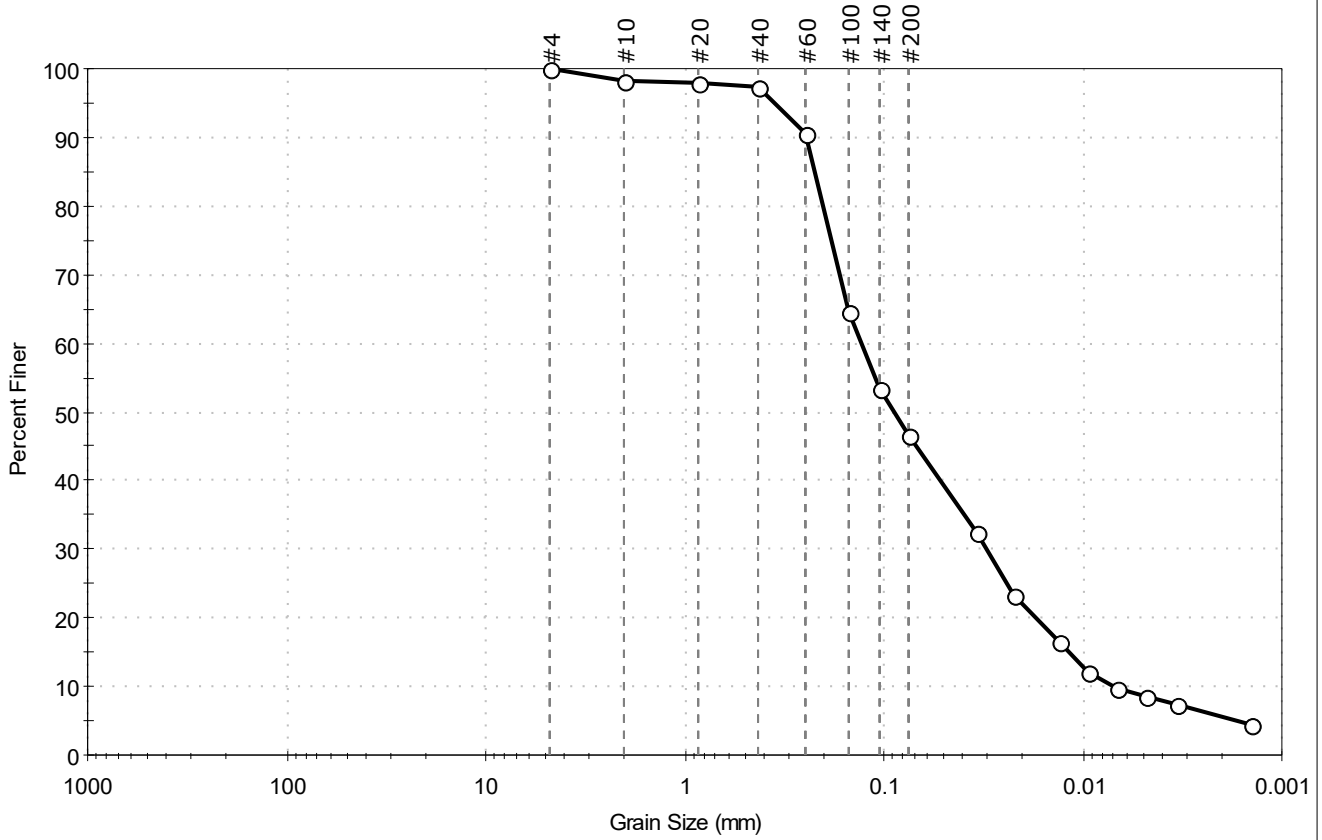
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
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 Test Date: 11/05/19 Checked By: bfs  
 -19101 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 <sub>85</sub> = 0.2243 mm	D <sub>30</sub> = 0.0305 mm
D <sub>60</sub> = 0.1298 mm	D <sub>15</sub> = 0.0117 mm
D <sub>50</sub> = 0.0888 mm	D <sub>10</sub> = 0.0070 mm
C <sub>u</sub> = 18.543	C <sub>c</sub> = 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

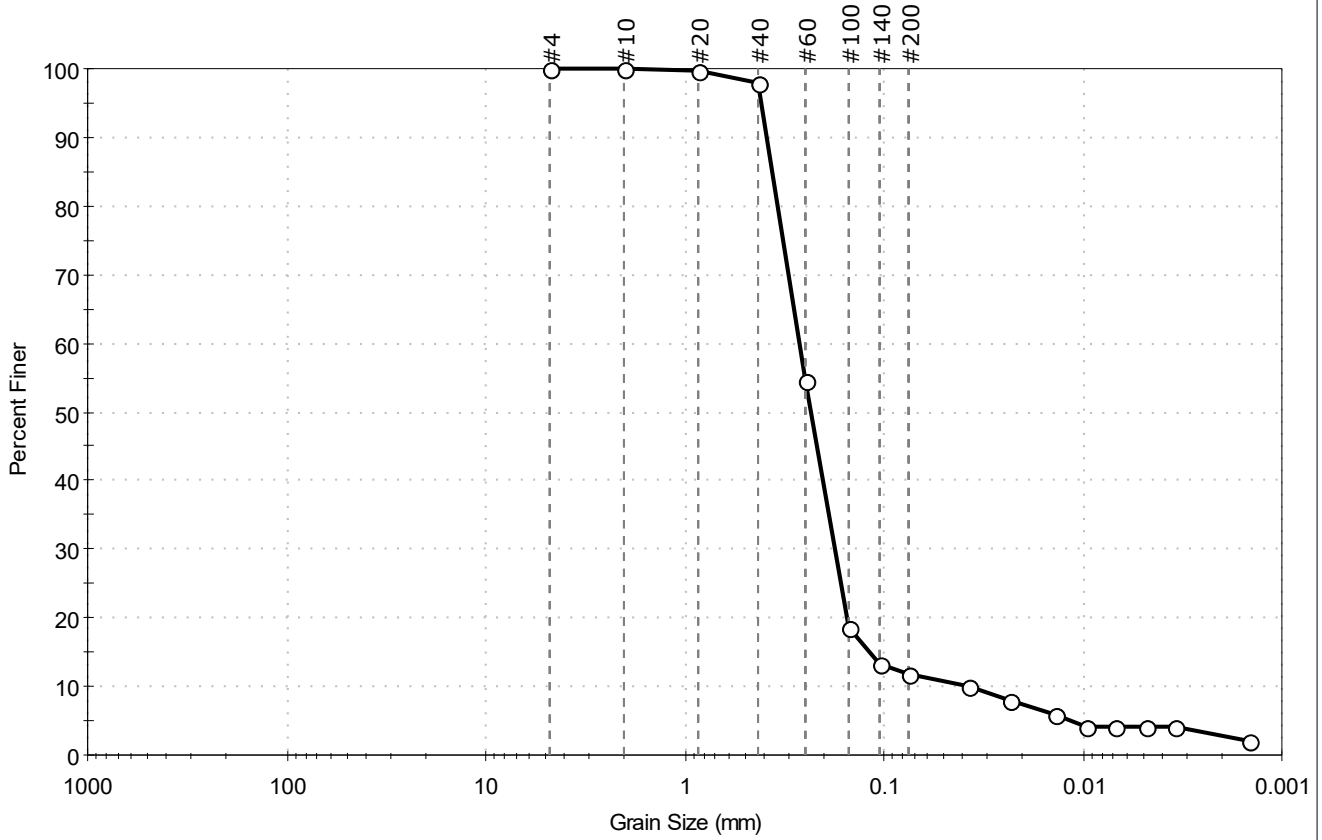
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-113SPT-16-22	Test Date: 10/31/19
-19101 Depth: ---	Test Id: 527576
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark grayish brown sand with silt	Checked By: bfs
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3627 mm	D <sub>30</sub> = 0.1766 mm
D <sub>60</sub> = 0.2675 mm	D <sub>15</sub> = 0.1182 mm
D <sub>50</sub> = 0.2347 mm	D <sub>10</sub> = 0.0377 mm
C <sub>u</sub> = 7.095	C <sub>c</sub> = 3.093

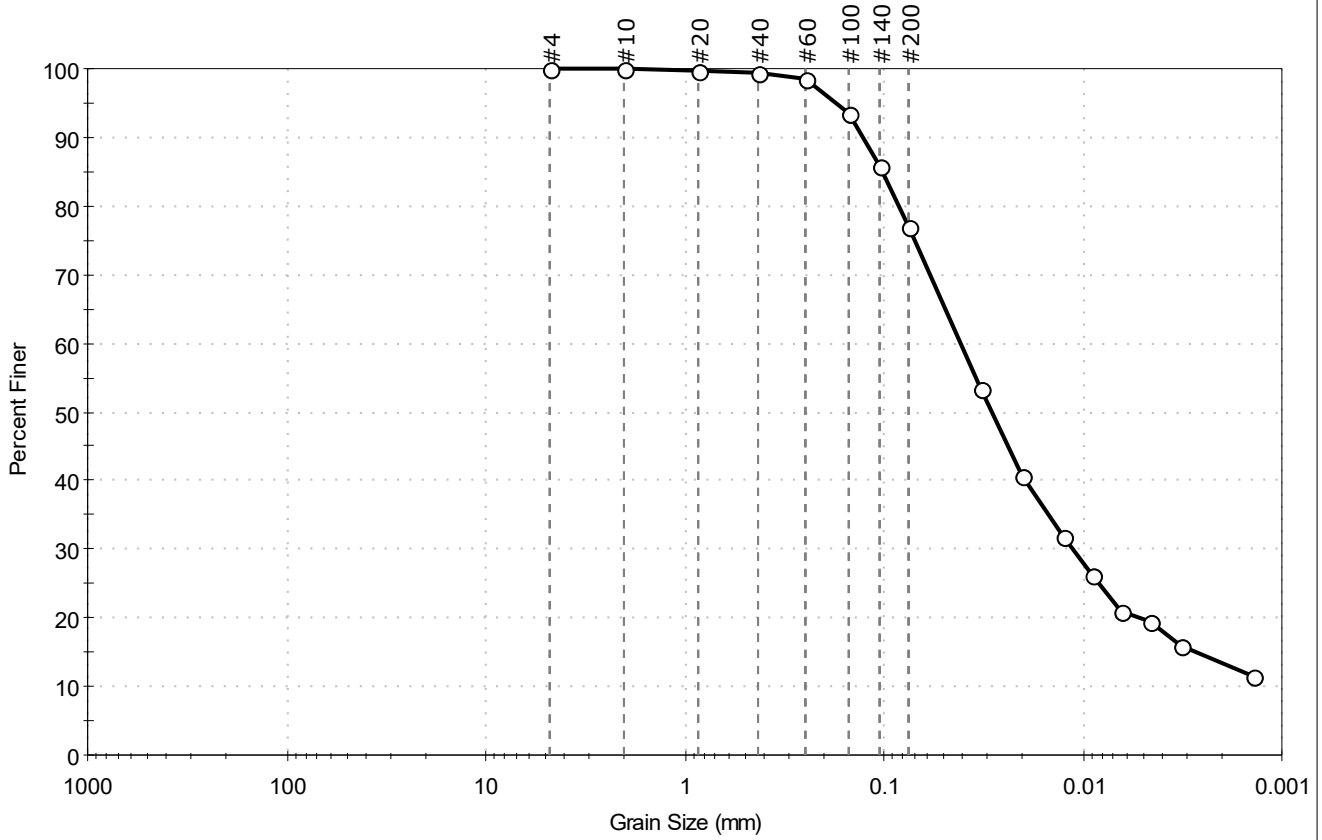
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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-22-25.2 Test Date: 10/24/19 Checked By: bfs  
 -1910 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1025 mm	D <sub>30</sub> = 0.0111 mm
D <sub>60</sub> = 0.0407 mm	D <sub>15</sub> = 0.0028 mm
D <sub>50</sub> = 0.0283 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

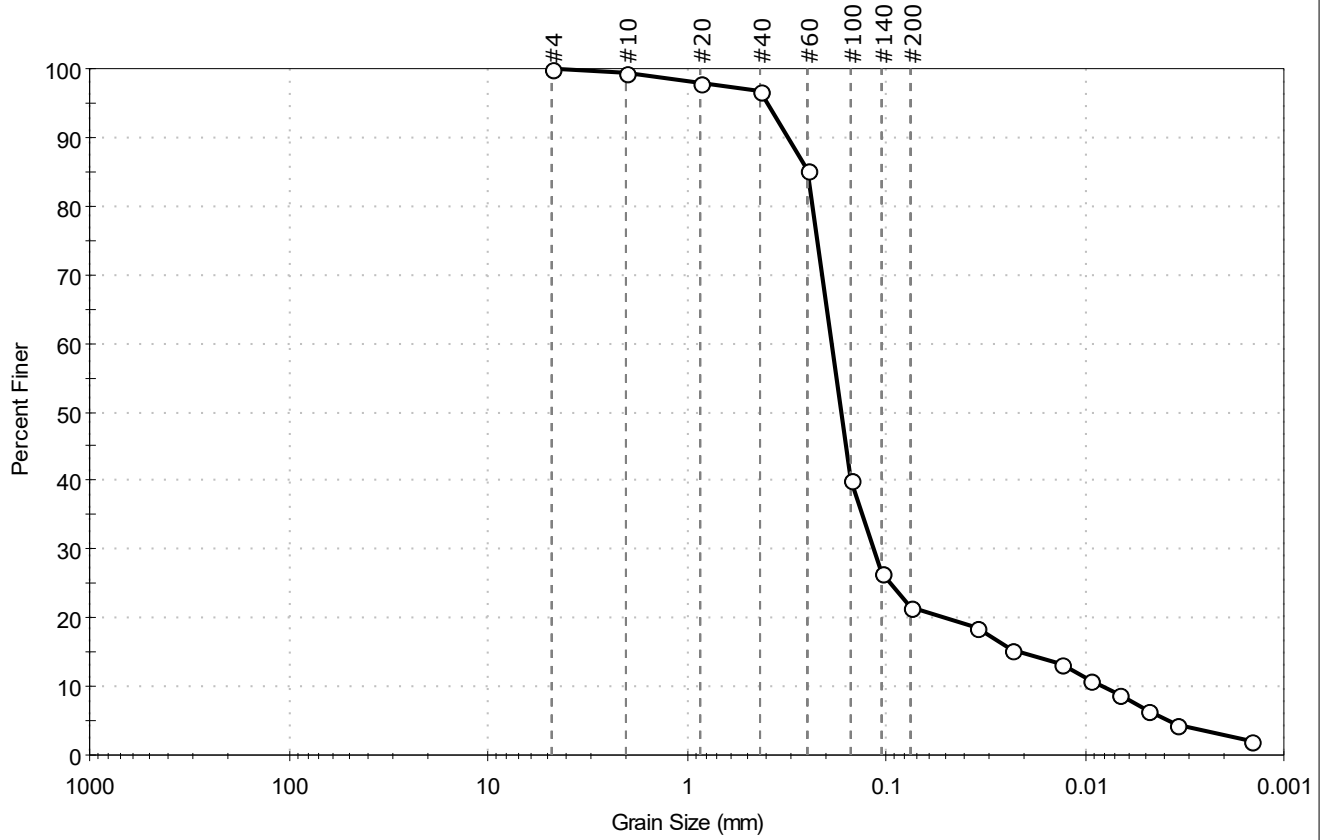
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (18))

<b>Sample/Test Description</b>	
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 Test Date: 11/01/19 Checked By: bfs  
 -19 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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2492 mm	D <sub>30</sub> = 0.1158 mm
D <sub>60</sub> = 0.1879 mm	D <sub>15</sub> = 0.0208 mm
D <sub>50</sub> = 0.1679 mm	D <sub>10</sub> = 0.0081 mm
C <sub>u</sub> = 23.198	C <sub>c</sub> = 8.811

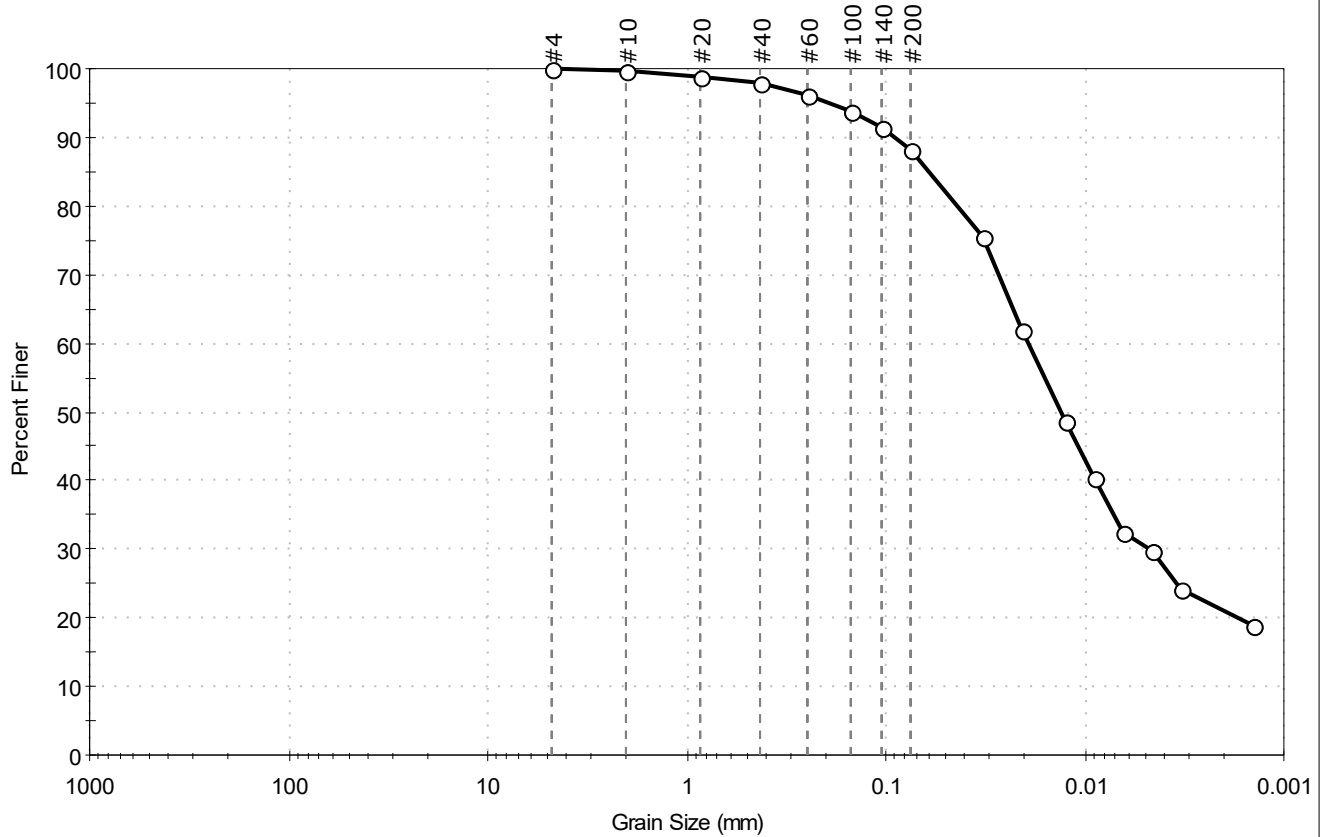
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>	
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-00-7.5 Test Date: 11/01/19 Checked By: bfs  
 -19100 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0610 mm	D <sub>30</sub> = 0.0048 mm
D <sub>60</sub> = 0.0193 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0132 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

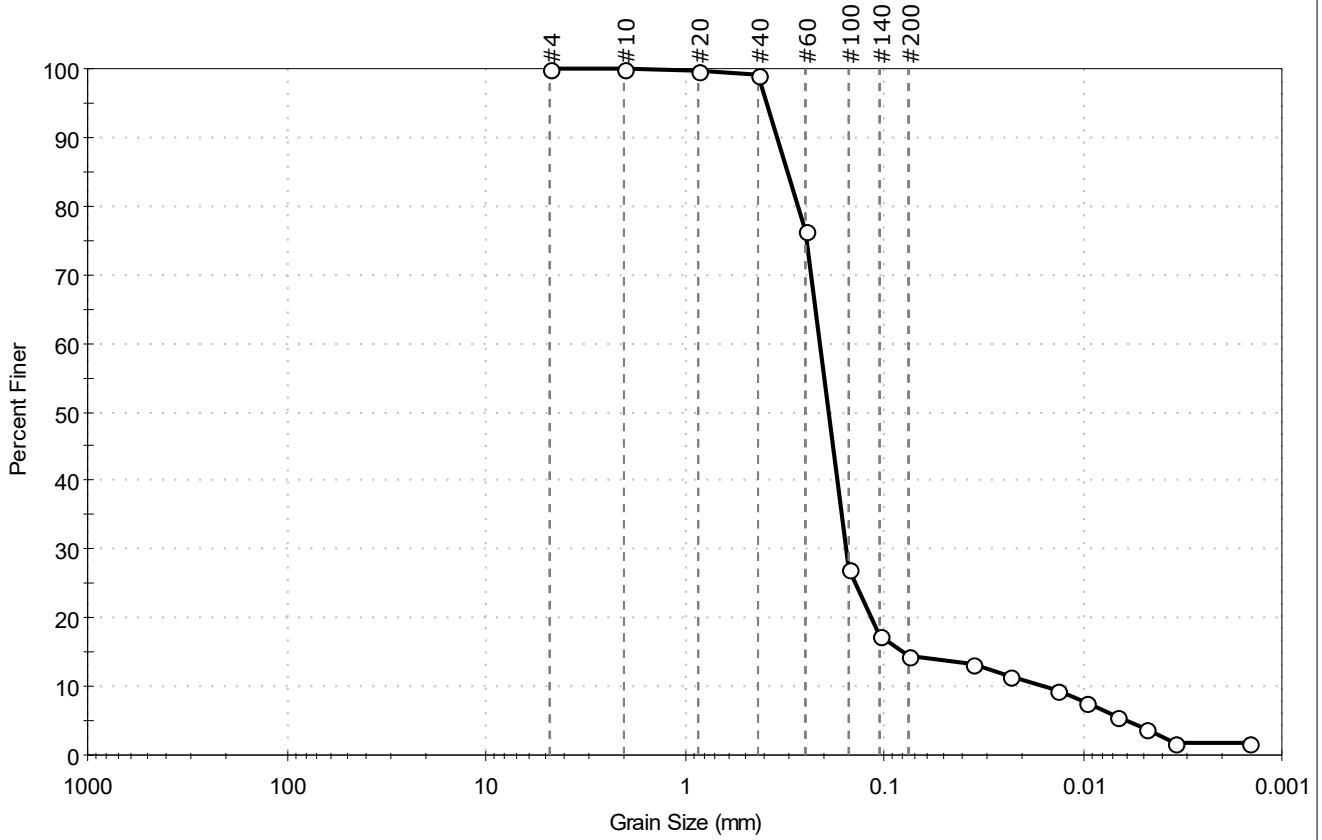
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-114SPT-25.5-28	Test Date: 11/01/19
-1910 Depth: ---	Test Id: 527580
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark olive brown silty sand	Checked By: bfs
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.3059 mm	D <sub>30</sub> = 0.1547 mm
D <sub>60</sub> = 0.2111 mm	D <sub>15</sub> = 0.0809 mm
D <sub>50</sub> = 0.1903 mm	D <sub>10</sub> = 0.0157 mm
C <sub>u</sub> = 13.446	C <sub>c</sub> = 7.221

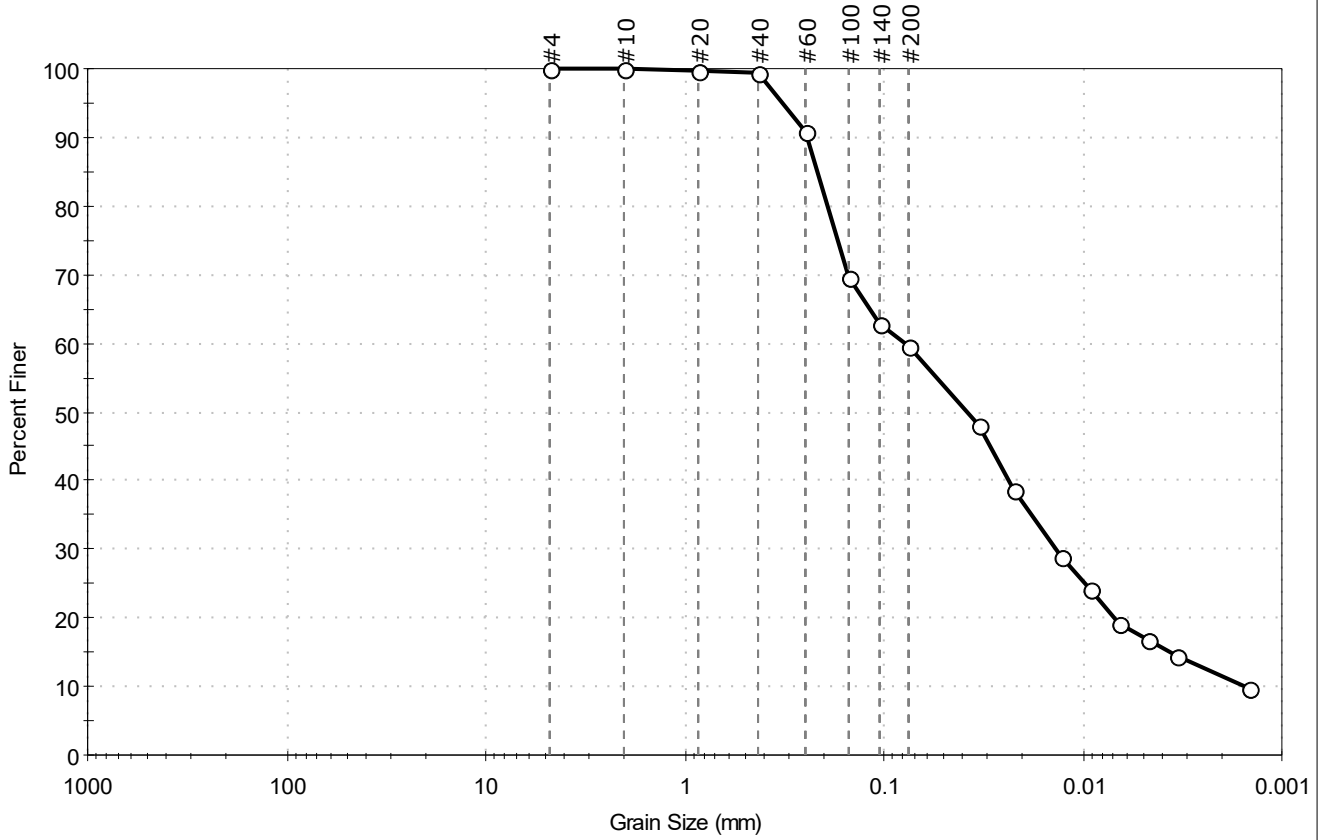
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
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-42-50.5 Test Date: 11/01/19 Checked By: bfs  
 -1910 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 <sub>85</sub> = 0.2166 mm	D <sub>30</sub> = 0.0138 mm
D <sub>60</sub> = 0.0786 mm	D <sub>15</sub> = 0.0036 mm
D <sub>50</sub> = 0.0384 mm	D <sub>10</sub> = 0.0015 mm
C <sub>u</sub> = 52.400	C <sub>c</sub> = 1.615

**Classification**

<b>ASTM</b>	Sandy SILT (ML)
<b>AASHTO</b>	Silty Soils (A-5 (5))

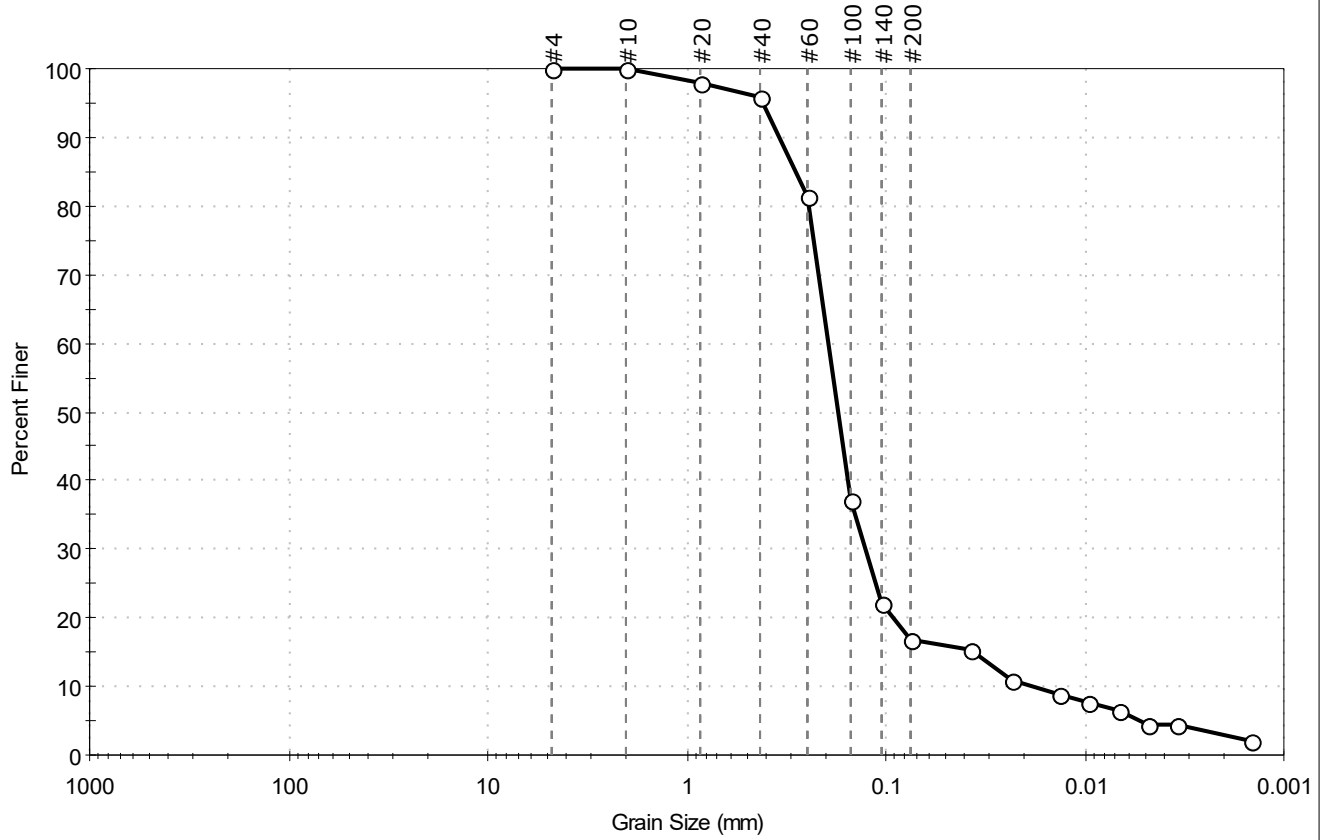
**Sample/Test Description**

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



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-114SPT-50.5-55	Test Date: 11/01/19
-1910 Depth: ---	Test Id: 527582
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark gray silty sand	Checked By: bfs
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2851 mm	D <sub>30</sub> = 0.1275 mm
D <sub>60</sub> = 0.1953 mm	D <sub>15</sub> = 0.0358 mm
D <sub>50</sub> = 0.1741 mm	D <sub>10</sub> = 0.0181 mm
C <sub>u</sub> = 10.790	C <sub>c</sub> = 4.599

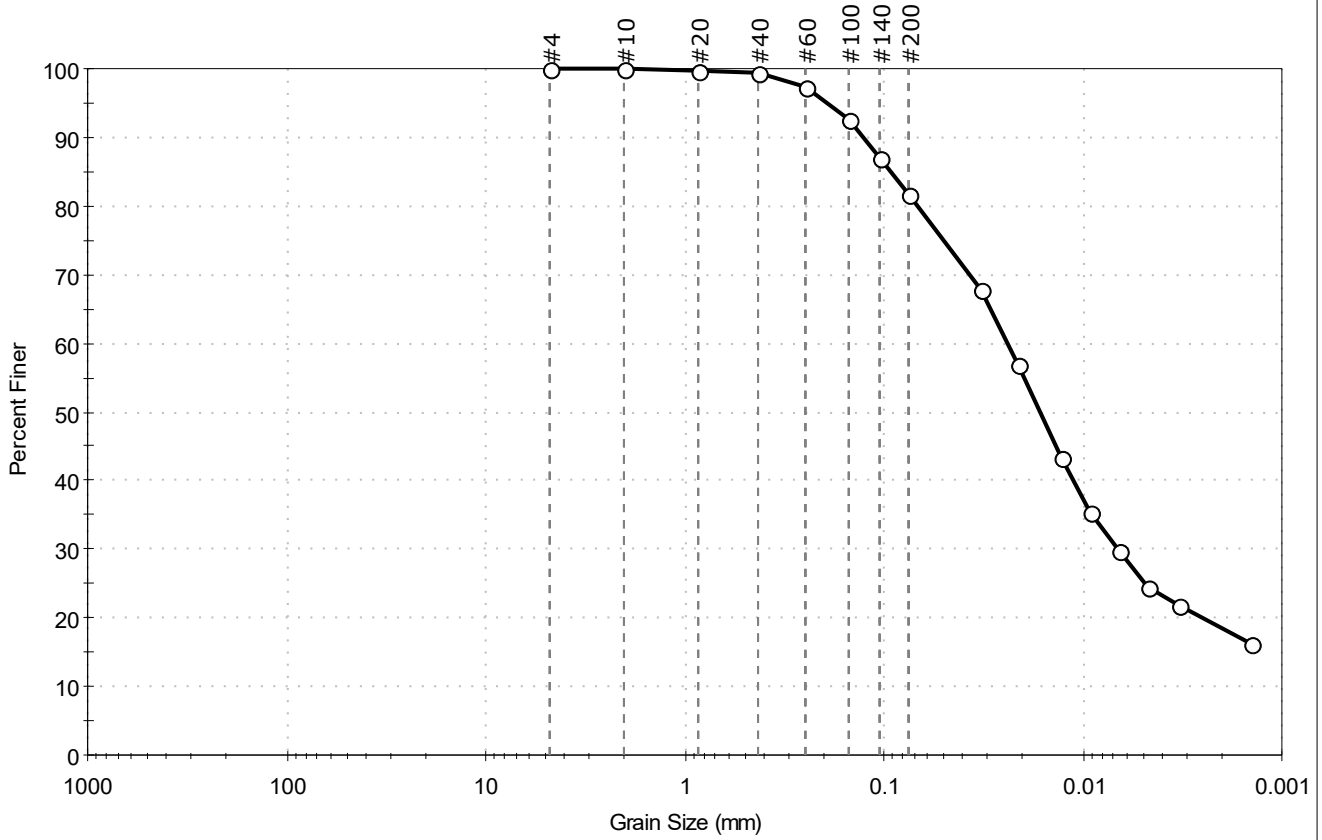
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>	
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-7.5-12.5 Test Date: 11/01/19 Checked By: bfs  
 -191 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0928 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0239 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0163 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

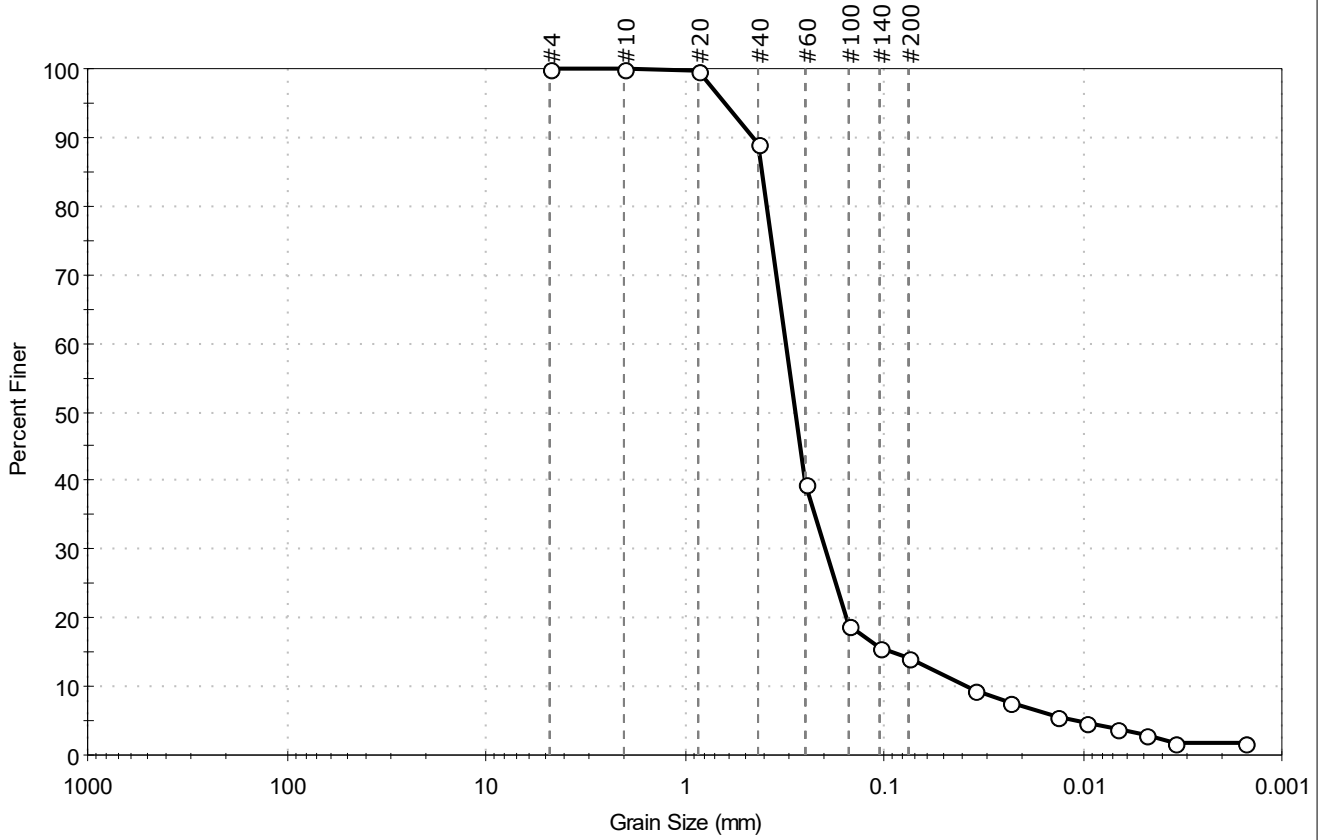
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (24))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-115SPT-06-11	Tested By: ckg
-191009T Depth : ---	est Date: 11/07/19
	Checked By: bfs
	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	0.425	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.4072 mm	D <sub>30</sub> = 0.1974 mm
D <sub>60</sub> = 0.3113 mm	D <sub>15</sub> = 0.0918 mm
D <sub>50</sub> = 0.2796 mm	D <sub>10</sub> = 0.0380 mm
C <sub>u</sub> = 8.192	C <sub>c</sub> = 3.294

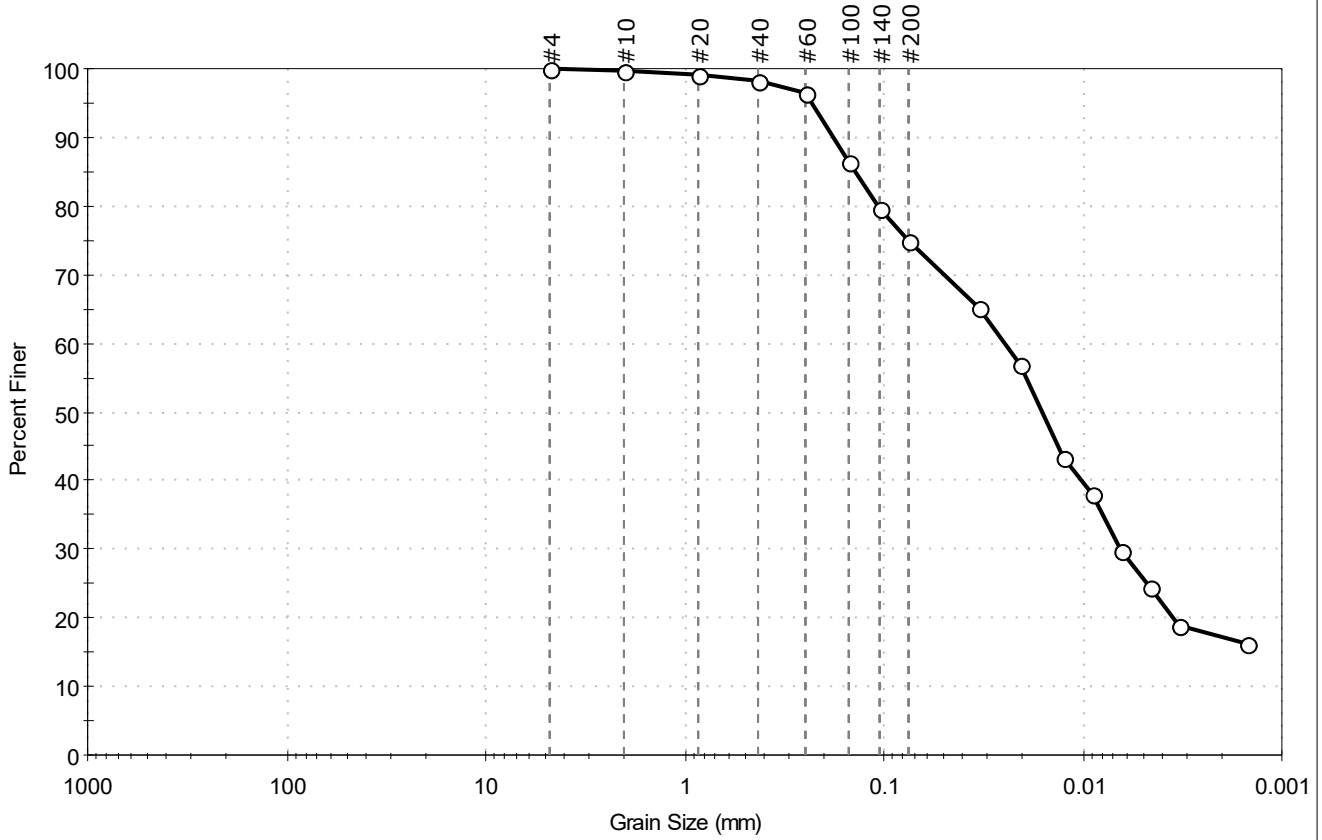
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-115SPT-18.6-20.6	Test Date: 10/29/19
-19 Depth: ---	Test Id: 527585
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark olive brown silt with sand	Checked By: bfs
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 <sub>85</sub> = 0.1387 mm	D <sub>30</sub> = 0.0065 mm
D <sub>60</sub> = 0.0249 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0160 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

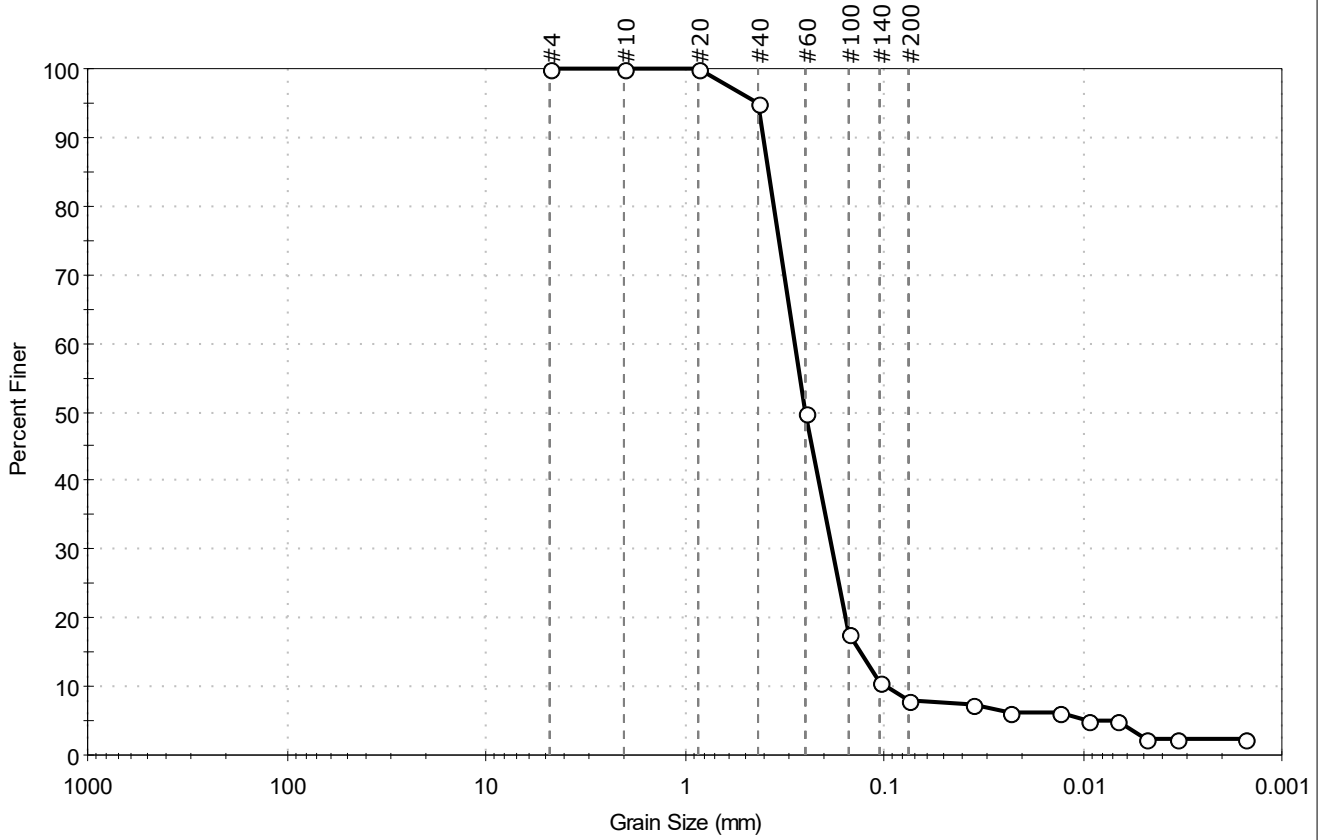
Classification	
ASTM	Elastic SILT with Sand (MH)
AASHTO	Clayey Soils (A-7-5 (22))

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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: ---	Sample Type: bag	Tested By: ckg
Sample ID: PDI-115SPT-23-28.1	Test Date: 10/29/19	Checked By: bfs
-1910 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3780 mm	D <sub>30</sub> = 0.1827 mm
D <sub>60</sub> = 0.2820 mm	D <sub>15</sub> = 0.1316 mm
D <sub>50</sub> = 0.2508 mm	D <sub>10</sub> = 0.0970 mm
C <sub>u</sub> = 2.907	C <sub>c</sub> = 1.220

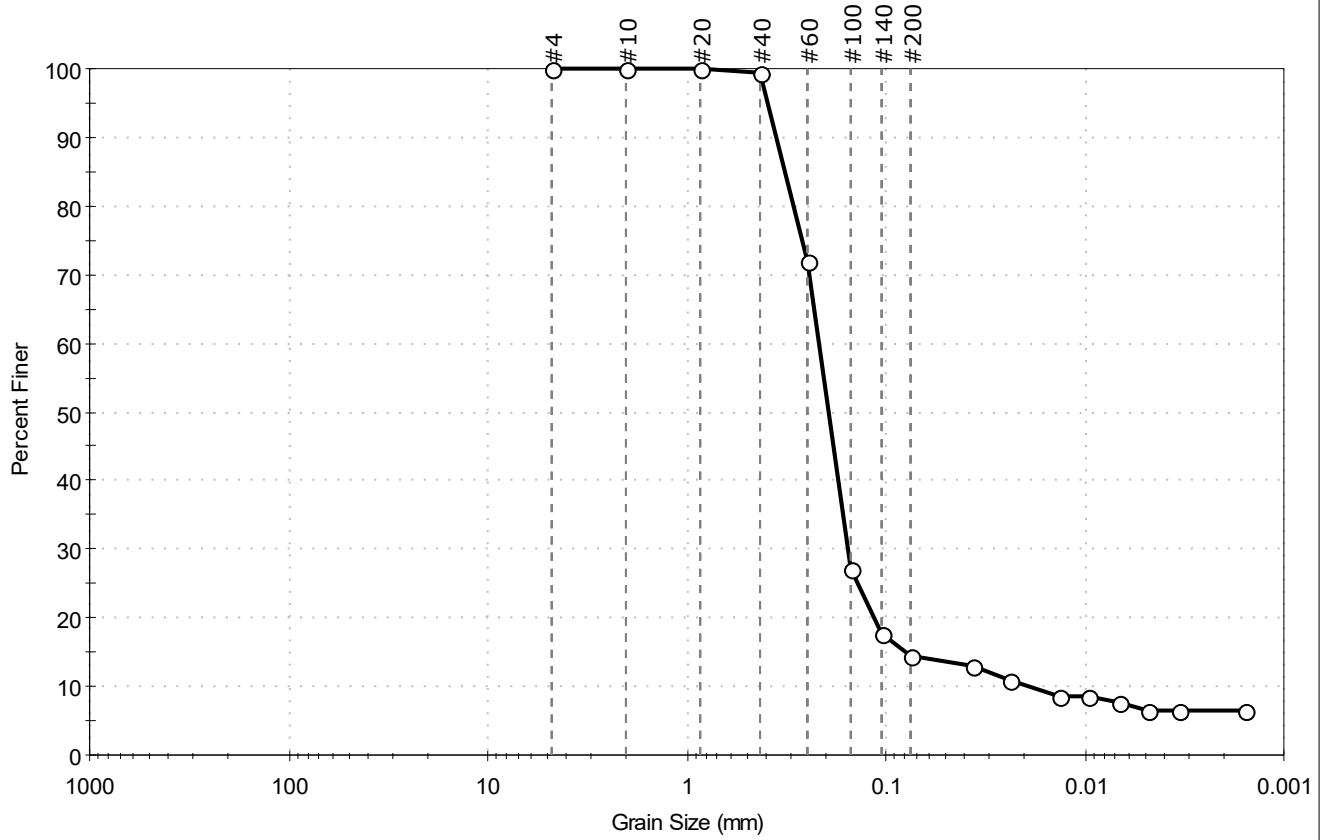
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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-41.5-49.3 Test Date: 10/29/19 Checked By: bfs  
 -19 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 <sub>85</sub> = 0.3216 mm	D <sub>30</sub> = 0.1552 mm
D <sub>60</sub> = 0.2181 mm	D <sub>15</sub> = 0.0799 mm
D <sub>50</sub> = 0.1947 mm	D <sub>10</sub> = 0.0193 mm
C <sub>u</sub> = 11.301	C <sub>c</sub> = 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

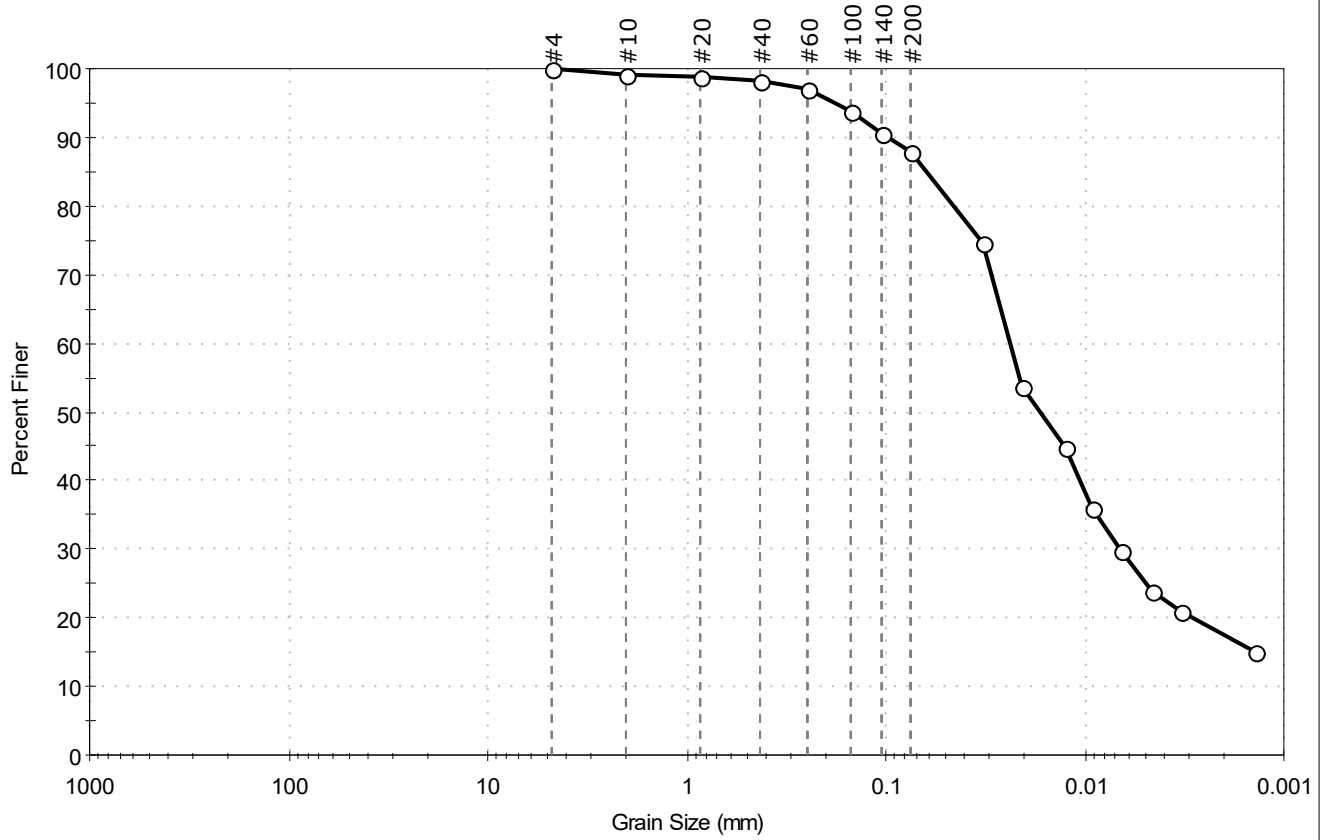
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-116SPT-00-4.5	Test Date: 10/30/19	Test Id: 527588	
-19092 Depth : ---			
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 <sub>85</sub> = 0.0627 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0238 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0169 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

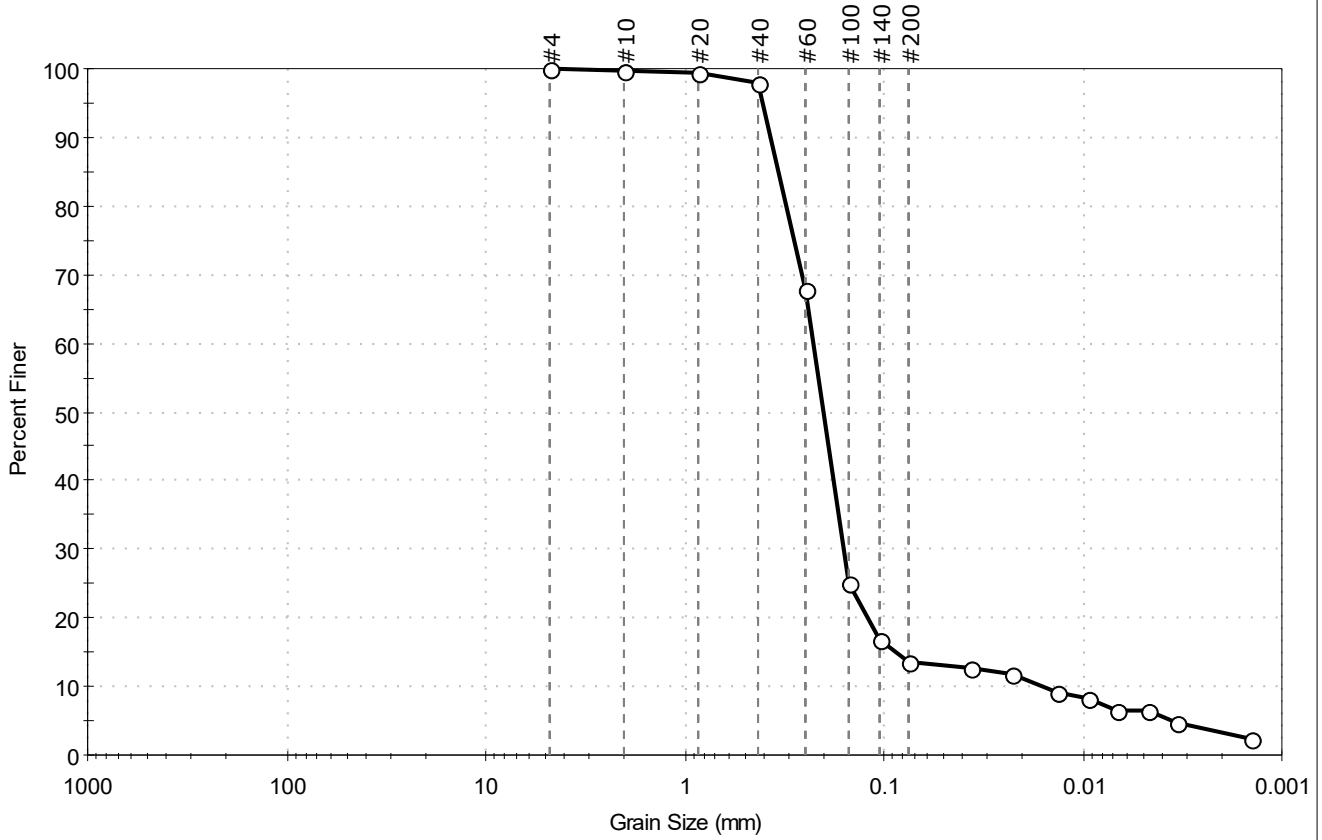
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (40))

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



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 Test Date: 10/30/19 Checked By: bfs  
 -1909 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 <sub>85</sub> = 0.3380 mm	D <sub>30</sub> = 0.1591 mm
D <sub>60</sub> = 0.2276 mm	D <sub>15</sub> = 0.0881 mm
D <sub>50</sub> = 0.2020 mm	D <sub>10</sub> = 0.0157 mm
C <sub>u</sub> = 14.497	C <sub>c</sub> = 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

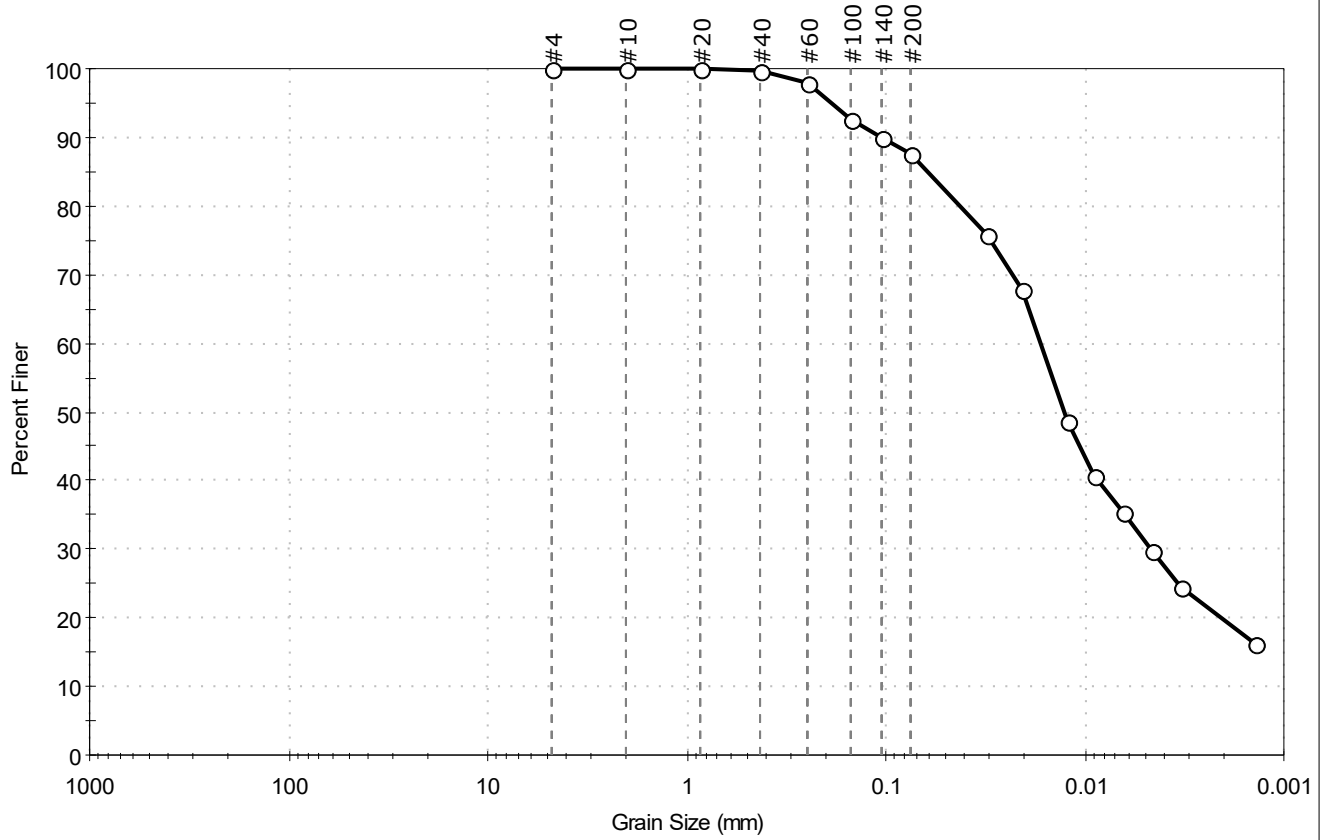
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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

<u>Coefficients</u>	
D <sub>85</sub> = 0.0620 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0167 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0128 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

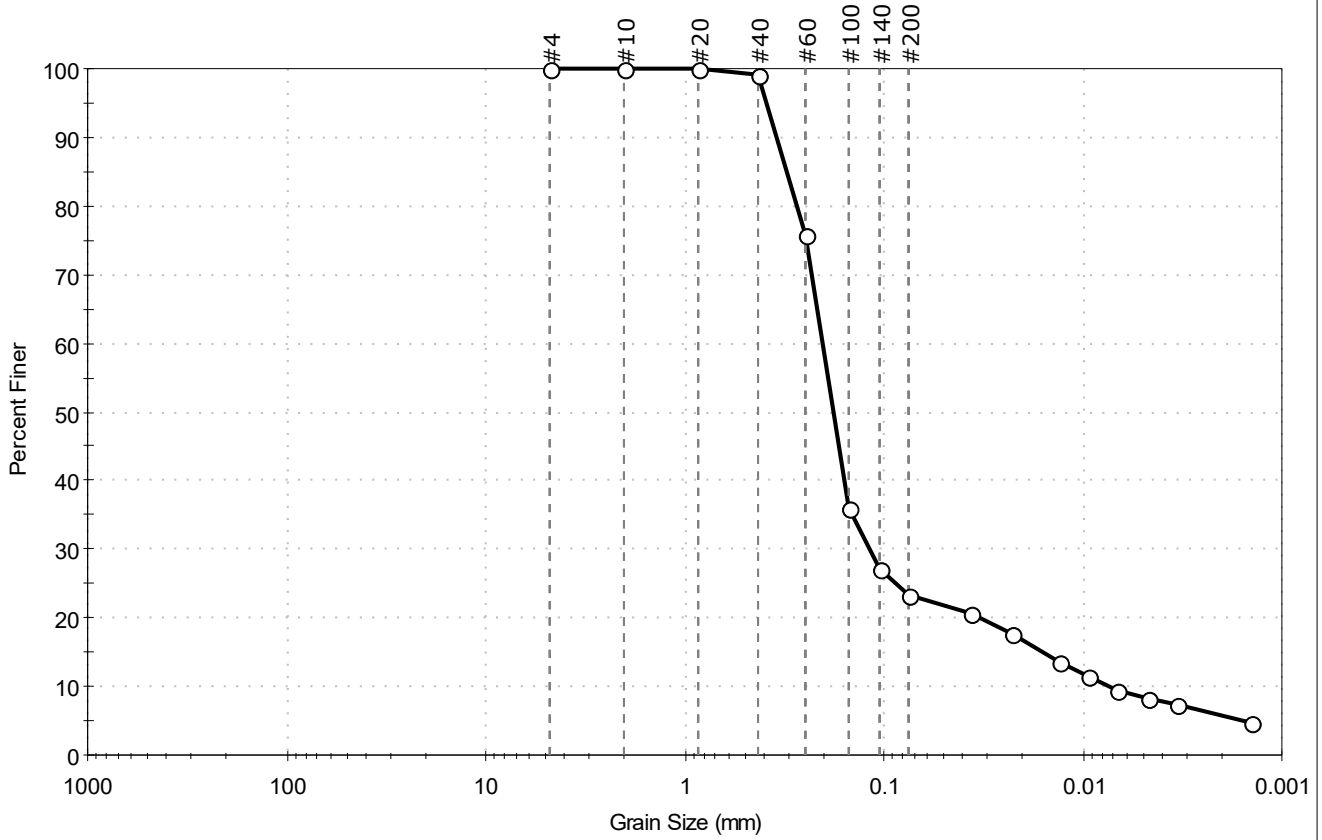
<u>Classification</u>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (15))

<u>Sample/Test Description</u>	
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-116SPT-51.5-54.2 Test Date: 10/30/19 Checked By: bfs  
 -19 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 <sub>85</sub> = 0.3086 mm	D <sub>30</sub> = 0.1182 mm
D <sub>60</sub> = 0.2041 mm	D <sub>15</sub> = 0.0163 mm
D <sub>50</sub> = 0.1794 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 27.213	C <sub>c</sub> = 9.127

**Classification**

<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

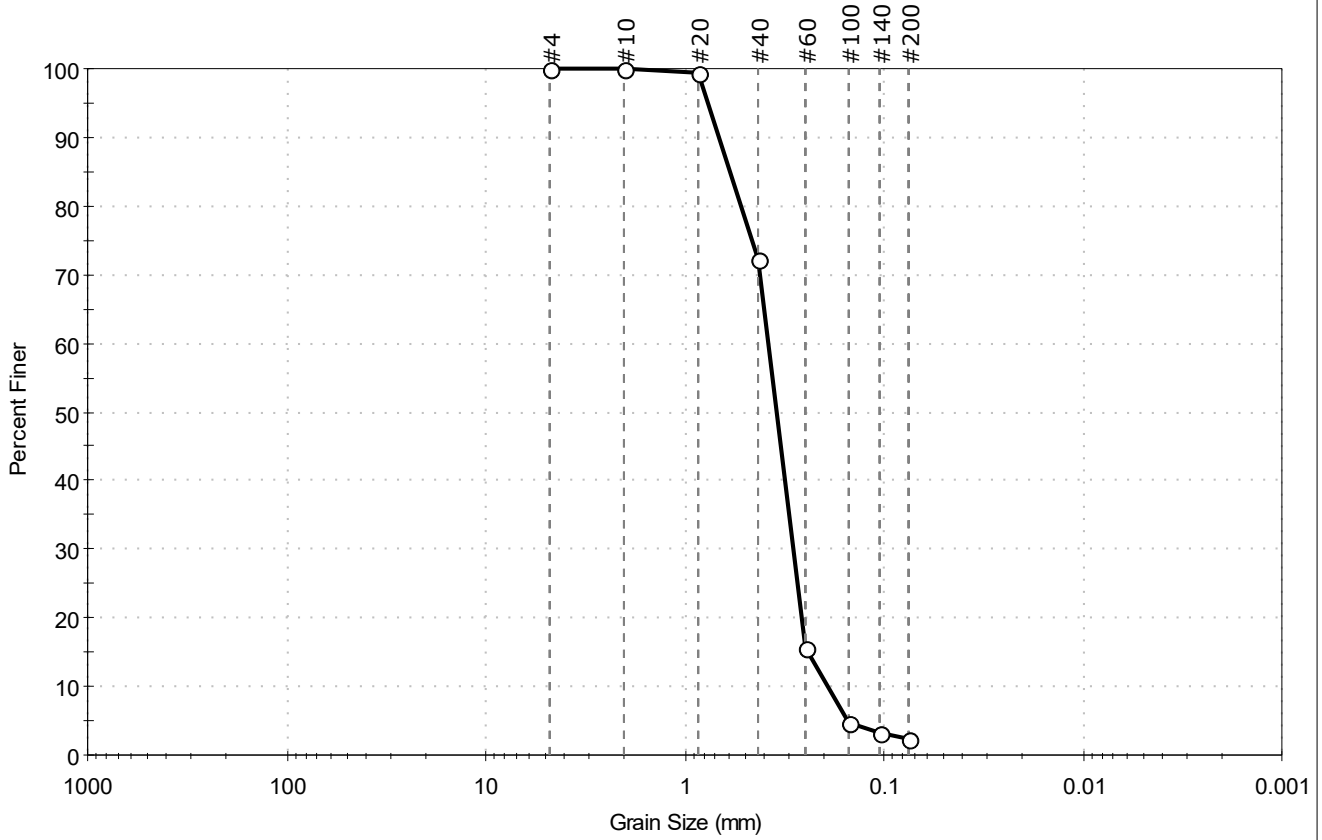
**Sample/Test Description**

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	Checked By: bfs
Sample ID: PDI-117SPT-11-29.1	Test Date: 10/31/19	Test Id: 527592	
-1910 Depth: ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5889 mm	D <sub>30</sub> = 0.2860 mm
D <sub>60</sub> = 0.3791 mm	D <sub>15</sub> = 0.2421 mm
D <sub>50</sub> = 0.3451 mm	D <sub>10</sub> = 0.1922 mm
C <sub>u</sub> = 1.972	C <sub>c</sub> = 1.123

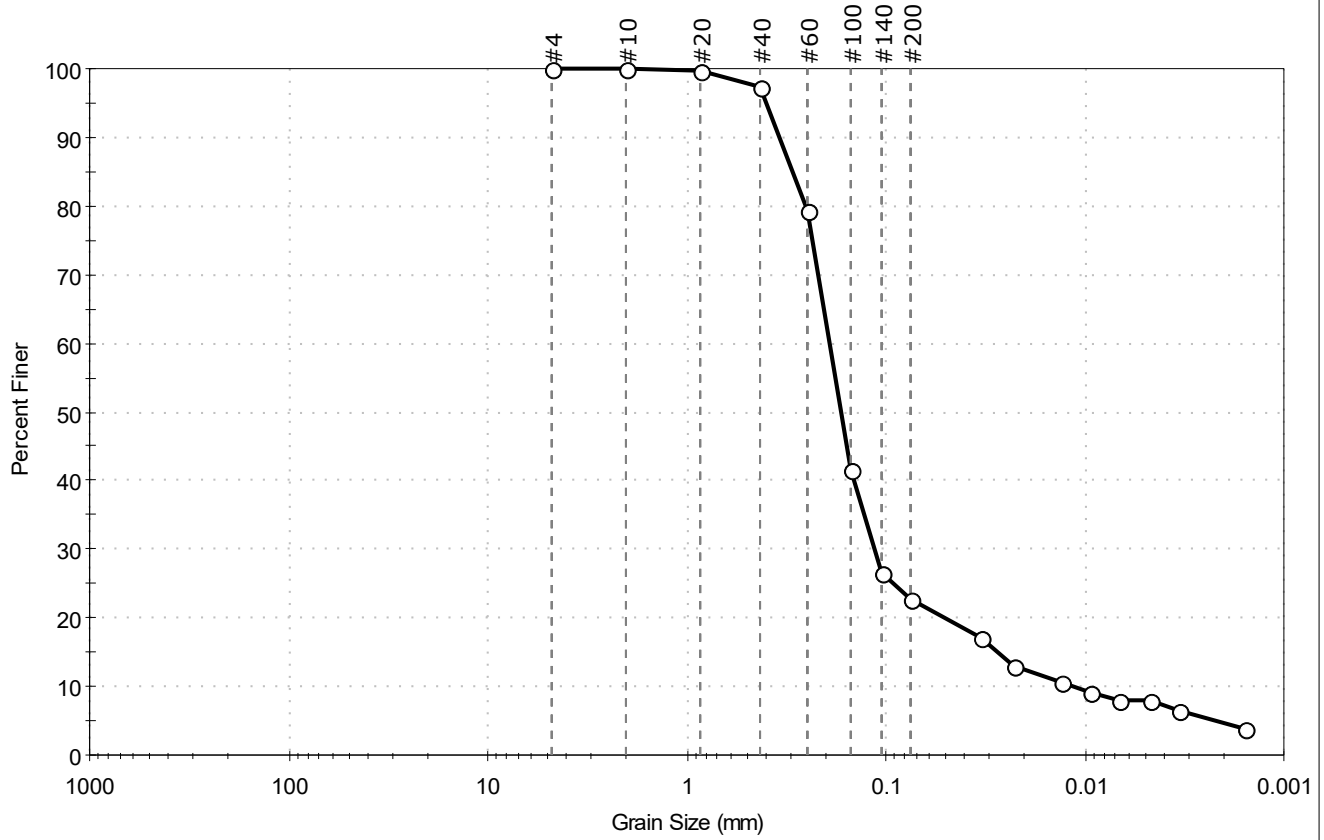
<b>Classification</b>	
ASTM	Poorly graded SAND (SP)
AASHTO	Fine Sand (A-3 (1))

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



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-117SPT-29.1-32	Test Date: 10/24/19
-1910 Depth: ---	Test Id: 527593
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark gray silty sand	Checked By: bfs
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2955 mm	D <sub>30</sub> = 0.1146 mm
D <sub>60</sub> = 0.1923 mm	D <sub>15</sub> = 0.0271 mm
D <sub>50</sub> = 0.1680 mm	D <sub>10</sub> = 0.0117 mm
C <sub>u</sub> = 16.436	C <sub>c</sub> = 5.837

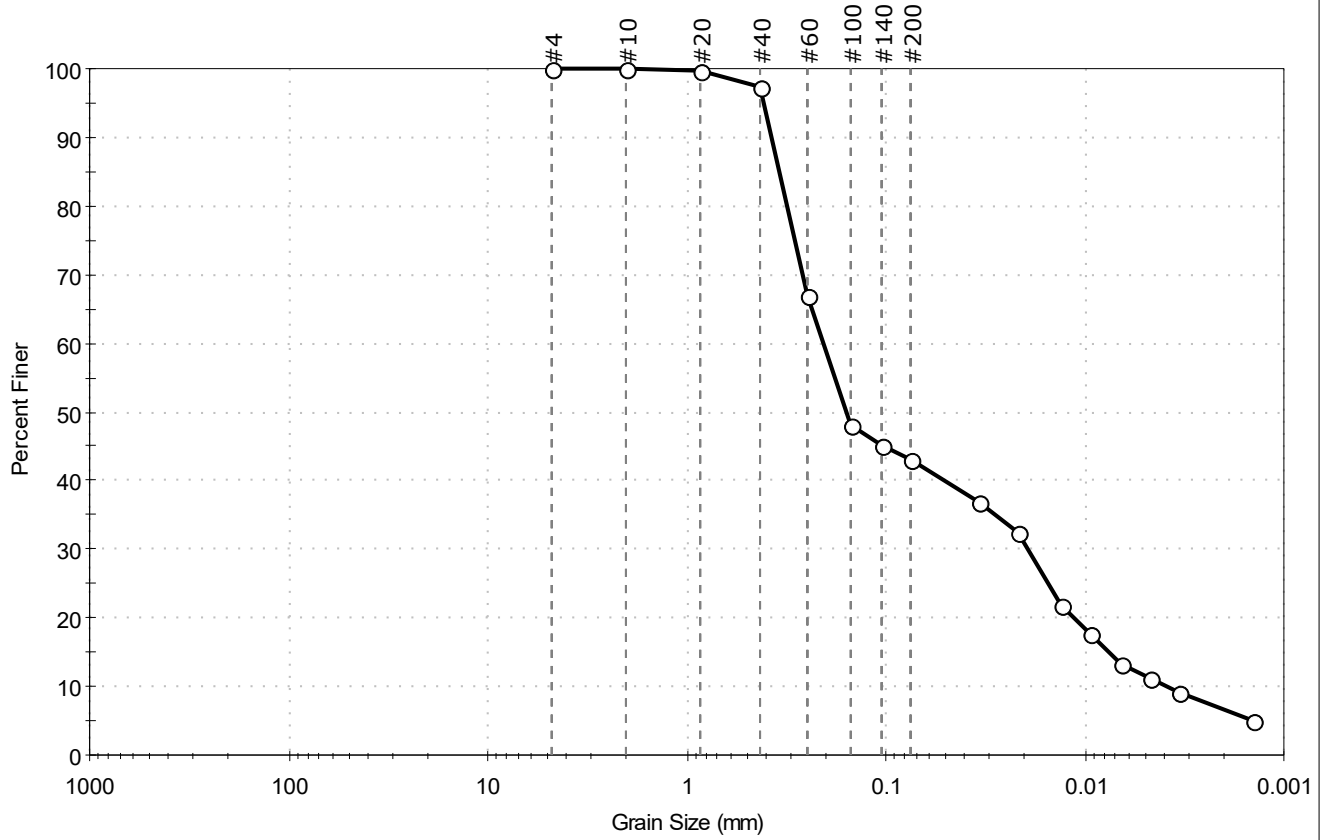
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-117SPT-44.1-53.5	Test Date: 10/31/19
-19 Depth: ---	Test Id: 527594
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark gray silty sand	Checked By: bfs
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3430 mm	D <sub>30</sub> = 0.0193 mm
D <sub>60</sub> = 0.2072 mm	D <sub>15</sub> = 0.0076 mm
D <sub>50</sub> = 0.1576 mm	D <sub>10</sub> = 0.0039 mm
C <sub>u</sub> = 53.128	C <sub>c</sub> = 0.461

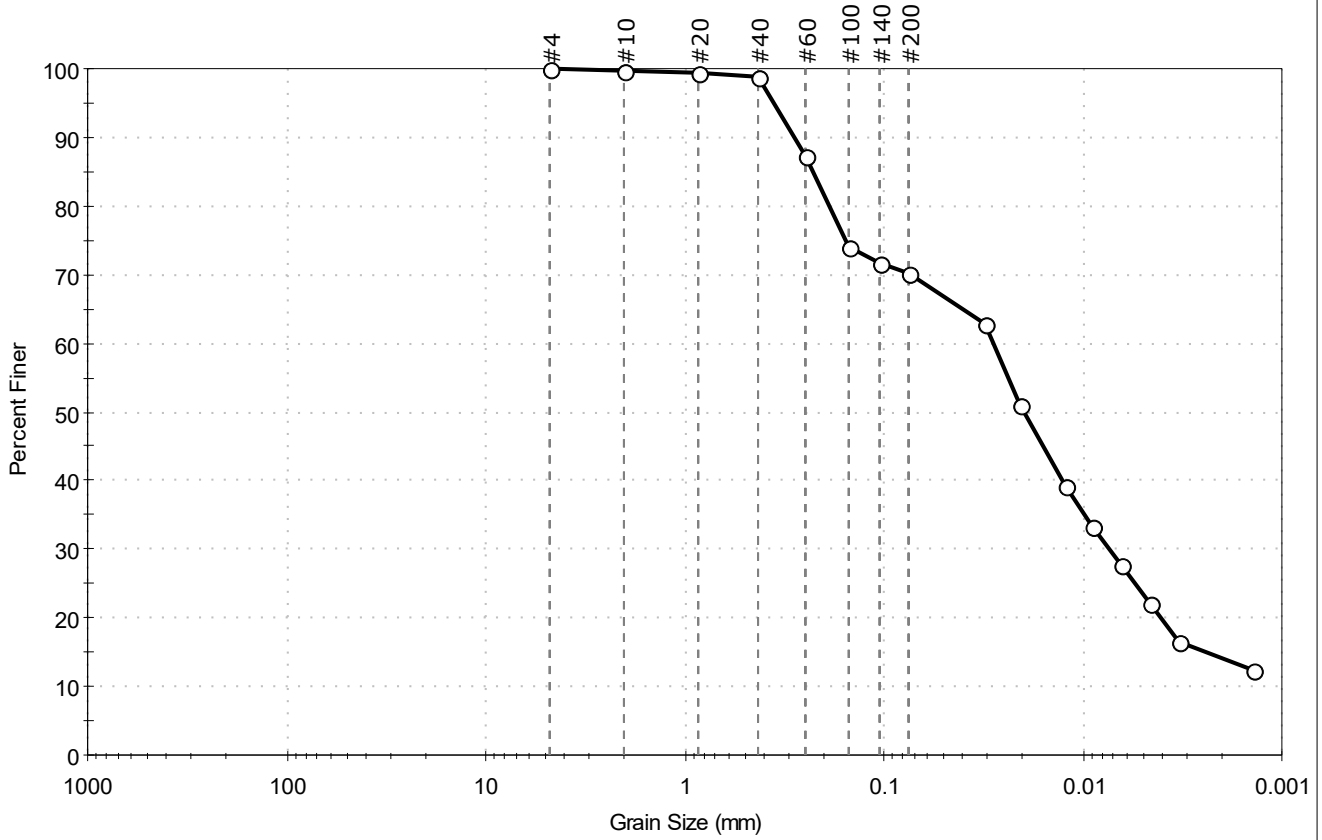
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Clayey Soils (A-7-6 (3))

<b>Sample/Test Description</b>	
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 Test Date: 10/24/19 Checked By: bfs  
 -19 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 <sub>85</sub> = 0.2293 mm	D <sub>30</sub> = 0.0073 mm
D <sub>60</sub> = 0.0281 mm	D <sub>15</sub> = 0.0024 mm
D <sub>50</sub> = 0.0196 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

ASTM SILT with Sand (ML)

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

**Sample/Test Description**

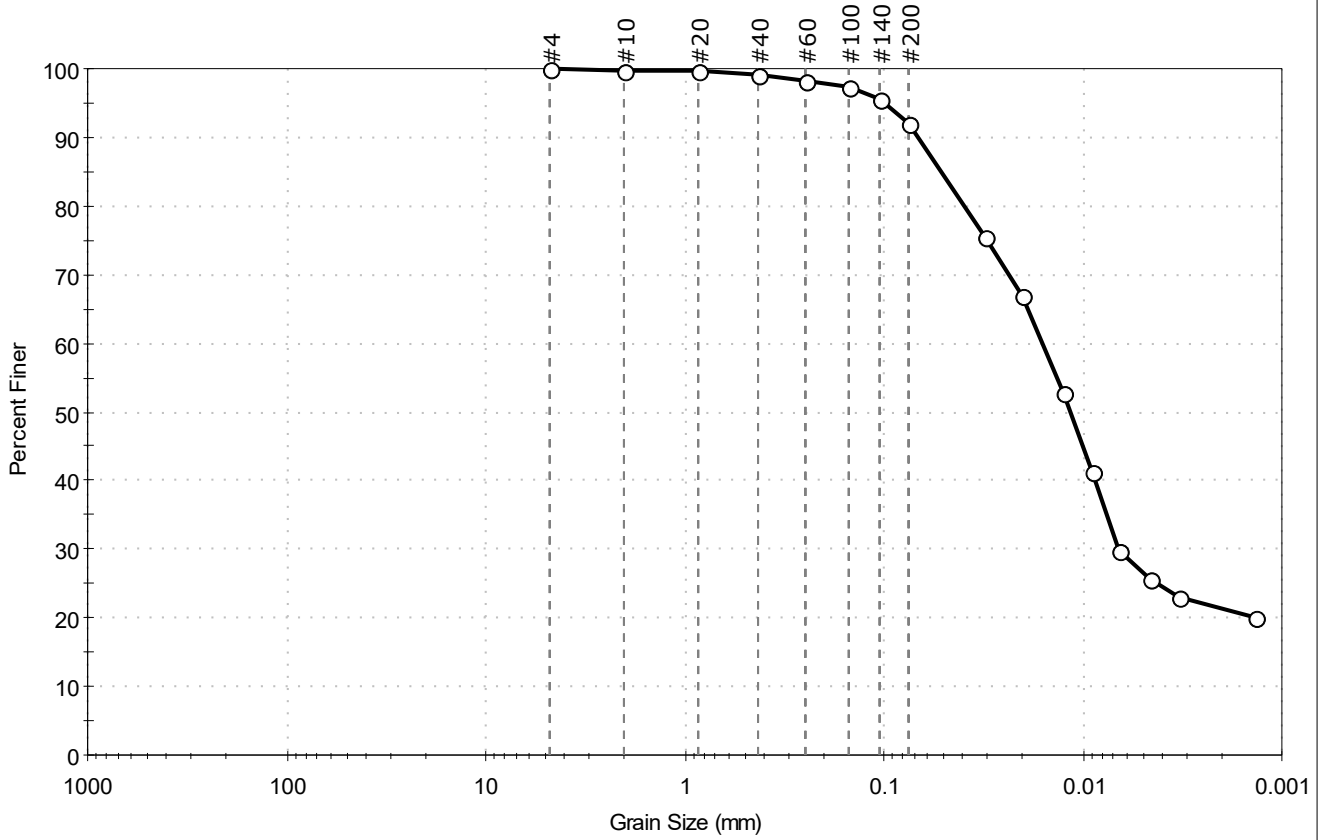
Sand/Gravel Particle Shape : ---  
 Sand/Gravel Hardness : ---  
 Dispersion Device : Apparatus A - Mech Mixer  
 Dispersion Period : 1 minute  
 Est. Specific Gravity : 2.65  
 Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-118SPT-00-4.5	Test Date: 10/24/19	Test Id: 527596	
-19101 Depth : ---			
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.0518 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0161 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0116 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

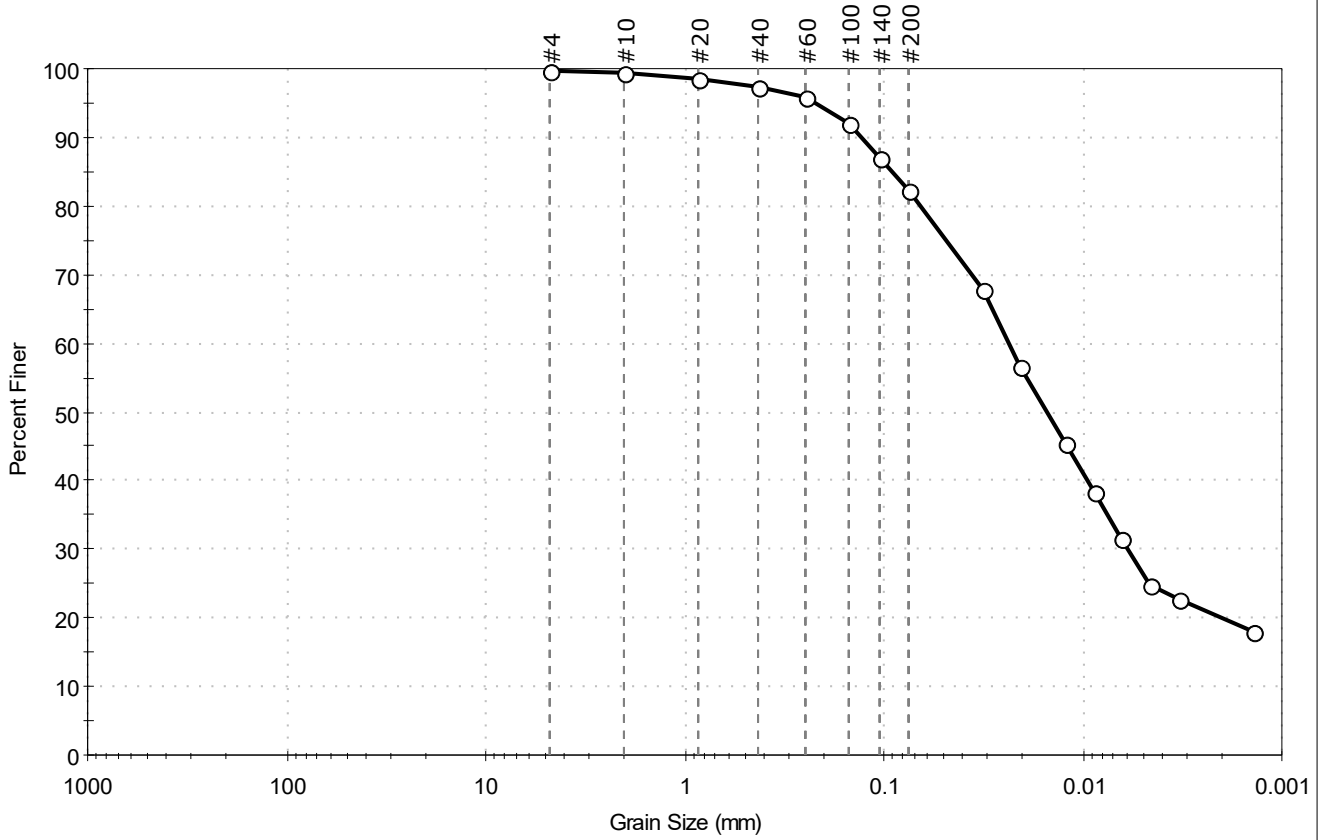
<u>Classification</u>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (37))

<u>Sample/Test Description</u>
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-118SPT-4.5-15 Test Date: 10/24/19 Checked By: bfs  
 -19101 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0914 mm	D <sub>30</sub> = 0.0059 mm
D <sub>60</sub> = 0.0234 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0152 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

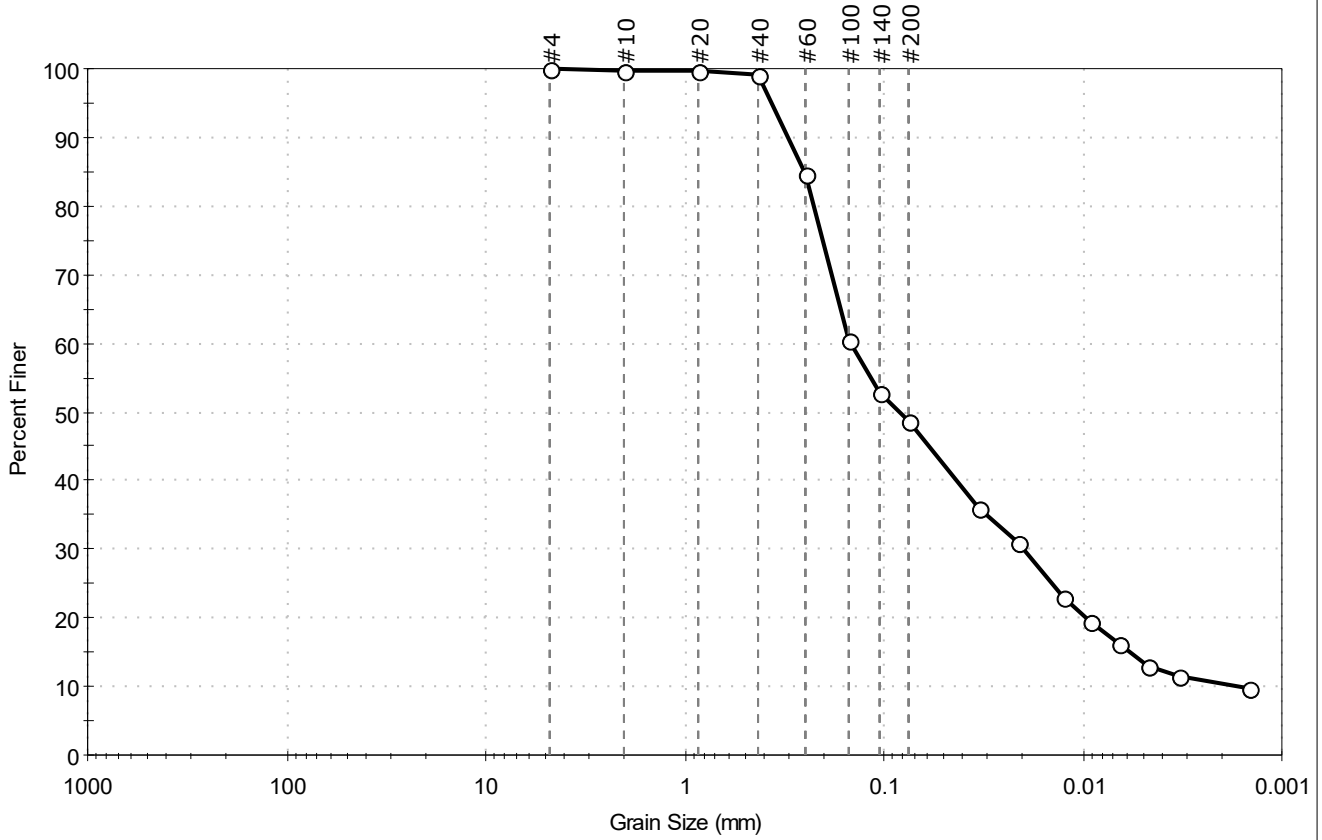
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (34))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-118SPT-46.5-61	Test Date: 10/24/19
-1910 Depth: ---	Test Id: 527598
Test Comment: ---	Tested By: ckg
Visual Description: Wet, dark grayish brown silty sand	Checked By: bfs
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2537 mm	D <sub>30</sub> = 0.0197 mm
D <sub>60</sub> = 0.1474 mm	D <sub>15</sub> = 0.0057 mm
D <sub>50</sub> = 0.0832 mm	D <sub>10</sub> = 0.0016 mm
C <sub>u</sub> = 92.125	C <sub>c</sub> = 1.646

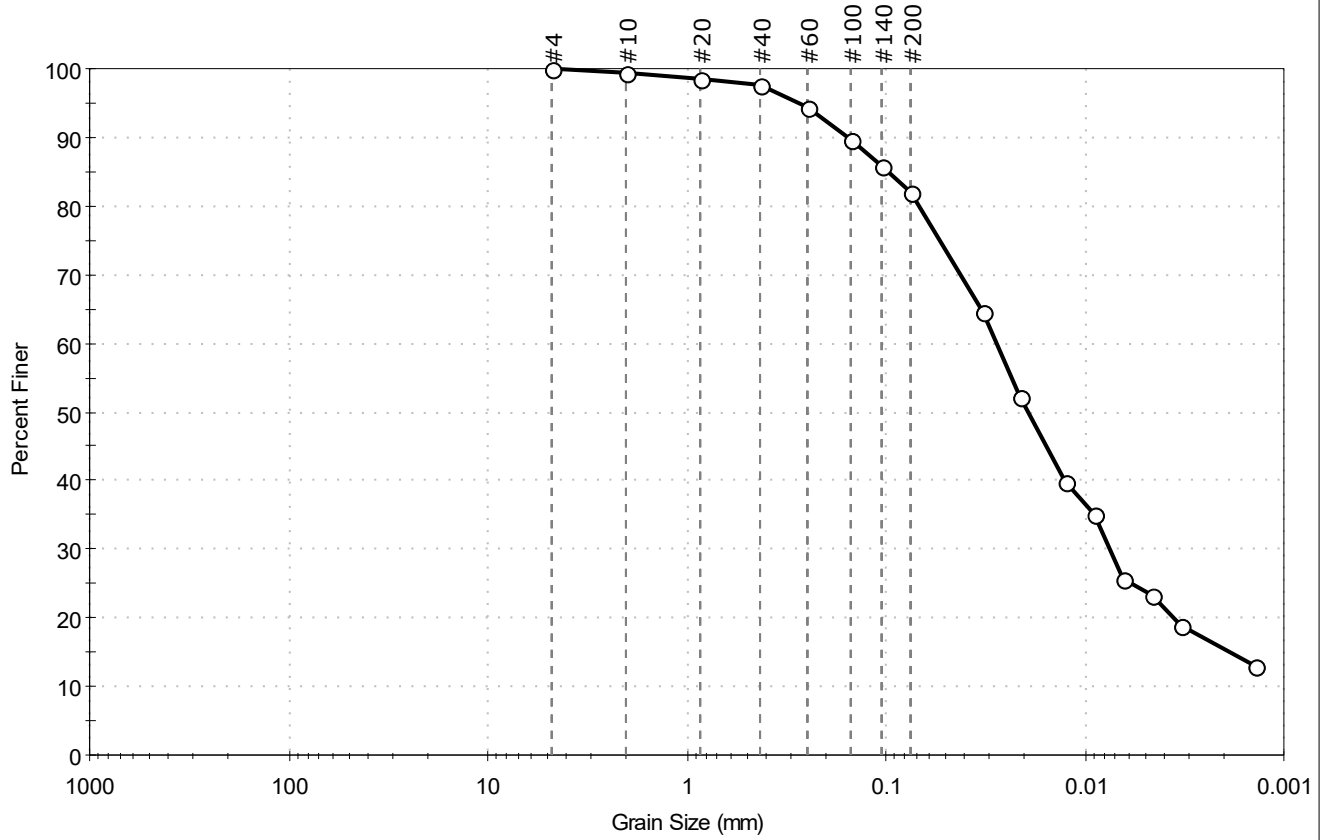
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Soils (A-4 (1))

<u>Sample/Test Description</u>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-119SPT-00-4.5	Test Date: 10/25/19
-19100 Depth : ---	Test Id: 527599
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark grayish brown silt with sand	Checked By: bfs
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0981 mm	D <sub>30</sub> = 0.0075 mm
D <sub>60</sub> = 0.0279 mm	D <sub>15</sub> = 0.0019 mm
D <sub>50</sub> = 0.0191 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

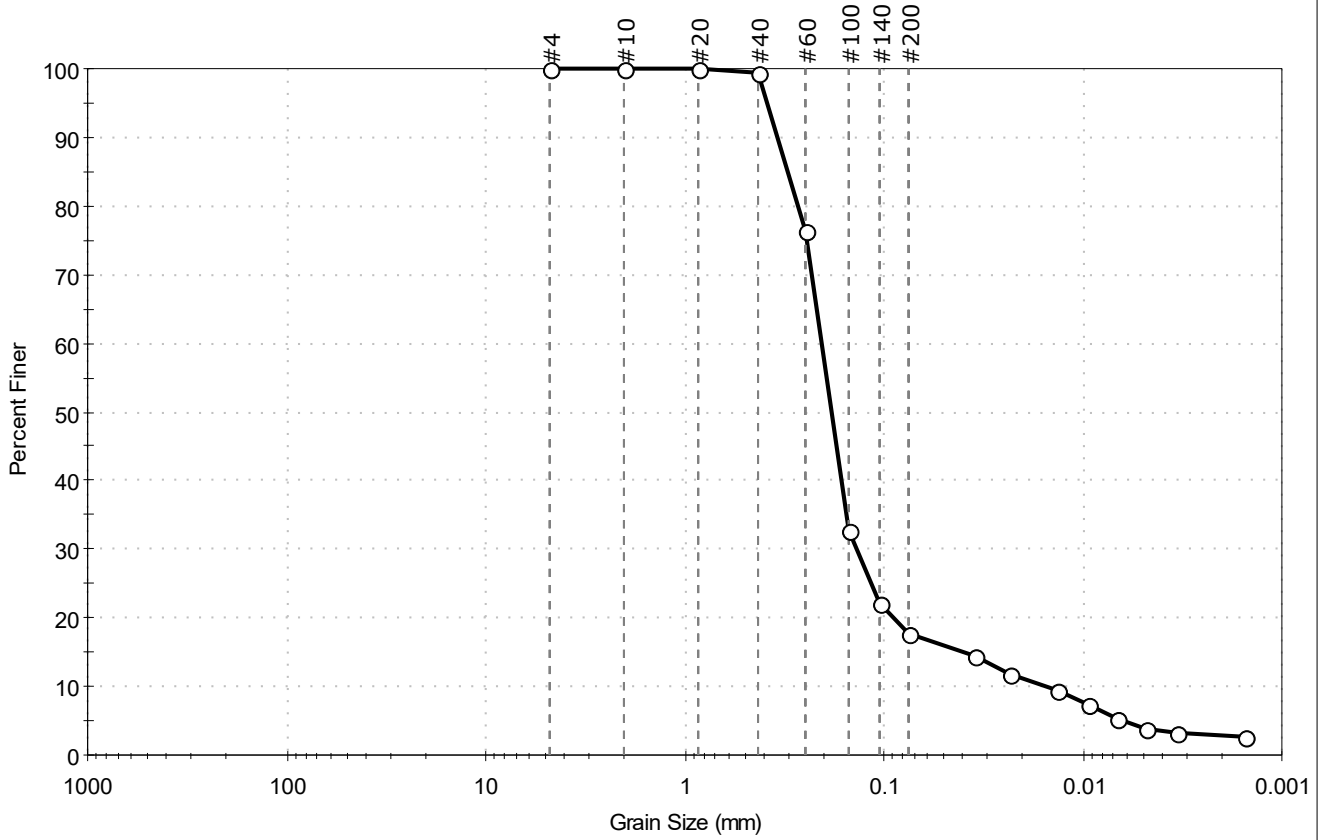
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (37))

<b>Sample/Test Description</b>	
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 Test Date: 10/29/19 Checked By: bfs  
 -1910 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3051 mm	D <sub>30</sub> = 0.1369 mm
D <sub>60</sub> = 0.2063 mm	D <sub>15</sub> = 0.0393 mm
D <sub>50</sub> = 0.1835 mm	D <sub>10</sub> = 0.0149 mm
C <sub>u</sub> = 13.846	C <sub>c</sub> = 6.097

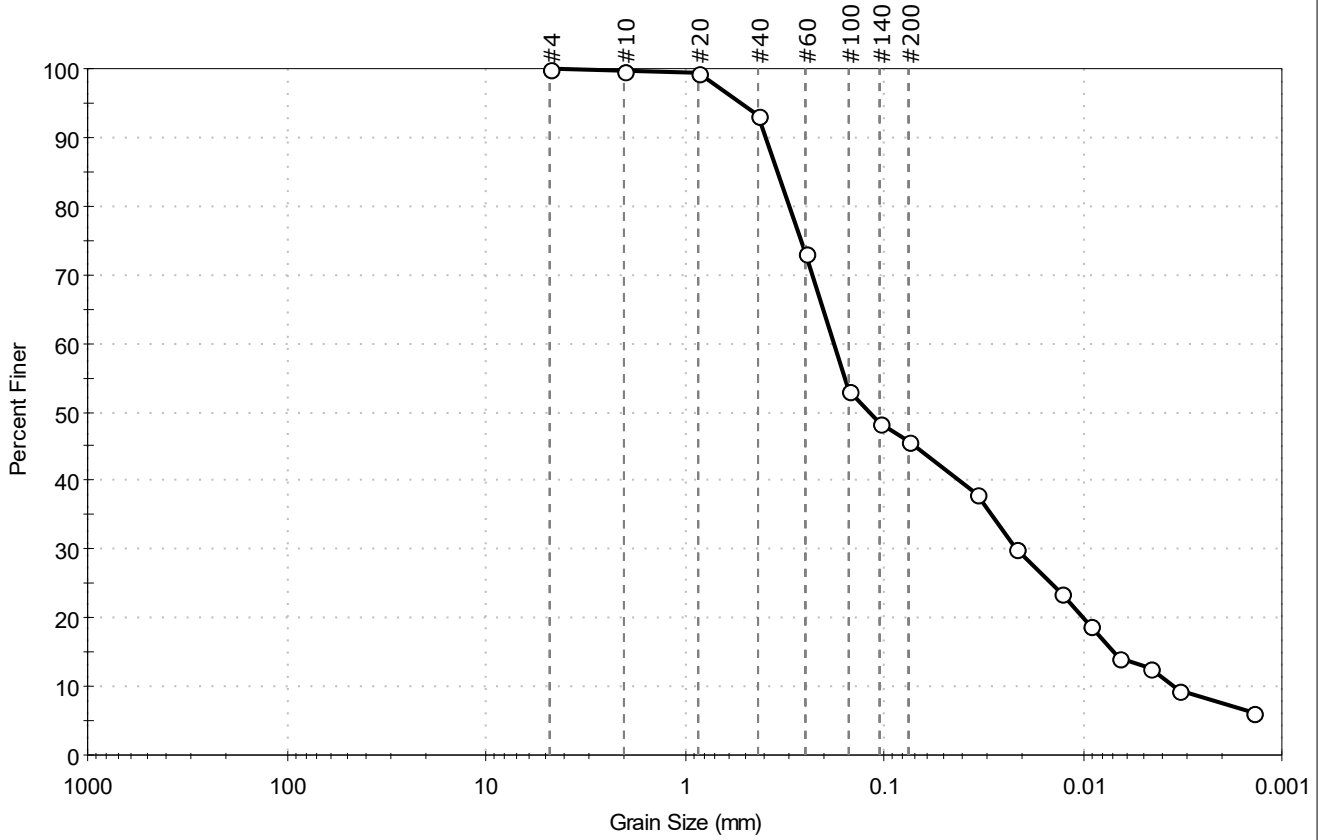
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-119SPT-47-52	Test Date: 10/25/19
-19100 Depth: ---	Test Id: 527601
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark grayish brown silty sand	Checked By: bfs
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 <sub>85</sub> = 0.3420 mm	D <sub>30</sub> = 0.0214 mm
D <sub>60</sub> = 0.1784 mm	D <sub>15</sub> = 0.0069 mm
D <sub>50</sub> = 0.1186 mm	D <sub>10</sub> = 0.0035 mm
C <sub>u</sub> = 50.971	C <sub>c</sub> = 0.733

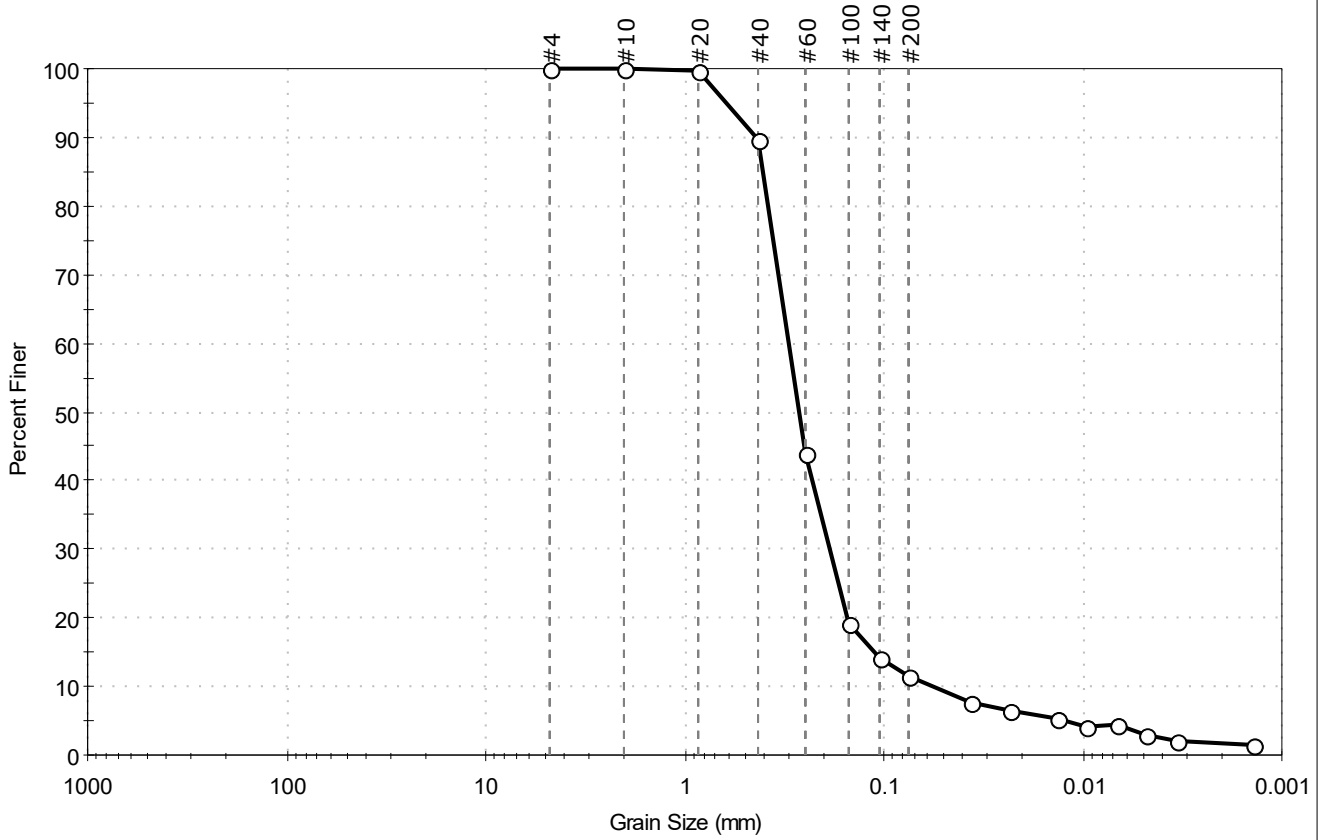
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Soils (A-4 (1))

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



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 Test Date: 10/25/19 Checked By: bfs  
 -191 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.4029 mm	D <sub>30</sub> = 0.1875 mm
D <sub>60</sub> = 0.3010 mm	D <sub>15</sub> = 0.1128 mm
D <sub>50</sub> = 0.2679 mm	D <sub>10</sub> = 0.0555 mm
C <sub>u</sub> = 5.423	C <sub>c</sub> = 2.104

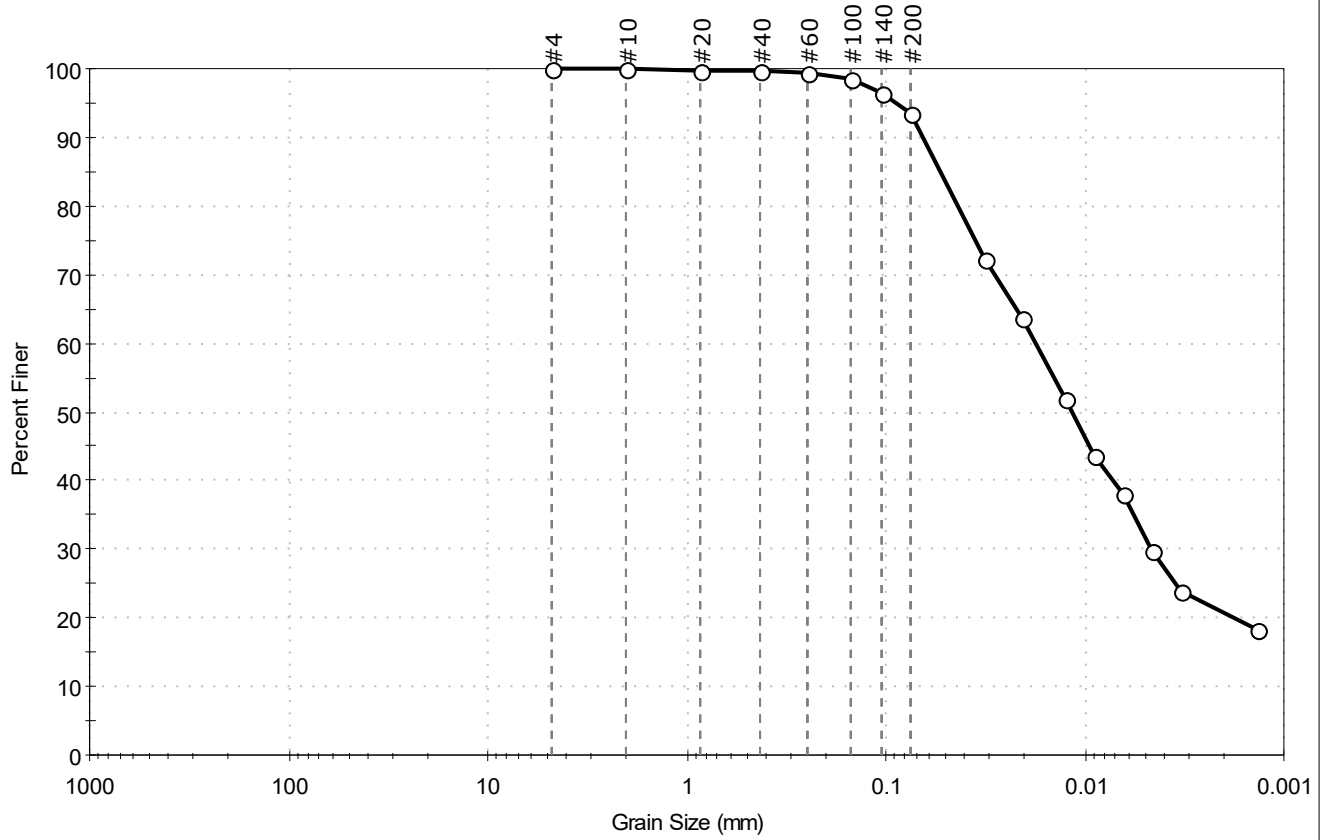
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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	Checked By: bfs
Sample ID: PDI-121SPT-00-06	est Date: 10/29/19	Test Id: 527603	
-190930T Depth: ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0532 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0115 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (38))

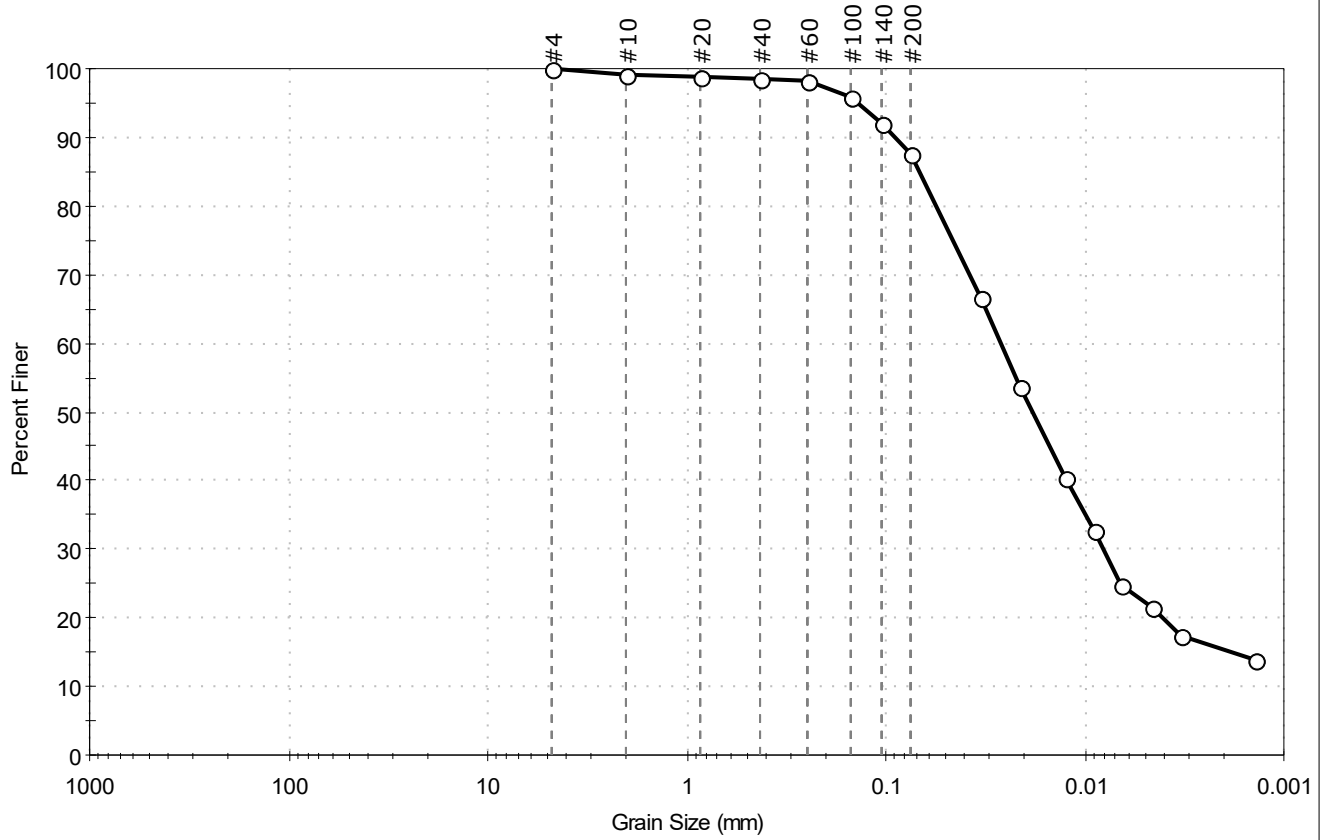
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-121SPT-11-20.7	Test Date: 10/30/19	Test Id: 527604	
-1909 Depth: ---			
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 <sub>85</sub> = 0.0679 mm	D <sub>30</sub> = 0.0081 mm
D <sub>60</sub> = 0.0264 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0184 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

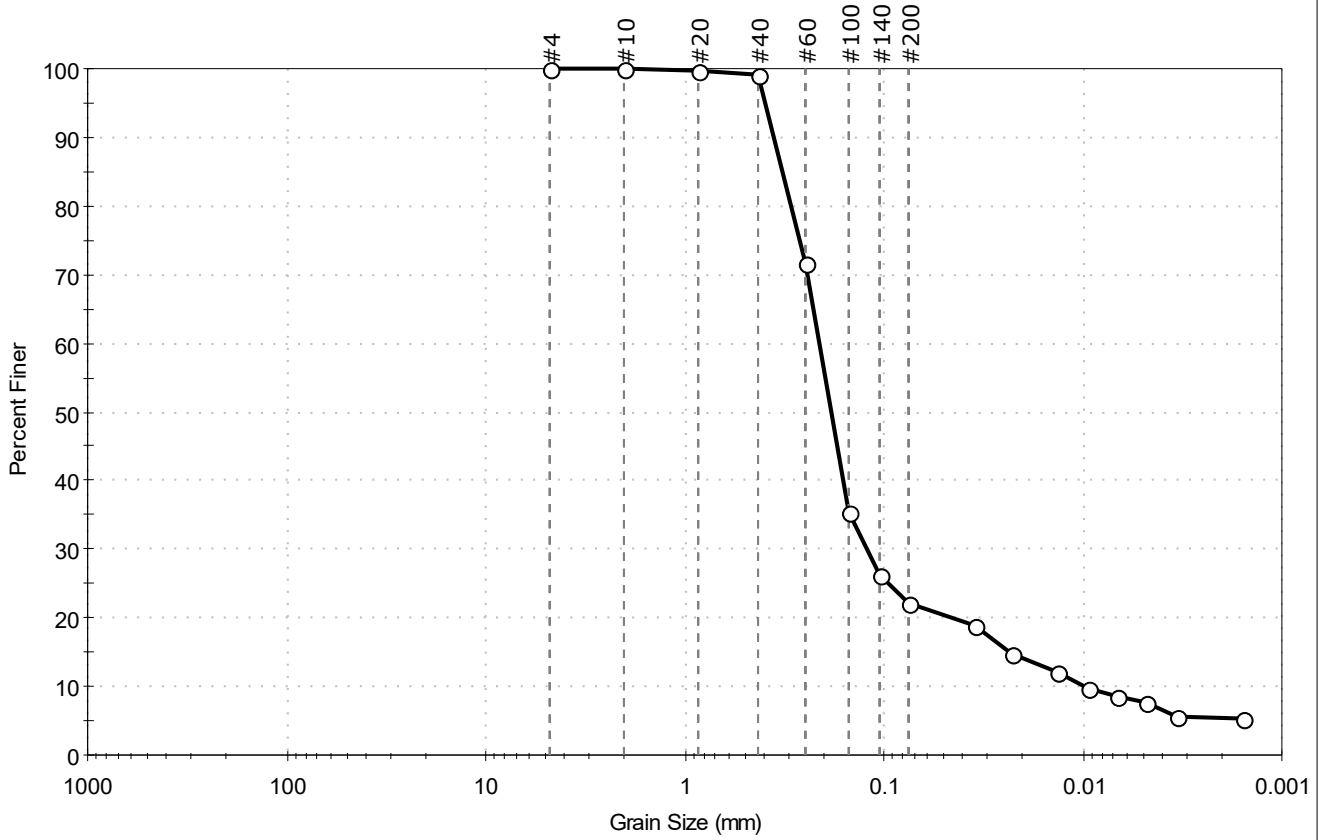
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (26))

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



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 est Date: 10/29/19 Checked By: bfs  
 -190930T 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 <sub>85</sub> = 0.3231 mm	D <sub>30</sub> = 0.1227 mm
D <sub>60</sub> = 0.2122 mm	D <sub>15</sub> = 0.0231 mm
D <sub>50</sub> = 0.1844 mm	D <sub>10</sub> = 0.0098 mm
C <sub>u</sub> = 21.653	C <sub>c</sub> = 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

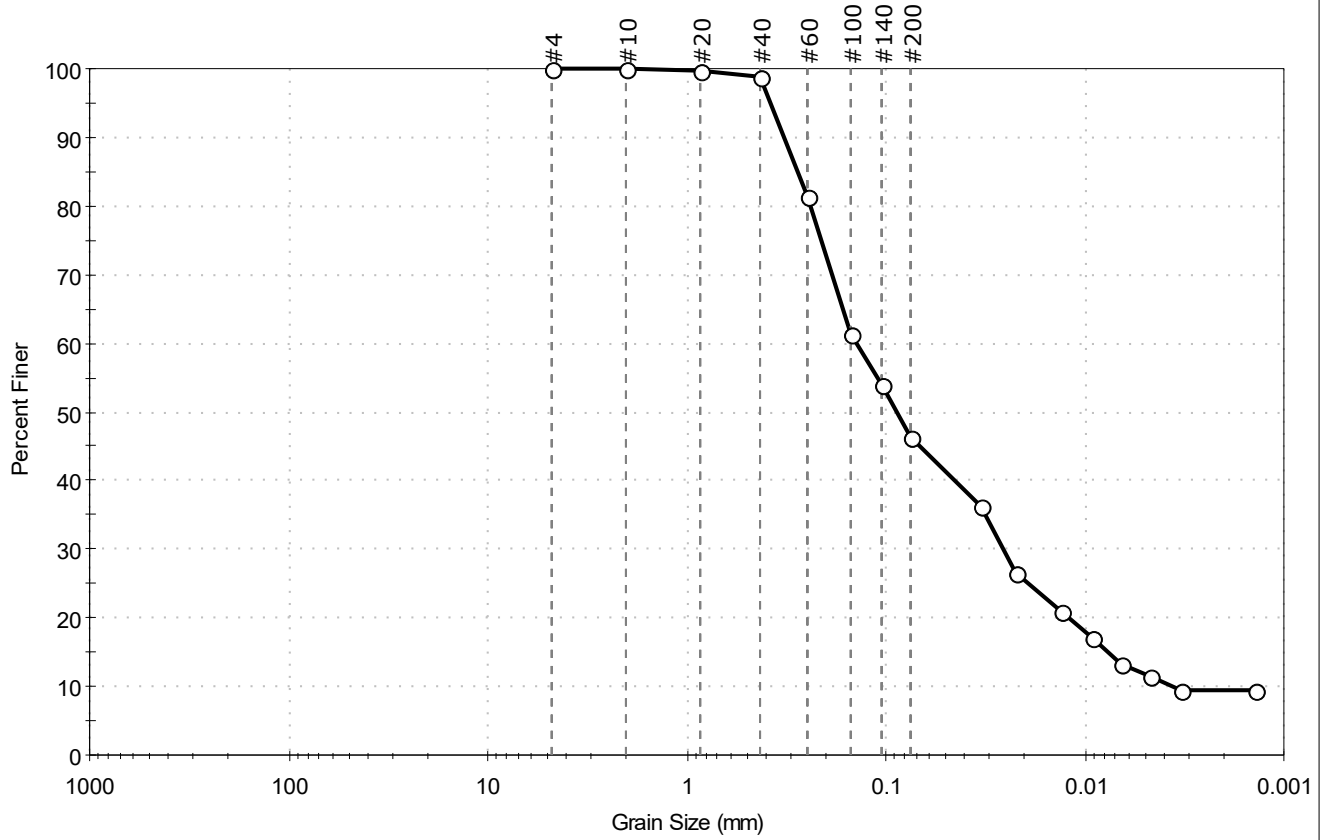
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: PDI-121SPT-49.4-54	Test Date: 10/25/19	Test Id: 527606	
-1909 Depth: ---			
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 <sub>85</sub> = 0.2788 mm	D <sub>30</sub> = 0.0256 mm
D <sub>60</sub> = 0.1404 mm	D <sub>15</sub> = 0.0077 mm
D <sub>50</sub> = 0.0886 mm	D <sub>10</sub> = 0.0036 mm
C <sub>u</sub> = 39.000	C <sub>c</sub> = 1.297

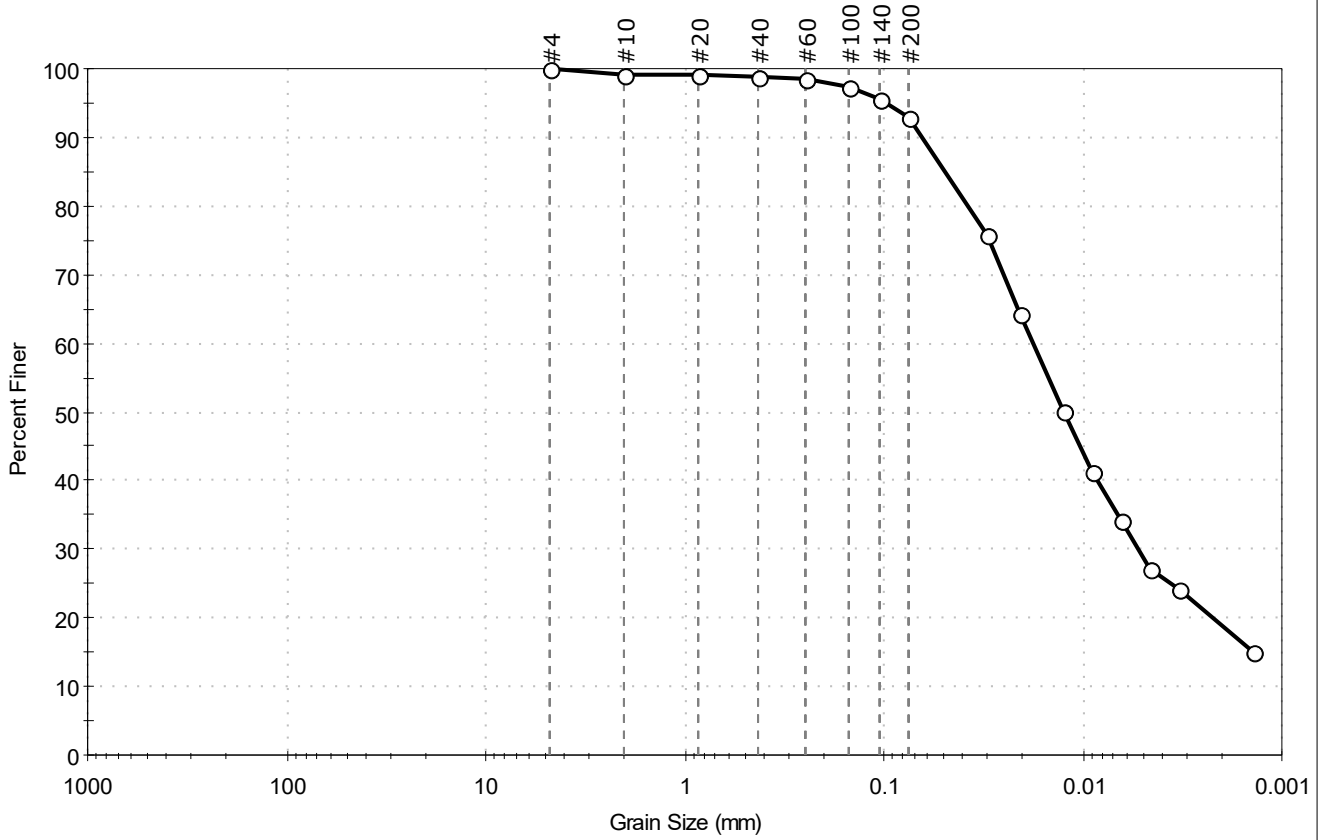
Classification	
ASTM	Silty SAND (SM)
AASHTO	Clayey Soils (A-7-5 (3))

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



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 est Date: 11/07/19 Checked By: bfs  
 -190925T 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 <sub>85</sub> = 0.0494 mm	D <sub>30</sub> = 0.0053 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0124 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (40))

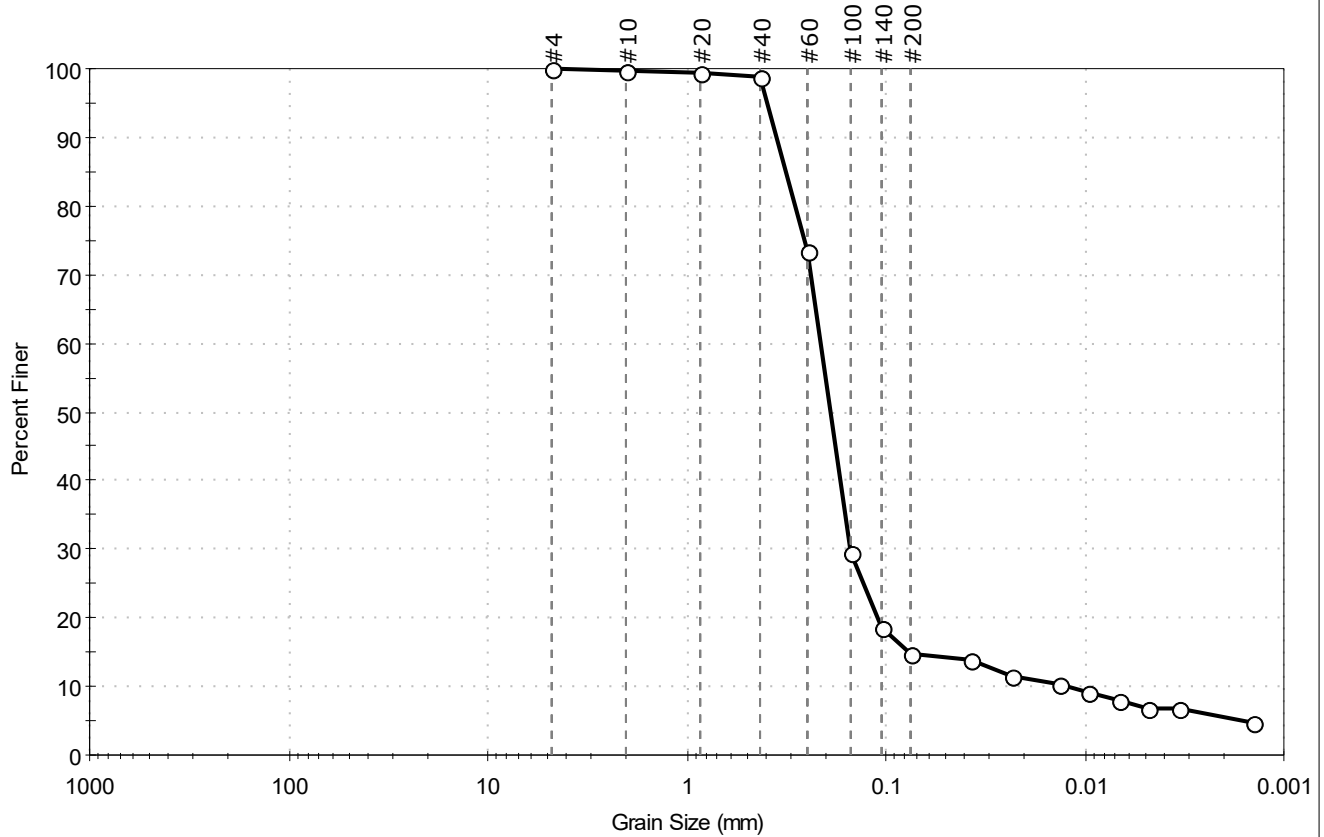
**Sample/Test Description**

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



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 Test Date: 11/07/19 Checked By: bfs  
 -1909 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 <sub>85</sub> = 0.3182 mm	D <sub>30</sub> = 0.1506 mm
D <sub>60</sub> = 0.2136 mm	D <sub>15</sub> = 0.0767 mm
D <sub>50</sub> = 0.1901 mm	D <sub>10</sub> = 0.0120 mm
C <sub>u</sub> = 17.800	C <sub>c</sub> = 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

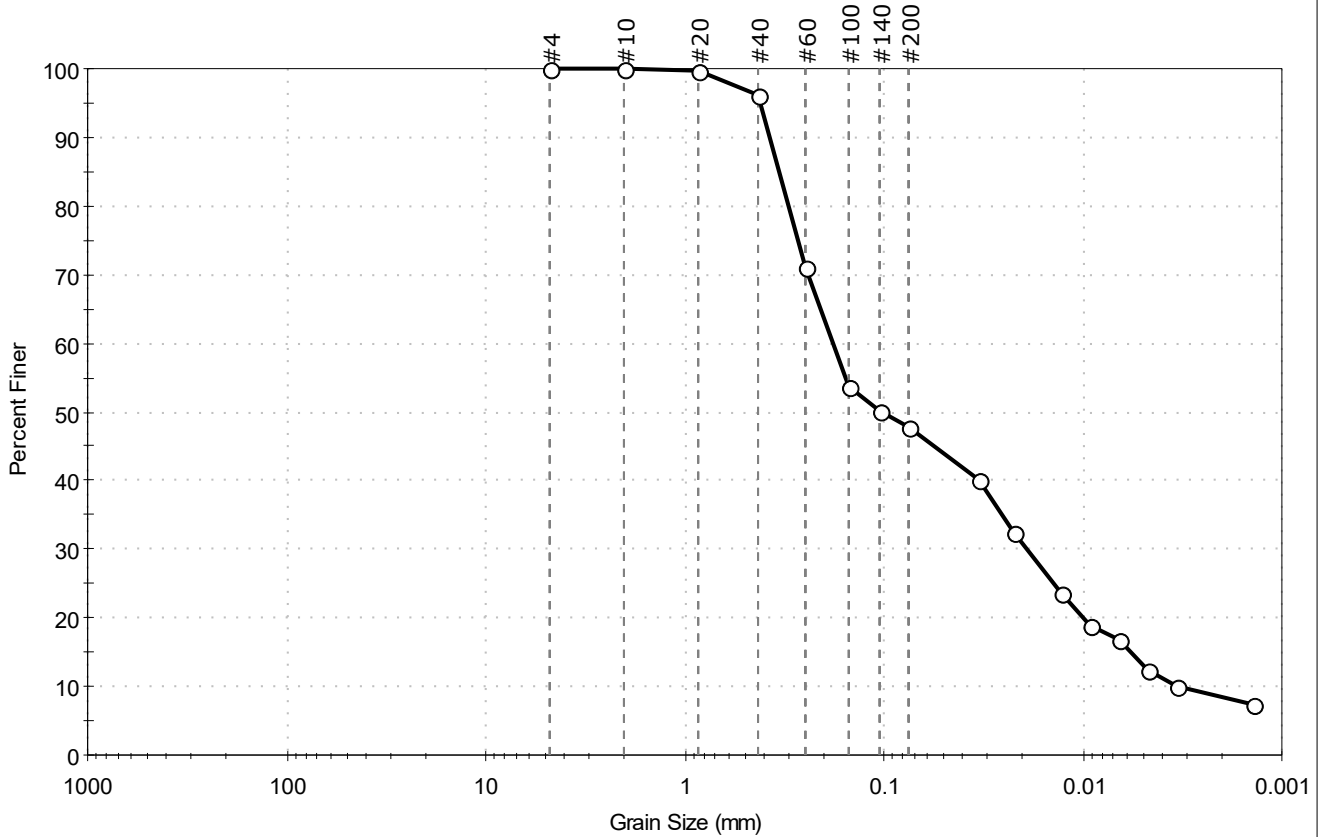
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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 est Date: 10/30/19 Checked By: bfs  
 -190926T 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 <sub>85</sub> = 0.3352 mm	D <sub>30</sub> = 0.0192 mm
D <sub>60</sub> = 0.1803 mm	D <sub>15</sub> = 0.0058 mm
D <sub>50</sub> = 0.1049 mm	D <sub>10</sub> = 0.0033 mm
C <sub>u</sub> = 54.636	C <sub>c</sub> = 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

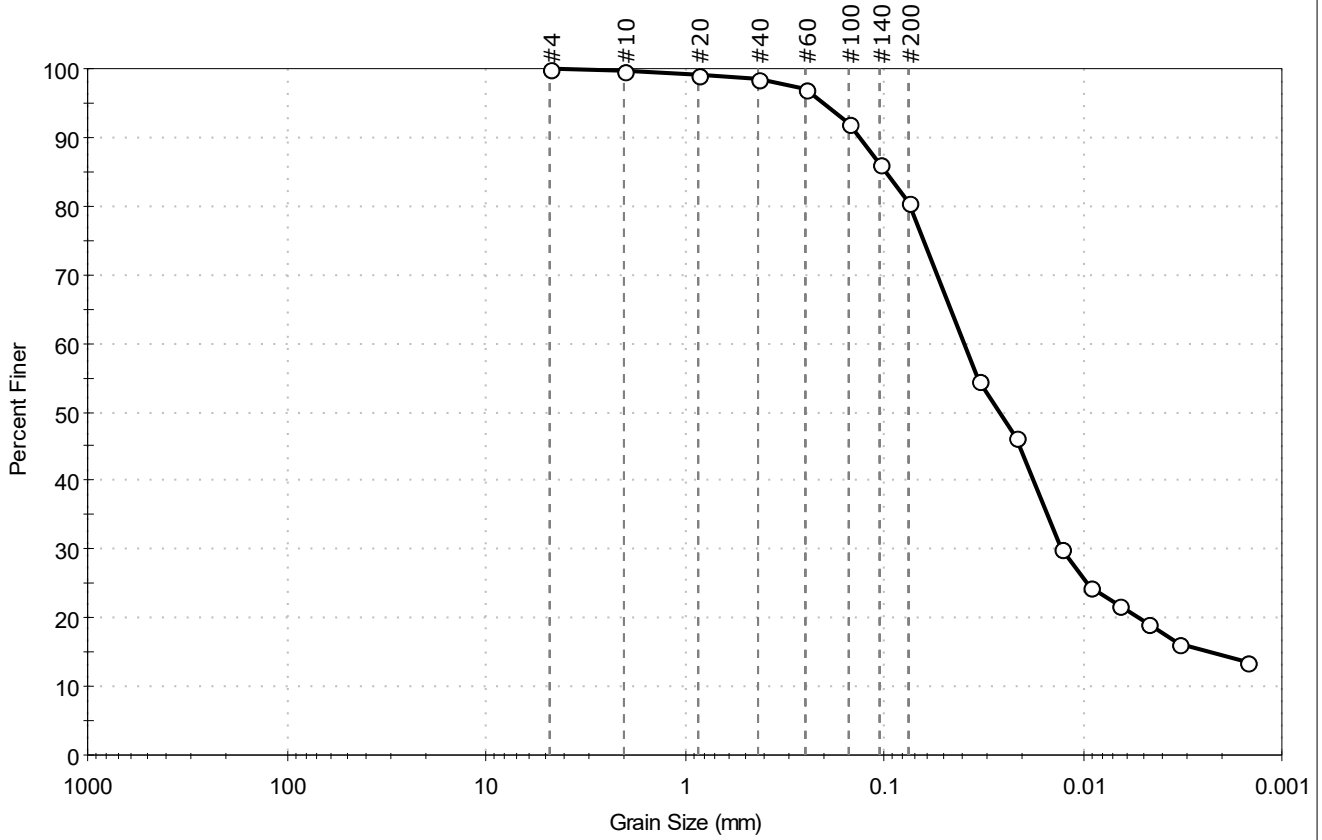
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



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 Test Date: 10/29/19 Checked By: bfs  
 -19092 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0992 mm	D <sub>30</sub> = 0.0129 mm
D <sub>60</sub> = 0.0398 mm	D <sub>15</sub> = 0.0022 mm
D <sub>50</sub> = 0.0264 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

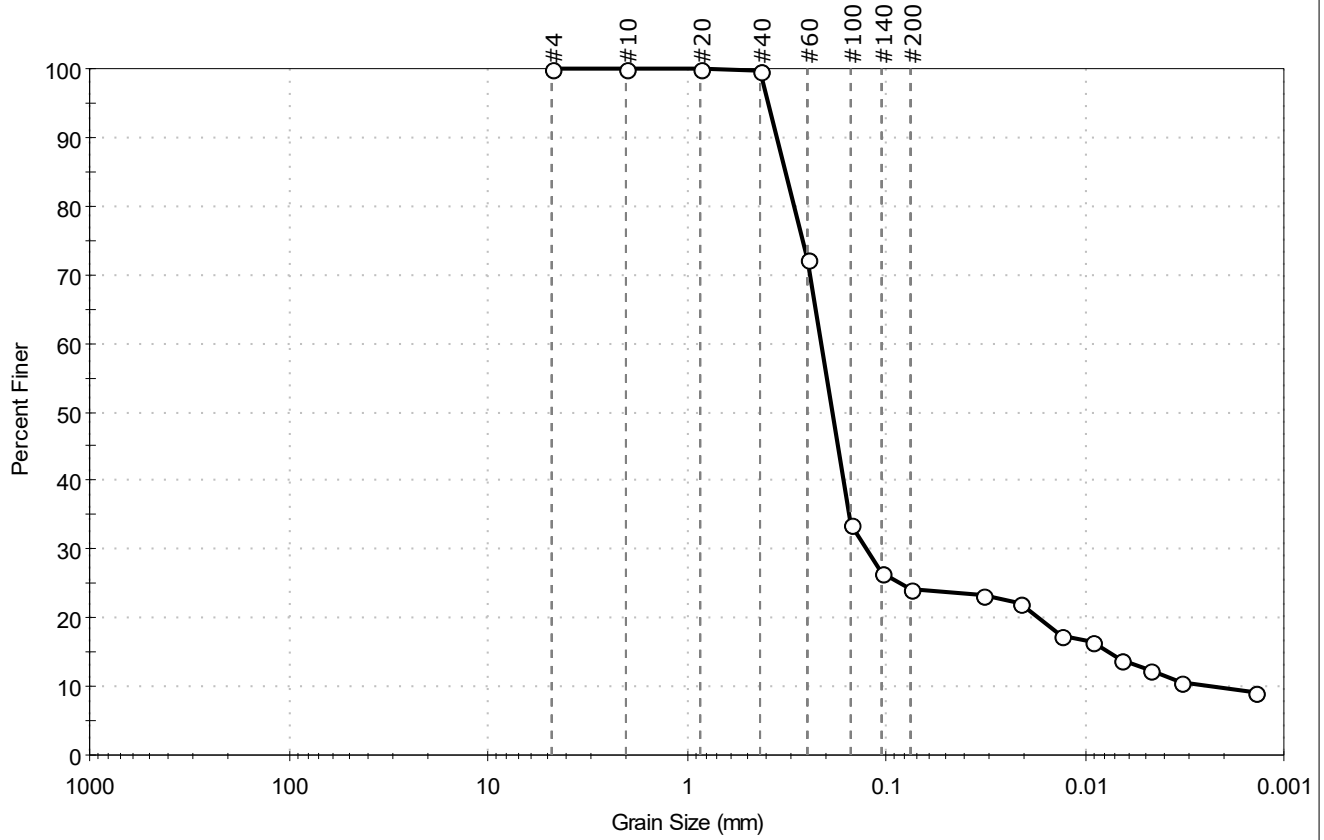
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (23))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-123SPT-25.5-30.5	Test Date: 11/11/19
-19 Depth: ---	Test Id: 527611
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark gray silty sand	Checked By: bfs
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 <sub>85</sub> = 0.3204 mm	D <sub>30</sub> = 0.1255 mm
D <sub>60</sub> = 0.2128 mm	D <sub>15</sub> = 0.0076 mm
D <sub>50</sub> = 0.1865 mm	D <sub>10</sub> = 0.0023 mm
C <sub>u</sub> = 92.522	C <sub>c</sub> = 32.180

Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

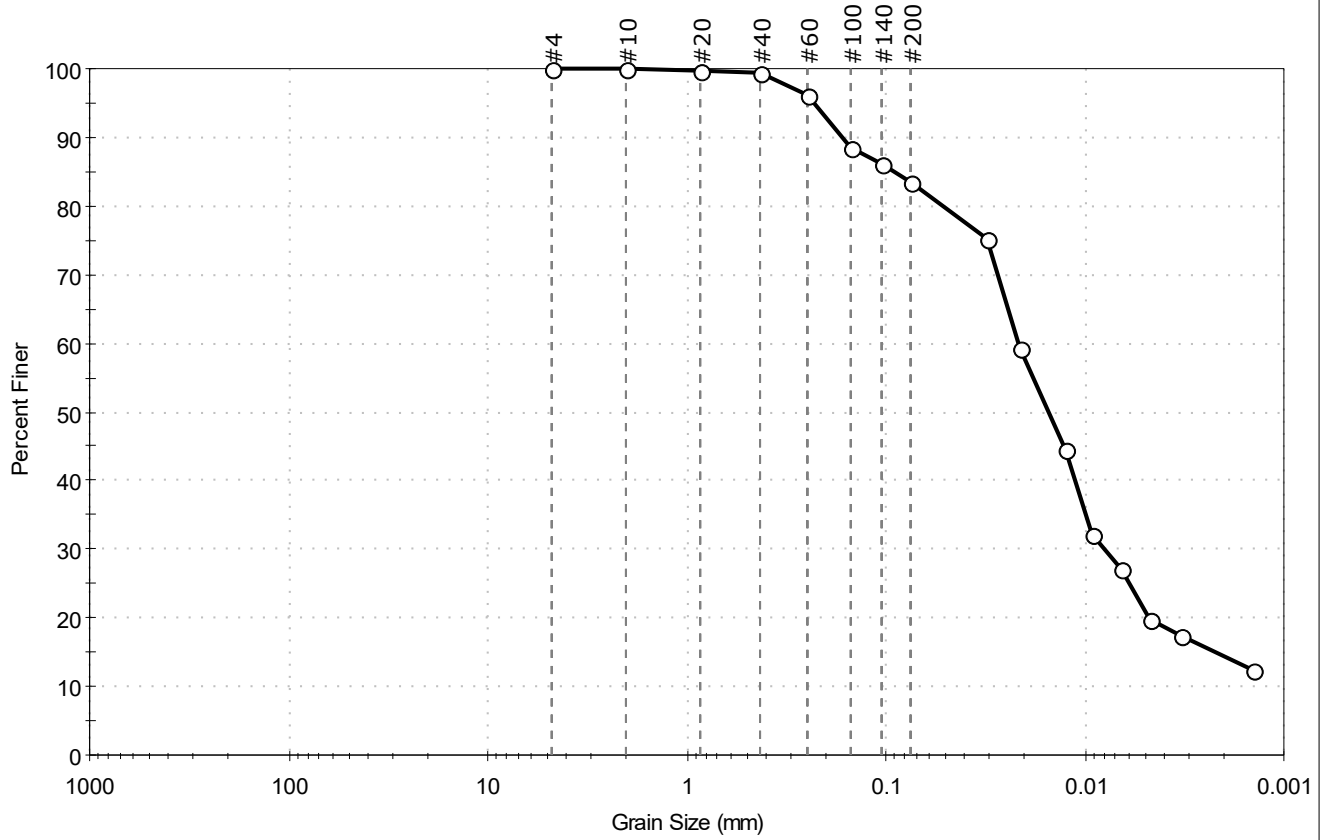
Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





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 Test Date: 11/05/19 Checked By: bfs  
 -19 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 <sub>85</sub> = 0.0911 mm	D <sub>30</sub> = 0.0079 mm
D <sub>60</sub> = 0.0214 mm	D <sub>15</sub> = 0.0022 mm
D <sub>50</sub> = 0.0152 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

**ASTM** SILT with Sand (ML)

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

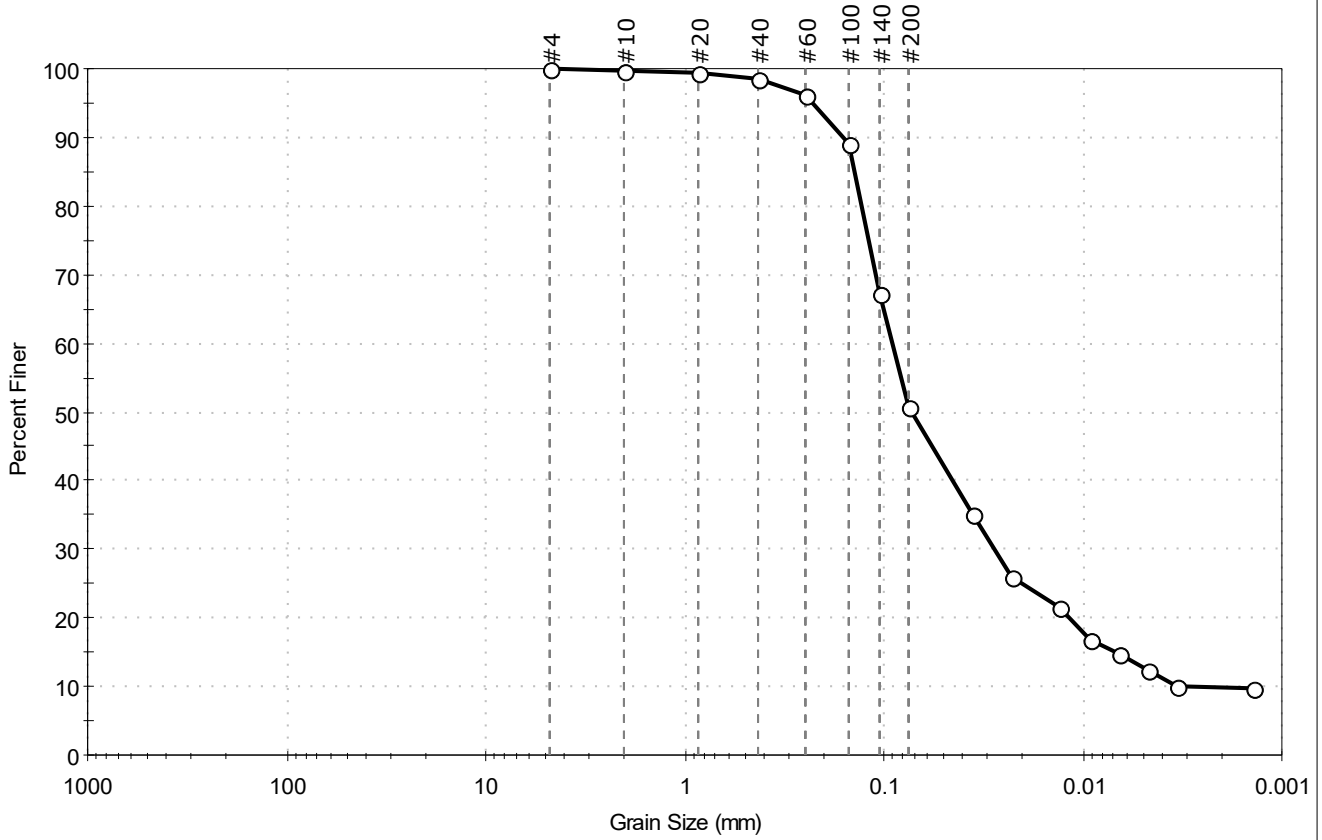
**Sample/Test Description**

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



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 est Date: 10/29/19 Checked By: bfs  
 -191008T 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 <sub>85</sub> = 0.1405 mm	D <sub>30</sub> = 0.0277 mm
D <sub>60</sub> = 0.0909 mm	D <sub>15</sub> = 0.0070 mm
D <sub>50</sub> = 0.0722 mm	D <sub>10</sub> = 0.0024 mm
C <sub>u</sub> = 37.875	C <sub>c</sub> = 3.517

**Classification**

<b>ASTM</b>	Sandy SILT (ML)
<b>AASHTO</b>	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-016SC-B-06-08	Test Date: 11/06/19	Checked By: bfs	
-1910 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
◆	PDI-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	Test Date: 11/12/19	Checked By: bfs	
-191 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
◆	PDI-027SC-B-11-13.5-191	---	---	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
Sample ID:	PDI-033SC-B-8.7-10.7	Test Date:	11/01/19
-19 Depth :	---	Checked By:	bfs
		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
◆	033SC-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



Client:	Anchor QEA, LLC		
Project:	Gasco PDI		
Location:		Project No:	GTX-310685
Boring ID:	---	Sample Type:	bag
Sample ID:	PDI-038SC-B-7.1-9.1	Test Date:	10/25/19
-191 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
Sample ID:	PDI-041SC-B-8.2-10.2	Test Date:	10/30/19
-19 Depth :	---	Checked By:	bfs
		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	Test Date: 11/05/19	Checked By: bfs	
-1910 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	Test Date: 11/06/19	Checked By: bfs	
-1910 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

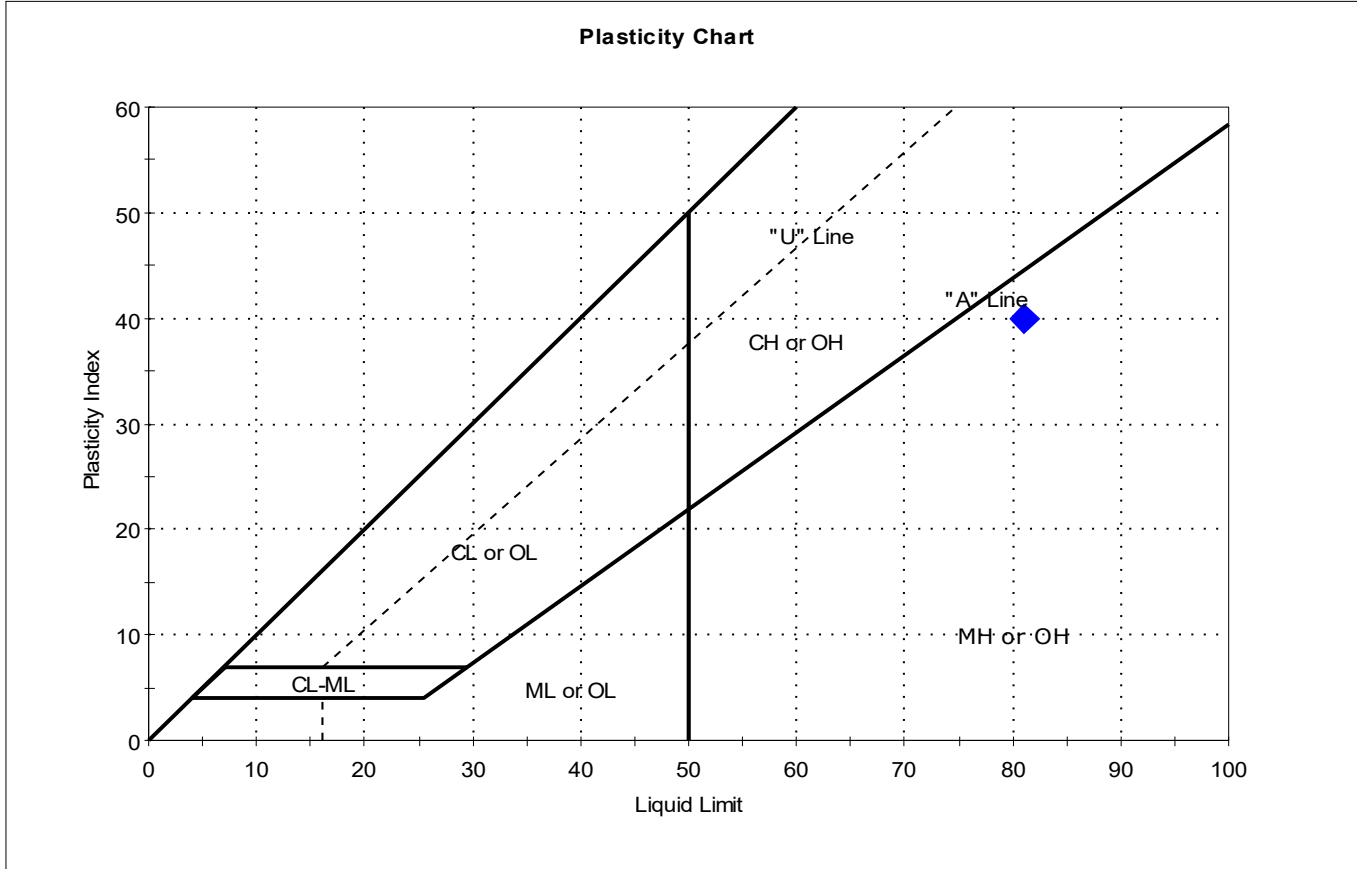
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	052SC-B-06-08-19	---	---	45	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



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

## Atterberg Limits - ASTM D4318



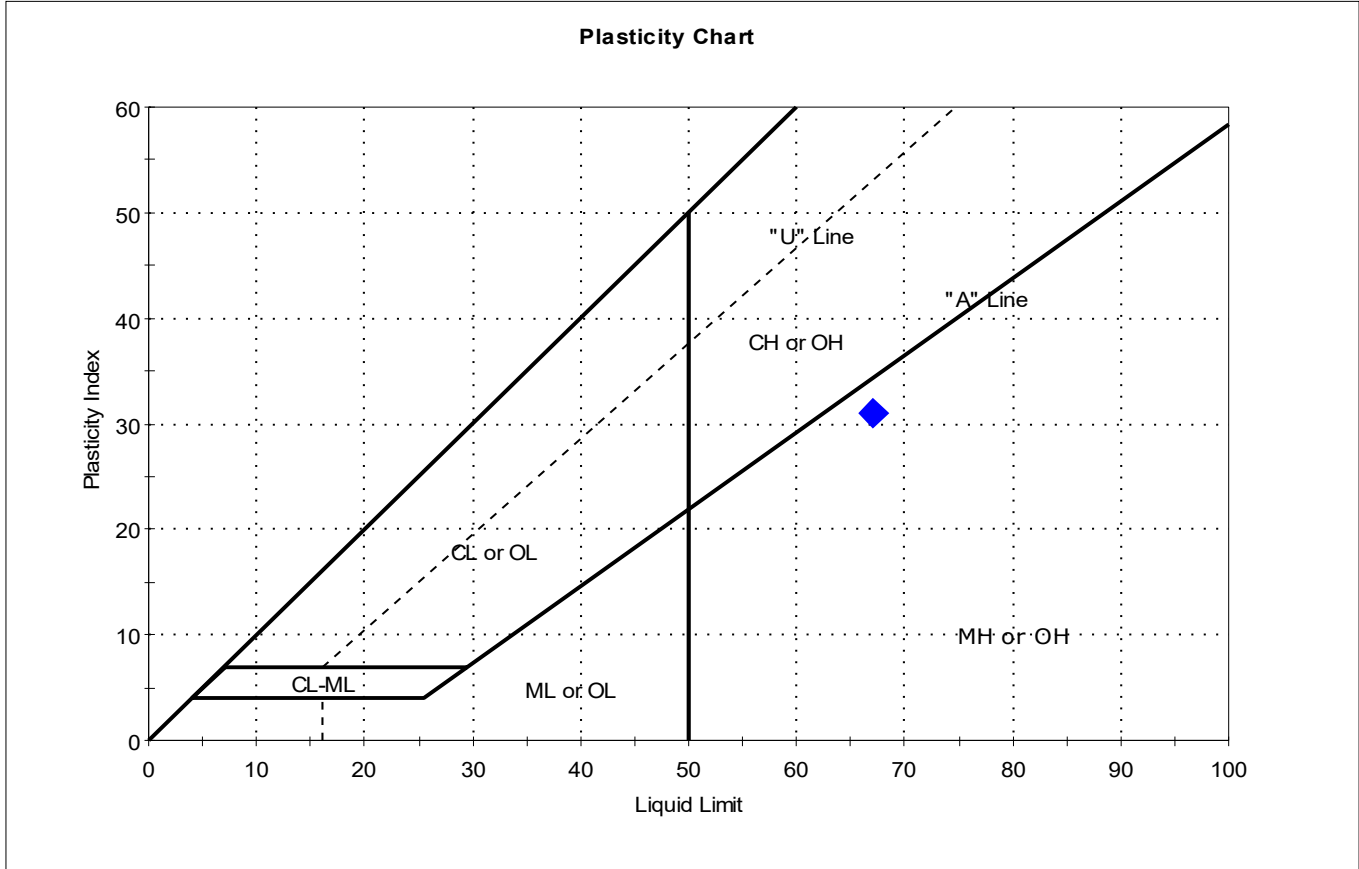
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	066SC-B-06-08-19	---	---	68	81	41	40	0.7	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-067SC-B-02-04	Test Date: 11/11/19	Test Id: 527476	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Wet, dark olive brown silt			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



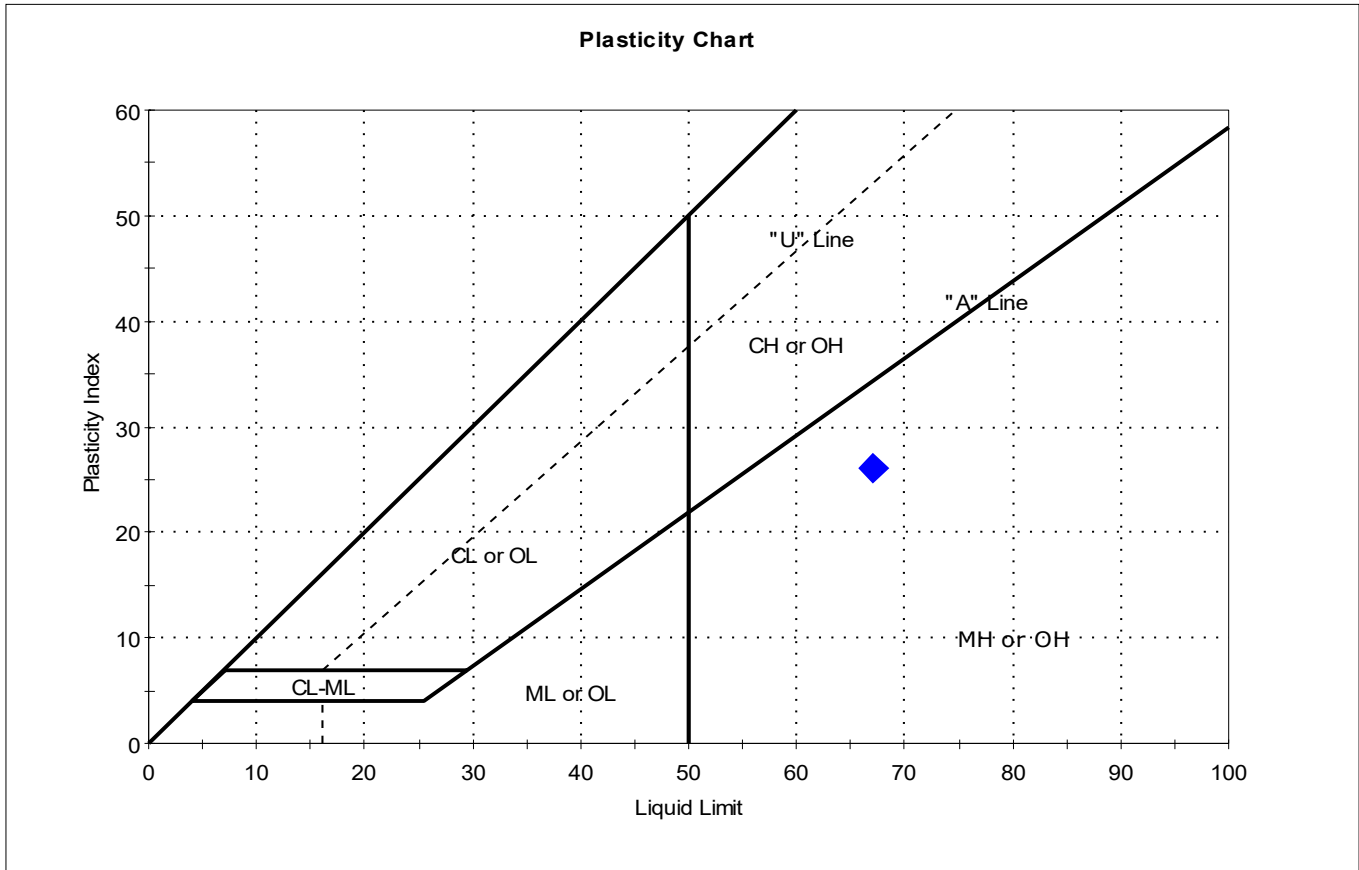
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-067SC-B-02-04-19	---	---	74	67	36	31	1.2	Elastic SILT (MH)

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



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

## Atterberg Limits - ASTM D4318



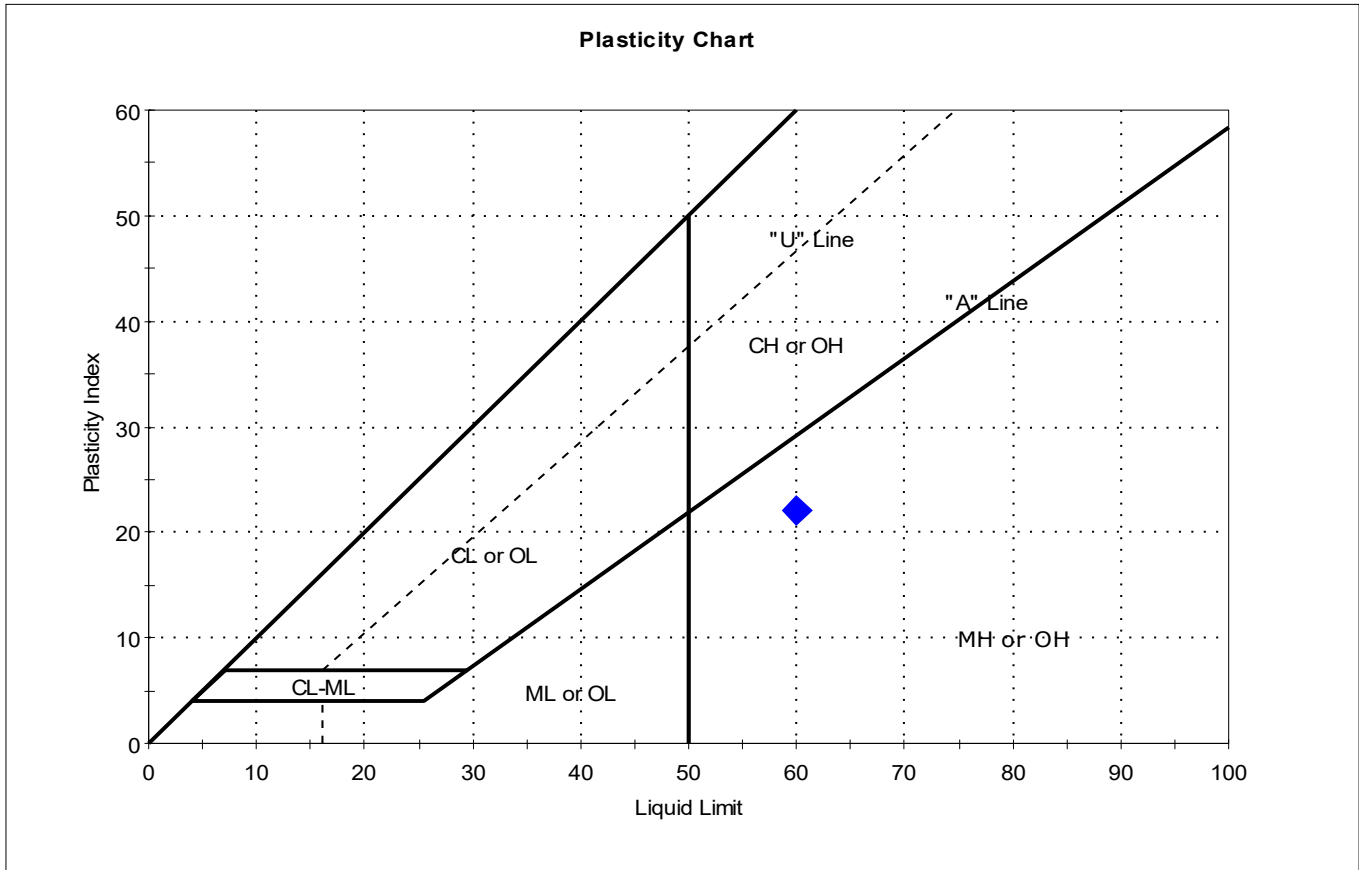
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-077SC-B-04-06-19	---	---	81	67	41	26	1.6	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-079SC-B-06-08	Test Date: 11/18/19	Test Id: 527474	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Wet, dark grayish brown silt			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



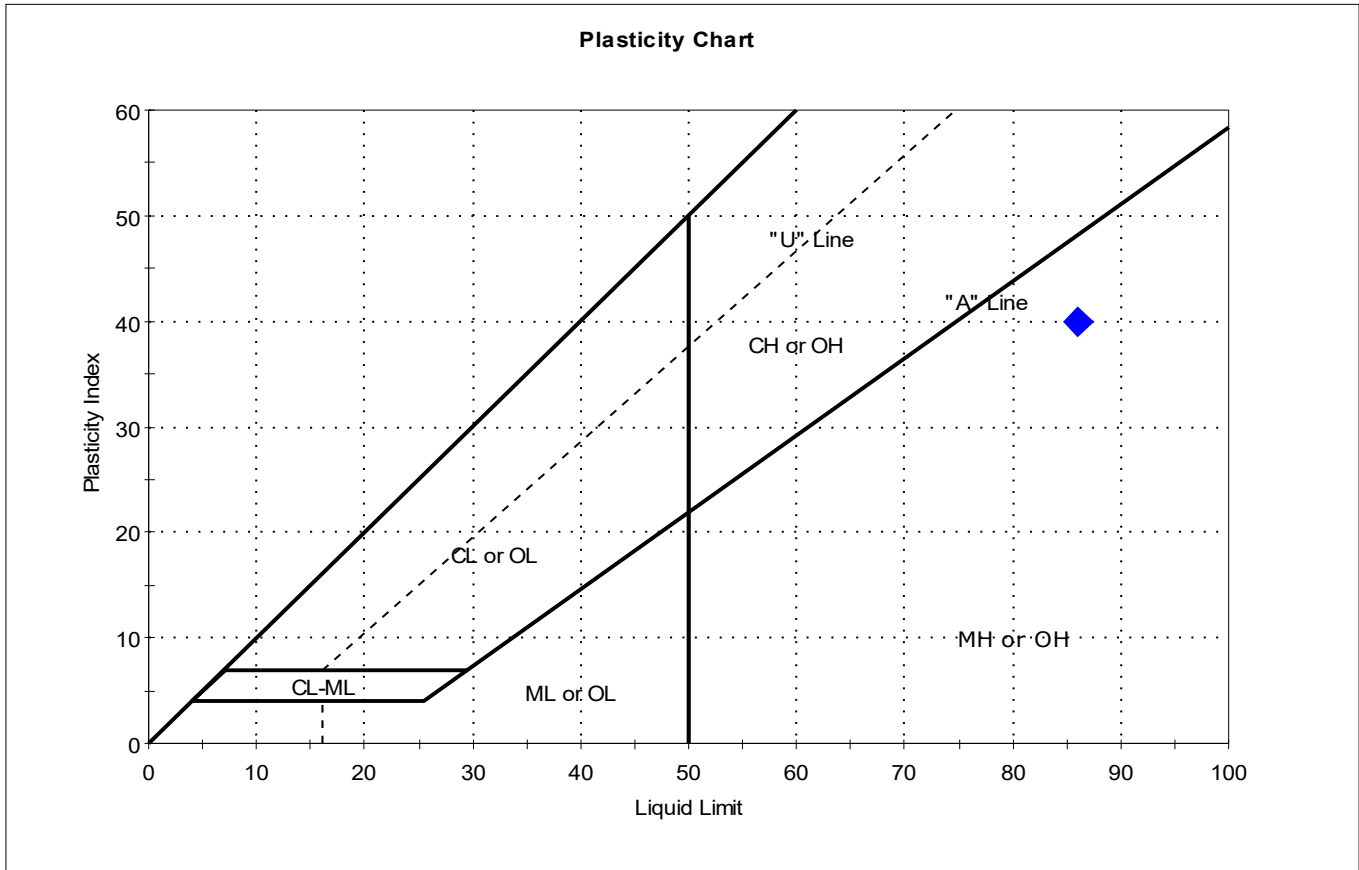
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	079SC-B-06-08-19	---	---	115	60	38	22	3.5	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-090SC-B-06-08	Test Date: 11/11/19	Test Id: 527483	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Moist, dark olive brown silt			
Sample Comment: Sample contains organics			

## Atterberg Limits - ASTM D4318



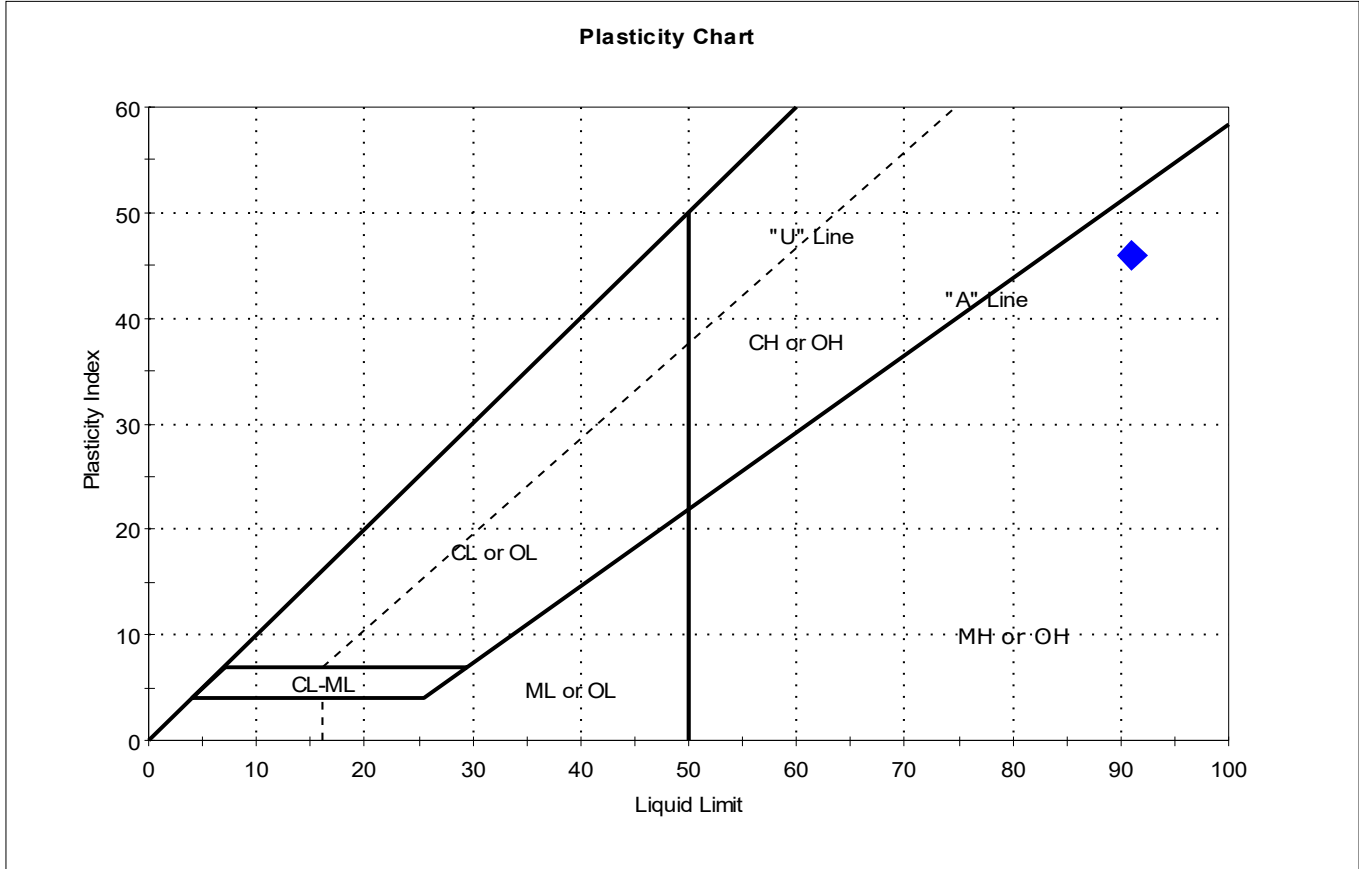
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-090SC-B-06-08-19	---	---	82	86	46	40	0.9	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-107SPT-00-04	est Date: 11/12/19	Test Id: 527486	
-190923T Depth : ---			
Test Comment: ---			
Visual Description: Wet, dark olive brown silt			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



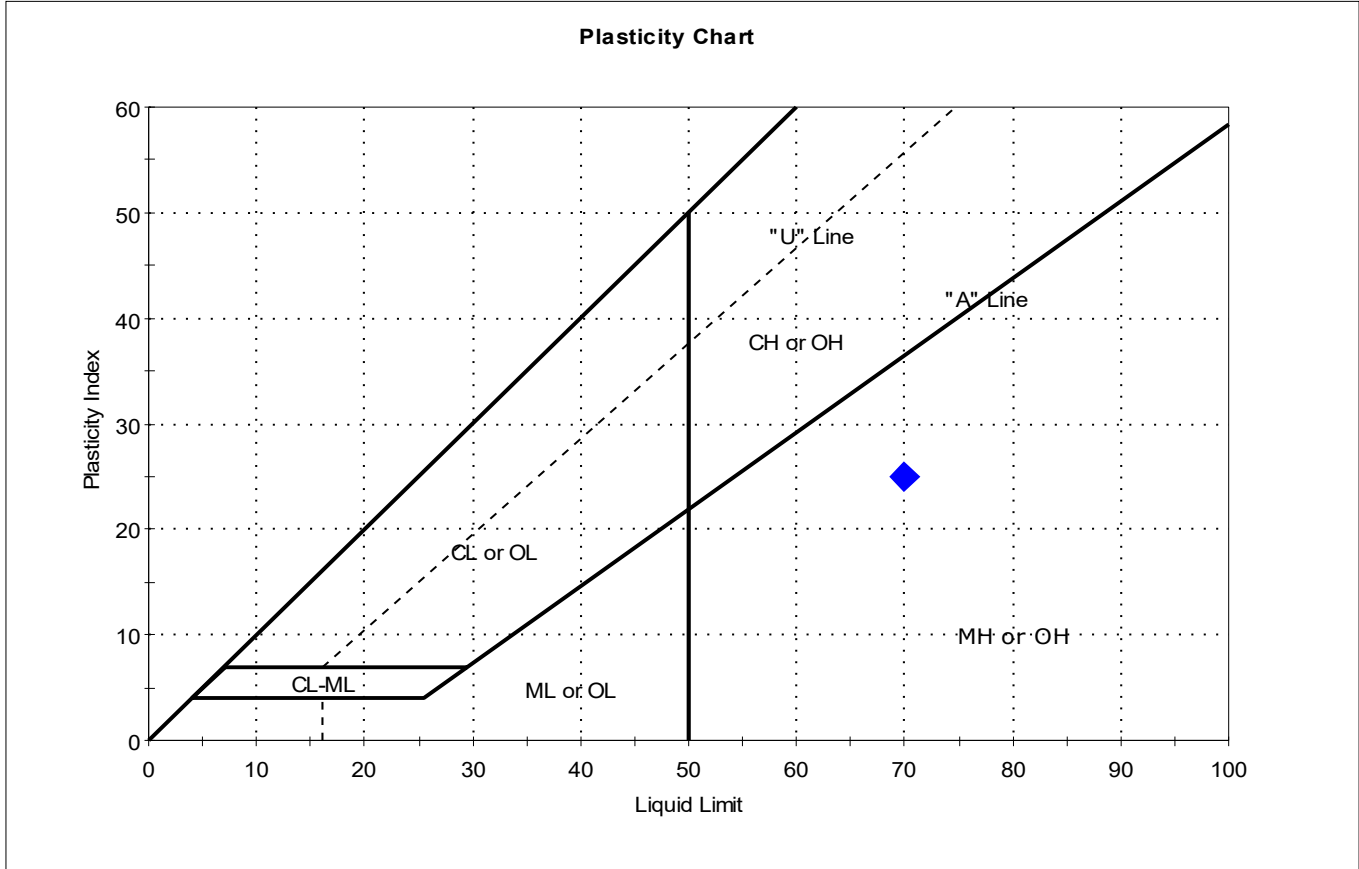
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-00-04-190	---	---	108	91	45	46	1.4	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-107SPT-04-09	est Date: 11/18/19	Test Id: 527487	
-190923T Depth : ---			
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
Sample ID:	PDI-107SPT-17-18	est Date:	11/11/19
-190923T 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
Sample ID:	PDI-107SPT-62-64	est Date:	10/28/19
-190923T 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

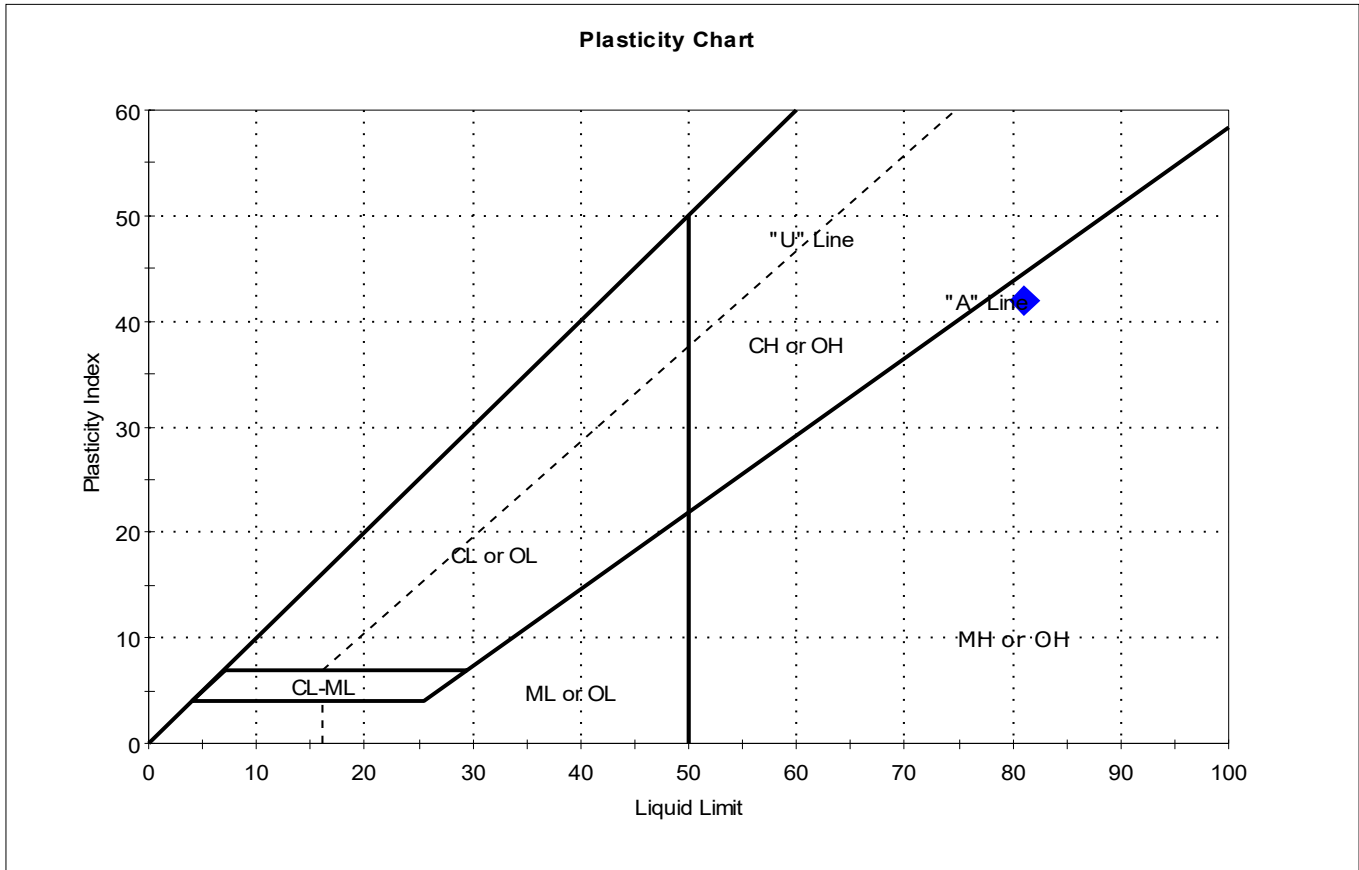
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	107SPT-62-64-190	---	---	27	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-108SPT-00-6.4	Test Date: 11/11/19	Test Id: 527490	
-19100 Depth : ---			
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	Test Date: 10/23/19	Checked By: bfs	
-1910 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
Sample ID:	PDI-108SPT-33.5-66.5	Test Date:	10/28/19
-19 Depth :	---	Checked By:	bfs
		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

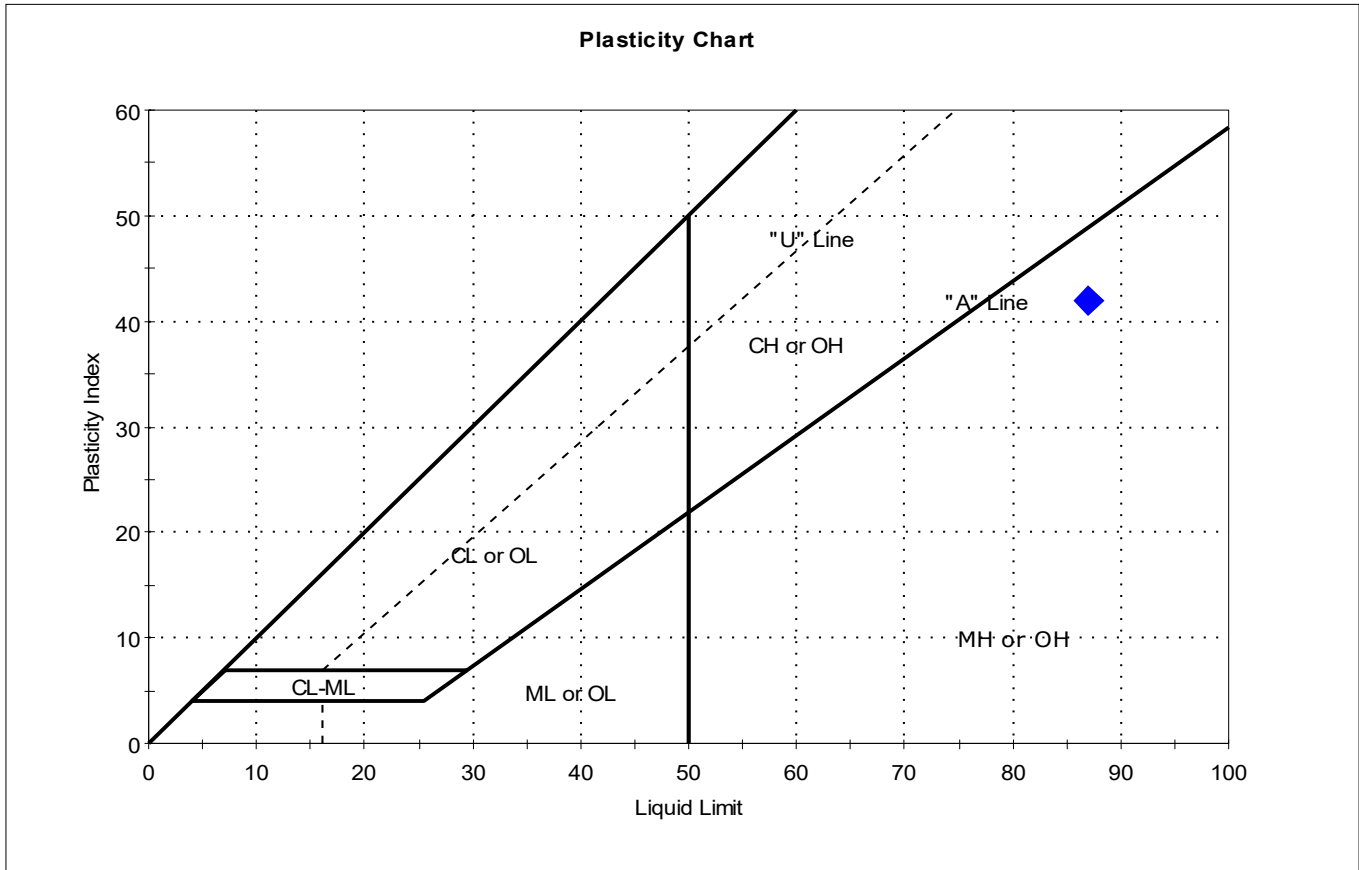
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	08SPT-33.5-66.5-1	---	---	30	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

26% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: n/a
Sample ID: PDI-109SPT-00-6.5	Test Date: 11/18/19	Test Id: 527493	
-19100 Depth : ---			
Test Comment: ---			
Visual Description: Wet, very dark olive silt			
Sample Comment: Sample contains organics			

## Atterberg Limits - ASTM D4318



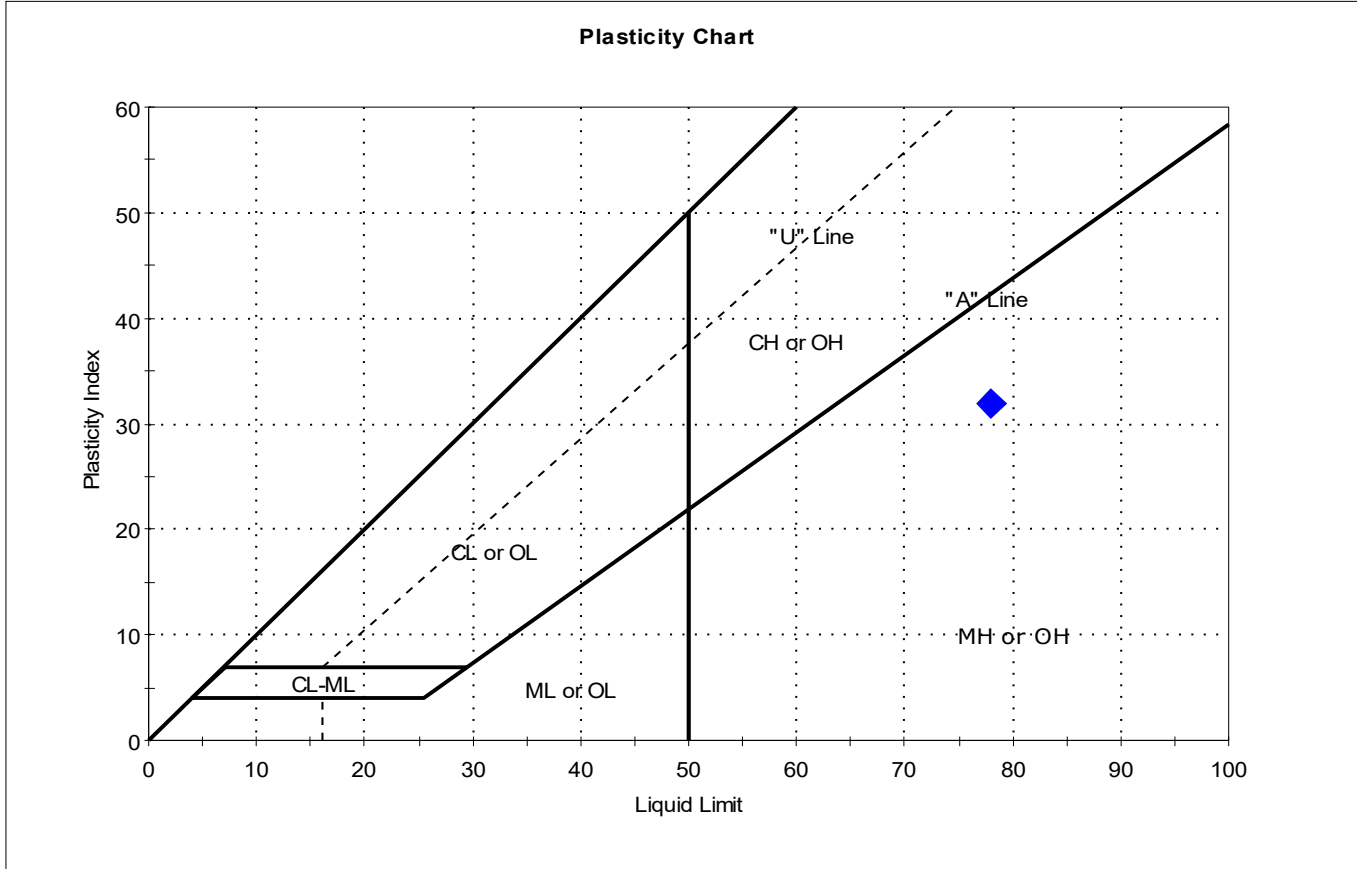
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	109SPT-00-6.5-19	---	---	93	87	45	42	1.1	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-109SPT-16.5-18.1	Test Date: 11/18/19	Test Id: 527494	
-19 Depth : ---			
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
◆	PDI-109SPT-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	est Date: 10/25/19	Checked By: bfs	
-191004T 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
Sample ID:	PDI-109SPT-35.5-48.3	Test Date:	10/24/19
-19 Depth :	---	Checked By:	bfs
		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
◆	09SPT-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
Sample ID:	PDI-109SPT-48.3-51	Test Date:	11/12/19
-1910 Depth :	---	Checked By:	bfs
		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	Test Date: 10/24/19	Checked By: bfs	
-19101 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
Sample ID:	PDI-110SPT-21-32	est Date:	10/24/19
-191010T 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	est Date: 10/24/19	Checked By: bfs	
-191010T Depth : ---	Test Id: 527500		
Test Comment: ---			
Visual Description: Moist, black sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

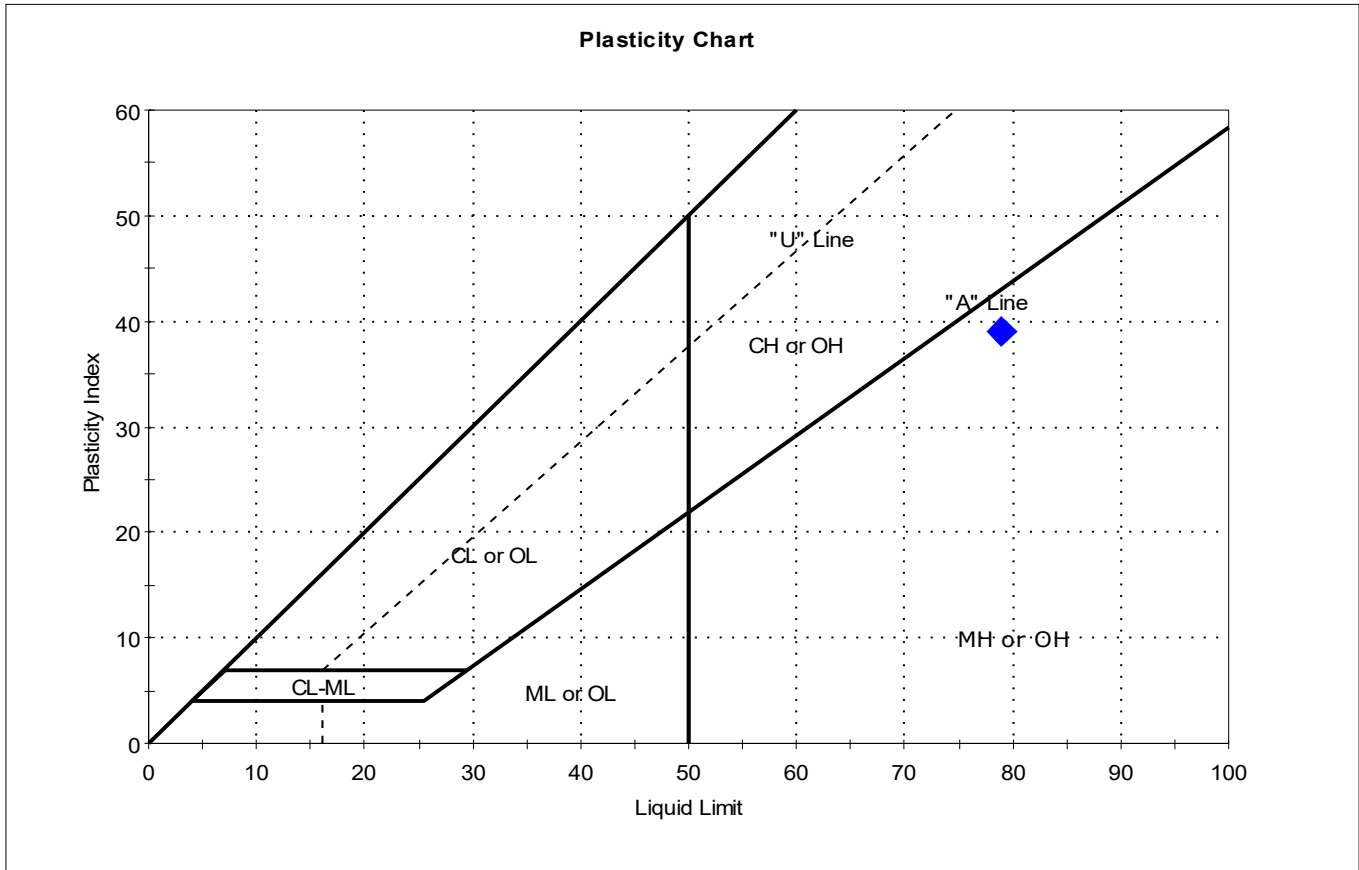
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	110SPT-32-45-191	---	---	28	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

41% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-112SPT-00-6.5	Test Date: 11/11/19	Test Id: 527501	
-19100 Depth : ---			
Test Comment: ---			
Visual Description: Moist, dark brown silt			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



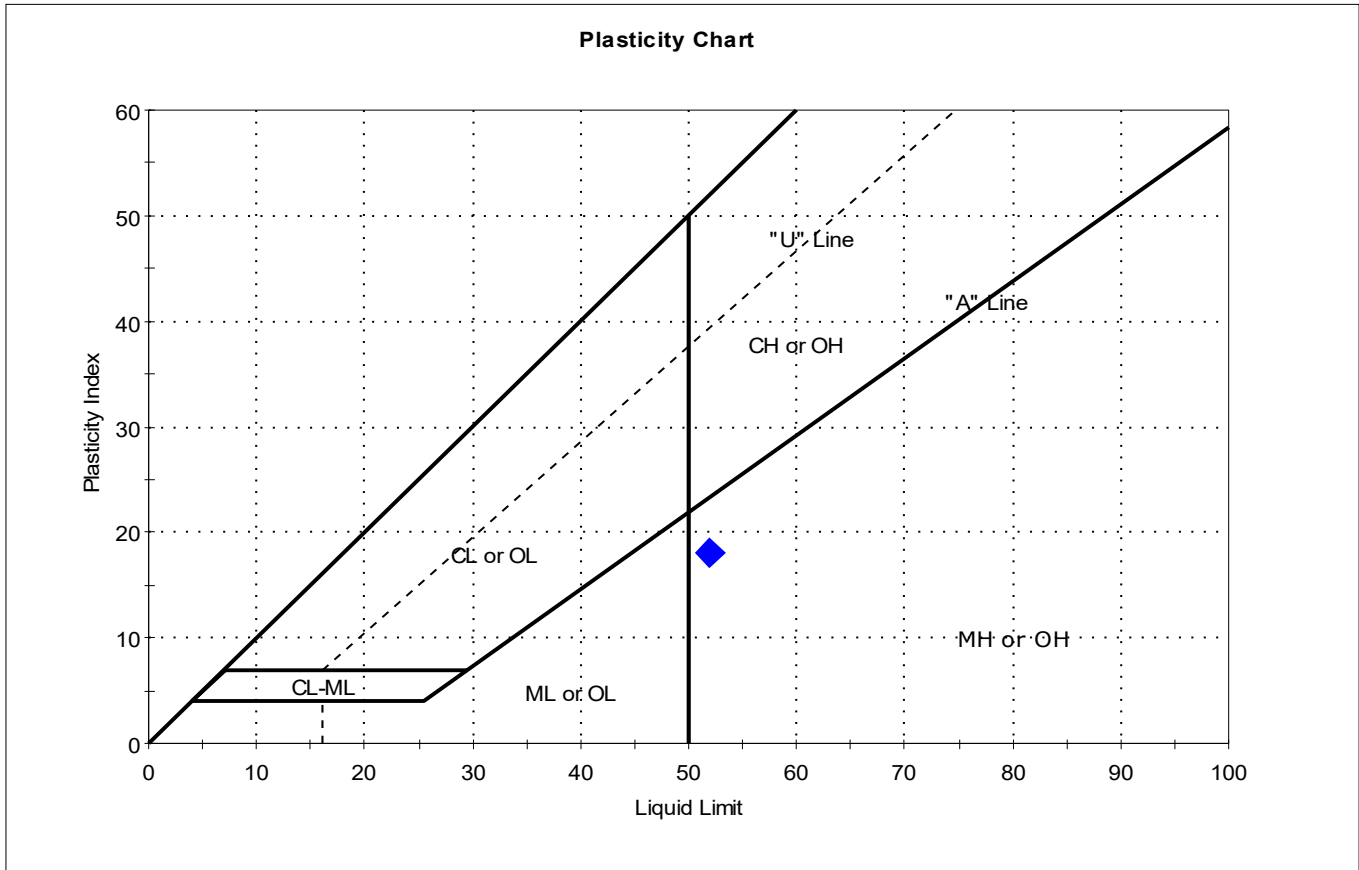
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	112SPT-00-6.5-19	---	---	77	79	40	39	0.9	Elastic SILT (MH)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-112SPT-07-11.5	Test Date: 11/15/19	Test Id: 527502	
-1910 Depth: ---			
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
Sample ID:	PDI-112SPT-11.5-26.5	Test Date:	11/12/19
-19 Depth :	---	Checked By:	bfs
		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
Sample ID:	PDI-112SPT-37.5-58	Test Date:	10/28/19
-1910 Depth :	---	Checked By:	bfs
		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

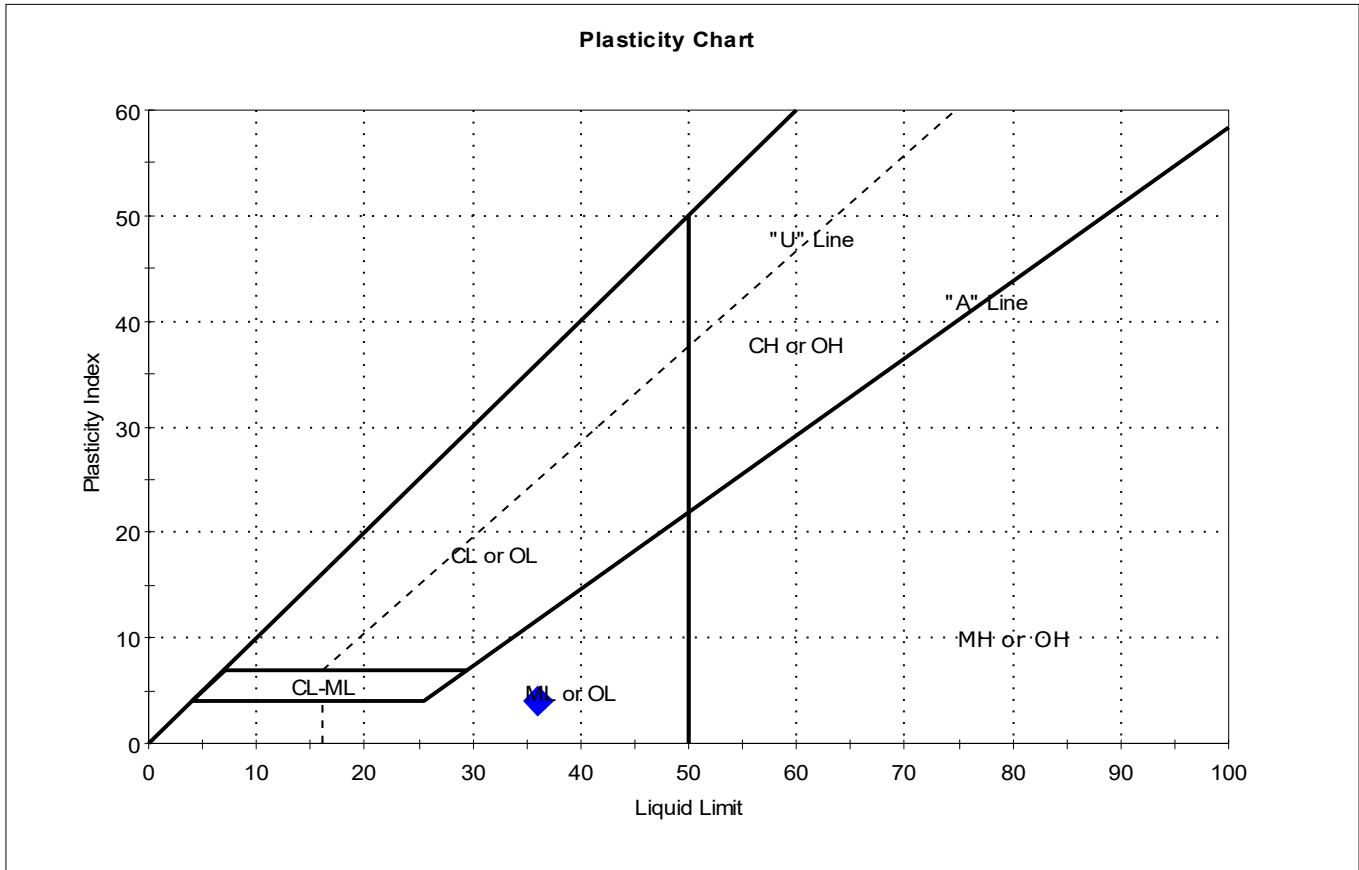
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	12SPT-37.5-58-19	---	---	19	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-113SPT-06-16	Test Date: 11/13/19	Test Id: 527505	
-19101 Depth : ---			
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	Test Date: 10/23/19	Checked By: bfs	
-19101 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

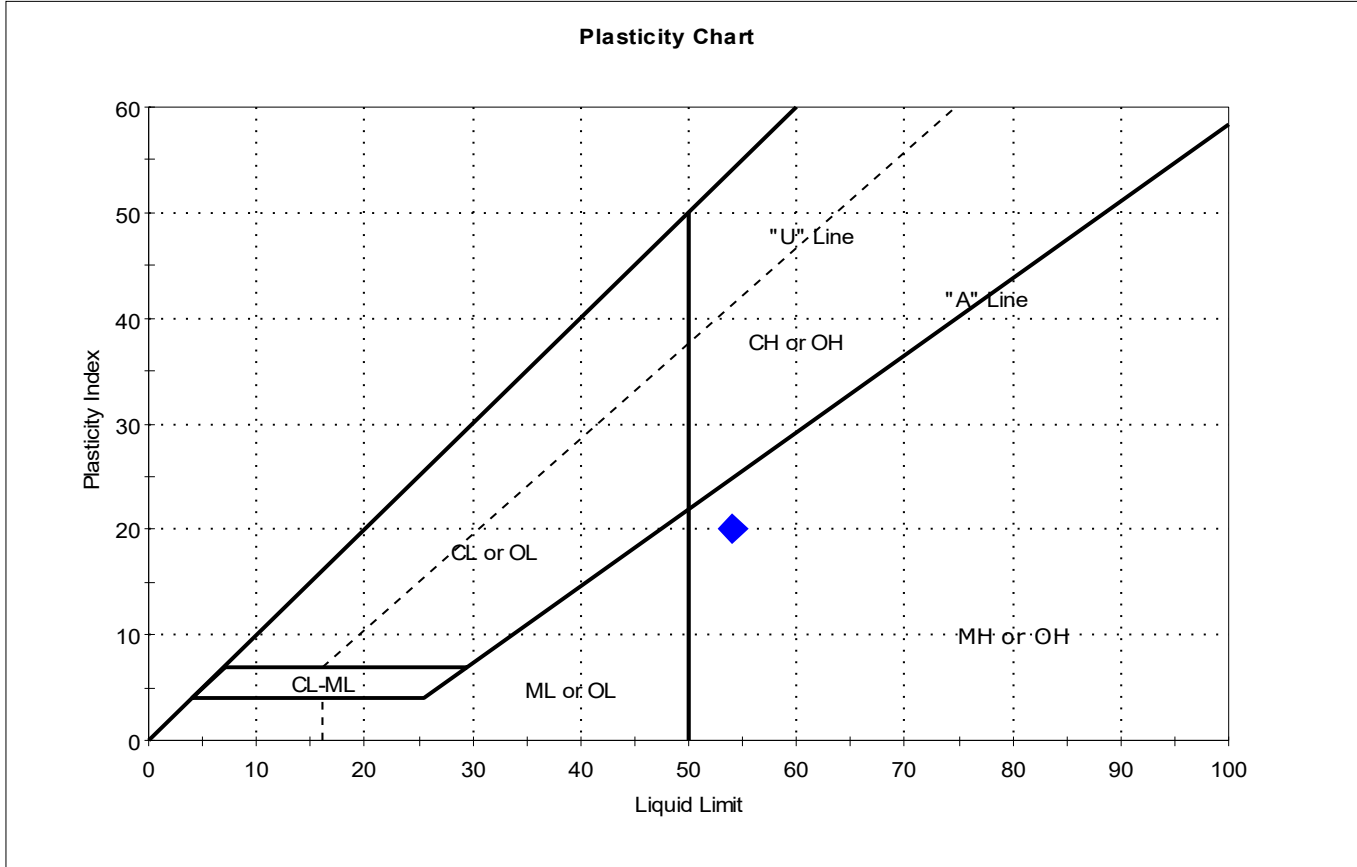
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	113SPT-16-22-191	---	---	37	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

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	Checked By: bfs
Sample ID: PDI-113SPT-22-25.2	Test Date: 11/12/19	Test Id: 527507	
-1910 Depth: ---			
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
Sample ID:	PDI-113SPT-31.9-39.4	Test Date:	10/23/19
-19 Depth :	---	Checked By:	bfs
		Test Id:	527508
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

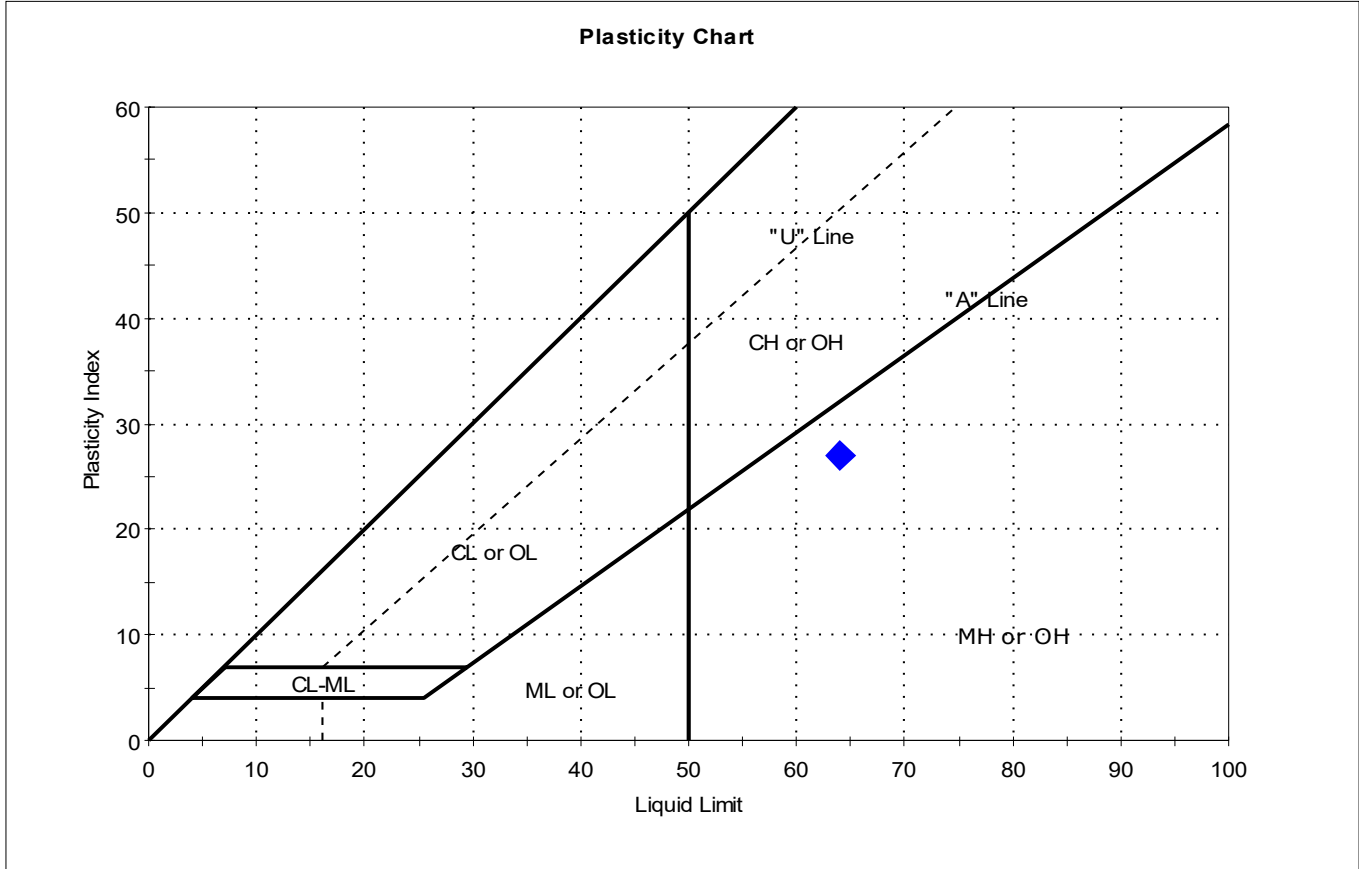
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	13SPT-31.9-39.4-1	---	---	33	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-114SPT-00-7.5	Test Date: 11/11/19	Test Id: 527509	
-19100 Depth : ---			
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	Test Date: 10/30/19	Checked By: bfs	
-1910 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

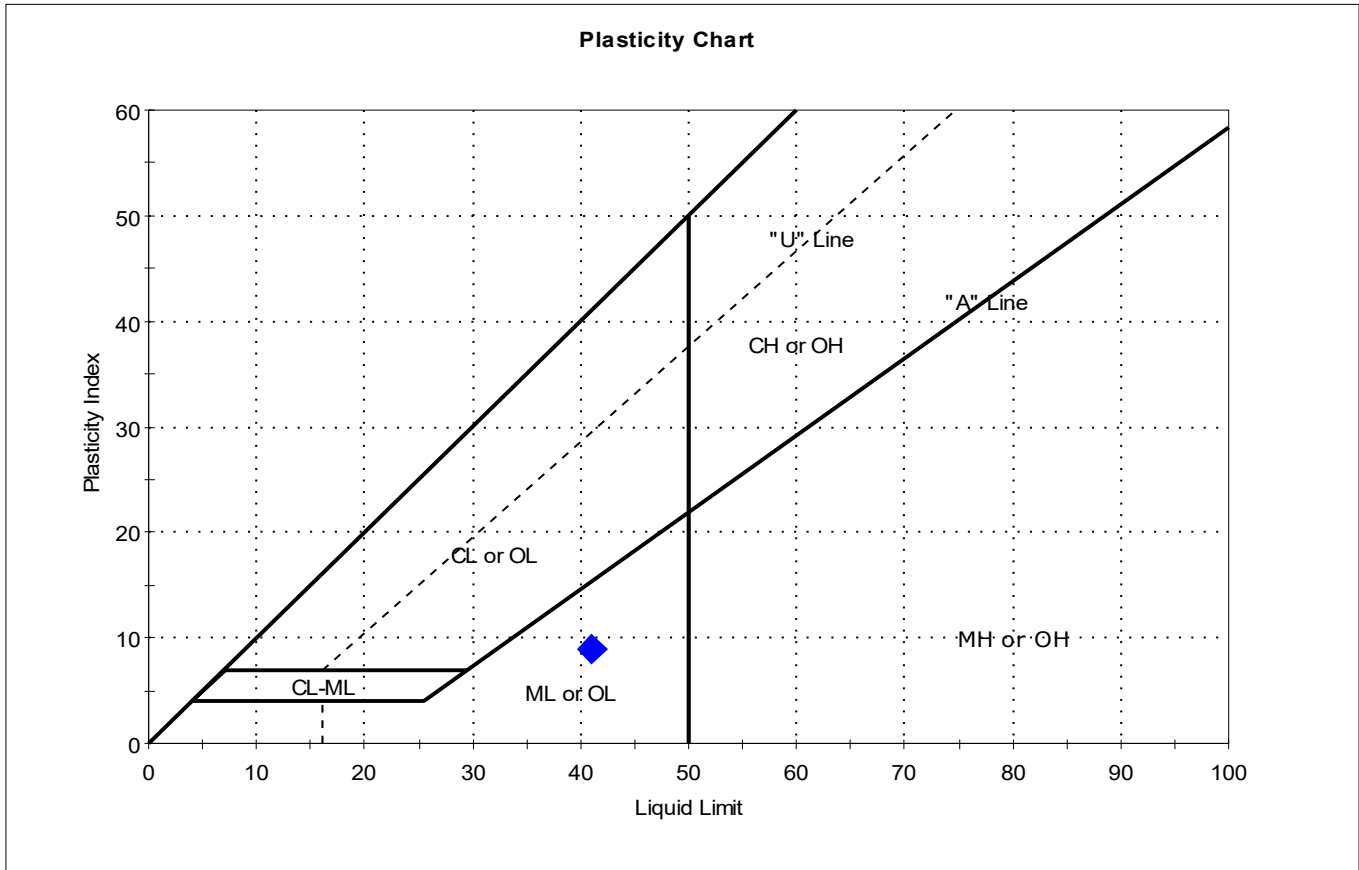
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	14SPT-25.5-28-19	---	---	31	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-114SPT-42-50.5	Test Date: 11/15/19	Test Id: 527511	
-1910 Depth: ---			
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
Sample ID:	PDI-114SPT-50.5-55	Test Date:	10/28/19
-1910 Depth :	---	Checked By:	bfs
		Test Id:	527512
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

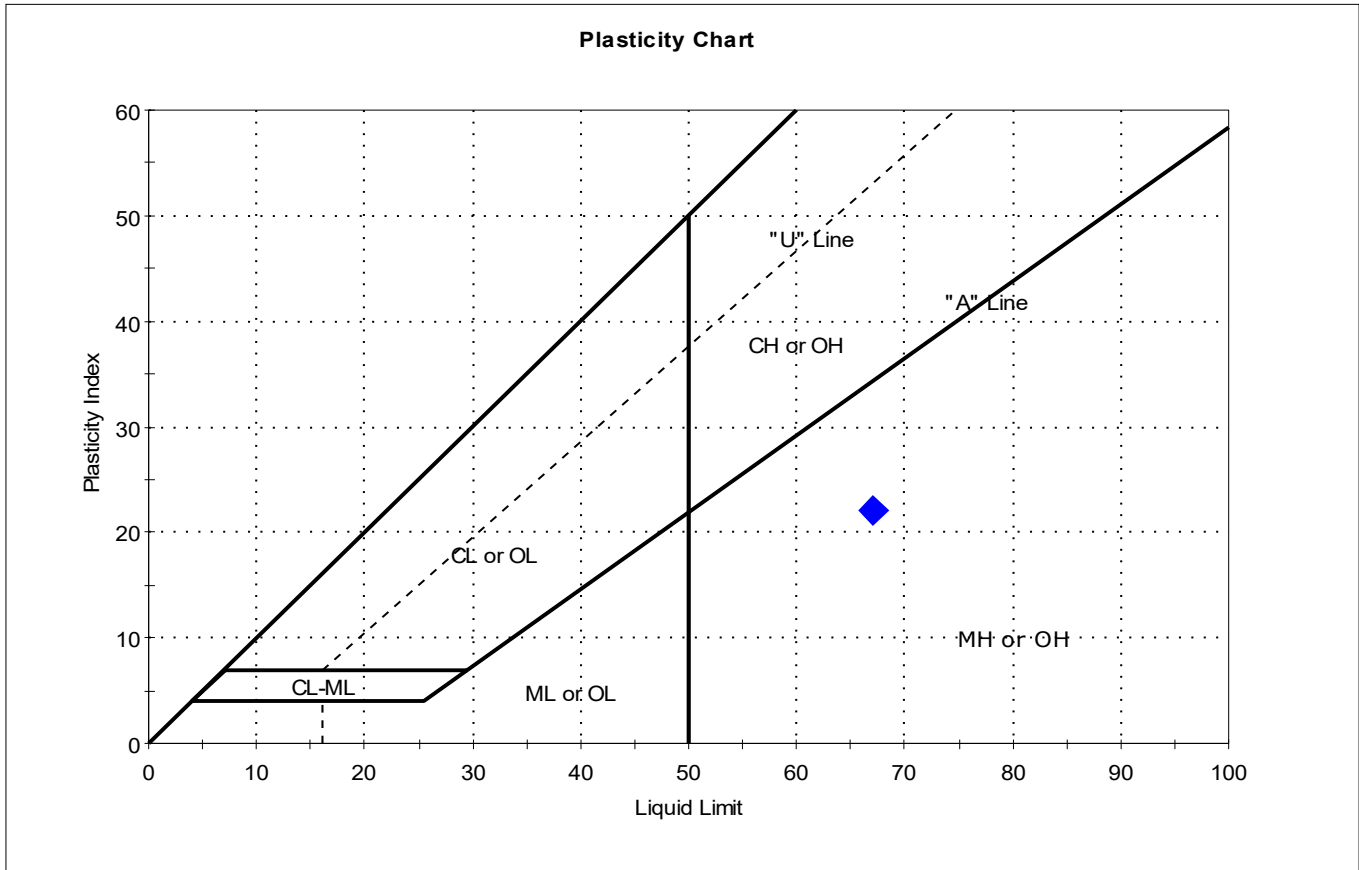
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	14SPT-50.5-55-19	---	---	37	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-114SPT-7.5-12.5	Test Date: 11/18/19	-191 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
Sample ID:	PDI-115SPT-06-11	est Date:	10/24/19
-191009T Depth :	---	Test Id:	527514
Test Comment:	---		
Visual Description:	Moist, very dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

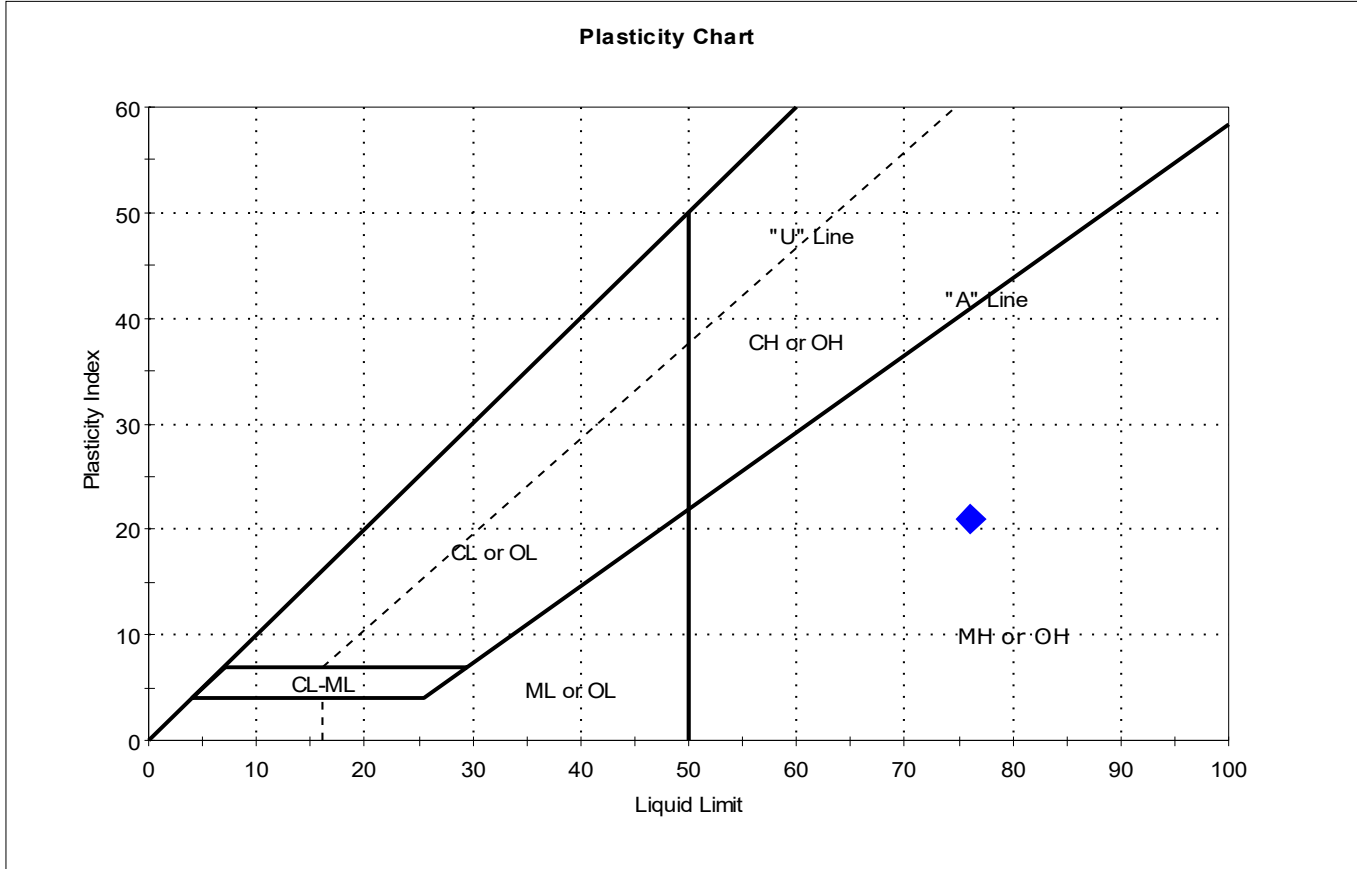
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	115SPT-06-11-191	---	---	17	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-115SPT-18.6-20.6	Test Date: 11/13/19	Test Id: 527515	
-19 Depth : ---			
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
◆	PDI-115SPT-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
Sample ID:	PDI-115SPT-23-28.1	Test Date:	10/24/19
-1910 Depth :	---	Checked By:	bfs
		Test Id:	527516
Test Comment:	---		
Visual Description:	Moist, very dark 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
◆	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
Sample ID:	PDI-115SPT-41.5-49.3	Test Date:	10/25/19
-19 Depth :	---	Checked By:	bfs
		Test Id:	527517
Test Comment:	---		
Visual Description:	Moist, olive brown silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

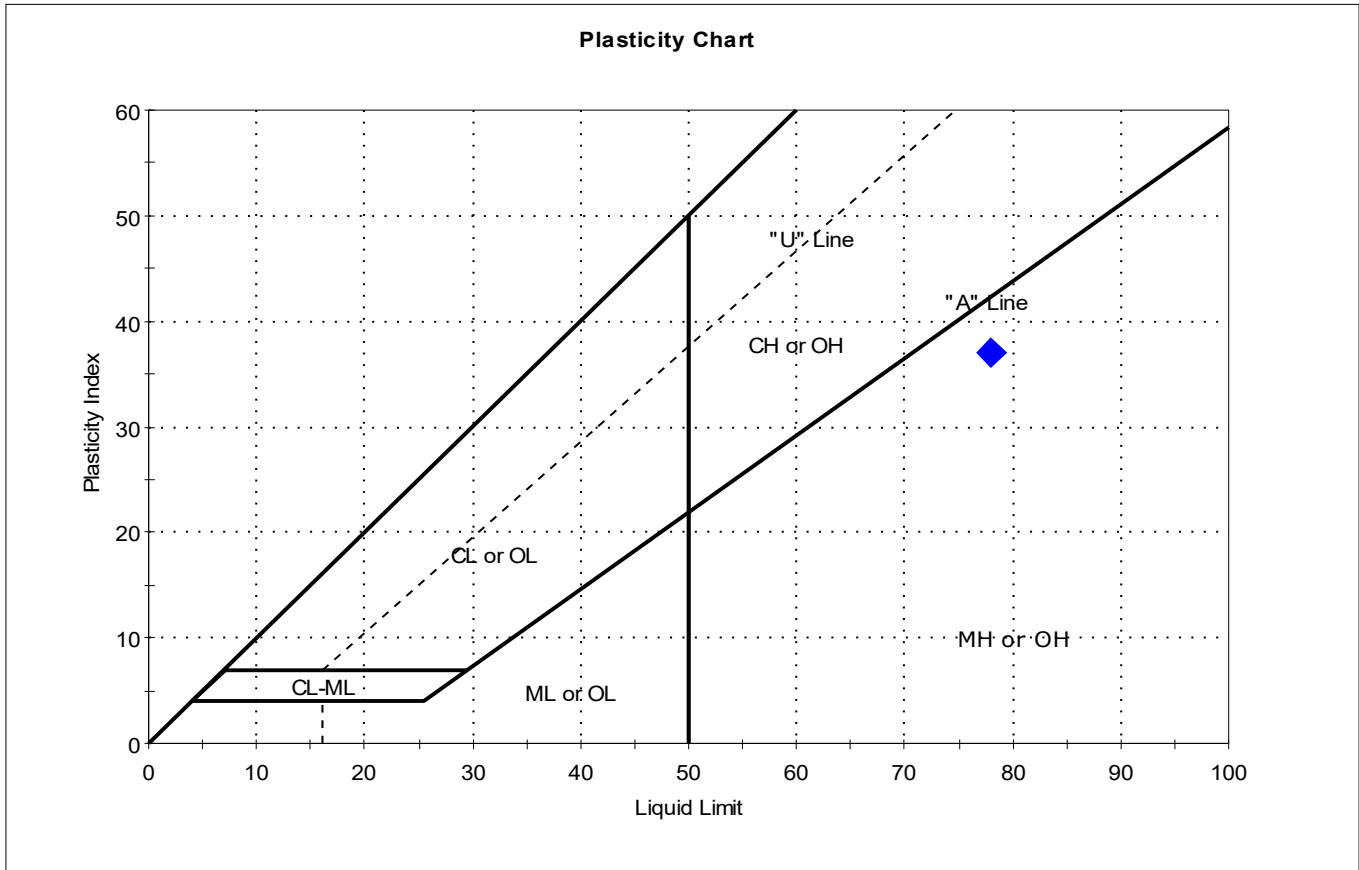
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	15SPT-41.5-49.3-1	---	---	39	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-116SPT-00-4.5	Test Date: 11/11/19	Test Id: 527518	
-19092 Depth : ---			
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
Sample ID:	PDI-116SPT-20-26.7	Test Date:	11/01/19
-1909 Depth :	---	Checked By:	bfs
		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)

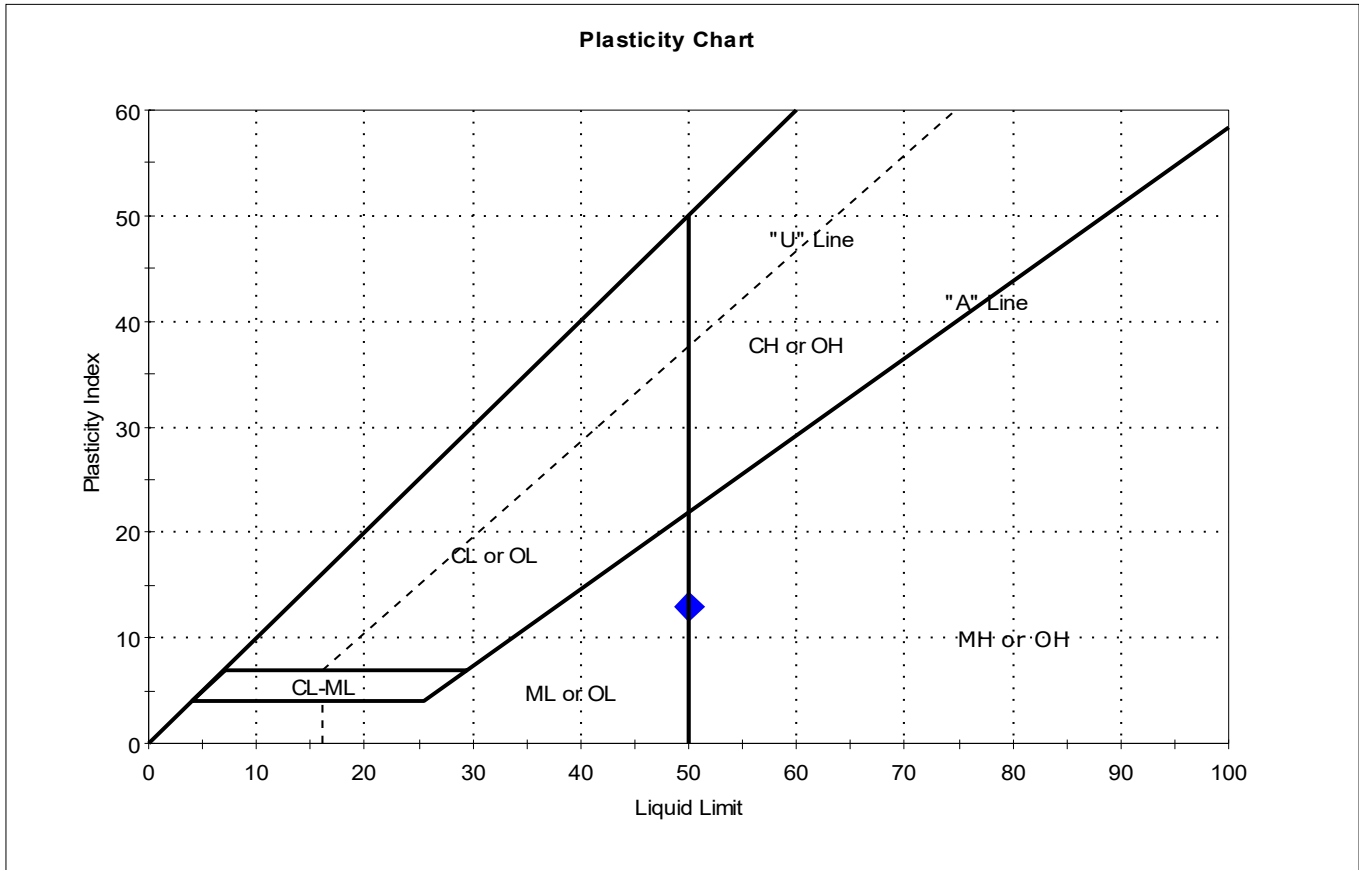
2% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-116SPT-26.7-28.6	Test Date: 11/11/19	Test Id: 527520	
-19 Depth : ---			
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
◆	PDI-116SPT-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
Sample ID:	PDI-116SPT-51.5-54.2	Test Date:	10/25/19
-19 Depth :	---	Checked By:	bfs
		Test Id:	527521
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
◆	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
Sample ID:	PDI-117SPT-11-29.1	Test Date:	10/28/19
-1910 Depth :	---	Checked By:	bfs
		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	Test Date: 11/05/19	Checked By: bfs	
-1910 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

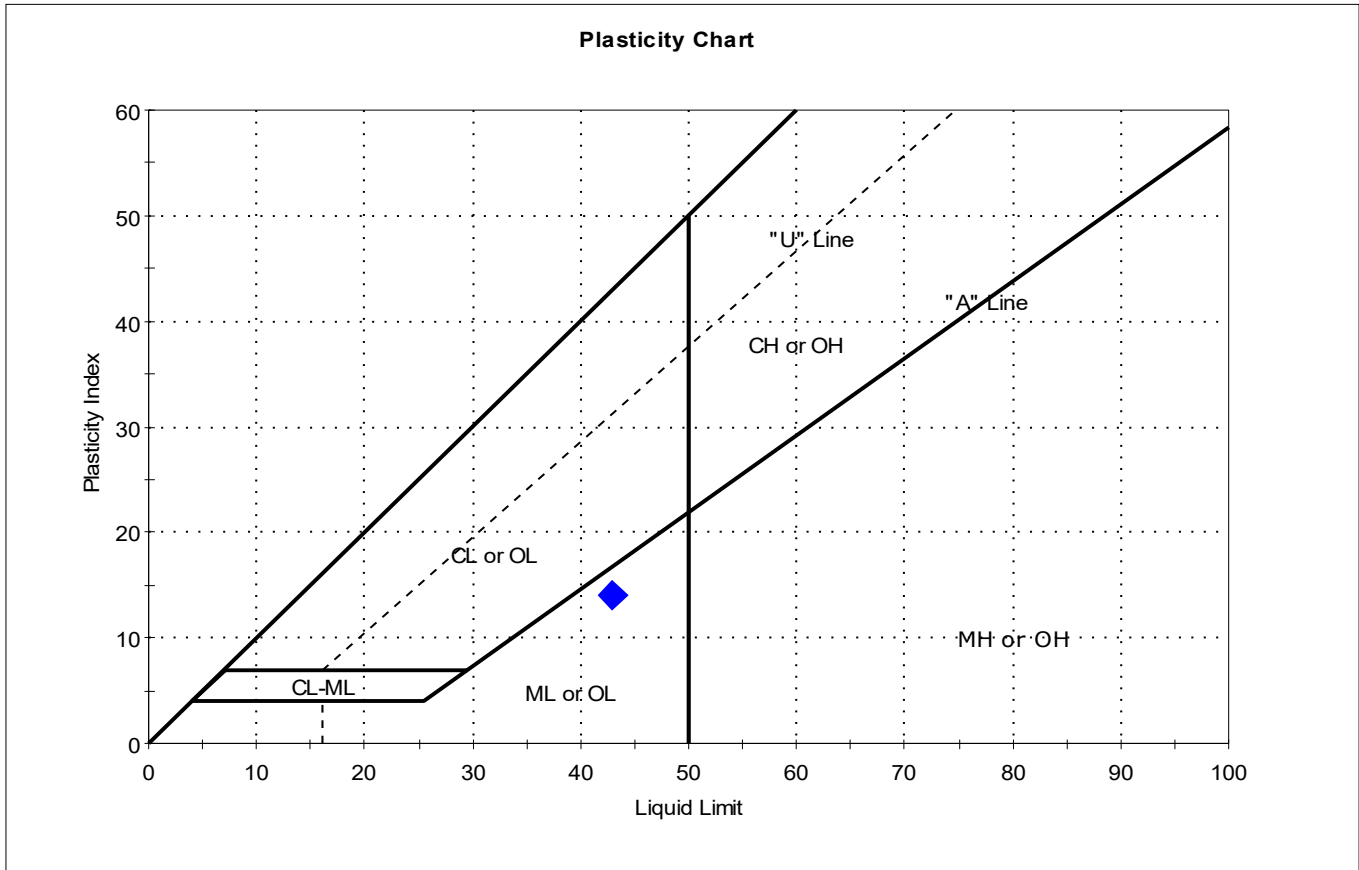
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	17SPT-29.1-32-19	---	---	45	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-117SPT-44.1-53.5	Test Date: 11/11/19	Test Id: 527524	
-19 Depth: ---			
Test Comment: ---			
Visual Description: Moist, dark gray silty sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



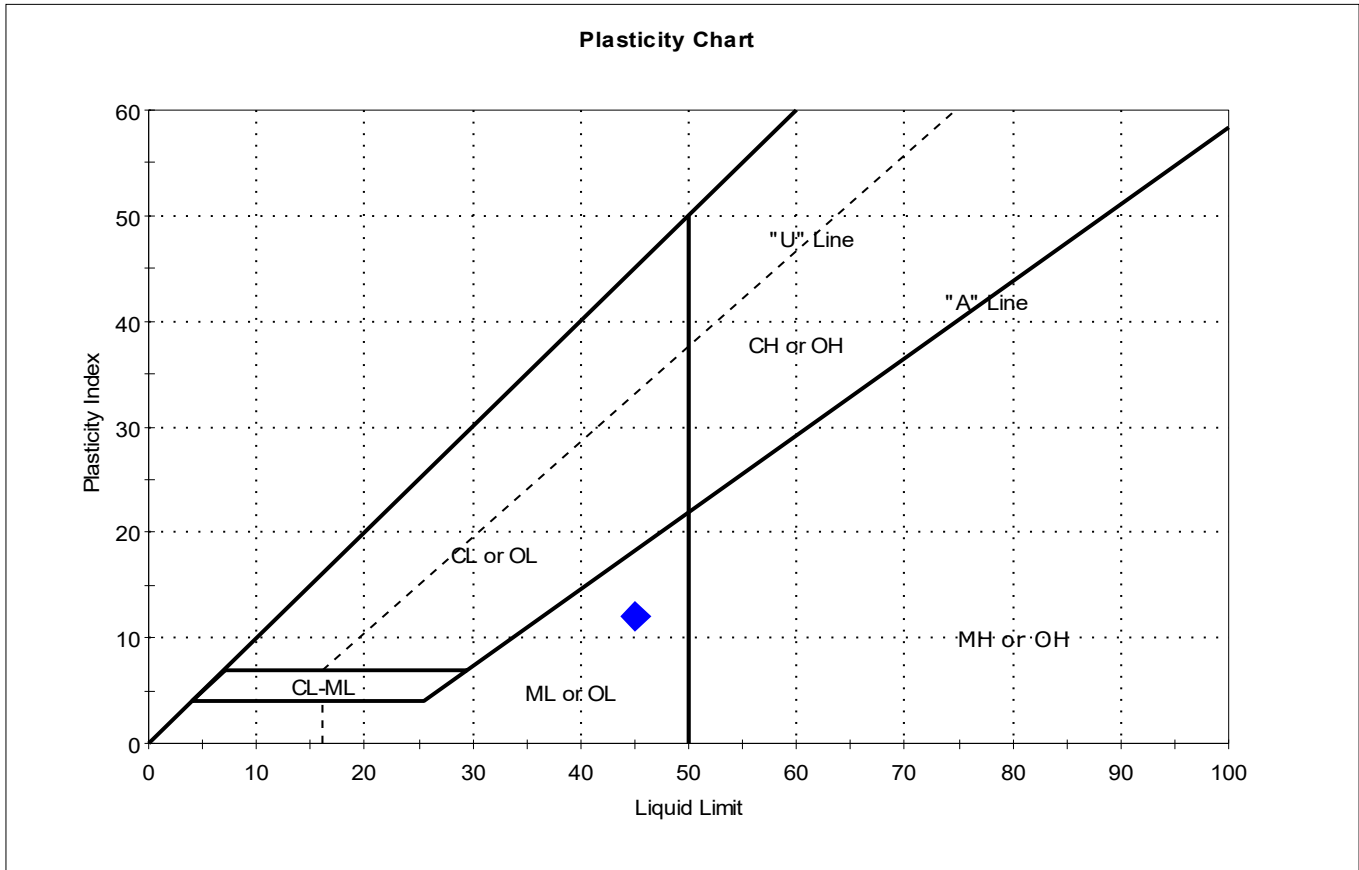
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-117SPT-44.1-53.5-1	---	---	46	43	29	14	1.2	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-117SPT-53.5-63.5	Test Date: 11/12/19	Test Id: 527525	
-19 Depth: ---			
Test Comment: ---			
Visual Description: Wet, dark grayish brown silt with sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



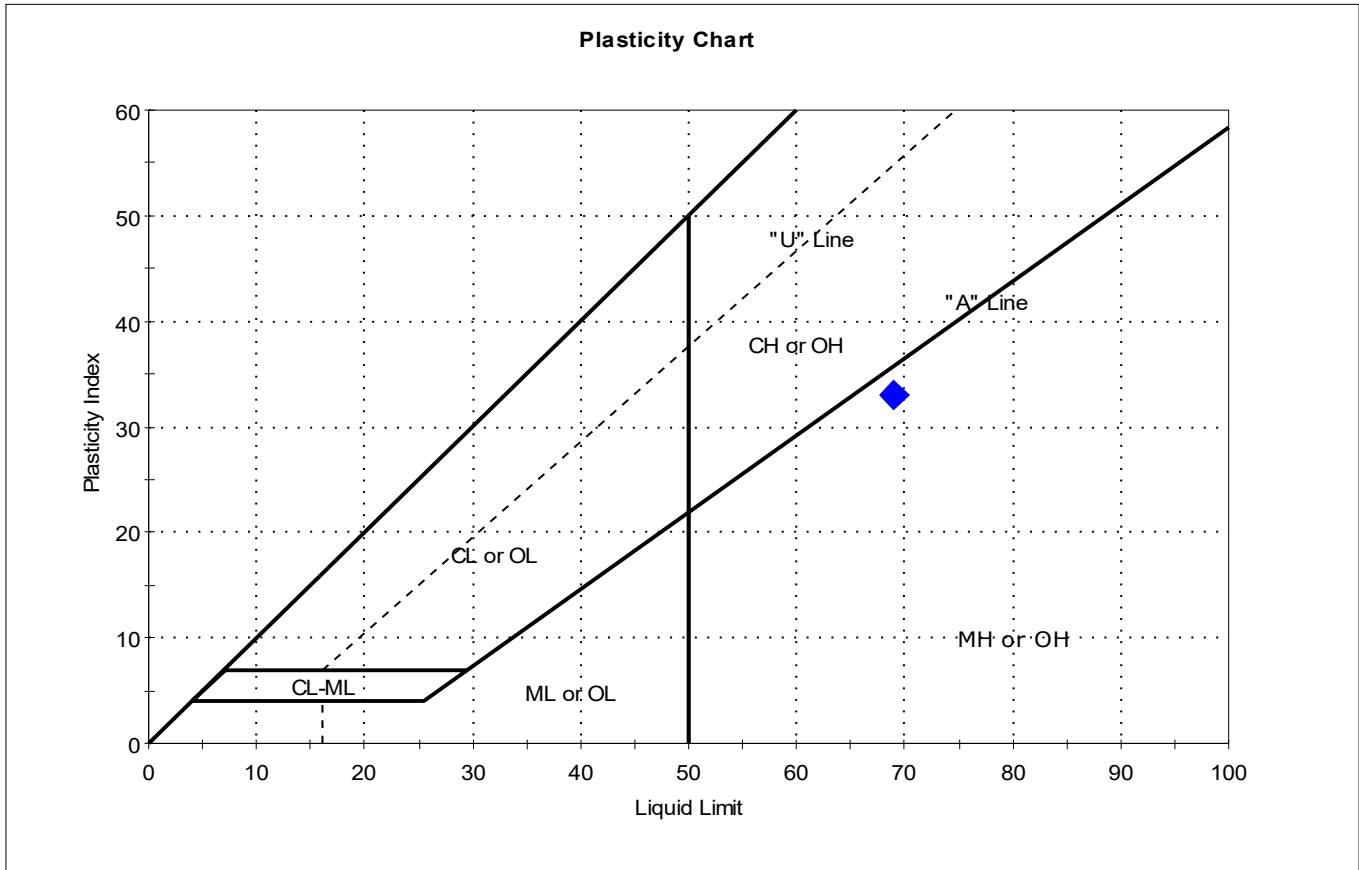
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-117SPT-53.5-63.5-1	---	---	83	45	33	12	4.2	SILT with Sand (ML)

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	Checked By: bfs
Sample ID: PDI-118SPT-00-4.5	Test Date: 11/18/19	Test Id: 527526	
-19101 Depth : ---			
Test Comment: ---			
Visual Description: Wet, dark grayish brown silt			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



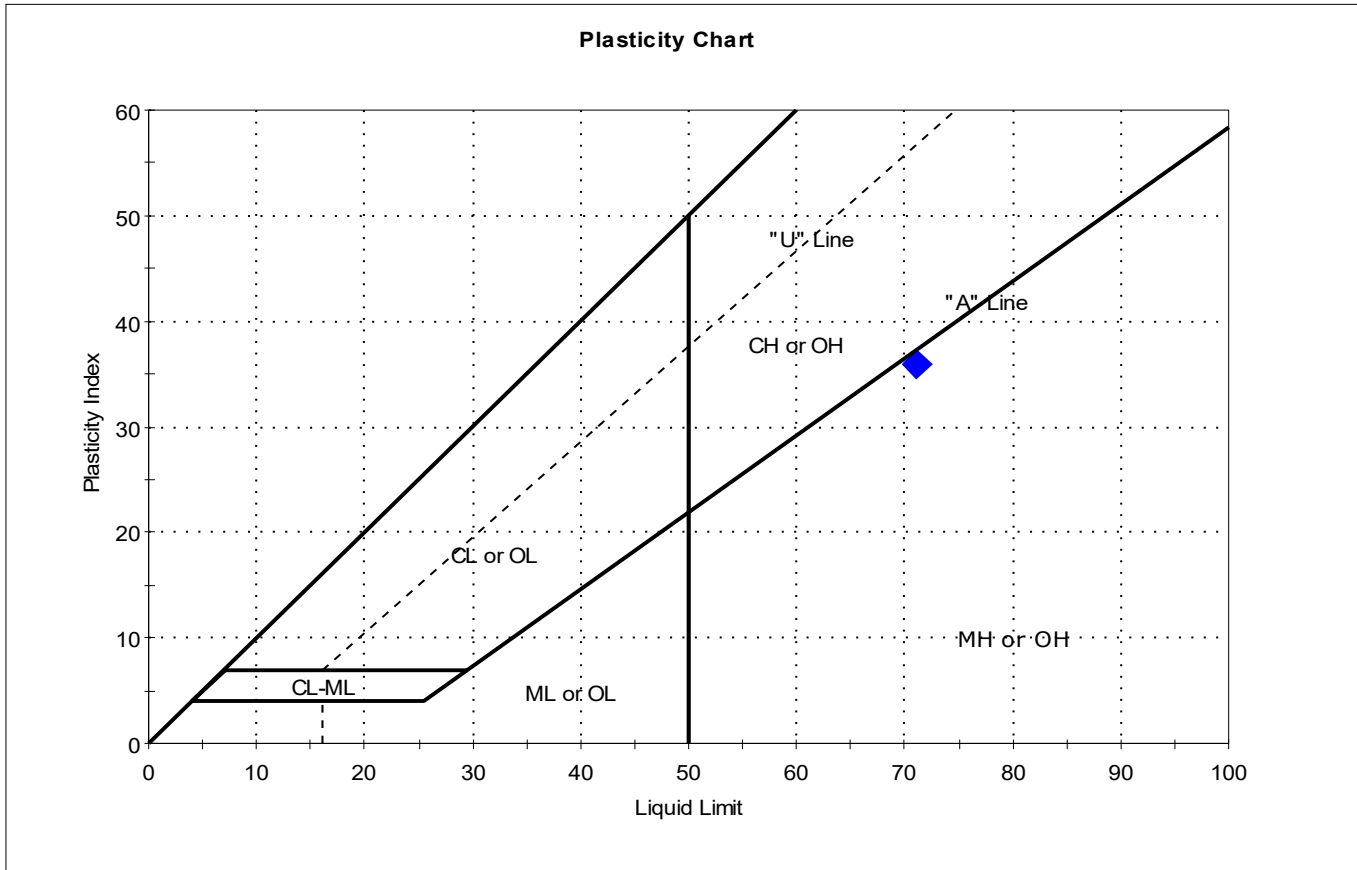
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	118SPT-00-4.5-19	---	---	113	69	36	33	2.3	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-118SPT-4.5-15	Test Date: 11/12/19	Test Id: 527527	
-19101 Depth : ---			
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)

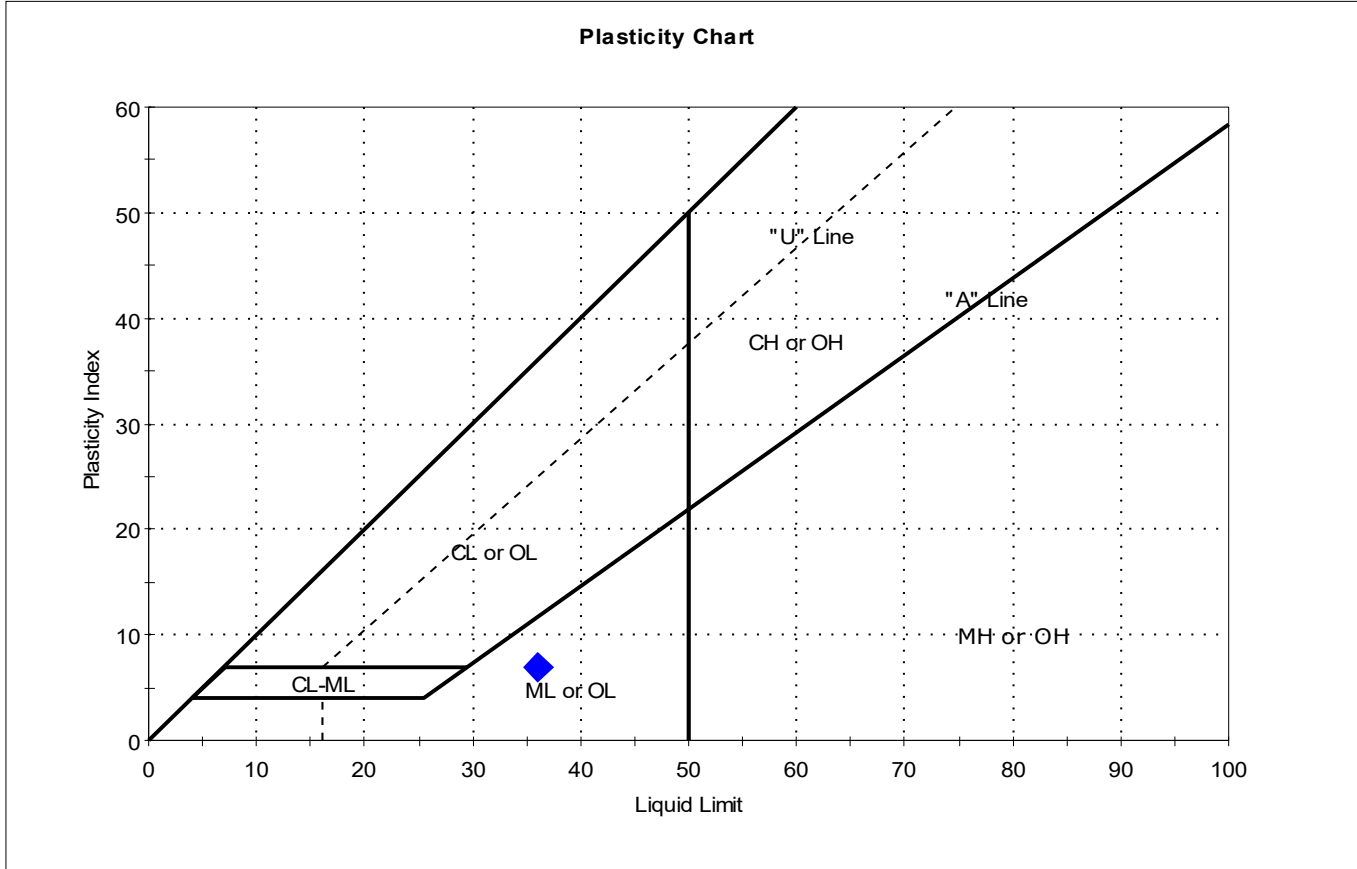
Sample Prepared using the WET method  
 3% Retained on #40 Sieve  
 Dry Strength: VERY HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-118SPT-46.5-61	Test Date: 11/11/19	Test Id: 527528	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Wet, dark grayish brown silty sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



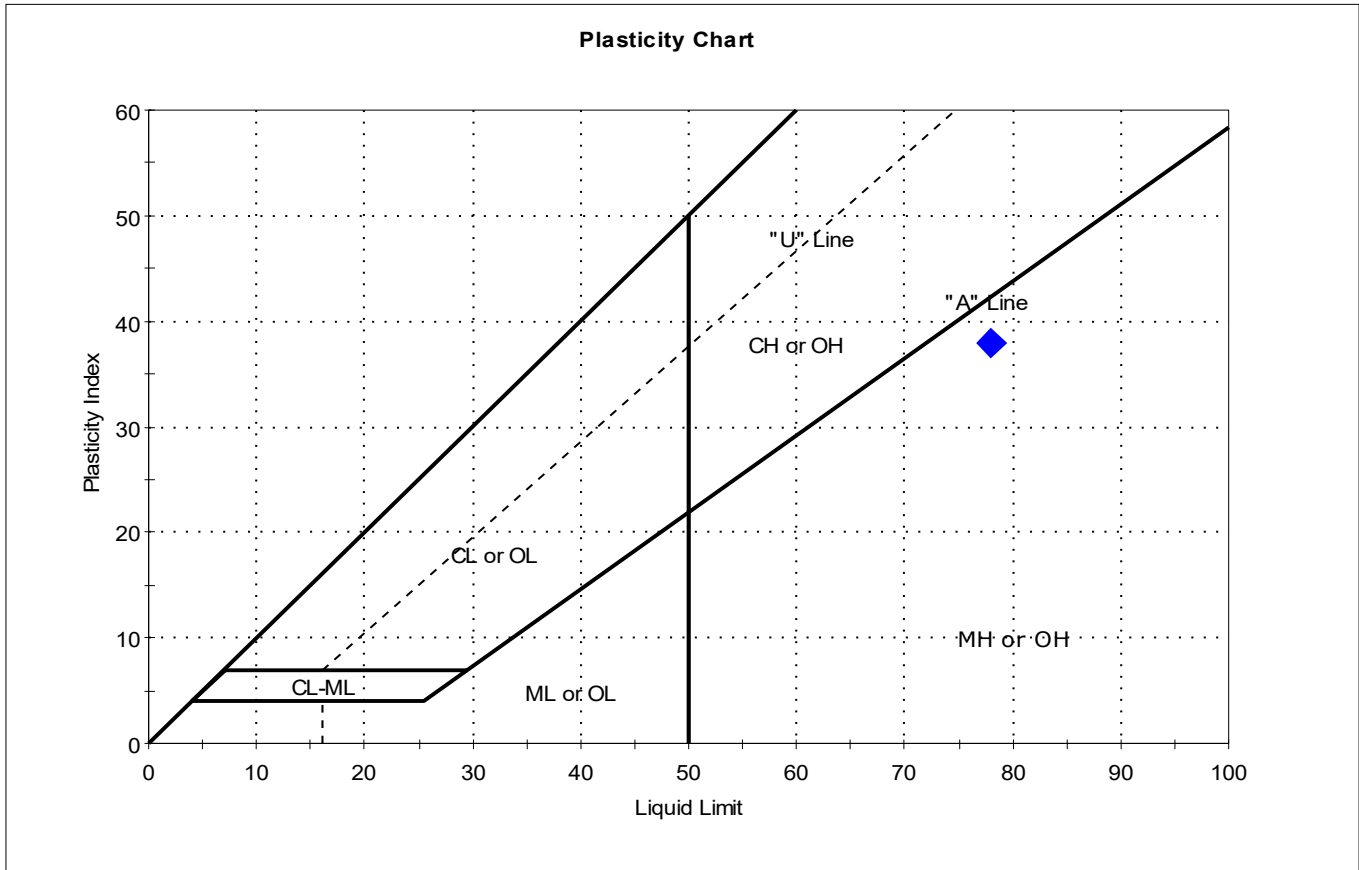
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	18SPT-46.5-61-19	---	---	62	36	29	7	4.7	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-119SPT-00-4.5	Test Date: 11/12/19	Test Id: 527529	
-19100 Depth : ---			
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
Sample ID:	PDI-119SPT-18.3-31	Test Date:	10/25/19
-1910 Depth :	---	Checked By:	bfs
		Test Id:	527530
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

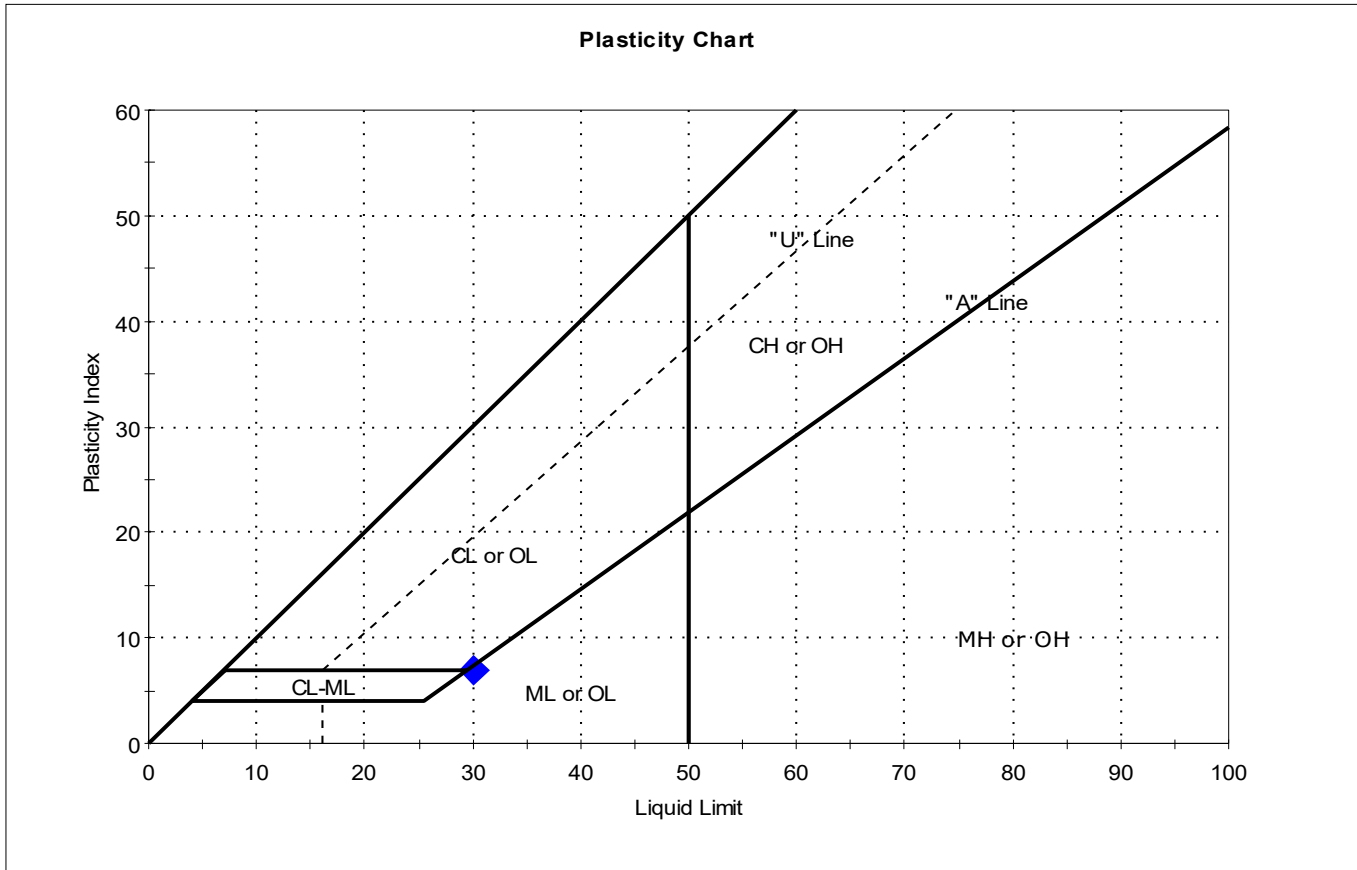
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	19SPT-18.3-31-19	---	---	30	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-119SPT-47-52	Test Date: 11/11/19	Test Id: 527531	
-19100 Depth: ---			
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
Sample ID:	PDI-119SPT-9.5-18.3	Test Date:	11/12/19
-191 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

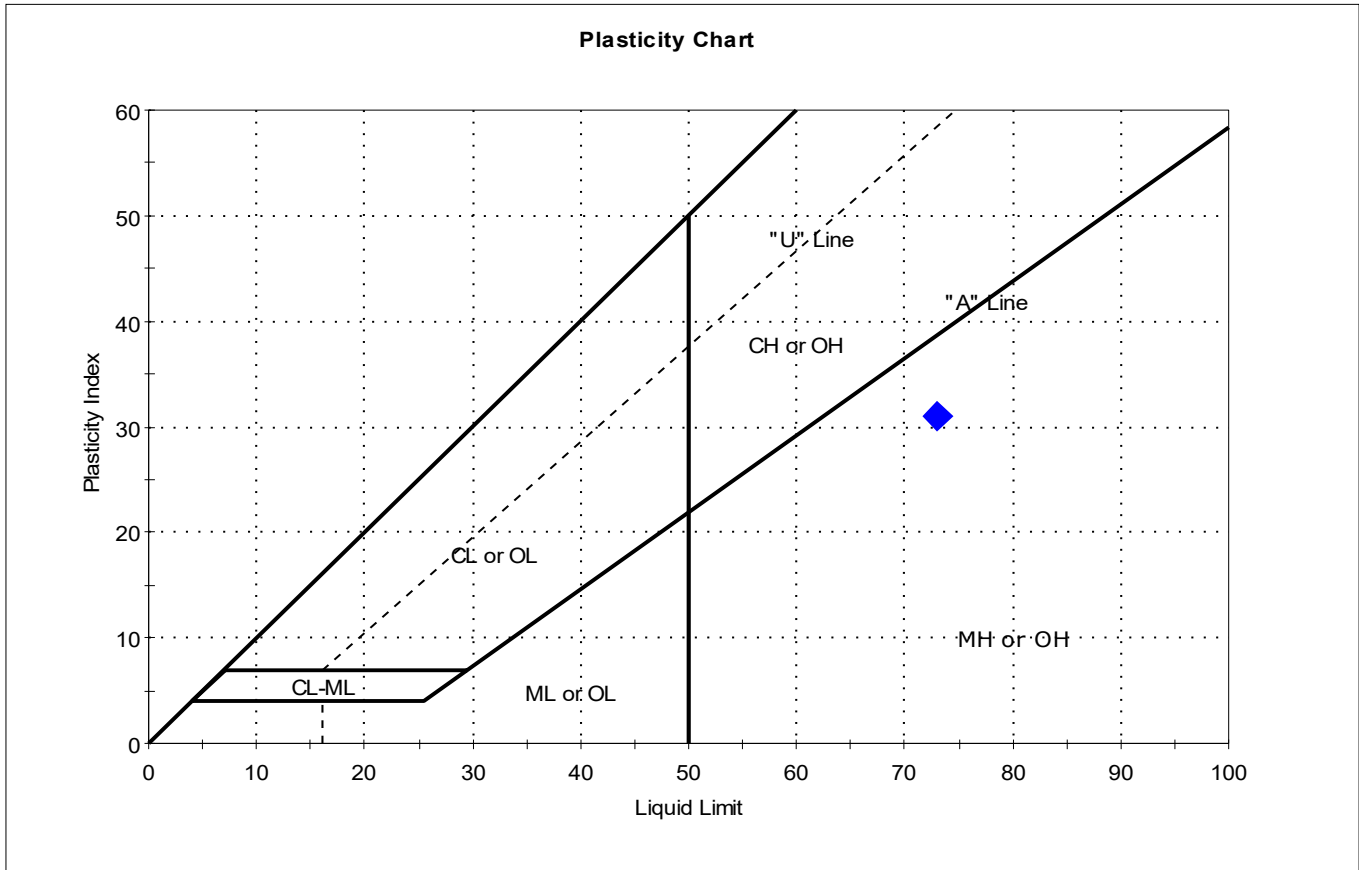
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	19SPT-9.5-18.3-19	---	---	37	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

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	Checked By: bfs
Sample ID: PDI-121SPT-00-06	est Date: 11/15/19	Test Id: 527533	
-190930T Depth : ---			
Test Comment: ---			
Visual Description: Moist, olive brown silt			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



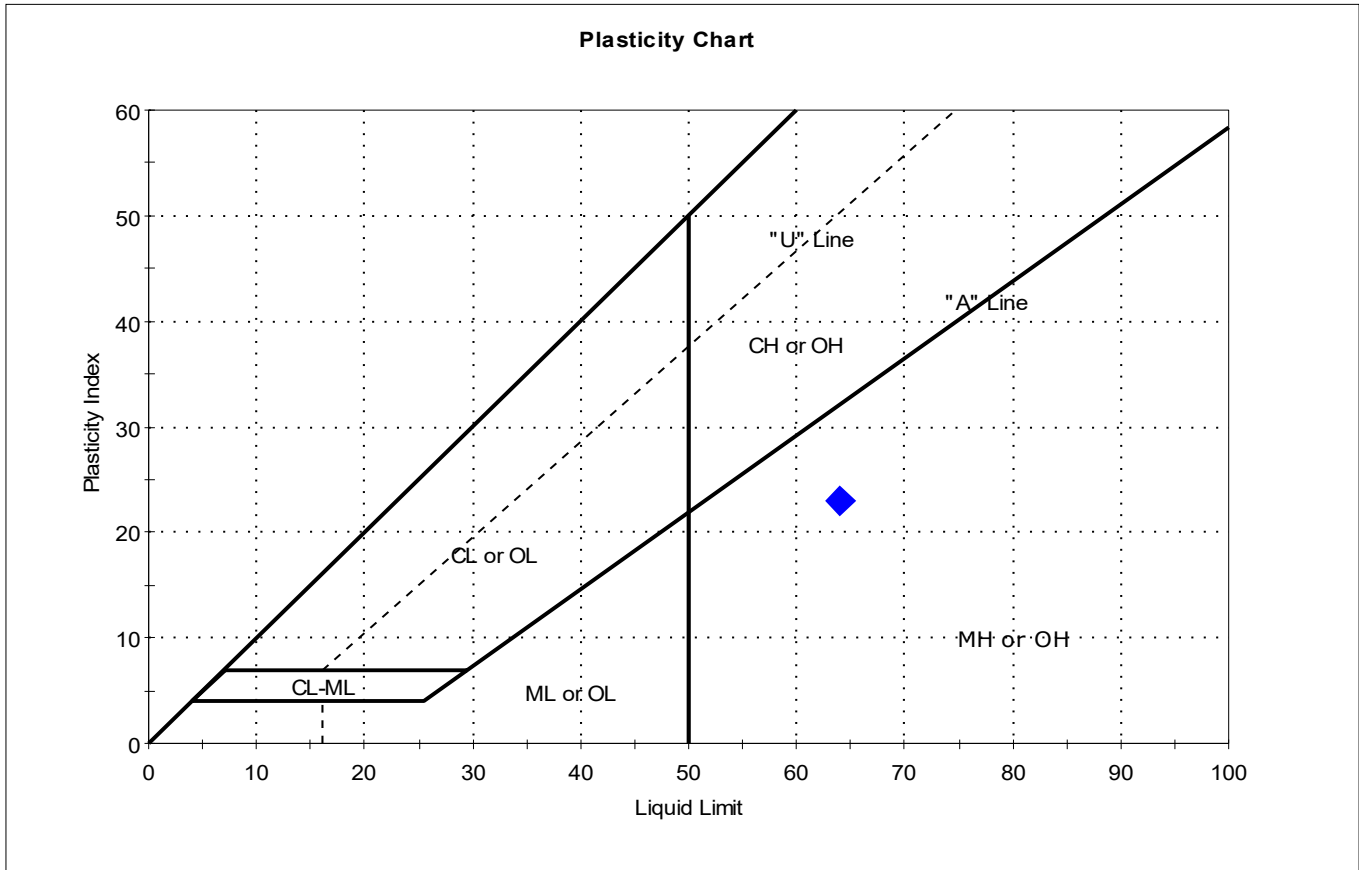
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	121SPT-00-06-190	---	---	76	73	42	31	1.1	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-121SPT-11-20.7	Test Date: 11/11/19	Test Id: 527534	
-1909 Depth: ---			
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	est Date: 10/28/19	Checked By: bfs	
-190930T 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)

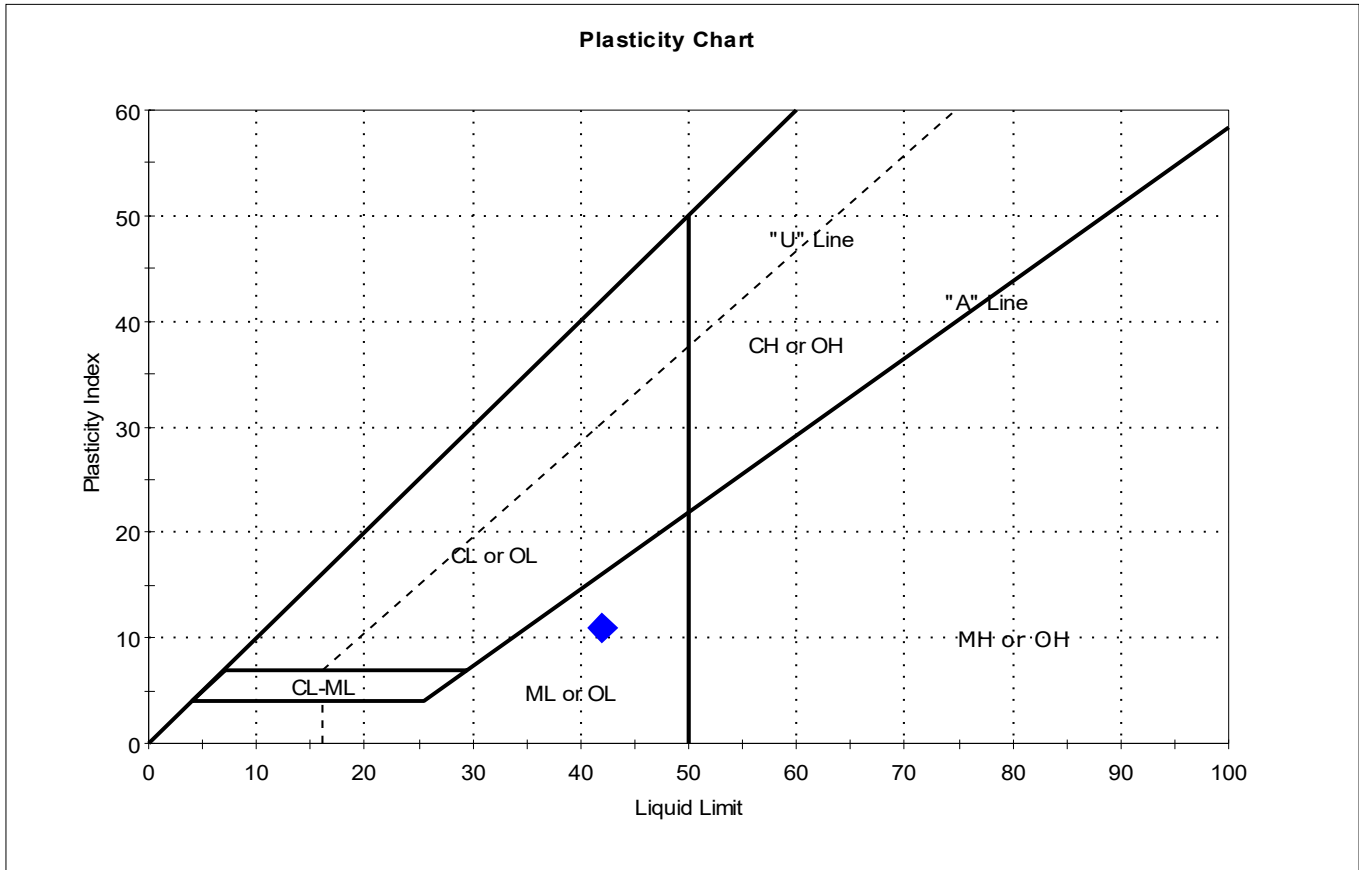
1% Retained on #40 Sieve  
 Dry Strength: MEDIUM  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-121SPT-49.4-54	Test Date: 11/18/19	Test Id: 527536	
-1909 Depth: ---			
Test Comment: ---			
Visual Description: Moist, dark grayish brown silty sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318

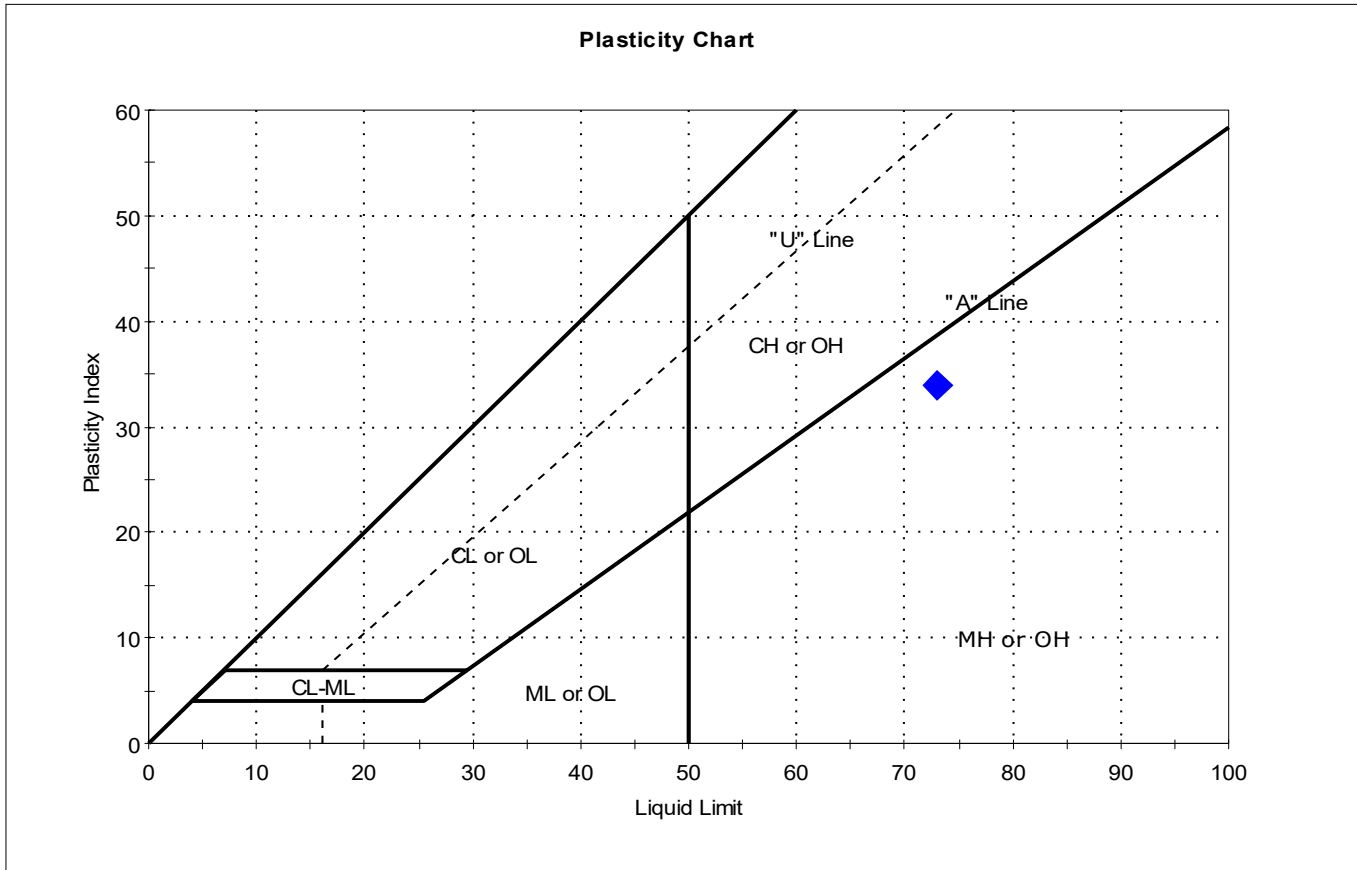


Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	21SPT-49.4-54-19	---	---	45	42	31	11	1.2	Silty SAND (SM)

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	est Date: 11/12/19	Checked By: bfs	
-190925T 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
Sample ID:	PDI-122SPT-16.6-24	Test Date:	11/11/19
-1909 Depth :	---	Checked By:	bfs
		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

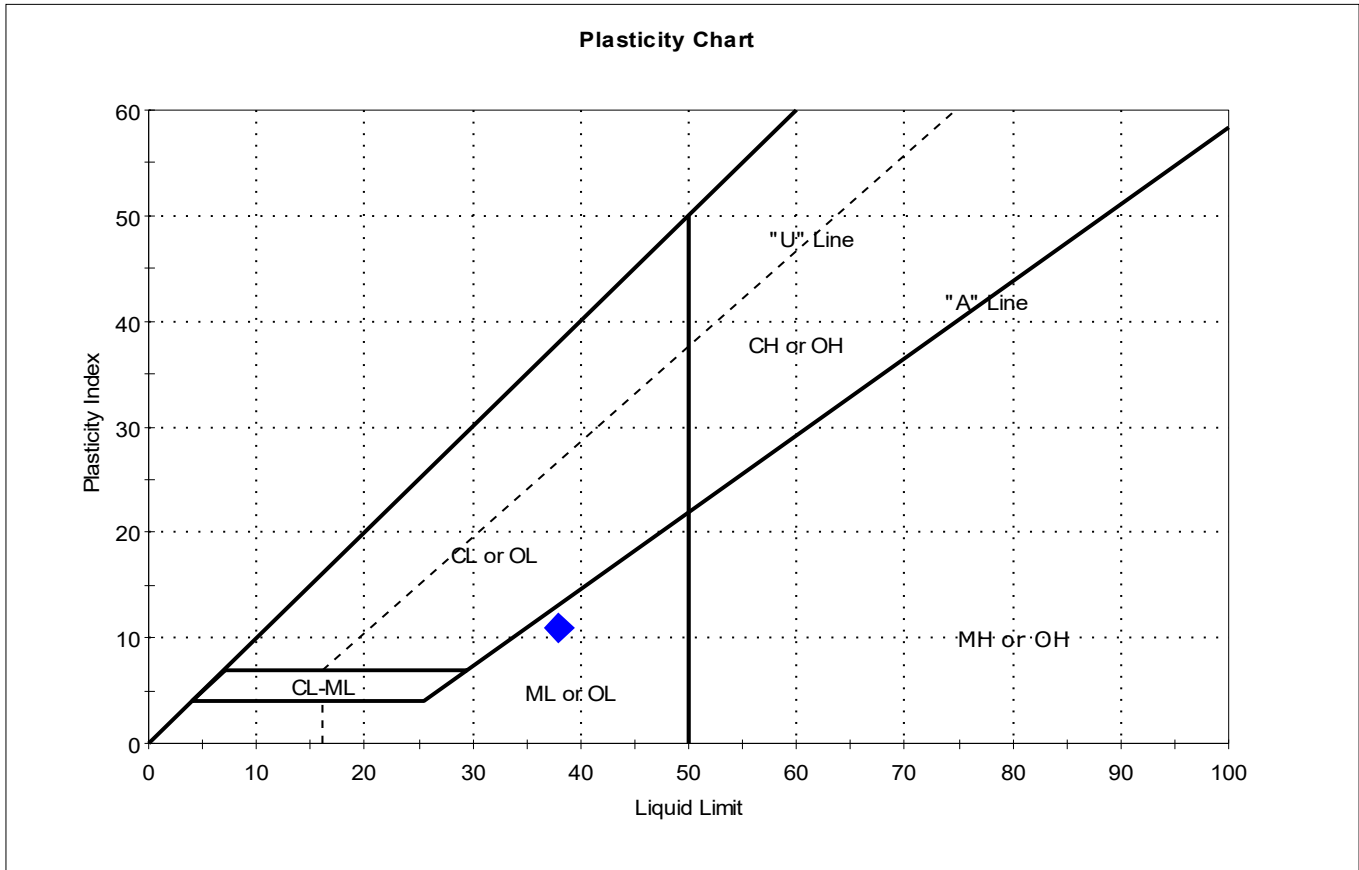
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	22SPT-16.6-24-19	---	---	49	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-122SPT-61-66	est Date: 11/08/19	Test Id: 527539	
-190926T Depth : ---			
Test Comment: ---			
Visual Description: Wet, olive brown silty sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



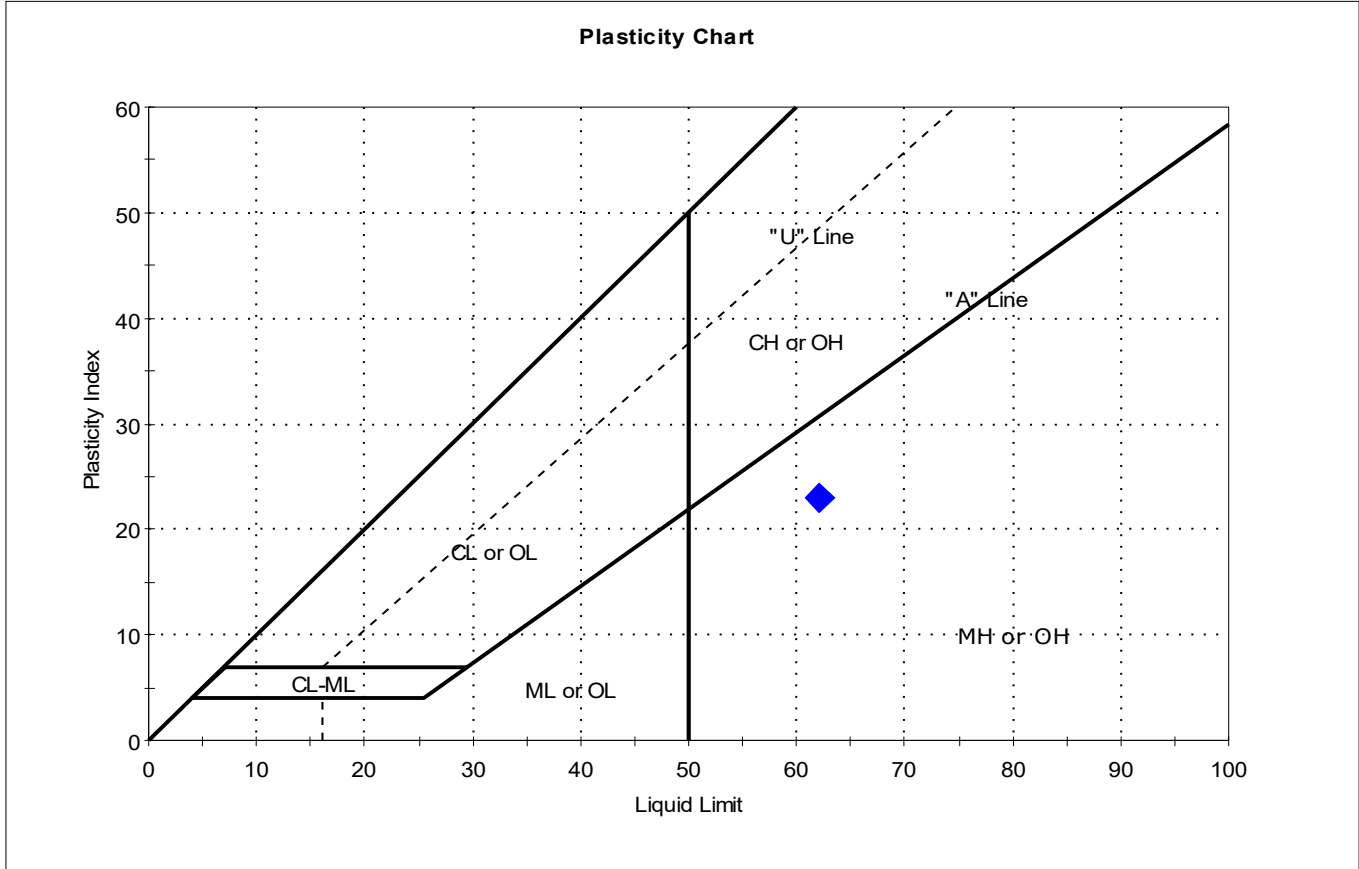
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	122SPT-61-66-190	---	---	42	38	27	11	1.3	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-123SPT-00-4.5	Test Date: 11/11/19	Test Id: 527540	
-19092 Depth : ---			
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-00-4.5-190	---	---	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
Sample ID:	PDI-123SPT-25.5-30.5	Test Date:	10/25/19
-19 Depth :	---	Checked By:	bfs
		Test Id:	527541
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

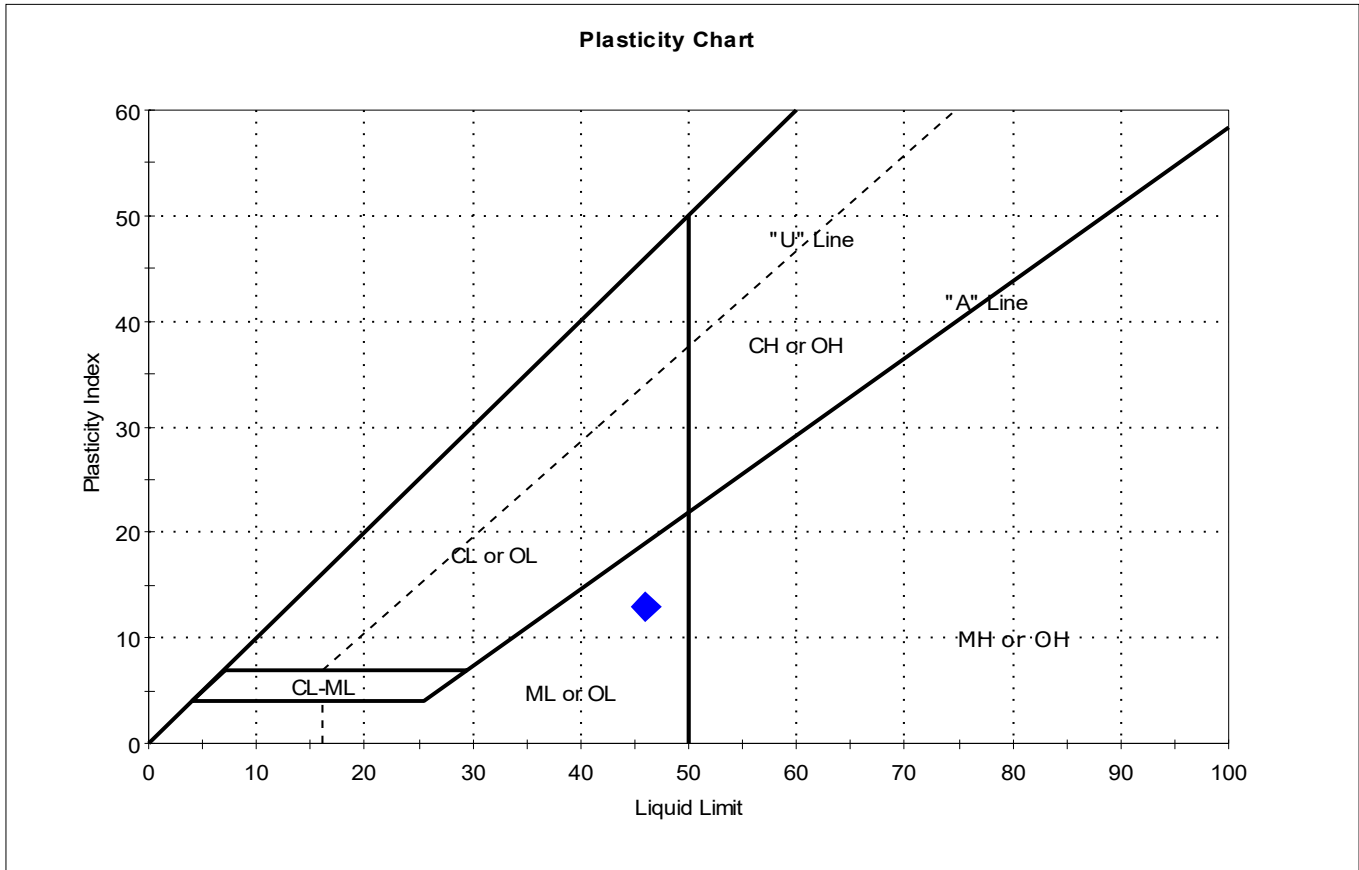
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	23SPT-25.5-30.5-1	---	---	19	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-123SPT-63.2-65.5	Test Date: 11/13/19	Test Id: 527542	
-19 Depth: ---			
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
◆	PDI-123SPT-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	est Date: 11/05/19	Checked By: bfs	
-191008T 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





Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 11/19/19	Checked By:	bfs
Depth : ---	Test Id: 529668		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
---	PDI-2SC-B-5.5-7.5-1910	---	Moist, dark gray sand	10.7
---	PDI-SC-B-8.9-10.9-1910	---	Moist, dark gray sand	16.0
---	PDI-57SC-B-06-08-19102	---	Wet, dark gray clay	77.2
---	PDI-59SC-B-06-08-19101	---	Moist, dark grayish brown silty sand	38.4
---	PDI-69SC-B-10-12-19101	---	Moist, very dark gray silt	67.2
---	PDI-83SC-B-08-10-19102	---	Moist, dark gray clay	76.2
---	PDI-97SC-B-02-04-19101	---	Wet, dark gray silt	86.8
---	PDI-99SC-B-02-04-19102	---	Moist, very dark gray clay	79.6

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 11/19/19	Checked By:	bfs
Depth : ---	Test Id: 529676		

## Specific Gravity of Soils by ASTM D854

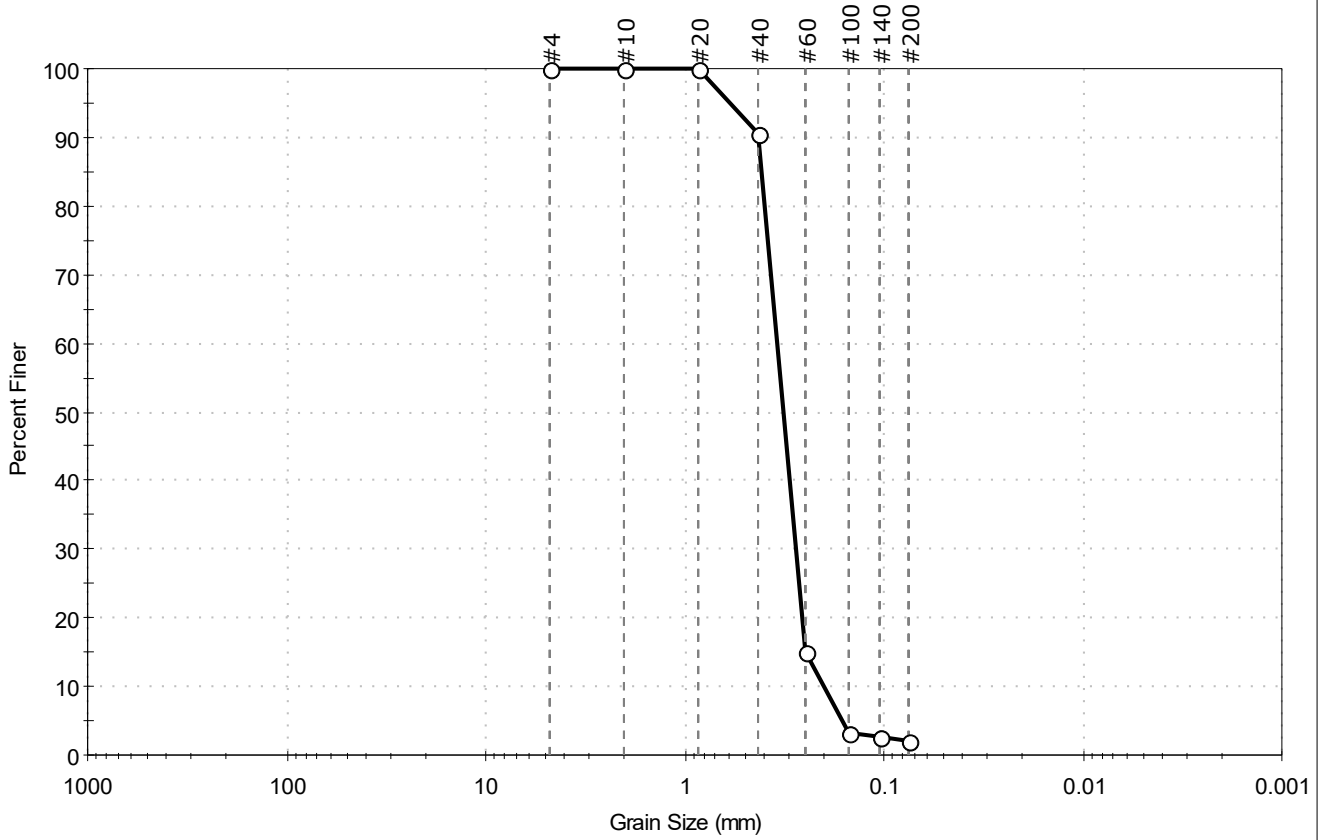
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	PDI-C-B-5.5-7.5-19	---	Moist, dark gray sand	2.75	
---	PDI-C-B-8.9-10.9-19	---	Moist, dark gray sand	2.75	
---	PDI-SC-B-06-08-191	---	Wet, dark gray clay	2.71	
---	PDI-SC-B-06-08-191	---	Moist, dark grayish brown silty sand	2.80	
---	PDI-SC-B-10-12-191	---	Moist, very dark gray silt	2.73	
---	PDI-SC-B-08-10-191	---	Moist, dark gray clay	2.65	
---	PDI-SC-B-02-04-191	---	Wet, dark gray silt	2.66	
---	PDI-SC-B-02-04-191	---	Moist, very dark gray clay	2.71	

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	Checked By: bfs
Sample ID: PDI-022SC-B-5.5-7.5	Test Date: 11/19/19	Test Id: 529663	
-191 Depth: ---			
Test Comment: ---	Visual Description: Moist, dark gray sand	Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	97.8	2.2

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	90		
#60	0.25	15		
#100	0.15	3		
#140	0.11	3		
#200	0.075	2.2		

**Coefficients**

D <sub>85</sub> = 0.4090 mm	D <sub>30</sub> = 0.2779 mm
D <sub>60</sub> = 0.3431 mm	D <sub>15</sub> = 0.2500 mm
D <sub>50</sub> = 0.3198 mm	D <sub>10</sub> = 0.2015 mm
C <sub>u</sub> = 1.703	C <sub>c</sub> = 1.117

**Classification**

<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

**Sample/Test Description**

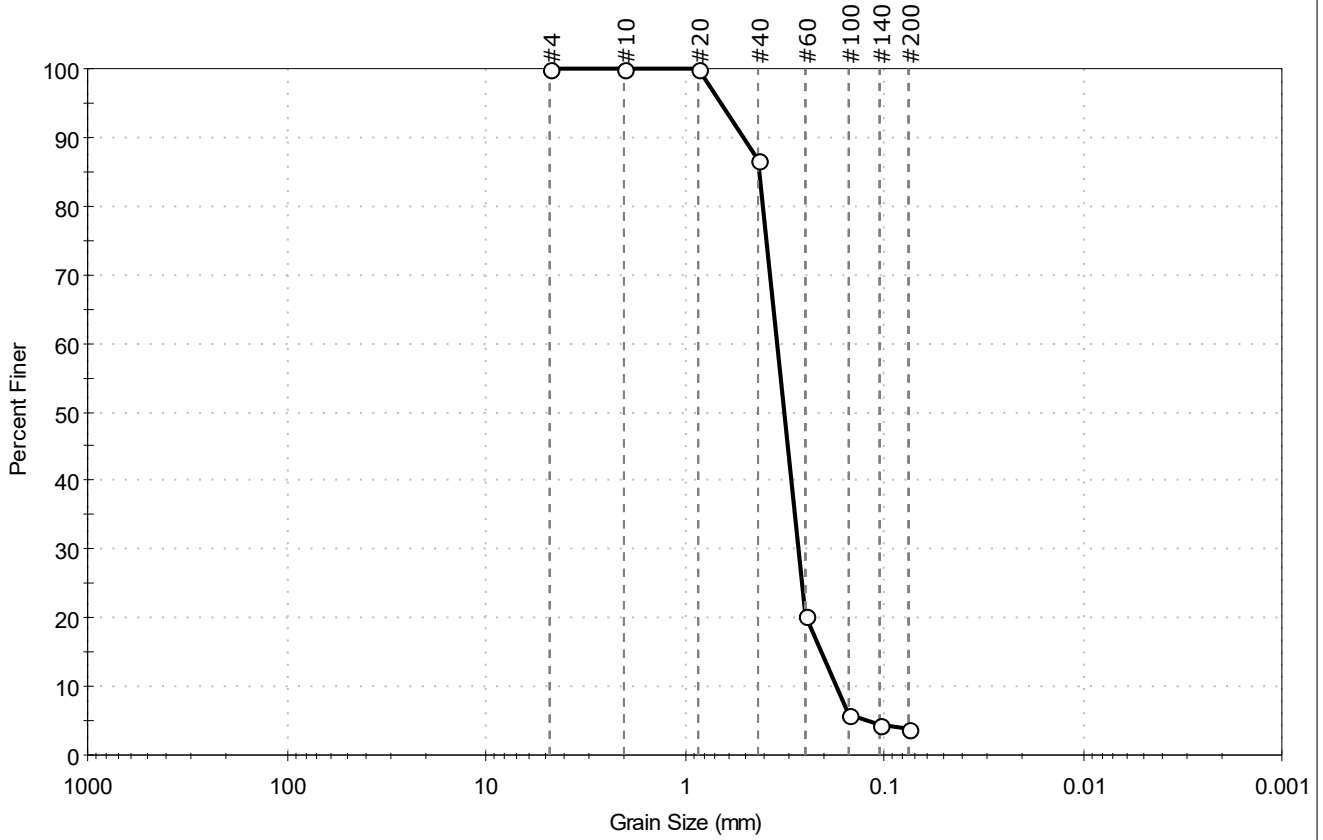
Sand/Gravel Particle Shape : ---

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-031SC-B-8.9-10.9 Test Date: 11/19/19 Checked By: bfs  
 -19 Depth: --- Test Id: 529661  
 Test Comment: ---  
 Visual Description: Moist, dark gray sand  
 Sample Comment: ---

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	96.1	3.9

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	87		
#60	0.25	20		
#100	0.15	6		
#140	0.11	4		
#200	0.075	3.9		

**Coefficients**

D <sub>85</sub> = 0.4188 mm	D <sub>30</sub> = 0.2702 mm
D <sub>60</sub> = 0.3432 mm	D <sub>15</sub> = 0.2076 mm
D <sub>50</sub> = 0.3169 mm	D <sub>10</sub> = 0.1740 mm
C <sub>u</sub> = 1.972	C <sub>c</sub> = 1.223

**Classification**

<b>ASTM</b>	Poorly graded SAND (SP)
<b>AASHTO</b>	Fine Sand (A-3 (1))

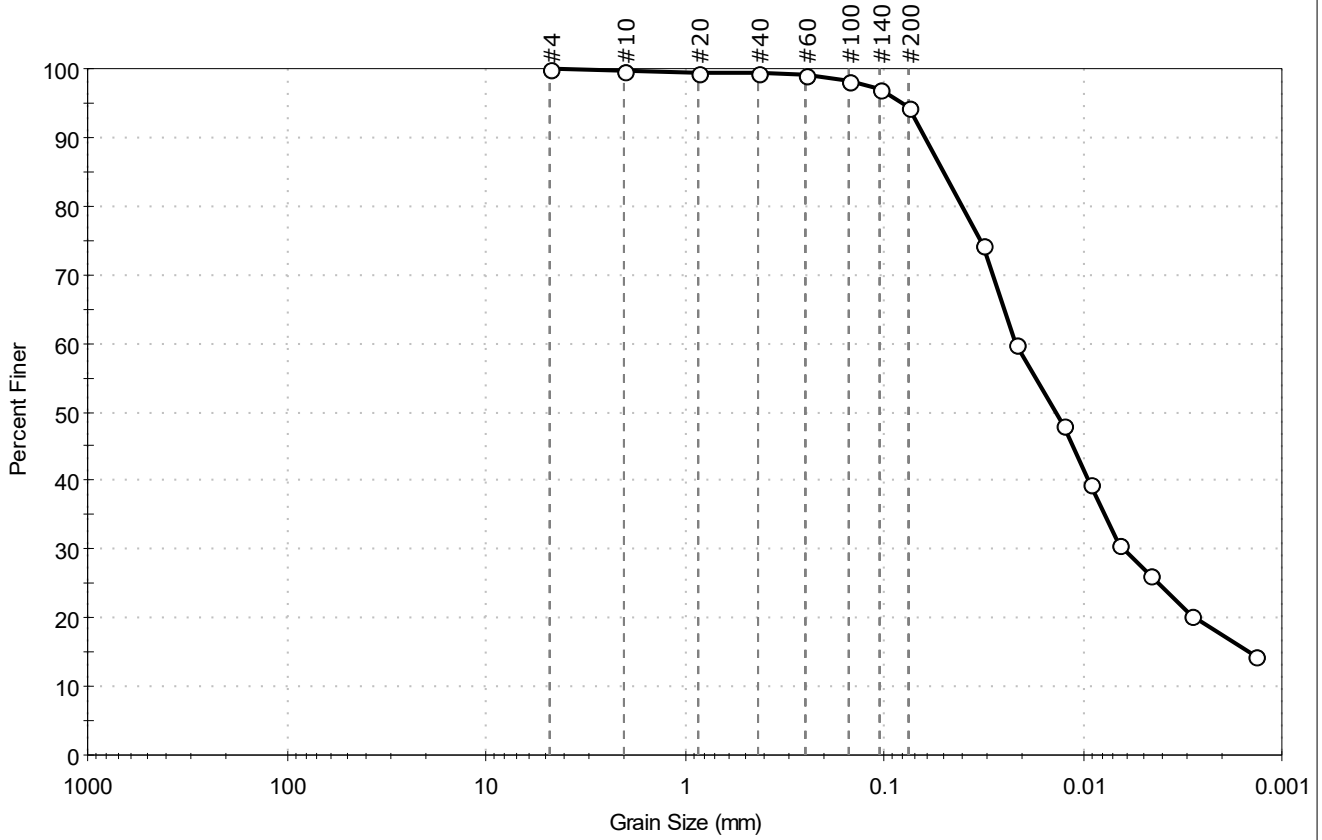
**Sample/Test Description**

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-057SC-B-06-08 Test Date: 11/19/19 Checked By: bfs  
 -1910 Depth: --- Test Id: 529658  
 Test Comment: ---  
 Visual Description: Wet, dark gray clay  
 Sample Comment: Sample contains organics

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	5.5	94.5

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	99		
#100	0.15	98		
#140	0.11	97		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0320	74		
---	0.0215	60		
---	0.0126	48		
---	0.0091	39		
---	0.0065	31		
---	0.0047	26		
---	0.0029	20		
---	0.0014	15		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0502 mm	D <sub>30</sub> = 0.0062 mm
D <sub>60</sub> = 0.0216 mm	D <sub>15</sub> = 0.0015 mm
D <sub>50</sub> = 0.0137 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

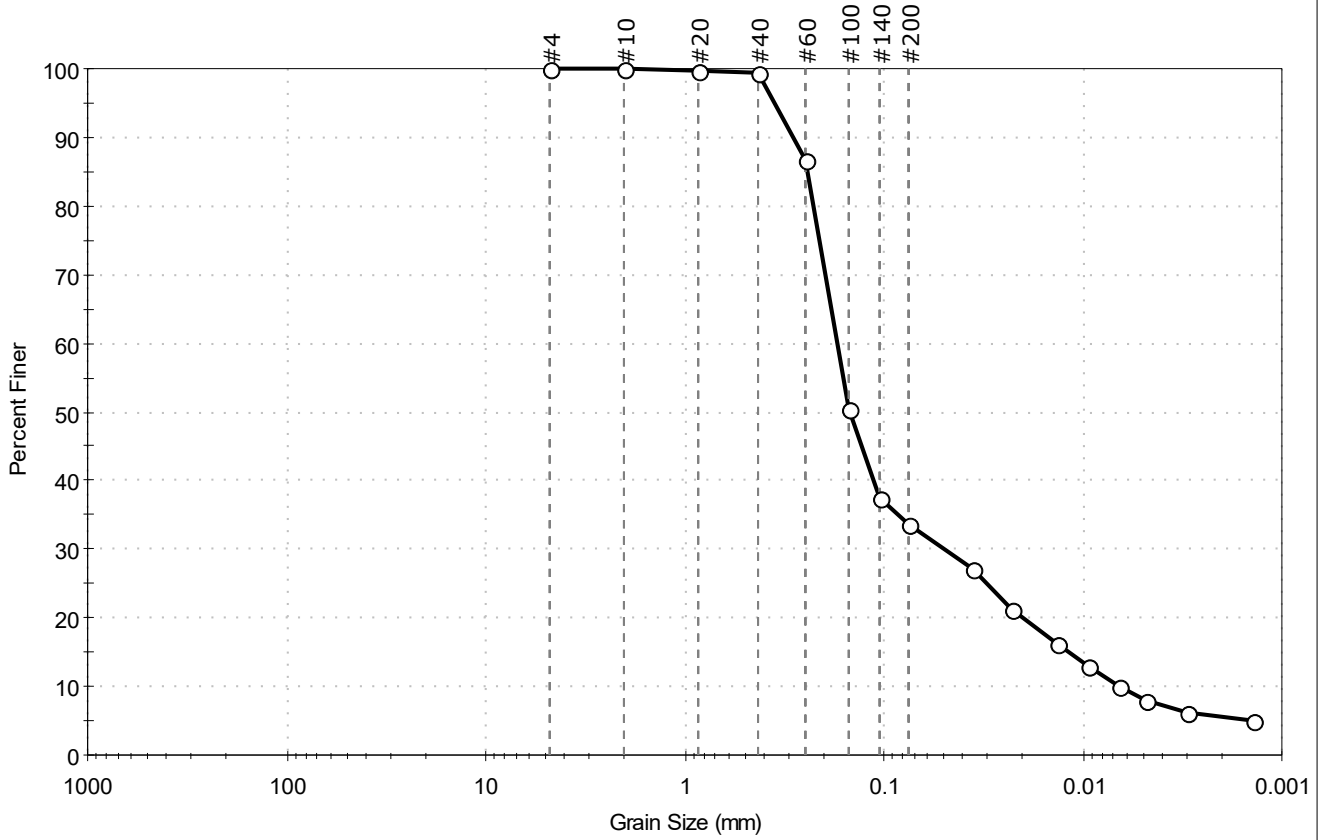
<b>Classification</b>	
<b>ASTM</b>	Fat CLAY (CH)
<b>AASHTO</b>	Clayey Soils (A-7-6 (49))

<b>Sample/Test Description</b>	
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-059SC-B-06-08	Test Date: 11/19/19
-1910 Depth: ---	Test Id: 529664
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark grayish brown silty sand	Checked By: bfs
Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	66.4	33.6

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	87		
#100	0.15	51		
#140	0.11	37		
#200	0.075	34		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0356	27		
---	0.0229	21		
---	0.0133	16		
---	0.0095	13		
---	0.0067	10		
---	0.0048	8		
---	0.0030	6		
---	0.0014	5		

Coefficients	
D <sub>85</sub> = 0.2437 mm	D <sub>30</sub> = 0.0492 mm
D <sub>60</sub> = 0.1713 mm	D <sub>15</sub> = 0.0117 mm
D <sub>50</sub> = 0.1477 mm	D <sub>10</sub> = 0.0066 mm
C <sub>u</sub> = 25.955	C <sub>c</sub> = 2.141

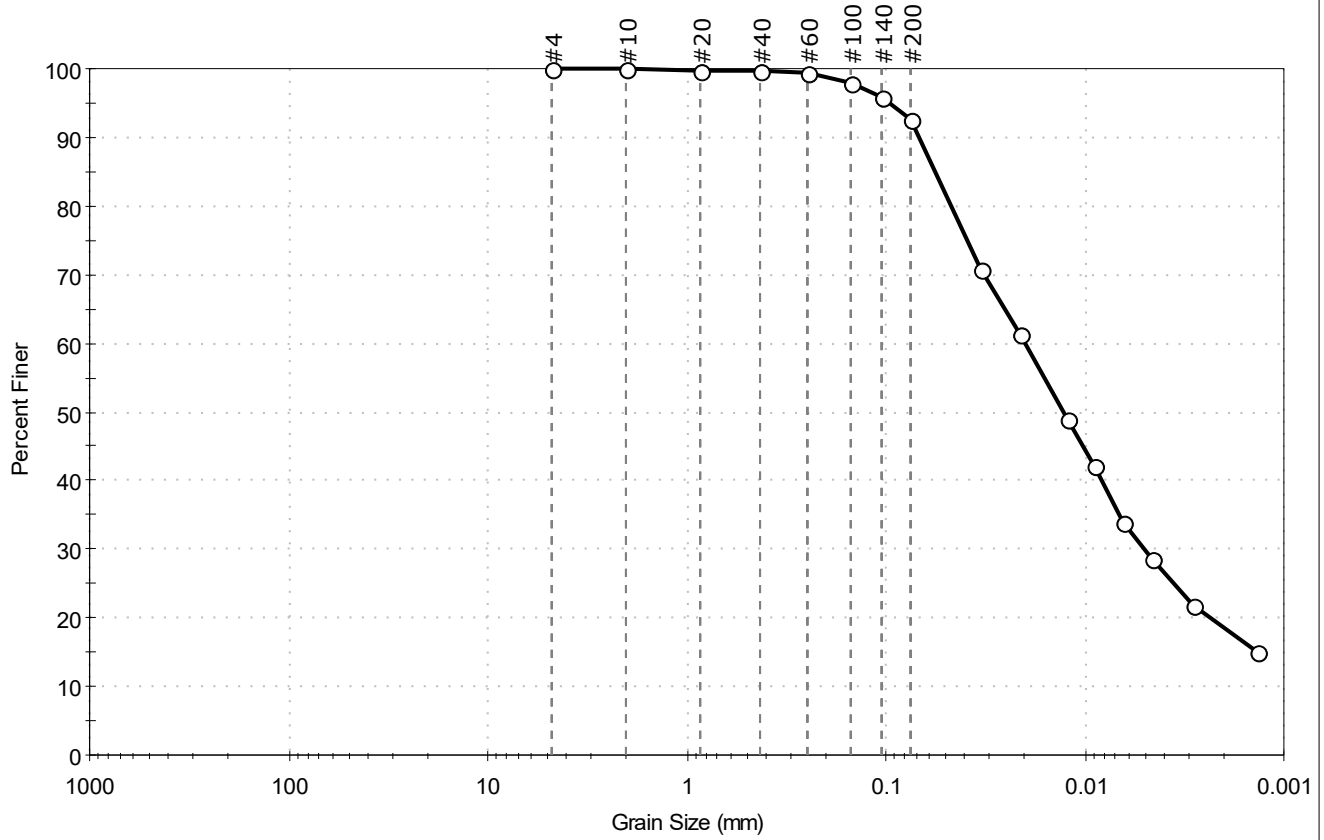
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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-069SC-B-10-12 Test Date: 11/19/19 Checked By: bfs  
 -1910 Depth: --- Test Id: 529665  
 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	7.4	92.6

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	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0330	71		
---	0.0210	61		
---	0.0124	49		
---	0.0090	42		
---	0.0065	34		
---	0.0046	29		
---	0.0029	22		
---	0.0014	15		

<u>Coefficients</u>	
D <sub>85</sub> = 0.0563 mm	D <sub>30</sub> = 0.0050 mm
D <sub>60</sub> = 0.0199 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0129 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

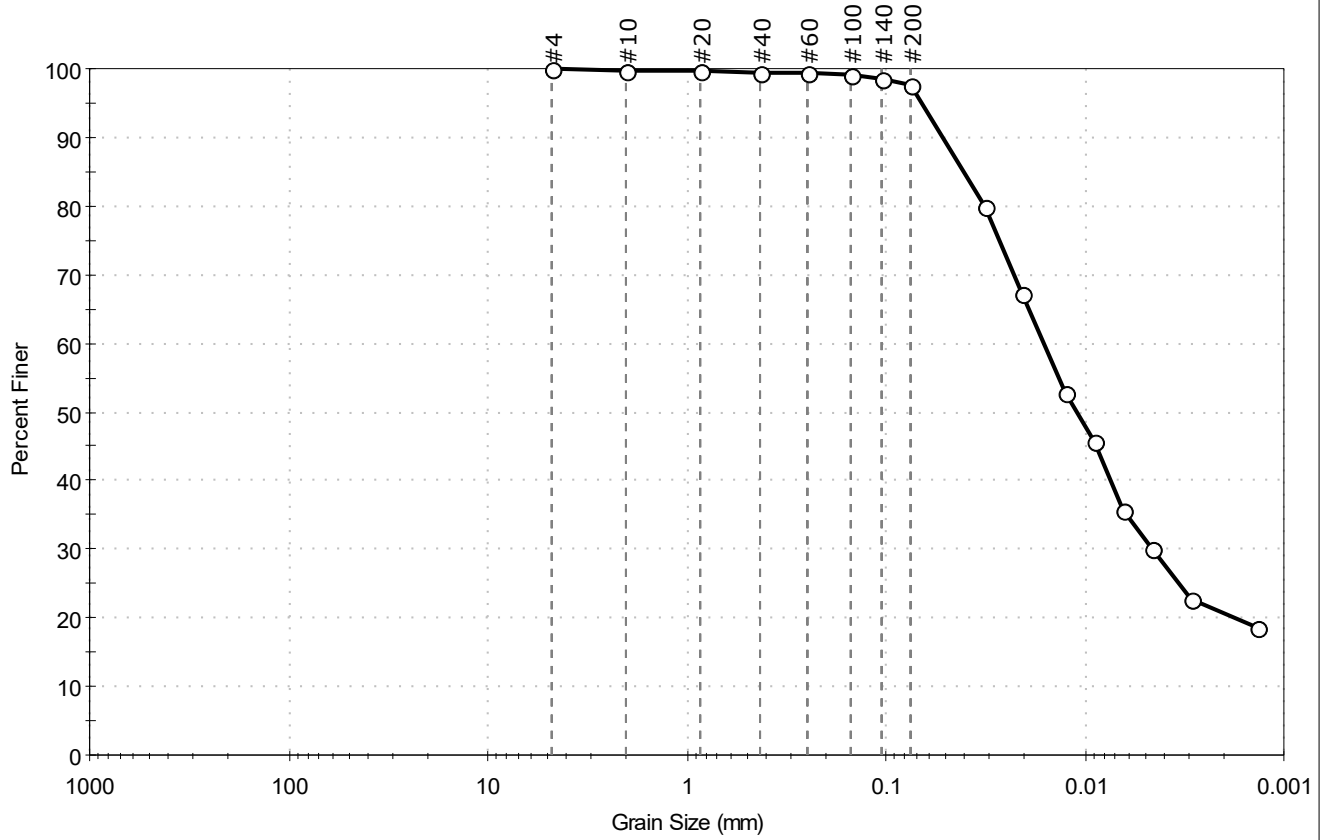
<u>Classification</u>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (40))

<u>Sample/Test Description</u>	
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-083SC-B-08-10 Test Date: 11/19/19 Checked By: bfs  
 -1910 Depth: --- Test Id: 529659  
 Test Comment: ---  
 Visual Description: Moist, dark gray clay  
 Sample Comment: Sample contains organics

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	2.5	97.5

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	99		
#100	0.15	99		
#140	0.11	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0320	80		
---	0.0208	67		
---	0.0125	53		
---	0.0089	46		
---	0.0065	36		
---	0.0046	30		
---	0.0029	23		
---	0.0014	19		

**Coefficients**

D <sub>85</sub> = 0.0408 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0161 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0109 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

**Classification**

ASTM    Fat CLAY (CH)

AASHTO    Clayey Soils (A-7-5 (55))

**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

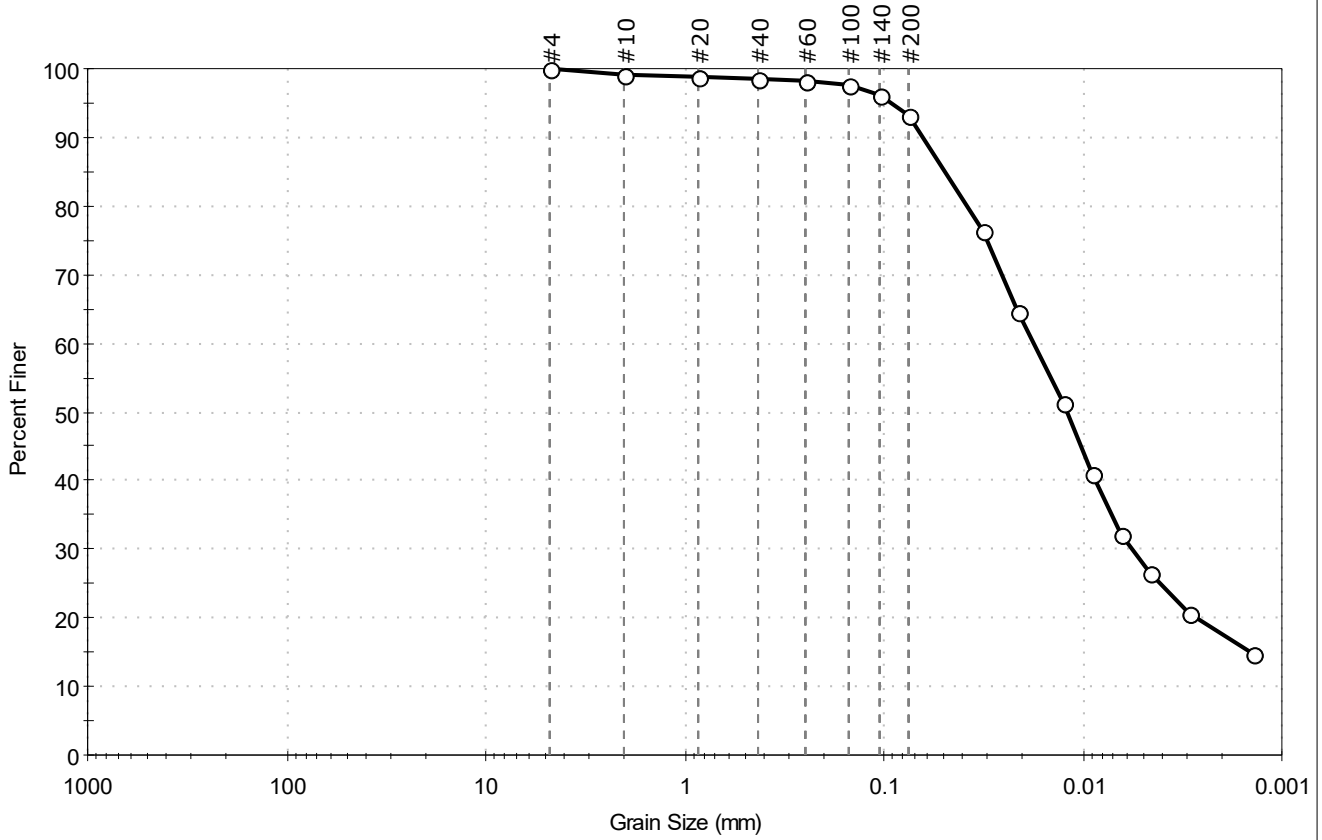
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-097SC-B-02-04	Test Date: 11/19/19
-1910 Depth: ---	Test Id: 529662
Test Comment: ---	Tested By: ckg
Visual Description: Wet, dark gray silt	Checked By: bfs
Sample Comment: Sample contains organics	

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	6.7	93.3

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	98		
#100	0.15	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0318	76		
---	0.0212	65		
---	0.0125	51		
---	0.0091	41		
---	0.0065	32		
---	0.0047	26		
---	0.0030	21		
---	0.0014	15		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0493 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0177 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0120 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

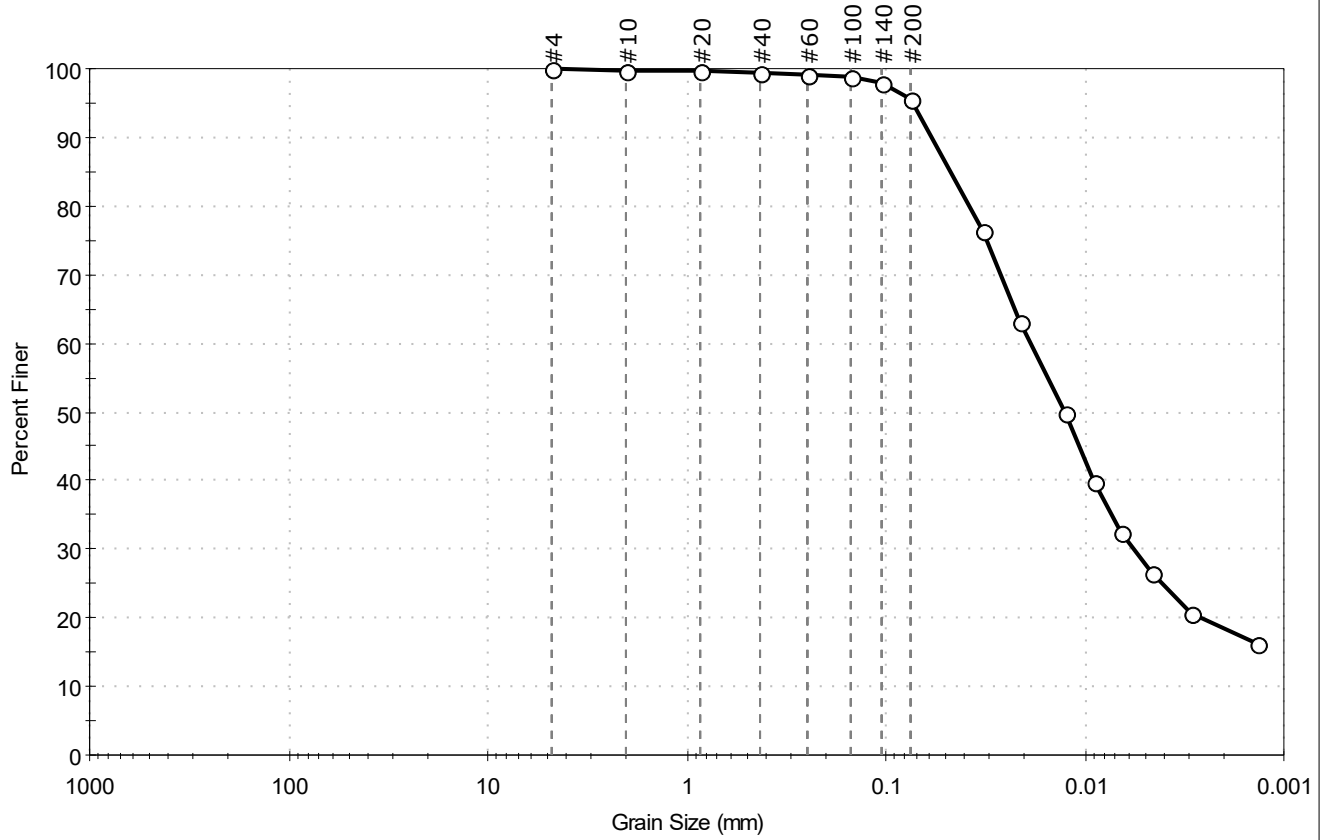
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (39))

<b>Sample/Test Description</b>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-099SC-B-02-04	Test Date: 11/19/19
-1910 Depth: ---	Test Id: 529660
Test Comment: ---	Tested By: ckg
Visual Description: Moist, very dark gray clay	Checked By: bfs
Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



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

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	99		
#100	0.15	99		
#140	0.11	98		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0326	76		
---	0.0214	63		
---	0.0126	50		
---	0.0091	40		
---	0.0065	32		
---	0.0047	26		
---	0.0029	21		
---	0.0014	16		

Coefficients	
D <sub>85</sub> = 0.0472 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0188 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0126 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

Classification	
ASTM	Fat CLAY (CH)
AASHTO	Clayey Soils (A-7-5 (54))

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
Sample ID:	PDI-022SC-B-5.5-7.5	Test Date:	11/18/19
-191 Depth :	---	Checked By:	bfs
		Test Id:	529655
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
◆	22SC-B-5.5-7.5-19	---	---	11	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

10% 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
Sample ID:	PDI-031SC-B-8.9-10.9	Test Date:	11/18/19
-19 Depth :	---	Checked By:	bfs
		Test Id:	529653
Test Comment:	---		
Visual Description:	Moist, dark gray sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

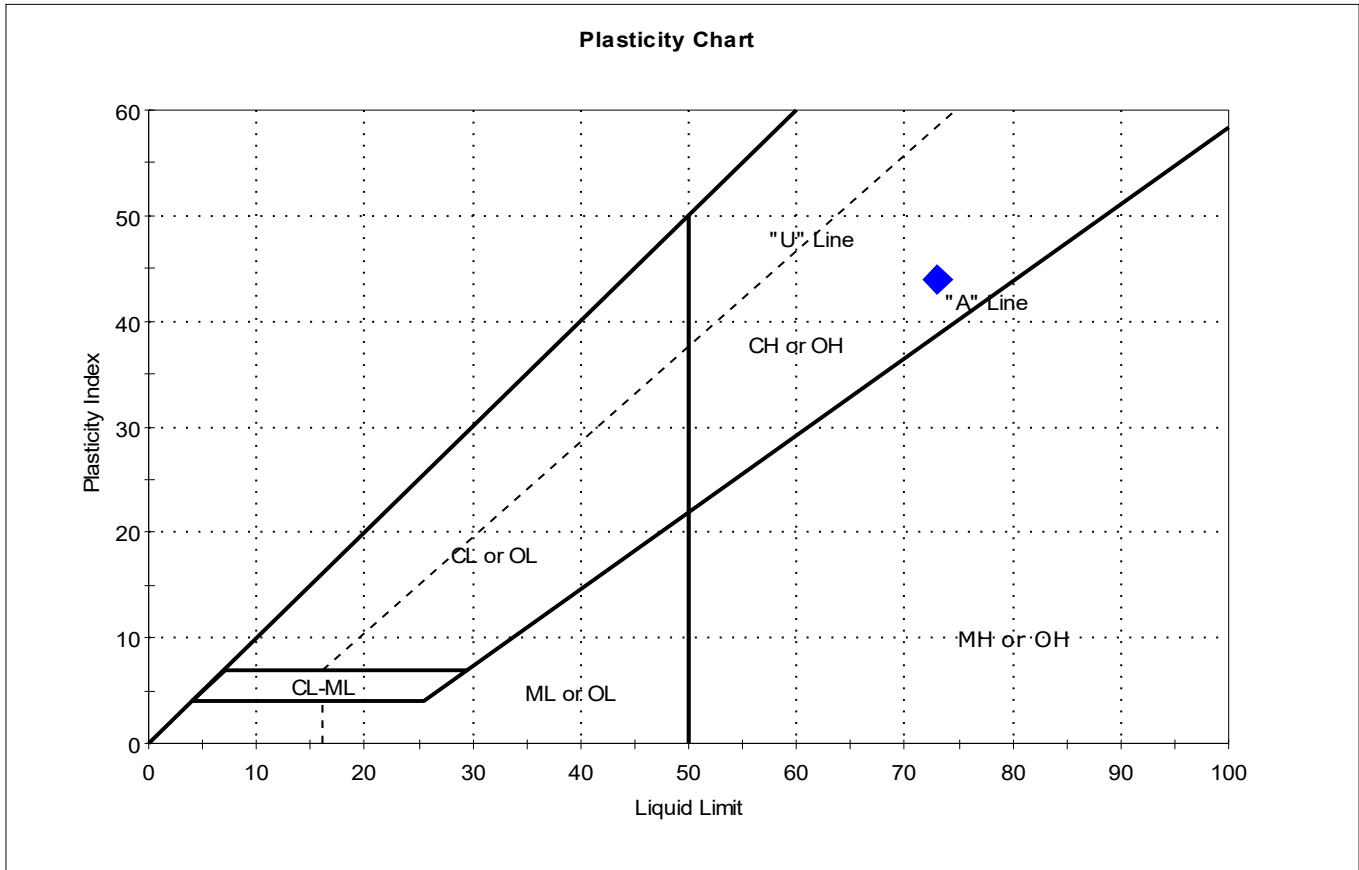
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	31SC-B-8.9-10.9-1	---	---	16	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

13% 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	Checked By: bfs
Sample ID: PDI-057SC-B-06-08	Test Date: 11/21/19	Test Id: 529650	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Wet, dark gray clay			
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
◆	PDI-057SC-B-06-08-19	---	---	77	73	29	44	1.1	Fat CLAY (CH)

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-059SC-B-06-08	Test Date: 11/19/19	Checked By: bfs	
-1910 Depth : ---	Test Id: 529656		
Test Comment: ---			
Visual Description: Moist, dark grayish brown silty sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

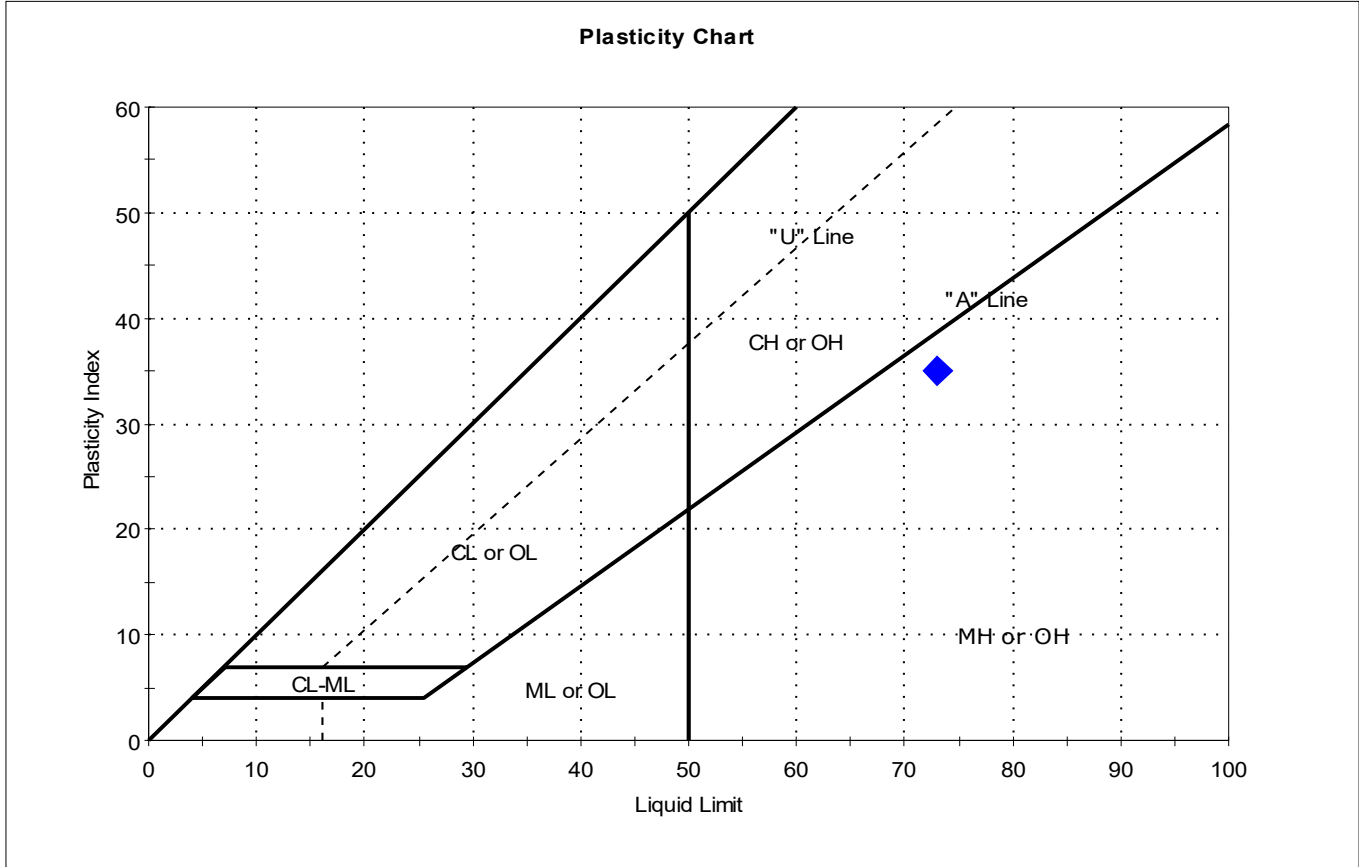
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	059SC-B-06-08-19	---	---	38	n/a	n/a	n/a	n/a	Silty SAND (SM)

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	Checked By: bfs
Sample ID: PDI-069SC-B-10-12	Test Date: 11/20/19	Test Id: 529657	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Moist, very dark gray silt			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



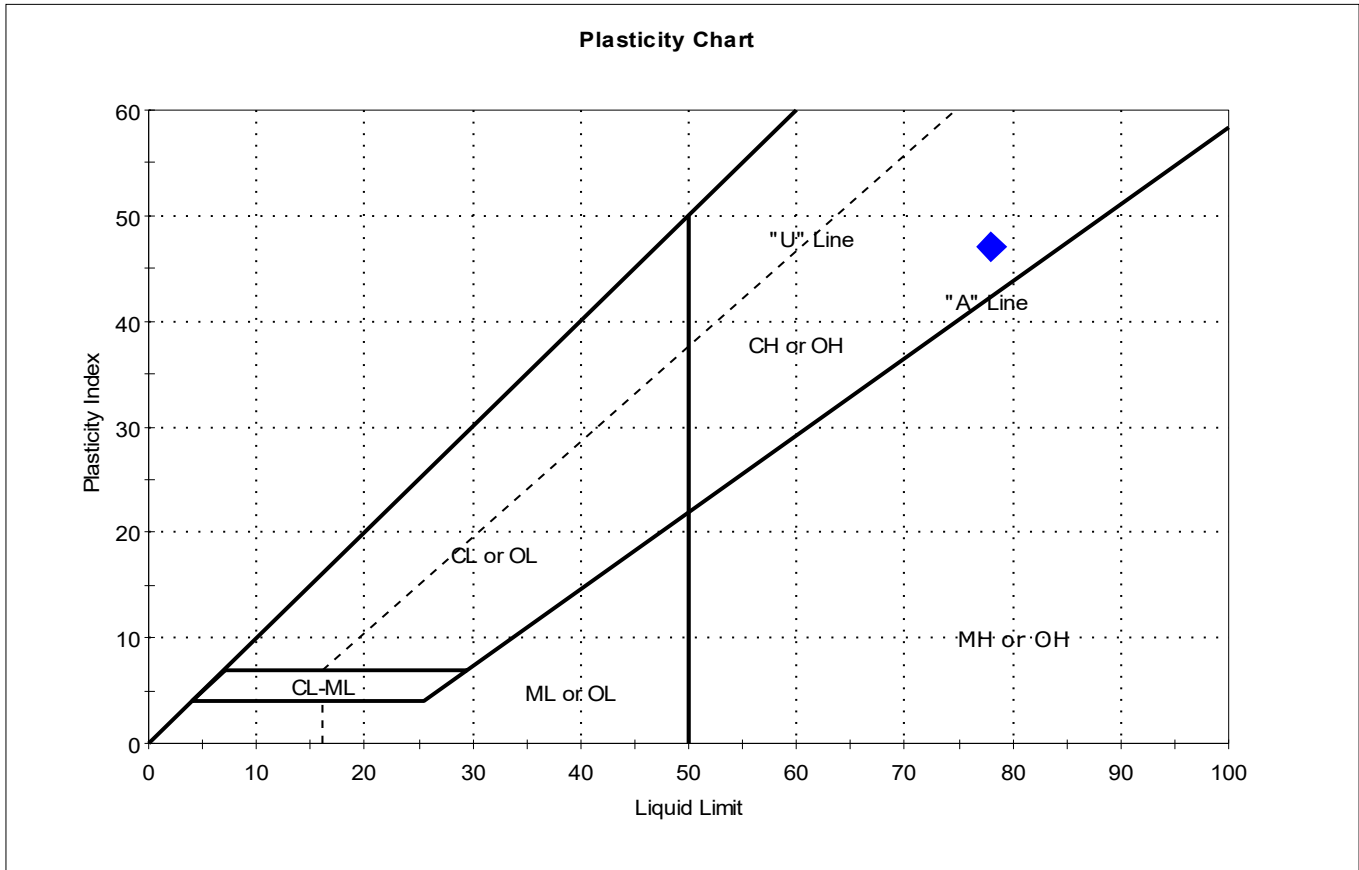
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-069SC-B-10-12-19	---	---	67	73	38	35	0.8	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-083SC-B-08-10	Test Date: 11/20/19	Test Id: 529651	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Moist, dark gray clay			
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
◆	PDI-083SC-B-08-10-19	---	---	76	78	31	47	1	Fat CLAY (CH)

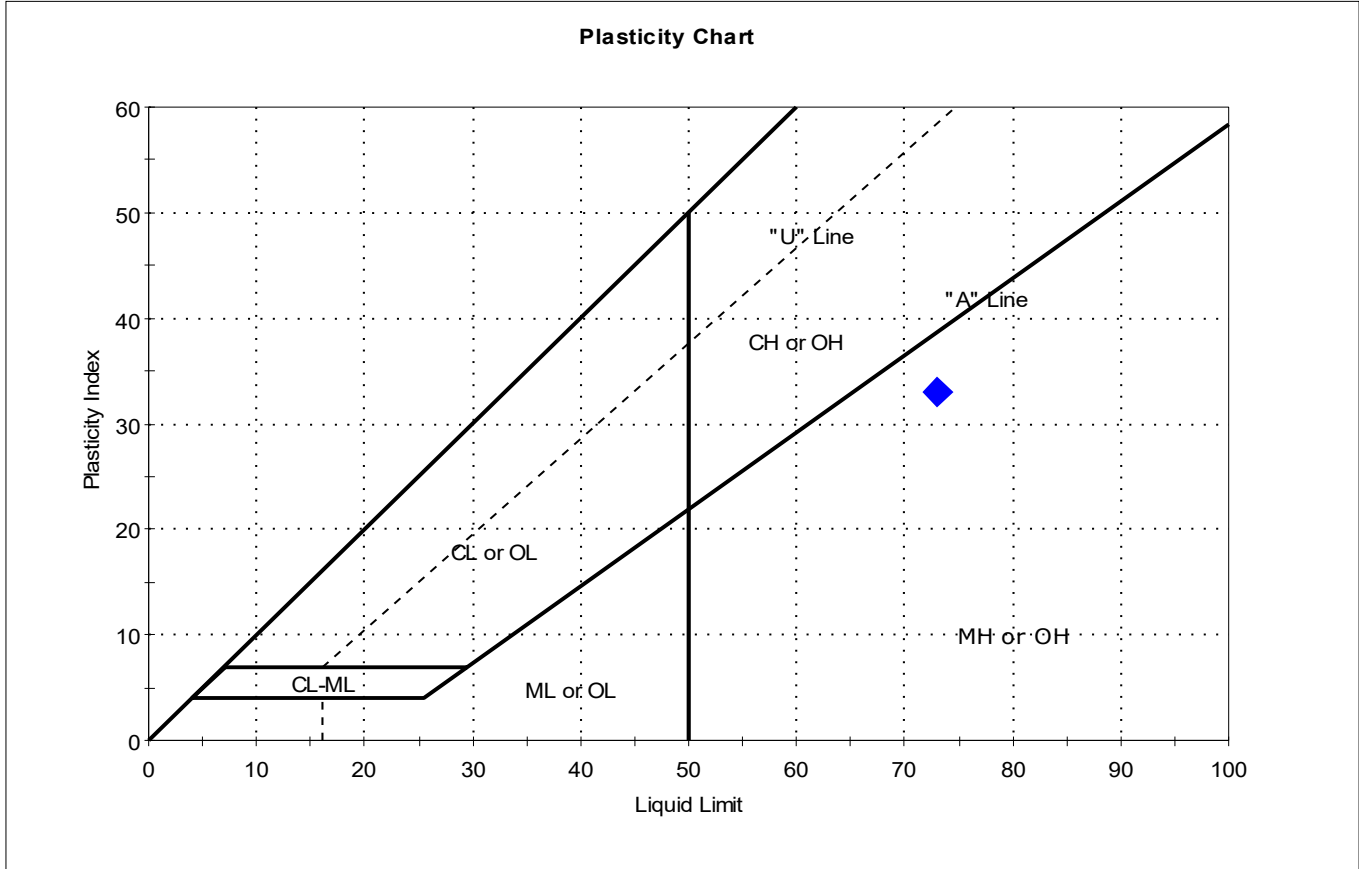
Sample Prepared using the WET method  
 1% Retained on #40 Sieve  
 Dry Strength: VERY HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: ---	Sample Type: bag	Tested By: cam	Checked By: bfs
Sample ID: PDI-097SC-B-02-04	Test Date: 11/19/19	Test Id: 529654	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Wet, dark gray silt			
Sample Comment: Sample contains organics			

## Atterberg Limits - ASTM D4318

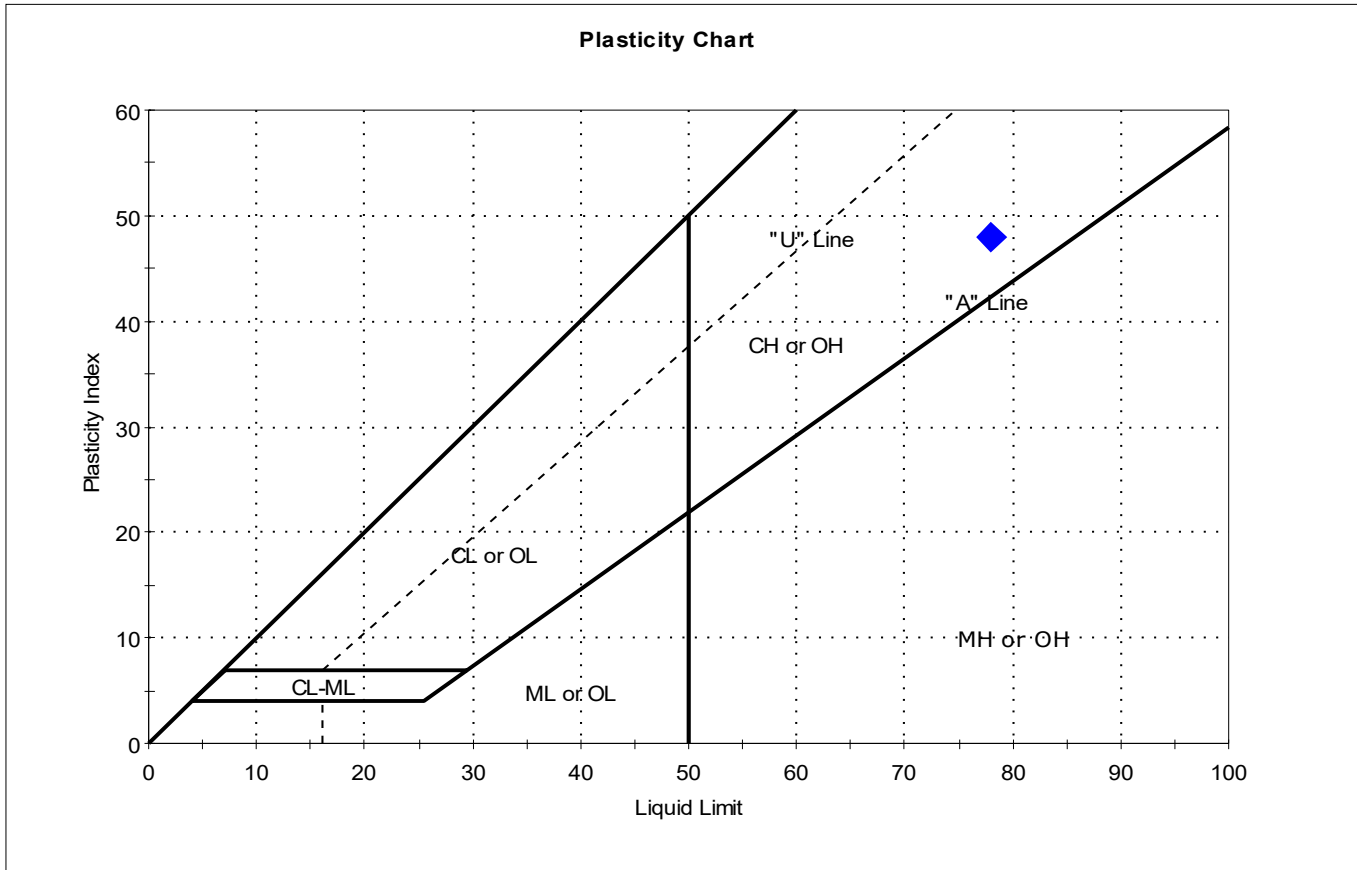


Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-097SC-B-02-04-19	---	---	87	73	40	33	1.4	Elastic SILT (MH)

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	Checked By: bfs
Sample ID: PDI-099SC-B-02-04	Test Date: 11/20/19	Test Id: 529652	
-1910 Depth: ---			
Test Comment: ---			
Visual Description: Moist, very dark gray clay			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



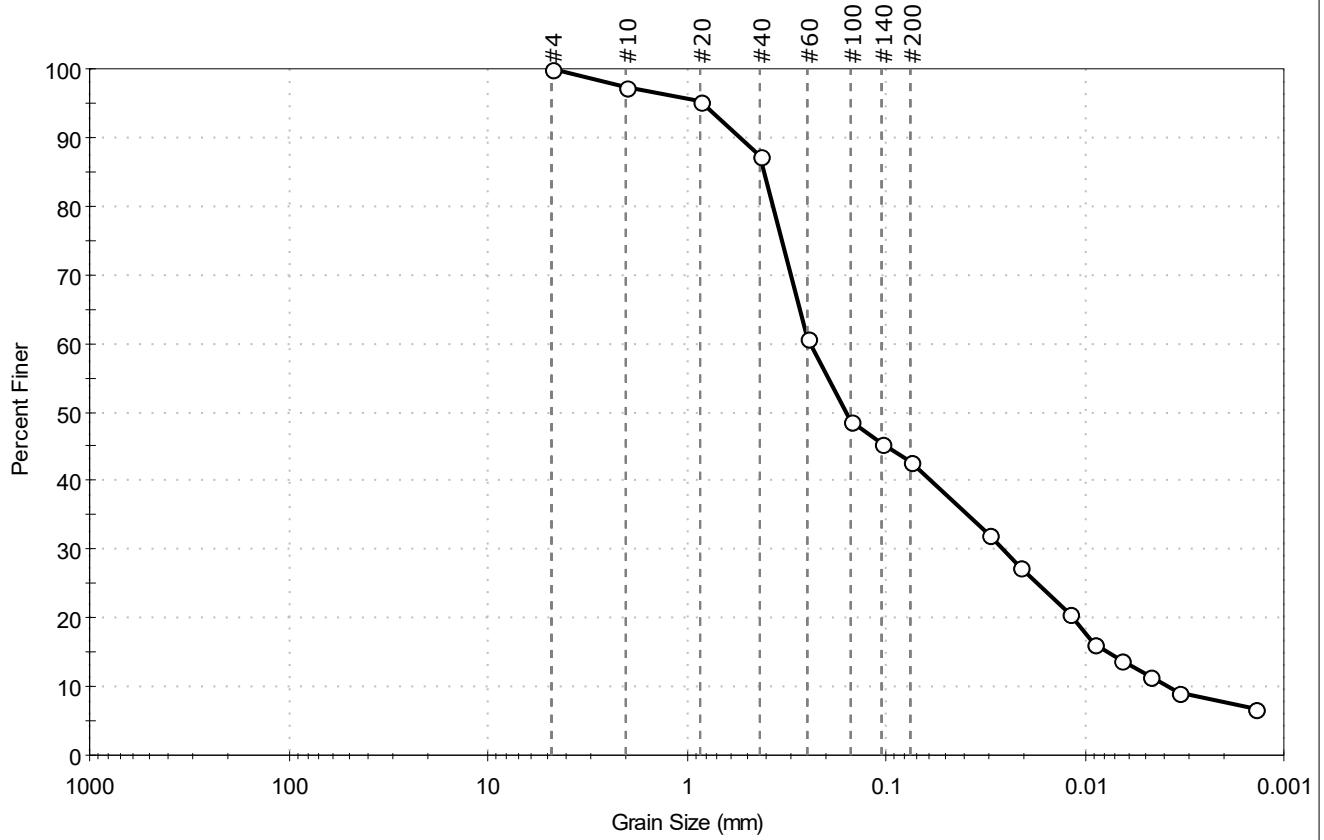
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	PDI-099SC-B-02-04-19	---	---	80	78	30	48	1	Fat CLAY (CH)

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: ckg	Checked By: bfs
Sample ID: PDI-071SC-2-06-08	est Date: 11/27/19	Test Id: 531000	
-19100T Depth: ---			
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	57.1	42.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	97		
#20	0.85	95		
#40	0.42	87		
#60	0.25	61		
#100	0.15	49		
#140	0.11	45		
#200	0.075	43		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0303	32		
---	0.0214	28		
---	0.0120	21		
---	0.0089	16		
---	0.0067	14		
---	0.0048	11		
---	0.0033	9		
---	0.0014	7		

Coefficients	
D <sub>85</sub> = 0.4063 mm	D <sub>30</sub> = 0.0257 mm
D <sub>60</sub> = 0.2426 mm	D <sub>15</sub> = 0.0078 mm
D <sub>50</sub> = 0.1586 mm	D <sub>10</sub> = 0.0038 mm
C <sub>u</sub> = 63.842	C <sub>c</sub> = 0.716

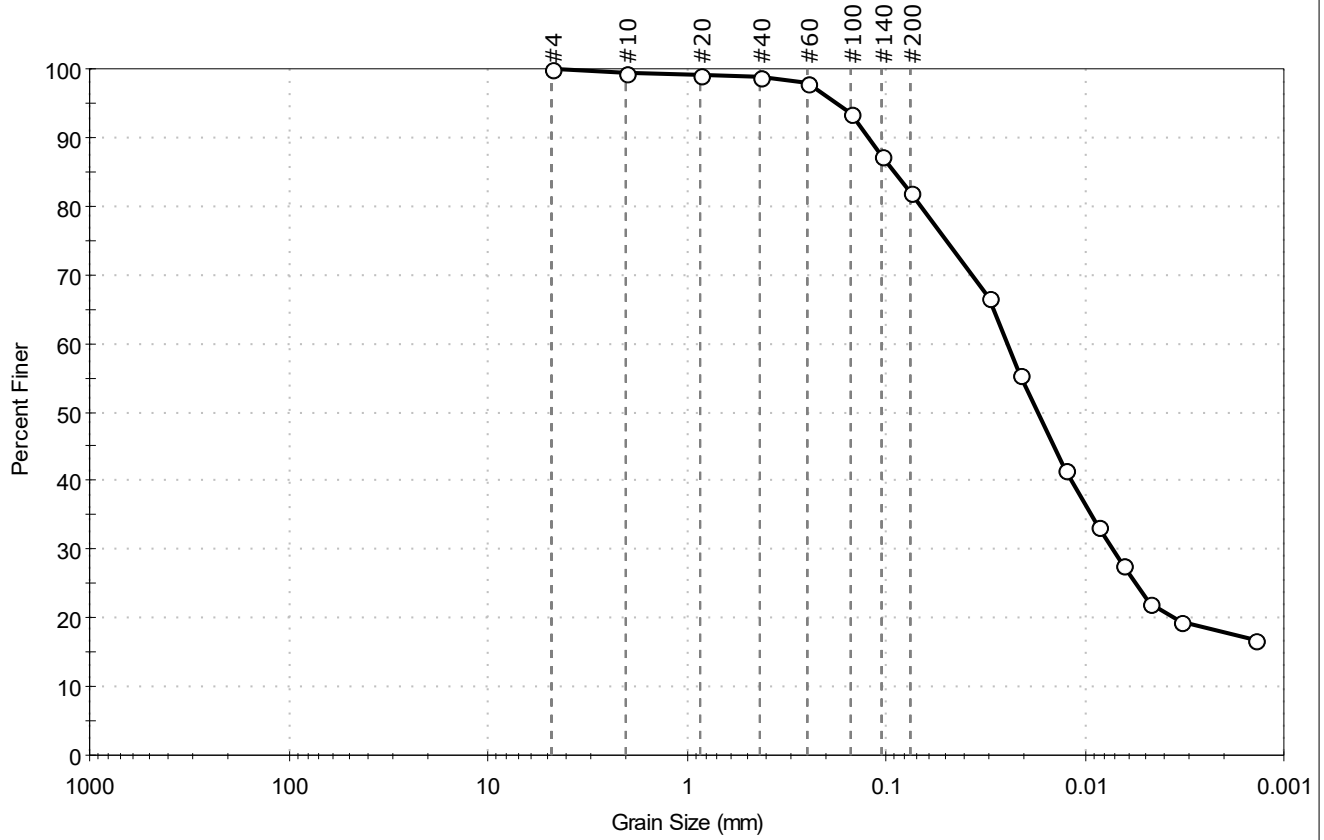
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: ---	Sample Type: bag
Sample ID: PDI-084SC-2-06-08	Tested By: ckg
-19100T Depth: ---	est Date: 11/27/19
	Checked By: bfs
	Test Id: 531001
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
—	0.1	17.9	82.0

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	93		
#140	0.11	87		
#200	0.075	82		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0306	67		
---	0.0210	56		
---	0.0125	42		
---	0.0086	33		
---	0.0064	28		
---	0.0047	22		
---	0.0033	19		
---	0.0014	17		

<u>Coefficients</u>	
D <sub>85</sub> = 0.0906 mm	D <sub>30</sub> = 0.0072 mm
D <sub>60</sub> = 0.0244 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0171 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = 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 : ---
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 No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 10/23/19	Checked By:	bfs
Depth : ---	Test Id: 527617		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-033SC-B	8.7- 10.7-191008	---	Moist, dark grayish brown sand	17.8
PDI-031SC-B	8.9- 10.9-191017	---	Moist, dark gray sand	16.0
PDI-028SC	10.7- 12.7-191003	---	Moist, very dark gray sand	14.7
PDI-027SC-B	11- 13.5-191011	---	Moist, dark gray sand	19.1
PDI-024SC-B	10- 12.1-190927	---	Moist, very dark gray sand with silt	38.1
PDI-022SC-B	5.5- 7.5-191016	---	Moist, dark gray sand	10.7
PDI-021SC-B	7.7- 9.7-190927	---	Moist, very dark gray sand with silt	13.0
PDI-018SC-A	06- 07-190926	---	Moist, very dark gray silt	77.1
PDI-018SC-A	08- 09-190926	---	Moist, very dark gray sand	23.3
PDI-016SC-B	06- 08-191009	---	Moist, dark grayish brown silty sand	34.6

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
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-036SC-B	4.2- 6.2-190929	---	Moist, very dark gray sand	14.3
PDI-038SC	B- 7.1-9.1-191009	---	Moist, dark gray sand with silt	20.4
PDI-039SC-B	7.8- 9.8-190930	---	Moist, very dark gray sand with silt	40.3
PDI-041SC-B	8.2- 10.2-191010	---	Moist, dark grayish brown sand	28.6
PDI-046SC-B	9.8- 11.8-191001	---	Moist, very dark gray silty sand	23.8
PDI-049SC-B	06- 08-191015	---	Moist, dark grayish brown silty sand	31.8
PDI-052SC-B	06- 08-191015	---	Moist, dark grayish brown silty sand	45.4
PDI-057SC-B	06- 08-191023	---	Wet, dark gray clay	77.2
PDI-059SC-B	06- 08-191016	---	Moist, dark grayish brown silty sand	38.4
PDI-064SC-B	04- 06-190929	---	Moist, very dark gray silt with sand	66.1

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 11/19/19	Checked By:	bfs
Depth : ---	Test Id: 529670		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-066SC-B	06- 08-191011	---	Moist, dark olive brown silt	67.8
PDI-067SC-B	02- 04-191010	---	Wet, dark olive brown silt	74.4
PDI-069SC-B	10- 12-191016	---	Moist, very dark gray silt	67.2
PDI-071SC-B	- 08-10-191001	---	Wet, very dark gray silty sand	42.8
PDI-077SC-B	04- 06-191014	---	Wet, dark olive brown silt	81.4
PDI-079SC-B	06- 08-191014	---	Wet, dark grayish brown silt	114.7
PDI-081SC-B	08- 10-191002	---	Wet, dark grayish olive silt with sand	64.1
PDI-083SC-B	08- 10-191022	---	Moist, dark gray clay	76.2
PDI-090SC-B	06- 08-191012	---	Moist, dark olive brown silt	81.9
PDI-097SC-B	02- 04-191017	---	Wet, dark gray silt	86.8

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 10/23/19	Checked By:	bfs
Depth : ---	Test Id: 527636		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-099SC-B	02- 04-191022	---	Moist, very dark gray clay	79.6
PDI-107SPT	62- 64-190923	---	Moist, dark olive brown silty sand	27.3
PDI-107SPT	17- 18-190923	---	Moist, dark gray silty sand	42.3
PDI-107SPT	04- 09-190923	---	Wet, dark olive brown silt	84.4
PDI-107SPT	00- 04-190923	---	Wet, dark olive brown silt	107.7
PDI-108SPT	33.5- 66.5-191007	---	Moist, dark gray sand with silt	29.8
PDI-108SPT	14- 33.5-191007	---	Moist, dark olive brown sand	39.5
PDI-108SPT	00- 6.4-191007	---	Wet, olive brown silt with sand	94.8
PDI-109SPT	48.3- 51-191004	---	Moist, dark olive brown silt with sand	47.9
PDI-109SPT	35.5- 48.3-191004	---	Moist, olive brown sand with silt	25.9

Notes: Temperature of Drying : 110° Celsius





Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 10/23/19	Checked By:	bfs
Depth : ---	Test Id: 527641		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-109SPT	22- 30-191004	---	Moist, olive brown sand with silt	34.5
PDI-109SPT	16.5- 18.1-191004	---	Moist, dark olive brown silt	80.2
PDI-109SPT	00- 6.5-191004	---	Wet, very dark olive silt	92.7
PDI-110 B	54- 64.5-191015	---	Moist, black sand with silt	18.0
PDI-110SPT	32- 45-191010	---	Moist, black sand	28.2
PDI-110SPT	21- 32-191010	---	Moist, dark gray sand	23.5
PDI-112SPT	11.5- 26.5-191003	---	Moist, dark gray silty sand	36.6
PDI-112SPT	37.5- 58-191003	---	Moist, very dark olive gray silty sand	19.1
PDI-112SPT	07- 11.5-191003	---	Moist, dark gray sandy silt	53.2
PDI-112SPT	00- 6.5-191003	---	Moist, dark brown silt	76.7

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 10/23/19	Checked By:	bfs
Depth : ---	Test Id: 527657		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-113SPT	31.9- 39.4-191011	---	Moist, dark gray silty sand	33.2
PDI-113SPT	22- 25.2-191011	---	Wet, dark grayish brown silt with sand	61.0
PDI-113SPT	16- 22-191011	---	Moist, dark grayish brown sand with silt	36.9
PDI-113SPT	06- 16-191011	---	Wet, dark grayish brown silt	42.8
PDI-114SPT	7.5- 12.5-191008	---	Moist, olive brown silt with sand	64.8
PDI-114SPT	50.5- 55-191008	---	Moist, dark gray silty sand	37.2
PDI-114SPT	42- 50.5-191008	---	Wet, olive brown sandy silt	49.6
PDI-114SPT	25.5- 28-191008	---	Moist, dark olive brown silty sand	30.9
PDI-114SPT	00- 7.5-191008	---	Wet, olive brown silt	72.9
PDI-115SPT	41.5- 49.3-191009	---	Moist, olive brown silty sand	38.8

Notes: Temperature of Drying : 110° Celsius



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

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-115SPT	23- 28.1-191009	---	Moist, very dark olive brown sand with silt	27.8
PDI-115SPT	18.6- 20.6-191009	---	Moist, dark olive brown silt with sand	71.7
PDI-115SPT	06- 11-191009	---	Moist, very dark gray silty sand	17.4
PDI-116SPT	51.5- 54.2-190927	---	Moist, olive brown silty sand	27.4
PDI-116SPT	26.7- 28.6-190926	---	Wet, grayish brown silt	64.0
PDI-116SPT	20- 26.7-190927	---	Moist, dark gray silty sand	26.2
PDI-116SPT	00- 4.5-190926	---	Wet, olive brown silt	82.8
PDI-117SPT	53.5- 63.5-191002	---	Wet, dark grayish brown silt with sand	83.1
PDI-117SPT	44.1- 53.5-191002	---	Moist, dark gray silty sand	45.6
PDI-117SPT	29.1- 32-191002	---	Moist, dark gray silty sand	45.0

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 10/23/19	Checked By:	bfs
Depth : ---	Test Id: 527675		

## Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
PDI-117SPT	11- 29.1-191002	---	Moist, dark gray sand	37.6
PDI-118SPT	46.5- 61-191014	---	Wet, dark grayish brown silty sand	62.1
PDI-118SPT	4.5- 15-191014	---	Moist, dark grayish brown silt with sand	70.1
PDI-118SPT	00- 4.5-191014	---	Wet, dark grayish brown silt	112.9
PDI-119SPT	9.5- 18.3-191001	---	Moist, dark grayish brown sand with silt	37.5
PDI-119SPT	47- 52-191001	---	Moist, dark grayish brown silty sand	33.5
PDI-119SPT	18.3- 31-191001	---	Moist, dark gray silty sand	30.4
PDI-119SPT	00- 4.5-191001	---	Moist, dark grayish brown silt with sand	76.8
PDI-121SPT	49.4- 54-190930	---	Moist, dark grayish brown silty sand	44.7
PDI-121SPT	21- 38-190930	---	Moist, dark olive gray silty sand	43.0

Notes: Temperature of Drying : 110° Celsius



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
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-121SPT	11- 20.7-190930	---	Moist, dark olive brown silt	59.6
PDI-121SPT	00- 06-190930	---	Moist, olive brown silt	75.8
PDI-122SPT	61- 66-190926	---	Wet, olive brown silty sand	41.8
PDI-122SPT	16.6- 24-190925	---	Moist, dark olive brown silty sand	48.8
PDI-122SPT	04- 09-190925	---	Wet, olive brown silt	79.7
PDI-123SPT	63.2- 65.5-190925	---	Moist, dark olive brown silt with sand	48.0
PDI-123SPT	25.5- 30.5-190925	---	Moist, dark gray silty sand	18.8
PDI-123SPT	00- 4.5-190924	---	Wet, dark olive silt with sand	71.5
PDI-19SC-B	05- 07-191008	---	Moist, dark olive brown sandy silt	60.6

Notes: Temperature of Drying : 110° Celsius



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: 527690		

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-016SC-B	06- 08-191009	---	Moist, dark grayish brown silty sand	2.71	
PDI-018SC-A	06- 07-190926	---	Moist, very dark gray silt	2.53	
PDI-018SC-A	08- 09-190926	---	Moist, very dark gray sand	2.73	
PDI-021SC-B	7.7- 9.7-190927	---	Moist, very dark gray sand with silt	2.73	
PDI-022SC-B	5.5- 7.5-191016	---	Moist, dark gray sand	2.75	
PDI-024SC-B	10- 12.1-190927	---	Moist, very dark gray sand with silt	2.76	
PDI-027SC-B	11- 13.5-191011	---	Moist, dark gray sand	2.74	
PDI-028SC	10.7- 12.7-191003	---	Moist, very dark gray sand	2.79	
PDI-031SC-B	8.9- 10.9-191017	---	Moist, dark gray sand	2.75	
PDI-033SC-B	8.7- 10.7-191008	---	Moist, dark grayish brown sand	2.73	

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	Checked By: bfs
Sample ID: ---	Test Date: 10/10/19	Test Id: 525995	
Depth: ---			

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-024SC-B	10-12.1-190927	---	Moist, very dark gray sand with silt	2.76	
PDI-027SC-B	11-13.5-191011	---	Moist, dark gray sand	2.74	
PDI-028SC	10.7-12.7-191003	---	Moist, very dark gray sand	2.79	
PDI-031SC-B	8.9-10.9-191017	---	Moist, dark gray sand	2.75	
PDI-033SC-B	8.7-10.7-191008	---	Moist, dark grayish brown sand	2.73	
PDI-036SC-B	4.2-6.2-190929	---	Moist, very dark gray sand	2.76	
PDI-038SC	B-7.1-9.1-191009	---	Moist, dark gray sand with silt	2.69	
PDI-039SC-B	7.8-9.8-190930	---	Moist, very dark gray sand with silt	2.72	
PDI-041SC-B	8.2-10.2-191010	---	Moist, dark grayish brown sand	2.77	
PDI-046SC-B	9.8-11.8-191001	---	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.



Client:	Anchor QEA, LLC	Project No:	GTX-310685
Project:	Gasco PDI		
Location:			
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-049SC-B	06- 08-191015	---	Moist, dark grayish brown silty sand	2.75	
PDI-052SC-B	06- 08-191015	---	Moist, dark grayish brown silty sand	2.68	
PDI-057SC-B	06- 08-191023	---	Wet, dark gray clay	2.71	
PDI-059SC-B	06- 08-191016	---	Moist, dark grayish brown silty sand	2.80	
PDI-064SC-B	04- 06-190929	---	Moist, very dark gray silt with sand	2.63	
PDI-066SC-B	06- 08-191011	---	Moist, dark olive brown silt	2.56	
PDI-067SC-B	02- 04-191010	---	Wet, dark olive brown silt	2.65	
PDI-069SC-B	10- 12-191016	---	Moist, very dark gray silt	2.73	
PDI-071SC-B	- 08-10-191001	---	Wet, very dark gray silty sand	2.67	
PDI-077SC-B	04- 06-191014	---	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: 11/01/19	Checked By: bfs	
Depth: ---	Test Id: 527699		

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-079SC-B	06- 08-191014	---	Wet, dark grayish brown silt	2.64	
PDI-081SC-B	08- 10-191002	---	Wet, dark grayish olive silt with sand	2.72	
PDI-083SC-B	08- 10-191022	---	Moist, dark gray clay	2.65	
PDI-090SC-B	06- 08-191012	---	Moist, dark olive brown silt	2.60	
PDI-097SC-B	02- 04-191017	---	Wet, dark gray silt	2.66	
PDI-099SC-B	02- 04-191022	---	Moist, very dark gray clay	2.71	
PDI-107SPT	00- 04-190923	---	Wet, dark olive brown silt	2.65	
PDI-107SPT	04- 09-190923	---	Wet, dark olive brown silt	2.58	
PDI-107SPT	17- 18-190923	---	Moist, dark gray silty sand	2.76	
PDI-107SPT	62- 64-190923	---	Moist, dark olive brown silty sand	2.76	

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 No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 10/29/19	Checked By:	bfs
Depth : ---	Test Id: 527709		

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-108SPT	00- 6.4-191007	---	Wet, olive brown silt with sand	2.55	
PDI-108SPT	14- 33.5-191007	---	Moist, dark olive brown sand	2.74	
PDI-108SPT	33.5- 66.5-191007	---	Moist, dark gray sand with silt	2.75	
PDI-109SPT	00- 6.5-191004	---	Wet, very dark olive silt	2.54	
PDI-109SPT	16.5- 18.1-191004	---	Moist, dark olive brown silt	2.55	
PDI-109SPT	22- 30-191004	---	Moist, olive brown sand with silt	2.72	
PDI-109SPT	35.5- 48.3-191004	---	Moist, olive brown sand with silt	2.75	
PDI-109SPT	48.3- 51-191004	---	Moist, dark olive brown silt with sand	2.62	
PDI-110 B	54- 64.5-191015	---	Moist, black sand with silt	2.75	
PDI-110SPT	21- 32-191010	---	Moist, dark gray sand	2.79	

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 No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 11/06/19	Checked By:	bfs
Depth : ---	Test Id: 527719		

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-110SPT	32- 45-191010	---	Moist, black sand	2.76	
PDI-112SPT	00- 6.5-191003	---	Moist, dark brown silt	2.60	
PDI-112SPT	07- 11.5-191003	---	Moist, dark gray sandy silt	2.64	
PDI-112SPT	11.5- 26.5-191003	---	Moist, dark gray silty sand	2.75	
PDI-112SPT	37.5- 58-191003	---	Moist, very dark olive gray silty sand	2.75	
PDI-113SPT	06- 16-191011	---	Wet, dark grayish brown silt	2.73	
PDI-113SPT	16- 22-191011	---	Moist, dark grayish brown sand with silt	2.77	
PDI-113SPT	22- 25.2-191011	---	Wet, dark grayish brown silt with sand	2.66	
PDI-113SPT	31.9- 39.4-191011	---	Moist, dark gray silty sand	2.44	
PDI-114SPT	00- 7.5-191008	---	Wet, olive brown silt	2.62	

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 No:	GTX-310685
Project:	Gasco PDI		
Location:		Tested By:	ckg
Boring ID: ---	Sample Type: ---	Checked By:	bfs
Sample ID: ---	Test Date: 11/06/19	Test Id:	527729
Depth : ---			

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-114SPT	25.5-28-191008	---	Moist, dark olive brown silty sand	2.75	
PDI-114SPT	42-50.5-191008	---	Wet, olive brown sandy silt	2.77	
PDI-114SPT	50.5-55-191008	---	Moist, dark gray silty sand	2.77	
PDI-114SPT	7.5-12.5-191008	---	Moist, olive brown silt with sand	2.66	
PDI-115SPT	06- 11-191009	---	Moist, very dark gray silty sand	2.77	
PDI-115SPT	18.6-20.6-191009	---	Moist, dark olive brown silt with sand	2.54	
PDI-115SPT	23-28.1-191009	---	Moist, very dark olive brown sand with silt	2.75	
PDI-115SPT	41.5-49.3-191009	---	Moist, olive brown silty sand	2.76	
PDI-116SPT	00- 4.5-190926	---	Wet, olive brown silt	2.67	
PDI-116SPT	20-26.7-190927	---	Moist, 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.



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: 527739		

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-116SPT	26.7-28.6-190926	---	Wet, grayish brown silt	2.69	
PDI-116SPT	51.5-54.2-190927	---	Moist, olive brown silty sand	2.76	
PDI-117SPT	11-29.1-191002	---	Moist, dark gray sand	2.75	
PDI-117SPT	29.1-32-191002	---	Moist, dark gray silty sand	2.73	
PDI-117SPT	44.1-53.5-191002	---	Moist, dark gray silty sand	2.71	
PDI-117SPT	53.5-63.5-191002	---	Wet, dark grayish brown silt with sand	2.66	
PDI-118SPT	00- 4.5-191014	---	Wet, dark grayish brown silt	2.65	
PDI-118SPT	4.5- 15-191014	---	Moist, dark grayish brown silt with sand	2.53	
PDI-118SPT	46.5-61-191014	---	Wet, dark grayish brown silty sand	2.71	
PDI-119SPT	00- 4.5-191001	---	Moist, dark grayish brown silt with sand	2.62	

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 No:	GTX-310685
Project:	Gasco PDI		
Location:			
Boring ID: ---	Sample Type: ---	Tested By:	ckg
Sample ID: ---	Test Date: 10/29/19	Checked By:	bfs
Depth : ---	Test Id: 527749		

## Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-119SPT	18.3-31-191001	---	Moist, dark gray silty sand	2.70	
PDI-119SPT	47- 52-191001	---	Moist, dark grayish brown silty sand	2.78	
PDI-119SPT	9.5-18.3-191001	---	Moist, dark grayish brown sand with silt	2.73	
PDI-121SPT	00- 06-190930	---	Moist, olive brown silt	2.59	
PDI-121SPT	11-20.7-190930	---	Moist, dark olive brown silt	2.67	
PDI-121SPT	21- 38-190930	---	Moist, dark olive gray silty sand	2.73	
PDI-121SPT	49.4-54-190930	---	Moist, dark grayish brown silty sand	2.70	
PDI-122SPT	04- 09-190925	---	Wet, olive brown silt	2.71	
PDI-122SPT	16.6-24-190925	---	Moist, dark olive brown silty sand	2.71	
PDI-122SPT	61- 66-190926	---	Wet, olive brown silty sand	2.74	

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

## Specific Gravity of Soils by ASTM D854

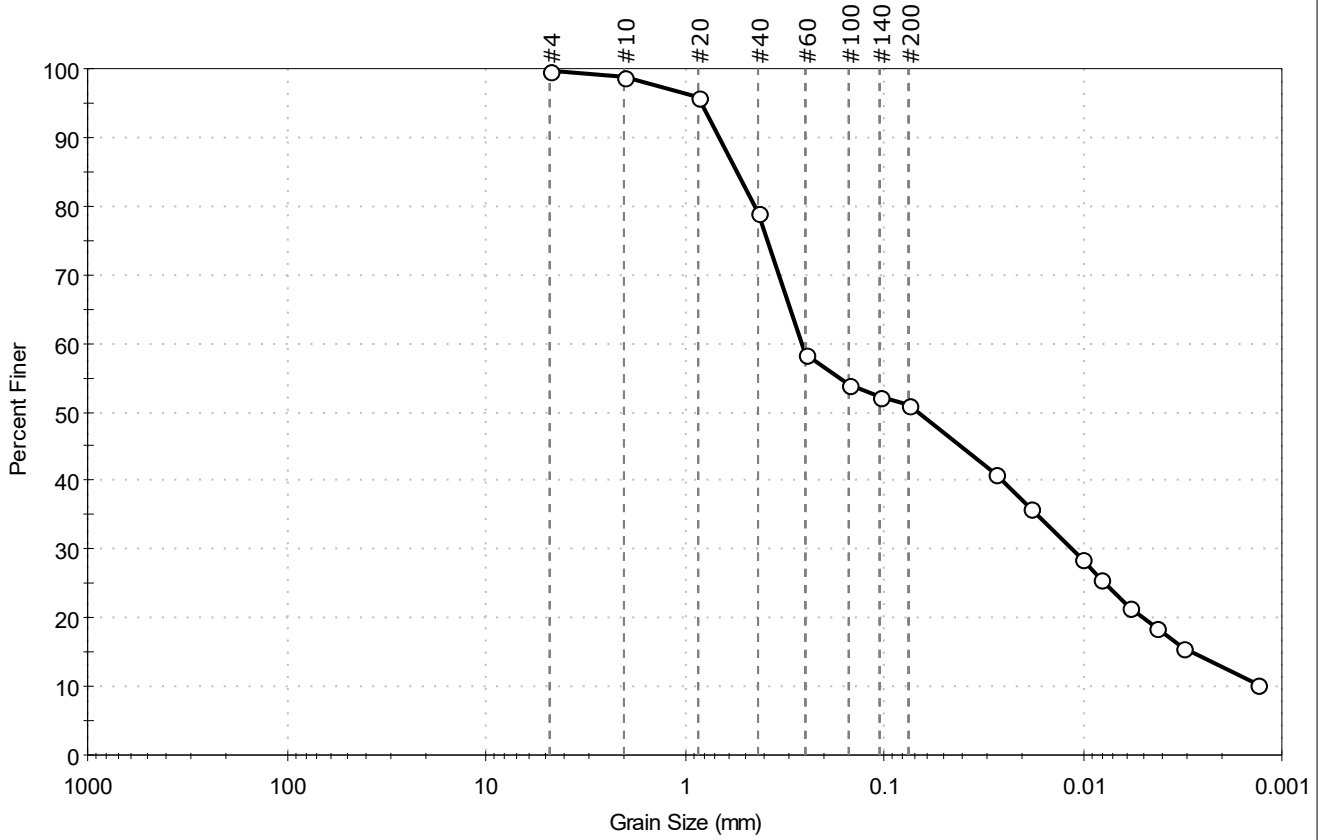
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
PDI-123SPT	00- 4.5-190924	---	Wet, dark olive silt with sand	2.66	
PDI-123SPT	25.5-30.5-190925	---	Moist, dark gray silty sand	2.77	
PDI-123SPT	63.2-65.5-190925	---	Moist, dark olive brown silt with sand	2.67	
PDI-19SC-B	05- 07-191008	---	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: PDI-014SG	Sample Type: bag	Tested By: ckg	Checked By: jsc
Sample ID: 00-0.99-190923	Test Date: 10/02/19	Test Id: 525297	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5444 mm	D <sub>30</sub> = 0.0112 mm
D <sub>60</sub> = 0.2601 mm	D <sub>15</sub> = 0.0029 mm
D <sub>50</sub> = 0.0681 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

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

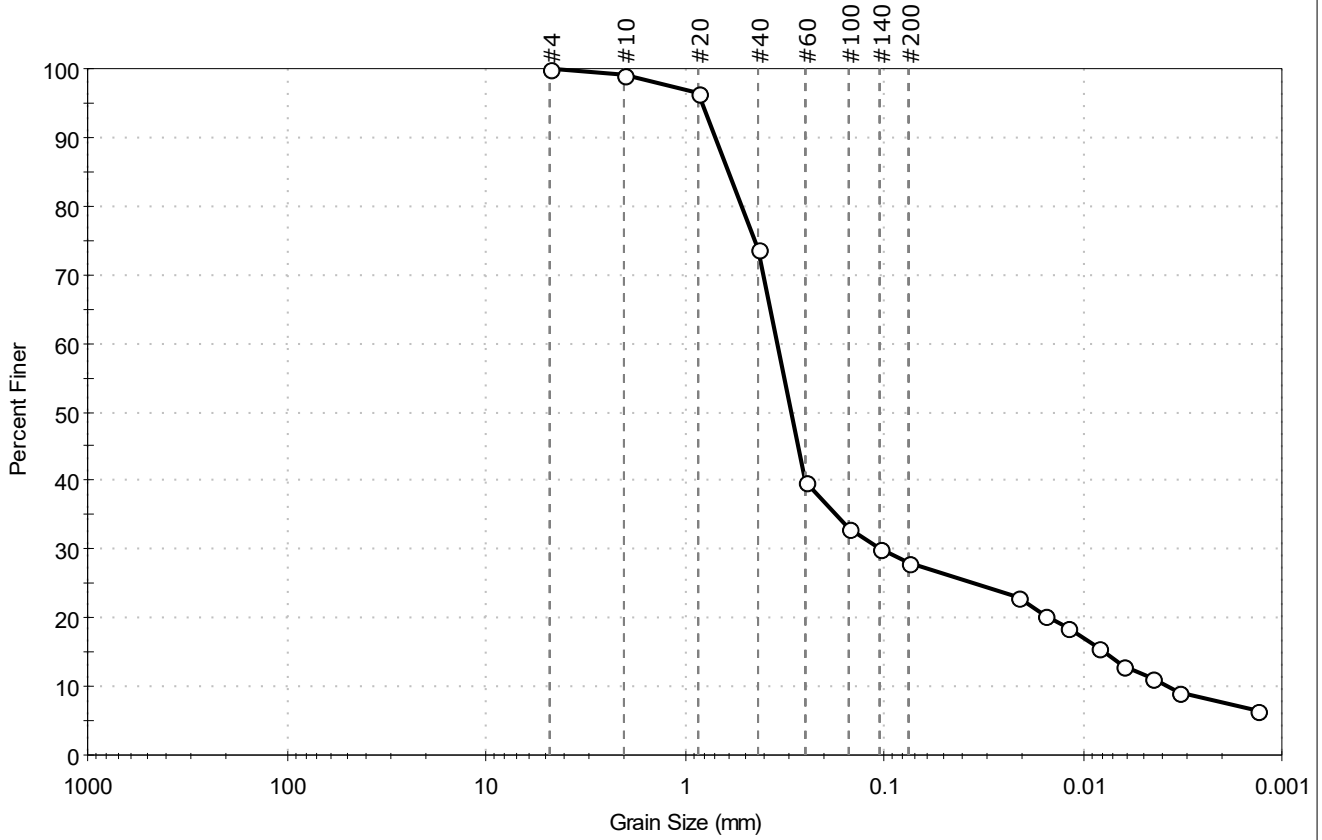
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-015SG	Sample Type: bag	Tested By: ckg	Checked By: jsc
Sample ID: 00-0.87-190924	Test Date: 10/02/19	Test Id: 525298	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5984 mm	D <sub>30</sub> = 0.1051 mm
D <sub>60</sub> = 0.3429 mm	D <sub>15</sub> = 0.0078 mm
D <sub>50</sub> = 0.2934 mm	D <sub>10</sub> = 0.0037 mm
C <sub>u</sub> = 92.676	C <sub>c</sub> = 8.706

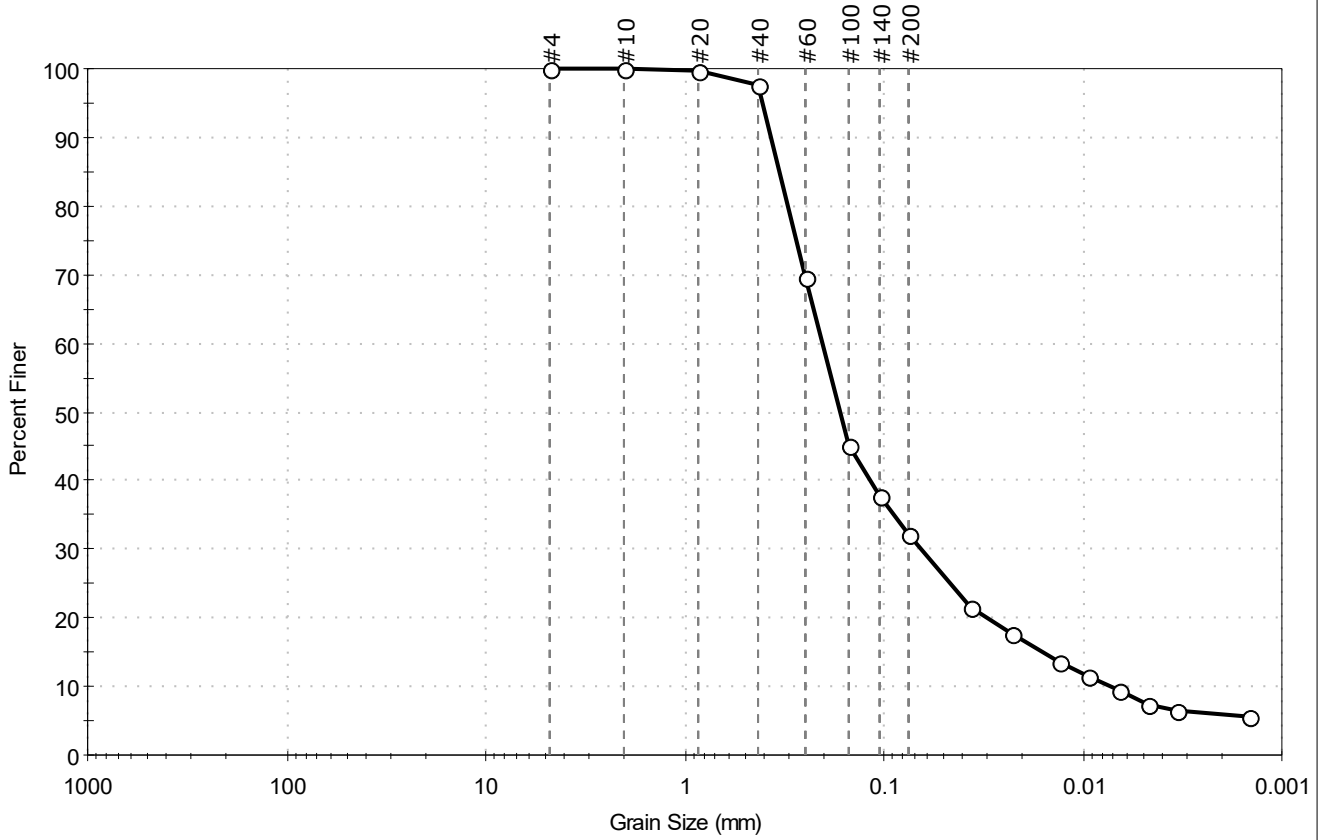
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: PDI-016SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-08-191009	Test Date: 10/29/19	Test Id: 527547	
Depth: ---	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	0.425	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3339 mm	D <sub>30</sub> = 0.0651 mm
D <sub>60</sub> = 0.2042 mm	D <sub>15</sub> = 0.0161 mm
D <sub>50</sub> = 0.1659 mm	D <sub>10</sub> = 0.0072 mm
C <sub>u</sub> = 28.361	C <sub>c</sub> = 2.883

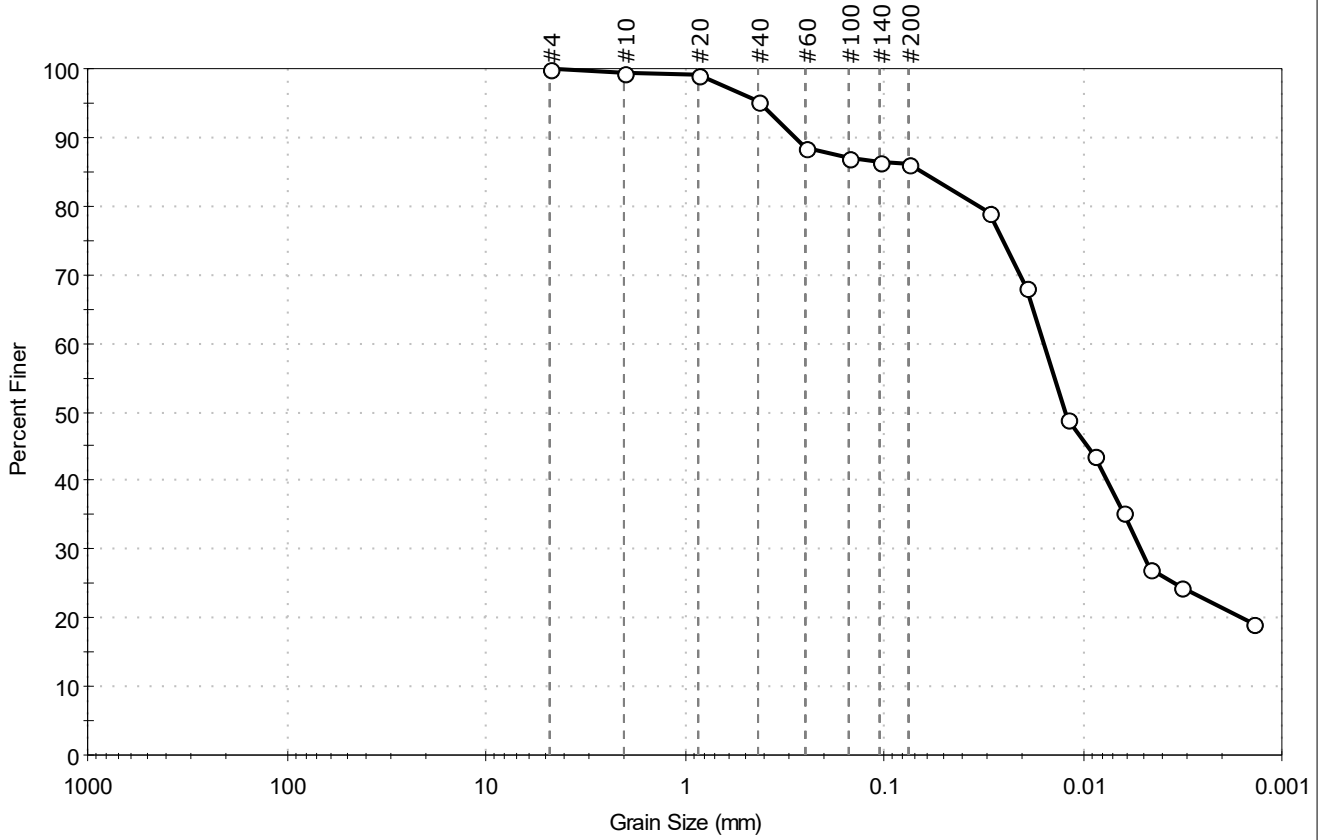
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: PDI-018SC-A Sample Type: bag Tested By: ckg  
 Sample ID: 06-07-190926 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0652 mm	D <sub>30</sub> = 0.0051 mm
D <sub>60</sub> = 0.0158 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0123 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (47))

<b>Sample/Test Description</b>	
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 No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-018SC-A	Sample Type: bag	Tested By: ckg
Sample ID: 08-09-190926	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

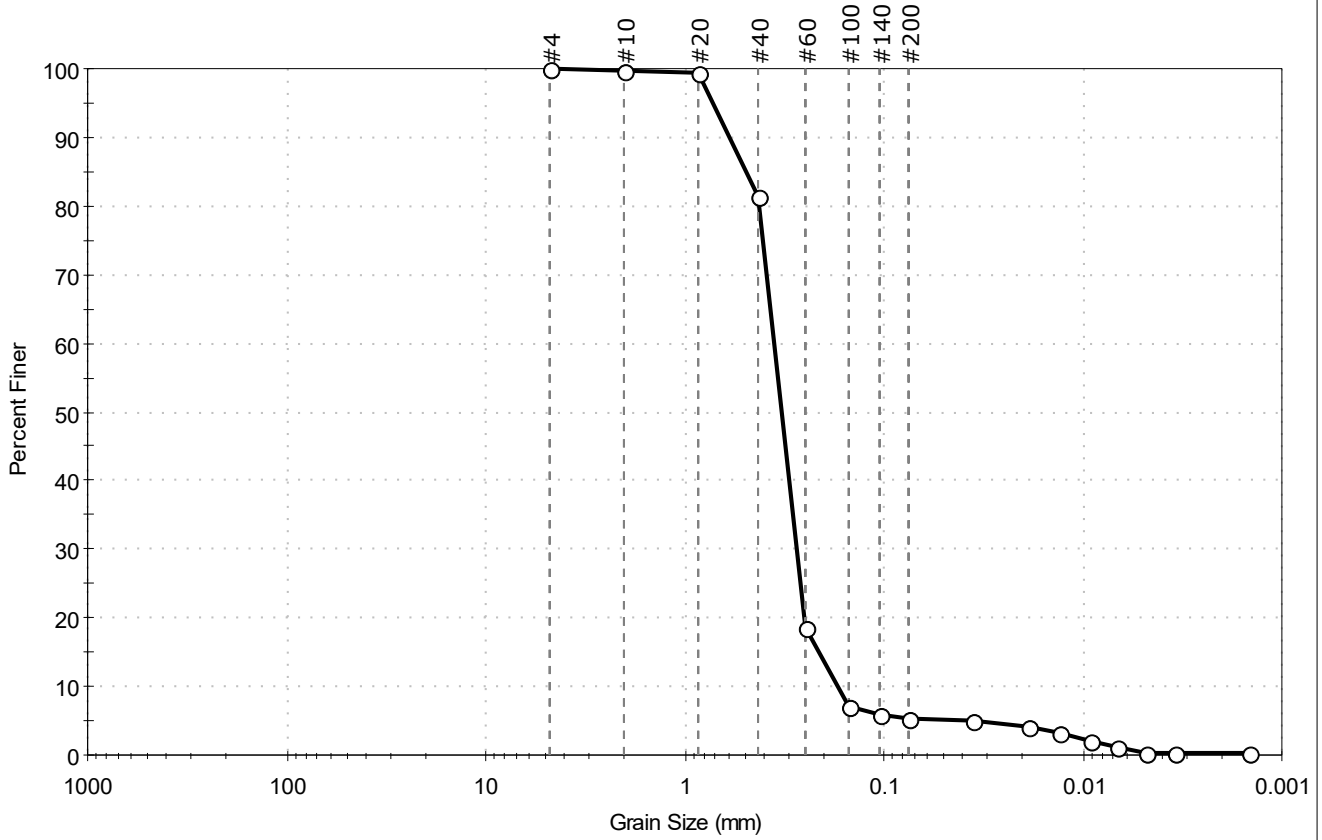
<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: ckg
Boring ID: PDI-021SC-B	Test Date: 10/08/19	Checked By: bfs
Sample ID: 7.7-9.7-190927	Test Id: 525973	
Depth: ---		
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 <sub>85</sub> = 0.4863 mm	D <sub>30</sub> = 0.2754 mm
D <sub>60</sub> = 0.3546 mm	D <sub>15</sub> = 0.2140 mm
D <sub>50</sub> = 0.3260 mm	D <sub>10</sub> = 0.1714 mm
C <sub>u</sub> = 2.069	C <sub>c</sub> = 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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-022SC-B	Sample Type: bag	Tested By: ckg
Sample ID: 5.5-7.5-191016	Test Date: 11/19/19	Checked By: bfs
Depth : ---	Test Id: 529663	
Test Comment: ---		
Visual Description: Moist, dark gray sand		
Sample Comment: ---		

## Particle Size Analysis - ASTM D6913

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

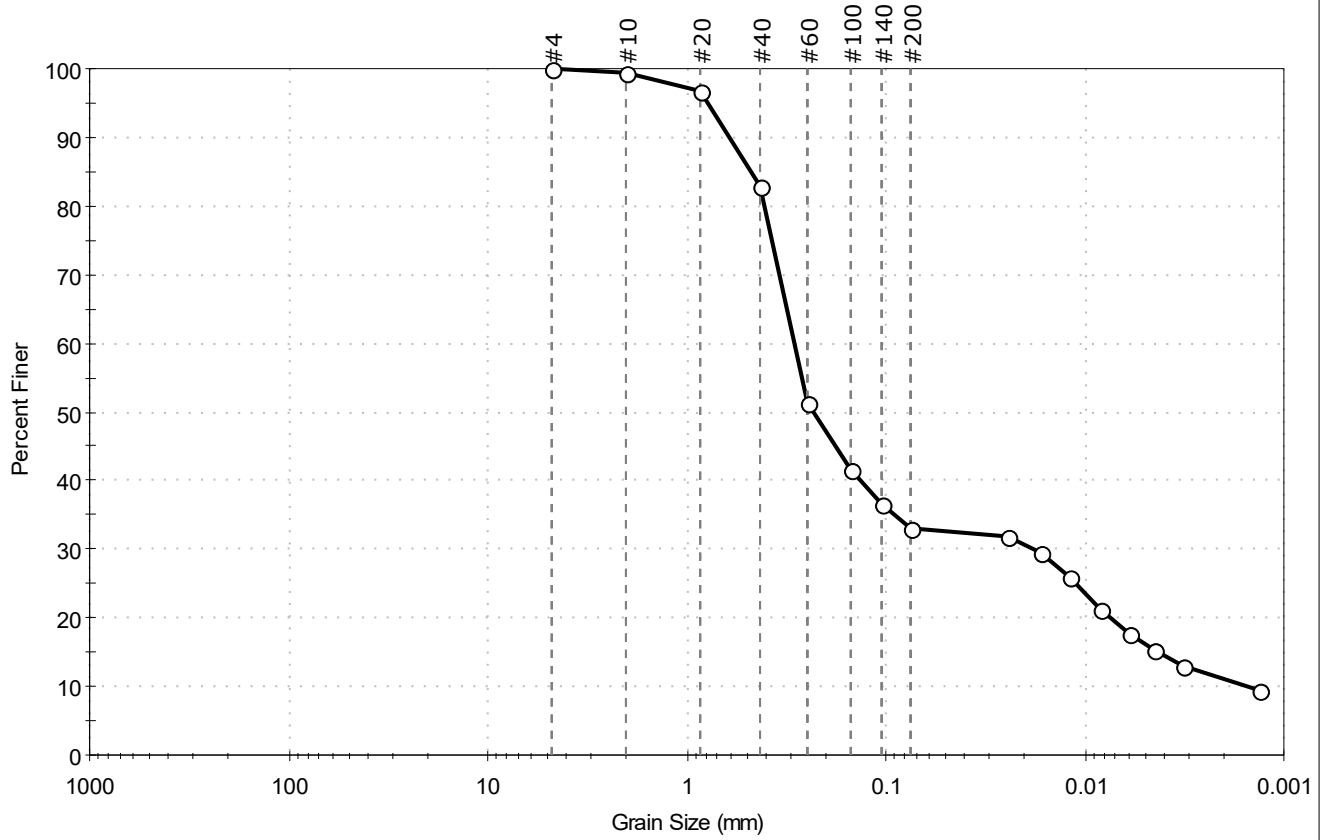
<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-022SG	Sample Type: bag	Tested By: ckg	
Sample ID: 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 <sub>85</sub> = 0.4712 mm	D <sub>30</sub> = 0.0185 mm
D <sub>60</sub> = 0.2896 mm	D <sub>15</sub> = 0.0043 mm
D <sub>50</sub> = 0.2342 mm	D <sub>10</sub> = 0.0016 mm
C <sub>u</sub> = 181.000	C <sub>c</sub> = 0.739

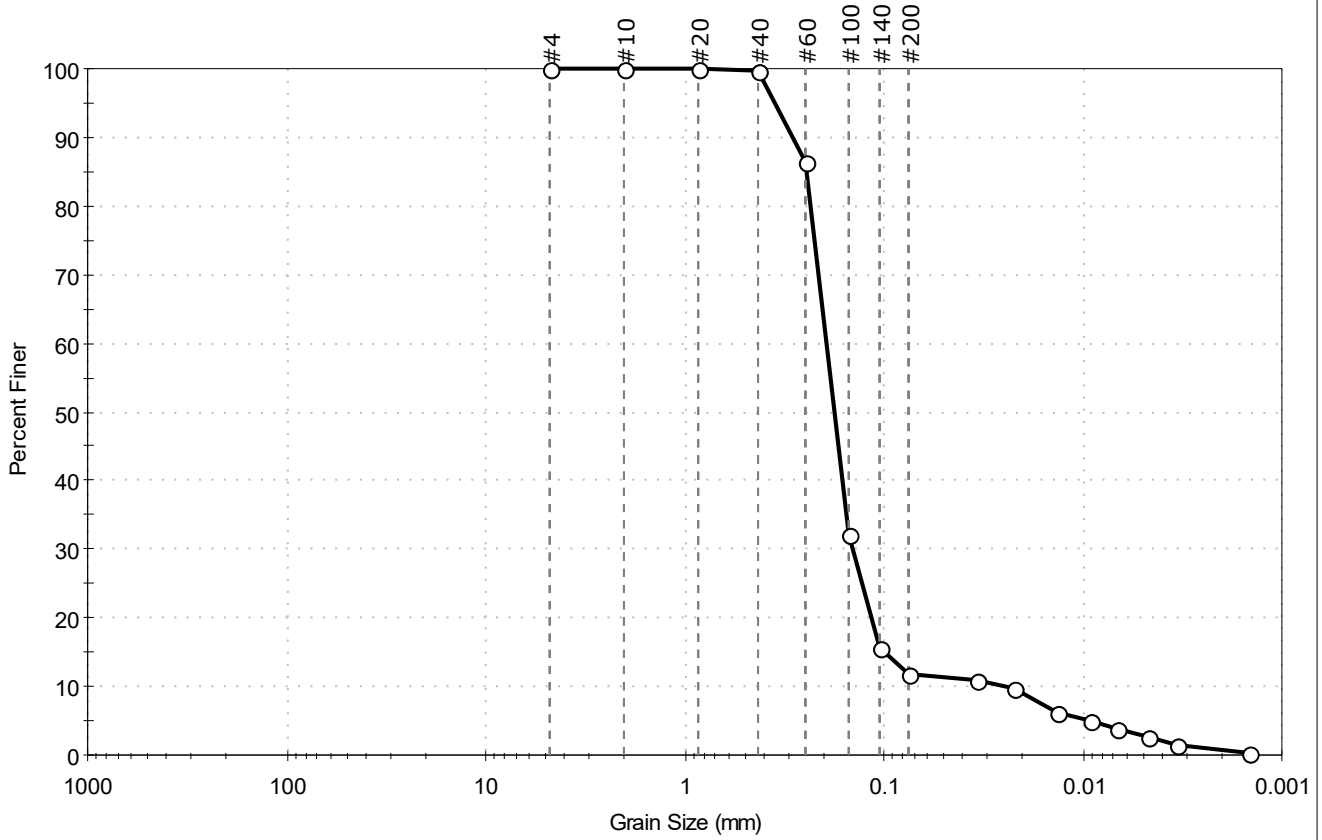
Classification	
ASTM	N/A
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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: PDI-024SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 10-12.1-190927	Test Date: 10/08/19	Test Id: 525974	
Depth: ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2465 mm	D <sub>30</sub> = 0.1434 mm
D <sub>60</sub> = 0.1949 mm	D <sub>15</sub> = 0.0998 mm
D <sub>50</sub> = 0.1774 mm	D <sub>10</sub> = 0.0234 mm
C <sub>u</sub> = 8.329	C <sub>c</sub> = 4.509

<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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 No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-027SC-B	Sample Type: bag	Tested By: ckg
Sample ID: 11-13.5-191011	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-028SC	Sample Type: bag	Tested By: ckg
Sample ID: 10.7-12.7-191003	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-031SC-B	Sample Type: bag	Tested By: ckg
Sample ID: 8.9-10.9-191017	Test Date: 11/19/19	Checked By: bfs
Depth : ---	Test Id: 529661	
Test Comment: ---		
Visual Description: Moist, dark gray sand		
Sample Comment: ---		

## Particle Size Analysis - ASTM D6913

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-033SC-B	Sample Type: bag	Tested By: ckg
Sample ID: 8.7-10.7-191008	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-036SC-B	Sample Type: bag	Tested By: ckg
Sample ID: 4.2-6.2-190929	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

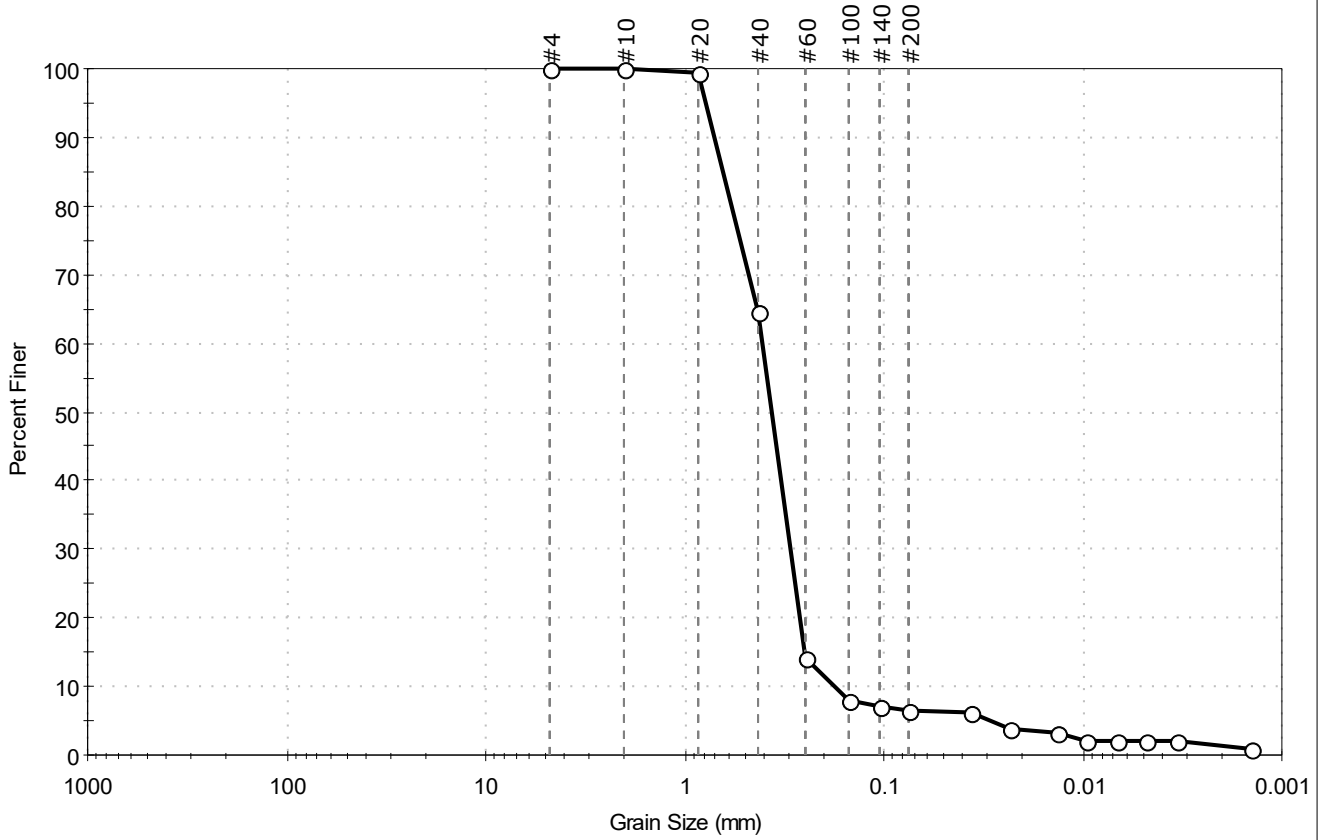
<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-038SC	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: B-7.1-9.1-191009	Test Date: 10/24/19	Test Id: 527548	
Depth: ---	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	93.6	6.4

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	65		
#60	0.25	14		
#100	0.15	8		
#140	0.11	7		
#200	0.075	6.4		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0370	6		
---	0.0235	4		
---	0.0136	3		
---	0.0096	2		
---	0.0068	2		
---	0.0048	2		
---	0.0034	2		
---	0.0014	1		

<b>Coefficients</b>	
D <sub>85</sub> = 0.6378 mm	D <sub>30</sub> = 0.2953 mm
D <sub>60</sub> = 0.4052 mm	D <sub>15</sub> = 0.2521 mm
D <sub>50</sub> = 0.3646 mm	D <sub>10</sub> = 0.1779 mm
C <sub>u</sub> = 2.278	C <sub>c</sub> = 1.210

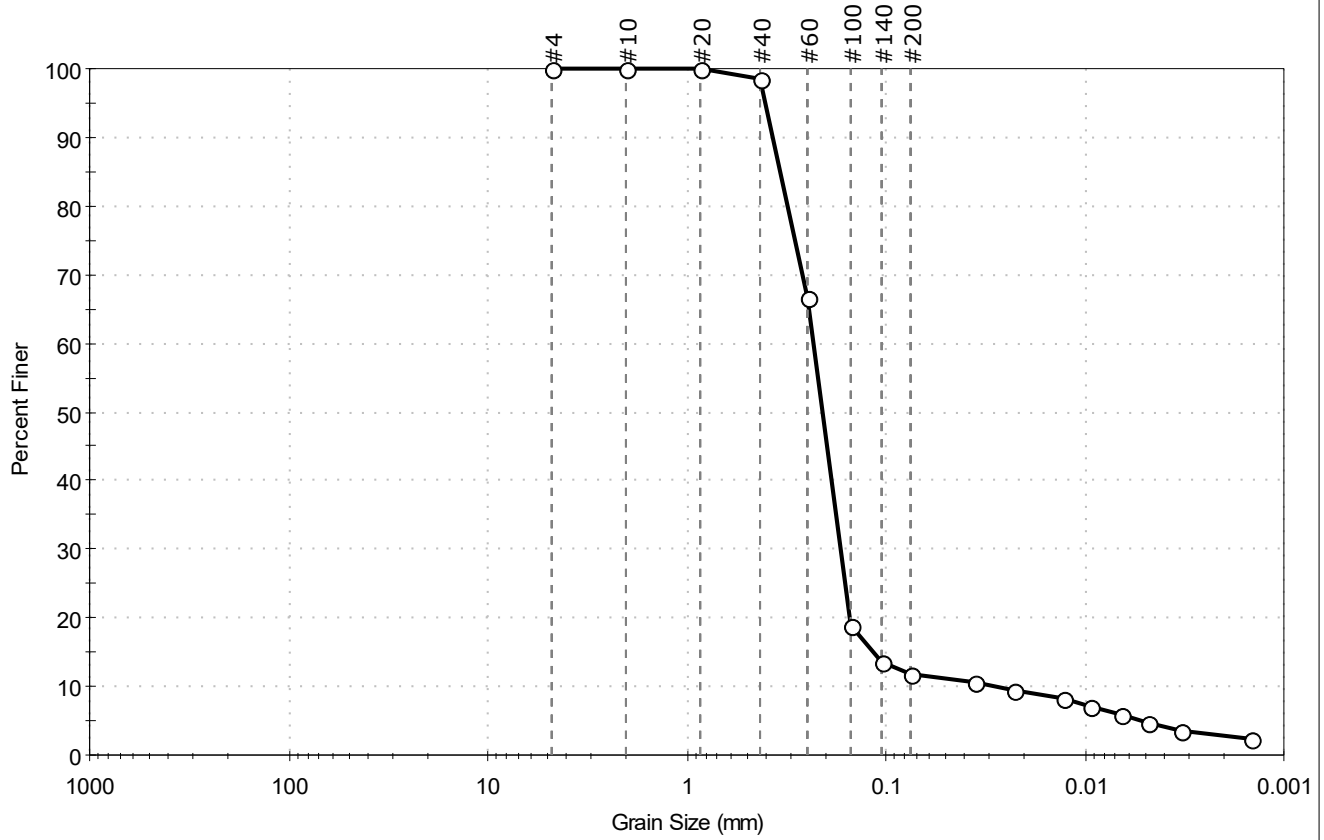
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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: PDI-039SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 7.8-9.8-190930	Test Date: 10/08/19	Test Id: 525979	
Depth: ---			
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 <sub>85</sub> = 0.3391 mm	D <sub>30</sub> = 0.1688 mm
D <sub>60</sub> = 0.2326 mm	D <sub>15</sub> = 0.1169 mm
D <sub>50</sub> = 0.2090 mm	D <sub>10</sub> = 0.0286 mm
C <sub>u</sub> = 8.133	C <sub>c</sub> = 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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-041SC-B	Sample Type: bag	Tested By: ckg
Sample ID: 8.2-10.2-191010	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

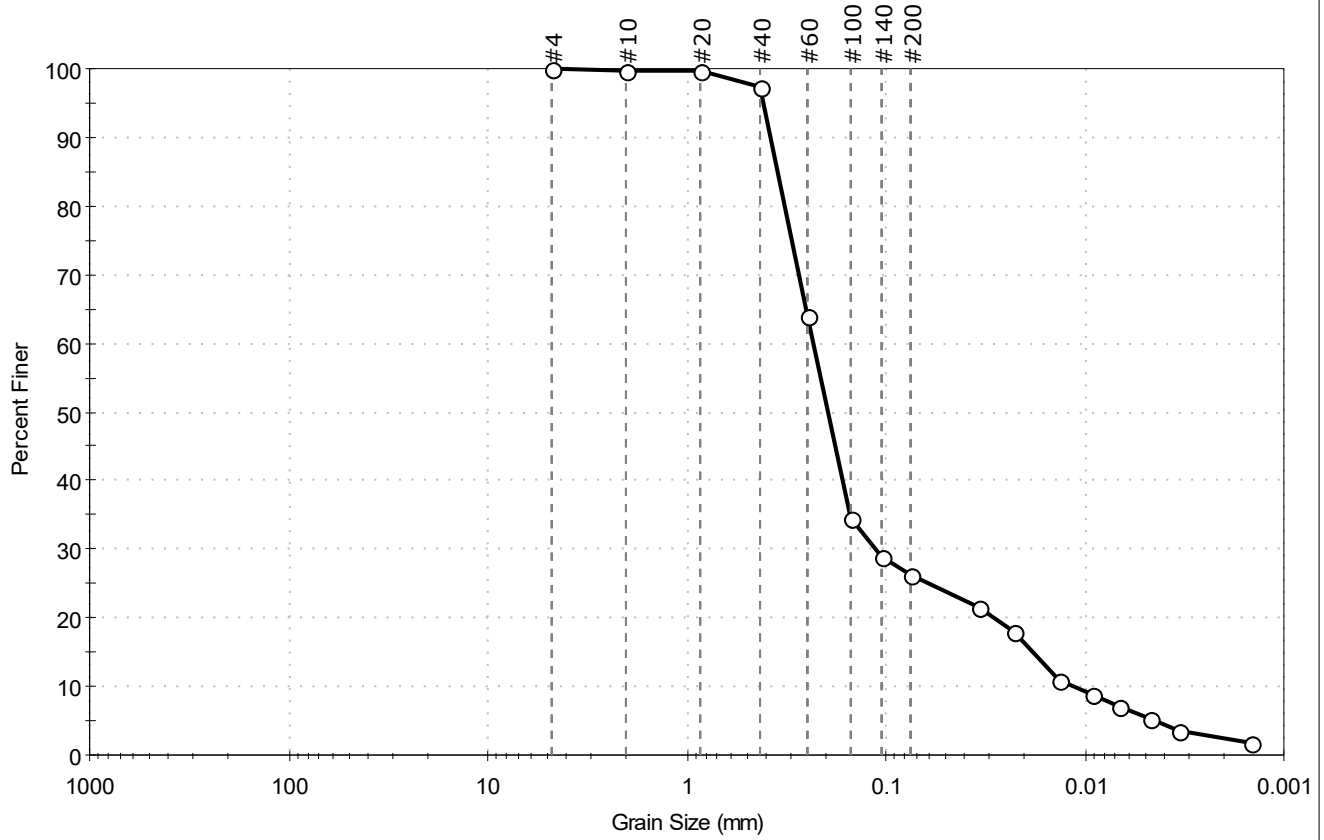
<b><u>Sample/Test Description</u></b>





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-046SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 9.8-11.8-191001	Test Date: 10/08/19	Test Id: 525977	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3497 mm	D <sub>30</sub> = 0.1135 mm
D <sub>60</sub> = 0.2334 mm	D <sub>15</sub> = 0.0182 mm
D <sub>50</sub> = 0.1963 mm	D <sub>10</sub> = 0.0114 mm
C <sub>u</sub> = 20.474	C <sub>c</sub> = 4.842

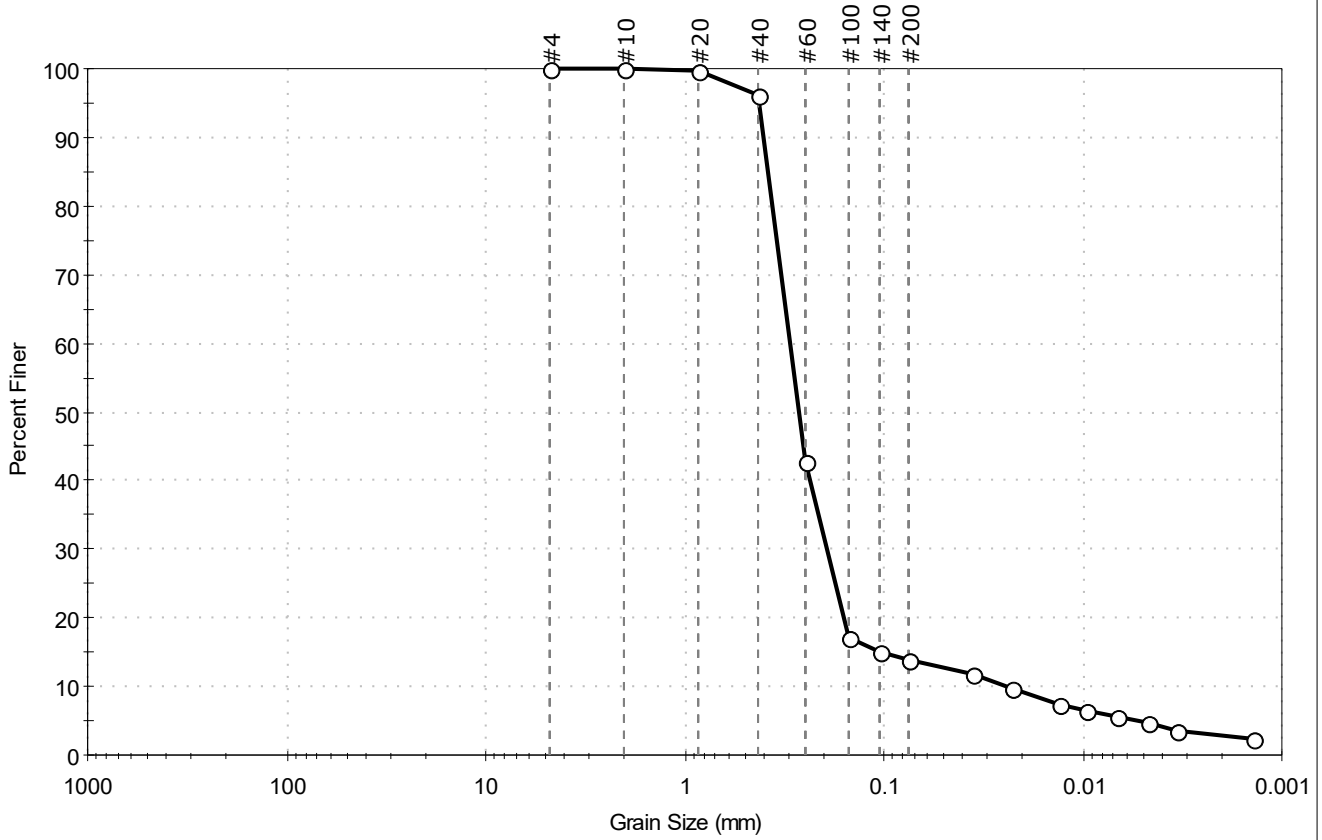
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: PDI-049SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-08-191015	Test Date: 10/24/19	Test Id: 527554	
Depth: ---	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 <sub>85</sub> = 0.3801 mm	D <sub>30</sub> = 0.1941 mm
D <sub>60</sub> = 0.2968 mm	D <sub>15</sub> = 0.1066 mm
D <sub>50</sub> = 0.2688 mm	D <sub>10</sub> = 0.0249 mm
C <sub>u</sub> = 11.920	C <sub>c</sub> = 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

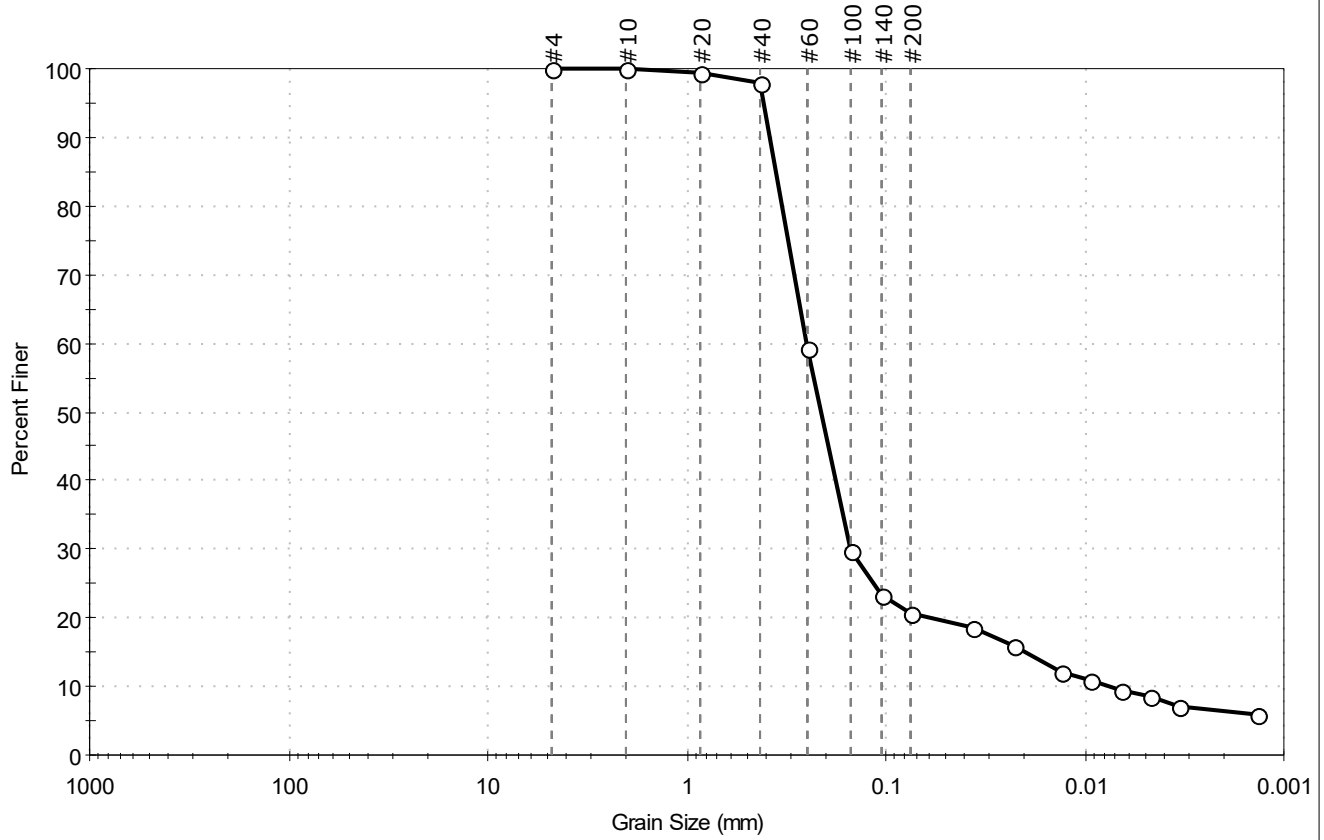
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-052SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-08-191015	Test Date: 10/24/19	Test Id: 527555	
Depth: ---	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.3554 mm	D <sub>30</sub> = 0.1505 mm
D <sub>60</sub> = 0.2521 mm	D <sub>15</sub> = 0.0198 mm
D <sub>50</sub> = 0.2126 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 33.613	C <sub>c</sub> = 11.980

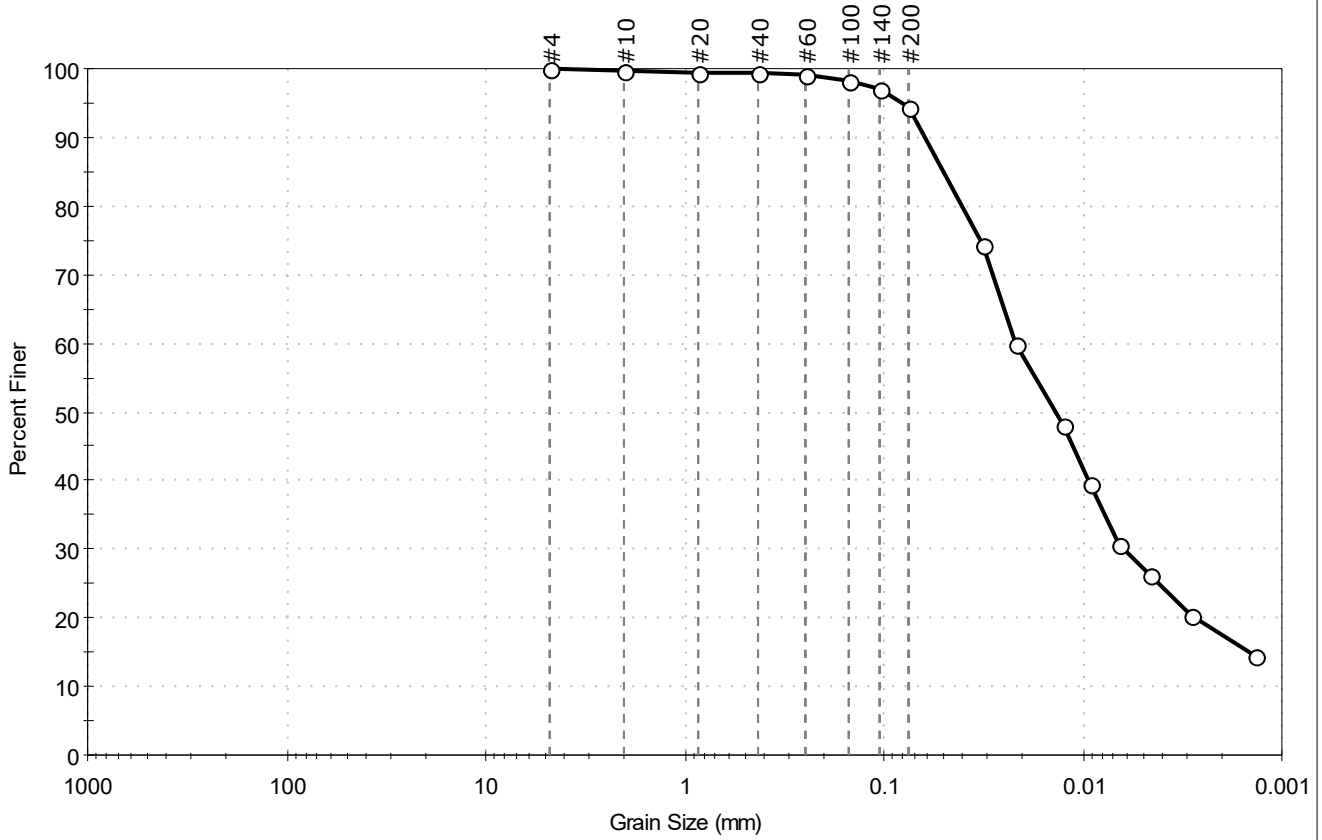
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
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: PDI-057SC-B Sample Type: bag Tested By: ckg  
 Sample ID: 06-08-191023 Test Date: 11/19/19 Checked By: bfs  
 Depth: --- Test Id: 529658  
 Test Comment: ---  
 Visual Description: Wet, dark gray clay  
 Sample Comment: Sample contains organics

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	5.5	94.5

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	99		
#100	0.15	98		
#140	0.11	97		
#200	0.075	94		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0320	74		
---	0.0215	60		
---	0.0126	48		
---	0.0091	39		
---	0.0065	31		
---	0.0047	26		
---	0.0029	20		
---	0.0014	15		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0502 mm	D <sub>30</sub> = 0.0062 mm
D <sub>60</sub> = 0.0216 mm	D <sub>15</sub> = 0.0015 mm
D <sub>50</sub> = 0.0137 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

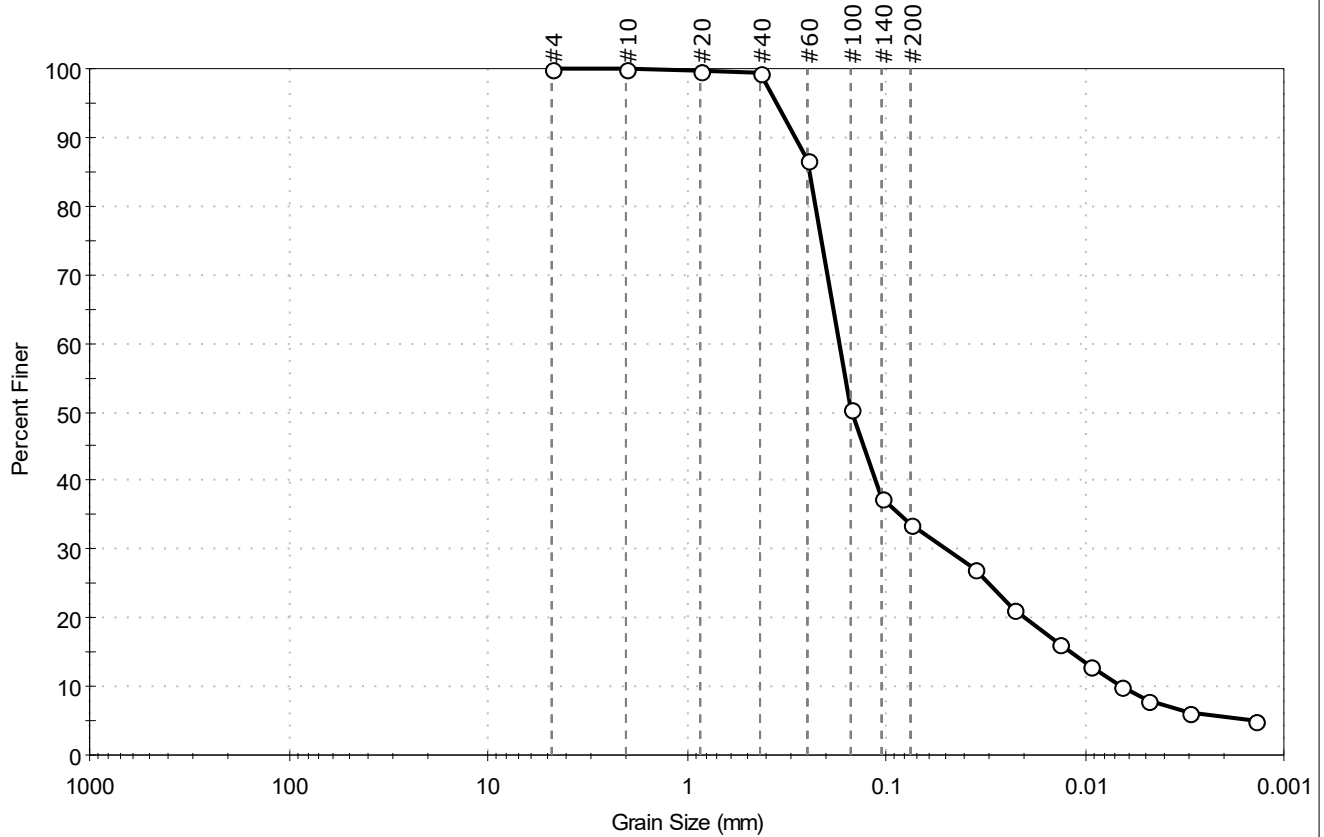
<b>Classification</b>	
<b>ASTM</b>	Fat CLAY (CH)
<b>AASHTO</b>	Clayey Soils (A-7-6 (49))

<b>Sample/Test Description</b>	
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: PDI-059SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-08-191016	Test Date: 11/19/19	Test Id: 529664	
Depth: ---	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	66.4	33.6

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	87		
#100	0.15	51		
#140	0.11	37		
#200	0.075	34		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0356	27		
---	0.0229	21		
---	0.0133	16		
---	0.0095	13		
---	0.0067	10		
---	0.0048	8		
---	0.0030	6		
---	0.0014	5		

Coefficients	
D <sub>85</sub> = 0.2437 mm	D <sub>30</sub> = 0.0492 mm
D <sub>60</sub> = 0.1713 mm	D <sub>15</sub> = 0.0117 mm
D <sub>50</sub> = 0.1477 mm	D <sub>10</sub> = 0.0066 mm
C <sub>u</sub> = 25.955	C <sub>c</sub> = 2.141

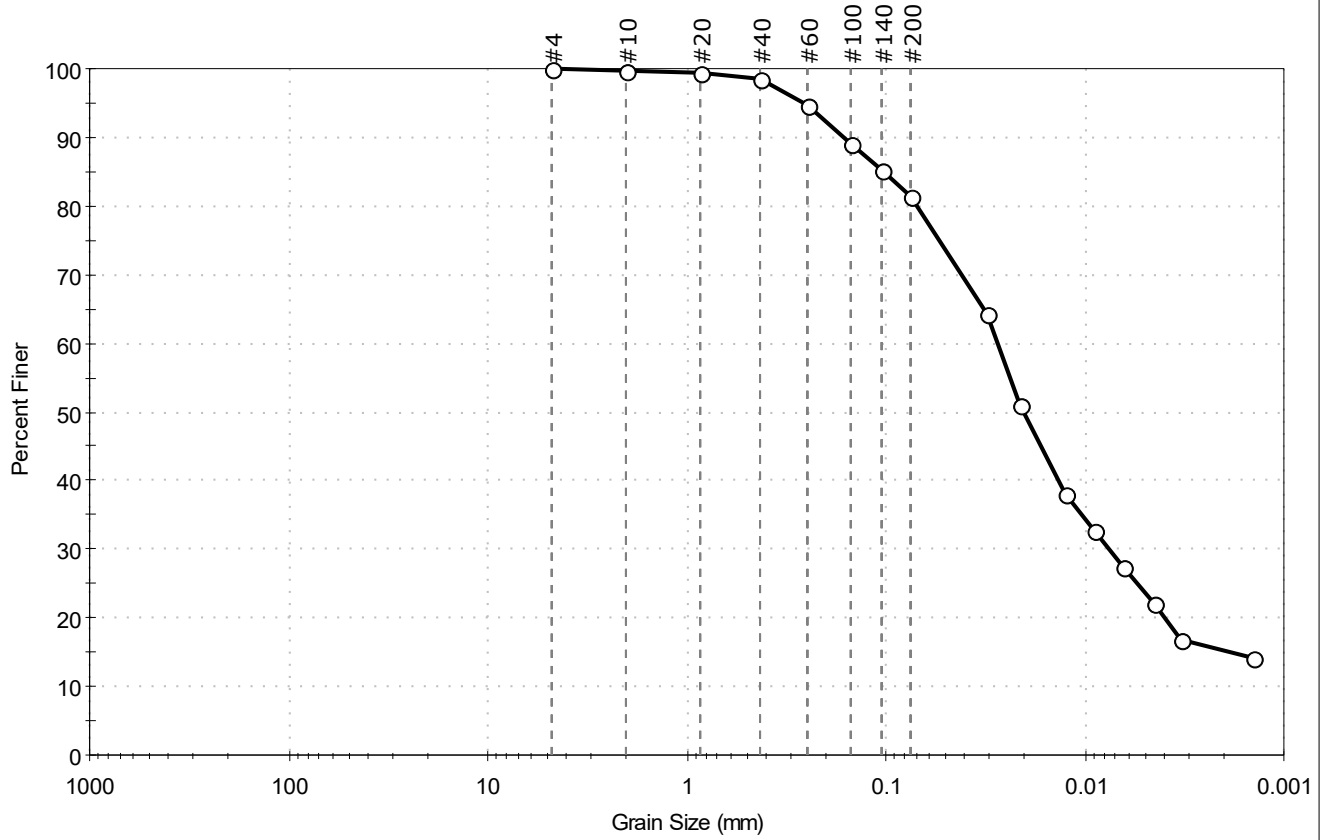
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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: PDI-064SC-B Sample Type: bag Tested By: ckg  
 Sample ID: 04-06-190929 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1044 mm	D <sub>30</sub> = 0.0076 mm
D <sub>60</sub> = 0.0275 mm	D <sub>15</sub> = 0.0019 mm
D <sub>50</sub> = 0.0202 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

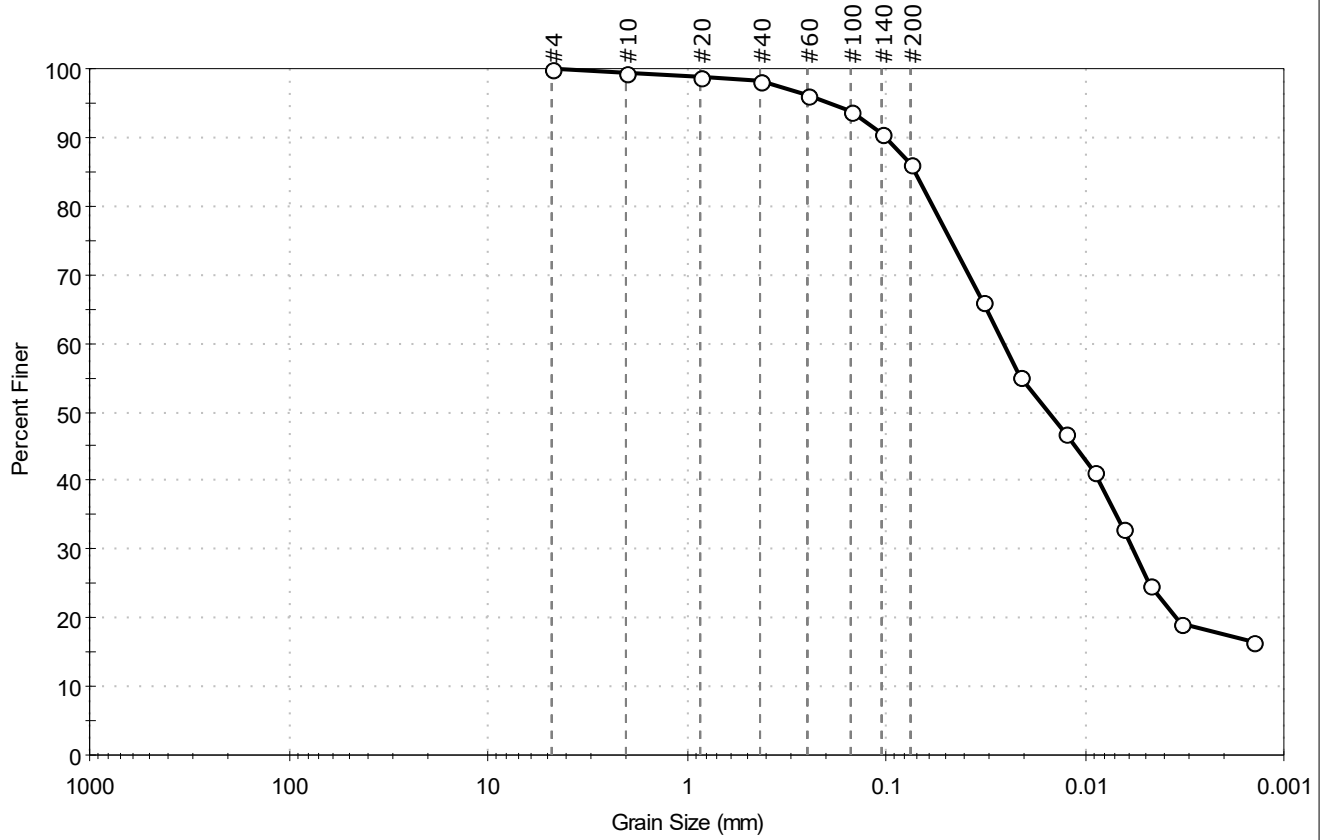
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

<b>Sample/Test Description</b>
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: PDI-066SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-08-191011	Test Date: 10/29/19	Test Id: 527552	
Depth: ---	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 <sub>85</sub> = 0.0716 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0257 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0155 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

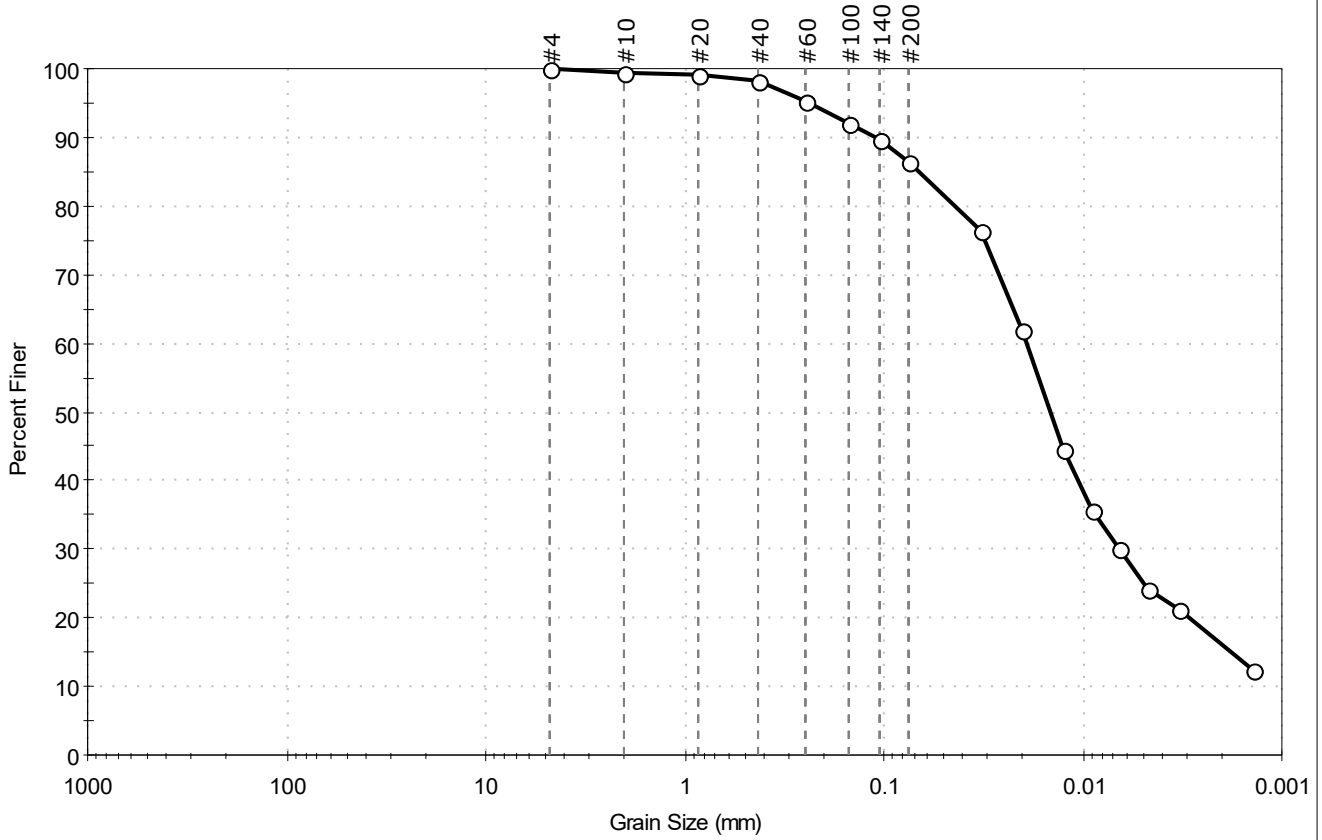
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (42))

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



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: \_\_\_\_\_ Project No: GTX-310685  
 Boring ID: PDI-067SC-B Sample Type: bag Tested By: ckg  
 Sample ID: 02-04-191010 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0663 mm	D <sub>30</sub> = 0.0065 mm
D <sub>60</sub> = 0.0192 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0146 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (32))

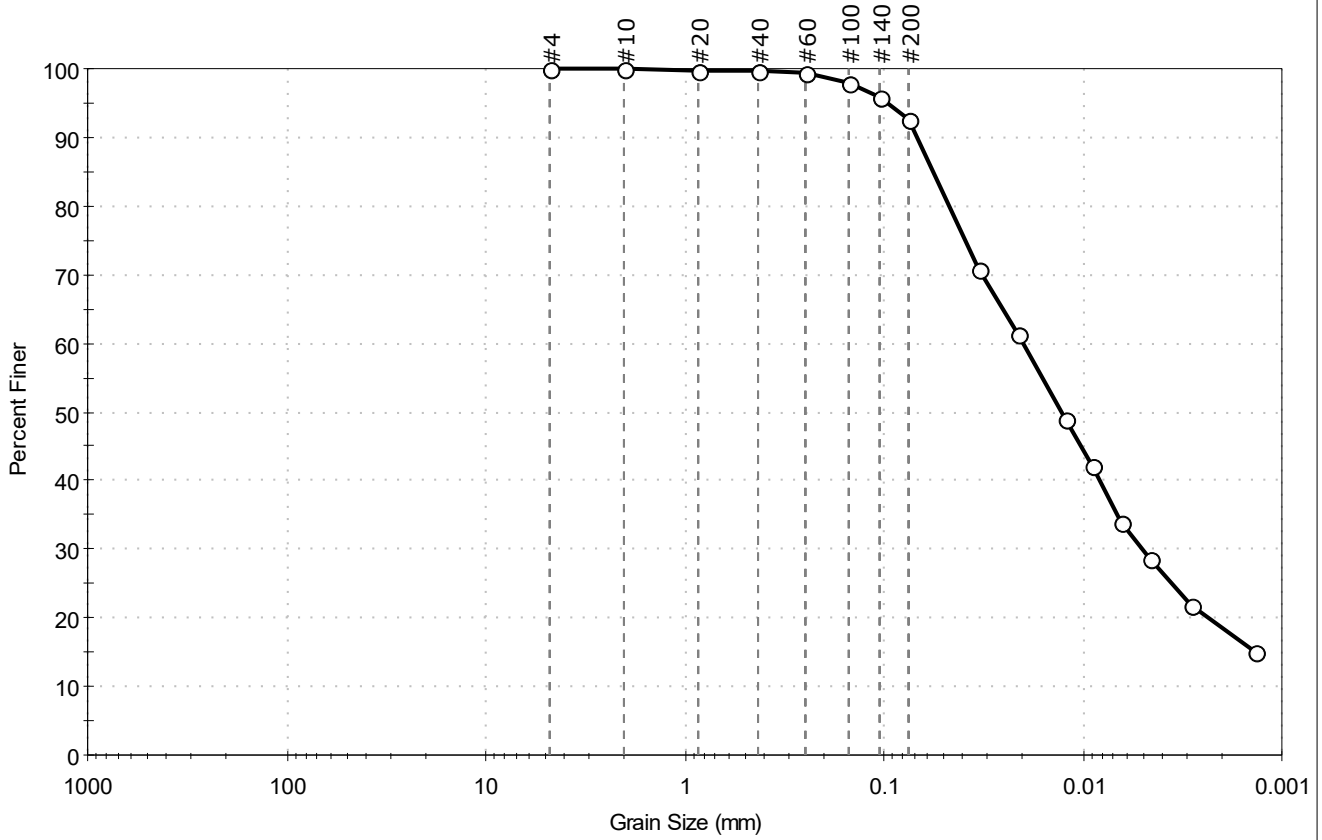
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: PDI-069SC-B Sample Type: bag Tested By: ckg  
 Sample ID: 10-12-191016 Test Date: 11/19/19 Checked By: bfs  
 Depth: --- Test Id: 529665  
 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	7.4	92.6

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	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0330	71		
---	0.0210	61		
---	0.0124	49		
---	0.0090	42		
---	0.0065	34		
---	0.0046	29		
---	0.0029	22		
---	0.0014	15		

**Coefficients**

D <sub>85</sub> = 0.0563 mm	D <sub>30</sub> = 0.0050 mm
D <sub>60</sub> = 0.0199 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0129 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = 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

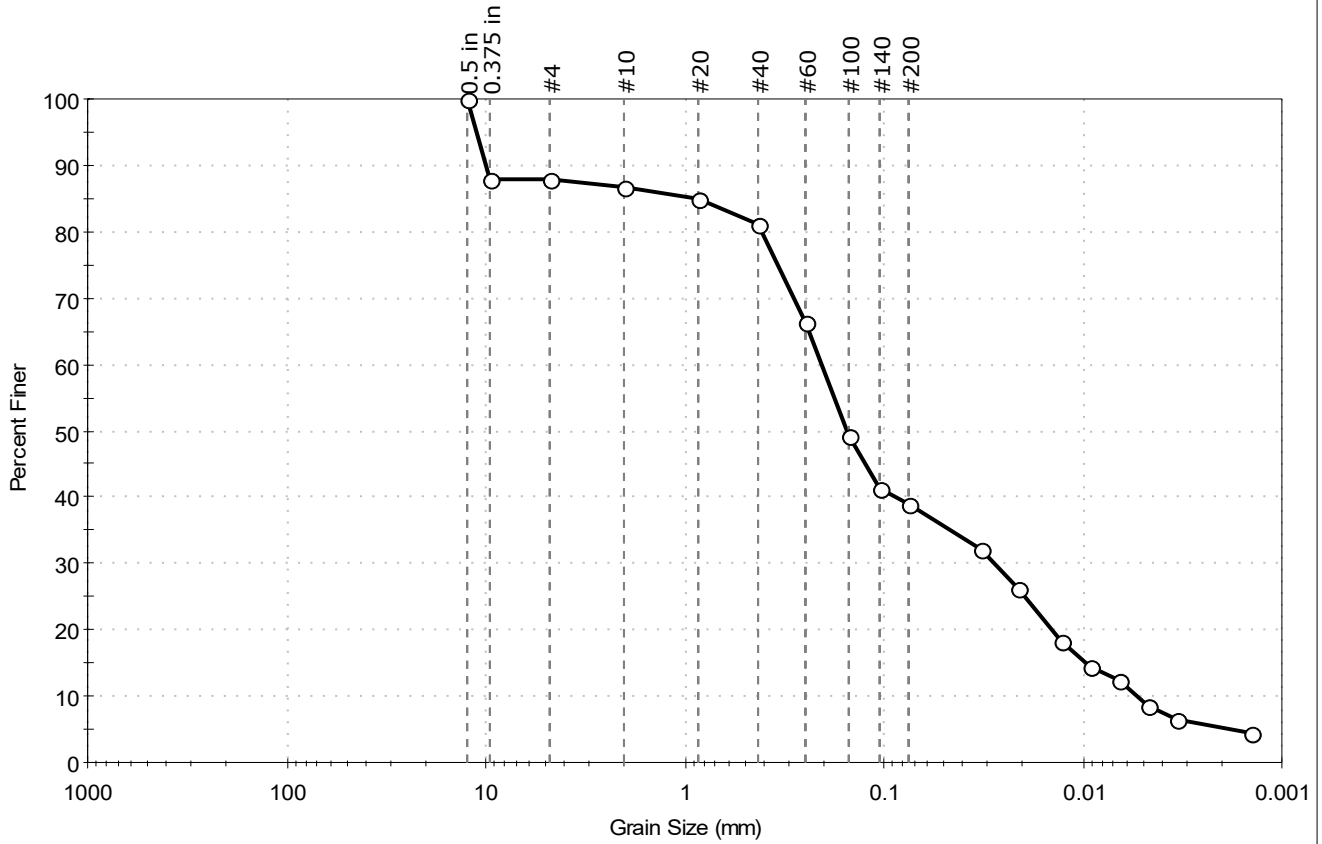
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: PDI-071SC-B	Sample Type: bag
Sample ID: -08-10-191001	Test Date: 10/08/19
Depth: ---	Test Id: 525978
Test Comment: ---	Tested By: ckg
Visual Description: Wet, very dark gray silty sand	Checked By: bfs
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.8858 mm	D <sub>30</sub> = 0.0279 mm
D <sub>60</sub> = 0.2068 mm	D <sub>15</sub> = 0.0097 mm
D <sub>50</sub> = 0.1534 mm	D <sub>10</sub> = 0.0054 mm
C <sub>u</sub> = 38.296	C <sub>c</sub> = 0.697

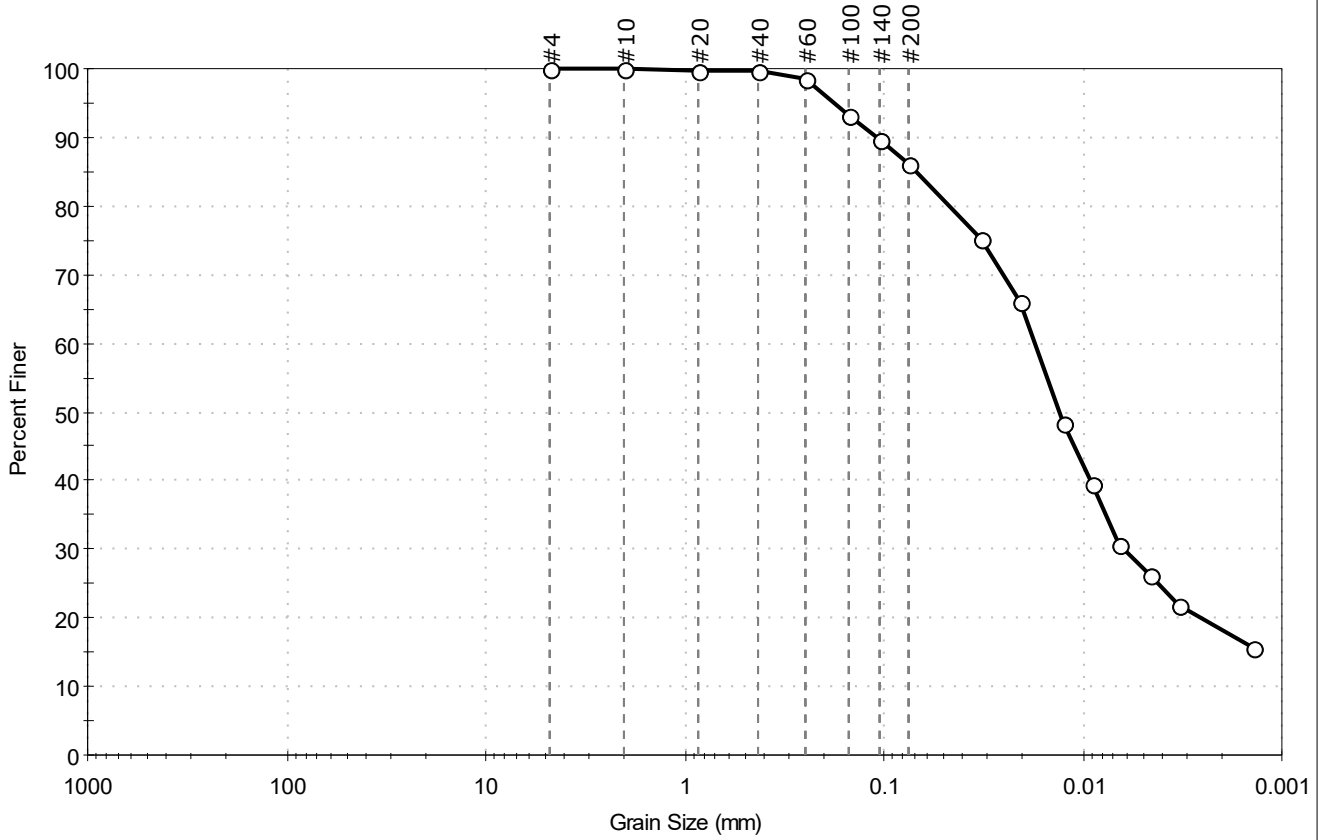
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-077SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 04-06-191014	Test Date: 10/29/19	Test Id: 527543	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0682 mm	D <sub>30</sub> = 0.0062 mm
D <sub>60</sub> = 0.0175 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0132 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

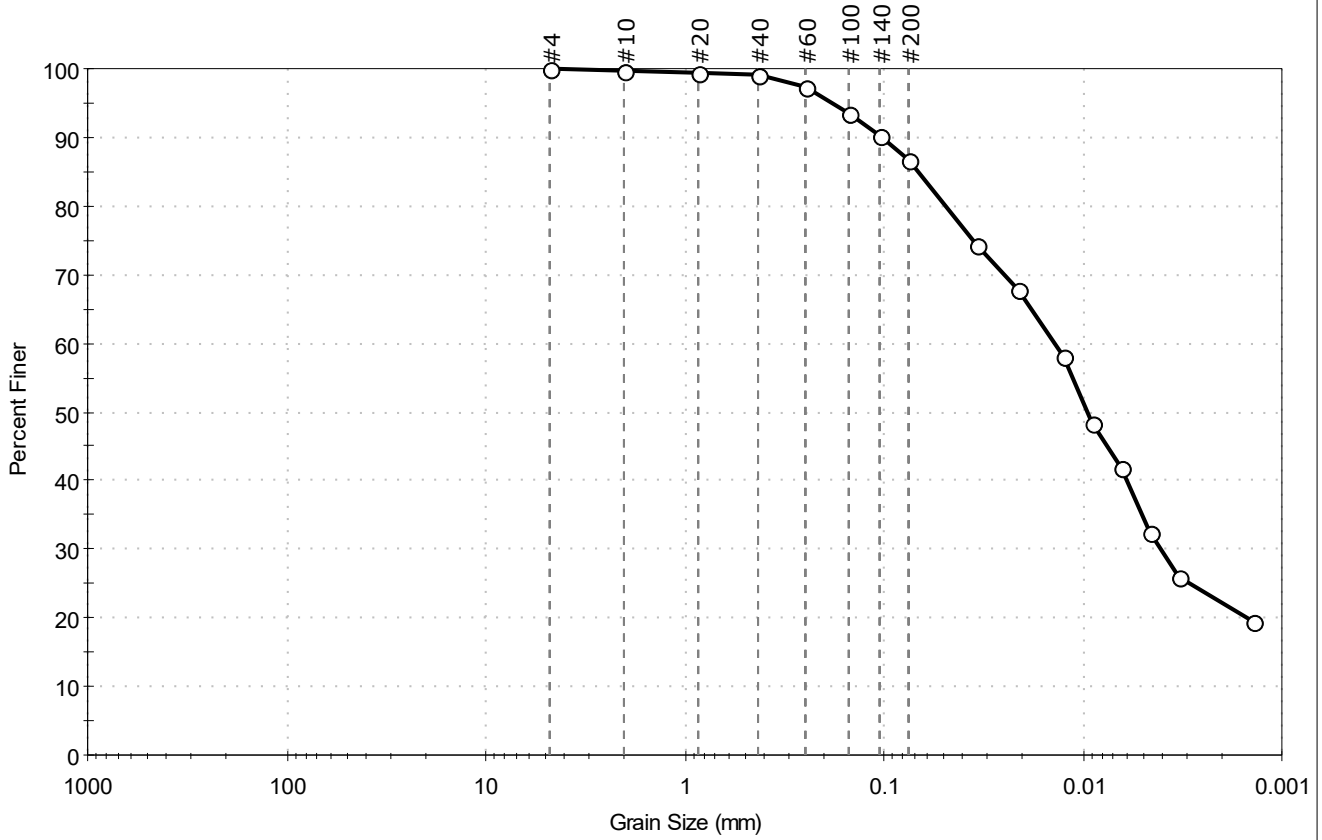
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

<b>Sample/Test Description</b>
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: PDI-079SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-08-191014	Test Date: 10/24/19	Test Id: 527544	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0677 mm	D <sub>30</sub> = 0.0041 mm
D <sub>60</sub> = 0.0138 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0095 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

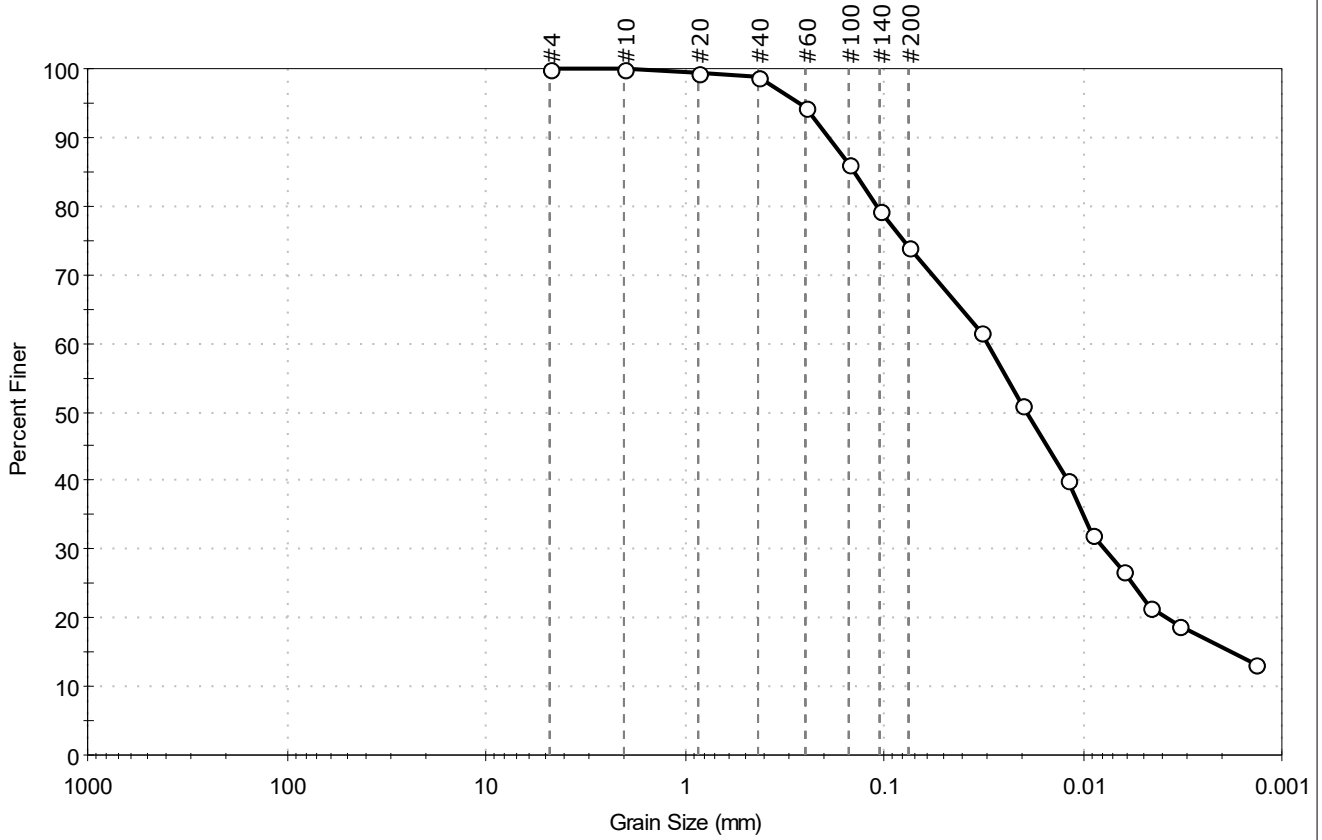
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (24))

<b>Sample/Test Description</b>
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: PDI-081SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 08-10-191002	Test Date: 10/14/19	Test Id: 526421	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1414 mm	D <sub>30</sub> = 0.0078 mm
D <sub>60</sub> = 0.0301 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0194 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

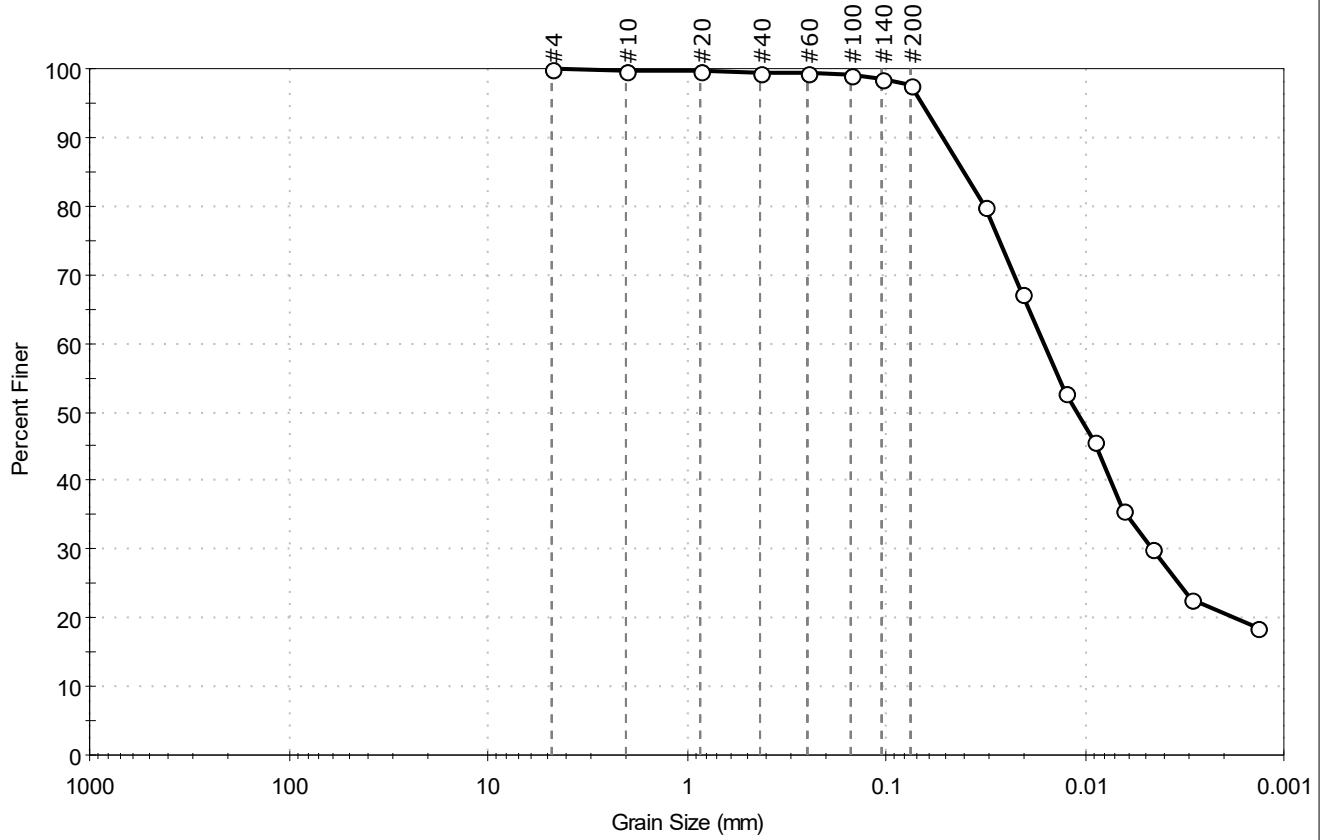
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (17))

<b>Sample/Test Description</b>	
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: PDI-083SC-B	Sample Type: bag	Tested By: ckg	
Sample ID: 08-10-191022	Test Date: 11/19/19	Checked By: bfs	
Depth: ---	Test Id: 529659		
Test Comment: ---			
Visual Description: Moist, dark gray clay			
Sample Comment: Sample contains organics			

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	2.5	97.5

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	99		
#100	0.15	99		
#140	0.11	99		
#200	0.075	98		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0320	80		
---	0.0208	67		
---	0.0125	53		
---	0.0089	46		
---	0.0065	36		
---	0.0046	30		
---	0.0029	23		
---	0.0014	19		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0408 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0161 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0109 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

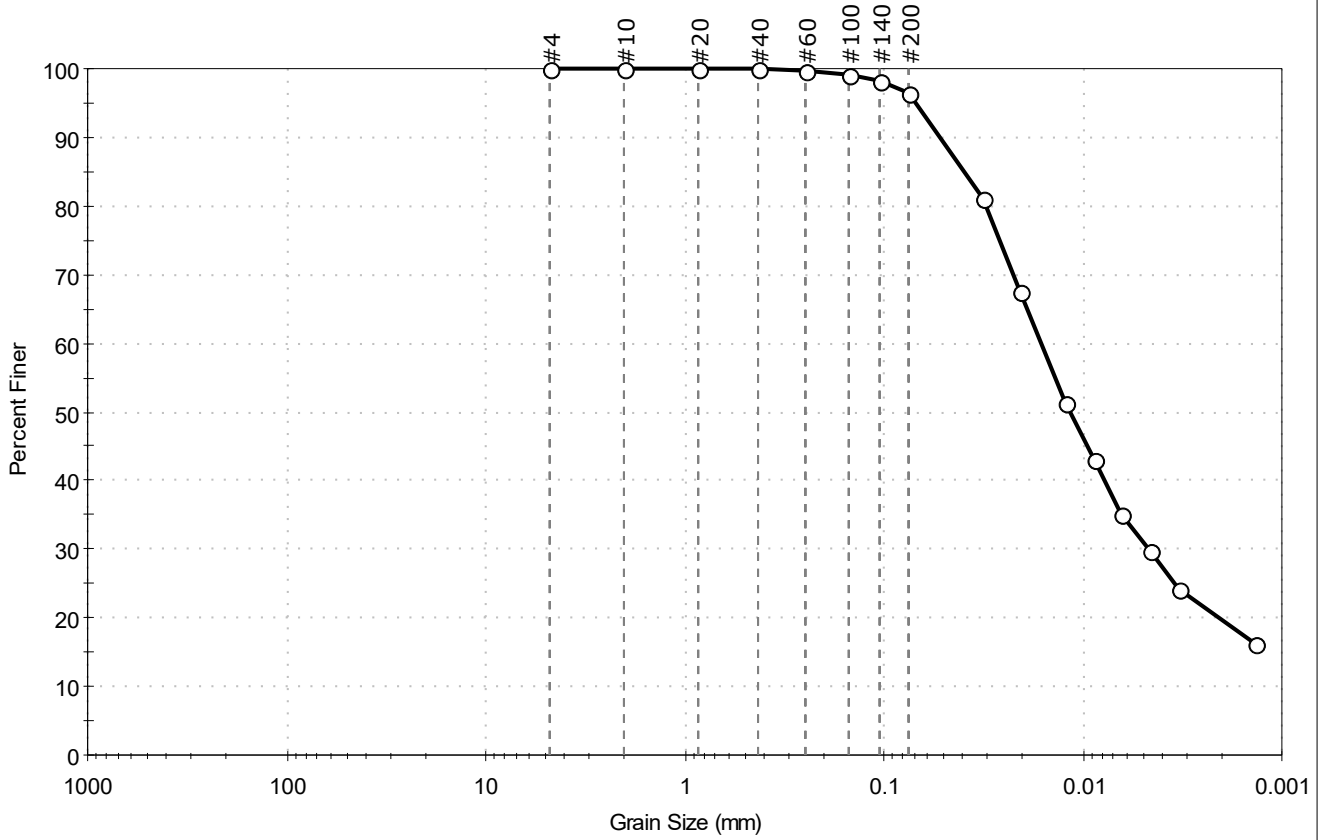
<b>Classification</b>	
<b>ASTM</b>	Fat CLAY (CH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (55))

<b>Sample/Test Description</b>
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: PDI-090SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-08-191012	Test Date: 10/29/19	Test Id: 527553	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0400 mm	D <sub>30</sub> = 0.0047 mm
D <sub>60</sub> = 0.0163 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0117 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

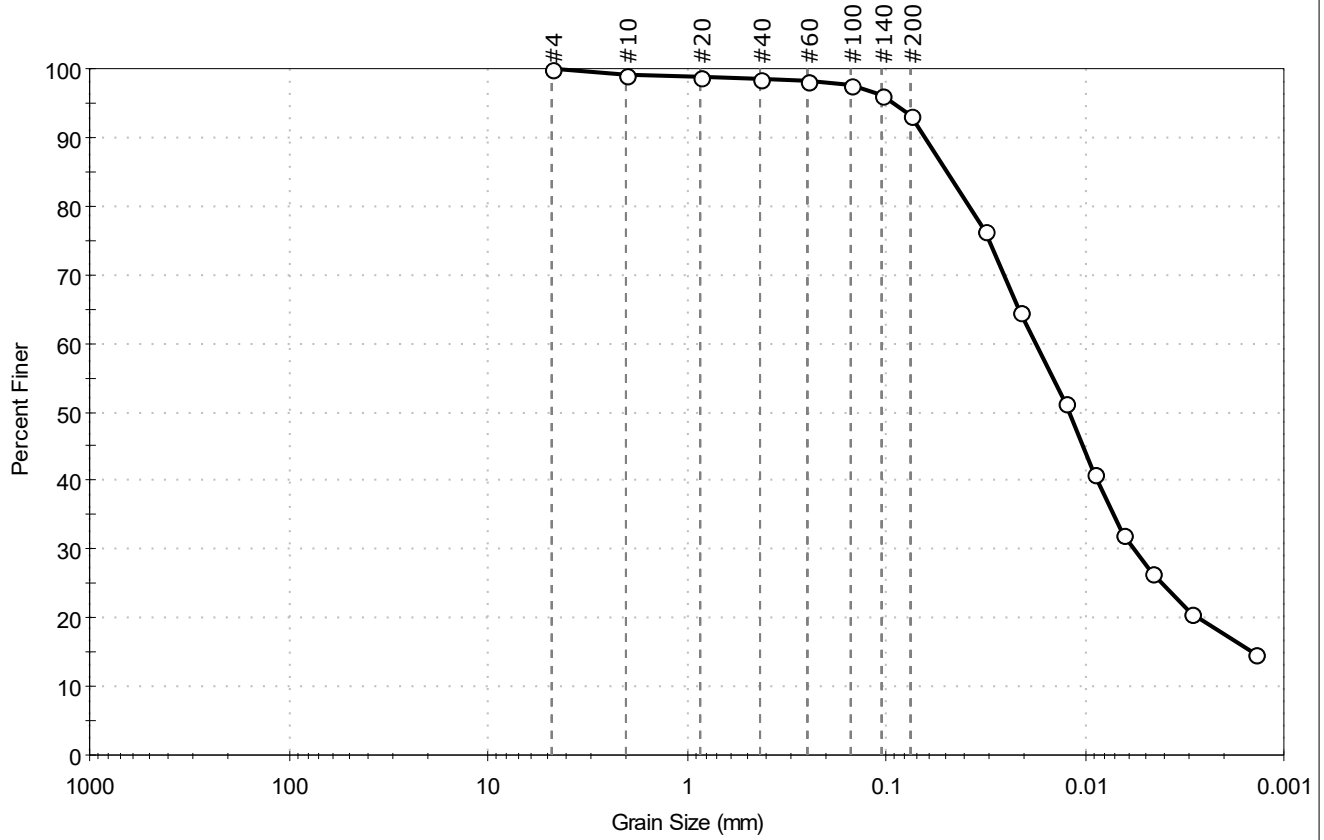
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (51))

<b>Sample/Test Description</b>
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: PDI-097SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 02-04-191017	Test Date: 11/19/19	Test Id: 529662	
Depth: ---	Test Comment: ---		
Visual Description: Wet, dark gray silt	Sample Comment: Sample contains organics		

## Particle Size Analysis - ASTM D6913/D7928



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	6.7	93.3

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	98		
#100	0.15	98		
#140	0.11	96		
#200	0.075	93		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0318	76		
---	0.0212	65		
---	0.0125	51		
---	0.0091	41		
---	0.0065	32		
---	0.0047	26		
---	0.0030	21		
---	0.0014	15		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0493 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0177 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0120 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (39))

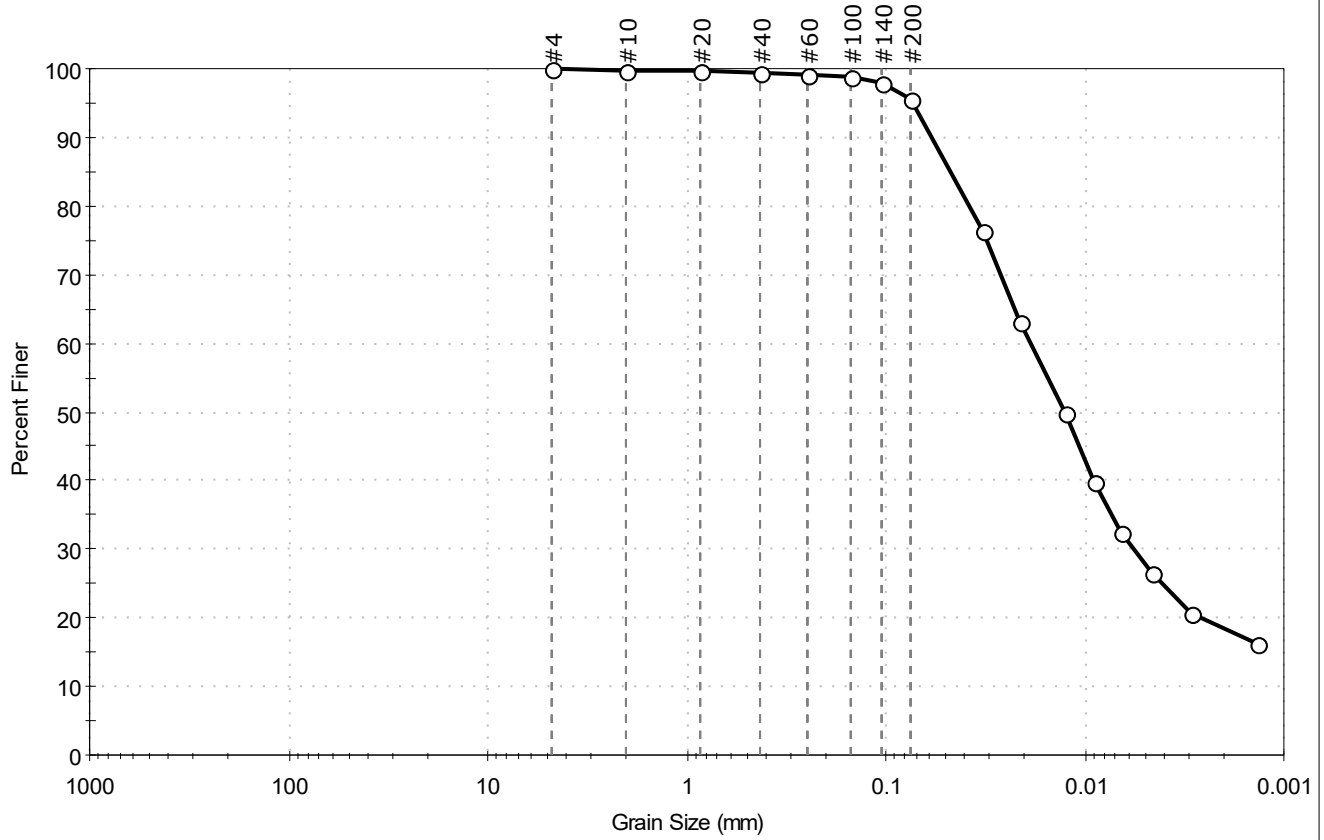
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: PDI-099SC-B	Sample Type: bag
Sample ID: 02-04-191022	Test Date: 11/19/19
Depth: ---	Test Id: 529660
Test Comment: ---	Tested By: ckg
Visual Description: Moist, very dark gray clay	Checked By: bfs
Sample Comment: ---	

## Particle Size Analysis - ASTM D6913/D7928



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

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	99		
#100	0.15	99		
#140	0.11	98		
#200	0.075	96		
Hydrometer	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0326	76		
---	0.0214	63		
---	0.0126	50		
---	0.0091	40		
---	0.0065	32		
---	0.0047	26		
---	0.0029	21		
---	0.0014	16		

Coefficients	
D <sub>85</sub> = 0.0472 mm	D <sub>30</sub> = 0.0057 mm
D <sub>60</sub> = 0.0188 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0126 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

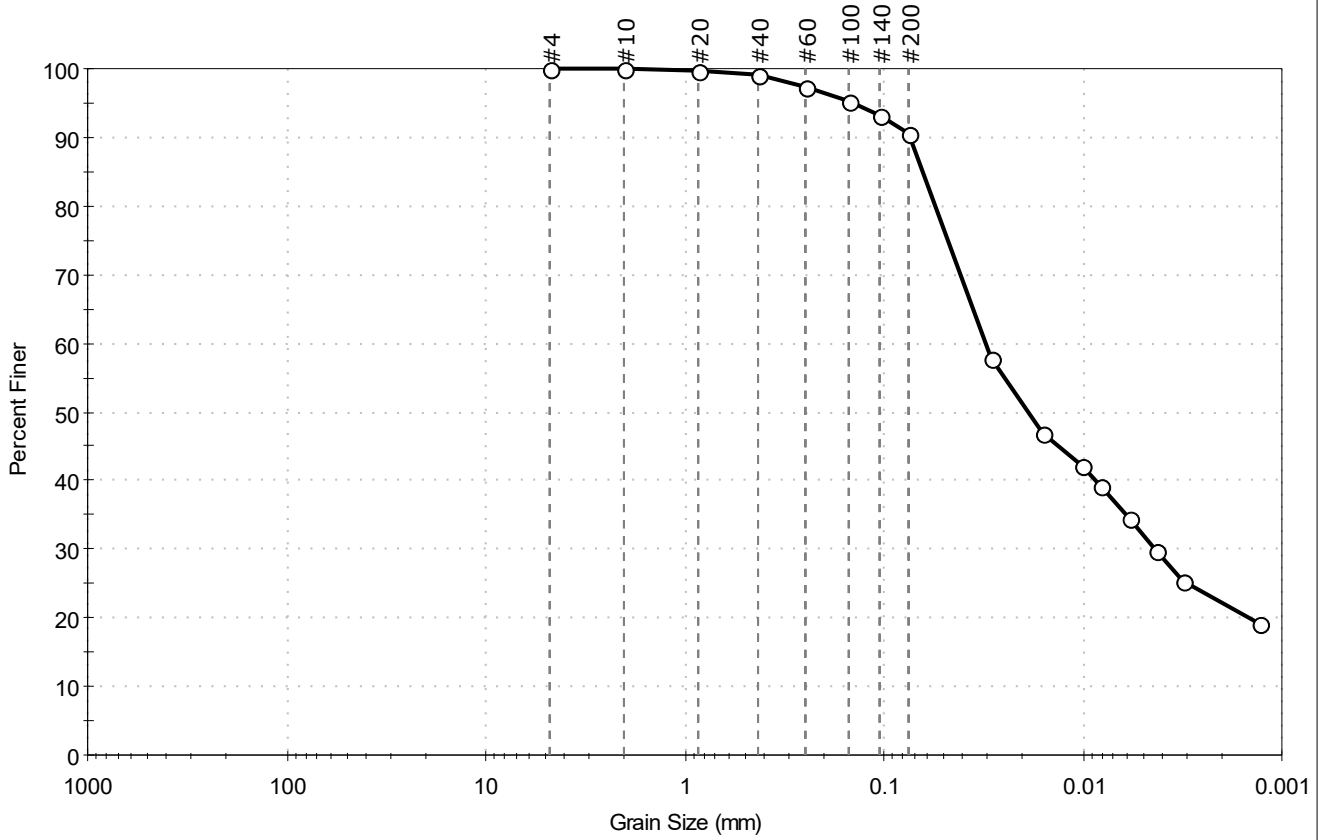
Classification	
ASTM	Fat CLAY (CH)
AASHTO	Clayey Soils (A-7-5 (54))

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: PDI-101SG Sample Type: bag Tested By: ckg  
 Sample ID: 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0637 mm	D <sub>30</sub> = 0.0043 mm
D <sub>60</sub> = 0.0308 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0189 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

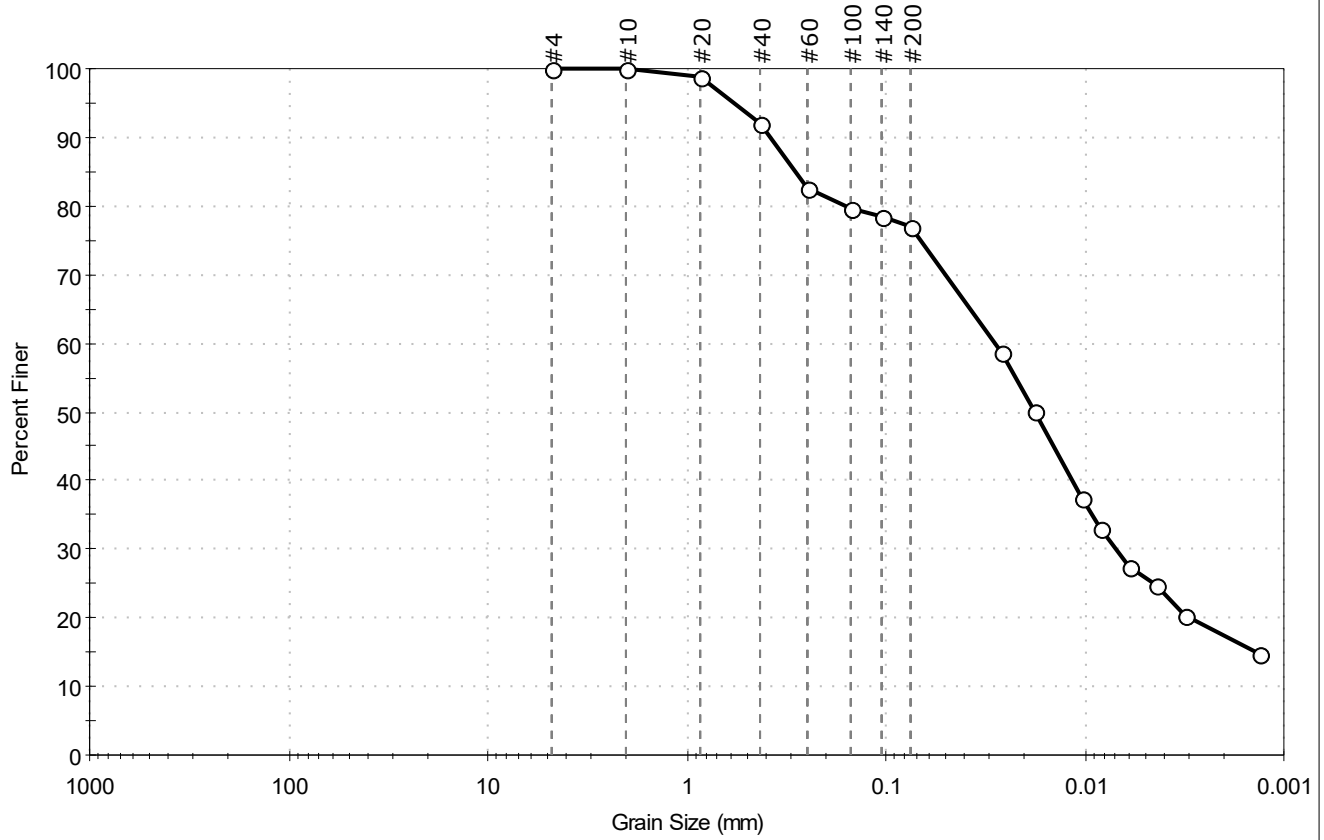
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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: PDI-102SG	Sample Type: bag	Tested By: ckg	Checked By: jsc
Sample ID: 00-01-190924	Test Date: 10/02/19	Test Id: 525301	
Depth: ---	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2852 mm	D <sub>30</sub> = 0.0069 mm
D <sub>60</sub> = 0.0283 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0177 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

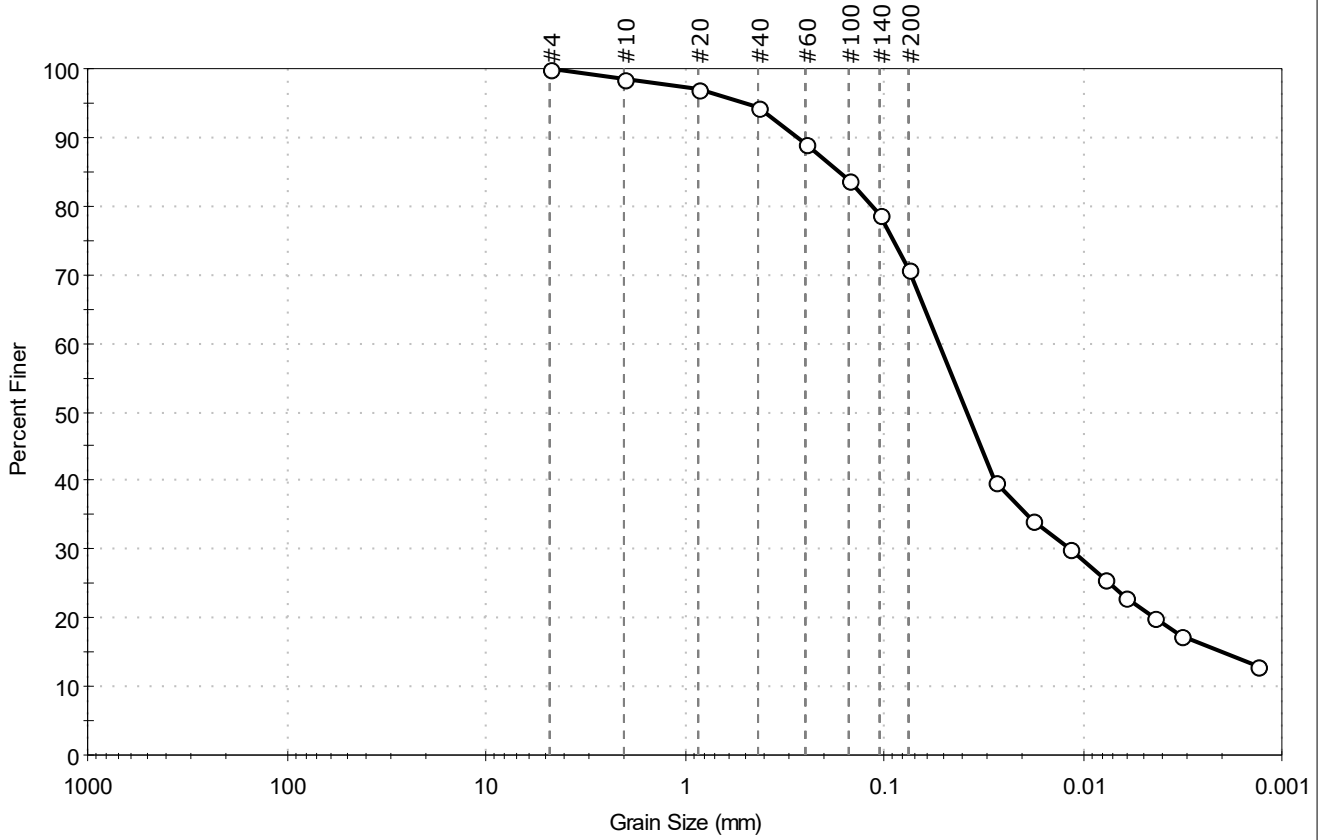
<u>Classification</u>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<u>Sample/Test Description</u>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
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: PDI-103SG Sample Type: bag Tested By: ckg  
 Sample ID: 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1678 mm	D <sub>30</sub> = 0.0116 mm
D <sub>60</sub> = 0.0531 mm	D <sub>15</sub> = 0.0020 mm
D <sub>50</sub> = 0.0384 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

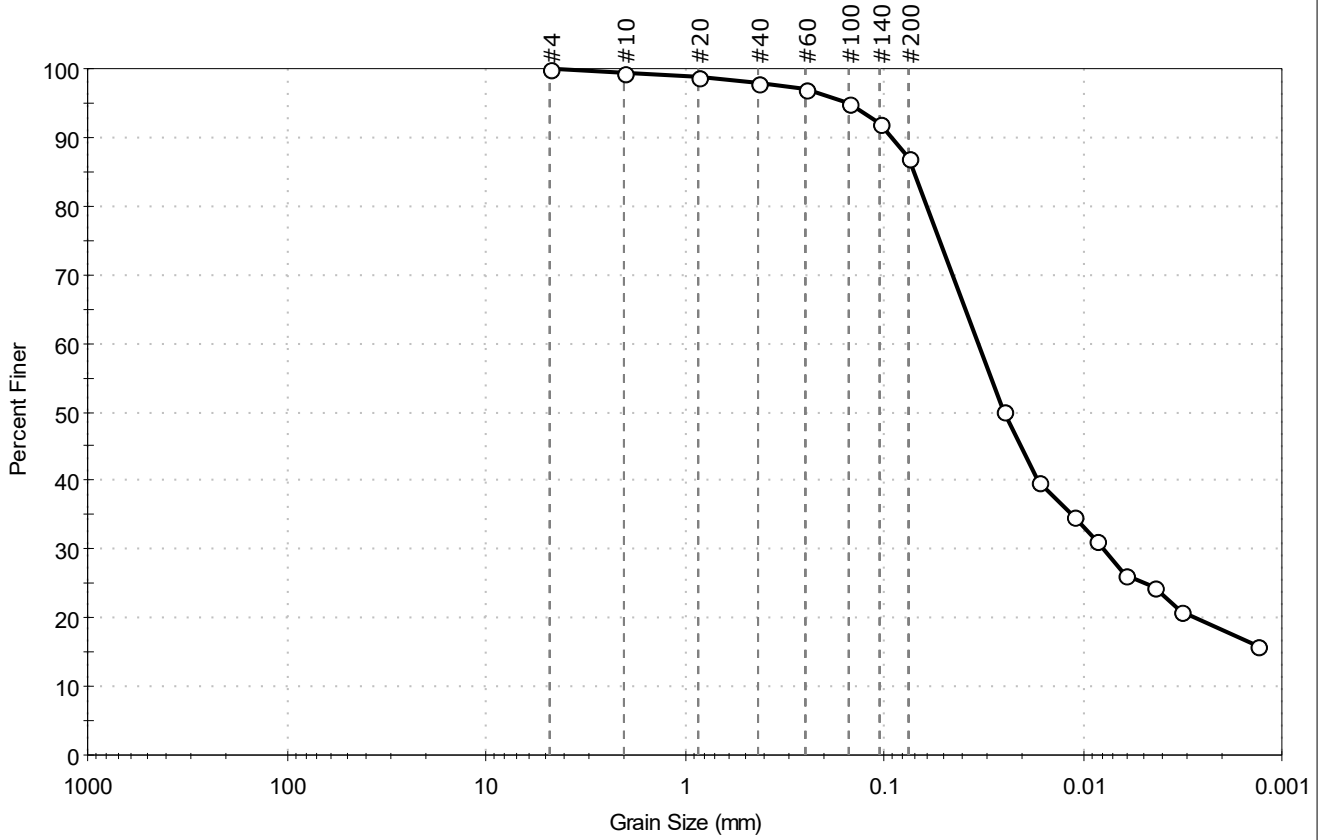
<b>Classification</b>	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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: PDI-104SG	Sample Type: bag	Tested By: ckg	Checked By: jsc
Sample ID: 00-01-190924	Test Date: 10/02/19	Test Id: 525303	
Depth: ---	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 <sub>85</sub> = 0.0709 mm	D <sub>30</sub> = 0.0079 mm
D <sub>60</sub> = 0.0339 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0252 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

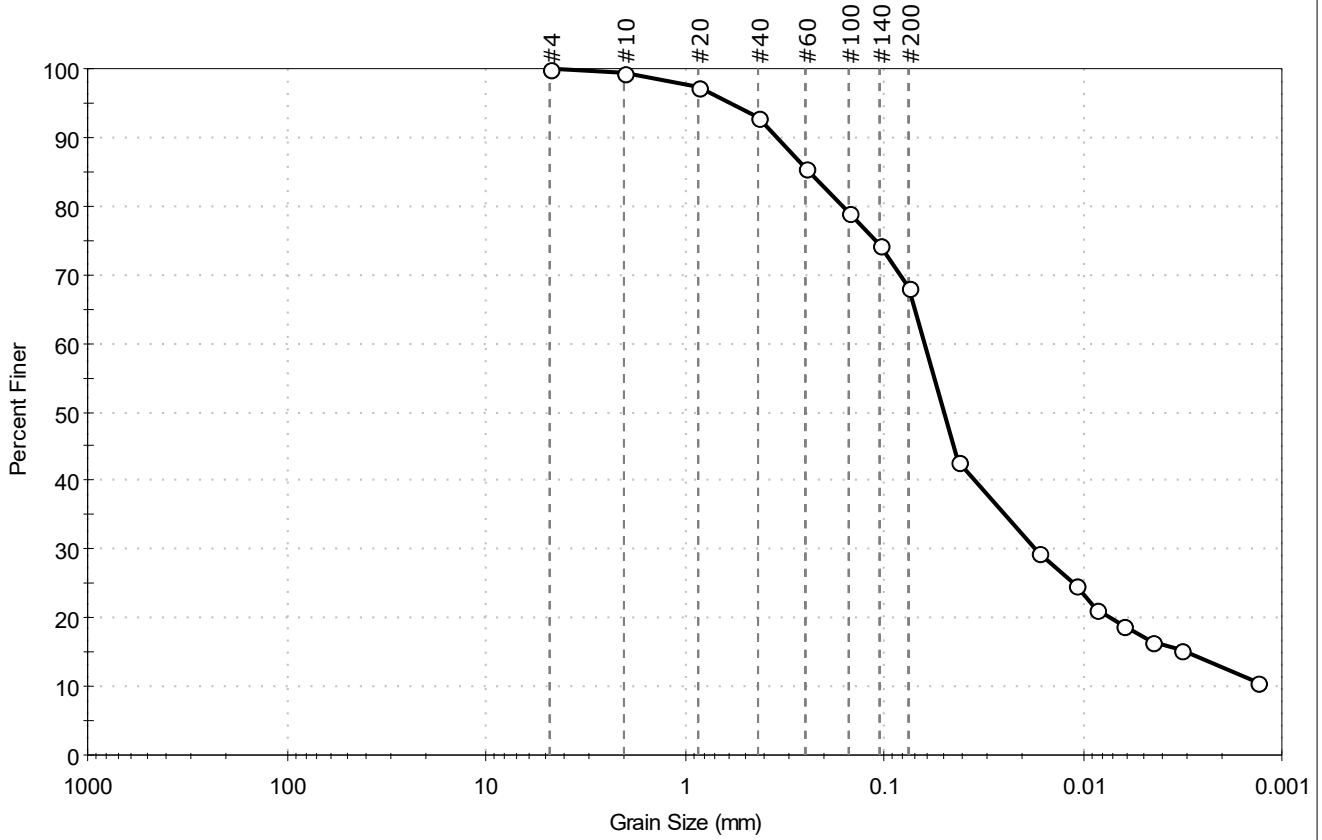
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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: PDI-105SG	Sample Type: bag	Tested By: ckg	Checked By: jsc
Sample ID: 00-0.99-190924	Test Date: 10/02/19	Test Id: 525304	
Depth: ---			
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 <sub>85</sub> = 0.2406 mm	D <sub>30</sub> = 0.0174 mm
D <sub>60</sub> = 0.0625 mm	D <sub>15</sub> = 0.0030 mm
D <sub>50</sub> = 0.0501 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

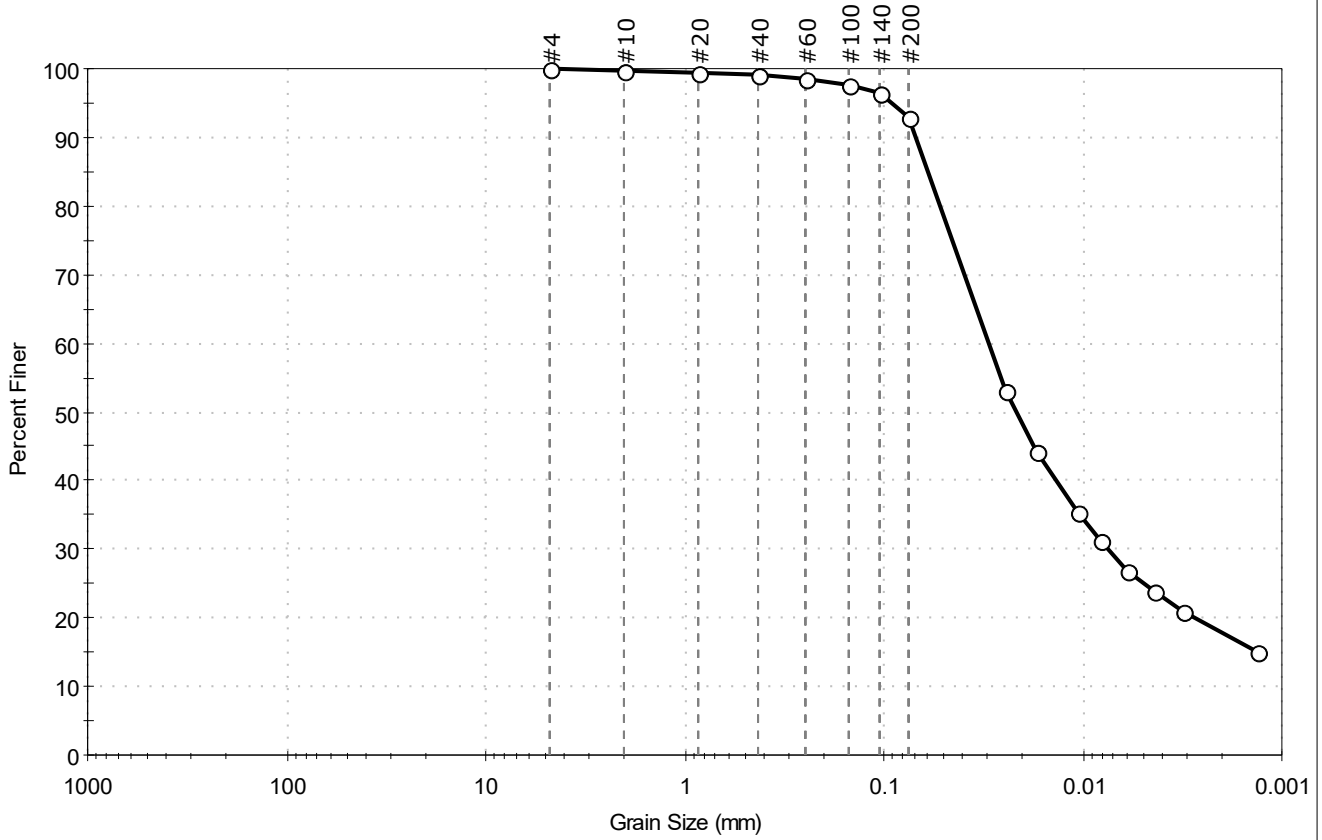
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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: PDI-106SG	Sample Type: bag	Tested By: ckg	Checked By: jsc
Sample ID: 00-01-190924	Test Date: 10/02/19	Test Id: 525305	
Depth: ---	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 <sub>85</sub> = 0.0598 mm	D <sub>30</sub> = 0.0075 mm
D <sub>60</sub> = 0.0295 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0216 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

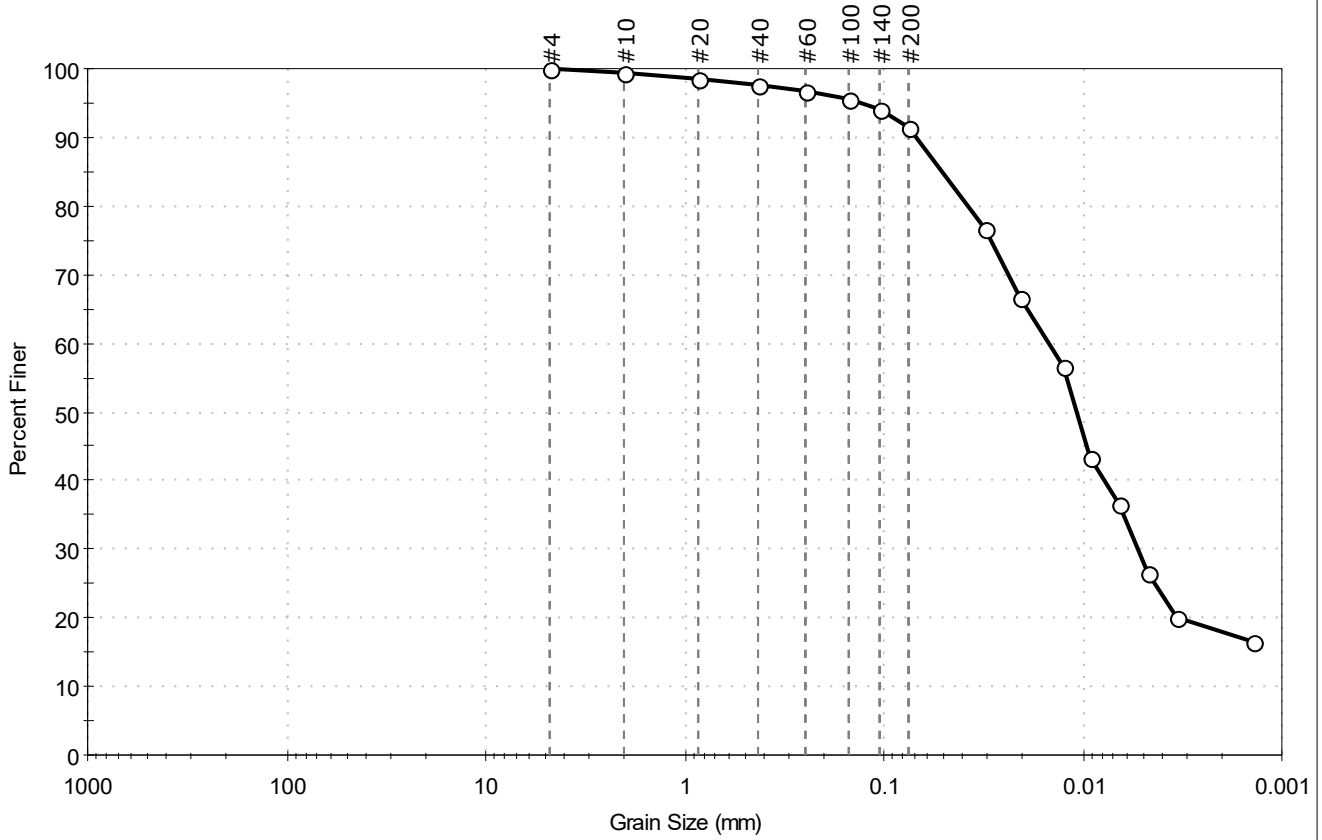
Classification	
ASTM	N/A
AASHTO	Silty Soils (A-4 (0))

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: PDI-107SPT Sample Type: bag Tested By: ckg  
 Sample ID: 00-04-190923 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0509 mm	D <sub>30</sub> = 0.0052 mm
D <sub>60</sub> = 0.0149 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0107 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (53))

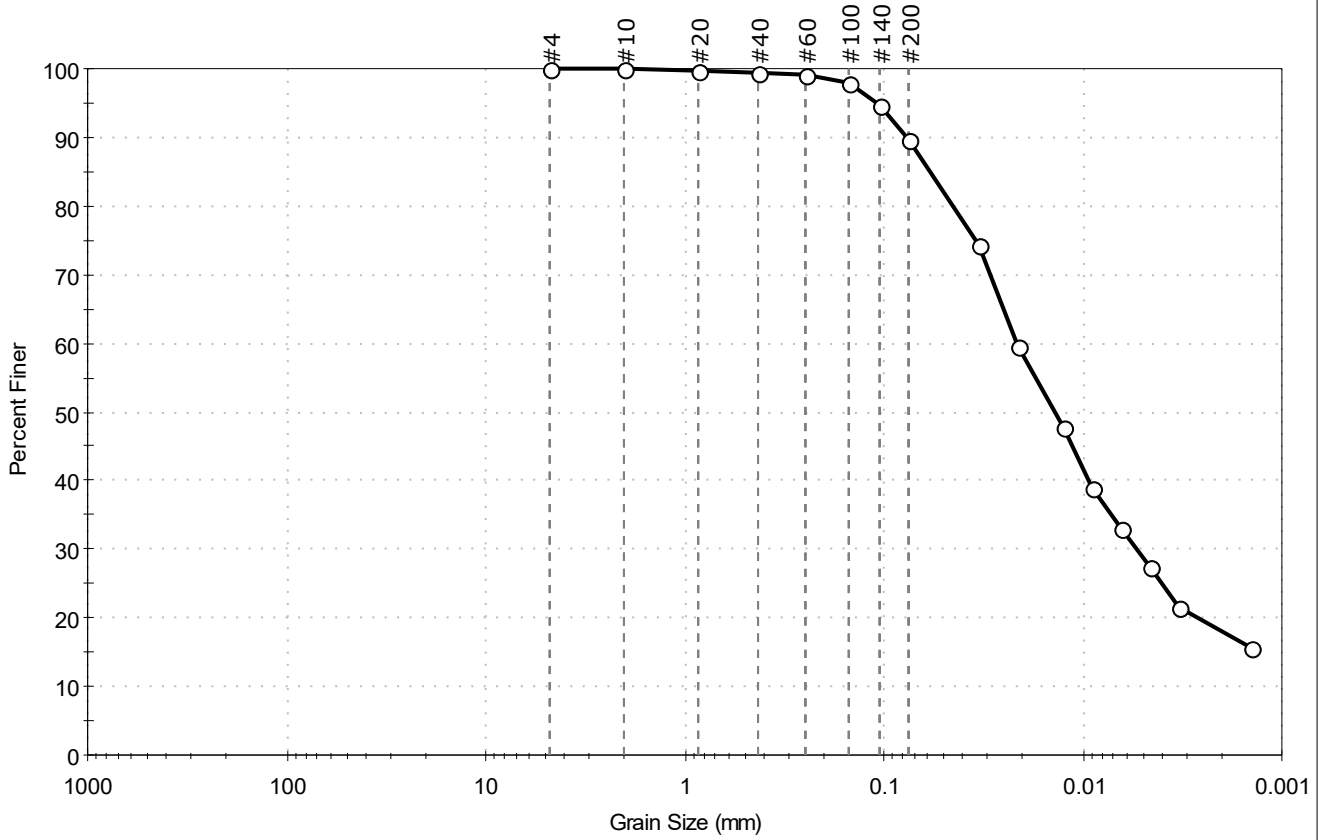
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-107SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 04-09-190923	Test Date: 11/06/19	Test Id: 527557	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0583 mm	D <sub>30</sub> = 0.0054 mm
D <sub>60</sub> = 0.0216 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0138 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

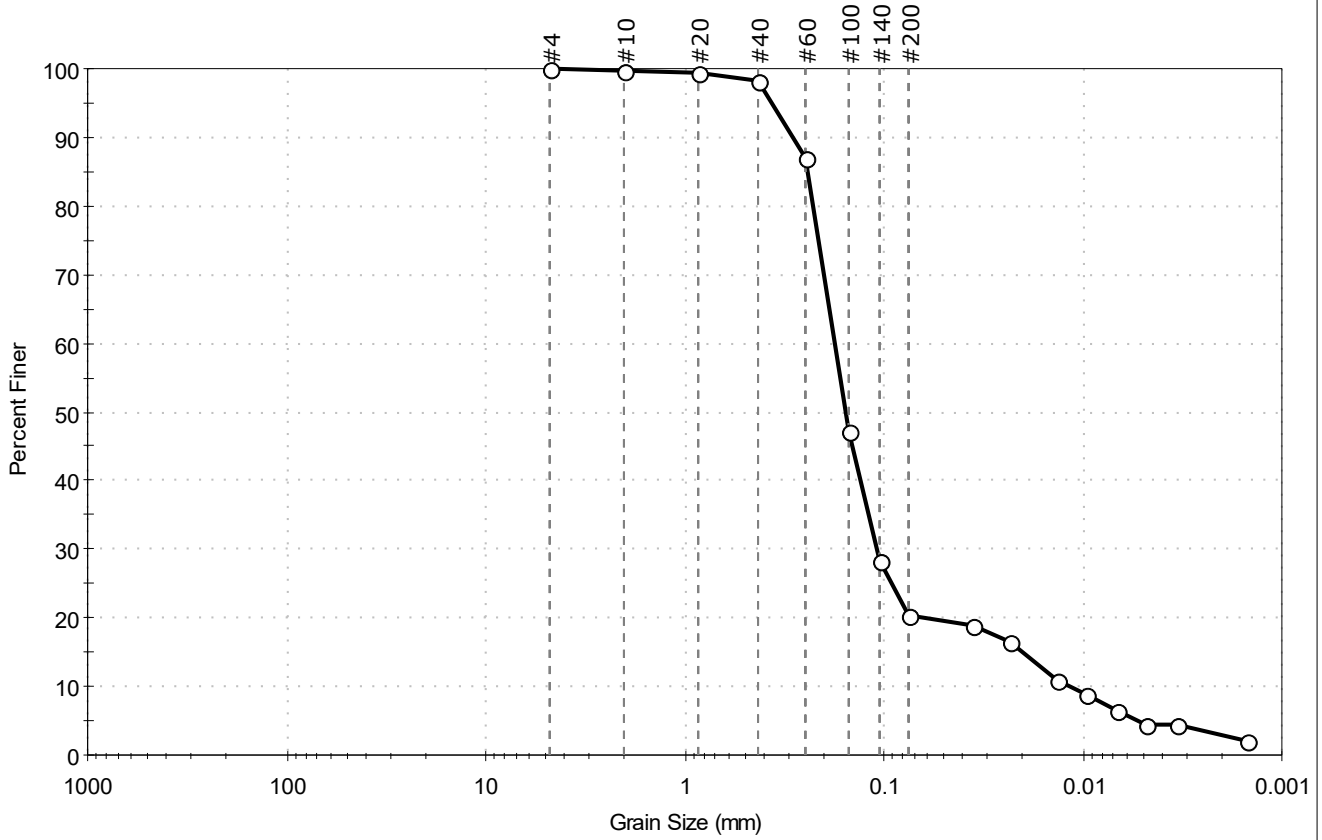
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (30))

<b>Sample/Test Description</b>
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: PDI-107SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 17-18-190923	Test Date: 11/06/19	Test Id: 527558	
Depth: ---	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 <sub>85</sub> = 0.2437 mm	D <sub>30</sub> = 0.1094 mm
D <sub>60</sub> = 0.1767 mm	D <sub>15</sub> = 0.0199 mm
D <sub>50</sub> = 0.1554 mm	D <sub>10</sub> = 0.0114 mm
C <sub>u</sub> = 15.500	C <sub>c</sub> = 5.941

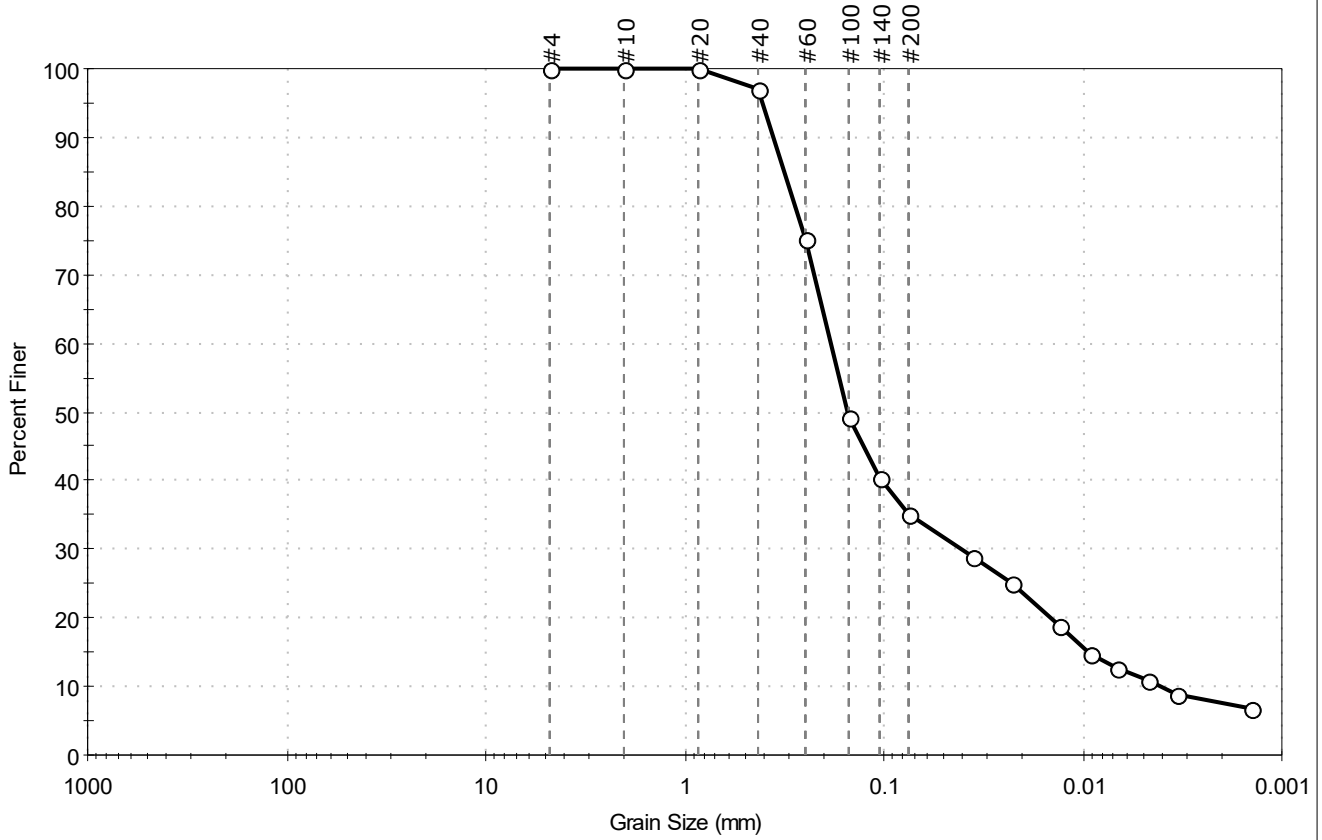
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-107SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 62-64-190923	Test Date: 11/06/19	Test Id: 527559	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3165 mm	D <sub>30</sub> = 0.0401 mm
D <sub>60</sub> = 0.1854 mm	D <sub>15</sub> = 0.0094 mm
D <sub>50</sub> = 0.1524 mm	D <sub>10</sub> = 0.0042 mm
C <sub>u</sub> = 44.143	C <sub>c</sub> = 2.065

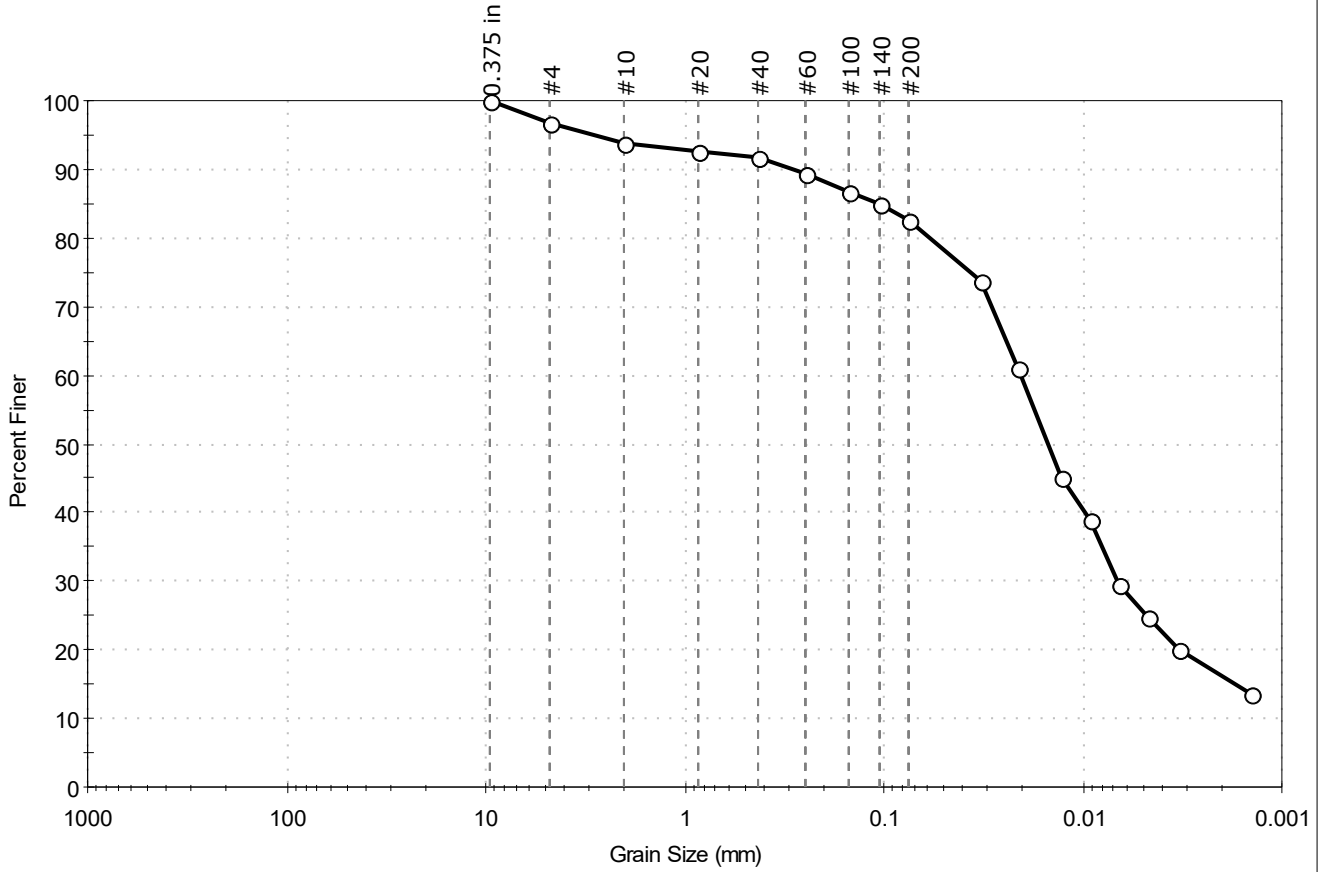
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>	
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: PDI-108SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 00-6.4-191007	Test Date: 11/01/19	Test Id: 527560	
Depth: ---	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 <sub>85</sub> = 0.1081 mm	D <sub>30</sub> = 0.0067 mm
D <sub>60</sub> = 0.0206 mm	D <sub>15</sub> = 0.0017 mm
D <sub>50</sub> = 0.0149 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = 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	



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-108SPT	Sample Type: bag	Tested By: ckg
Sample ID: 14-33.5-191007	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

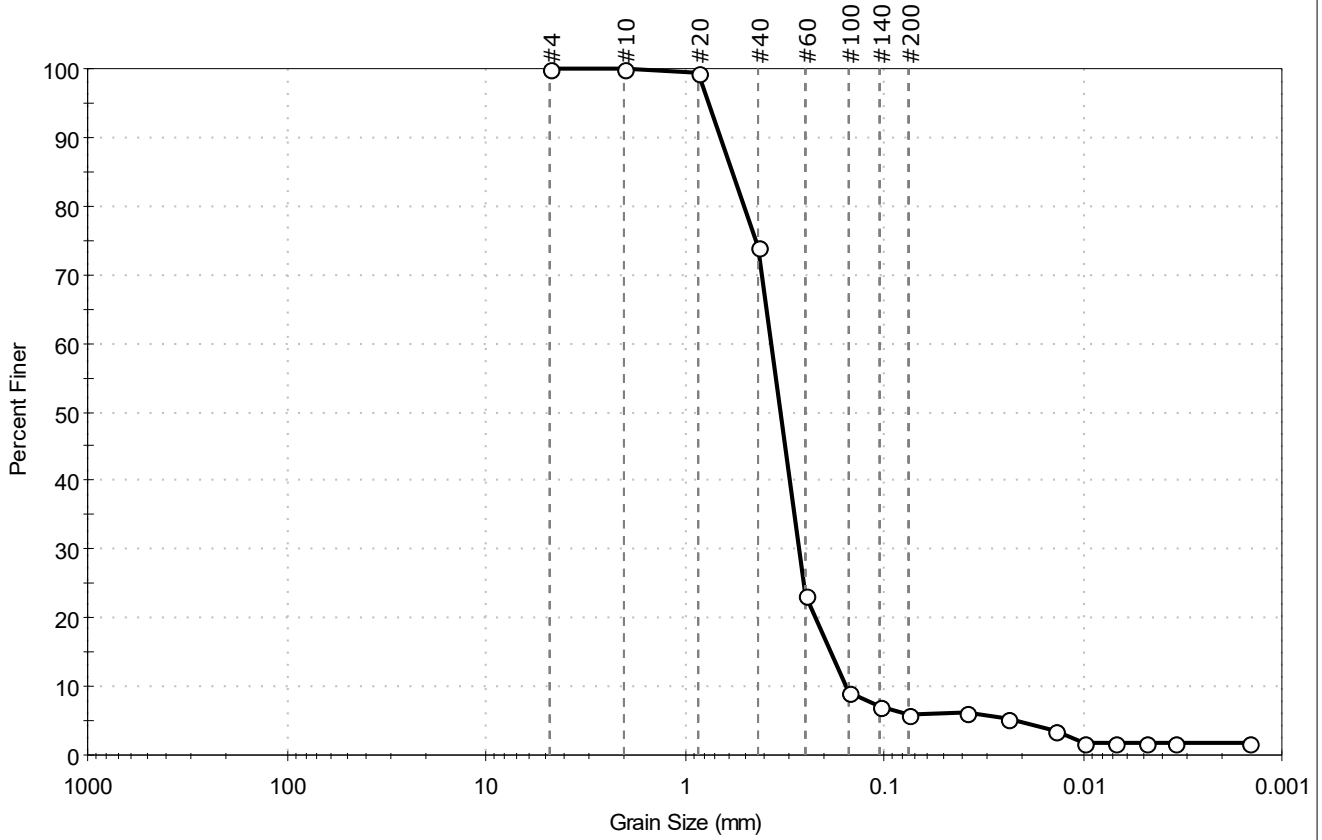
<b><u>Classification</u></b>	
ASTM	N/A
AASHTO	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-108SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 33.5-66.5-191007	Test Date: 11/01/19	Test Id: 527562	
Depth: ---	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 <sub>85</sub> = 0.5740 mm	D <sub>30</sub> = 0.2682 mm
D <sub>60</sub> = 0.3670 mm	D <sub>15</sub> = 0.1849 mm
D <sub>50</sub> = 0.3306 mm	D <sub>10</sub> = 0.1541 mm
C <sub>u</sub> = 2.382	C <sub>c</sub> = 1.272

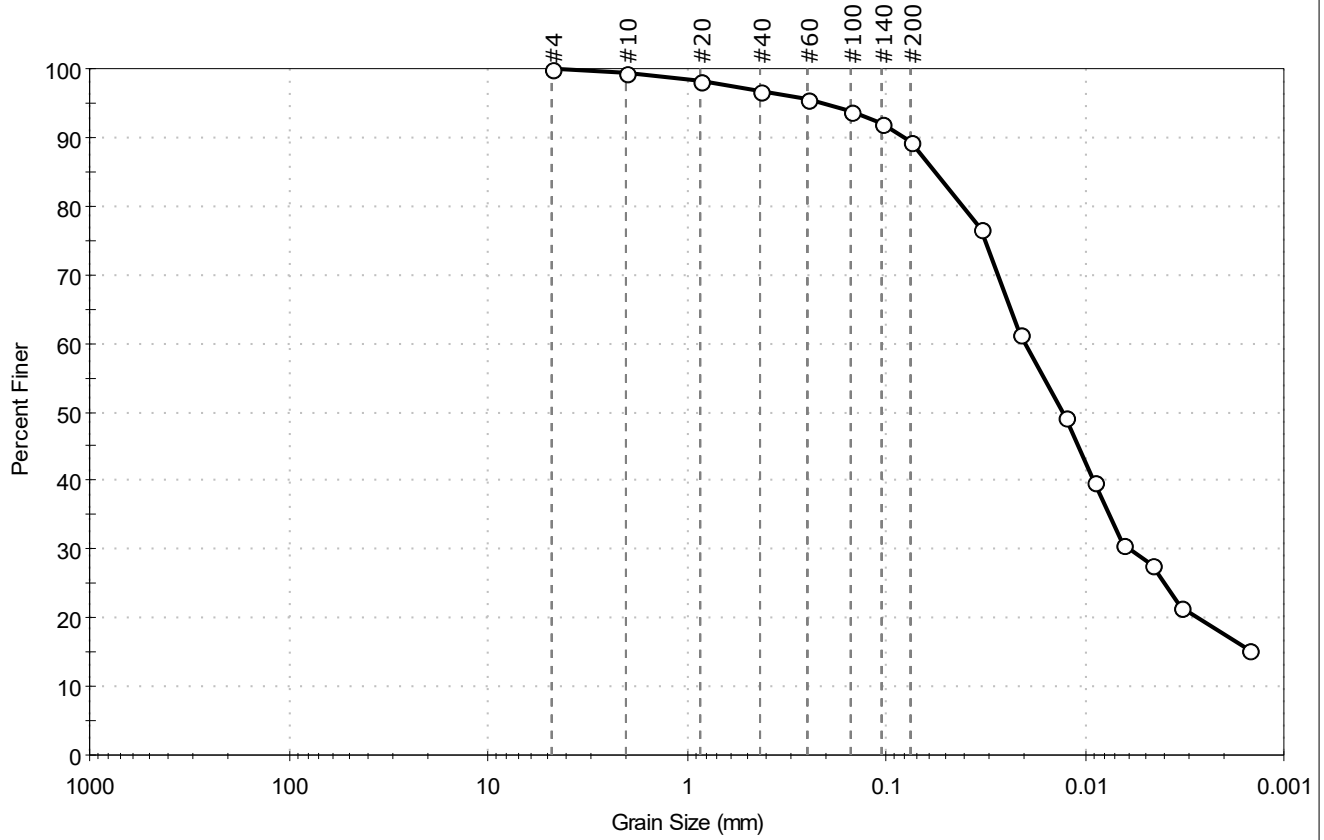
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-109SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 00-6.5-191004	Test Date: 10/29/19	Test Id: 527563	
Depth: ---	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 <sub>85</sub> = 0.0563 mm	D <sub>30</sub> = 0.0060 mm
D <sub>60</sub> = 0.0199 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0130 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

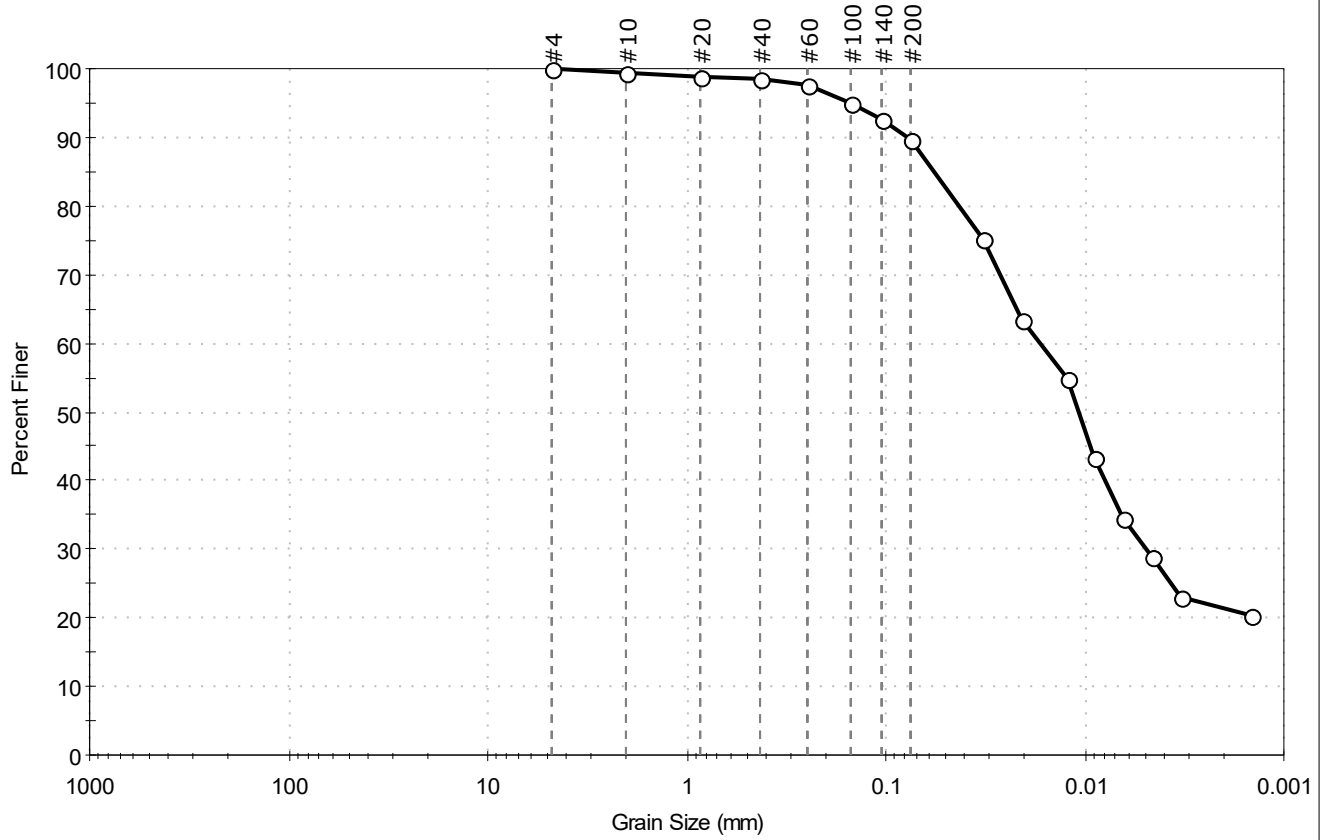
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (48))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-109SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 16.5-18.1-191004	Test Date: 10/29/19	Test Id: 527564	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0578 mm	D <sub>30</sub> = 0.0049 mm
D <sub>60</sub> = 0.0168 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0107 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (38))

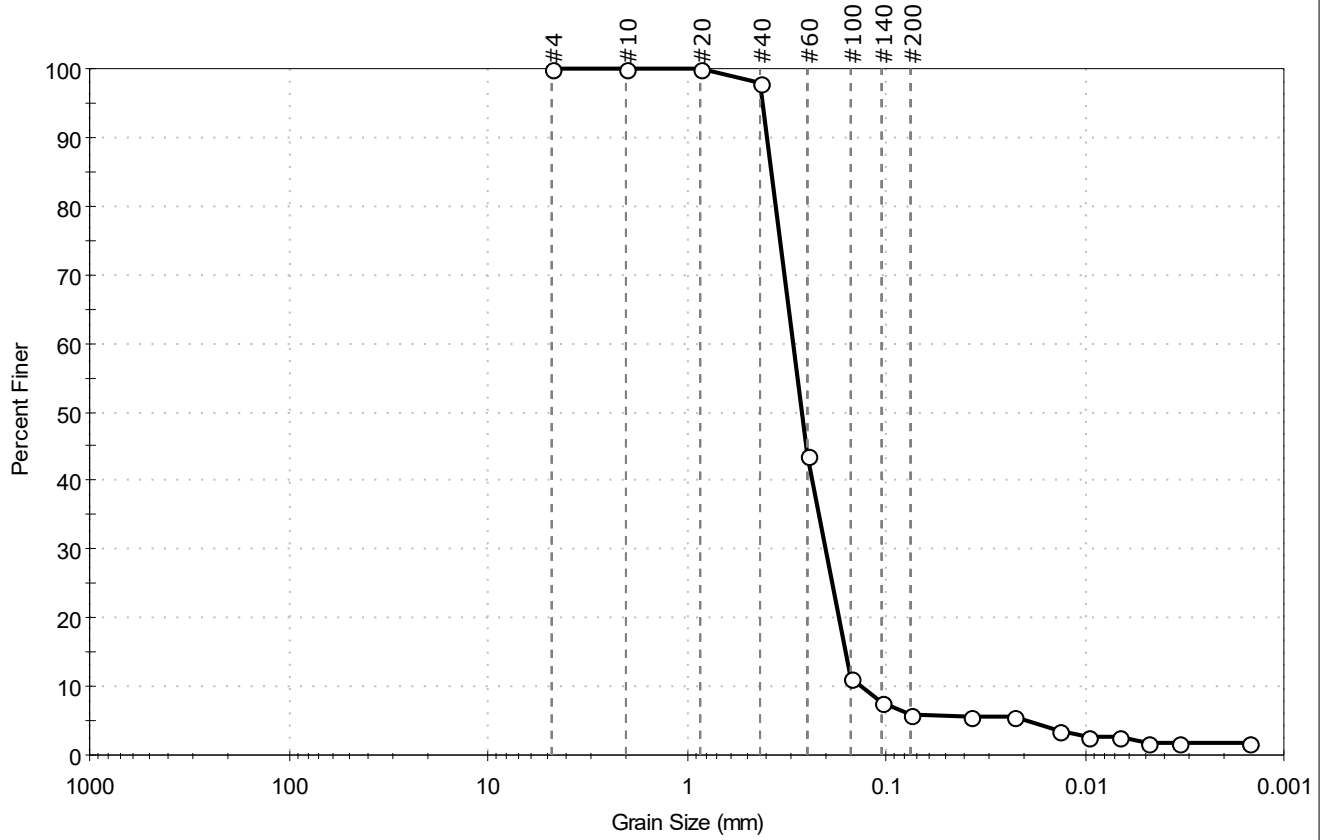
<b>Sample/Test Description</b>	
Sand/Gravel Particle Shape : ---	
Sand/Gravel Hardness : ---	
Dispersion Device : Apparatus A - Mech Mixer	
Dispersion Period : 1 minute	
Est. Specific Gravity : 2.65	
Separation of Sample: #200 Sieve	





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-109SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 22-30-191004	Test Date: 10/29/19	Test Id: 527565	
Depth: ---	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 <sub>85</sub> = 0.3747 mm	D <sub>30</sub> = 0.2015 mm
D <sub>60</sub> = 0.2933 mm	D <sub>15</sub> = 0.1592 mm
D <sub>50</sub> = 0.2659 mm	D <sub>10</sub> = 0.1336 mm
C <sub>u</sub> = 2.195	C <sub>c</sub> = 1.036

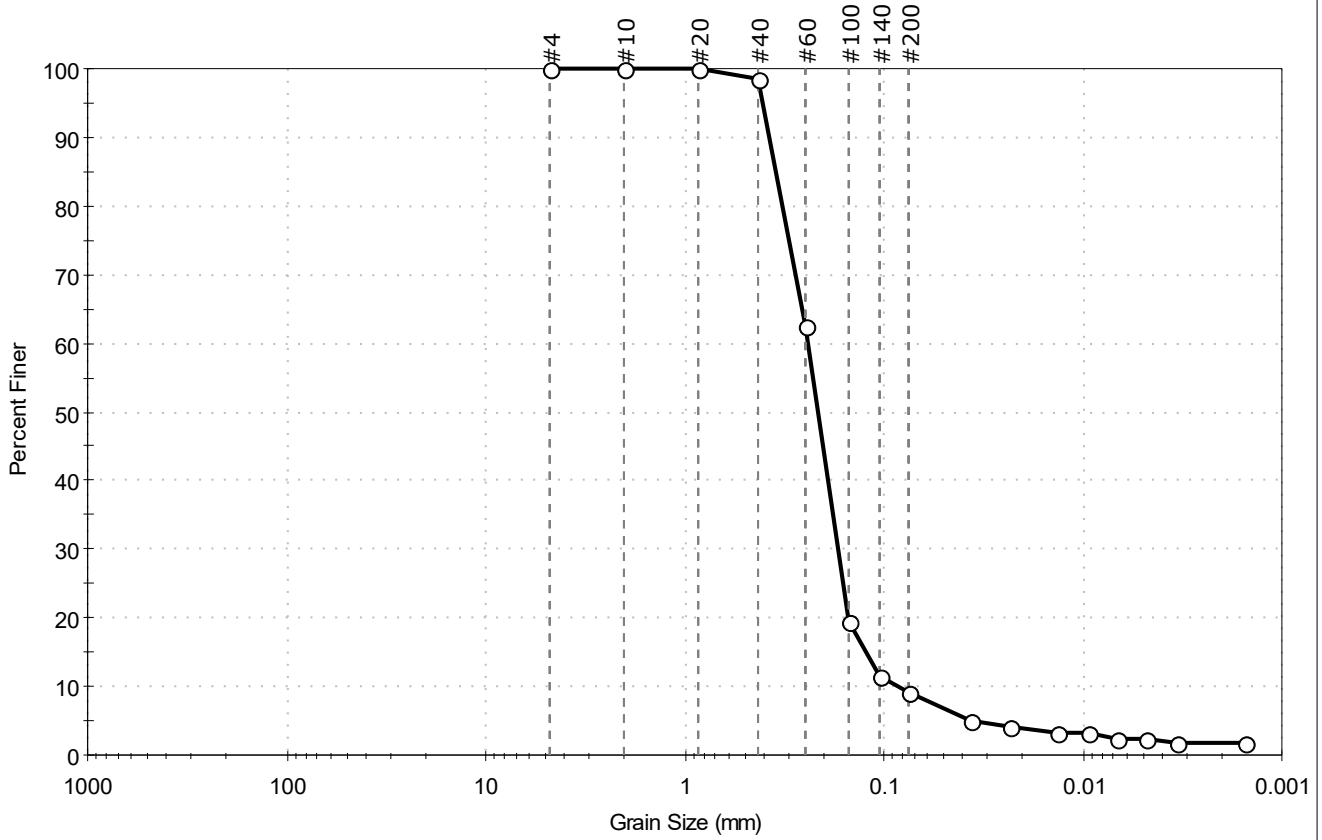
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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: PDI-109SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 35.5-48.3-191004	Test Date: 10/29/19	Test Id: 527566	
Depth: ---			
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 <sub>85</sub> = 0.3483 mm	D <sub>30</sub> = 0.1699 mm
D <sub>60</sub> = 0.2426 mm	D <sub>15</sub> = 0.1233 mm
D <sub>50</sub> = 0.2154 mm	D <sub>10</sub> = 0.0849 mm
C <sub>u</sub> = 2.857	C <sub>c</sub> = 1.401

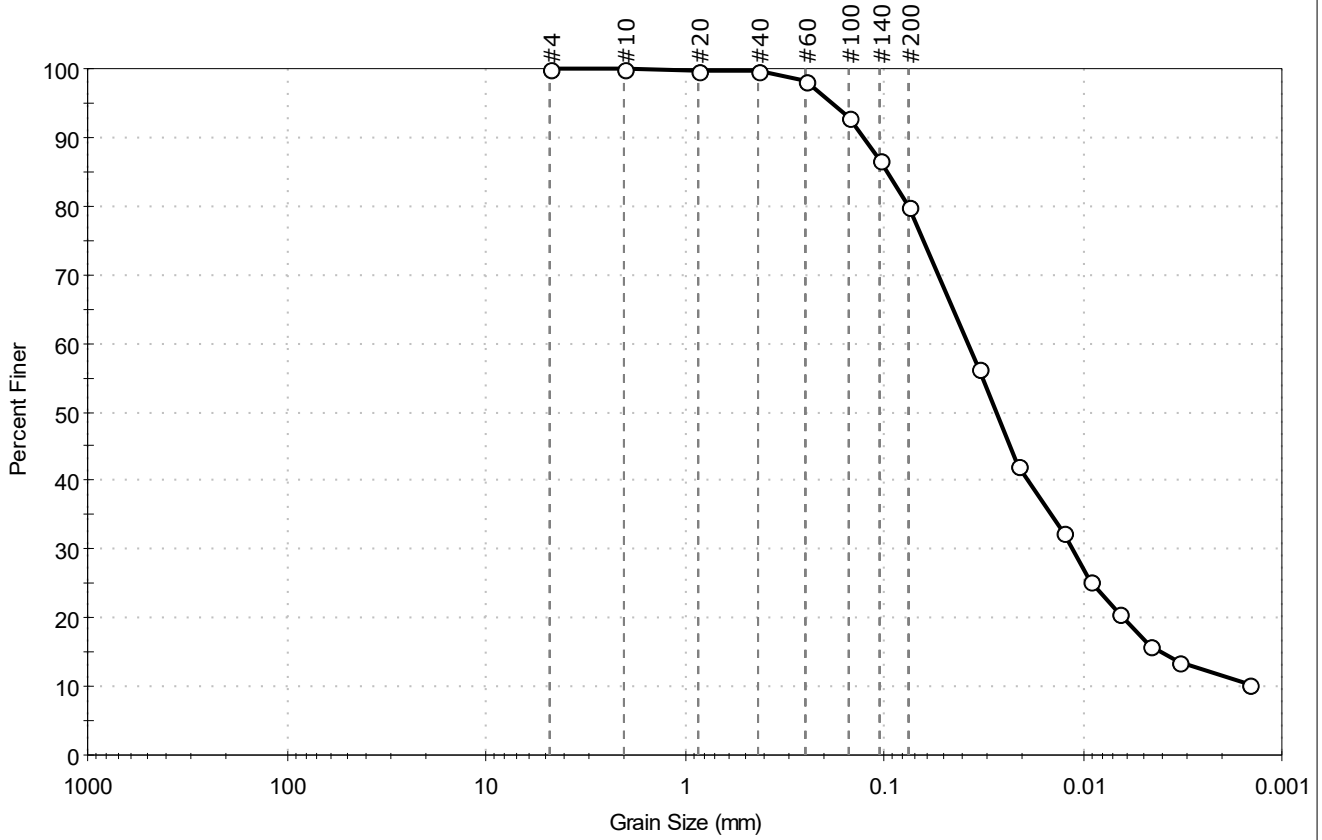
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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: PDI-109SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 48.3-51-191004	Test Date: 10/29/19	Test Id: 527567	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0976 mm	D <sub>30</sub> = 0.0112 mm
D <sub>60</sub> = 0.0380 mm	D <sub>15</sub> = 0.0041 mm
D <sub>50</sub> = 0.0273 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

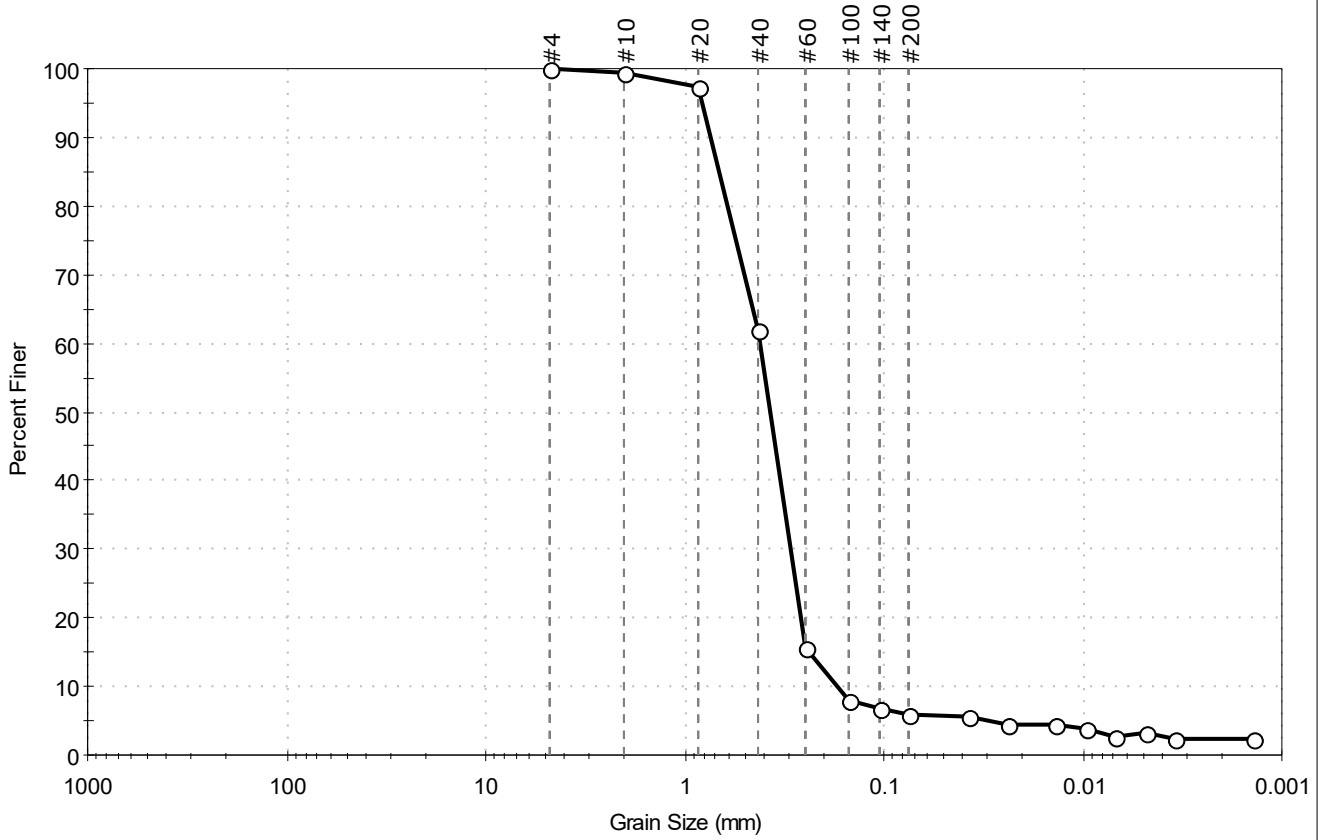
<b>Classification</b>	
<b>ASTM</b>	SILT with Sand (ML)
<b>AASHTO</b>	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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: PDI-110 B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 54-64.5-191015	Test Date: 10/29/19	Test Id: 527568	
Depth: ---	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		
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 <sub>85</sub> = 0.6681 mm	D <sub>30</sub> = 0.2948 mm
D <sub>60</sub> = 0.4158 mm	D <sub>15</sub> = 0.2399 mm
D <sub>50</sub> = 0.3707 mm	D <sub>10</sub> = 0.1717 mm
C <sub>u</sub> = 2.422	C <sub>c</sub> = 1.217

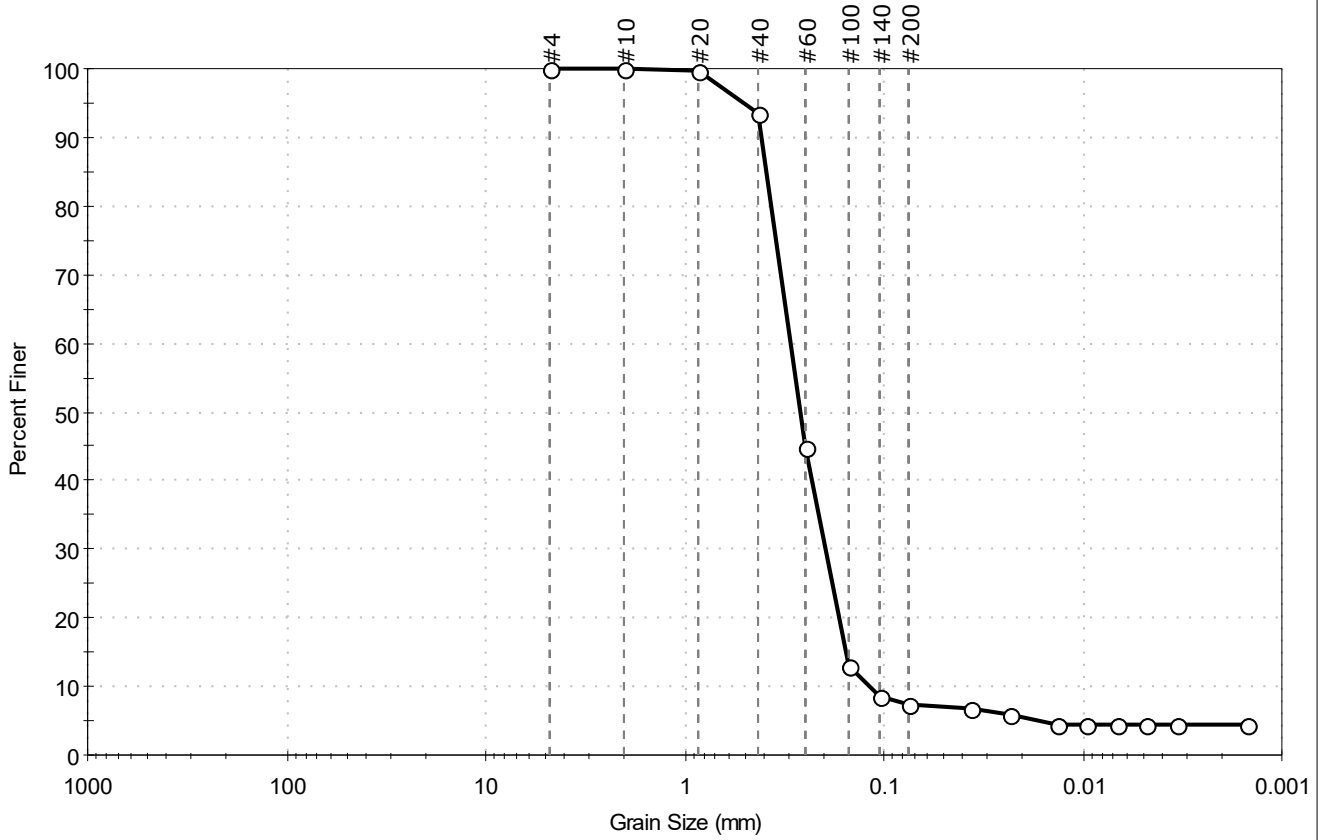
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: PDI-110SPT Sample Type: bag Tested By: ckg  
 Sample ID: 21-32-191010 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3872 mm	D <sub>30</sub> = 0.1973 mm
D <sub>60</sub> = 0.2950 mm	D <sub>15</sub> = 0.1552 mm
D <sub>50</sub> = 0.2646 mm	D <sub>10</sub> = 0.1184 mm
C <sub>u</sub> = 2.492	C <sub>c</sub> = 1.115

<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Fine Sand (A-3 (1))

<b>Sample/Test Description</b>	
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 No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-110SPT	Sample Type: bag	Tested By: ckg
Sample ID: 32-45-191010	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

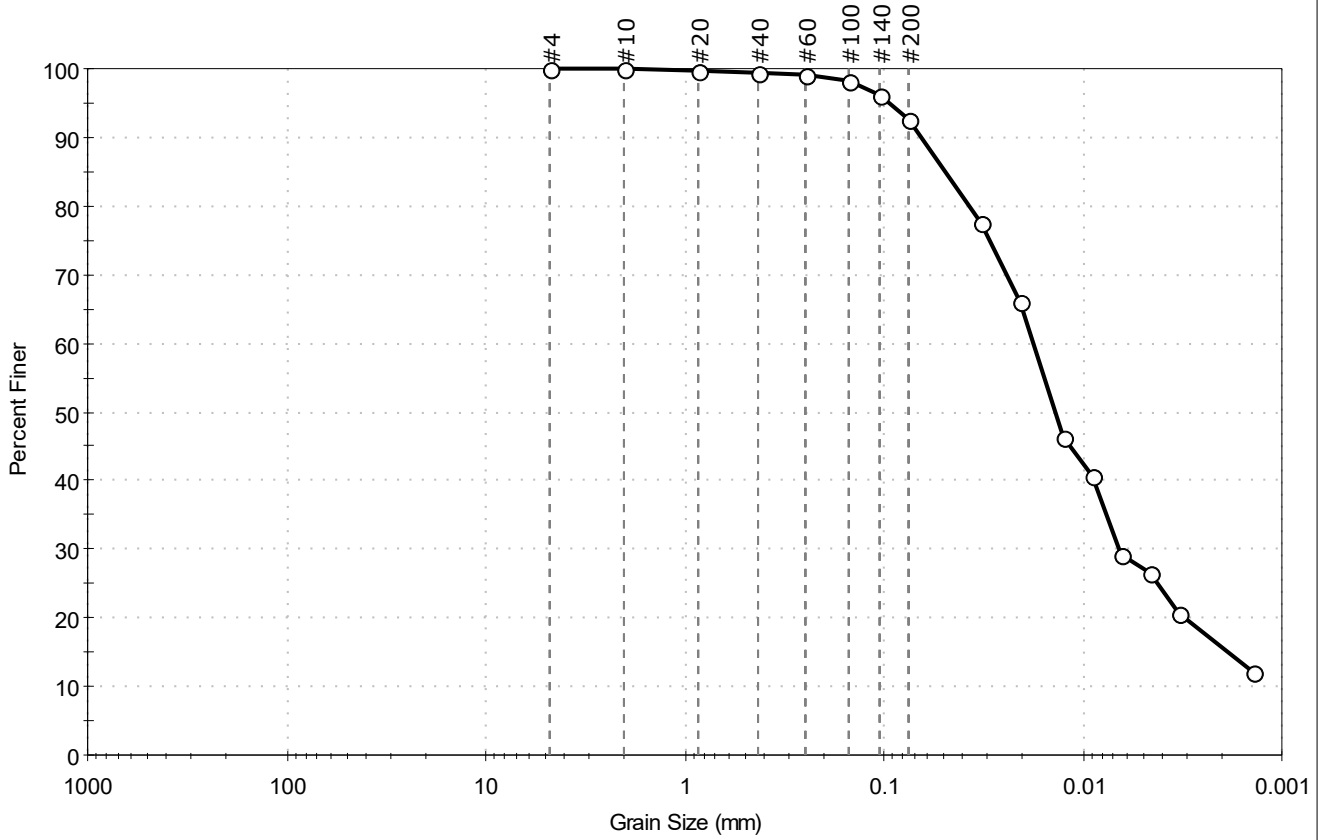
<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-112SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 00-6.5-191003	Test Date: 11/05/19	Test Id: 527571	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0488 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0138 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

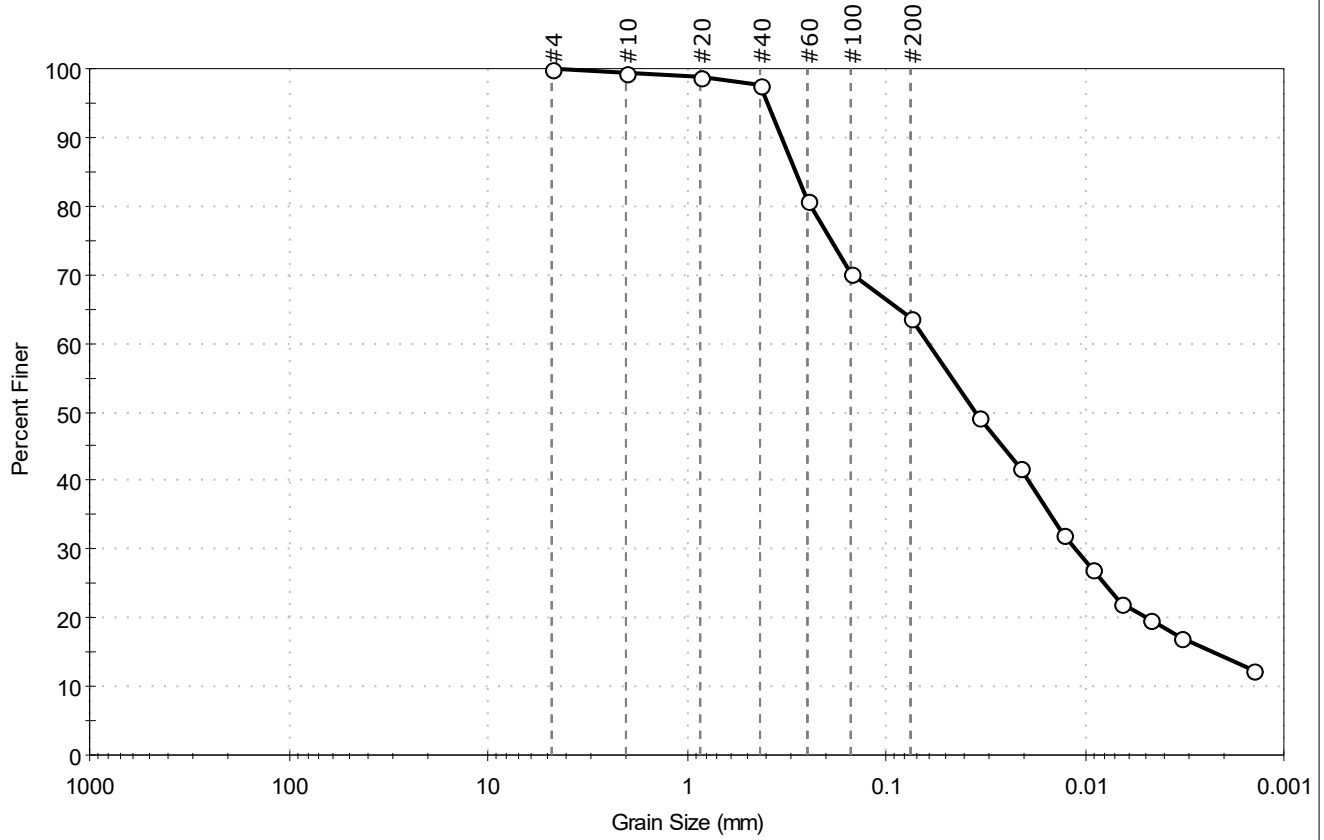
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (45))

<b>Sample/Test Description</b>	
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: PDI-112SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 07-11.5-191003	Test Date: 11/01/19	Test Id: 527572	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2849 mm	D <sub>30</sub> = 0.0112 mm
D <sub>60</sub> = 0.0615 mm	D <sub>15</sub> = 0.0023 mm
D <sub>50</sub> = 0.0357 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Sandy Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (11))

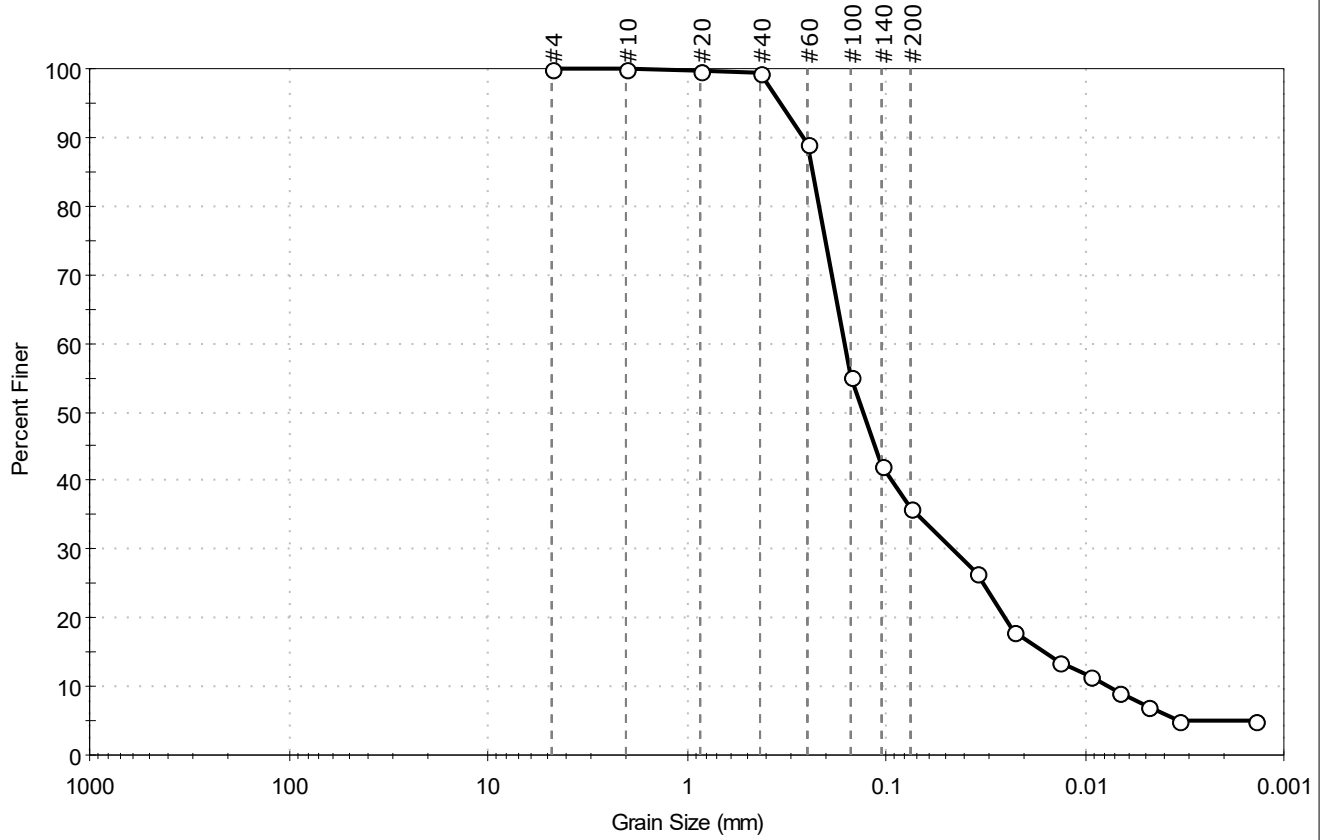
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-112SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 11.5-26.5-191003	Test Date: 10/31/19	Test Id: 527573	
Depth: ---	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 <sub>85</sub> = 0.2350 mm	D <sub>30</sub> = 0.0465 mm
D <sub>60</sub> = 0.1614 mm	D <sub>15</sub> = 0.0159 mm
D <sub>50</sub> = 0.1309 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 21.520	C <sub>c</sub> = 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

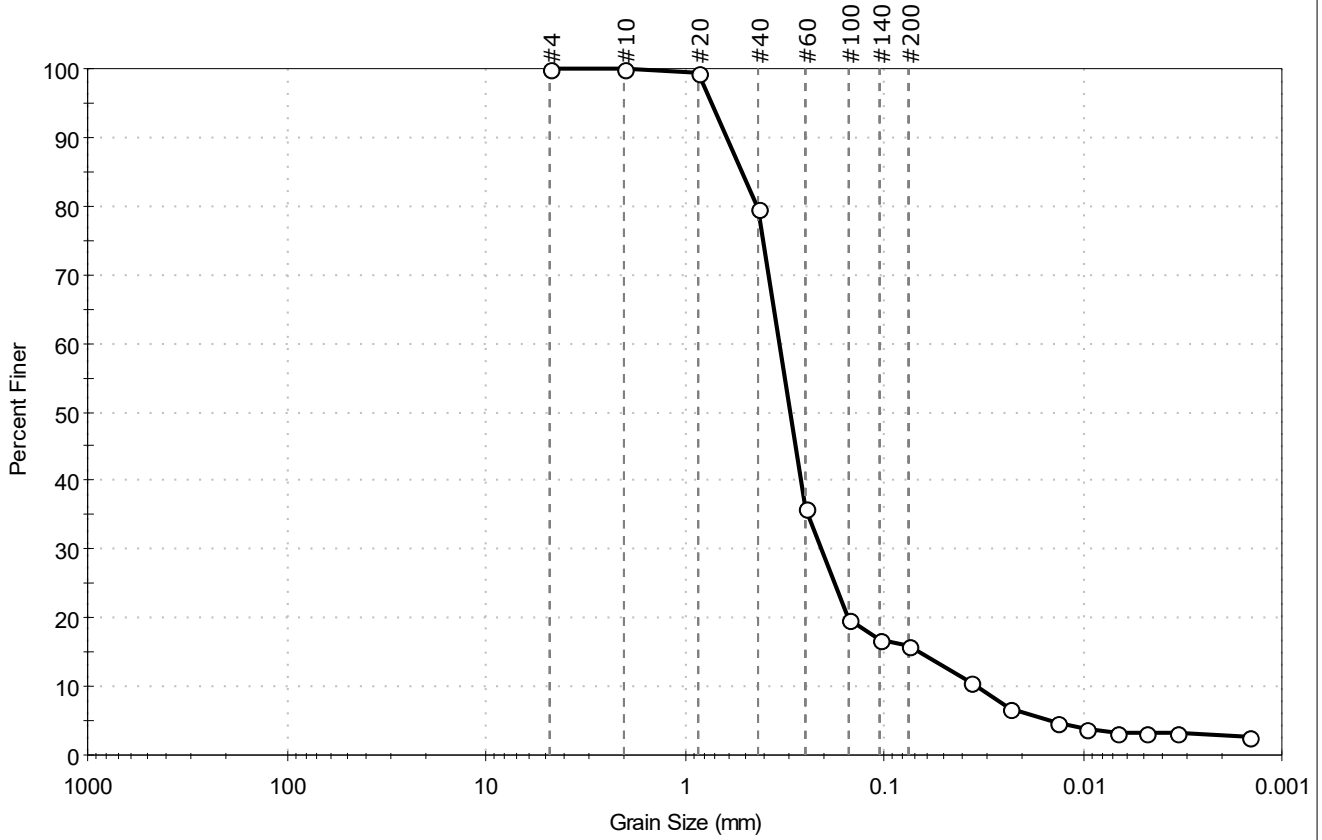
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-112SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 37.5-58-191003	Test Date: 10/29/19	Test Id: 527574	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.5121 mm	D <sub>30</sub> = 0.2062 mm
D <sub>60</sub> = 0.3344 mm	D <sub>15</sub> = 0.0671 mm
D <sub>50</sub> = 0.2961 mm	D <sub>10</sub> = 0.0339 mm
C <sub>u</sub> = 9.864	C <sub>c</sub> = 3.751

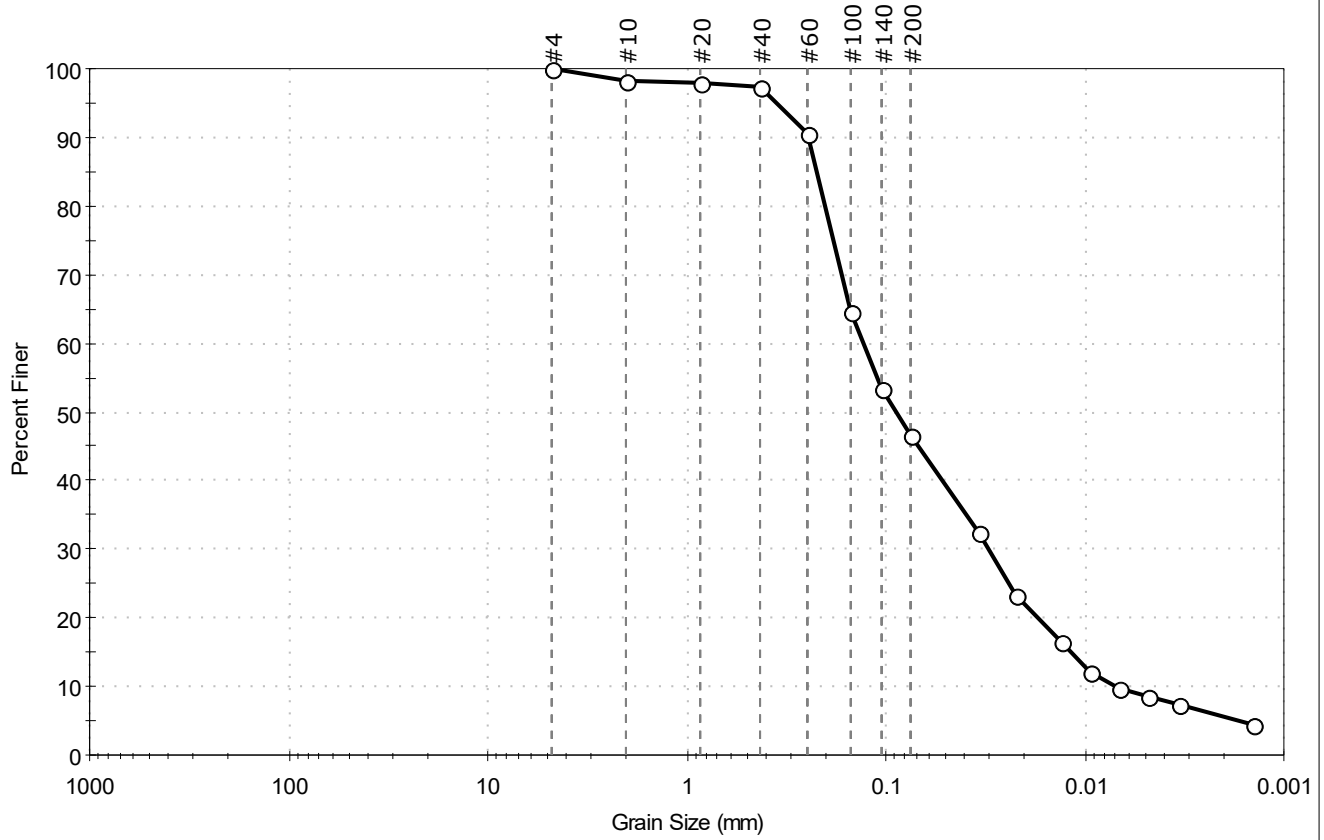
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: PDI-113SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-16-191011	Test Date: 11/05/19	Test Id: 527575	
Depth: ---			
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 <sub>85</sub> = 0.2243 mm	D <sub>30</sub> = 0.0305 mm
D <sub>60</sub> = 0.1298 mm	D <sub>15</sub> = 0.0117 mm
D <sub>50</sub> = 0.0888 mm	D <sub>10</sub> = 0.0070 mm
C <sub>u</sub> = 18.543	C <sub>c</sub> = 1.024

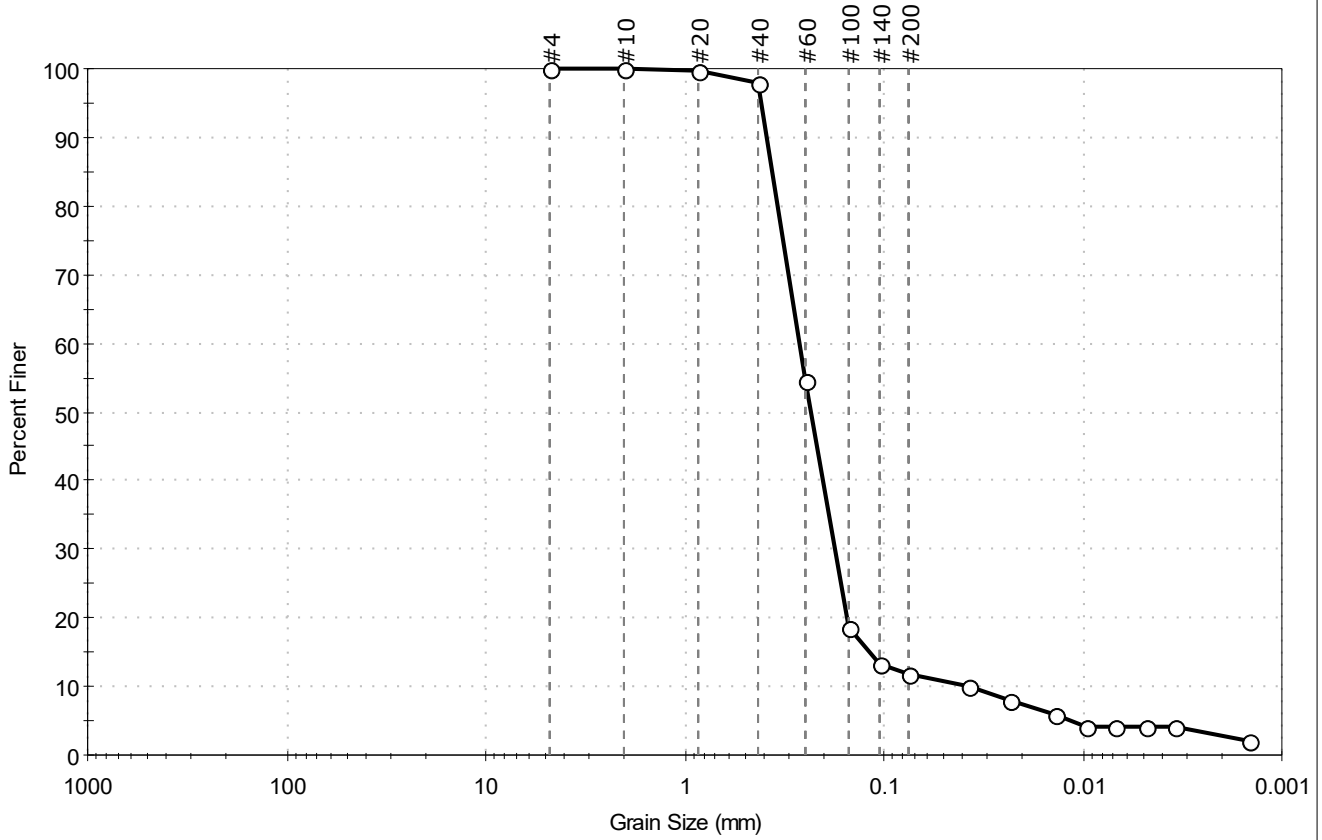
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Soils (A-4 (0))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-113SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 16-22-191011	Test Date: 10/31/19	Test Id: 527576	
Depth: ---	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 <sub>85</sub> = 0.3627 mm	D <sub>30</sub> = 0.1766 mm
D <sub>60</sub> = 0.2675 mm	D <sub>15</sub> = 0.1182 mm
D <sub>50</sub> = 0.2347 mm	D <sub>10</sub> = 0.0377 mm
C <sub>u</sub> = 7.095	C <sub>c</sub> = 3.093

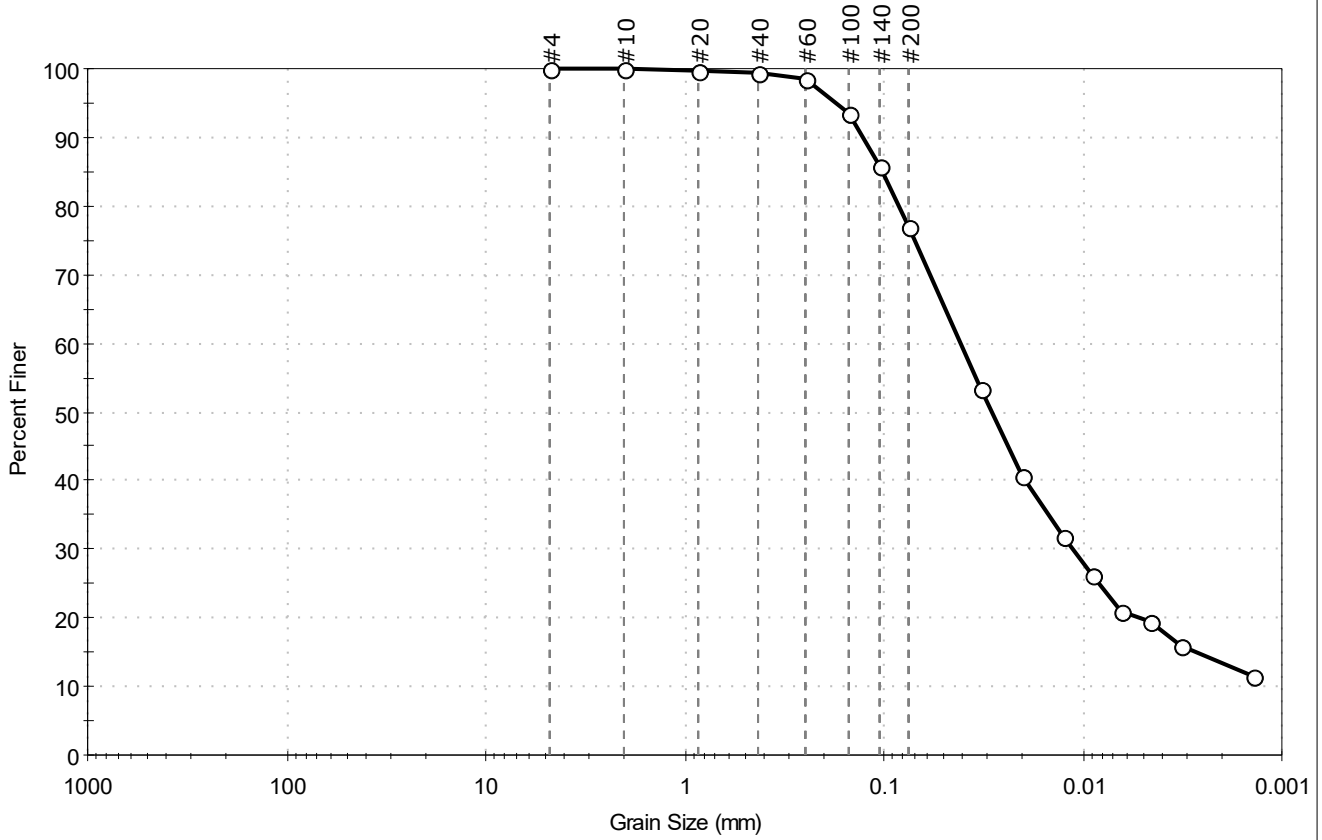
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-113SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 22-25.2-191011	Test Date: 10/24/19	Test Id: 527577	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1025 mm	D <sub>30</sub> = 0.0111 mm
D <sub>60</sub> = 0.0407 mm	D <sub>15</sub> = 0.0028 mm
D <sub>50</sub> = 0.0283 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

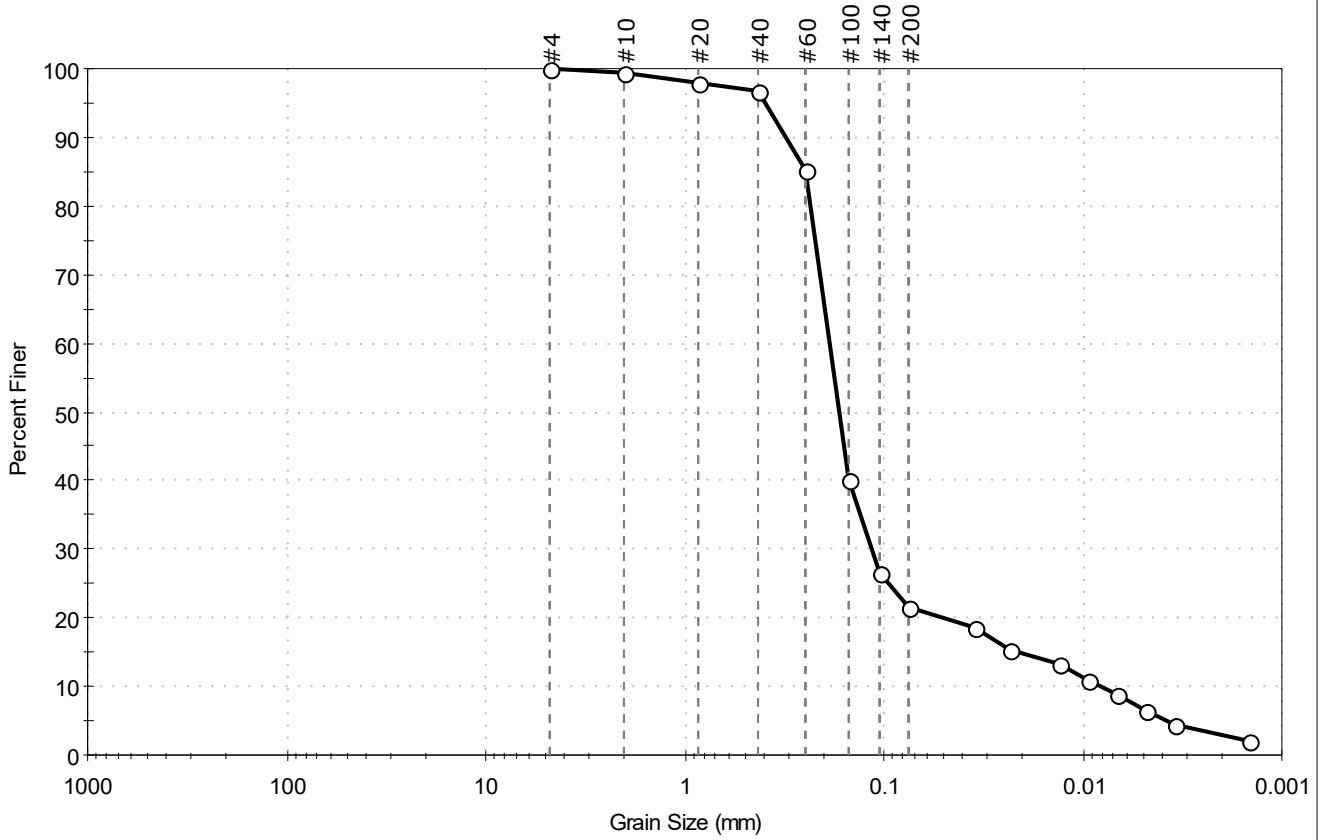
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (18))

<b>Sample/Test Description</b>
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: PDI-113SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 31.9-39.4-191011	Test Date: 11/01/19	Test Id: 527578	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2492 mm	D <sub>30</sub> = 0.1158 mm
D <sub>60</sub> = 0.1879 mm	D <sub>15</sub> = 0.0208 mm
D <sub>50</sub> = 0.1679 mm	D <sub>10</sub> = 0.0081 mm
C <sub>u</sub> = 23.198	C <sub>c</sub> = 8.811

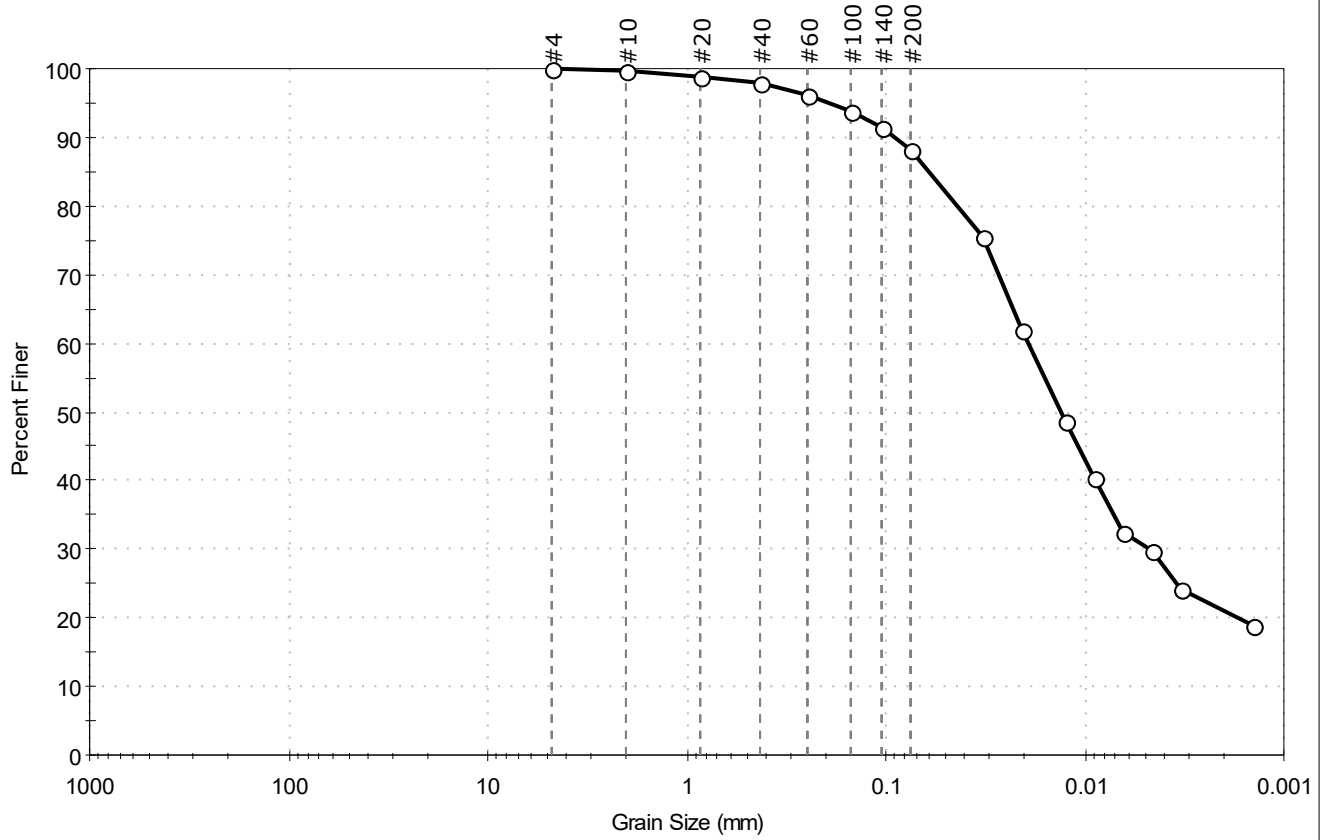
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: PDI-114SPT Sample Type: bag Tested By: ckg  
 Sample ID: 00-7.5-191008 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0610 mm	D <sub>30</sub> = 0.0048 mm
D <sub>60</sub> = 0.0193 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0132 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

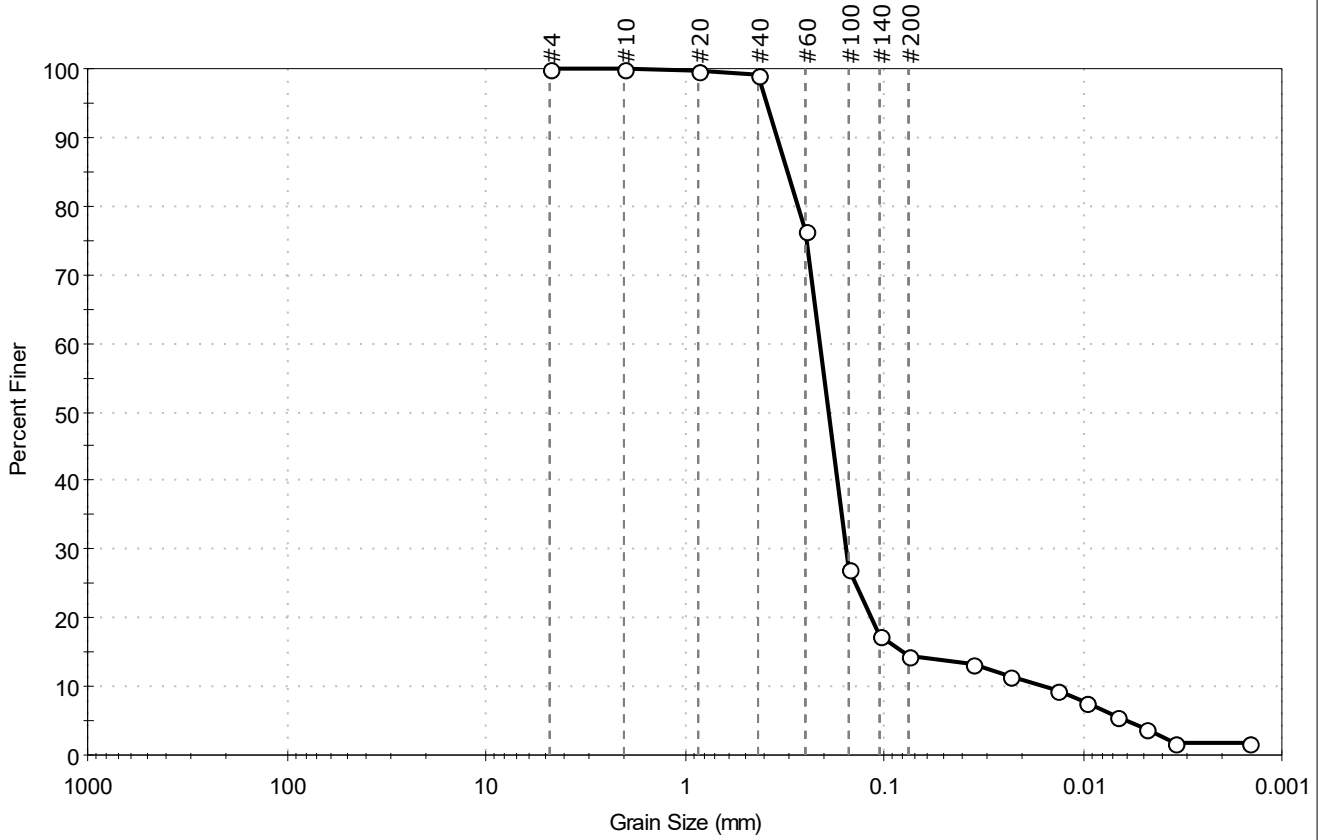
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (29))

<b>Sample/Test Description</b>
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: PDI-114SPT Sample Type: bag Tested By: ckg  
 Sample ID: 25.5-28-191008 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3059 mm	D <sub>30</sub> = 0.1547 mm
D <sub>60</sub> = 0.2111 mm	D <sub>15</sub> = 0.0809 mm
D <sub>50</sub> = 0.1903 mm	D <sub>10</sub> = 0.0157 mm
C <sub>u</sub> = 13.446	C <sub>c</sub> = 7.221

<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

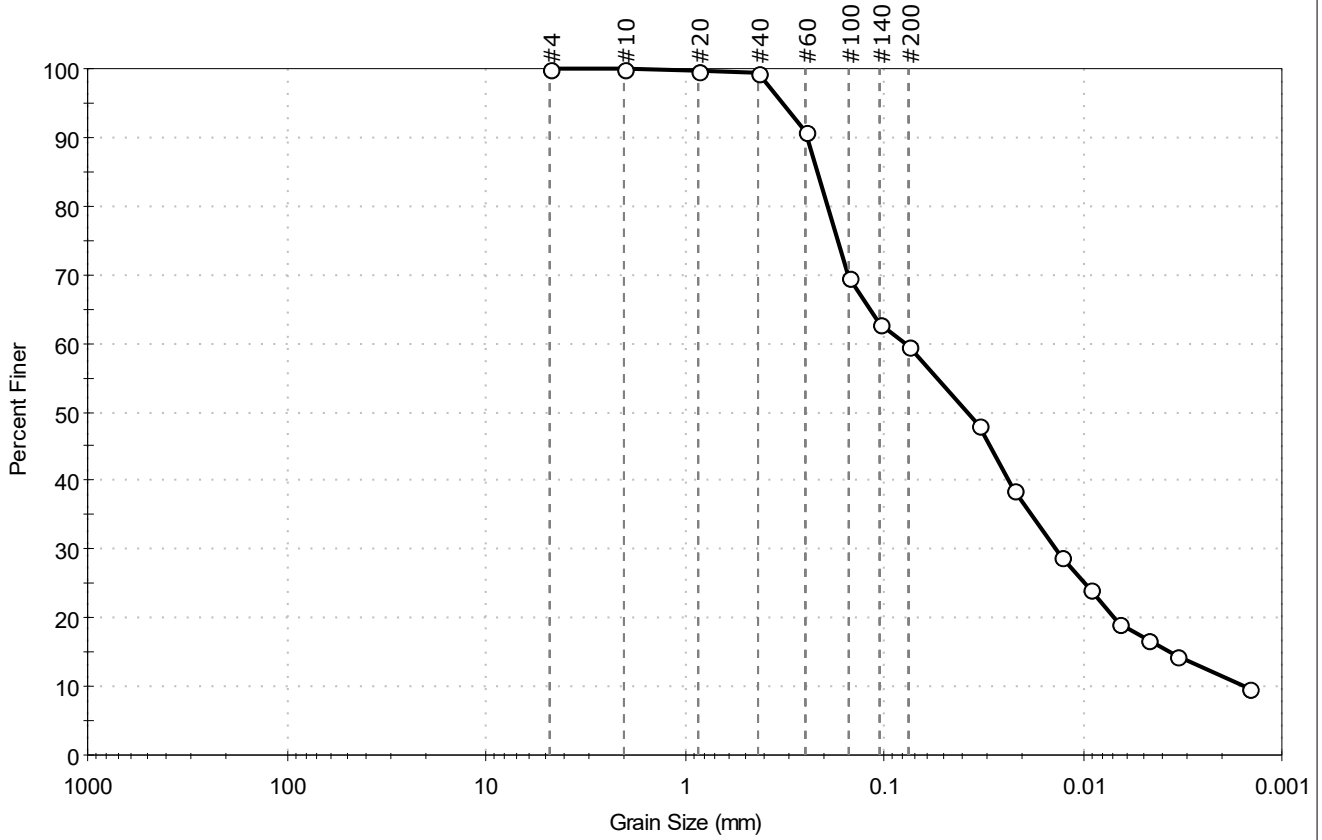
<b>Sample/Test Description</b>	
Sand/Gravel Particle Shape : ---	
Sand/Gravel Hardness : ---	
Dispersion Device : Apparatus A - Mech Mixer	
Dispersion Period : 1 minute	
Est. Specific Gravity : 2.65	
Separation of Sample: #200 Sieve	





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-114SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 42-50.5-191008	Test Date: 11/01/19	Test Id: 527581	
Depth: ---	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2166 mm	D <sub>30</sub> = 0.0138 mm
D <sub>60</sub> = 0.0786 mm	D <sub>15</sub> = 0.0036 mm
D <sub>50</sub> = 0.0384 mm	D <sub>10</sub> = 0.0015 mm
C <sub>u</sub> = 52.400	C <sub>c</sub> = 1.615

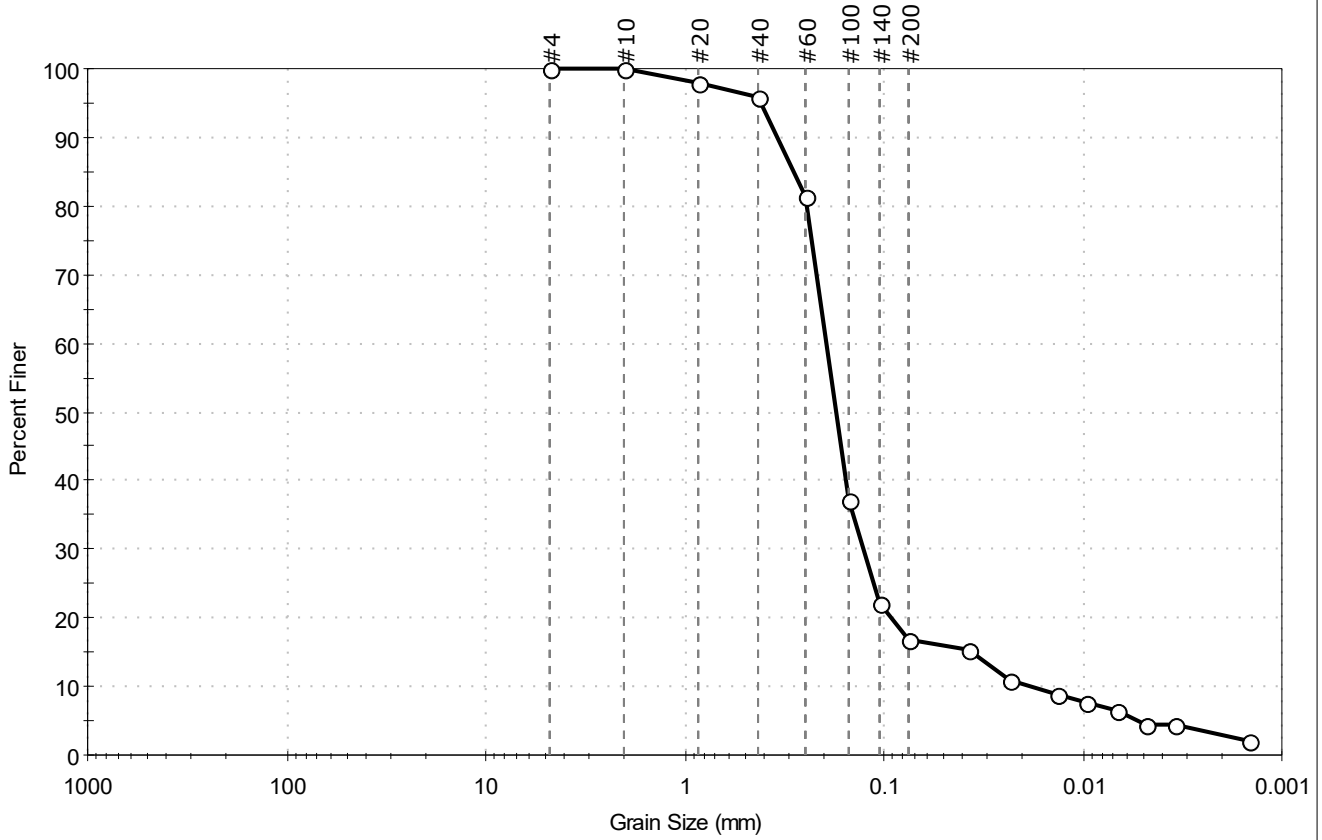
<u>Classification</u>	
<u>ASTM</u>	Sandy SILT (ML)
<u>AASHTO</u>	Silty Soils (A-5 (5))

<u>Sample/Test Description</u>	
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: PDI-114SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 50.5-55-191008	Test Date: 11/01/19	Test Id: 527582	
Depth: ---	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 <sub>85</sub> = 0.2851 mm	D <sub>30</sub> = 0.1275 mm
D <sub>60</sub> = 0.1953 mm	D <sub>15</sub> = 0.0358 mm
D <sub>50</sub> = 0.1741 mm	D <sub>10</sub> = 0.0181 mm
C <sub>u</sub> = 10.790	C <sub>c</sub> = 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

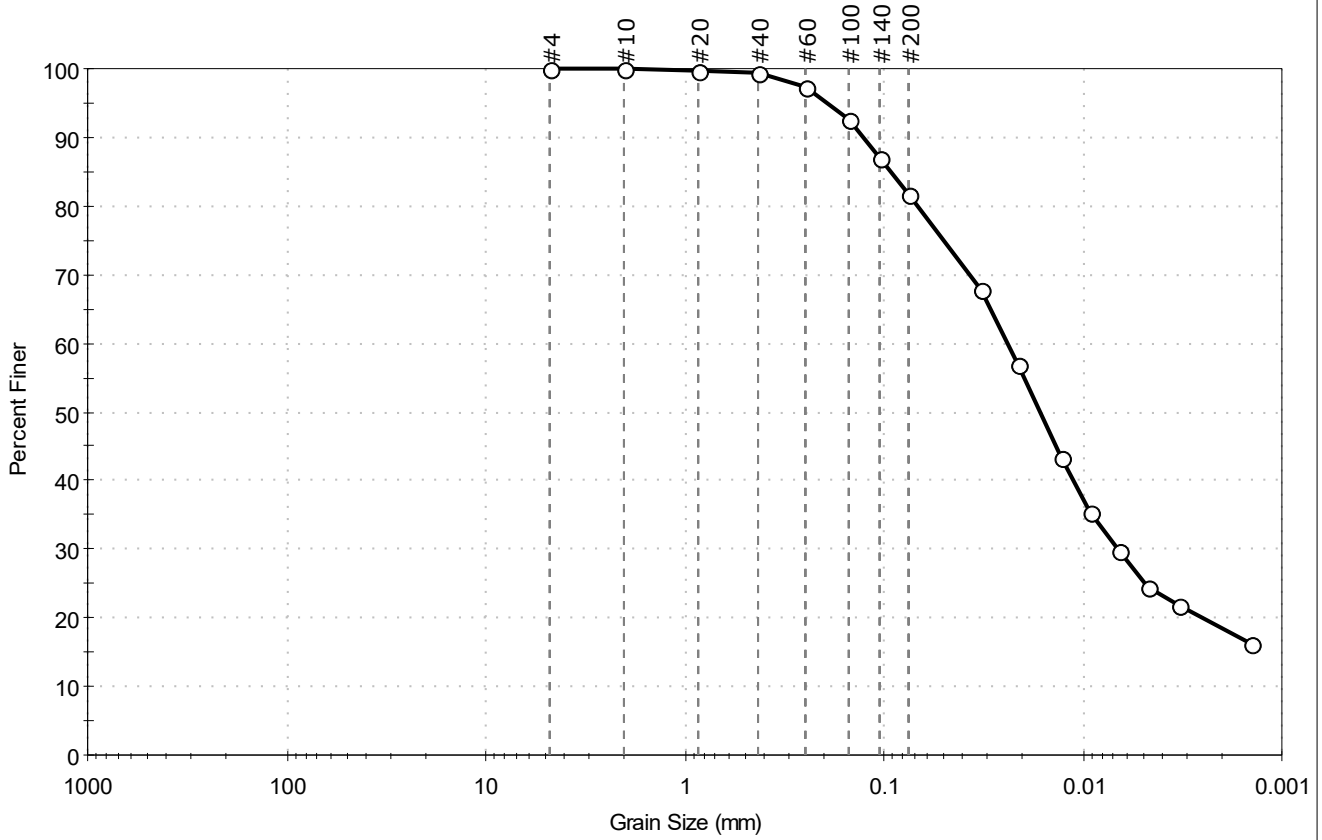
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-114SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 7.5-12.5-191008	Test Date: 11/01/19	Test Id: 527583	
Depth: ---	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 <sub>85</sub> = 0.0928 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0239 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0163 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

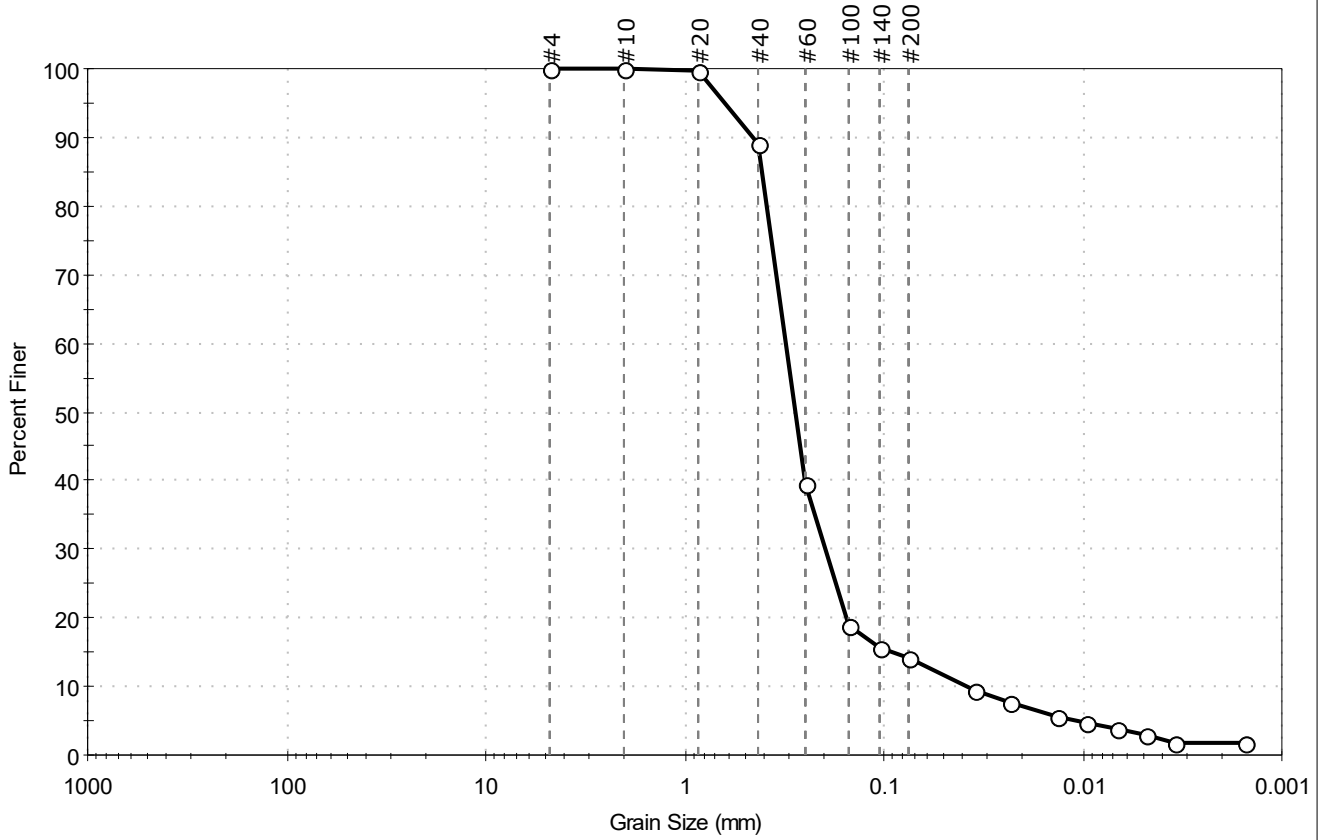
Classification	
ASTM	Elastic SILT with Sand (MH)
AASHTO	Clayey Soils (A-7-5 (24))

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: PDI-115SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 06-11-191009	Test Date: 11/07/19	Test Id: 527584	
Depth: ---	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.4072 mm	D <sub>30</sub> = 0.1974 mm
D <sub>60</sub> = 0.3113 mm	D <sub>15</sub> = 0.0918 mm
D <sub>50</sub> = 0.2796 mm	D <sub>10</sub> = 0.0380 mm
C <sub>u</sub> = 8.192	C <sub>c</sub> = 3.294

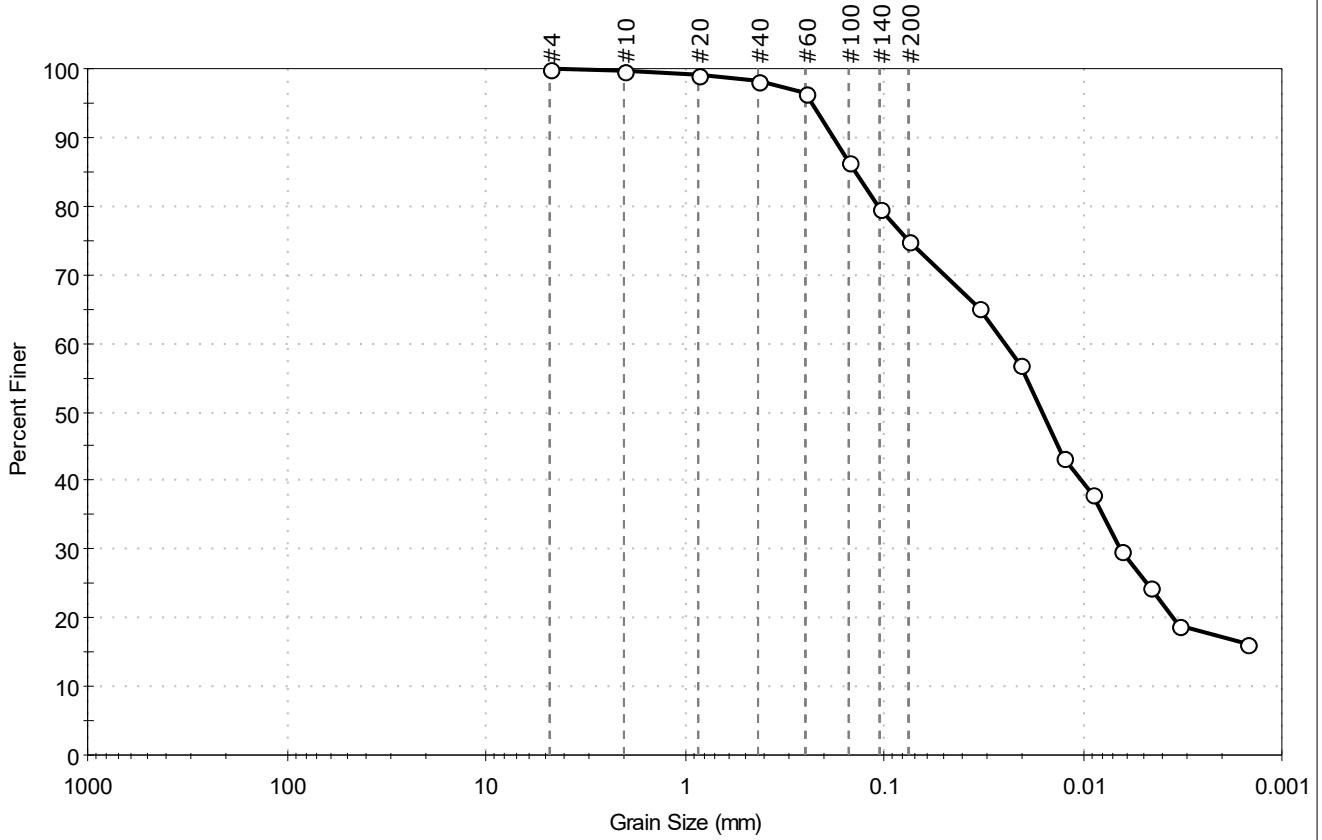
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>	
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: PDI-115SPT Sample Type: bag Tested By: ckg  
 Sample ID: 18.6-20.6-191009 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1387 mm	D <sub>30</sub> = 0.0065 mm
D <sub>60</sub> = 0.0249 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0160 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

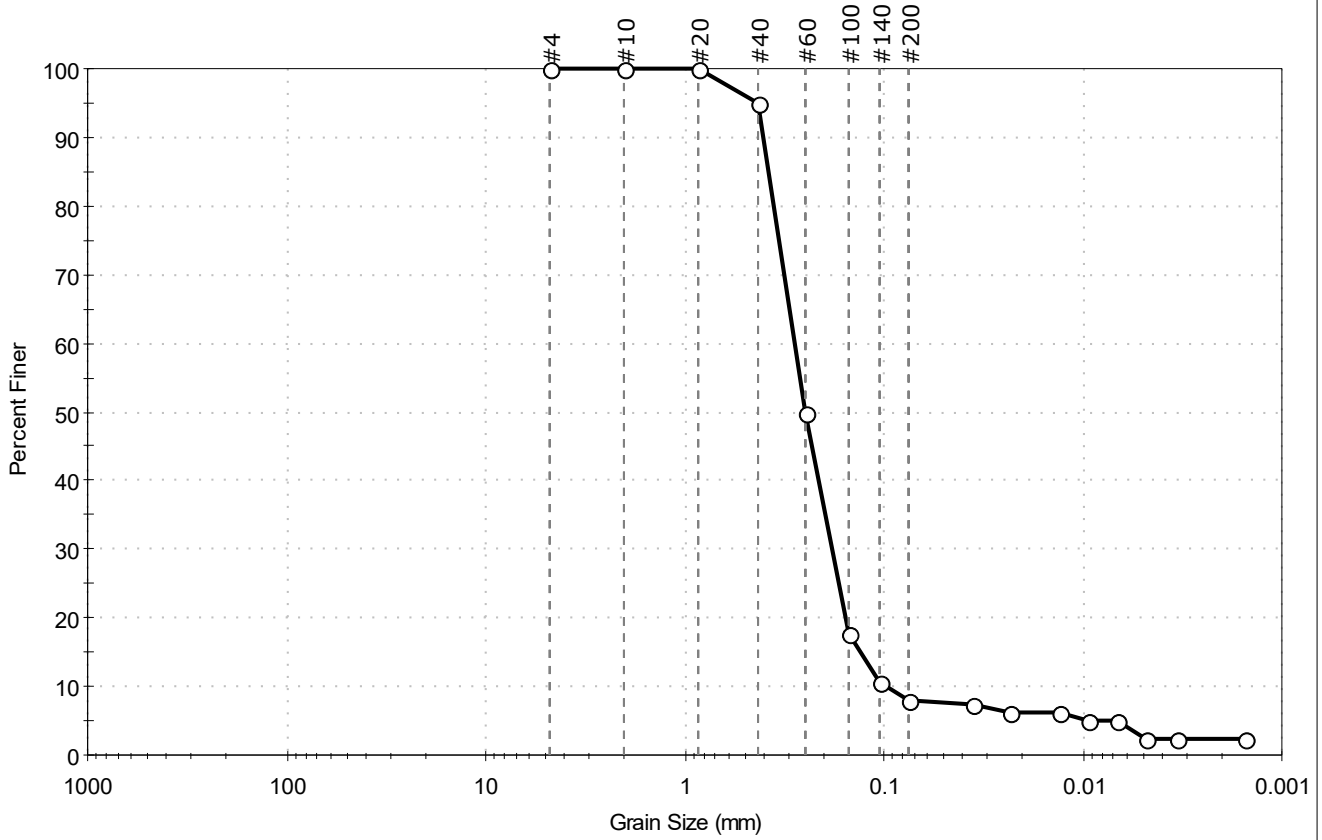
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (22))

<b>Sample/Test Description</b>
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: PDI-115SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 23-28.1-191009	Test Date: 10/29/19	Test Id: 527586	
Depth: ---	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 <sub>85</sub> = 0.3780 mm	D <sub>30</sub> = 0.1827 mm
D <sub>60</sub> = 0.2820 mm	D <sub>15</sub> = 0.1316 mm
D <sub>50</sub> = 0.2508 mm	D <sub>10</sub> = 0.0970 mm
C <sub>u</sub> = 2.907	C <sub>c</sub> = 1.220

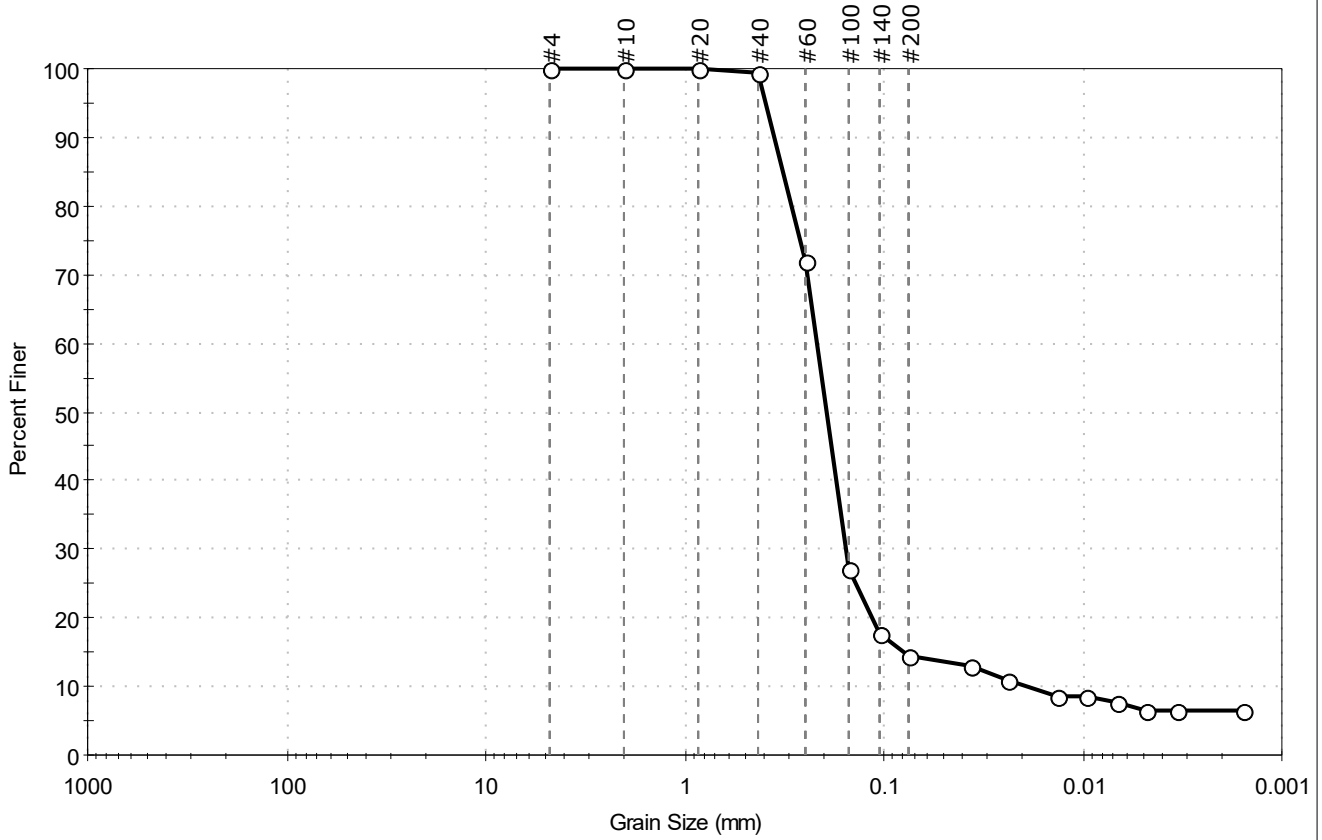
Classification	
ASTM	Poorly graded SAND with Silt (SP-SM)
AASHTO	Fine Sand (A-3 (1))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-115SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 41.5-49.3-191009	Test Date: 10/29/19	Test Id: 527587	
Depth: ---	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.3216 mm	D <sub>30</sub> = 0.1552 mm
D <sub>60</sub> = 0.2181 mm	D <sub>15</sub> = 0.0799 mm
D <sub>50</sub> = 0.1947 mm	D <sub>10</sub> = 0.0193 mm
C <sub>u</sub> = 11.301	C <sub>c</sub> = 5.722

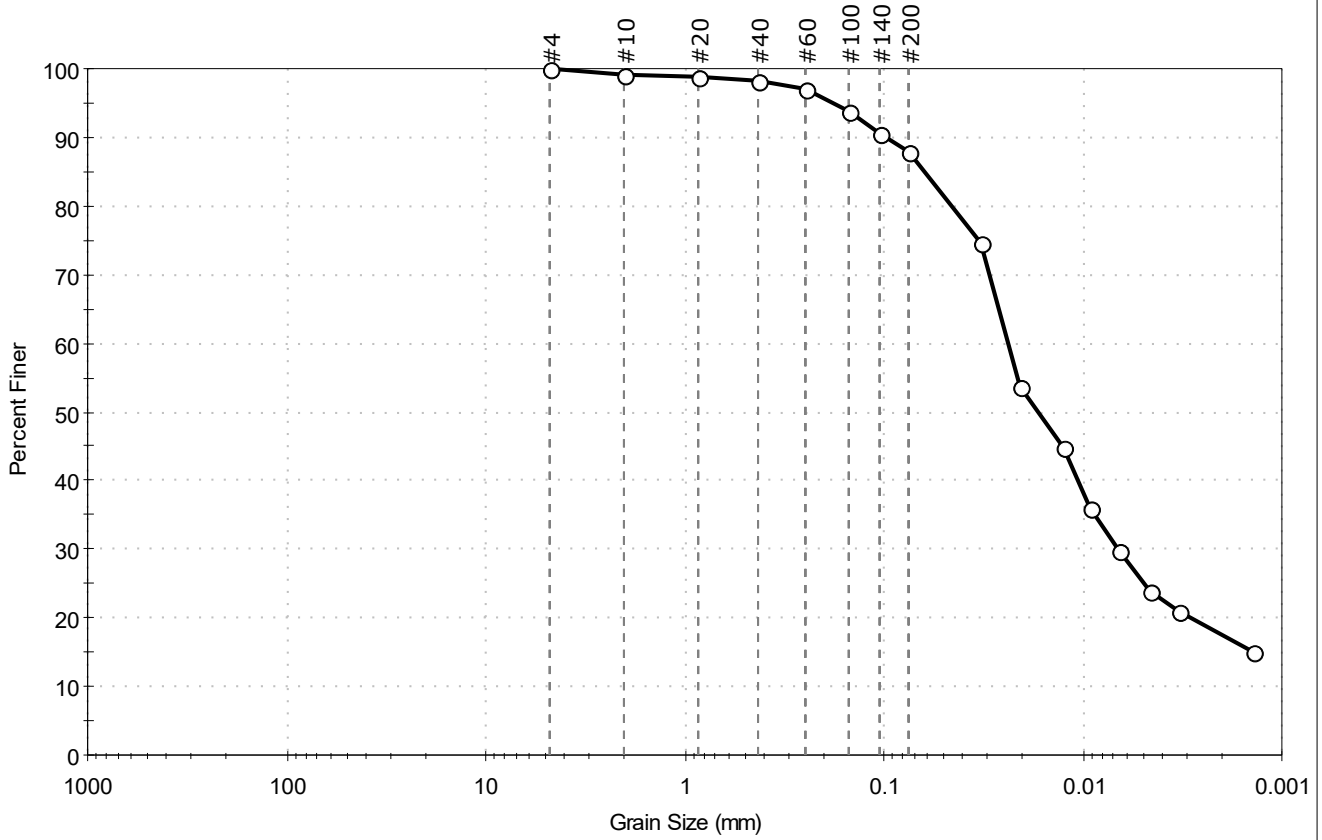
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Gravel and Sand (A-2-4 (0))

<u>Sample/Test Description</u>
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: PDI-116SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 00-4.5-190926	Test Date: 10/30/19	Test Id: 527588	
Depth: ---	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 <sub>85</sub> = 0.0627 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0238 mm	D <sub>15</sub> = 0.0014 mm
D <sub>50</sub> = 0.0169 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (40))

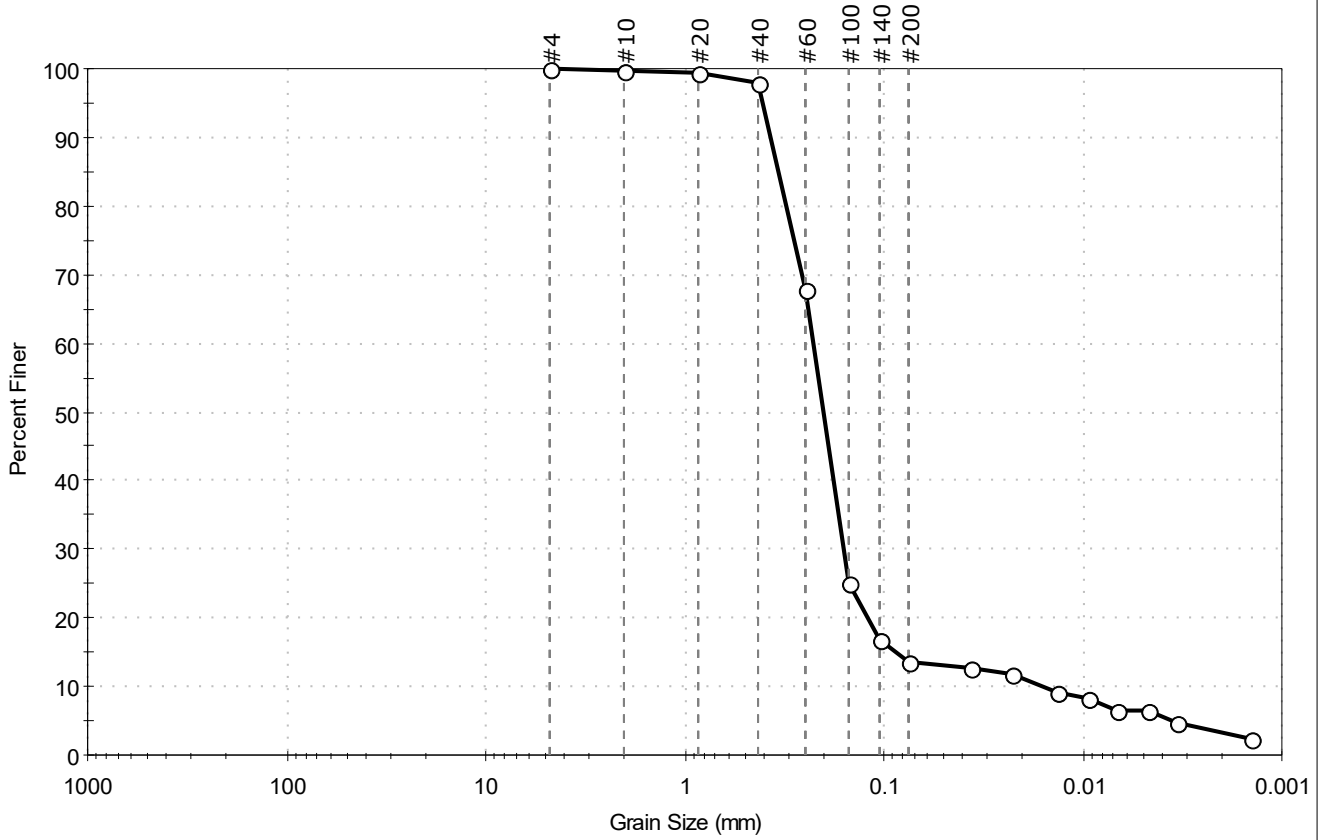
Sample/Test Description
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-116SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 20-26.7-190927	Test Date: 10/30/19	Test Id: 527589	
Depth: ---	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 <sub>85</sub> = 0.3380 mm	D <sub>30</sub> = 0.1591 mm
D <sub>60</sub> = 0.2276 mm	D <sub>15</sub> = 0.0881 mm
D <sub>50</sub> = 0.2020 mm	D <sub>10</sub> = 0.0157 mm
C <sub>u</sub> = 14.497	C <sub>c</sub> = 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

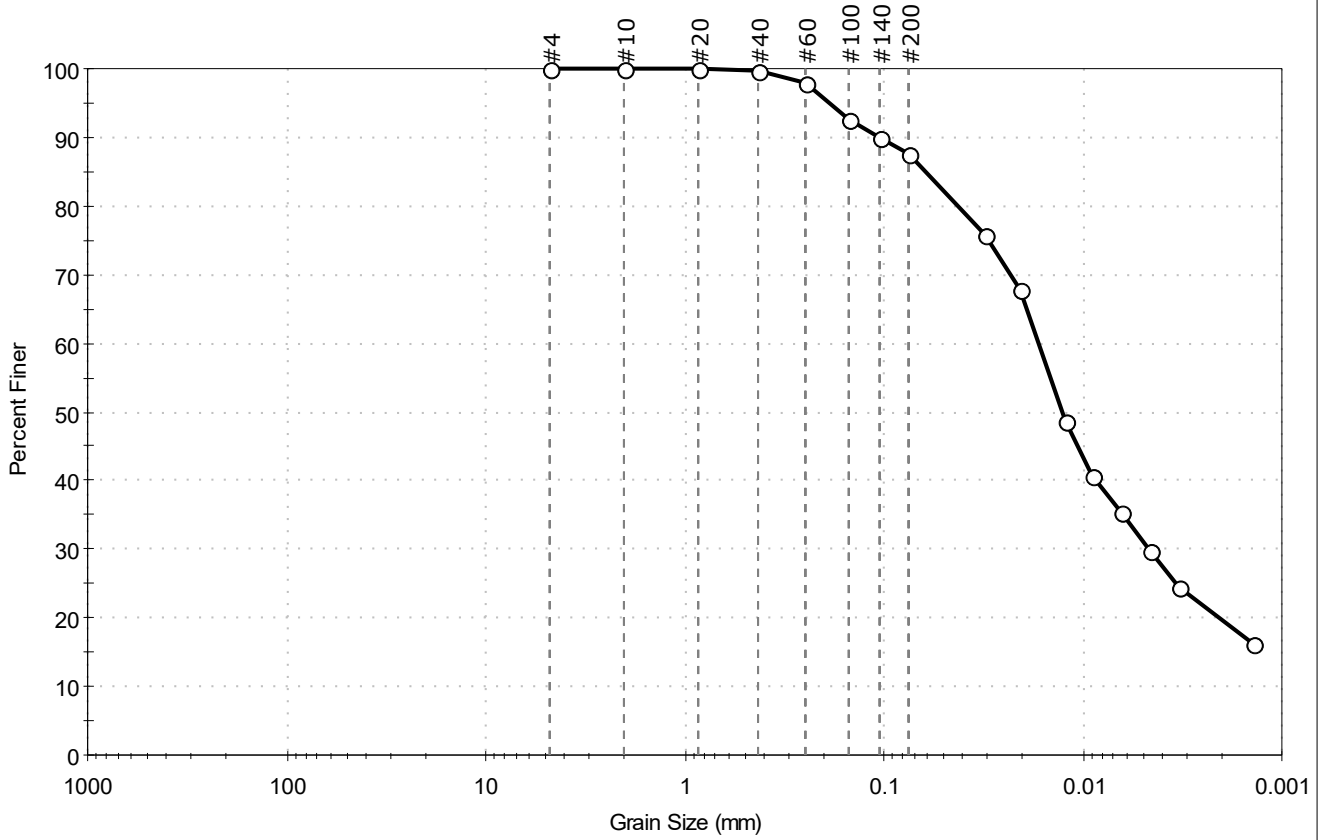
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-116SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 26.7-28.6-190926	Test Date: 10/30/19	Test Id: 527590	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0620 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0167 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0128 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

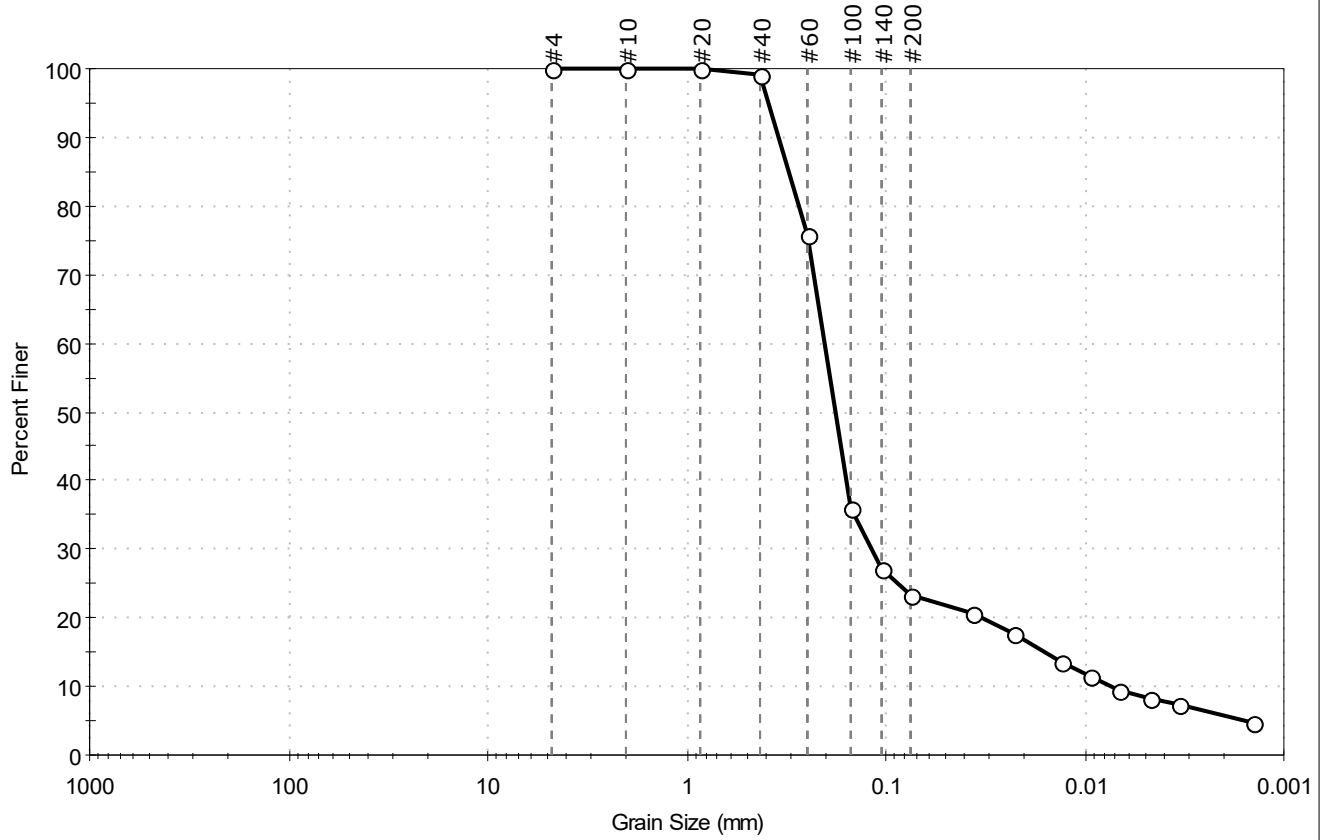
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (15))

<b>Sample/Test Description</b>
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: PDI-116SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 51.5-54.2-190927	Test Date: 10/30/19	Test Id: 527591	
Depth: ---	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 <sub>85</sub> = 0.3086 mm	D <sub>30</sub> = 0.1182 mm
D <sub>60</sub> = 0.2041 mm	D <sub>15</sub> = 0.0163 mm
D <sub>50</sub> = 0.1794 mm	D <sub>10</sub> = 0.0075 mm
C <sub>u</sub> = 27.213	C <sub>c</sub> = 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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:		
Boring ID: PDI-117SPT	Sample Type: bag	Tested By: ckg
Sample ID: 11-29.1-191002	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

<b><u>Coefficients</u></b>	
D <sub>85</sub> = N/A	D <sub>30</sub> = N/A
D <sub>60</sub> = N/A	D <sub>15</sub> = N/A
D <sub>50</sub> = N/A	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

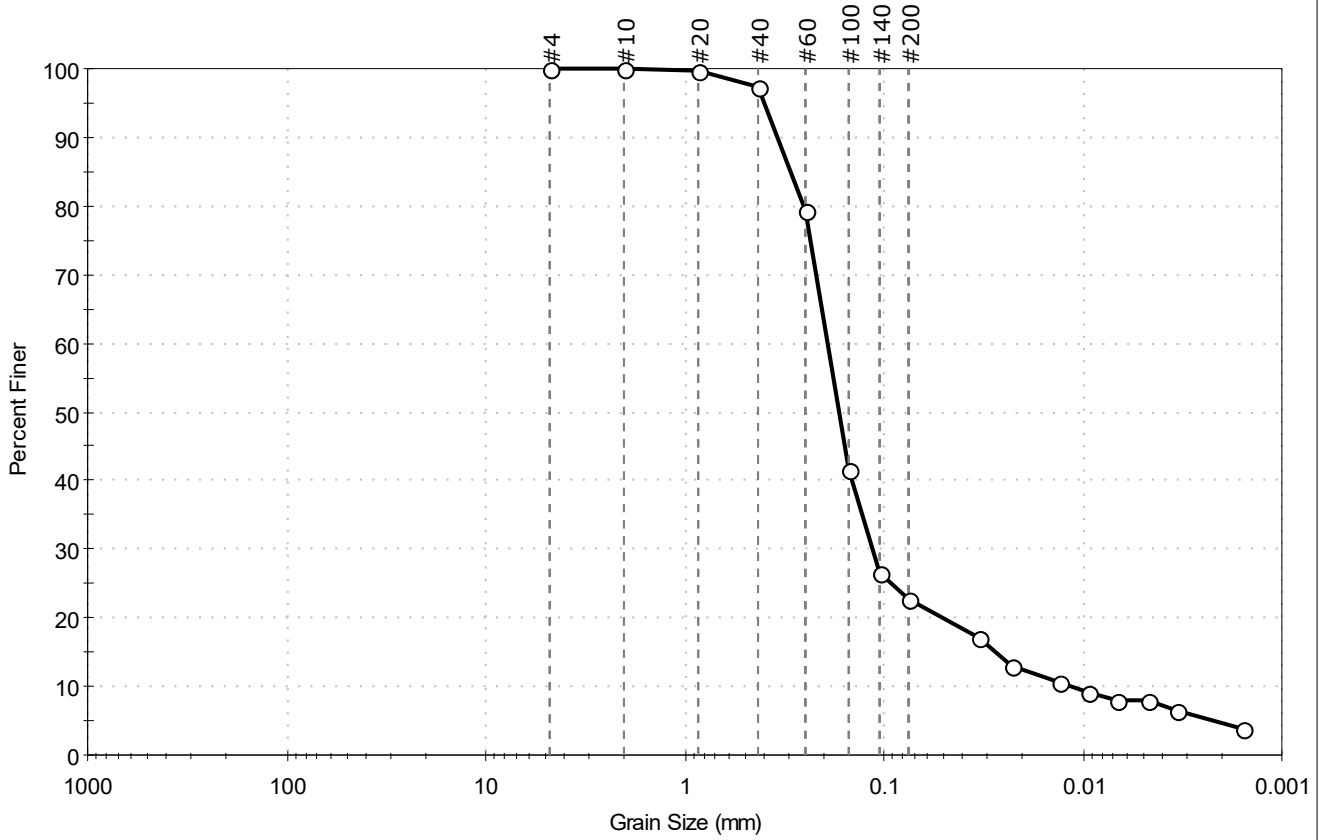
<b><u>Classification</u></b>	
<u>ASTM</u>	N/A
<u>AASHTO</u>	( )

<b><u>Sample/Test Description</u></b>



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-117SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 29.1-32-191002	Test Date: 10/24/19	Test Id: 527593	
Depth: ---	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 <sub>85</sub> = 0.2955 mm	D <sub>30</sub> = 0.1146 mm
D <sub>60</sub> = 0.1923 mm	D <sub>15</sub> = 0.0271 mm
D <sub>50</sub> = 0.1680 mm	D <sub>10</sub> = 0.0117 mm
C <sub>u</sub> = 16.436	C <sub>c</sub> = 5.837

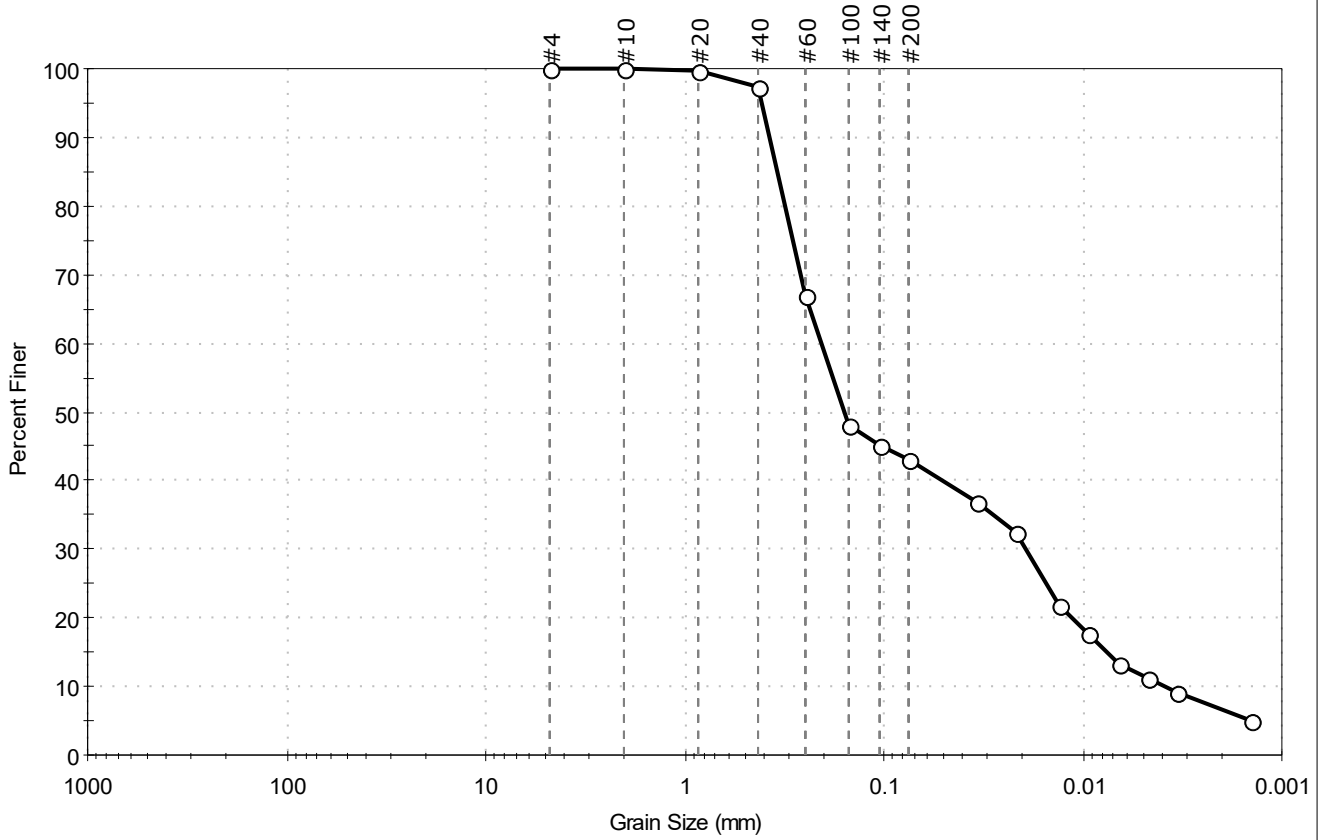
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-117SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 44.1-53.5-191002	Test Date: 10/31/19	Test Id: 527594	
Depth: ---			
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3430 mm	D <sub>30</sub> = 0.0193 mm
D <sub>60</sub> = 0.2072 mm	D <sub>15</sub> = 0.0076 mm
D <sub>50</sub> = 0.1576 mm	D <sub>10</sub> = 0.0039 mm
C <sub>u</sub> = 53.128	C <sub>c</sub> = 0.461

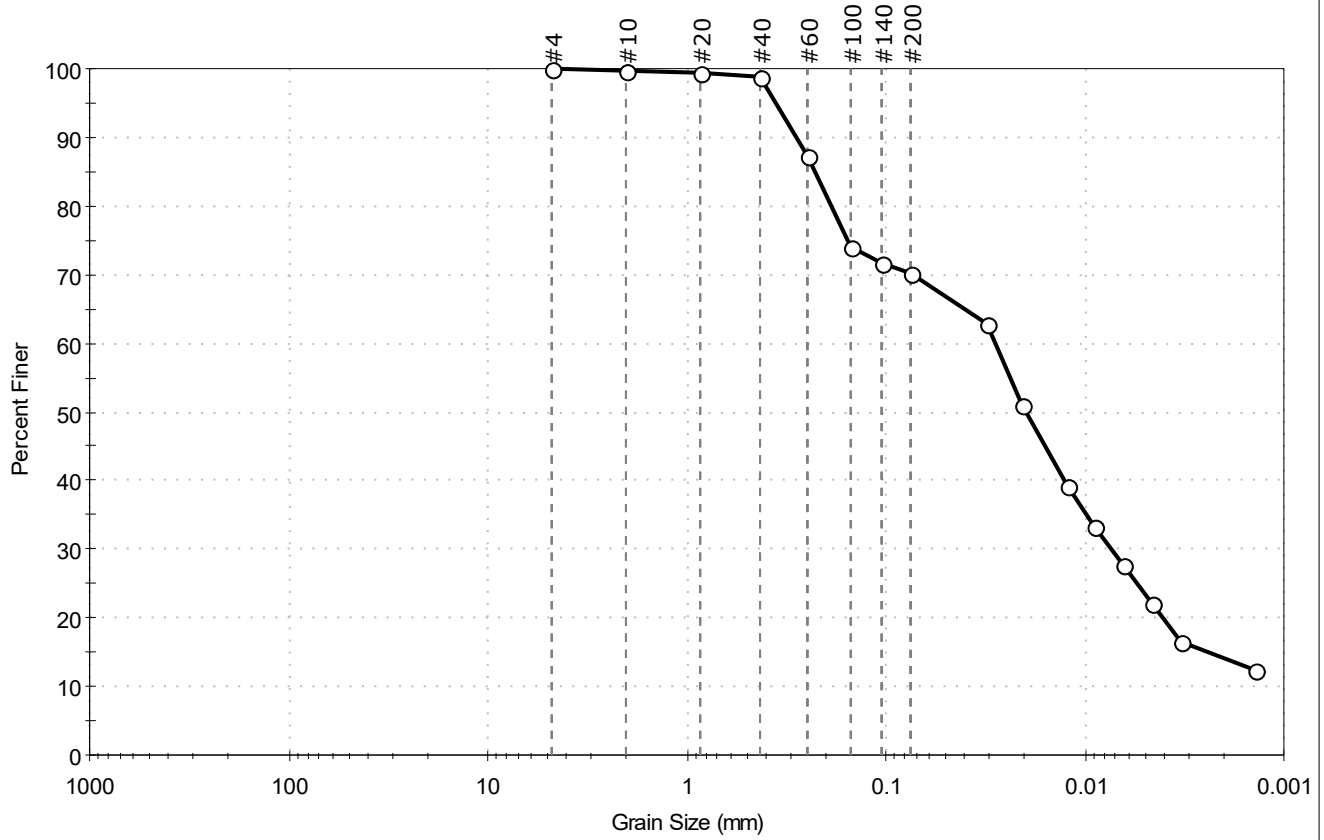
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Clayey Soils (A-7-6 (3))

<b>Sample/Test Description</b>
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: PDI-117SPT Sample Type: bag Tested By: ckg  
 Sample ID: 53.5-63.5-191002 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.2293 mm	D <sub>30</sub> = 0.0073 mm
D <sub>60</sub> = 0.0281 mm	D <sub>15</sub> = 0.0024 mm
D <sub>50</sub> = 0.0196 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

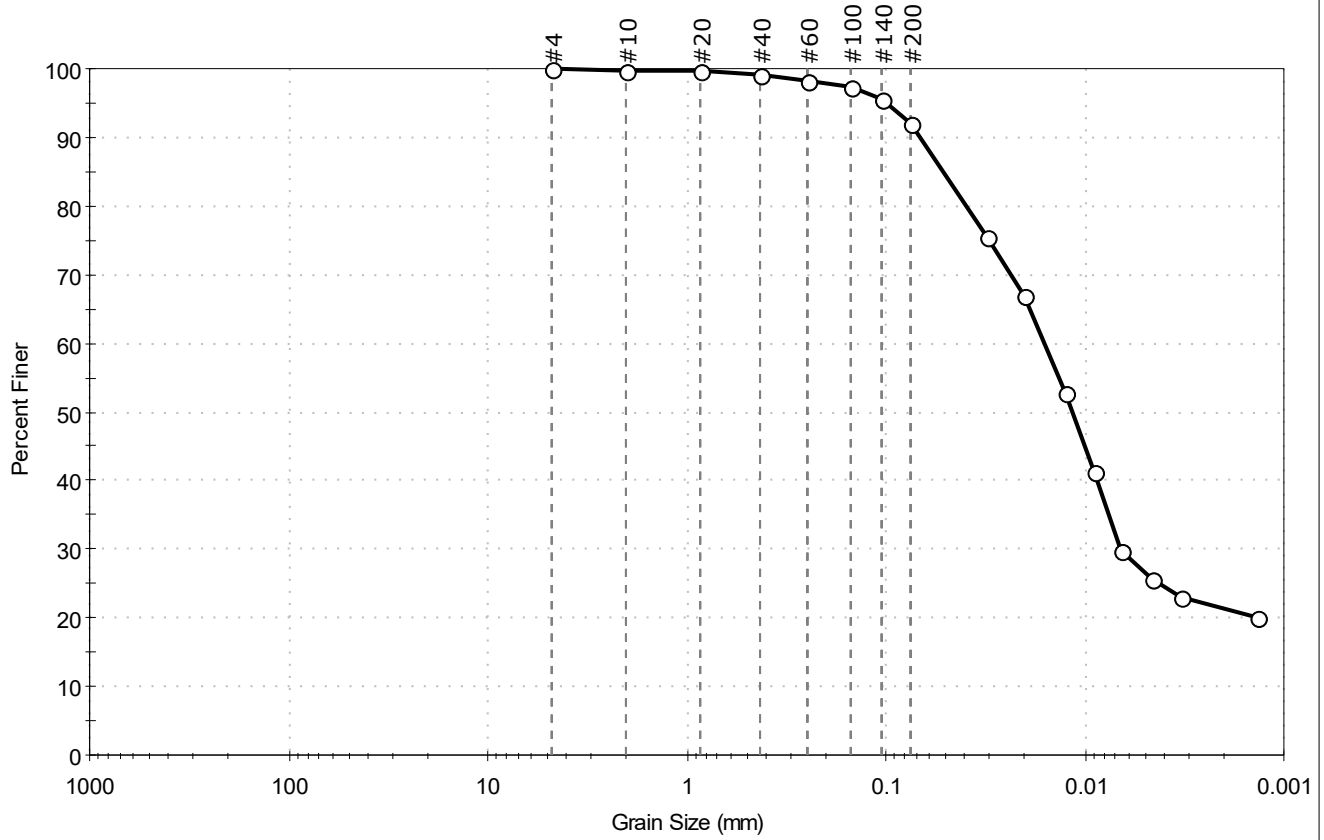
<b>Classification</b>	
<b>ASTM</b>	SILT with Sand (ML)
<b>AASHTO</b>	Clayey Soils (A-7-5 (9))

<b>Sample/Test Description</b>
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: PDI-118SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 00-4.5-191014	Test Date: 10/24/19	Test Id: 527596	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0518 mm	D <sub>30</sub> = 0.0066 mm
D <sub>60</sub> = 0.0161 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0116 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<u>ASTM</u>	Elastic SILT (MH)
<u>AASHTO</u>	Clayey Soils (A-7-5 (37))

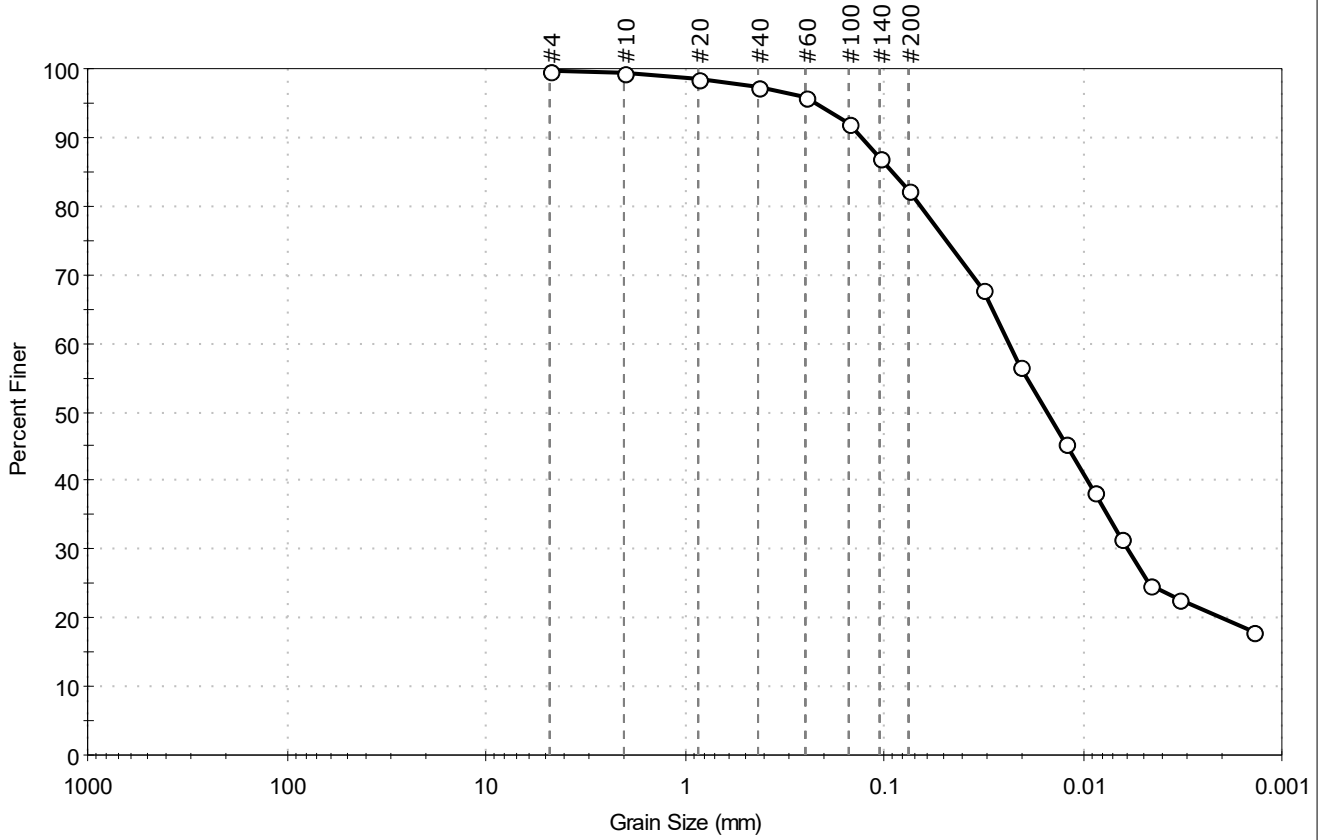
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: \_\_\_\_\_ Project No: GTX-310685  
 Boring ID: PDI-118SPT Sample Type: bag Tested By: ckg  
 Sample ID: 4.5-15-191014 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0914 mm	D <sub>30</sub> = 0.0059 mm
D <sub>60</sub> = 0.0234 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0152 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

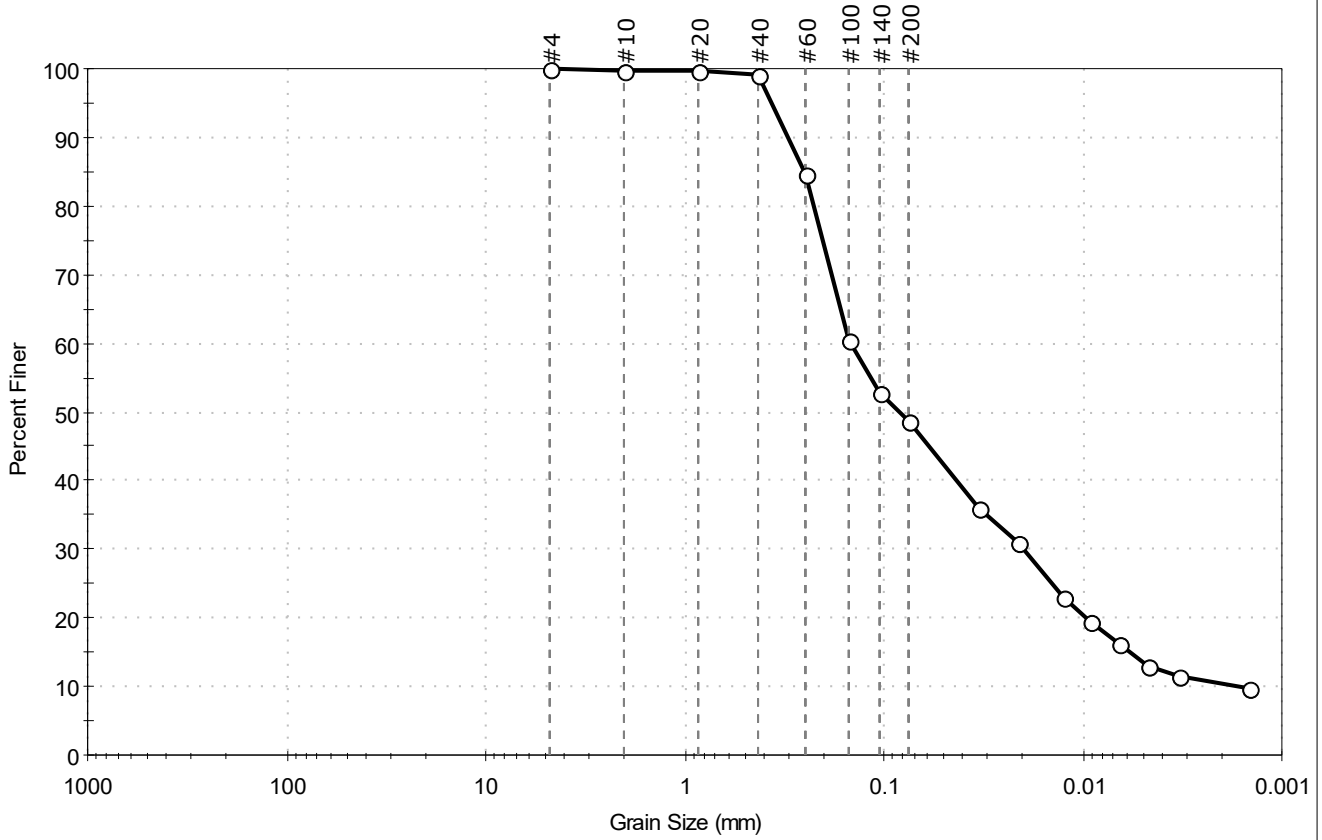
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (34))

<b>Sample/Test Description</b>
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: PDI-118SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 46.5-61-191014	Test Date: 10/24/19	Test Id: 527598	
Depth: ---	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 <sub>85</sub> = 0.2537 mm	D <sub>30</sub> = 0.0197 mm
D <sub>60</sub> = 0.1474 mm	D <sub>15</sub> = 0.0057 mm
D <sub>50</sub> = 0.0832 mm	D <sub>10</sub> = 0.0016 mm
C <sub>u</sub> = 92.125	C <sub>c</sub> = 1.646

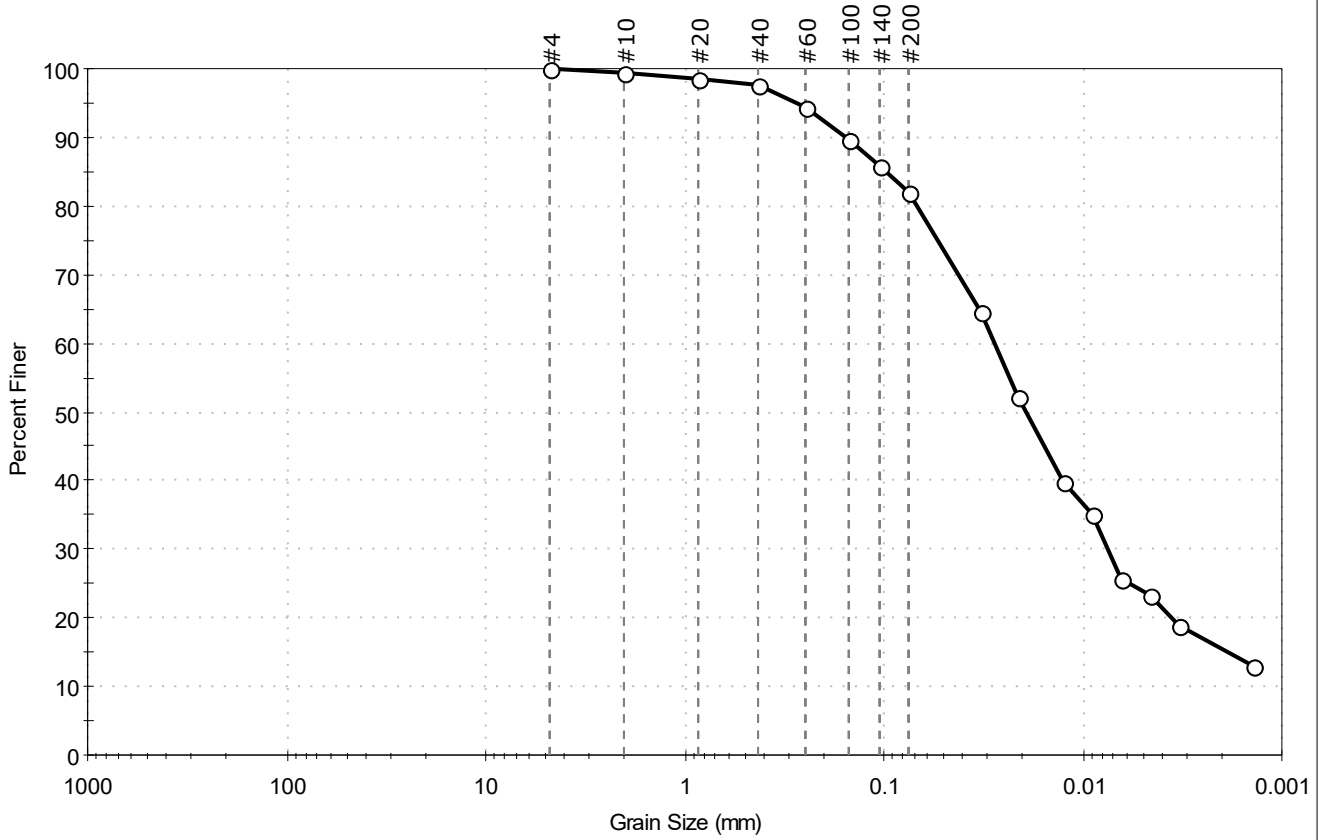
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Soils (A-4 (1))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-119SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 00-4.5-191001	Test Date: 10/25/19	Test Id: 527599	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0981 mm	D <sub>30</sub> = 0.0075 mm
D <sub>60</sub> = 0.0279 mm	D <sub>15</sub> = 0.0019 mm
D <sub>50</sub> = 0.0191 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

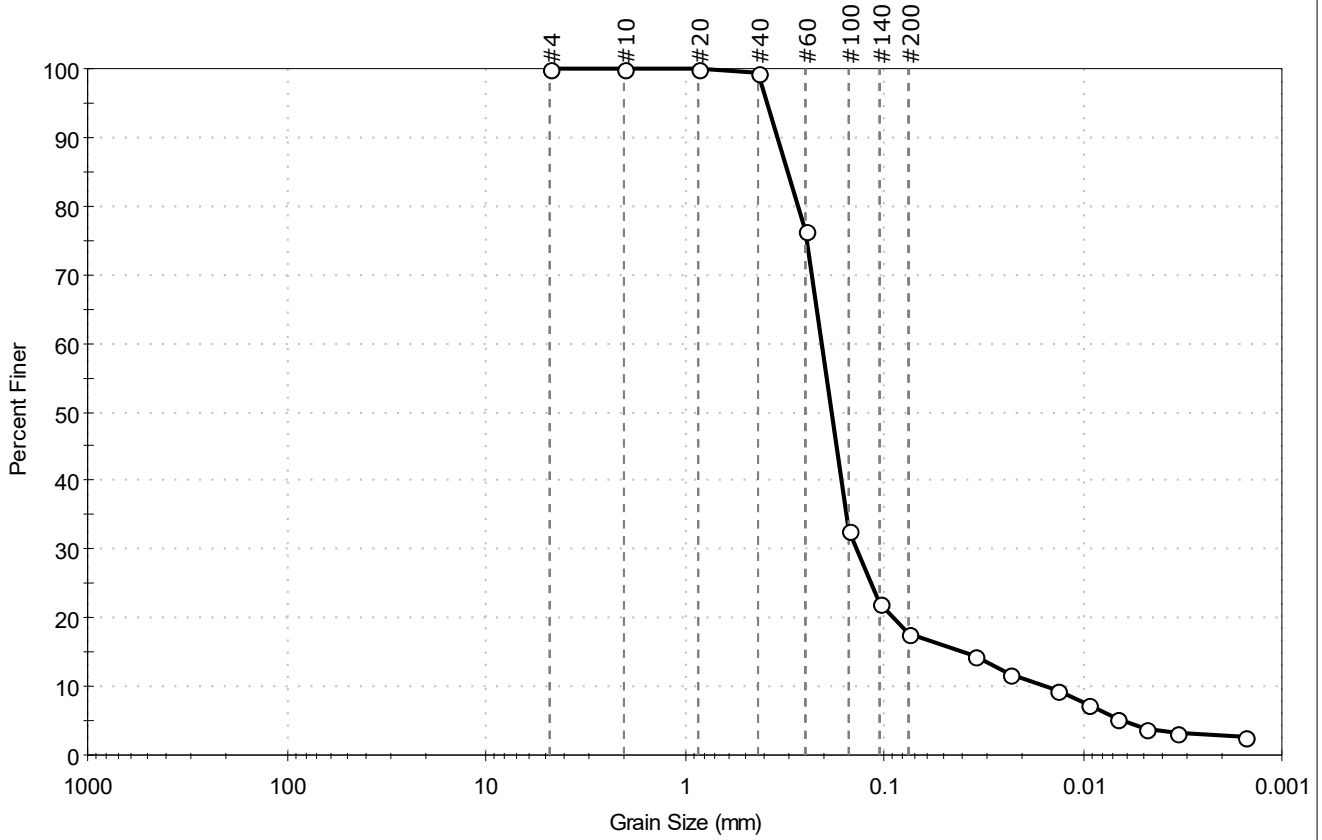
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT with Sand (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (37))

<b>Sample/Test Description</b>	
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: PDI-119SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 18.3-31-191001	Test Date: 10/29/19	Test Id: 527600	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3051 mm	D <sub>30</sub> = 0.1369 mm
D <sub>60</sub> = 0.2063 mm	D <sub>15</sub> = 0.0393 mm
D <sub>50</sub> = 0.1835 mm	D <sub>10</sub> = 0.0149 mm
C <sub>u</sub> = 13.846	C <sub>c</sub> = 6.097

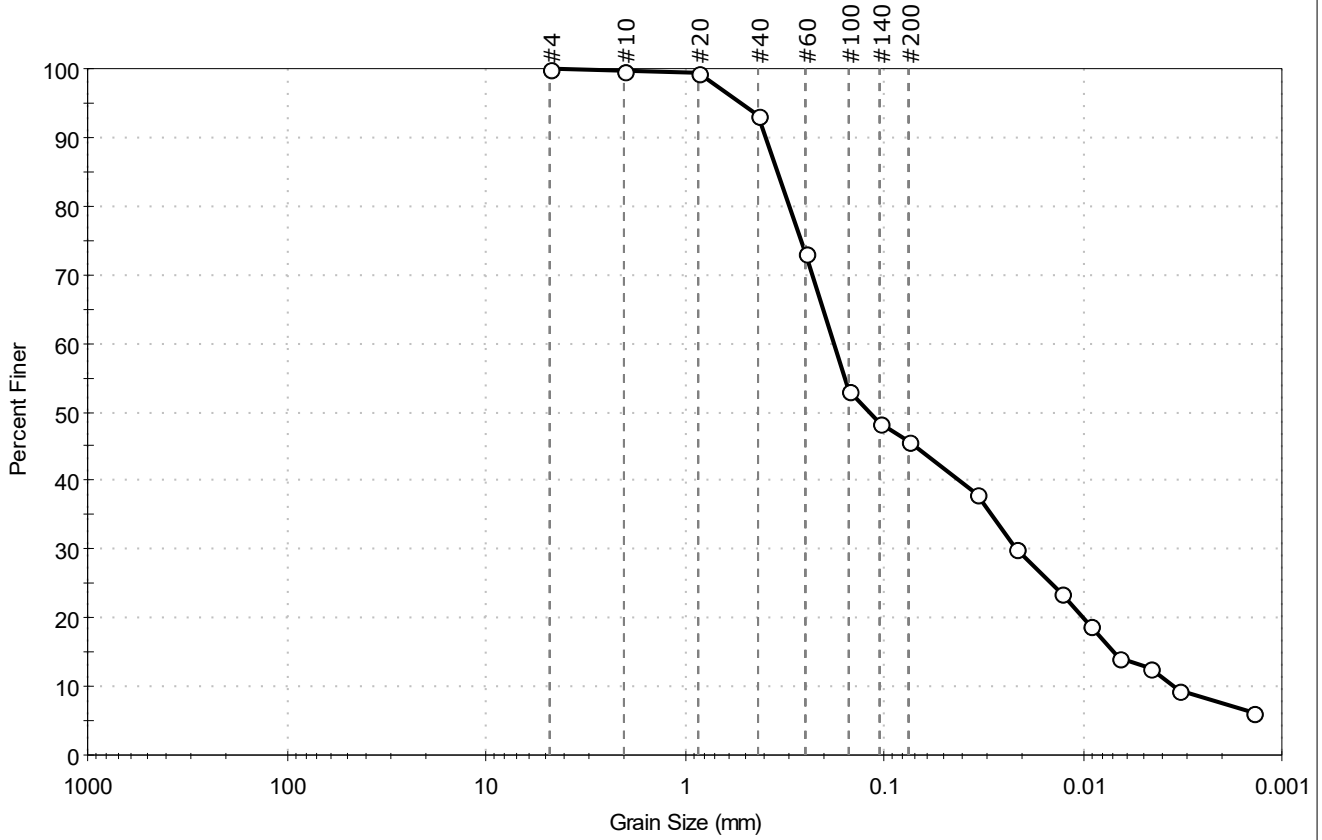
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: PDI-119SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 47-52-191001	Test Date: 10/25/19	Test Id: 527601	
Depth: ---	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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.3420 mm	D <sub>30</sub> = 0.0214 mm
D <sub>60</sub> = 0.1784 mm	D <sub>15</sub> = 0.0069 mm
D <sub>50</sub> = 0.1186 mm	D <sub>10</sub> = 0.0035 mm
C <sub>u</sub> = 50.971	C <sub>c</sub> = 0.733

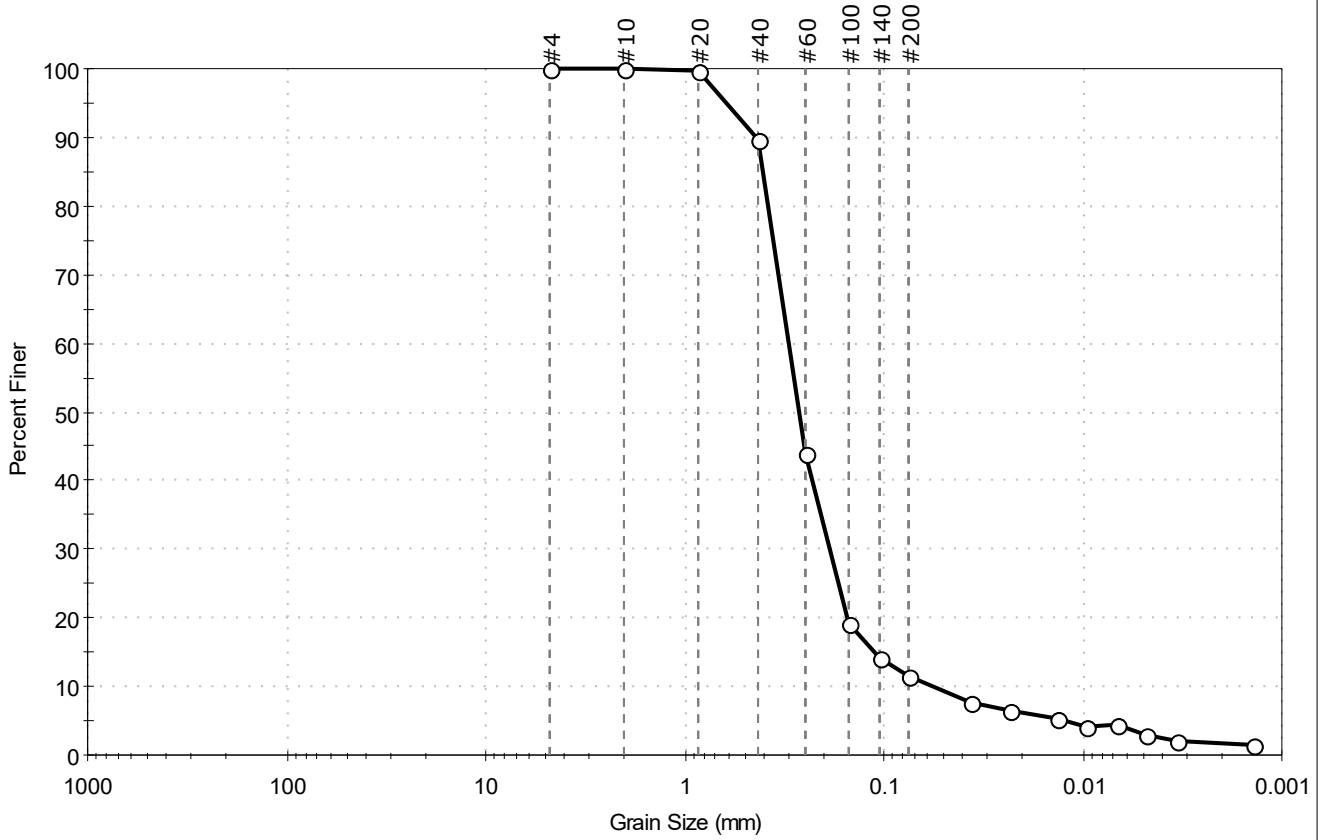
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Silty Soils (A-4 (1))

<u>Sample/Test Description</u>
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 No: GTX-310685
Project: Gasco PDI	
Location:	
Boring ID: PDI-119SPT	Sample Type: bag
Sample ID: 9.5-18.3-191001	Test Date: 10/25/19
Depth: ---	Test Id: 527602
Test Comment: ---	Tested By: ckg
Visual Description: Moist, dark grayish brown sand with silt	Checked By: bfs
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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.4029 mm	D <sub>30</sub> = 0.1875 mm
D <sub>60</sub> = 0.3010 mm	D <sub>15</sub> = 0.1128 mm
D <sub>50</sub> = 0.2679 mm	D <sub>10</sub> = 0.0555 mm
C <sub>u</sub> = 5.423	C <sub>c</sub> = 2.104

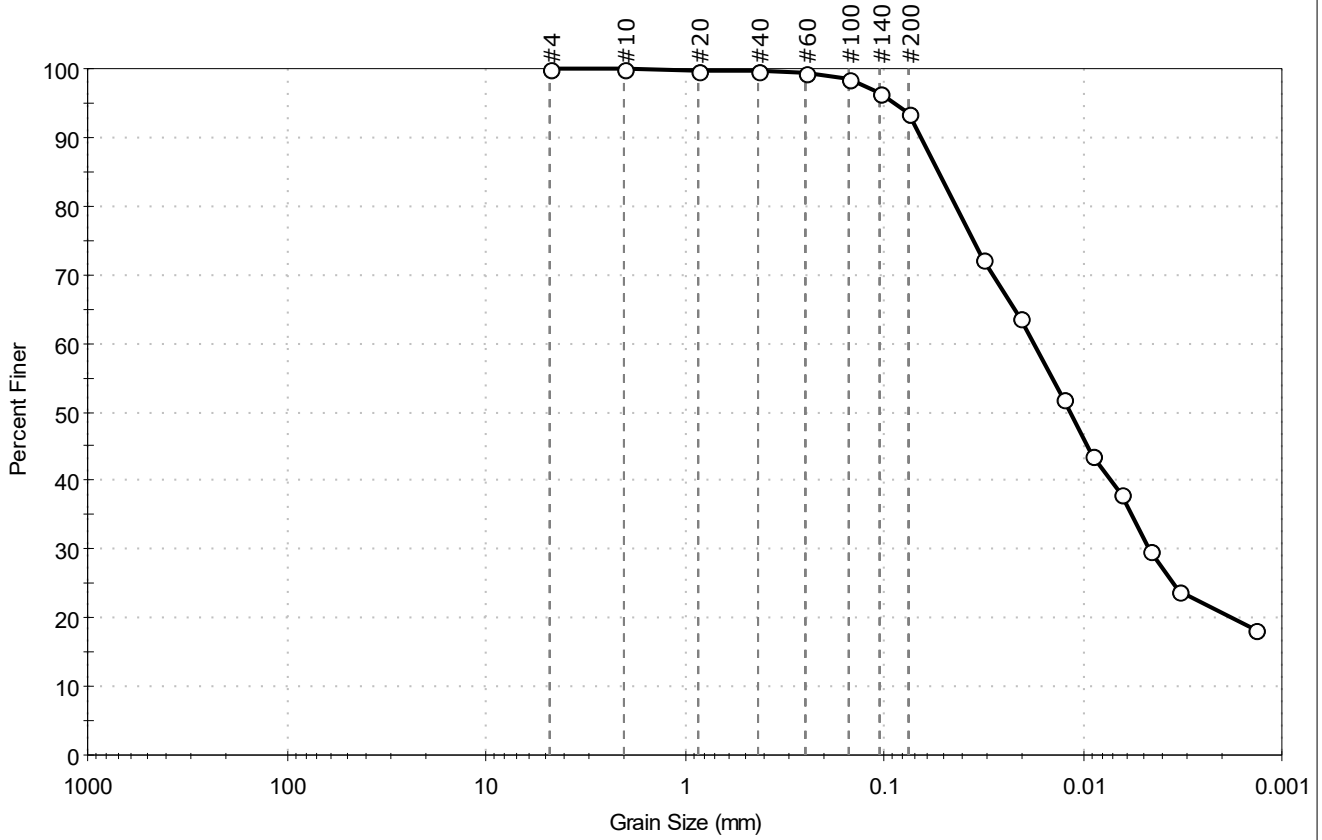
<b>Classification</b>	
<b>ASTM</b>	Poorly graded SAND with Silt (SP-SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>	
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: PDI-121SPT Sample Type: bag Tested By: ckg  
 Sample ID: 00-06-190930 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0532 mm	D <sub>30</sub> = 0.0046 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0115 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

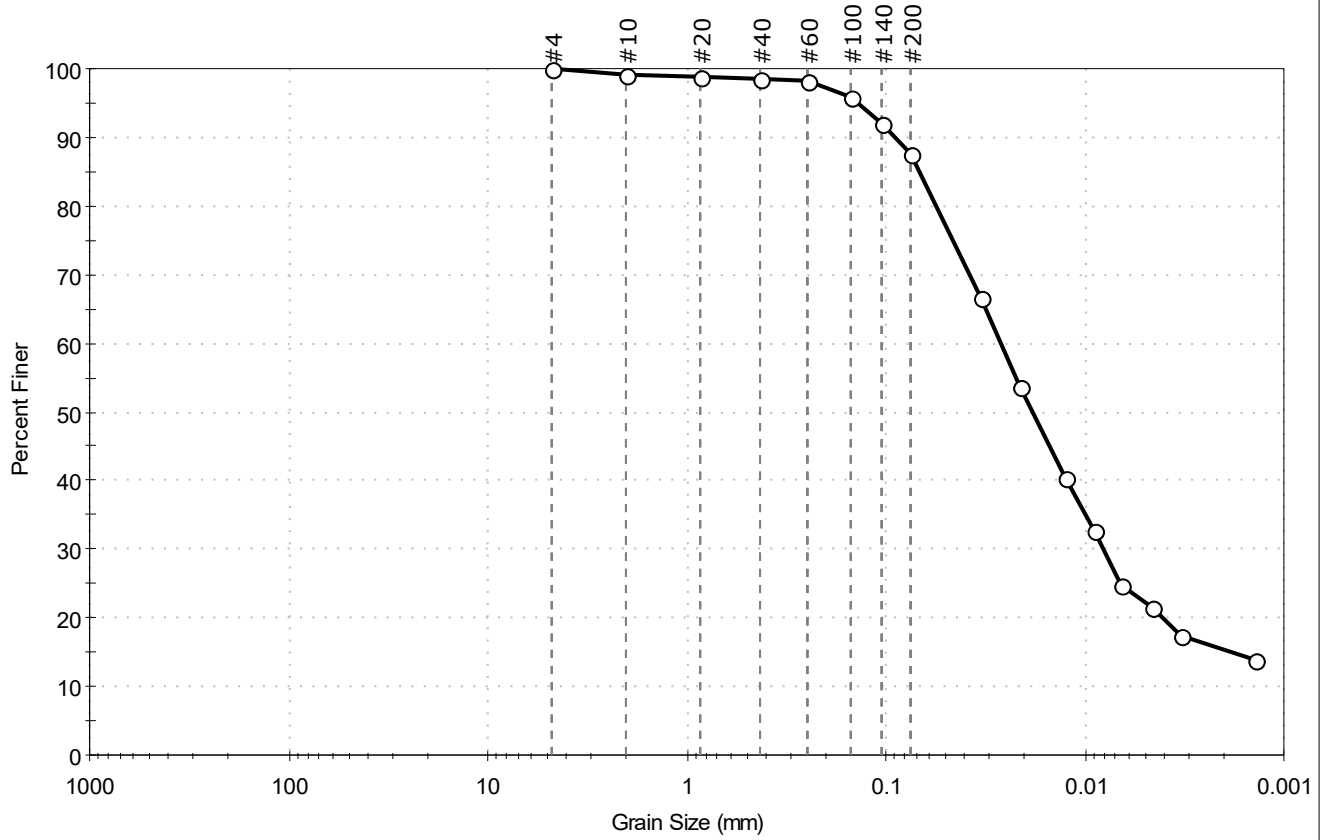
<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (38))

<b>Sample/Test Description</b>
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: PDI-121SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 11-20.7-190930	Test Date: 10/30/19	Test Id: 527604	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0679 mm	D <sub>30</sub> = 0.0081 mm
D <sub>60</sub> = 0.0264 mm	D <sub>15</sub> = 0.0018 mm
D <sub>50</sub> = 0.0184 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	Elastic SILT (MH)
<b>AASHTO</b>	Clayey Soils (A-7-5 (26))

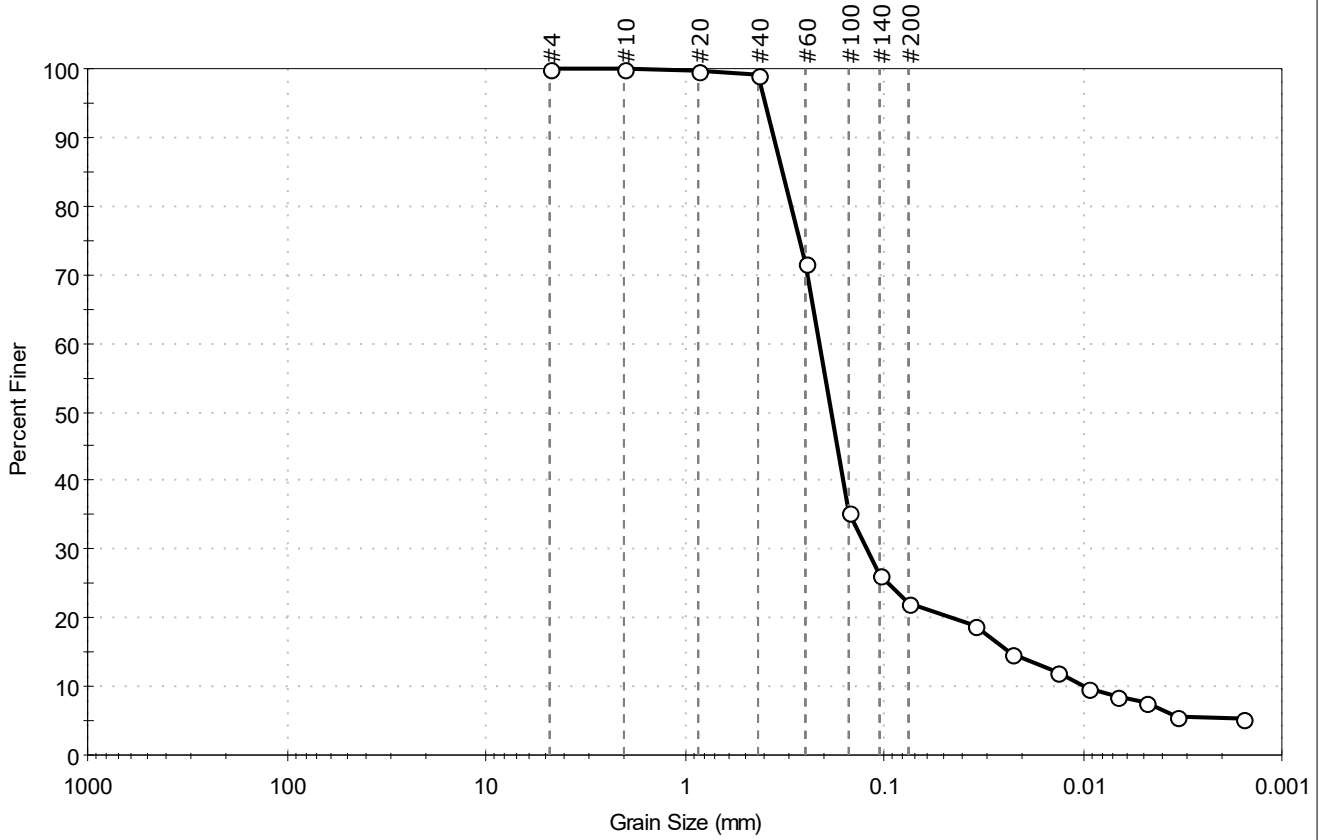
<b>Sample/Test Description</b>	
Sand/Gravel Particle Shape : ---	
Sand/Gravel Hardness : ---	
Dispersion Device : Apparatus A - Mech Mixer	
Dispersion Period : 1 minute	
Est. Specific Gravity : 2.65	
Separation of Sample: #200 Sieve	





Client: Anchor QEA, LLC  
 Project: Gasco PDI  
 Location: Project No: GTX-310685  
 Boring ID: PDI-121SPT Sample Type: bag Tested By: ckg  
 Sample ID: 21-38-190930 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	0.425	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 <sub>85</sub> = 0.3231 mm	D <sub>30</sub> = 0.1227 mm
D <sub>60</sub> = 0.2122 mm	D <sub>15</sub> = 0.0231 mm
D <sub>50</sub> = 0.1844 mm	D <sub>10</sub> = 0.0098 mm
C <sub>u</sub> = 21.653	C <sub>c</sub> = 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

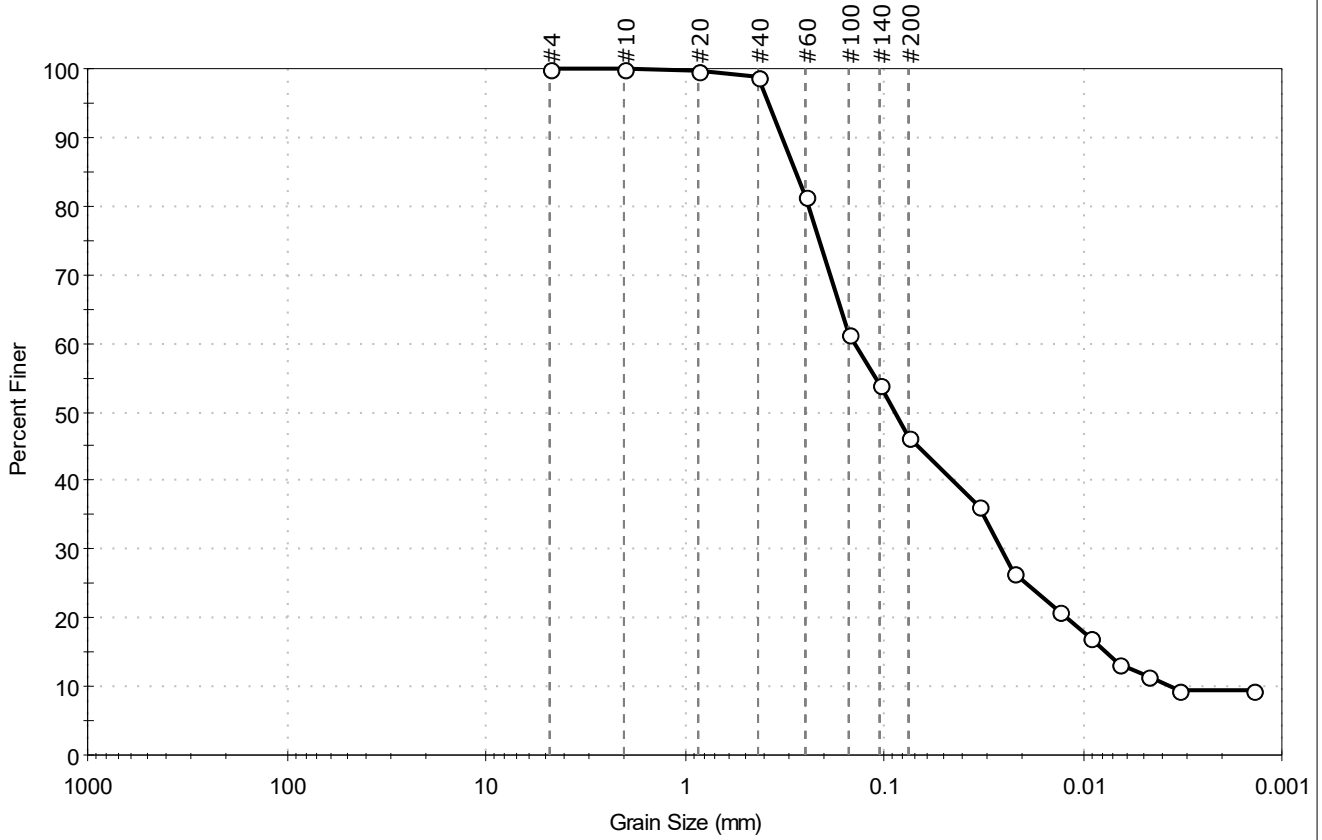
Est. Specific Gravity : 2.65

Separation of Sample: #200 Sieve



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-121SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 49.4-54-190930	Test Date: 10/25/19	Test Id: 527606	
Depth: ---			
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		

<u>Coefficients</u>	
D <sub>85</sub> = 0.2788 mm	D <sub>30</sub> = 0.0256 mm
D <sub>60</sub> = 0.1404 mm	D <sub>15</sub> = 0.0077 mm
D <sub>50</sub> = 0.0886 mm	D <sub>10</sub> = 0.0036 mm
C <sub>u</sub> = 39.000	C <sub>c</sub> = 1.297

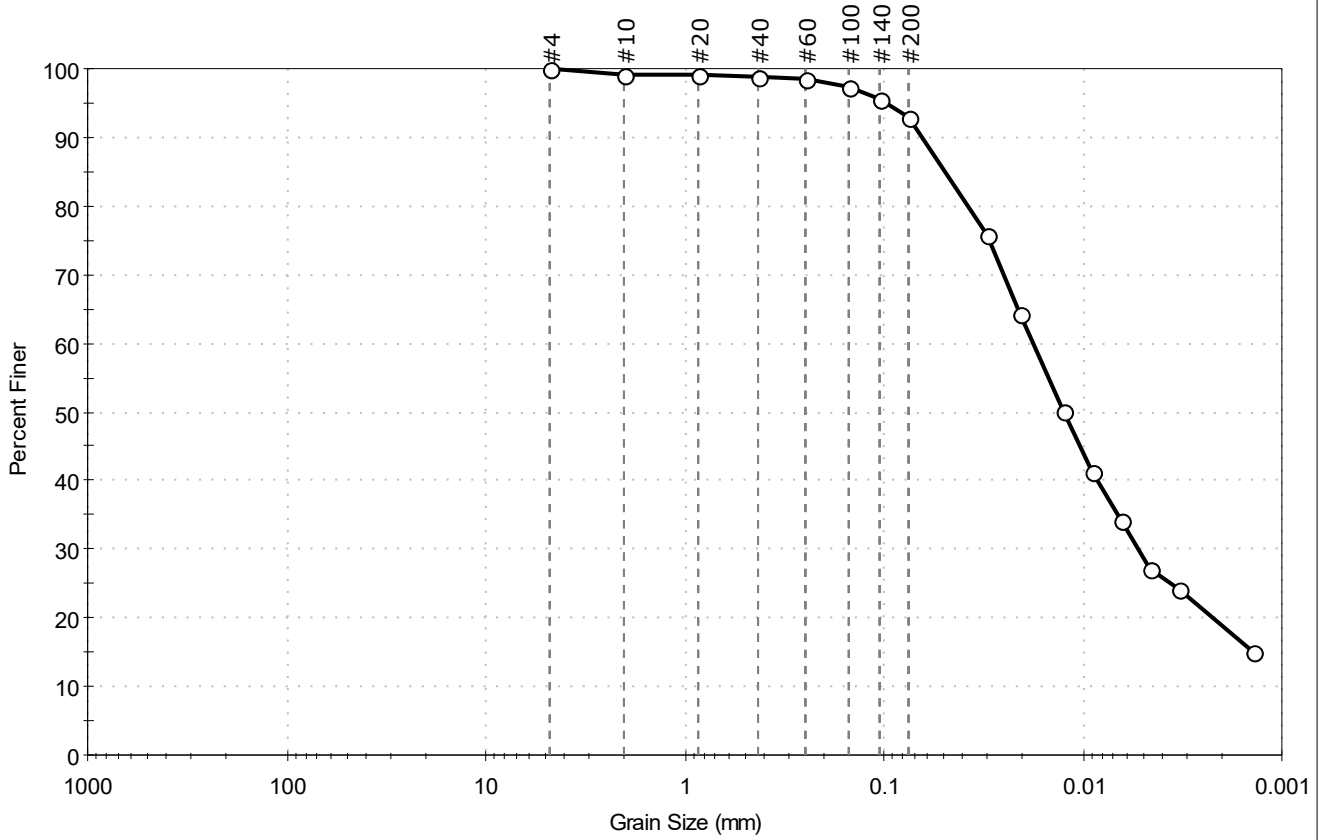
<u>Classification</u>	
<u>ASTM</u>	Silty SAND (SM)
<u>AASHTO</u>	Clayey Soils (A-7-5 (3))

<u>Sample/Test Description</u>	
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: PDI-122SPT	Sample Type: bag	Tested By: ckg	
Sample ID: 04-09-190925	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 <sub>85</sub> = 0.0494 mm	D <sub>30</sub> = 0.0053 mm
D <sub>60</sub> = 0.0178 mm	D <sub>15</sub> = N/A
D <sub>50</sub> = 0.0124 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

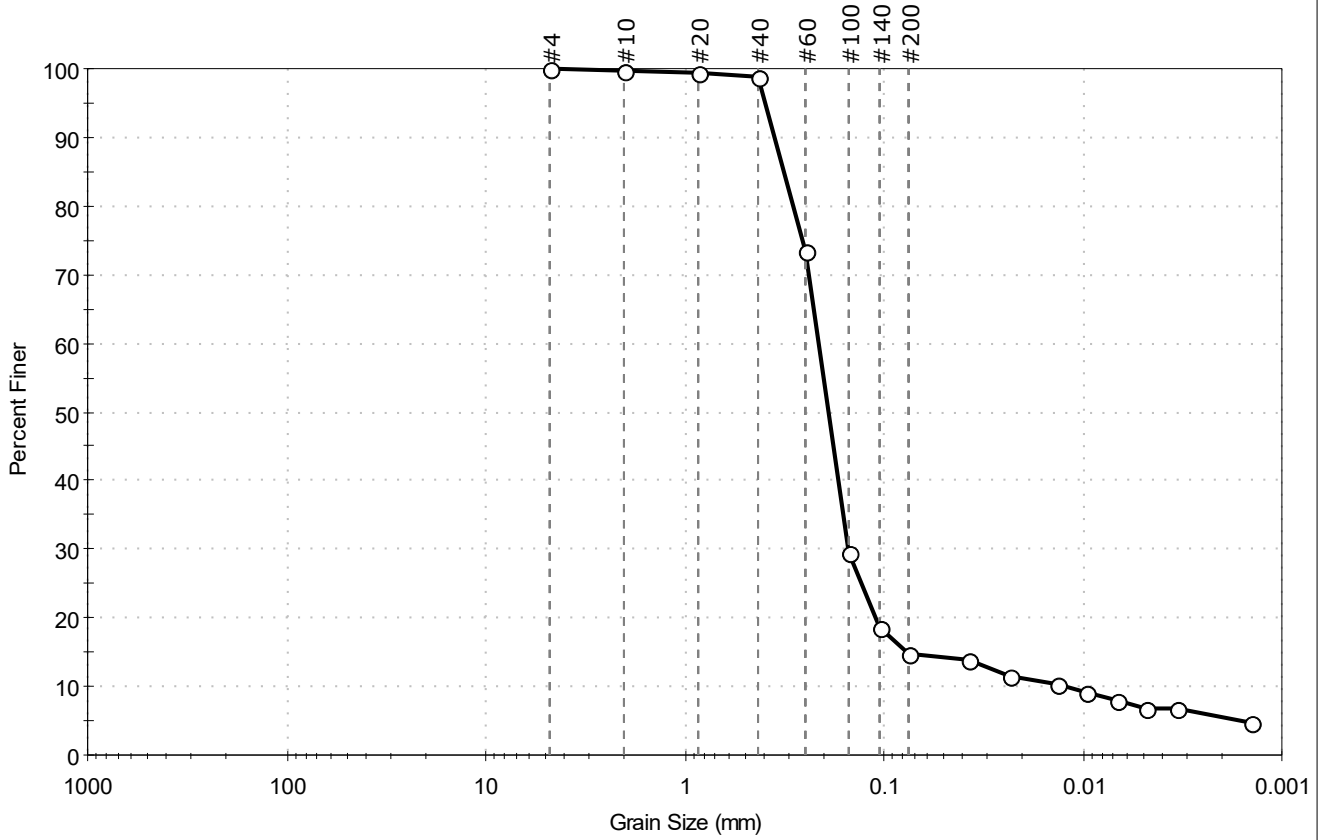
Classification	
ASTM	Elastic SILT (MH)
AASHTO	Clayey Soils (A-7-5 (40))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-122SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 16.6-24-190925	Test Date: 11/07/19	Test Id: 527608	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.3182 mm	D <sub>30</sub> = 0.1506 mm
D <sub>60</sub> = 0.2136 mm	D <sub>15</sub> = 0.0767 mm
D <sub>50</sub> = 0.1901 mm	D <sub>10</sub> = 0.0120 mm
C <sub>u</sub> = 17.800	C <sub>c</sub> = 8.848

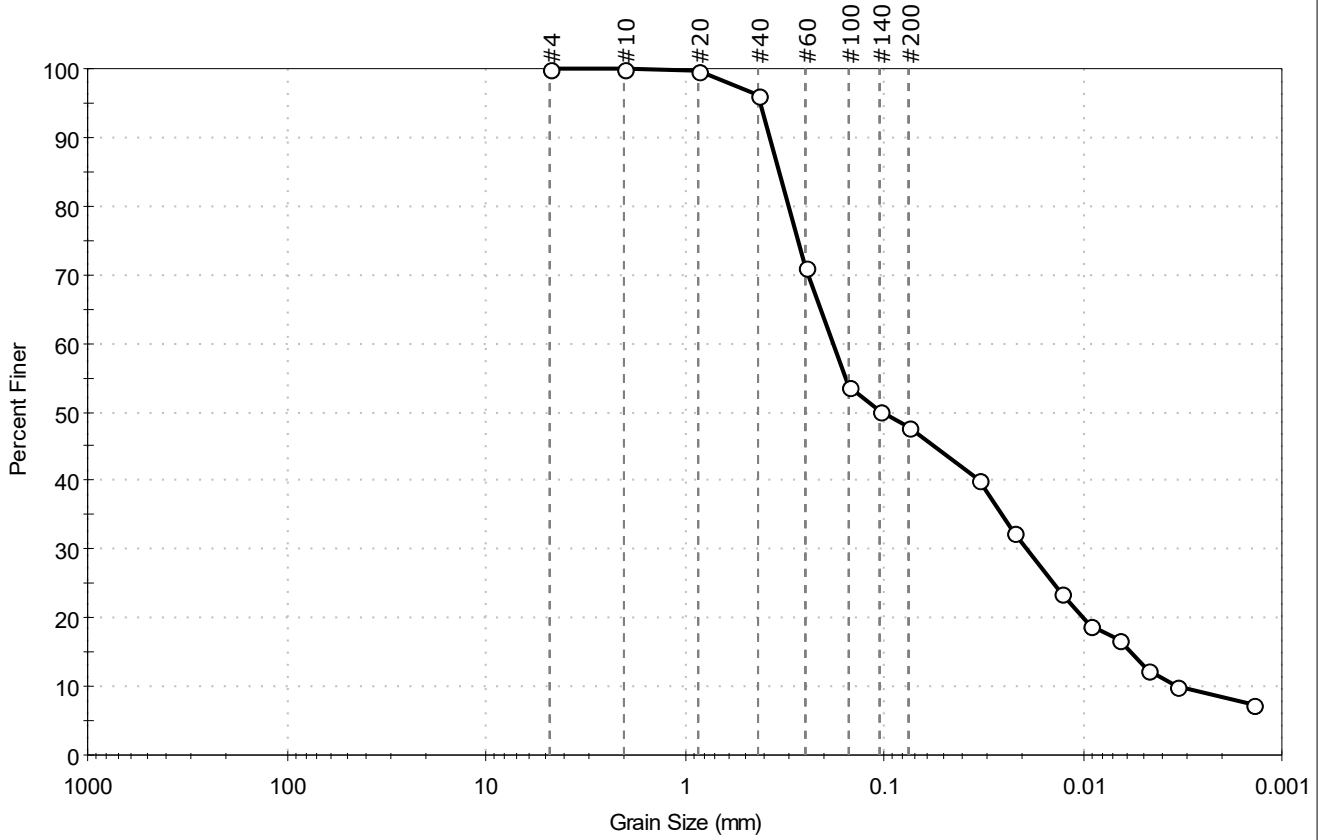
<b>Classification</b>	
<b>ASTM</b>	Silty SAND (SM)
<b>AASHTO</b>	Silty Gravel and Sand (A-2-4 (0))

<b>Sample/Test Description</b>
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: PDI-122SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 61-66-190926	Test Date: 10/30/19	Test Id: 527609	
Depth: ---	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 <sub>85</sub> = 0.3352 mm	D <sub>30</sub> = 0.0192 mm
D <sub>60</sub> = 0.1803 mm	D <sub>15</sub> = 0.0058 mm
D <sub>50</sub> = 0.1049 mm	D <sub>10</sub> = 0.0033 mm
C <sub>u</sub> = 54.636	C <sub>c</sub> = 0.620

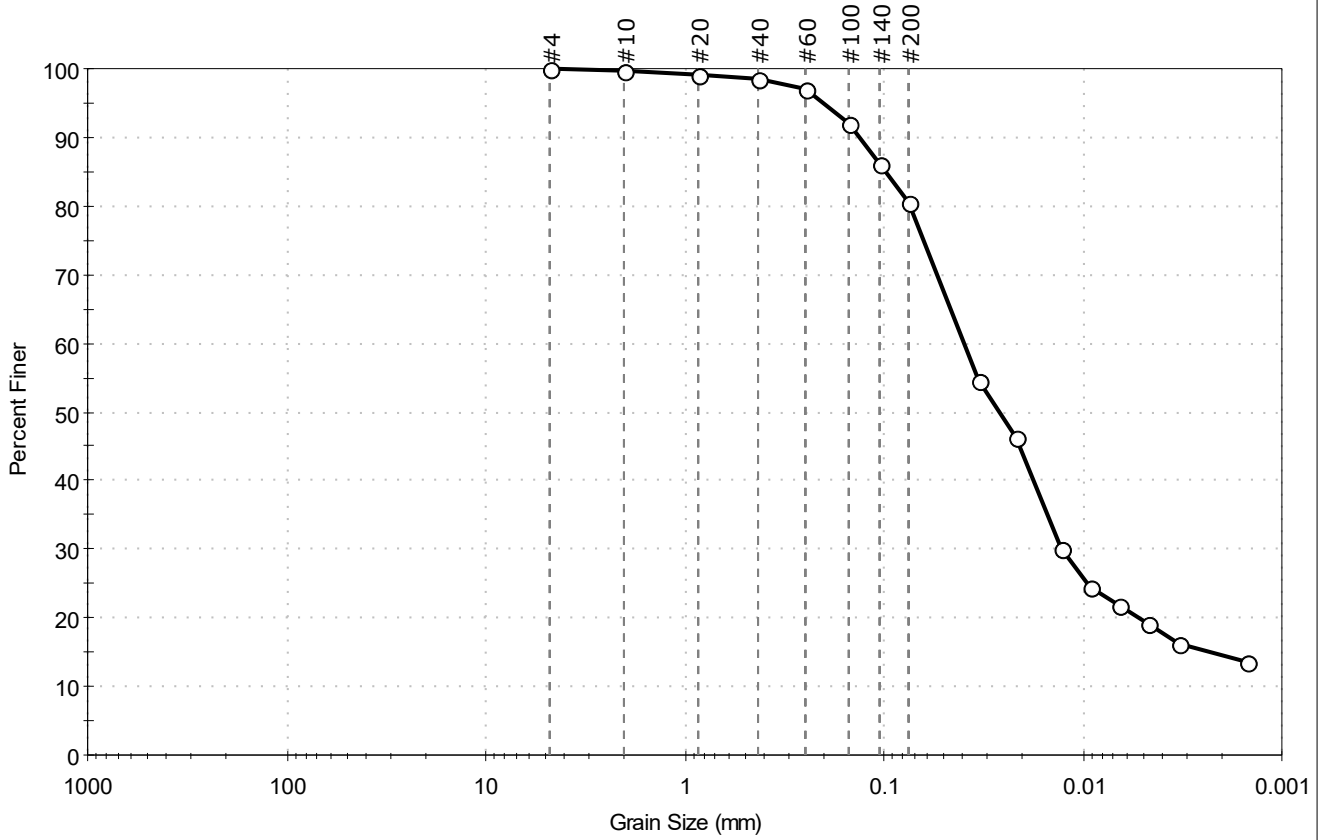
Classification	
ASTM	Silty SAND (SM)
AASHTO	Clayey Soils (A-6 (3))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-123SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 00-4.5-190924	Test Date: 10/29/19	Test Id: 527610	
Depth: ---	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 <sub>85</sub> = 0.0992 mm	D <sub>30</sub> = 0.0129 mm
D <sub>60</sub> = 0.0398 mm	D <sub>15</sub> = 0.0022 mm
D <sub>50</sub> = 0.0264 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

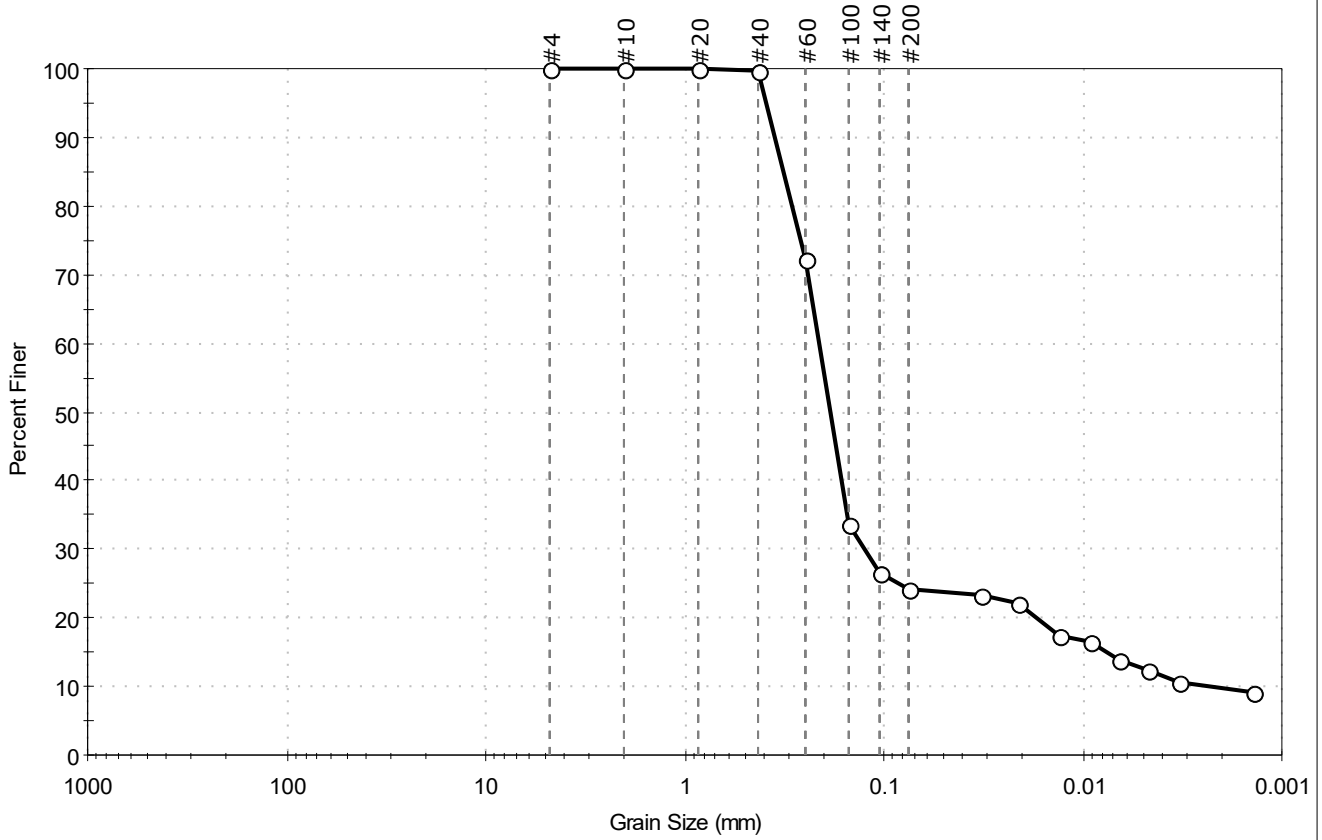
Classification	
ASTM	Elastic SILT with Sand (MH)
AASHTO	Clayey Soils (A-7-5 (23))

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-123SPT	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 25.5-30.5-190925	Test Date: 11/11/19	Test Id: 527611	
Depth: ---	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 <sub>85</sub> = 0.3204 mm	D <sub>30</sub> = 0.1255 mm
D <sub>60</sub> = 0.2128 mm	D <sub>15</sub> = 0.0076 mm
D <sub>50</sub> = 0.1865 mm	D <sub>10</sub> = 0.0023 mm
C <sub>u</sub> = 92.522	C <sub>c</sub> = 32.180

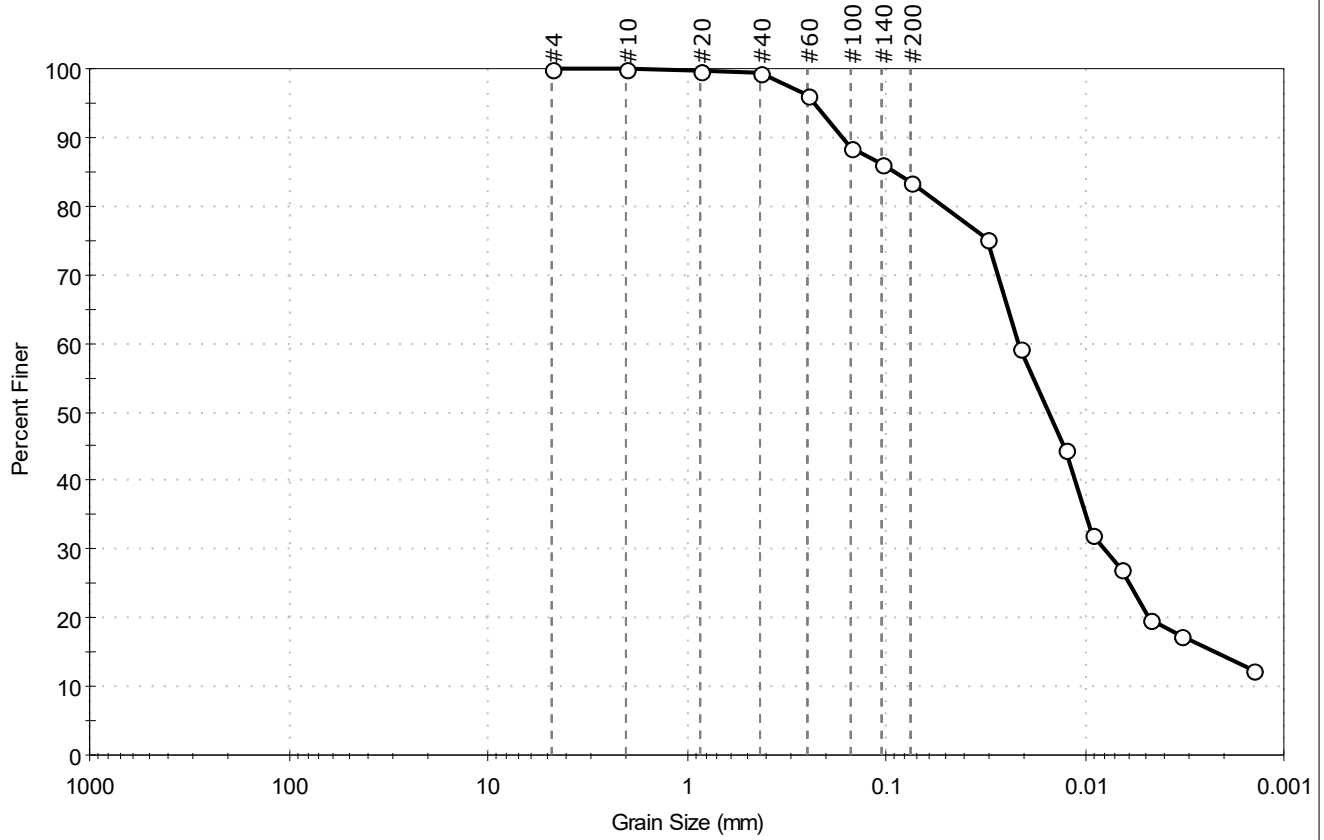
Classification	
ASTM	Silty SAND (SM)
AASHTO	Silty Gravel and Sand (A-2-4 (0))

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: PDI-123SPT Sample Type: bag Tested By: ckg  
 Sample ID: 63.2-65.5-190925 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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.0911 mm	D <sub>30</sub> = 0.0079 mm
D <sub>60</sub> = 0.0214 mm	D <sub>15</sub> = 0.0022 mm
D <sub>50</sub> = 0.0152 mm	D <sub>10</sub> = N/A
C <sub>u</sub> = N/A	C <sub>c</sub> = N/A

<b>Classification</b>	
<b>ASTM</b>	SILT with Sand (ML)
<b>AASHTO</b>	Clayey Soils (A-7-5 (13))

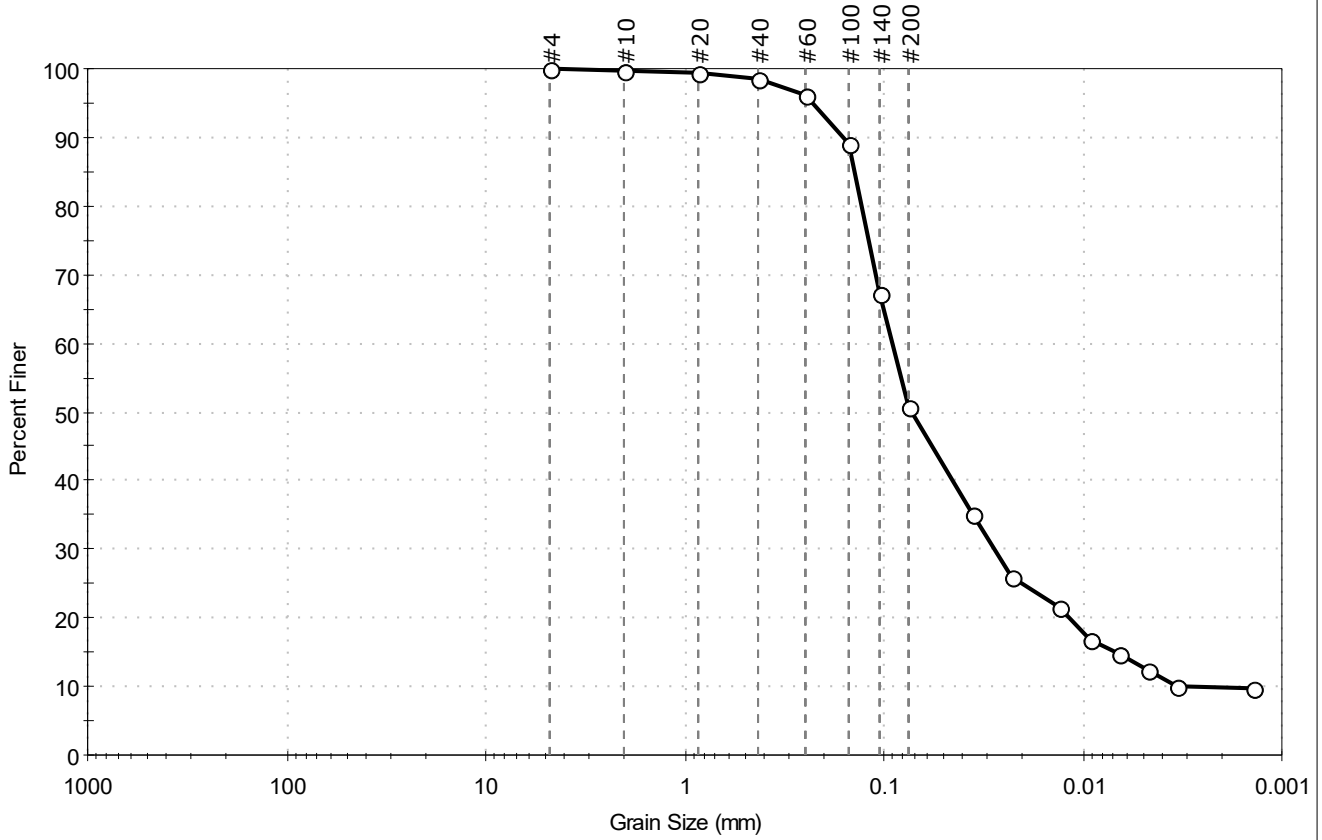
<b>Sample/Test Description</b>
Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Est. Specific Gravity : 2.65
Separation of Sample: #200 Sieve





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-19SC-B	Sample Type: bag	Tested By: ckg	Checked By: bfs
Sample ID: 05-07-191008	Test Date: 10/29/19	Test Id: 527549	
Depth: ---	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		

<b>Coefficients</b>	
D <sub>85</sub> = 0.1405 mm	D <sub>30</sub> = 0.0277 mm
D <sub>60</sub> = 0.0909 mm	D <sub>15</sub> = 0.0070 mm
D <sub>50</sub> = 0.0722 mm	D <sub>10</sub> = 0.0024 mm
C <sub>u</sub> = 37.875	C <sub>c</sub> = 3.517

<b>Classification</b>	
<b>ASTM</b>	Sandy SILT (ML)
<b>AASHTO</b>	Silty Soils (A-4 (0))

<b>Sample/Test Description</b>
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:	PDI-016SC-B	Sample Type:	bag
Sample ID:	06-08-191009	Test Date:	11/06/19
Depth :	---	Checked By:	bfs
		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

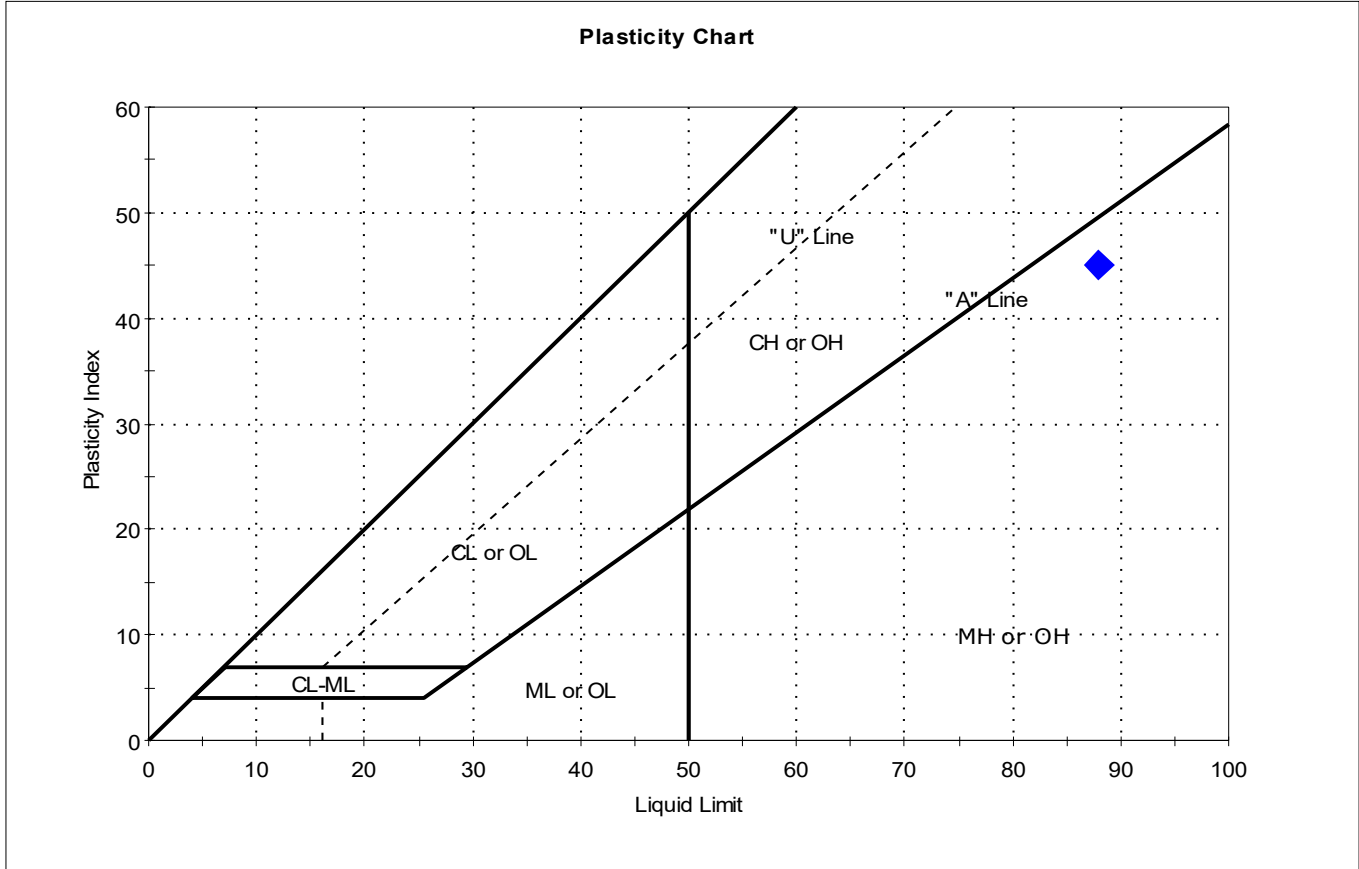
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	06-08-191009	DI-016SC	---	35	n/a	n/a	n/a	n/a	Silty SAND (SM)

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: PDI-018SC-A	Sample Type: bag	Tested By: cam	
Sample ID: 06-07-190926	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
◆	06-07-190926	DI-018SC	---	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



Client:	Anchor QEA, LLC		
Project:	Gasco PDI		
Location:		Project No:	GTX-310685
Boring ID:	PDI-018SC-A	Sample Type:	bag
Sample ID:	08-09-190926	Test Date:	10/09/19
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
◆	08-09-190926	DI-018SC	---	23	n/a	n/a	n/a	n/a	

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:	PDI-021SC-B	Sample Type:	bag
Sample ID:	7.7-9.7-190927	Test Date:	10/09/19
Depth :	---	Checked By:	bfs
		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
◆	7.7-9.7-190927	DI-021SC	---	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: PDI-022SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 5.5-7.5-191016	Test Date: 11/18/19	Checked By: bfs	
Depth : ---	Test Id: 529655		
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
◆	5.5-7.5-191016	DI-022SC	---	11	n/a	n/a	n/a	n/a	

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:	PDI-024SC-B	Sample Type:	bag
Sample ID:	10-12.1-190927	Test Date:	10/09/19
Depth :	---	Checked By:	bfs
		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
◆	10-12.1-190927	DI-024SC	---	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:	PDI-027SC-B	Sample Type:	bag
Sample ID:	11-13.5-191011	Test Date:	11/12/19
Depth :	---	Checked By:	bfs
		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
◆	11-13.5-191011	DI-027SC	---	19	n/a	n/a	n/a	n/a	

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:	PDI-028SC	Sample Type:	bag
Sample ID:	10.7-12.7-191003	Test Date:	10/14/19
Depth :	---	Checked By:	bfs
		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
◆	10.7-12.7-191003	PDI-028SC	---	15	n/a	n/a	n/a	n/a	

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:	PDI-031SC-B	Sample Type:	bag
Sample ID:	8.9-10.9-191017	Test Date:	11/18/19
Depth :	---	Checked By:	bfs
		Test Id:	529653
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
◆	8.9-10.9-191017	PDI-031SC	---	16	n/a	n/a	n/a	n/a	

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:	PDI-033SC-B	Sample Type:	bag
Sample ID:	8.7-10.7-191008	Test Date:	11/01/19
Depth :	---	Checked By:	bfs
		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
◆	8.7-10.7-191008	PDI-033SC	---	18	n/a	n/a	n/a	n/a	

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:	PDI-036SC-B	Sample Type:	bag
Sample ID:	4.2-6.2-190929	Test Date:	10/09/19
Depth :	---	Checked By:	bfs
		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
◆	4.2-6.2-190929	DI-036SC	---	14	n/a	n/a	n/a	n/a	

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:	PDI-038SC	Sample Type:	bag
Sample ID:	B-7.1-9.1-191009	Test Date:	10/25/19
Depth :	---	Checked By:	bfs
		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
◆	B-7.1-9.1-191009	PDI-038SC	---	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:	PDI-039SC-B	Sample Type:	bag
Sample ID:	7.8-9.8-190930	Test Date:	10/09/19
Depth :	---	Checked By:	bfs
		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
◆	7.8-9.8-190930	DI-039SC	---	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



Client:	Anchor QEA, LLC		
Project:	Gasco PDI		
Location:		Project No:	GTX-310685
Boring ID:	PDI-041SC-B	Sample Type:	bag
Sample ID:	8.2-10.2-191010	Test Date:	10/30/19
Depth :	---	Checked By:	bfs
		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
◆	8.2-10.2-191010	PDI-041SC	---	29	n/a	n/a	n/a	n/a	

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:	PDI-046SC-B	Sample Type:	bag
Sample ID:	9.8-11.8-191001	Test Date:	10/09/19
Depth :	---	Checked By:	bfs
		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
◆	9.8-11.8-191001	DI-046SC	---	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:	PDI-049SC-B	Sample Type:	bag
Sample ID:	06-08-191015	Test Date:	11/05/19
Depth :	---	Checked By:	bfs
		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
◆	06-08-191015	DI-049SC	---	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:	PDI-052SC-B	Sample Type:	bag
Sample ID:	06-08-191015	Test Date:	11/06/19
Depth :	---	Checked By:	bfs
		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

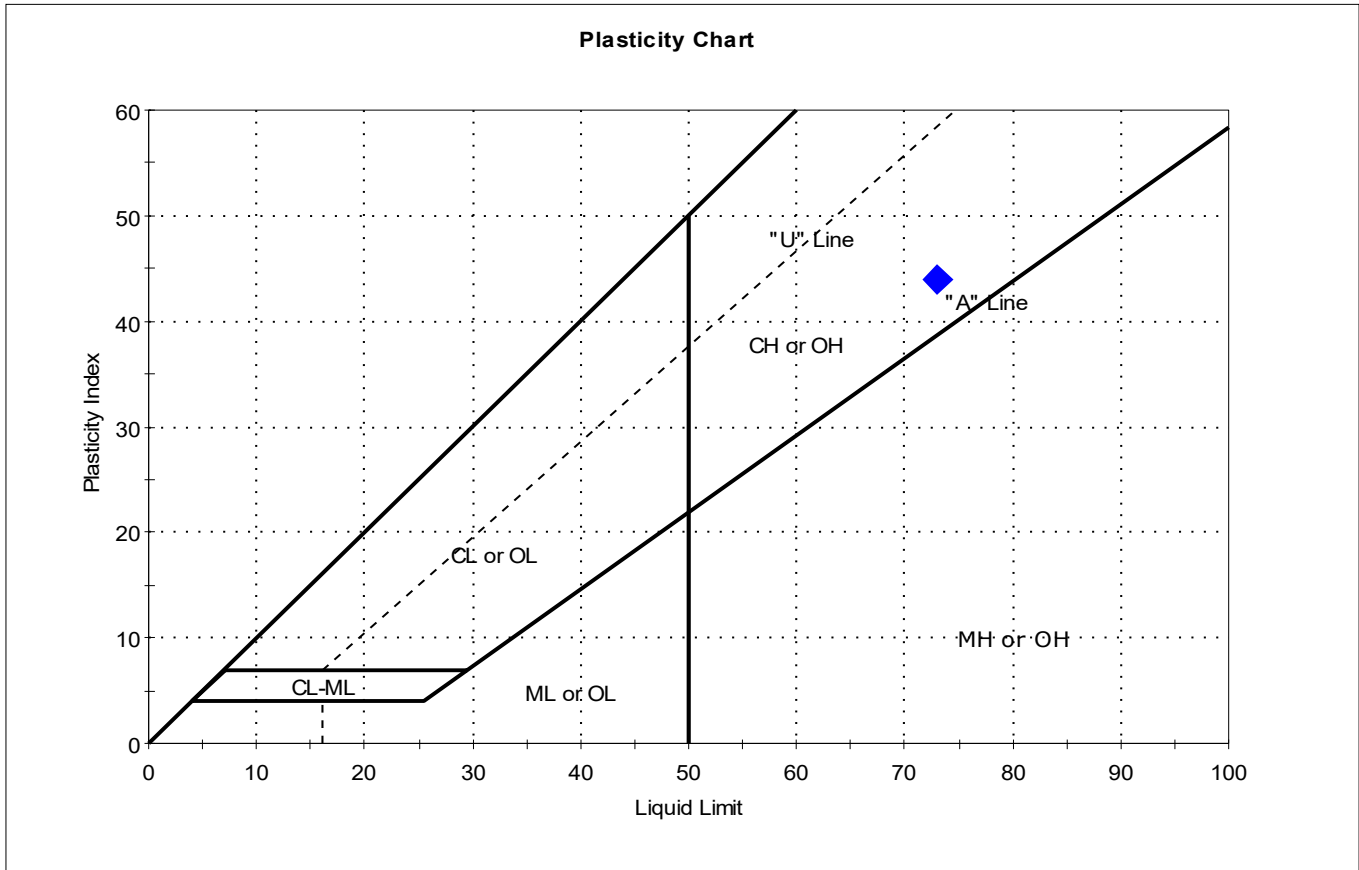
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	06-08-191015	DI-052SC	---	45	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-057SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 06-08-191023	Test Date: 11/21/19	Checked By: bfs	
Depth: ---	Test Id: 529650		
Test Comment: ---			
Visual Description: Wet, dark gray clay			
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
◆	06-08-191023	DI-057SC	---	77	73	29	44	1.1	Fat CLAY (CH)

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



Client: Anchor QEA, LLC	Project No: GTX-310685		
Project: Gasco PDI			
Location:			
Boring ID: PDI-059SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 06-08-191016	Test Date: 11/19/19	Checked By: bfs	
Depth : ---	Test Id: 529656		
Test Comment: ---			
Visual Description: Moist, dark grayish brown silty sand			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

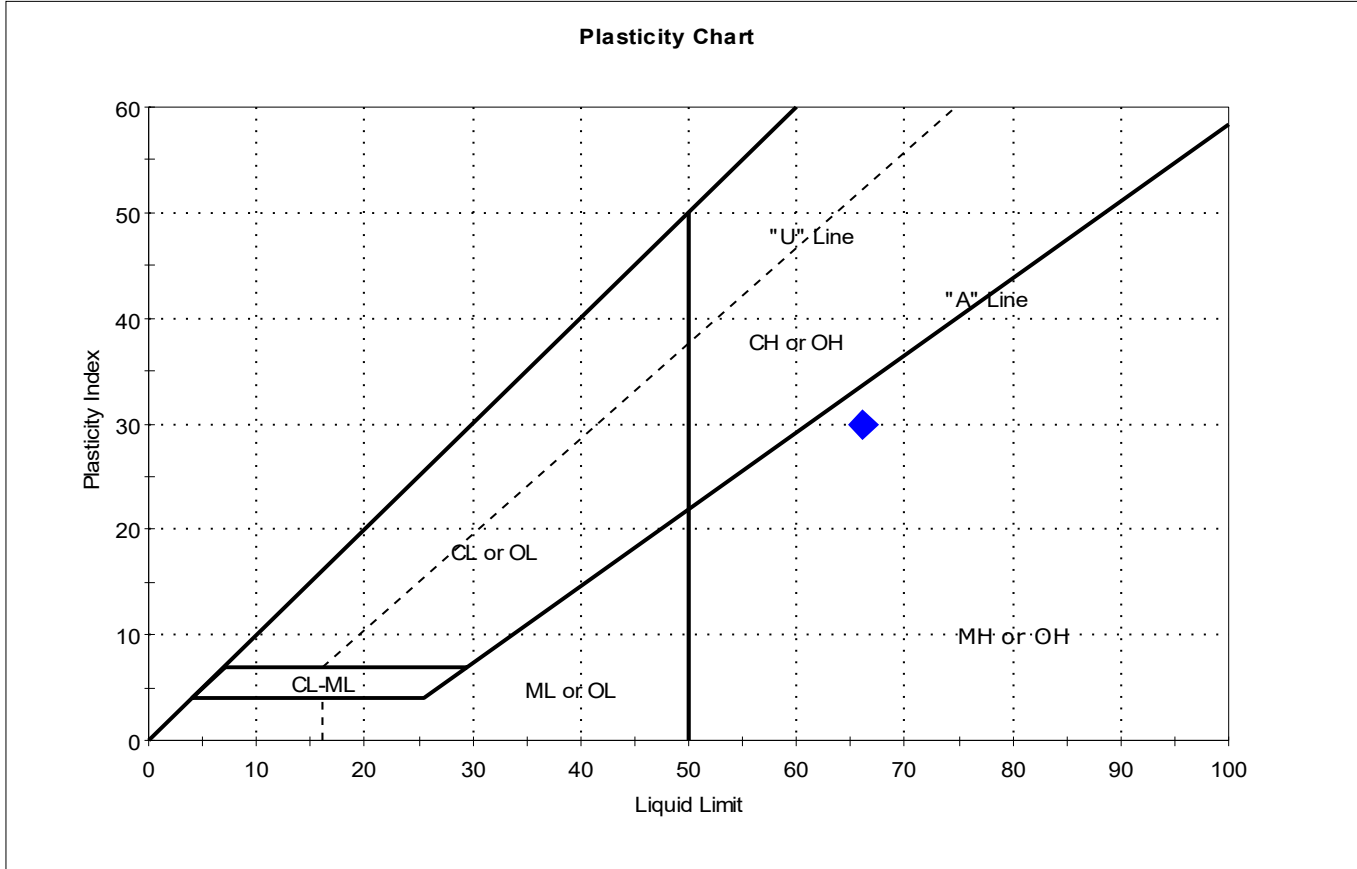
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	06-08-191016	DI-059SC	---	38	n/a	n/a	n/a	n/a	Silty SAND (SM)

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: PDI-064SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 04-06-190929	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



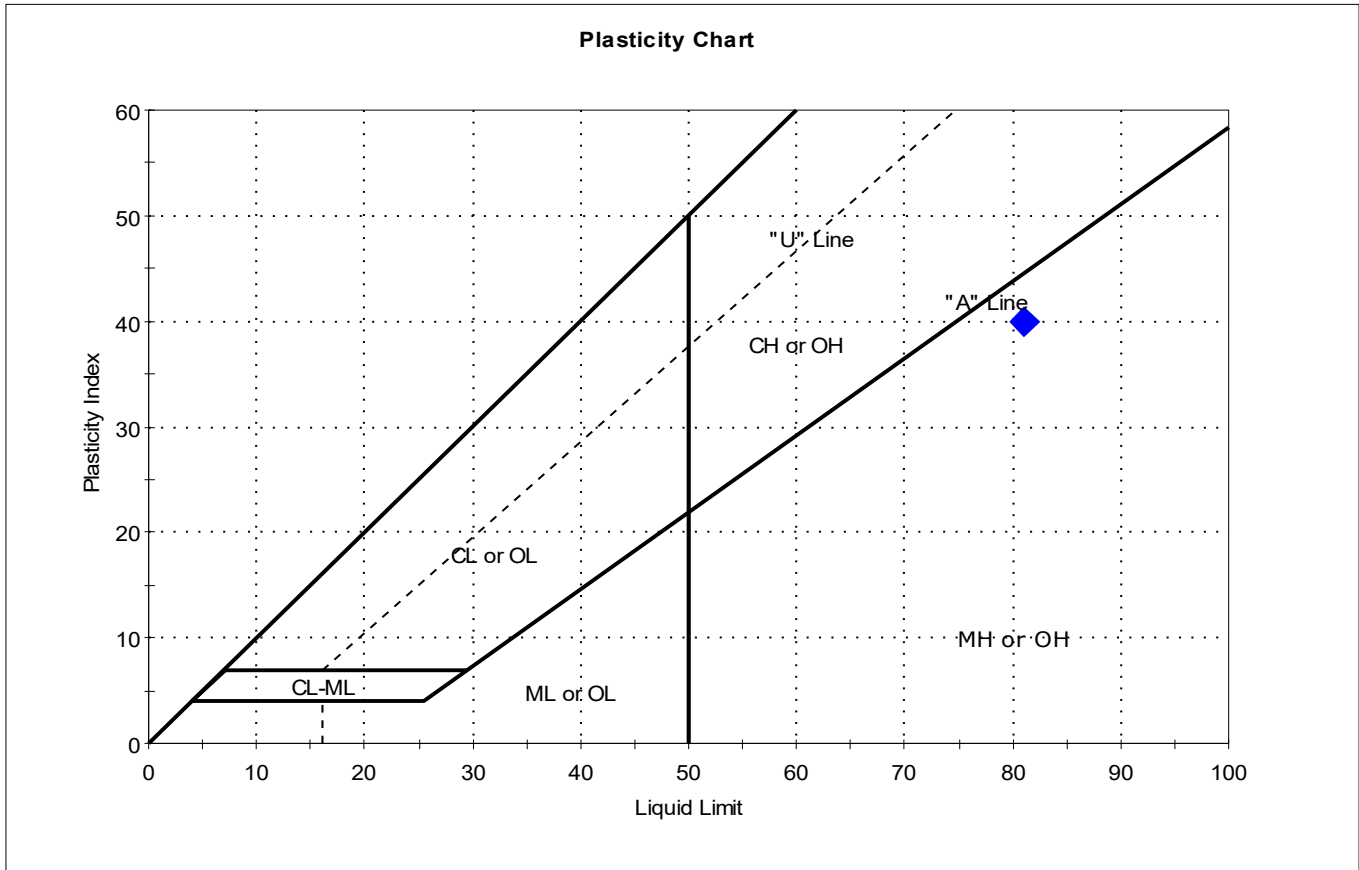
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	04-06-190929	DI-064SC	---	66	66	36	30	1	Elastic SILT with Sand (MH)

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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-066SC-B	Test Date: 11/13/19	Checked By: bfs
Sample ID: 06-08-191011	Test Id: 527482	
Depth: ---		
Test Comment: ---		
Visual Description: Moist, dark olive brown silt		
Sample Comment: Sample contains organics		

## Atterberg Limits - ASTM D4318



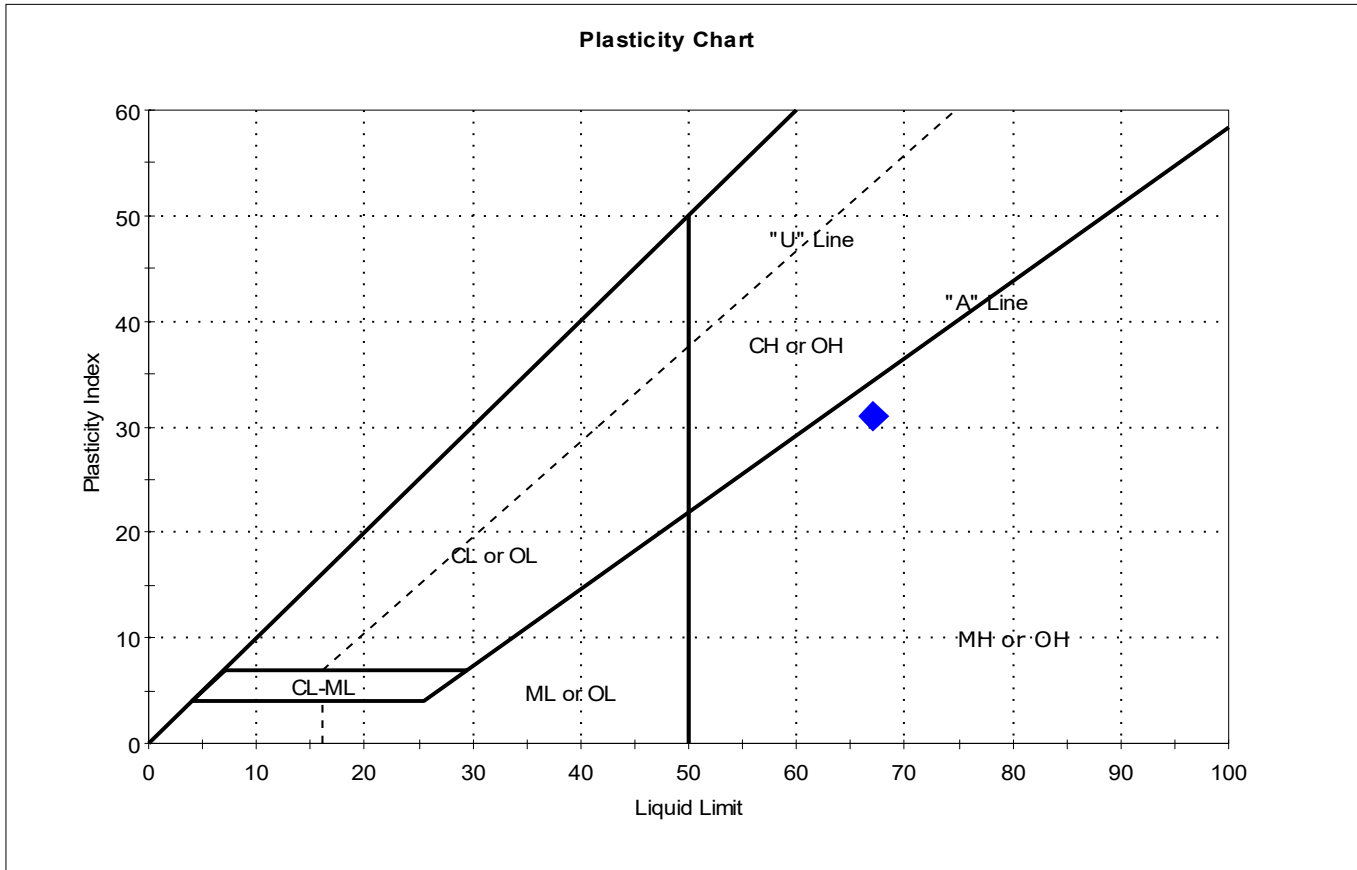
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	06-08-191011	DI-066SC	---	68	81	41	40	0.7	Elastic SILT (MH)

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: PDI-067SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 02-04-191010	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



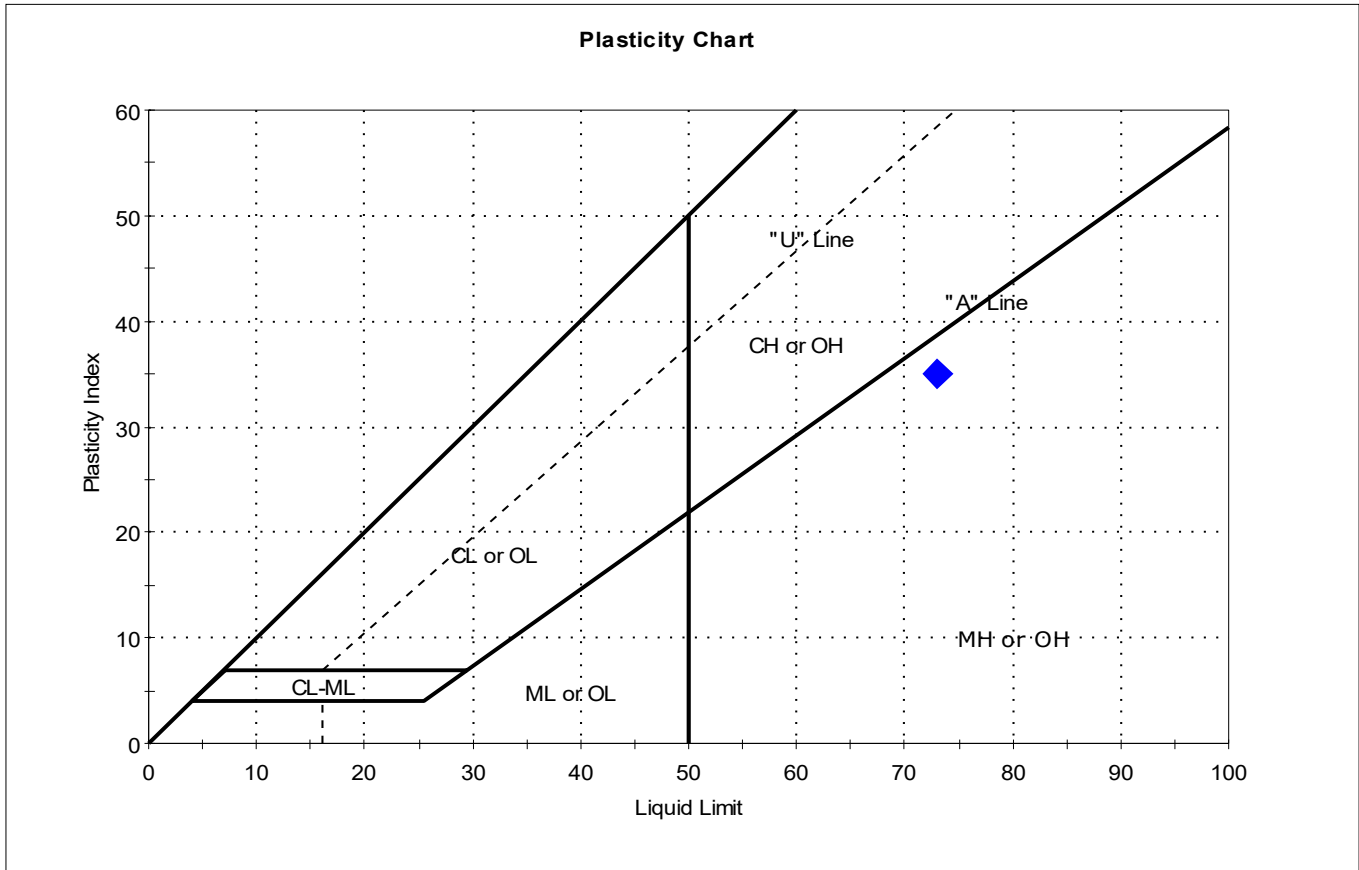
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	02-04-191010	DI-067SC	---	74	67	36	31	1.2	Elastic SILT (MH)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-069SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 10-12-191016	Test Date: 11/20/19	Checked By: bfs	
Depth: ---	Test Id: 529657		
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
◆	10-12-191016	DI-069SC	---	67	73	38	35	0.8	Elastic SILT (MH)

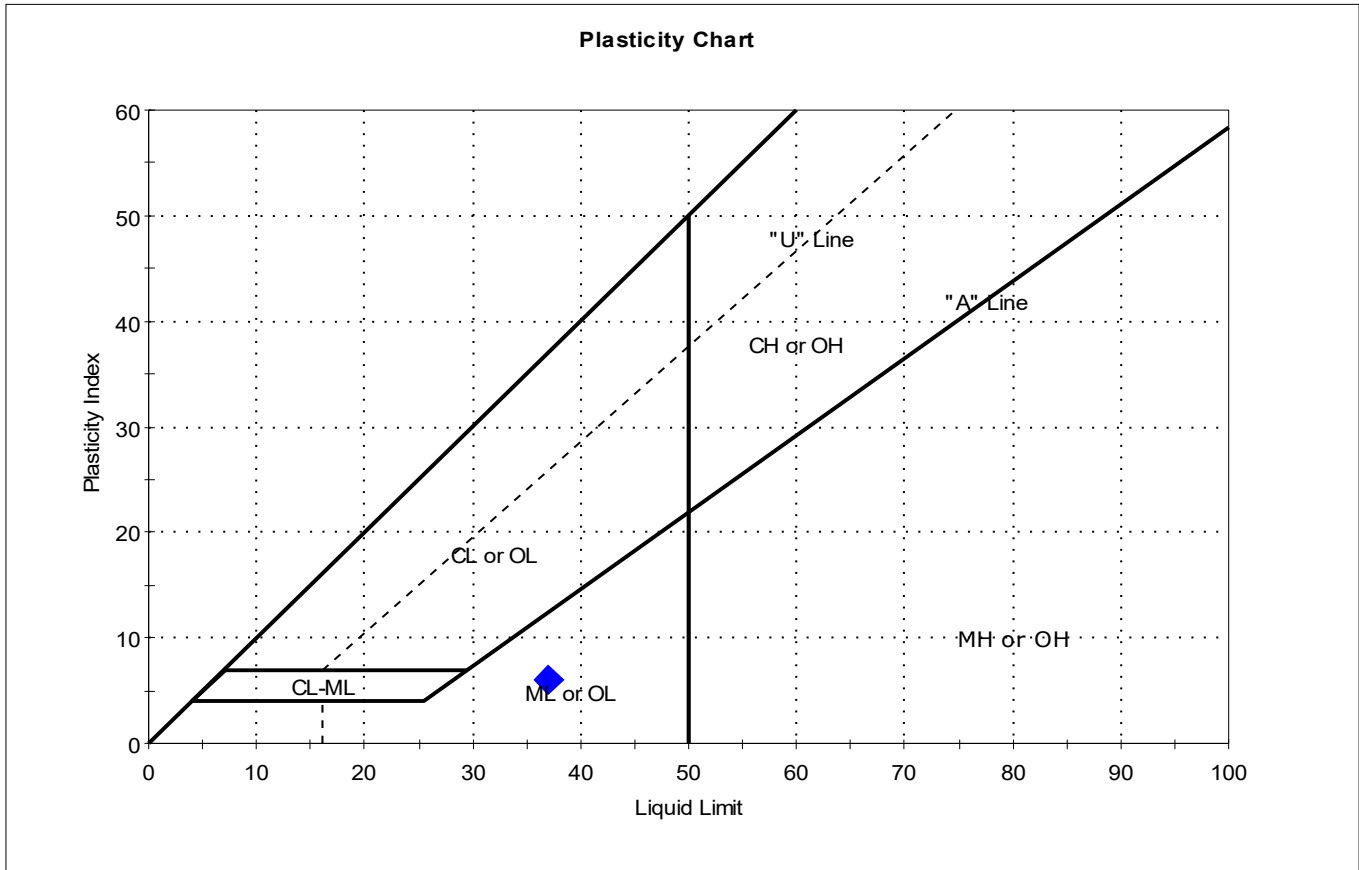
Sample Prepared using the WET method  
 0% Retained on #40 Sieve  
 Dry Strength: VERY HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-071SC-B	Test Date: 10/15/19	Checked By: bfs
Sample ID: -08-10-191001	Test Id: 525969	
Depth: ---		
Test Comment: ---		
Visual Description: Wet, very dark gray silty sand		
Sample Comment: ---		

## Atterberg Limits - ASTM D4318



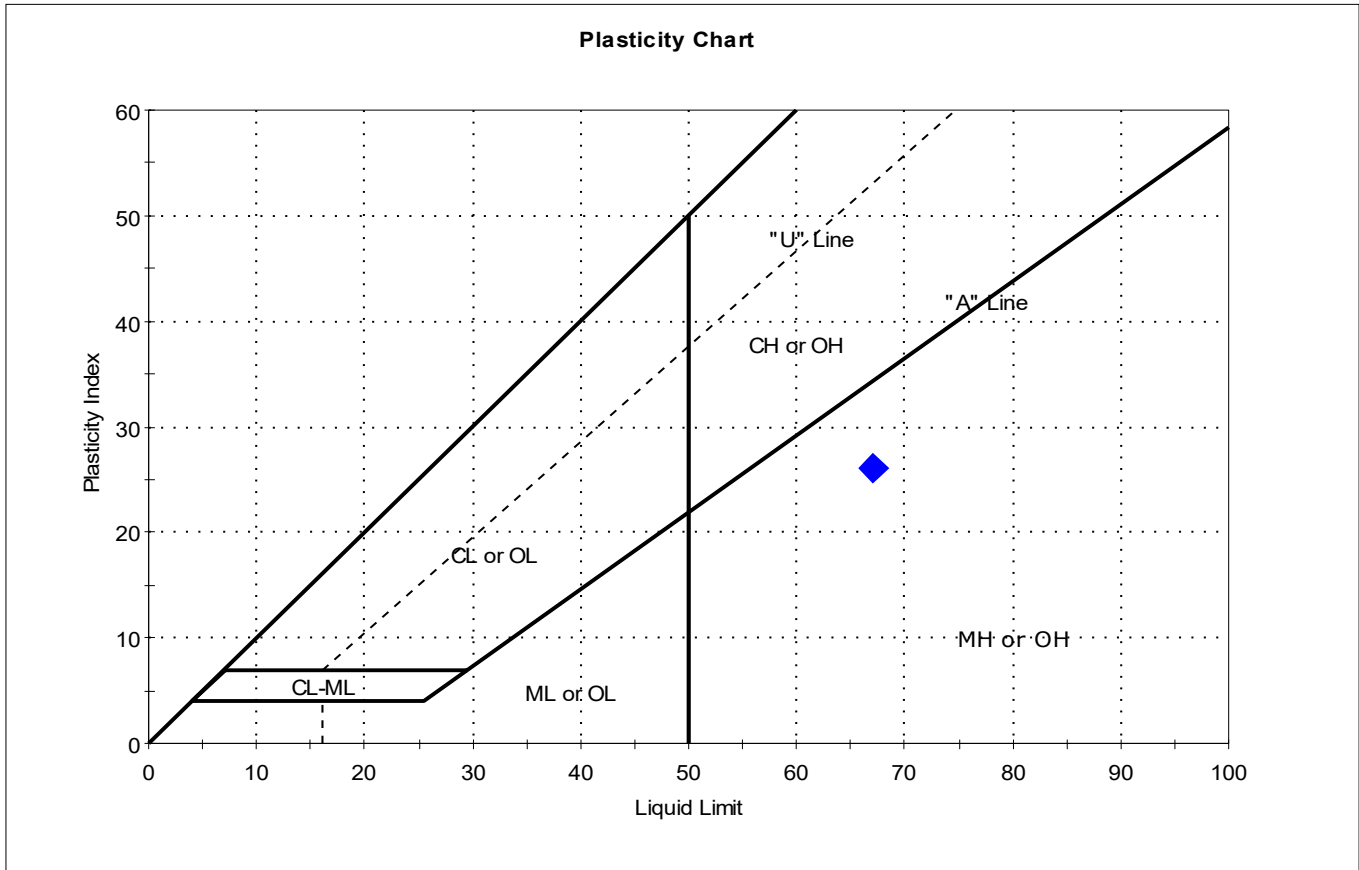
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	-08-10-191001	DI-071SC	---	43	37	31	6	2	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-077SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 04-06-191014	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



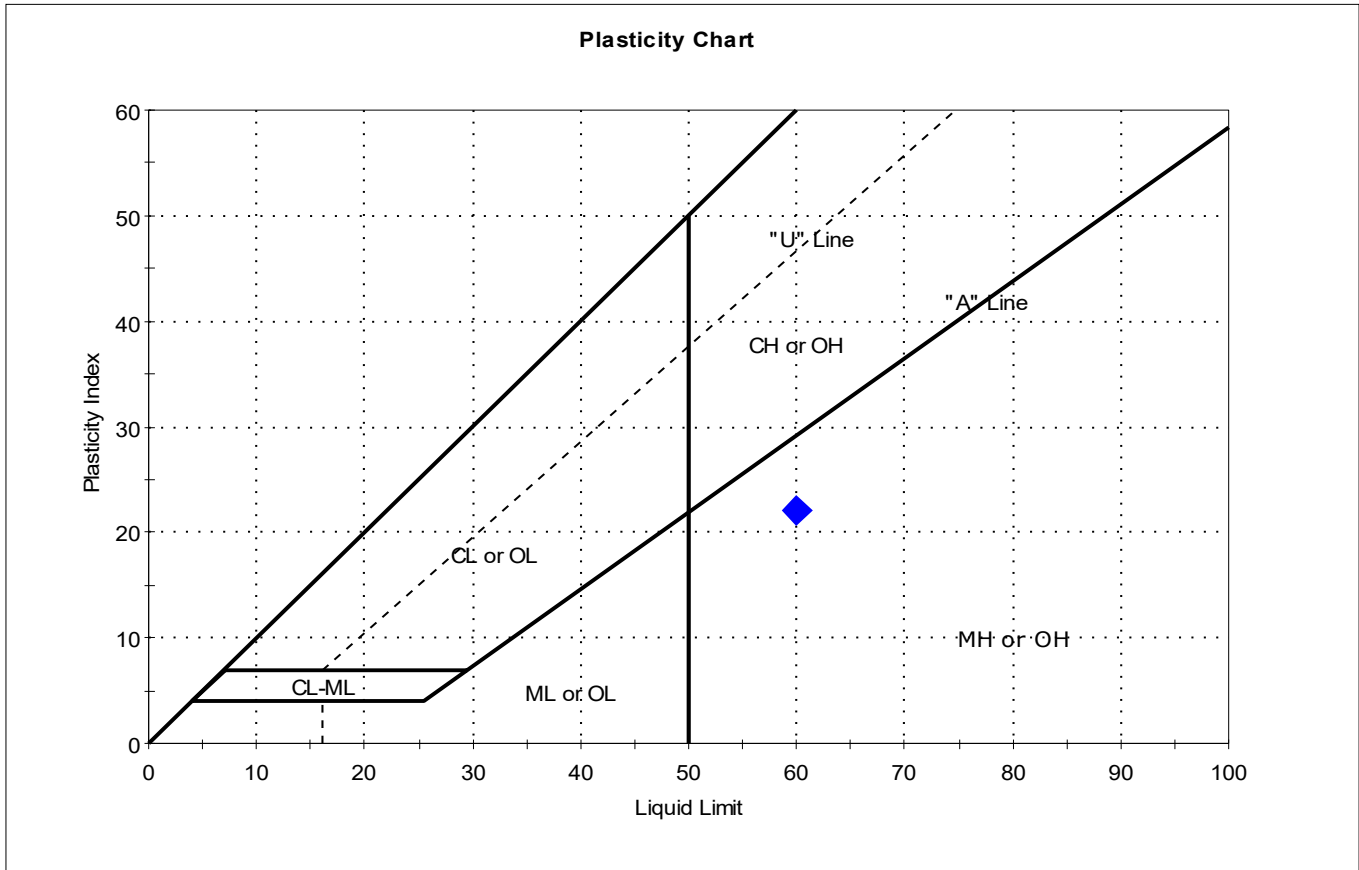
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	04-06-191014	DI-077SC	---	81	67	41	26	1.6	Elastic SILT (MH)

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: PDI-079SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 06-08-191014	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



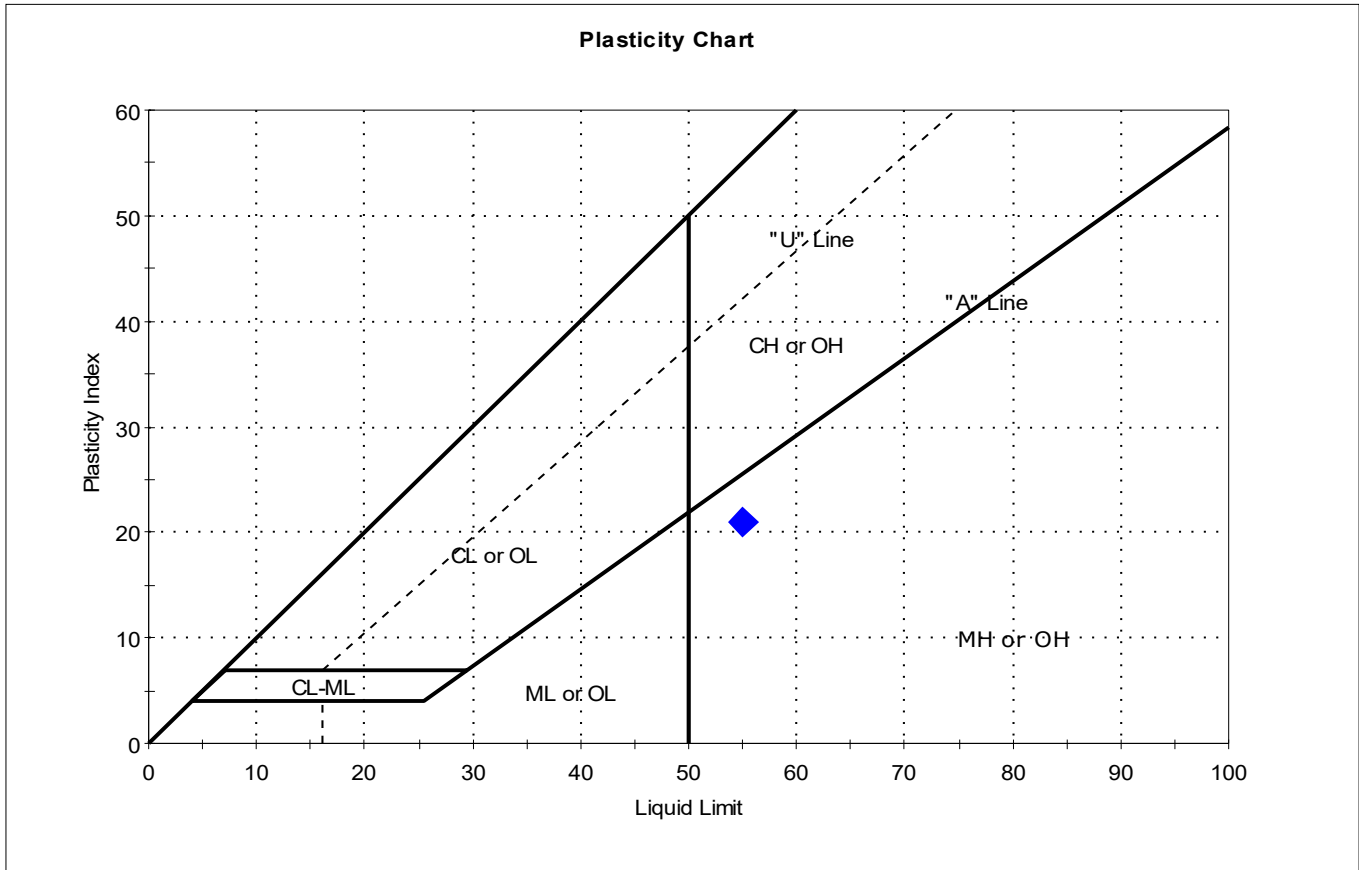
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	06-08-191014	DI-079SC	---	115	60	38	22	3.5	Elastic SILT (MH)

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: PDI-081SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 08-10-191002	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



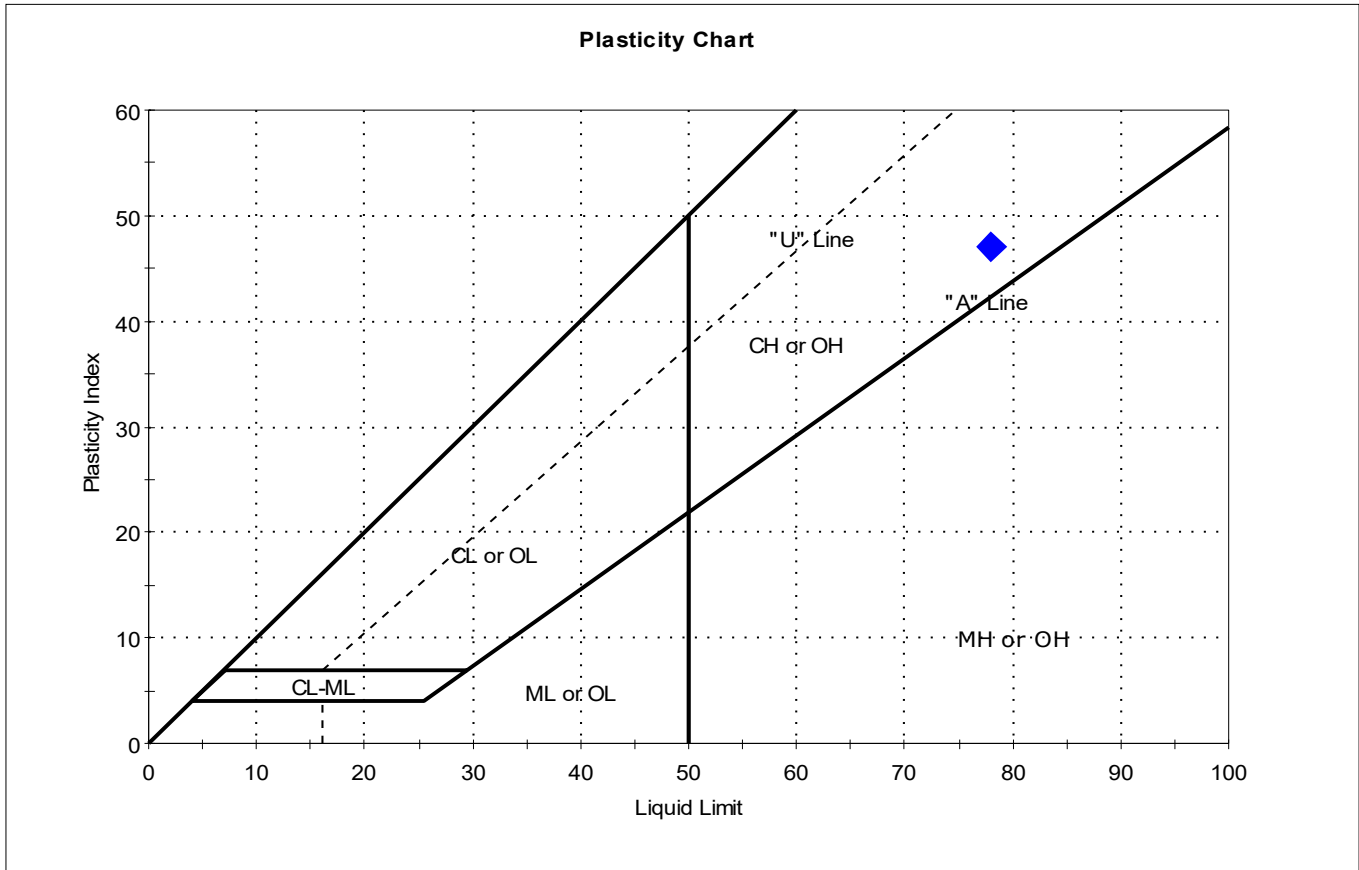
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	08-10-191002	DI-081SC	---	64	55	34	21	1.4	Elastic SILT with Sand (MH)

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: PDI-083SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 08-10-191022	Test Date: 11/20/19	Checked By: bfs	
Depth: ---	Test Id: 529651		
Test Comment: ---			
Visual Description: Moist, dark gray clay			
Sample Comment: Sample contains organics			

## Atterberg Limits - ASTM D4318



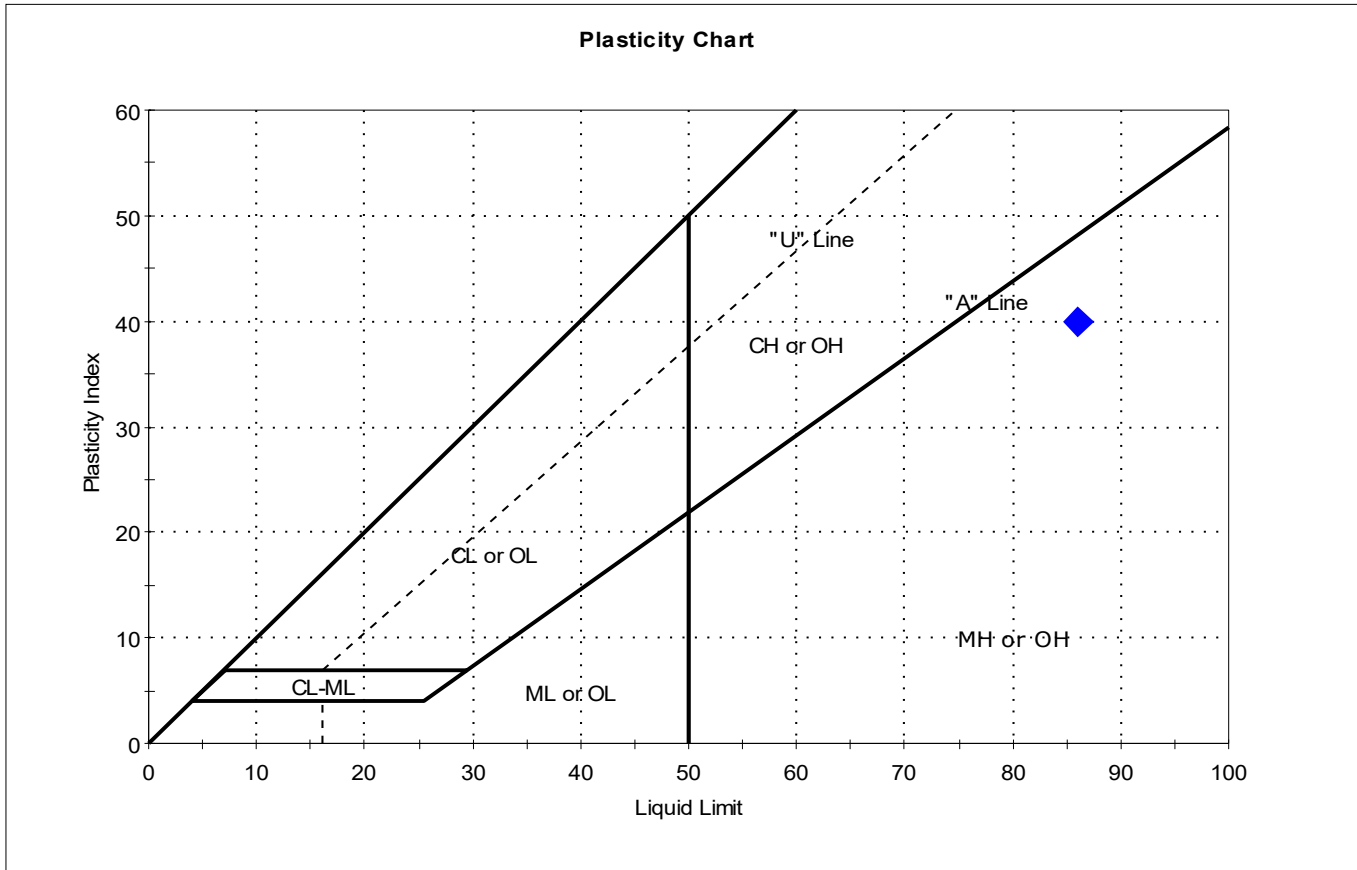
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	08-10-191022	DI-083SC	---	76	78	31	47	1	Fat CLAY (CH)

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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-090SC-B	Test Date: 11/11/19	Checked By: bfs
Sample ID: 06-08-191012	Test Id: 527483	
Depth: ---		
Test Comment: ---		
Visual Description: Moist, dark olive brown silt		
Sample Comment: Sample contains organics		

## Atterberg Limits - ASTM D4318



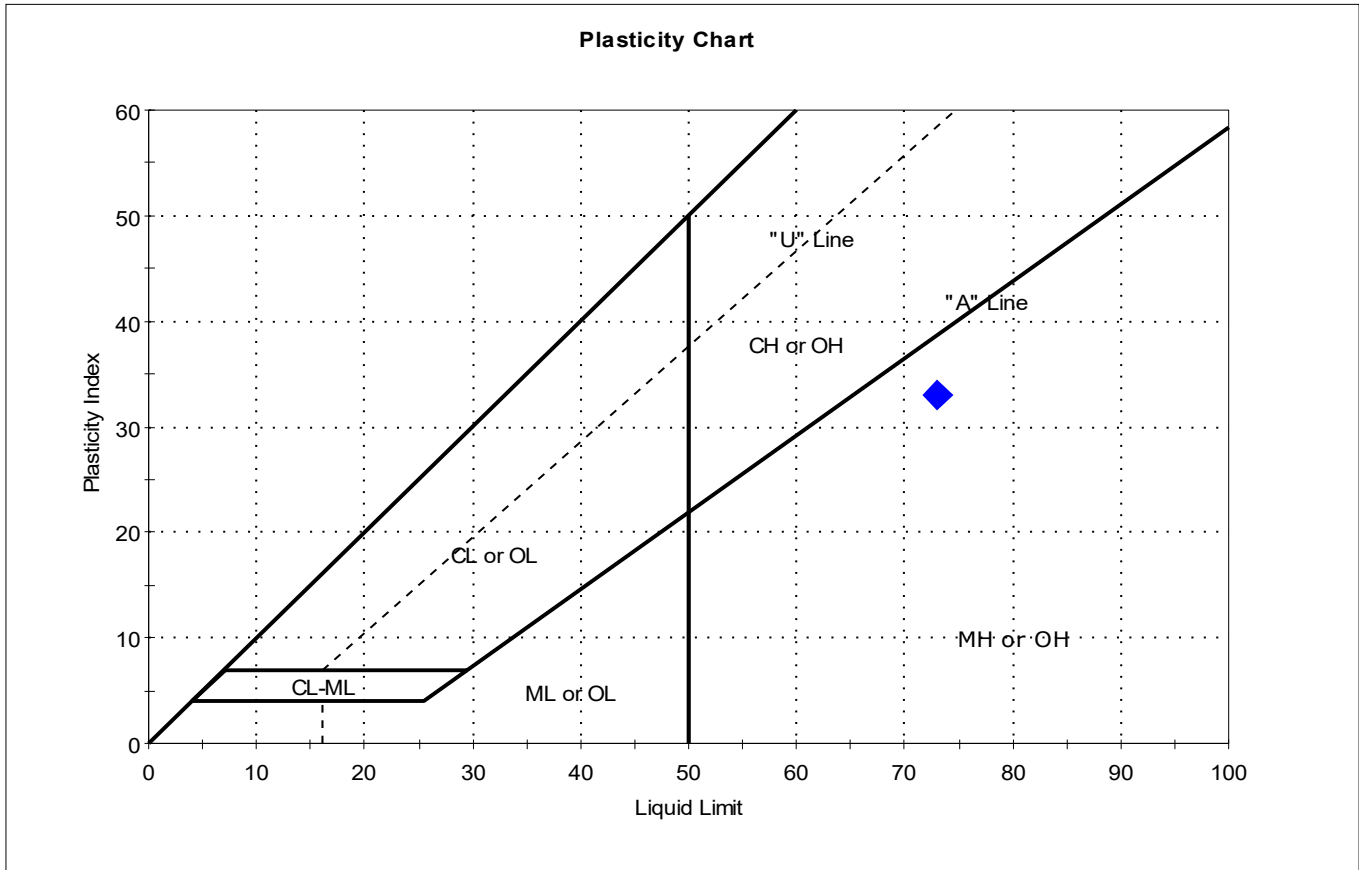
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	06-08-191012	DI-090SC	---	82	86	46	40	0.9	Elastic SILT (MH)

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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-097SC-B	Test Date: 11/19/19	Checked By: bfs
Sample ID: 02-04-191017	Test Id: 529654	
Depth: ---		
Test Comment: ---		
Visual Description: Wet, dark gray silt		
Sample Comment: Sample contains organics		

## Atterberg Limits - ASTM D4318



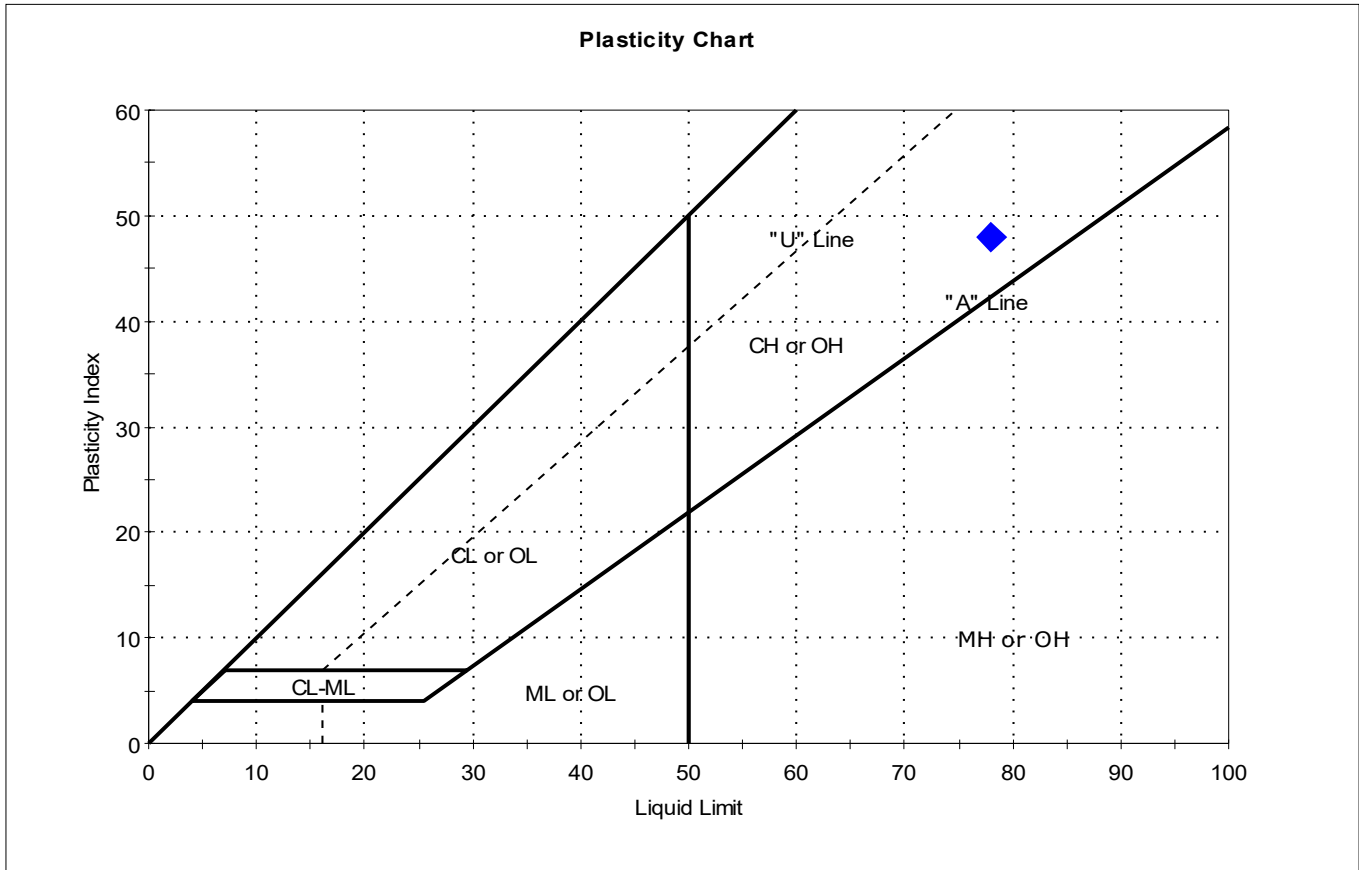
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	02-04-191017	DI-097SC	---	87	73	40	33	1.4	Elastic SILT (MH)

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: PDI-099SC-B	Sample Type: bag	Tested By: cam	
Sample ID: 02-04-191022	Test Date: 11/20/19	Checked By: bfs	
Depth: ---	Test Id: 529652		
Test Comment: ---			
Visual Description: Moist, very dark gray clay			
Sample Comment: ---			

## Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	02-04-191022	DI-099SC	---	80	78	30	48	1	Fat CLAY (CH)

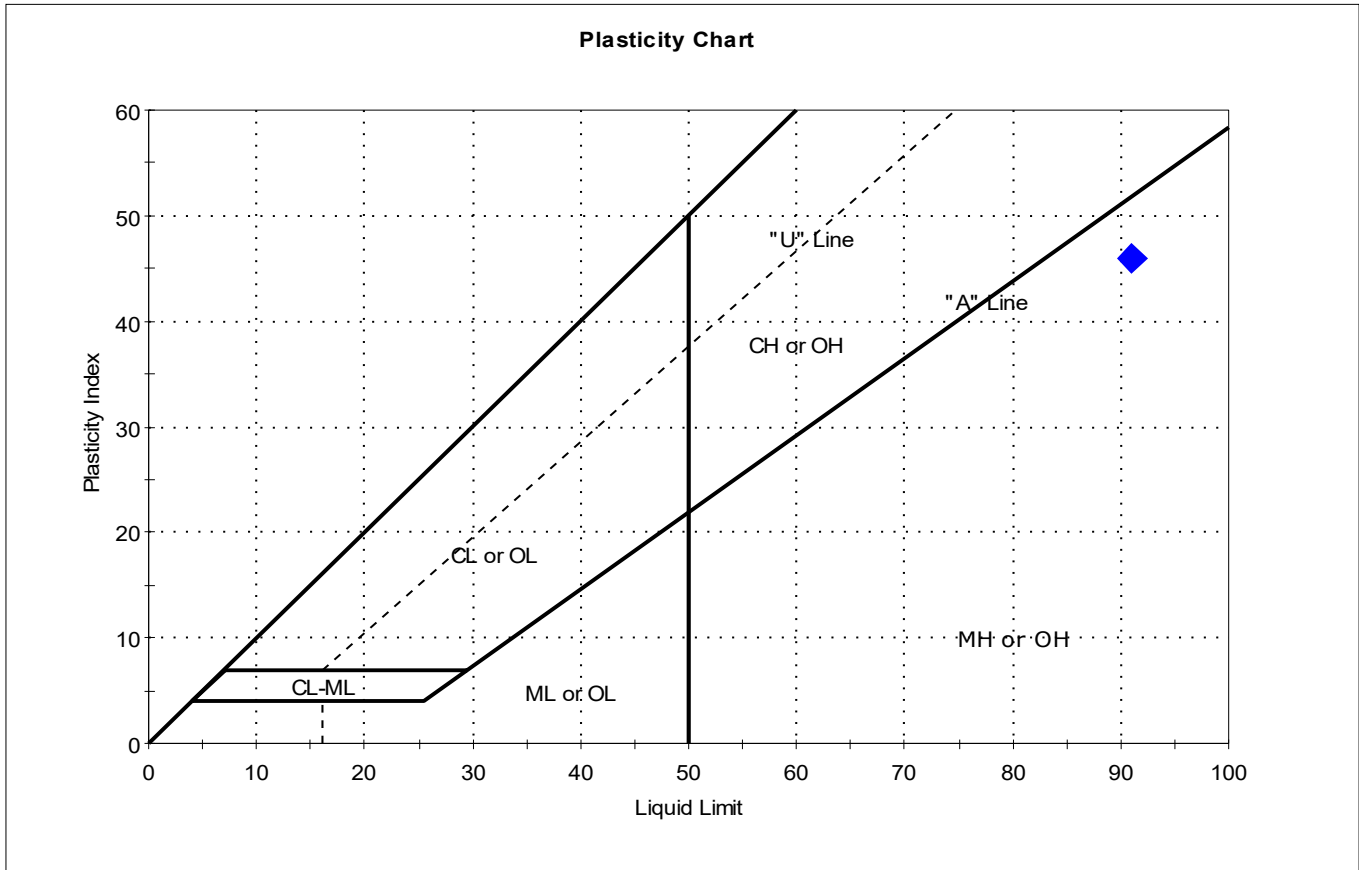
Sample Prepared using the WET method  
 1% Retained on #40 Sieve  
 Dry Strength: VERY HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-107SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-04-190923	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

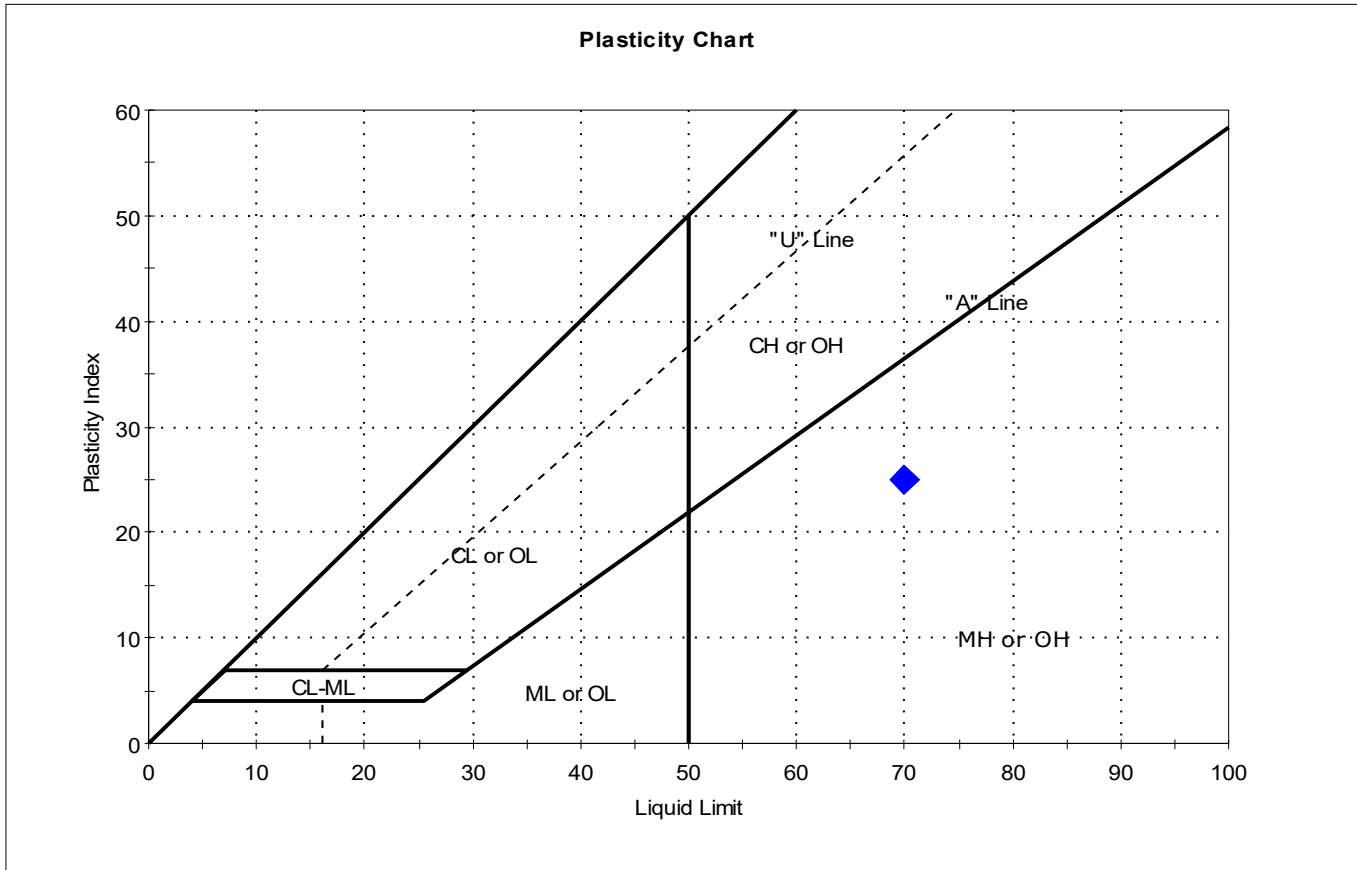


Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	00-04-190923	DI-107SP	---	108	91	45	46	1.4	Elastic SILT (MH)

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

Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-107SPT	Test Date: 11/18/19	Checked By: bfs
Sample ID: 04-09-190923	Test Id: 527487	
Depth: ---		
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
◆	04-09-190923	DI-107SP	---	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:	PDI-107SPT	Sample Type:	bag
Sample ID:	17-18-190923	Test Date:	11/11/19
Depth :	---	Checked By:	bfs
		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
◆	17-18-190923	DI-107SP	---	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:	PDI-107SPT	Sample Type:	bag
Sample ID:	62-64-190923	Test Date:	10/28/19
Depth :	---	Checked By:	bfs
		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

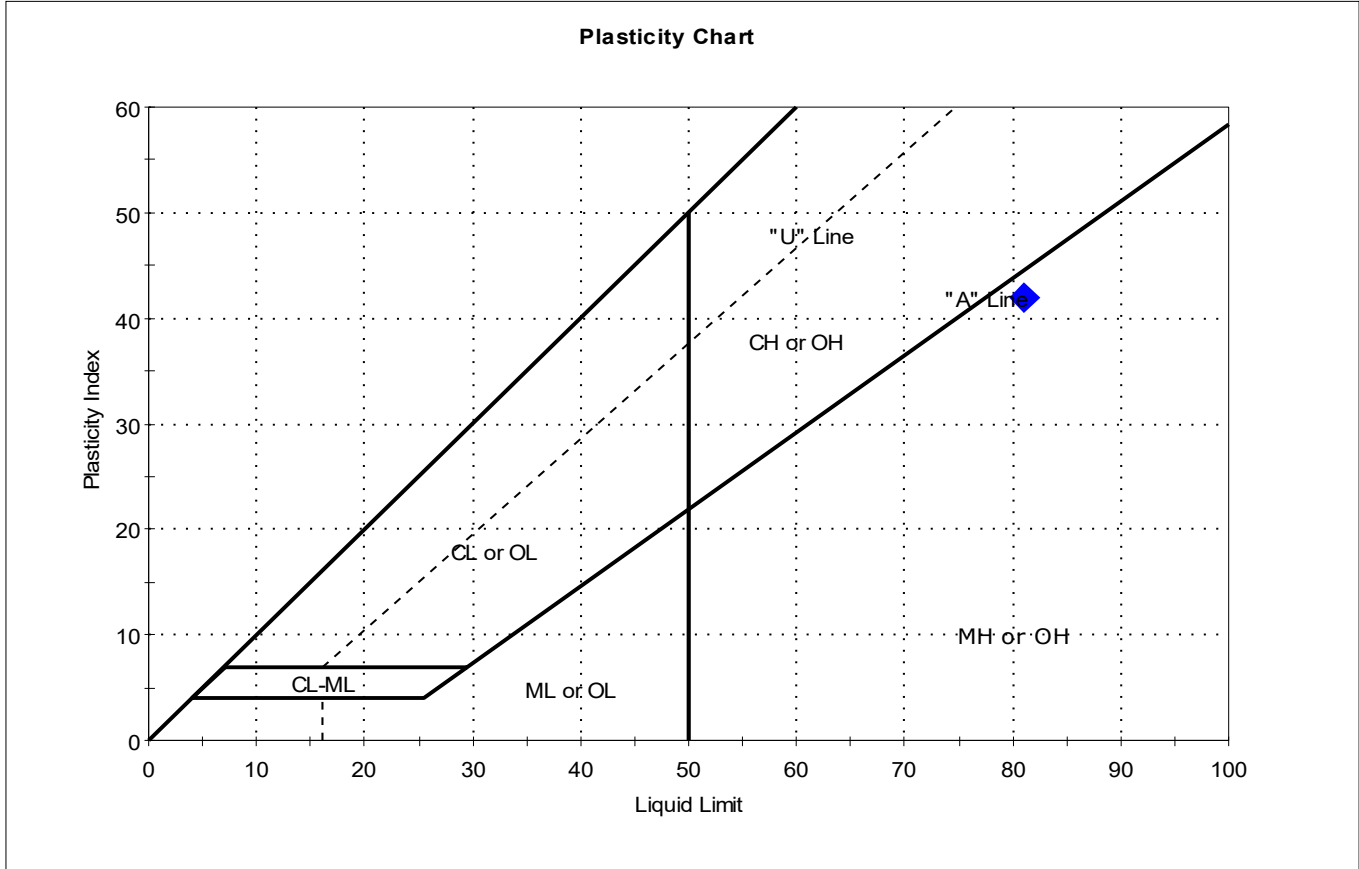
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	62-64-190923	DI-107SP	---	27	n/a	n/a	n/a	n/a	Silty SAND (SM)

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: PDI-108SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-6.4-191007	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
◆	00-6.4-191007	DI-108SP	---	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:	PDI-108SPT	Sample Type:	bag
Sample ID:	14-33.5-191007	Test Date:	10/23/19
Depth :	---	Checked By:	bfs
		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
◆	14-33.5-191007	DI-108SP	---	39	n/a	n/a	n/a	n/a	

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:	PDI-108SPT	Sample Type:	bag
Sample ID:	33.5-66.5-191007	Test Date:	10/28/19
Depth :	---	Checked By:	bfs
		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

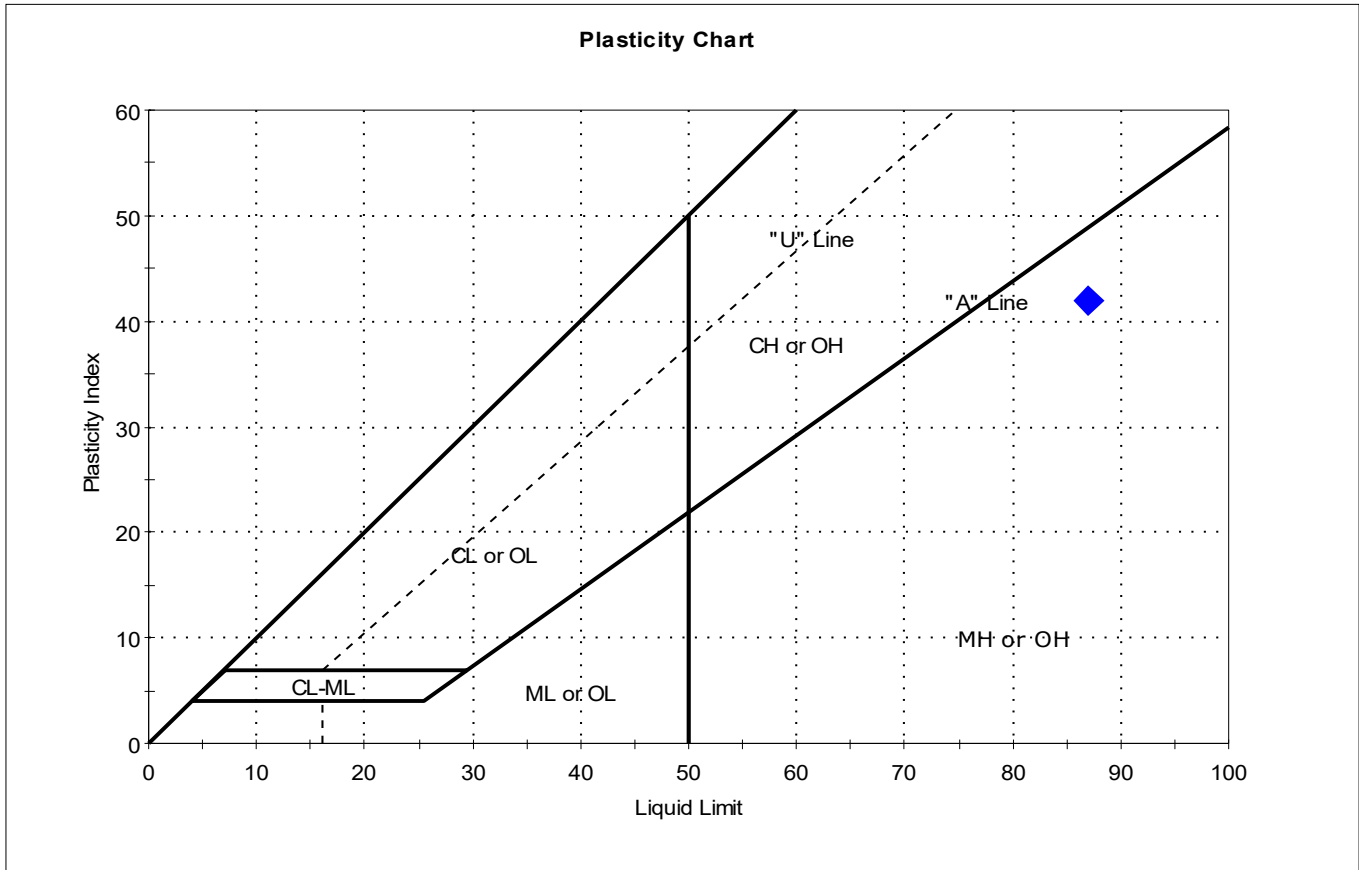
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	33.5-66.5-191007	DI-108SP	---	30	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

26% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-109SPT	Test Date: 11/18/19	Checked By: n/a
Sample ID: 00-6.5-191004	Test Id: 527493	
Depth: ---		
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
◆	00-6.5-191004	DI-109SP	---	93	87	45	42	1.1	Elastic SILT (MH)

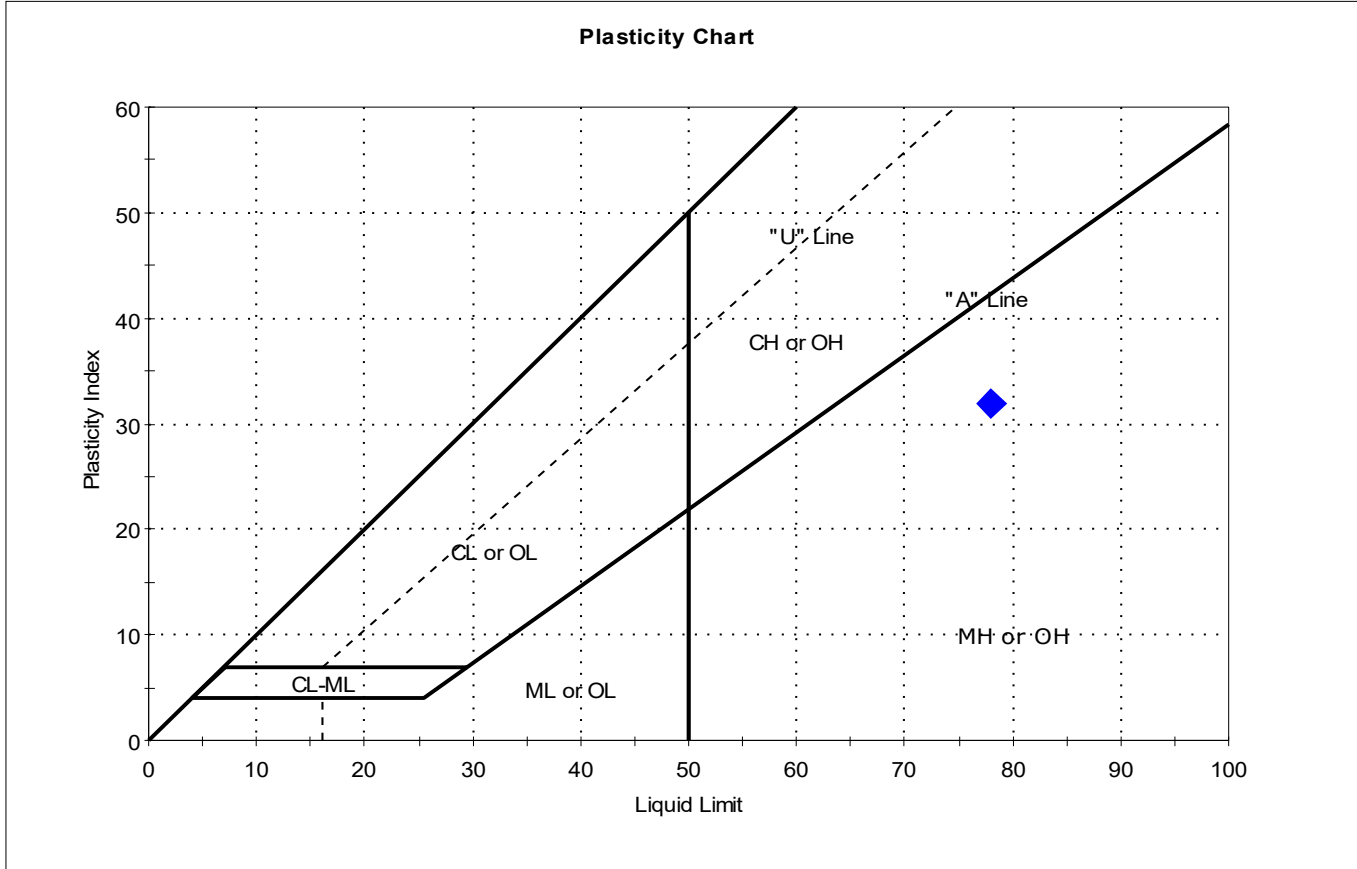
Sample Prepared using the WET method  
 3% Retained on #40 Sieve  
 Dry Strength: VERY HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-109SPT	Sample Type: bag	Tested By: cam	
Sample ID: 16.5-18.1-191004	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
◆	16.5-18.1-191004	DI-109SP	---	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:	PDI-109SPT	Sample Type:	bag
Sample ID:	22-30-191004	Test Date:	10/25/19
Depth :	---	Checked By:	bfs
		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
◆	22-30-191004	DI-109SP	---	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:	PDI-109SPT	Sample Type:	bag
Sample ID:	35.5-48.3-191004	Test Date:	10/24/19
Depth :	---	Checked By:	bfs
		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
◆	35.5-48.3-191004	DI-109SP	---	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:	PDI-109SPT	Sample Type:	bag
Sample ID:	48.3-51-191004	Test Date:	11/12/19
Depth :	---	Checked By:	bfs
		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
◆	48.3-51-191004	DI-109SP	---	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:	PDI-110 B	Sample Type:	bag
Sample ID:	54-64.5-191015	Test Date:	10/24/19
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
◆	54-64.5-191015	PDI-110 B	---	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:	PDI-110SPT	Sample Type:	bag
Sample ID:	21-32-191010	Test Date:	10/24/19
Depth :	---	Checked By:	bfs
		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
◆	21-32-191010	DI-110SP	---	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:	PDI-110SPT	Sample Type:	bag
Sample ID:	32-45-191010	Test Date:	10/24/19
Depth :	---	Checked By:	bfs
		Test Id:	527500
Test Comment:	---		
Visual Description:	Moist, black sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

**Sample Determined to be non-plastic**

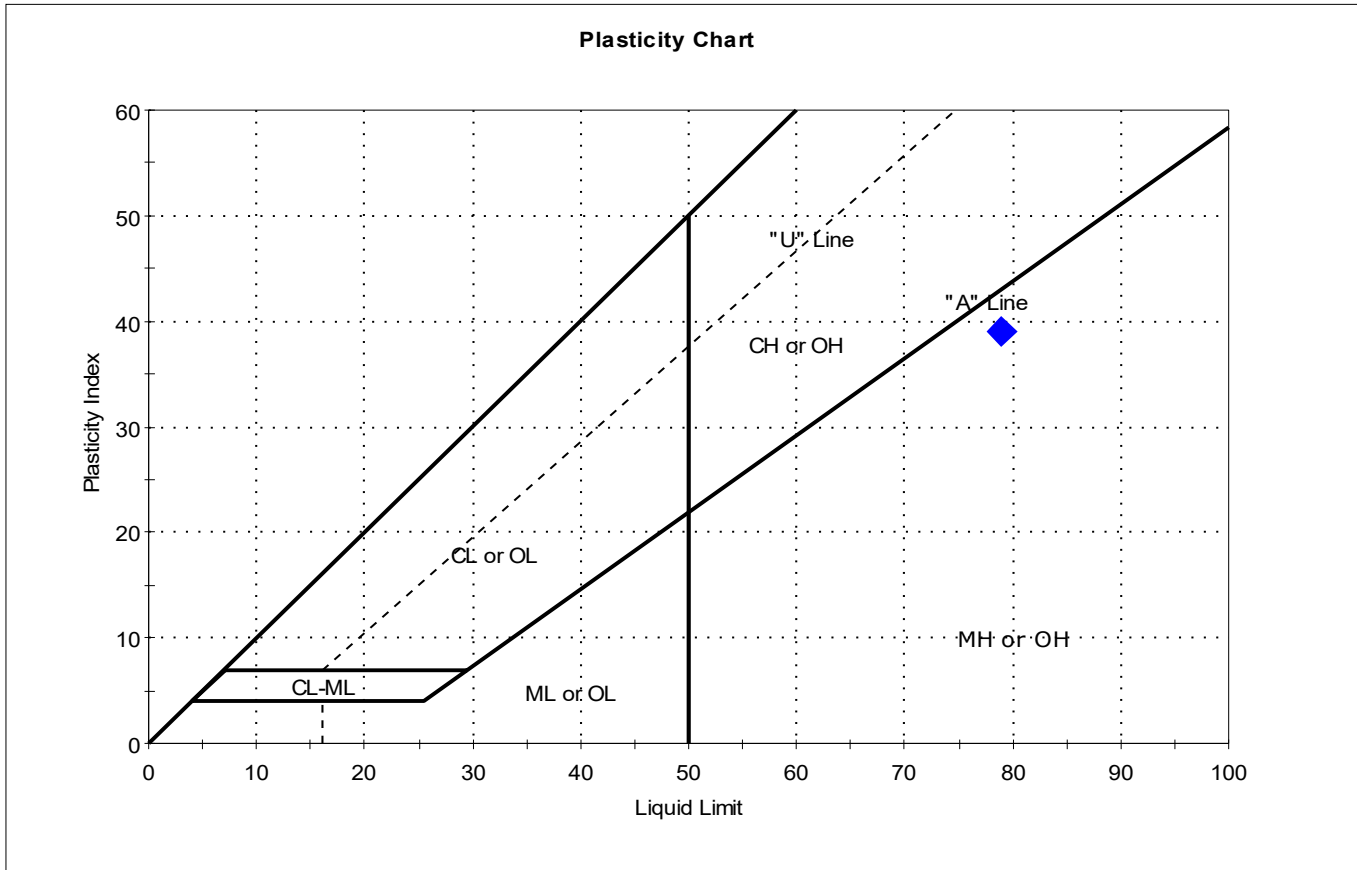
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	32-45-191010	DI-110SP	---	28	n/a	n/a	n/a	n/a	

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: PDI-112SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-6.5-191003	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
◆	00-6.5-191003	DI-112SP	---	77	79	40	39	0.9	Elastic SILT (MH)

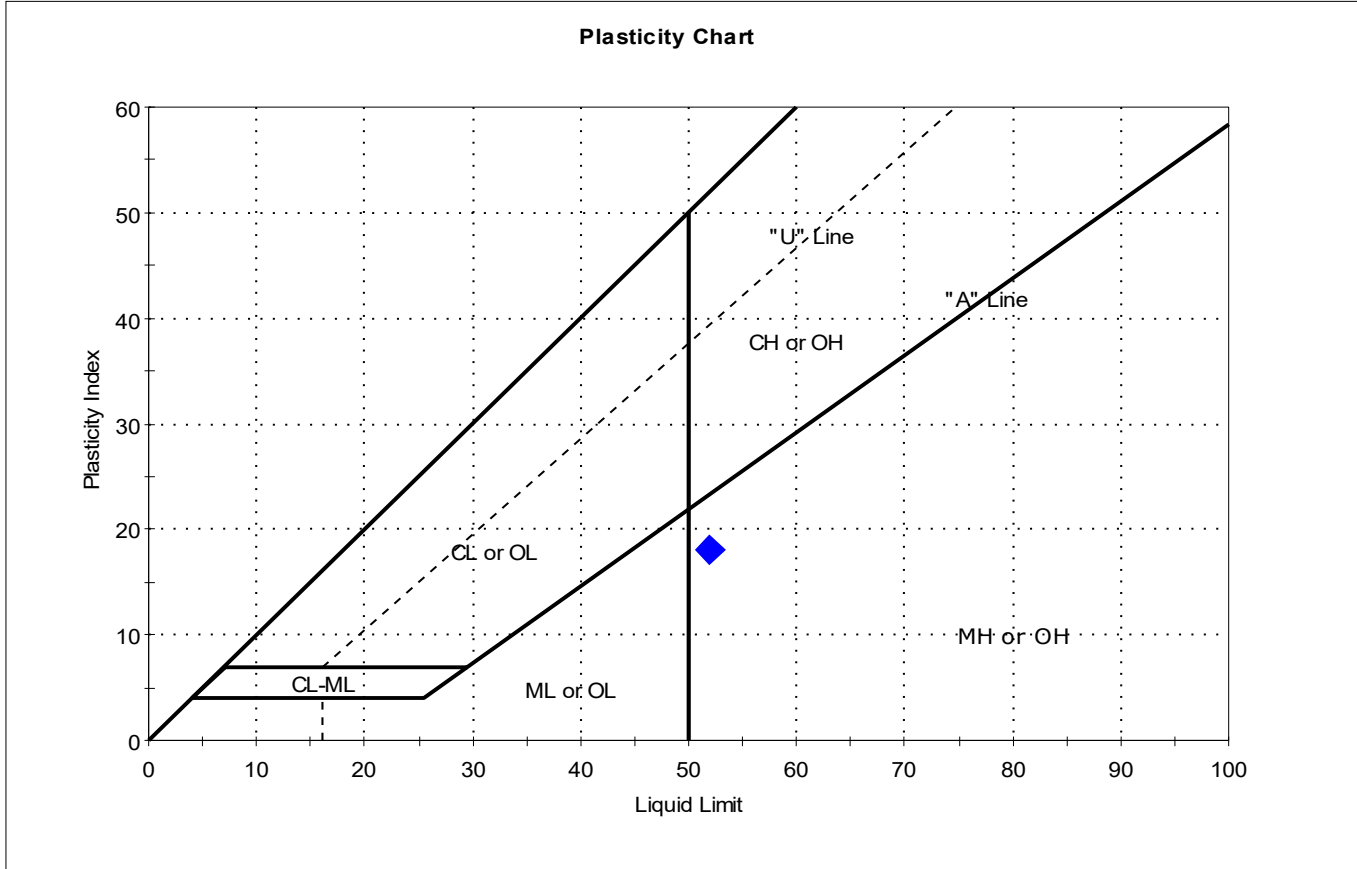
Sample Prepared using the WET method  
 0% Retained on #40 Sieve  
 Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-112SPT	Sample Type: bag	Tested By: cam	
Sample ID: 07-11.5-191003	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
◆	07-11.5-191003	DI-112SP	---	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:	PDI-112SPT	Sample Type:	bag
Sample ID:	11.5-26.5-191003	Test Date:	11/12/19
Depth :	---	Checked By:	bfs
		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
◆	11.5-26.5-191003	DI-112SP	---	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:	PDI-112SPT	Sample Type:	bag
Sample ID:	37.5-58-191003	Test Date:	10/28/19
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

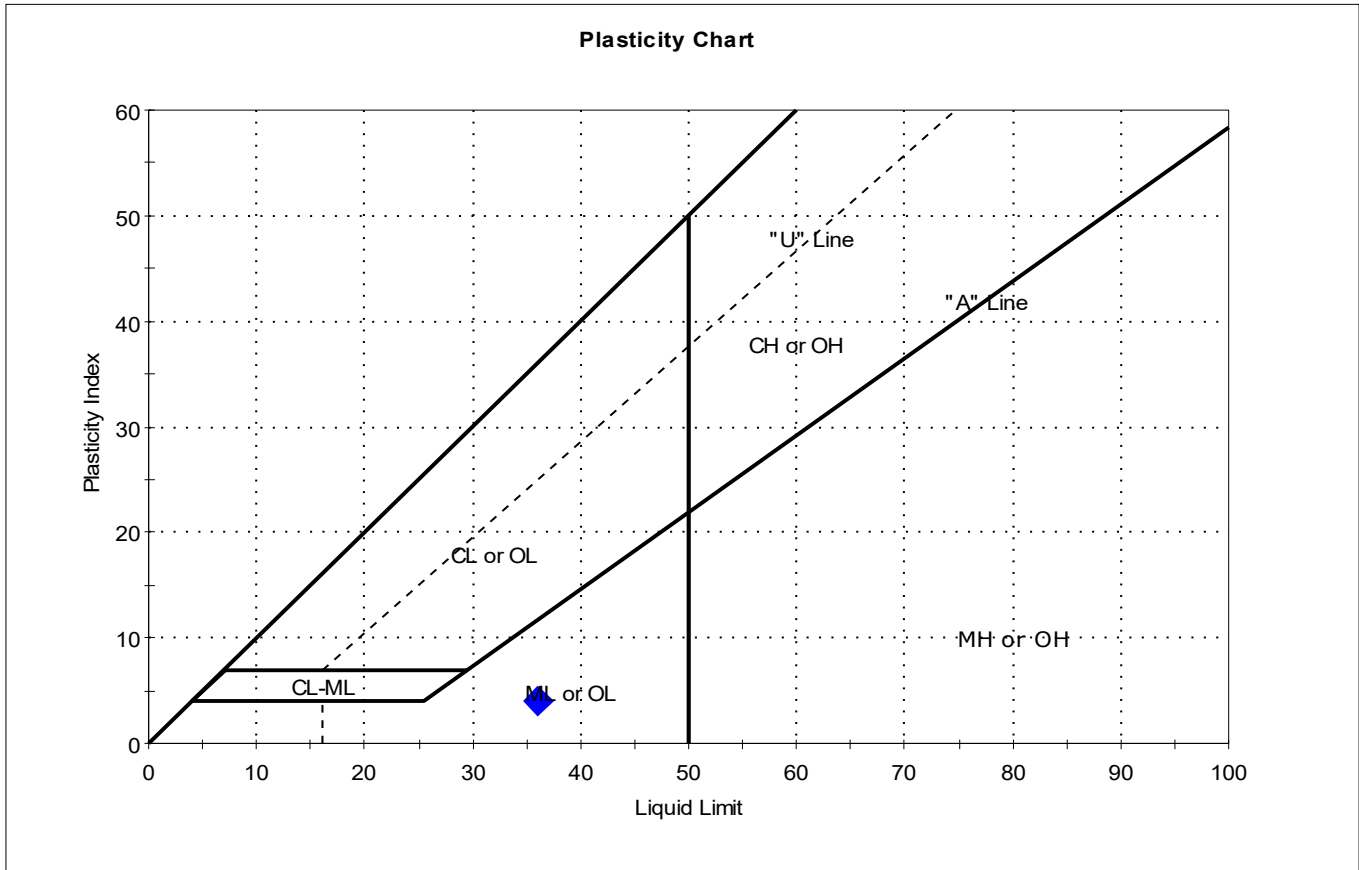
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	37.5-58-191003	DI-112SP	---	19	n/a	n/a	n/a	n/a	Silty SAND (SM)

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: PDI-113SPT	Sample Type: bag	Tested By: cam	
Sample ID: 06-16-191011	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
◆	06-16-191011	DI-113SP	---	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:	PDI-113SPT	Sample Type:	bag
Sample ID:	16-22-191011	Test Date:	10/23/19
Depth :	---	Checked By:	bfs
		Test Id:	527506
Test Comment:	---		
Visual Description:	Moist, dark grayish brown sand with silt		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

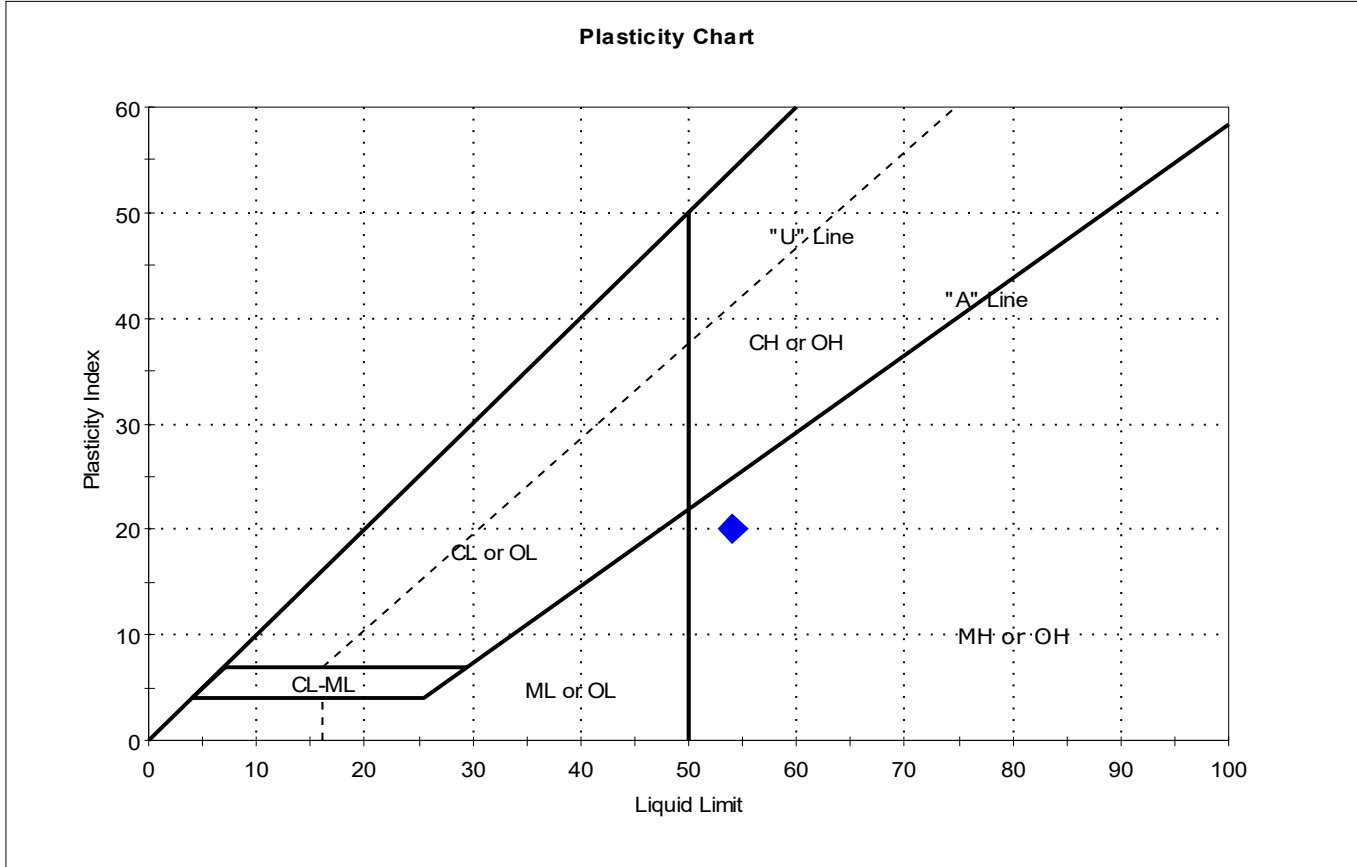
Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	16-22-191011	DI-113SP	---	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 No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-113SPT	Test Date: 11/12/19	Checked By: bfs
Sample ID: 22-25.2-191011	Test Id: 527507	
Depth: ---		
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
◆	22-25.2-191011	DI-113SP	---	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:	PDI-113SPT	Sample Type:	bag
Sample ID:	31.9-39.4-191011	Test Date:	10/23/19
Depth :	---	Checked By:	bfs
		Test Id:	527508
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

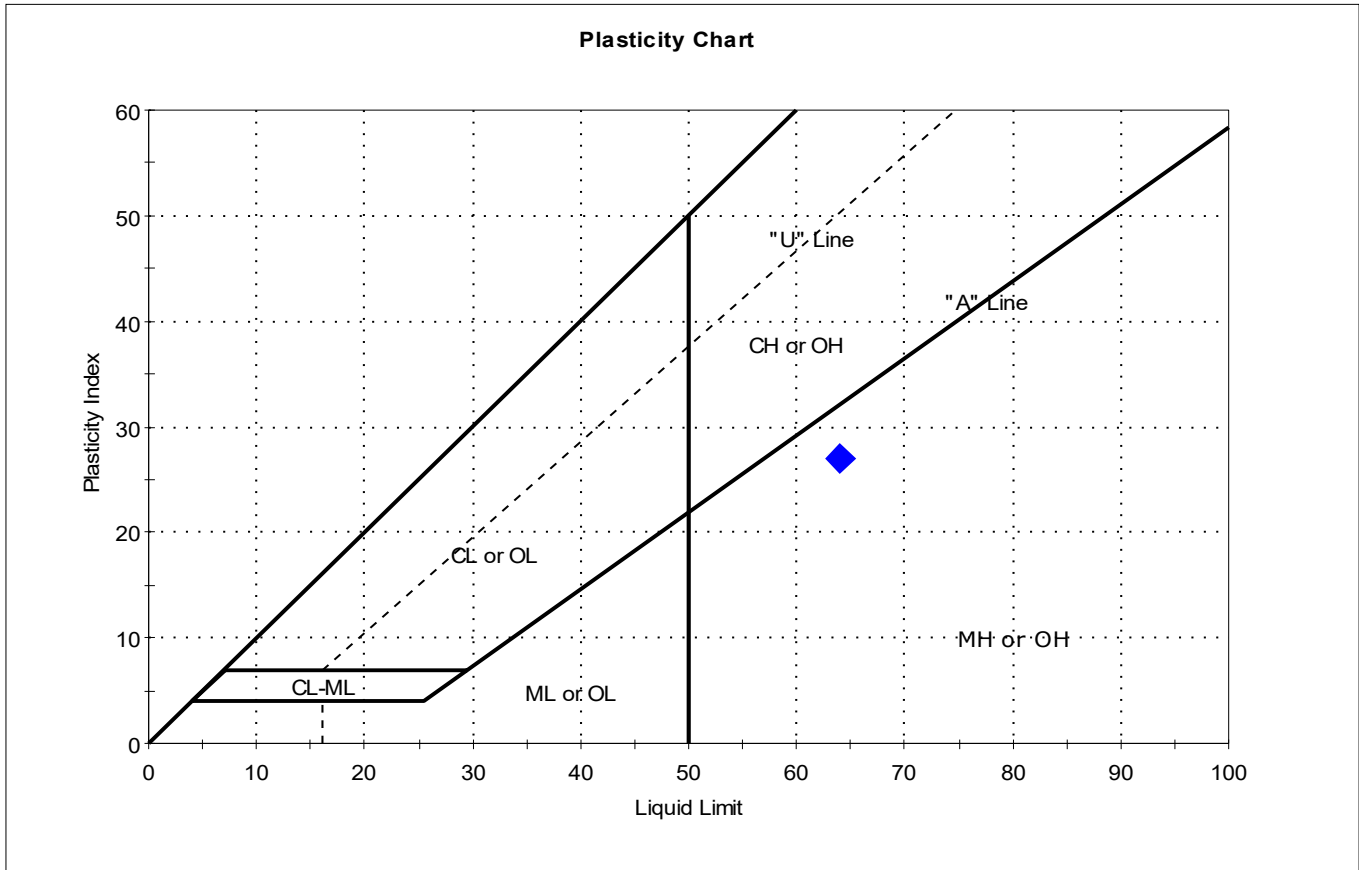
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	31.9-39.4-191011	DI-113SP	---	33	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-114SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-7.5-191008	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
◆	00-7.5-191008	DI-114SP	---	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:	PDI-114SPT	Sample Type:	bag
Sample ID:	25.5-28-191008	Test Date:	10/30/19
Depth :	---	Checked By:	bfs
		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

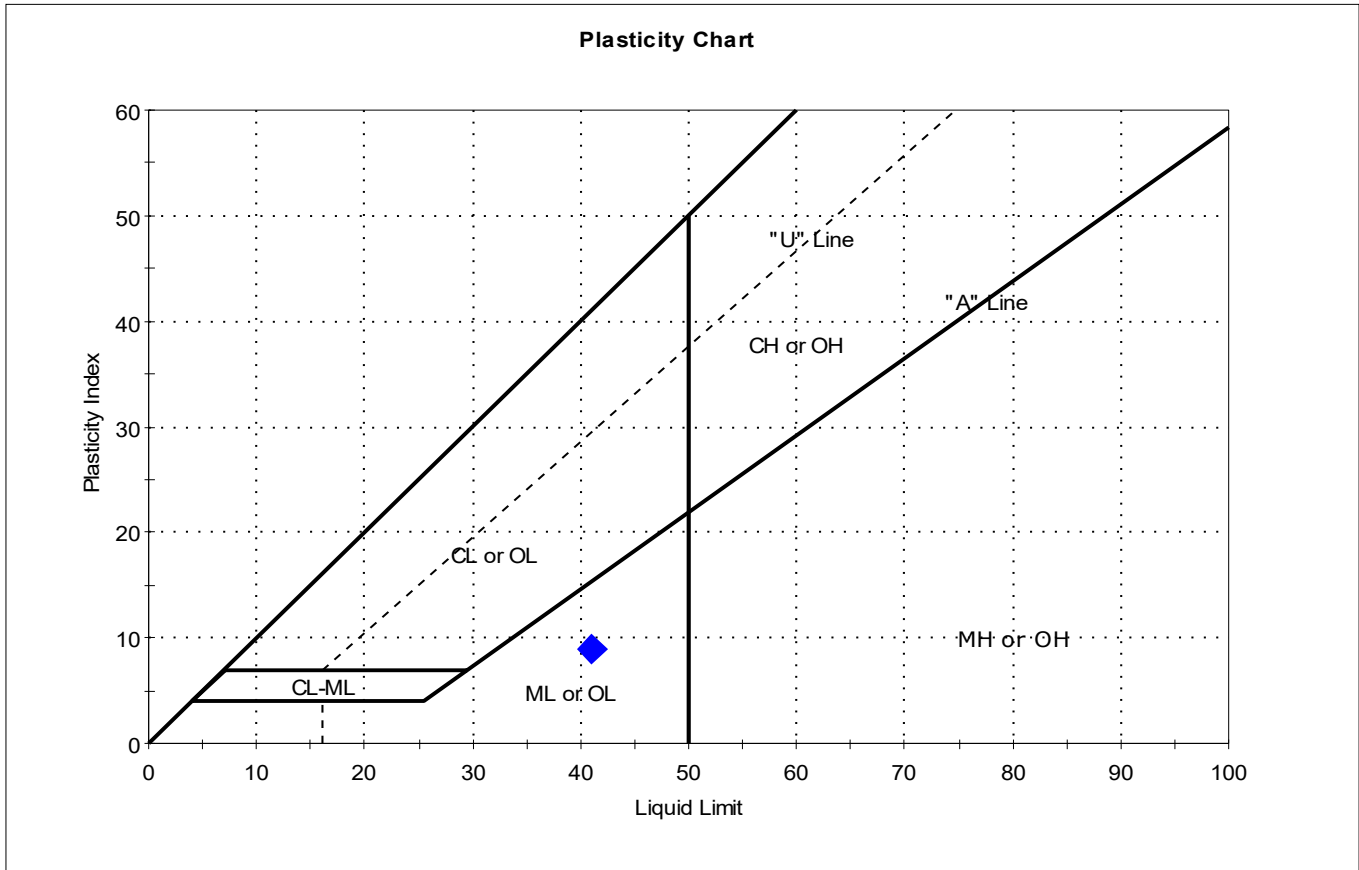
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	25.5-28-191008	DI-114SP	---	31	n/a	n/a	n/a	n/a	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-114SPT	Sample Type: bag	Tested By: cam	
Sample ID: 42-50.5-191008	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
◆	42-50.5-191008	DI-114SP	---	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:	PDI-114SPT	Sample Type:	bag
Sample ID:	50.5-55-191008	Test Date:	10/28/19
Depth :	---	Checked By:	bfs
		Test Id:	527512
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

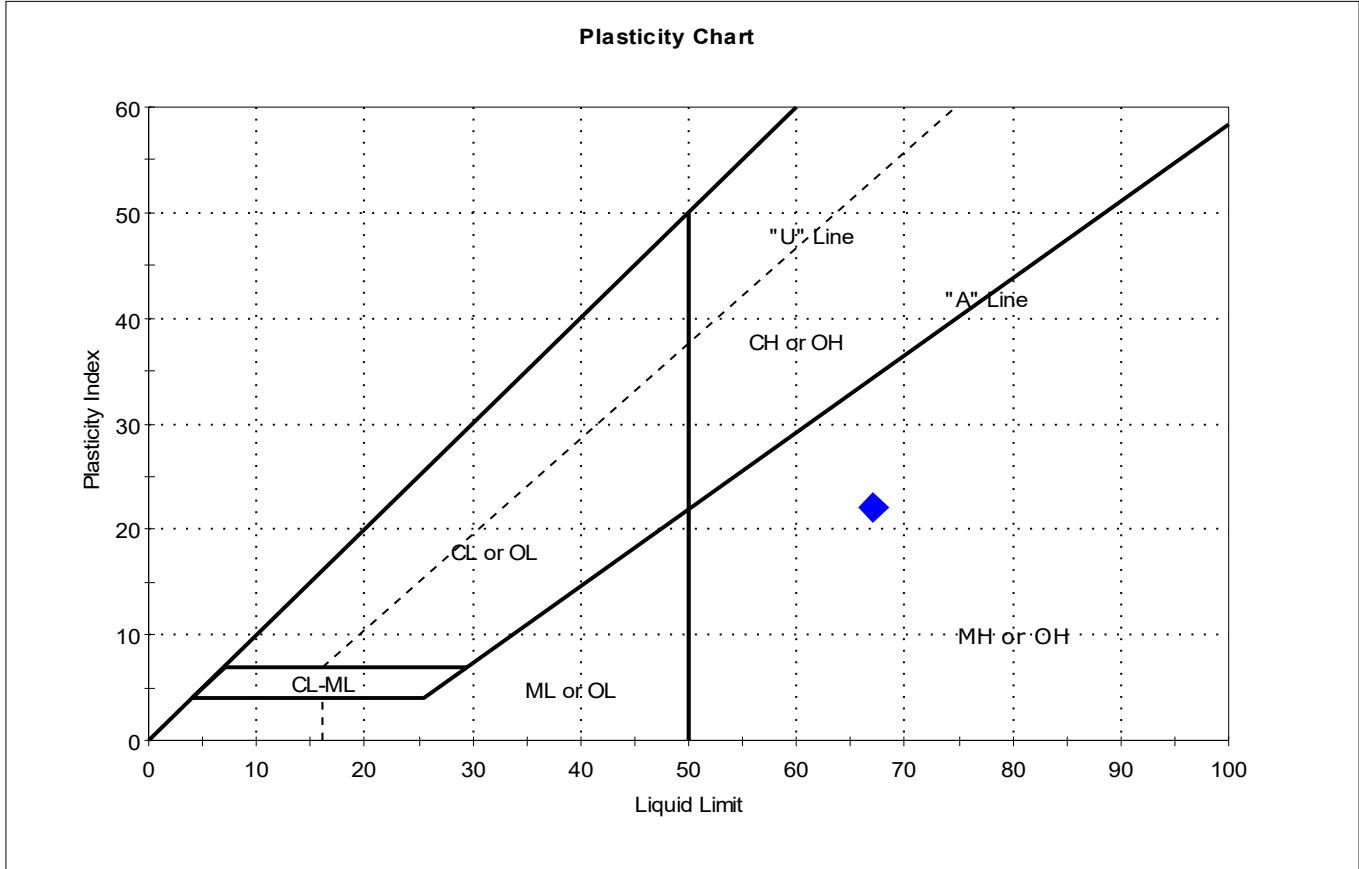
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	50.5-55-191008	DI-114SP	---	37	n/a	n/a	n/a	n/a	Silty SAND (SM)

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: PDI-114SPT	Sample Type: bag	Tested By: cam	
Sample ID: 7.5-12.5-191008	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
◆	7.5-12.5-191008	DI-114SP	---	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:	PDI-115SPT	Sample Type:	bag
Sample ID:	06-11-191009	Test Date:	10/24/19
Depth :	---	Checked By:	bfs
		Test Id:	527514
Test Comment:	---		
Visual Description:	Moist, very dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

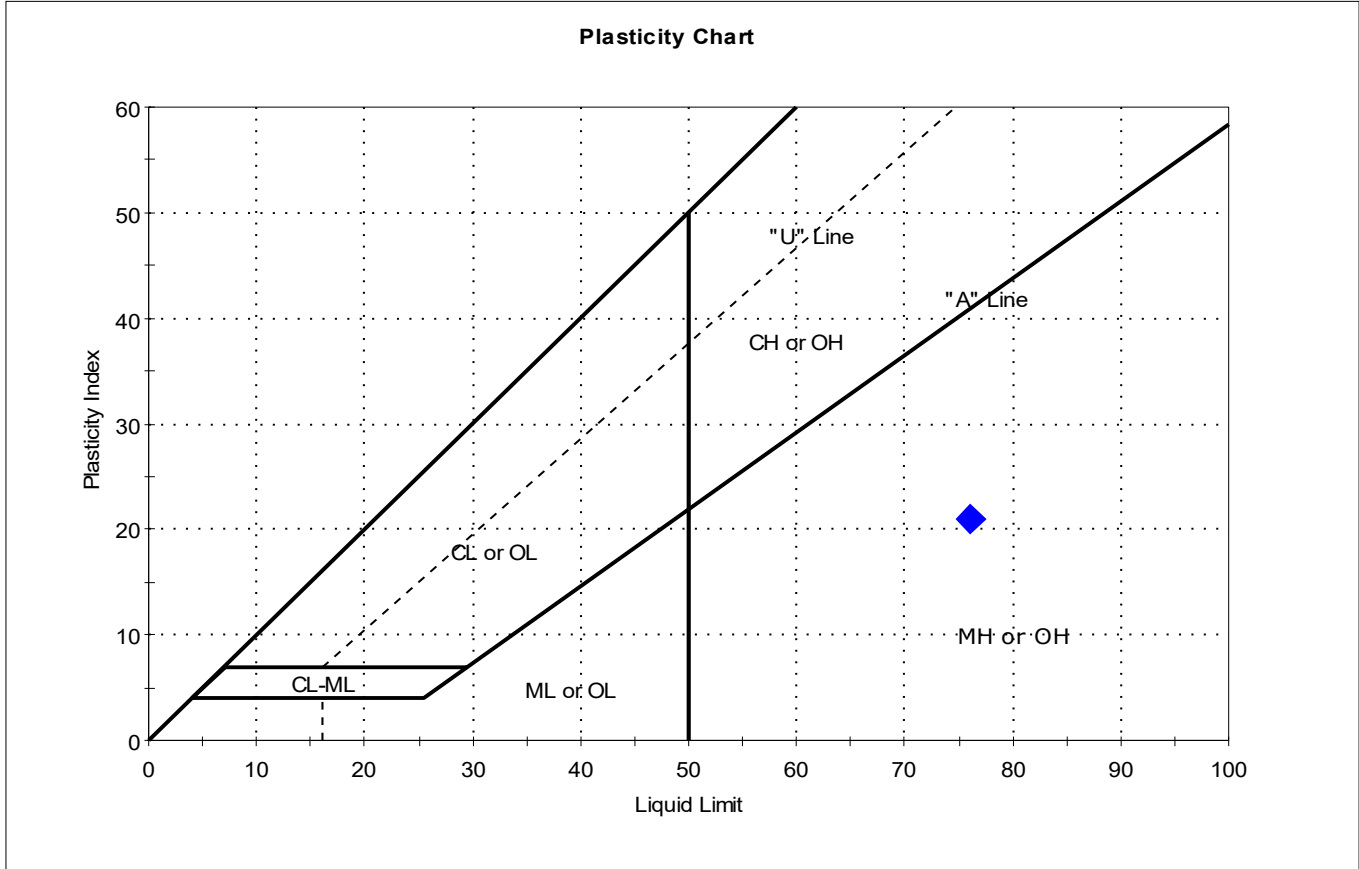
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	06-11-191009	DI-115SP	---	17	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-115SPT	Test Date: 11/13/19	Checked By: bfs
Sample ID: 18.6-20.6-191009	Test Id: 527515	
Depth: ---		
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
◆	18.6-20.6-191009	DI-115SP	---	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: PDI-115SPT	Sample Type: bag	Tested By: cam	
Sample ID: 23-28.1-191009	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: ---			

## 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
◆	23-28.1-191009	DI-115SP	---	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:	PDI-115SPT	Sample Type:	bag
Sample ID:	41.5-49.3-191009	Test Date:	10/25/19
Depth :	---	Checked By:	bfs
		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
◆	41.5-49.3-191009	DI-115SP	---	39	n/a	n/a	n/a	n/a	Silty SAND (SM)

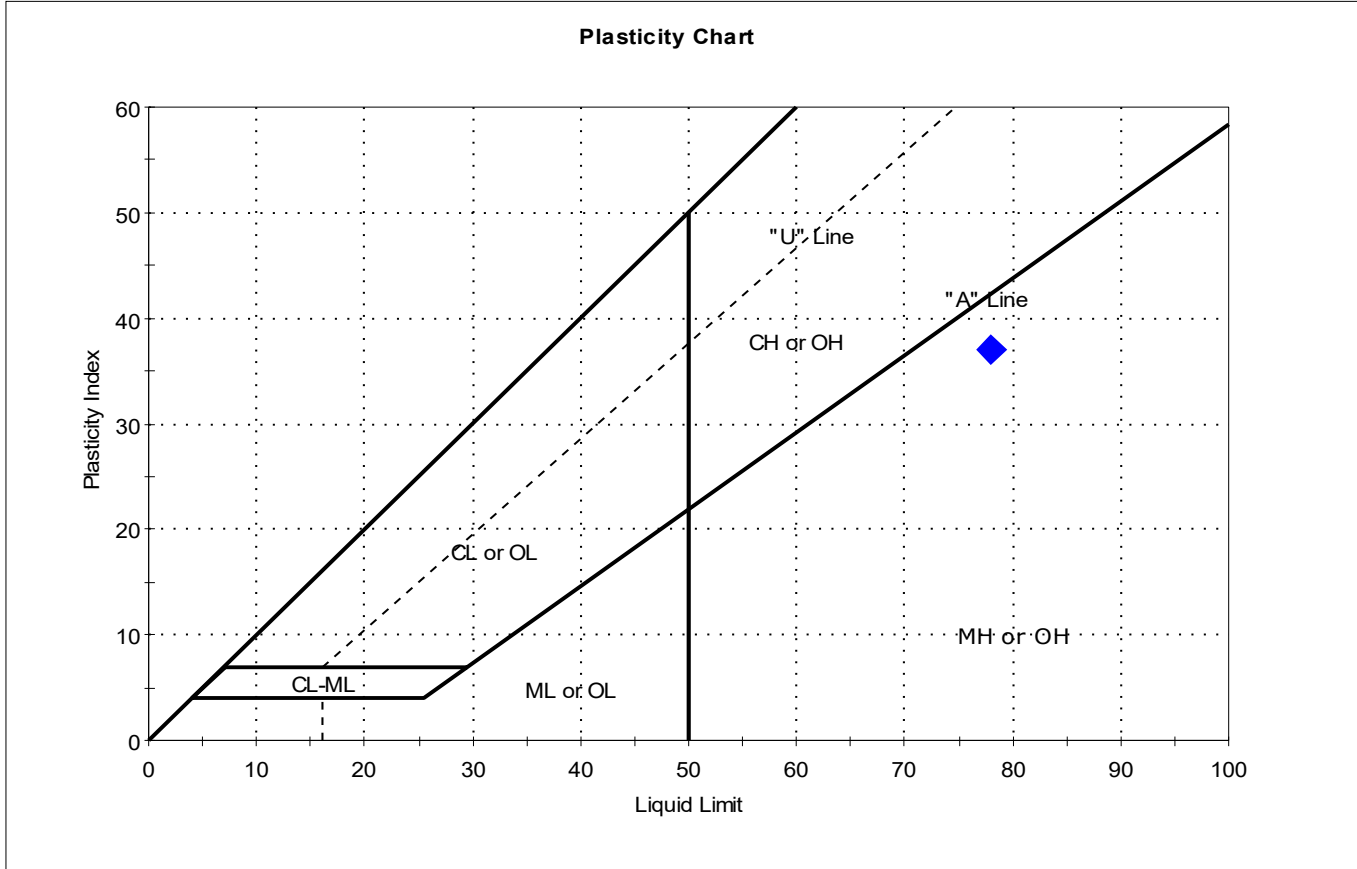
1% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-116SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-4.5-190926	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
◆	00-4.5-190926	DI-116SP	---	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:	PDI-116SPT	Sample Type:	bag
Sample ID:	20-26.7-190927	Test Date:	11/01/19
Depth :	---	Checked By:	bfs
		Test Id:	527519
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

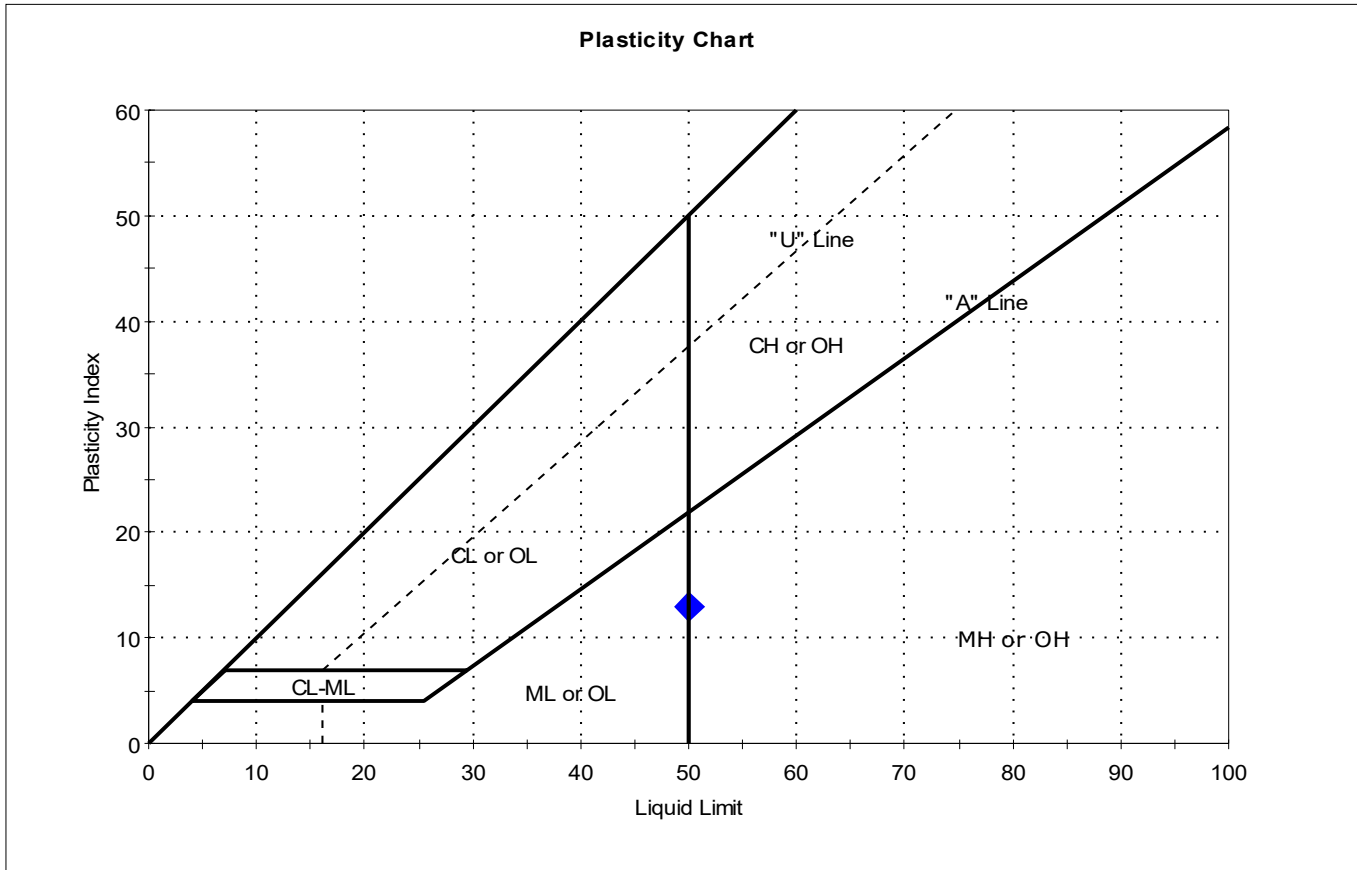
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	20-26.7-190927	DI-116SP	---	26	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-116SPT	Test Date: 11/11/19	Checked By: bfs
Sample ID: 26.7-28.6-190926	Test Id: 527520	
Depth: ---		
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
◆	26.7-28.6-190926	DI-116SP	---	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:	PDI-116SPT	Sample Type:	bag
Sample ID:	51.5-54.2-190927	Test Date:	10/25/19
Depth :	---	Checked By:	bfs
		Test Id:	527521
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
◆	51.5-54.2-190927	DI-116SP	---	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:	PDI-117SPT	Sample Type:	bag
Sample ID:	11-29.1-191002	Test Date:	10/28/19
Depth :	---	Checked By:	bfs
		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
◆	11-29.1-191002	DI-117SP	---	38	n/a	n/a	n/a	n/a	

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:	PDI-117SPT	Sample Type:	bag
Sample ID:	29.1-32-191002	Test Date:	11/05/19
Depth :	---	Checked By:	bfs
		Test Id:	527523
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

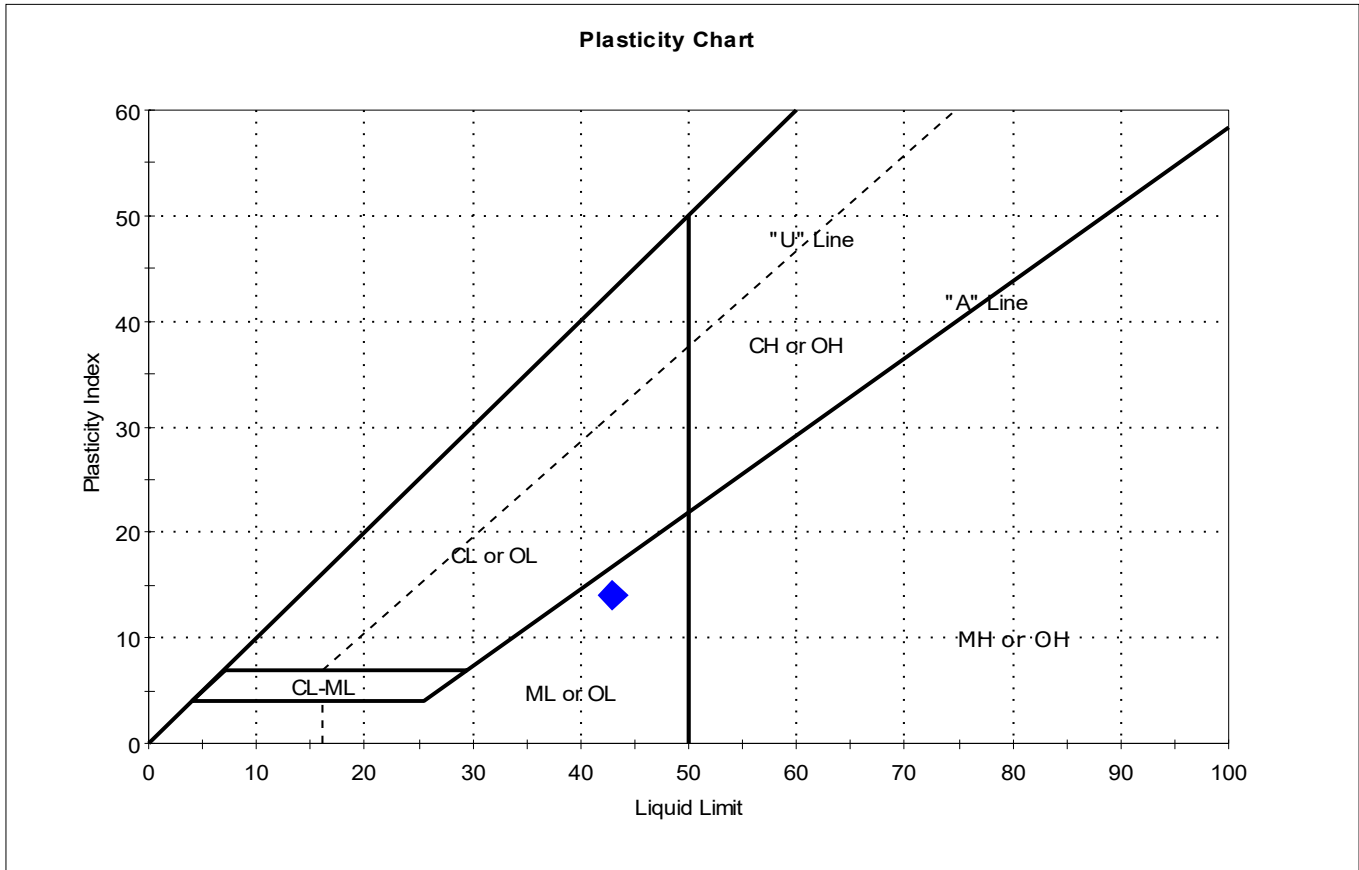
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	29.1-32-191002	DI-117SP	---	45	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-117SPT	Test Date: 11/11/19	Checked By: bfs
Sample ID: 44.1-53.5-191002	Test Id: 527524	
Depth: ---		
Test Comment: ---		
Visual Description: Moist, dark gray silty sand		
Sample Comment: ---		

## Atterberg Limits - ASTM D4318



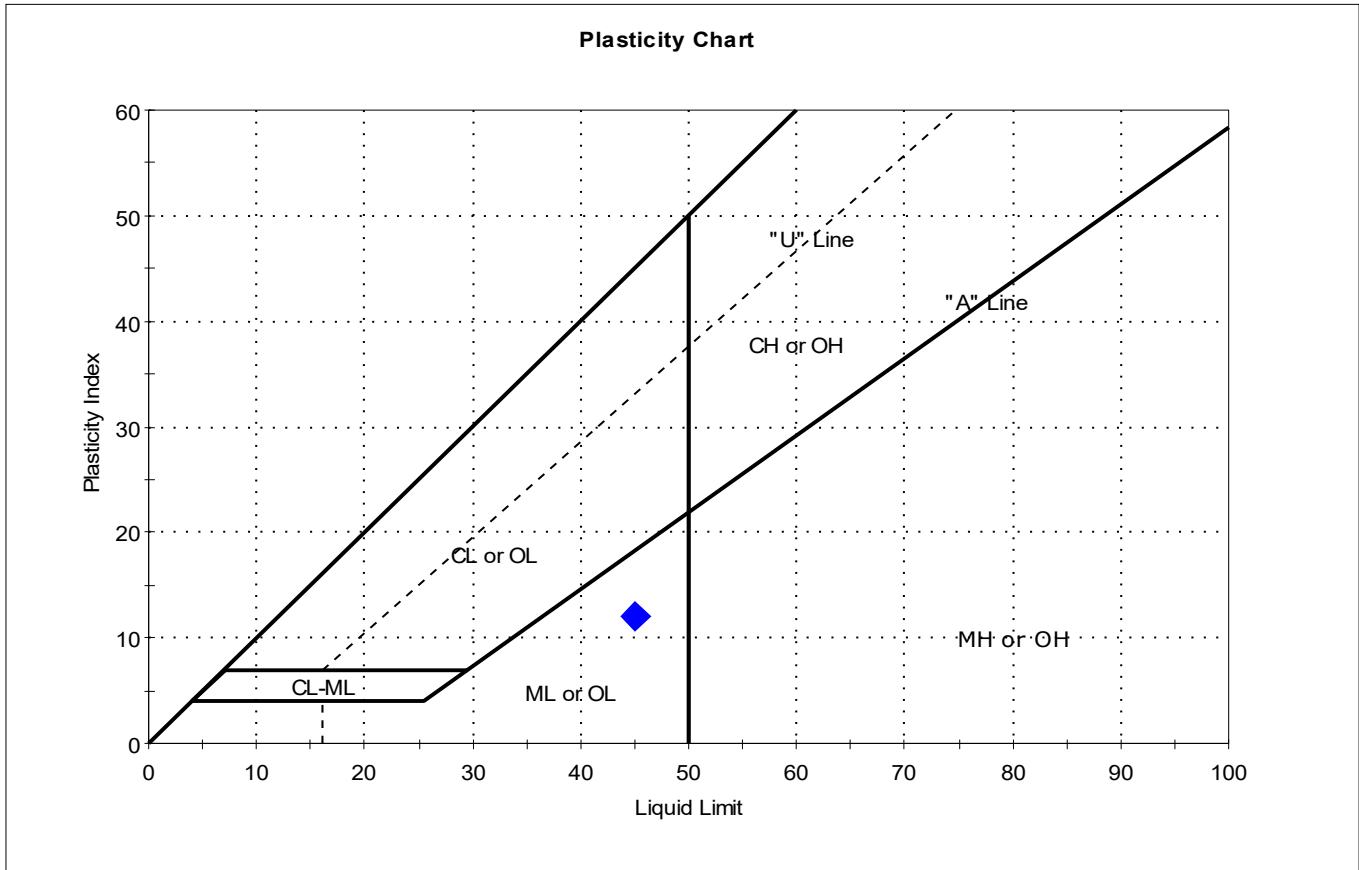
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	44.1-53.5-191002	DI-117SP	---	46	43	29	14	1.2	Silty SAND (SM)

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: PDI-117SPT	Sample Type: bag	Tested By: cam	
Sample ID: 53.5-63.5-191002	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
◆	53.5-63.5-191002	DI-117SP	---	83	45	33	12	4.2	SILT with Sand (ML)

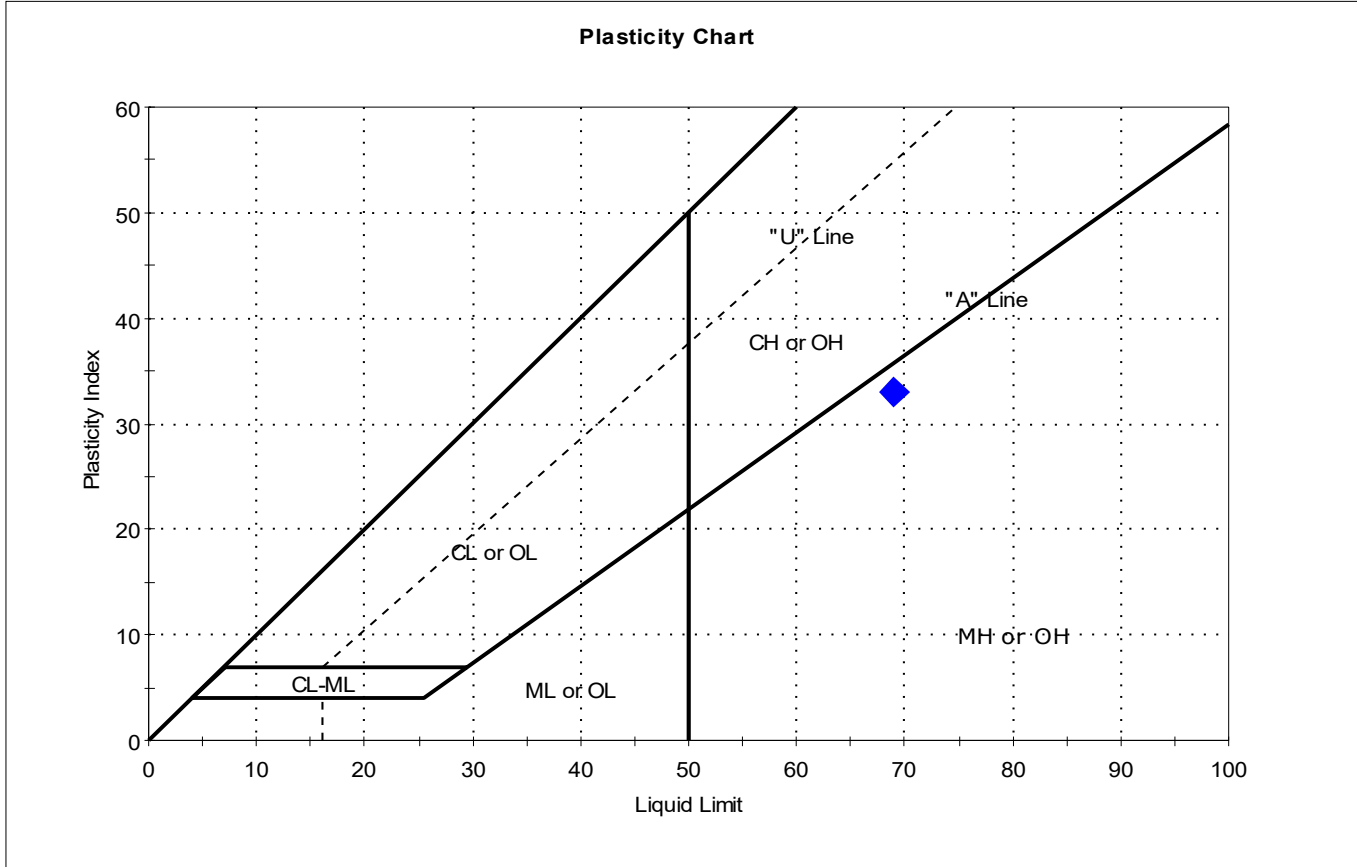
Sample Prepared using the WET method  
 1% Retained on #40 Sieve  
 Dry Strength: HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-118SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-4.5-191014	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



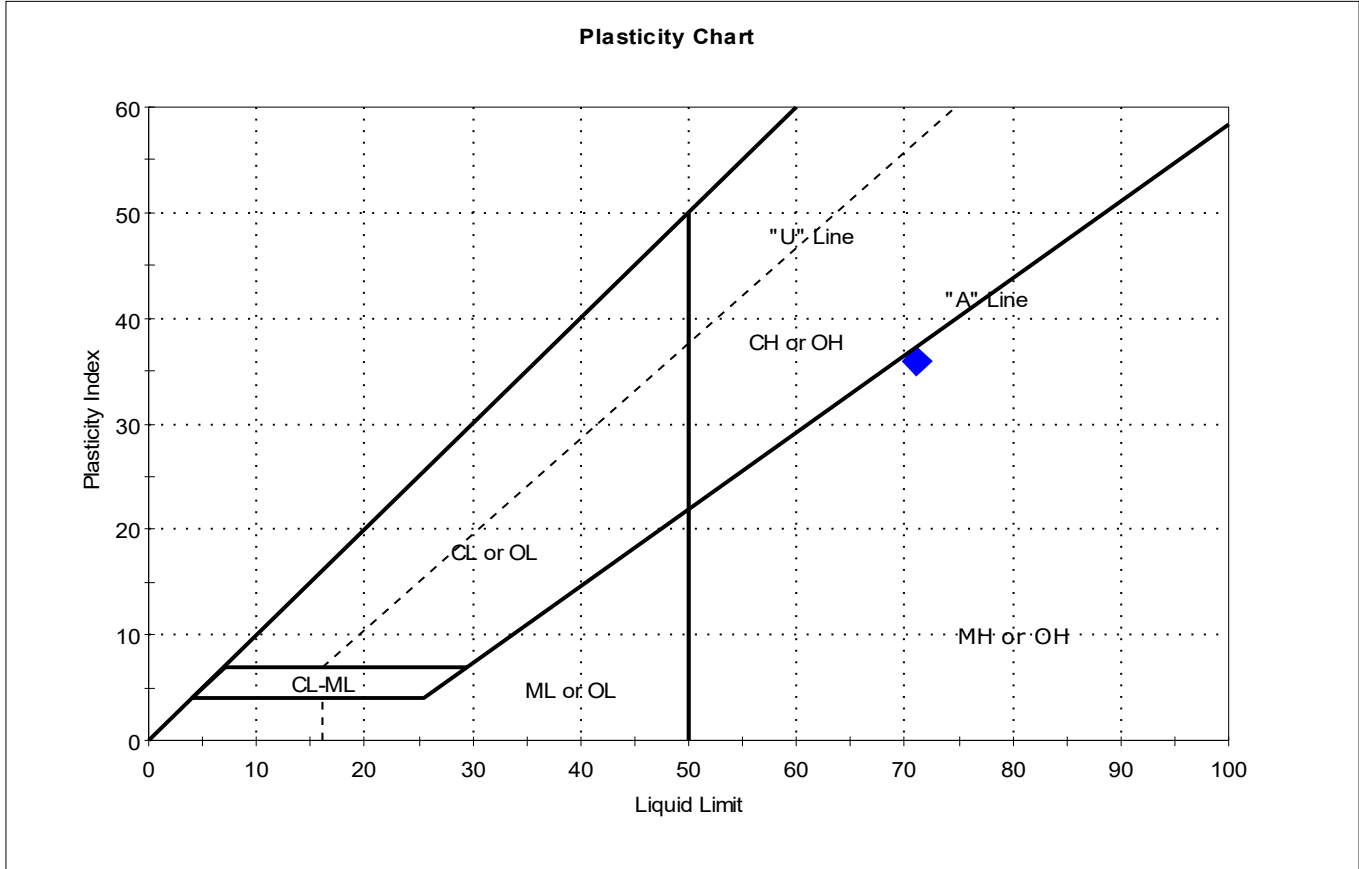
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	00-4.5-191014	DI-118SP	---	113	69	36	33	2.3	Elastic SILT (MH)

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



Client: Anchor QEA, LLC	Project No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-118SPT	Test Date: 11/12/19	Checked By: bfs
Sample ID: 4.5-15-191014	Test Id: 527527	
Depth: ---		
Test Comment: ---		
Visual Description: Moist, dark grayish brown silt with sand		
Sample Comment: ---		

## Atterberg Limits - ASTM D4318



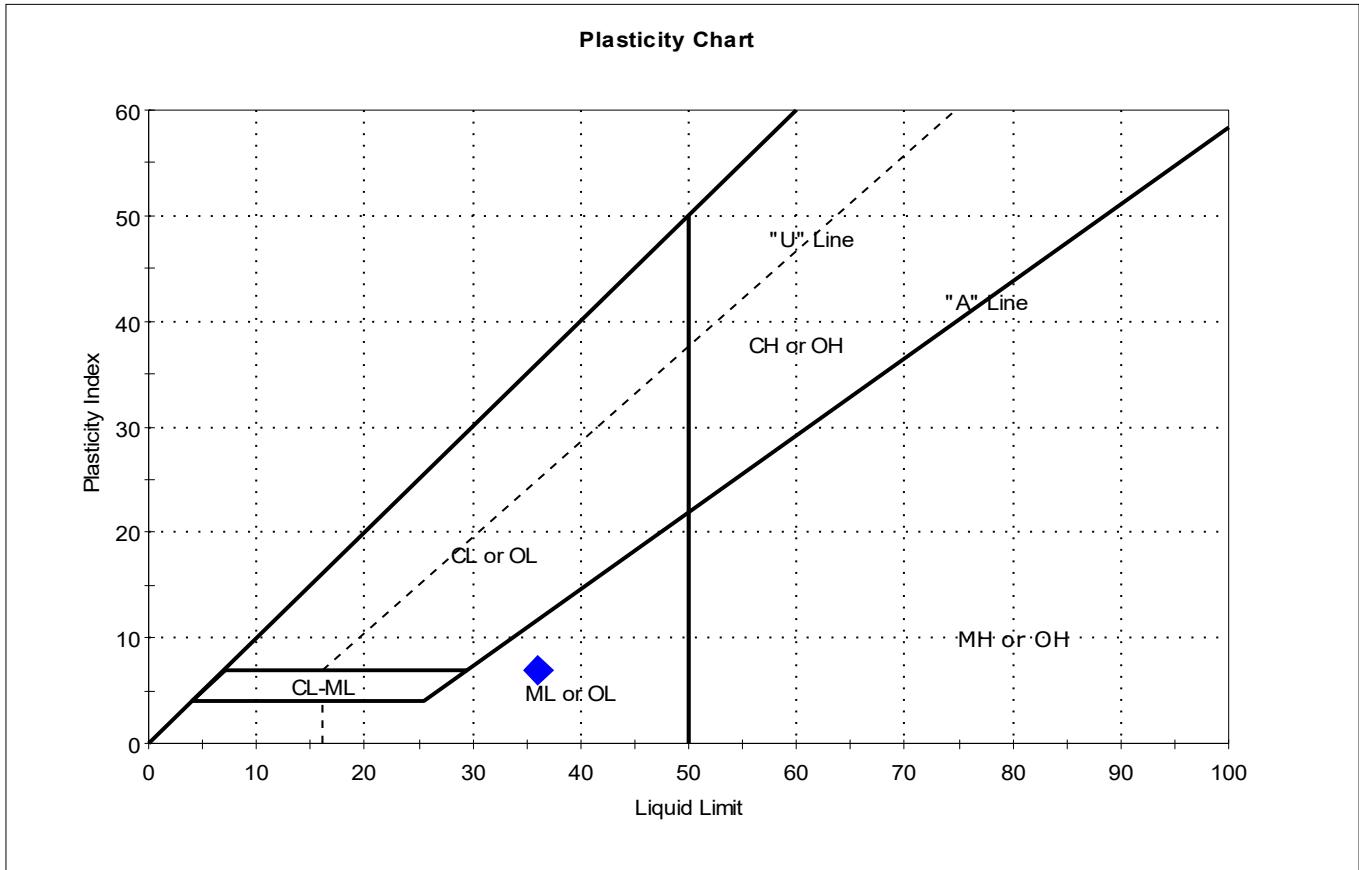
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	4.5-15-191014	DI-118SP	---	70	71	35	36	1	Elastic SILT with Sand (MH)

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: PDI-118SPT	Sample Type: bag	Tested By: cam	
Sample ID: 46.5-61-191014	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



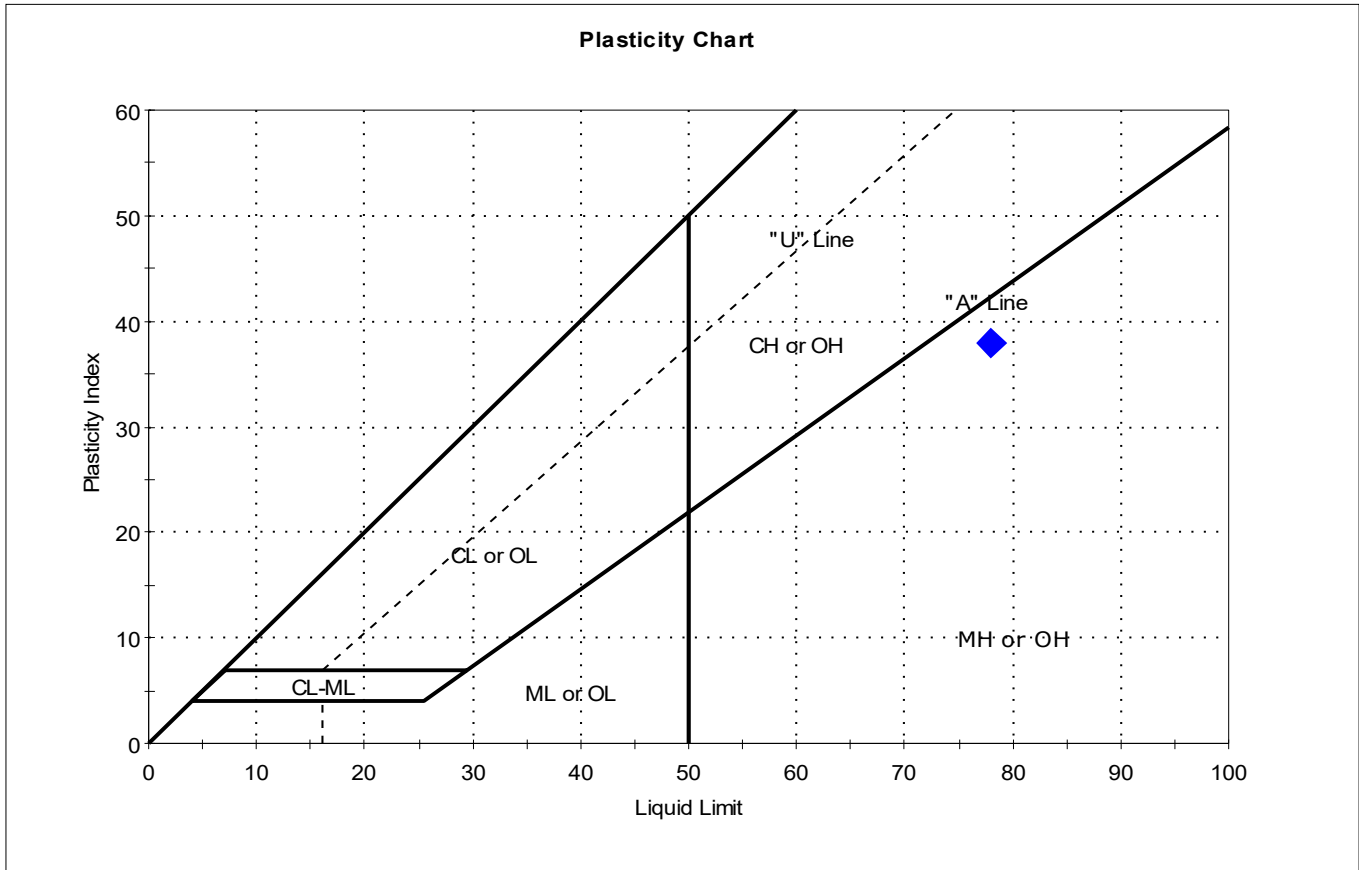
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	46.5-61-191014	DI-118SP	---	62	36	29	7	4.7	Silty SAND (SM)

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: PDI-119SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-4.5-191001	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
◆	00-4.5-191001	DI-119SP	---	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:	PDI-119SPT	Sample Type:	bag
Sample ID:	18.3-31-191001	Test Date:	10/25/19
Depth :	---	Checked By:	bfs
		Test Id:	527530
Test Comment:	---		
Visual Description:	Moist, dark gray silty sand		
Sample Comment:	---		

## Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

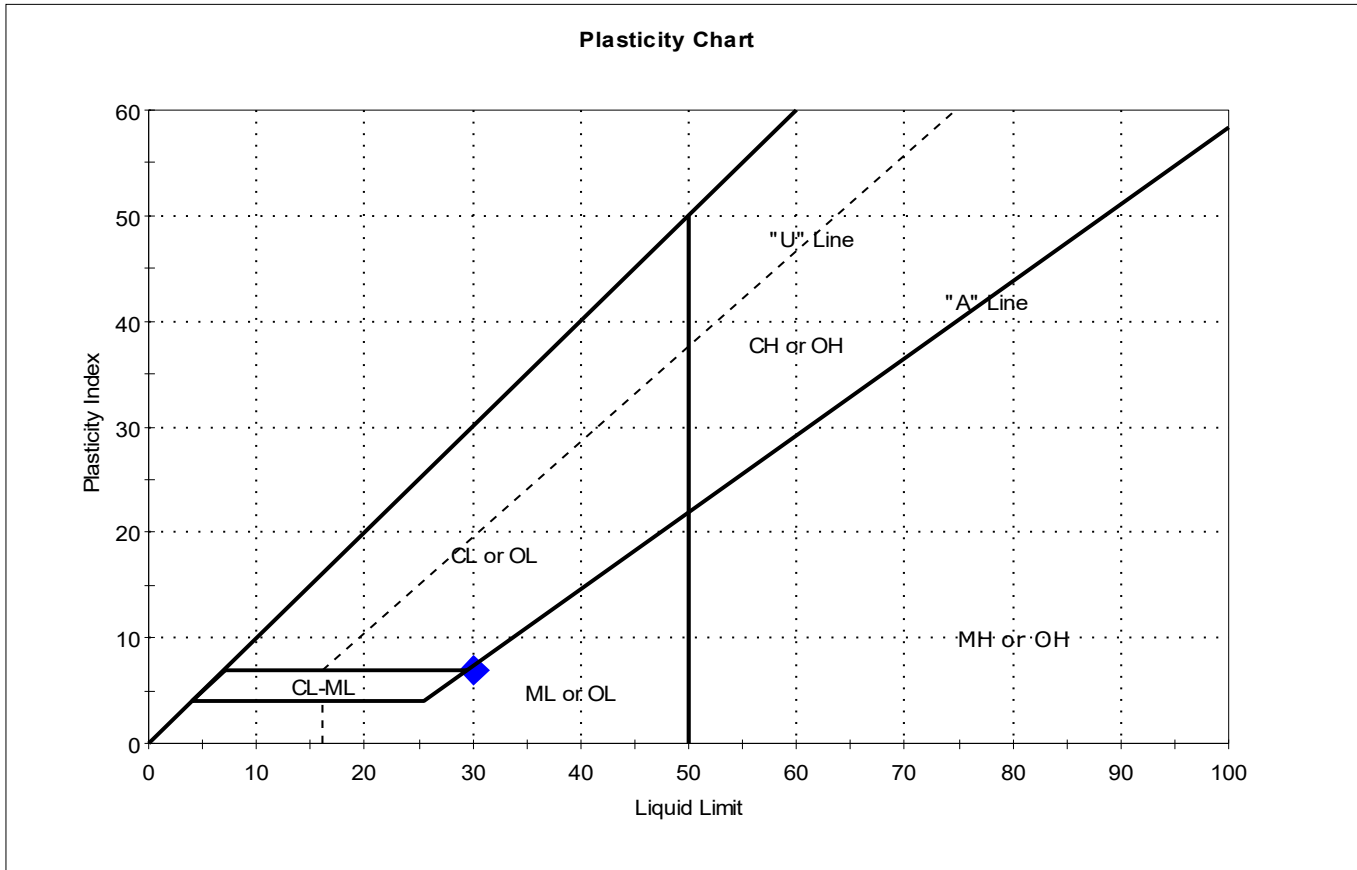
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	18.3-31-191001	DI-119SP	---	30	n/a	n/a	n/a	n/a	Silty SAND (SM)

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 No: GTX-310685	
Project: Gasco PDI		
Location:	Sample Type: bag	Tested By: cam
Boring ID: PDI-119SPT	Test Date: 11/11/19	Checked By: bfs
Sample ID: 47-52-191001	Test Id: 527531	
Depth: ---		
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
◆	47-52-191001	DI-119SP	---	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:	PDI-119SPT	Sample Type:	bag
Sample ID:	9.5-18.3-191001	Test Date:	11/12/19
Depth :	---	Checked By:	bfs
		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

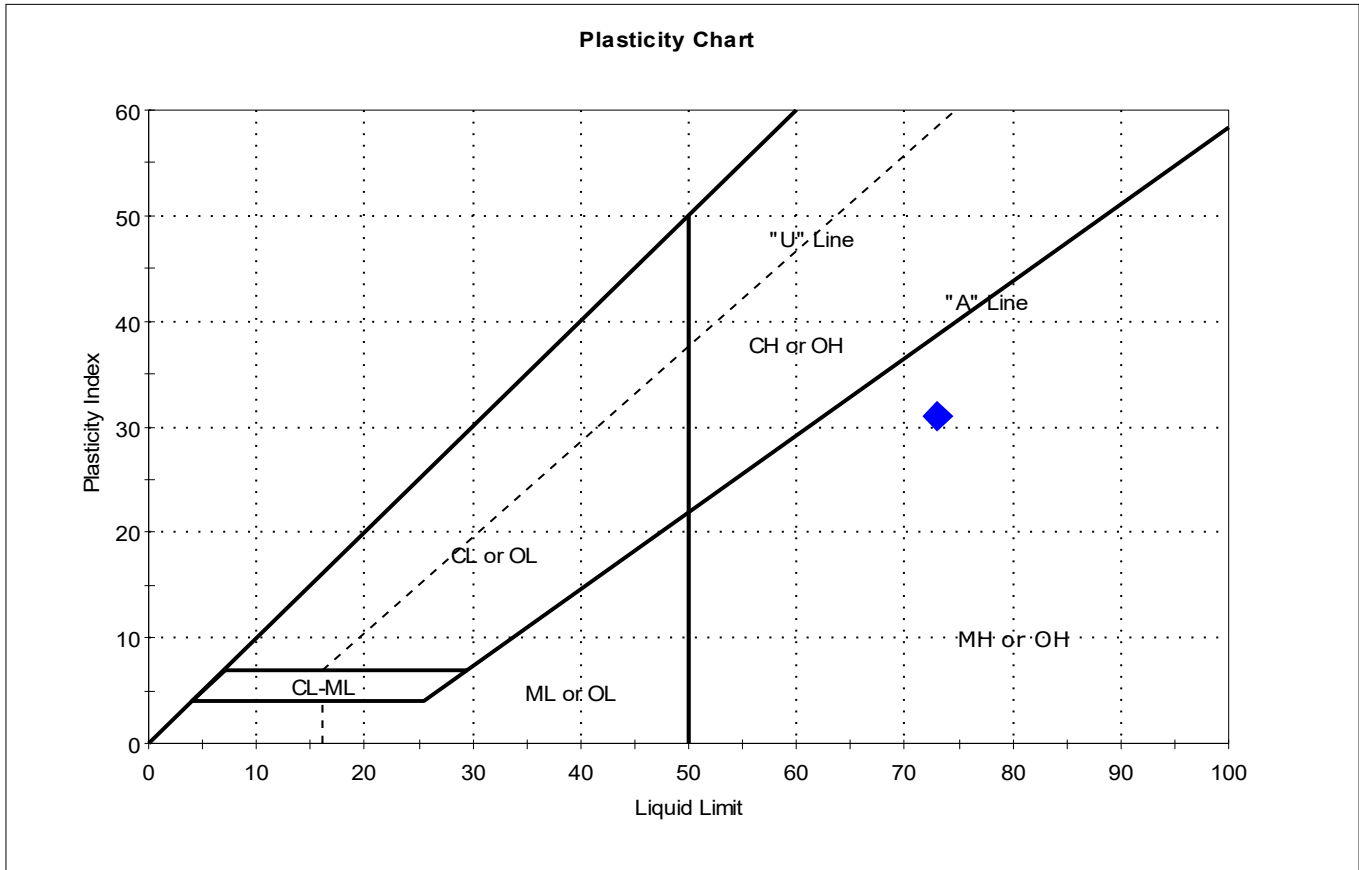
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	9.5-18.3-191001	DI-119SP	---	37	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

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: PDI-121SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-06-190930	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
◆	00-06-190930	DI-121SP	---	76	73	42	31	1.1	Elastic SILT (MH)

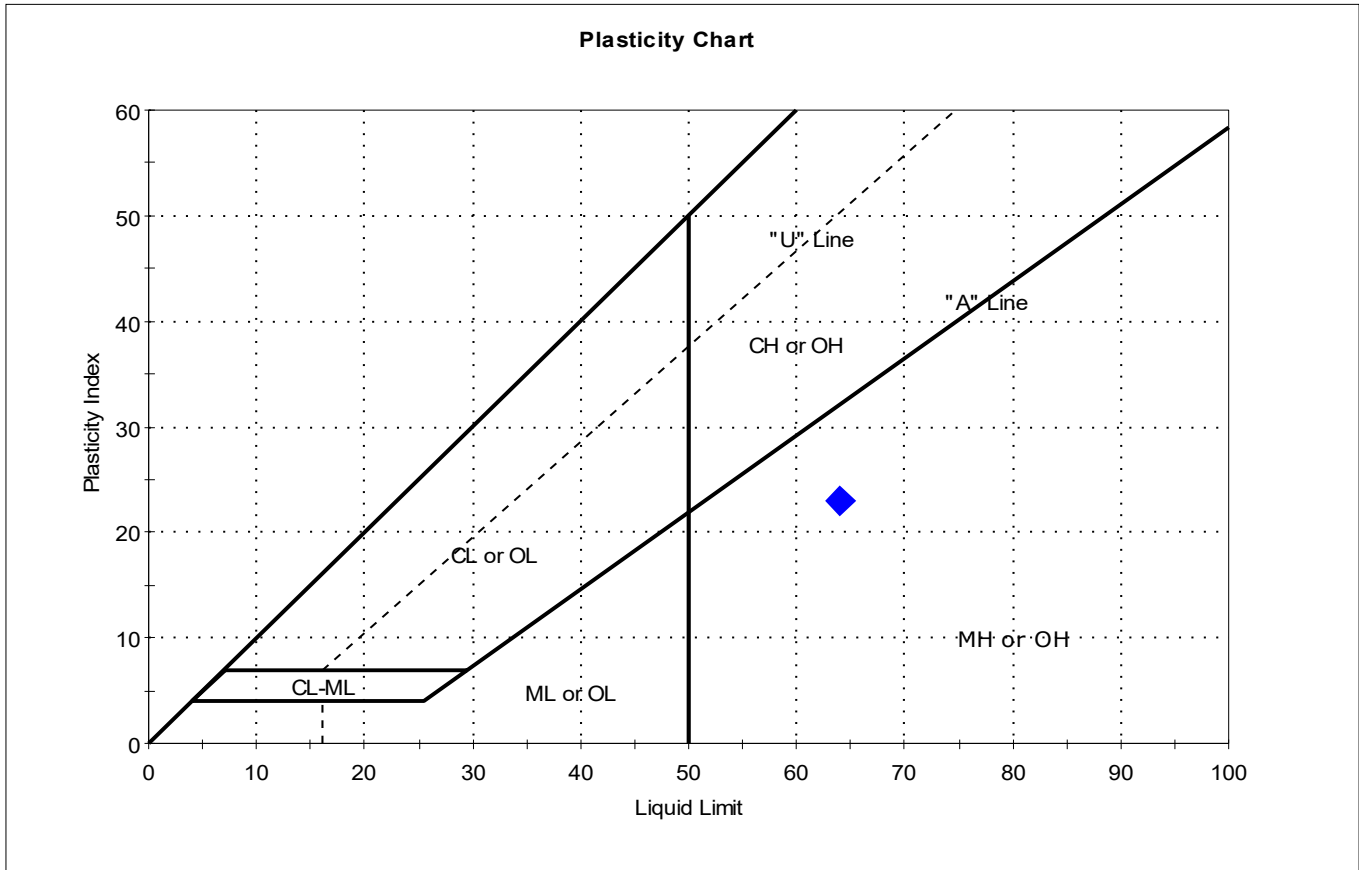
Sample Prepared using the WET method  
 0% Retained on #40 Sieve  
 Dry Strength: VERY HIGH  
 Dilatancy: SLOW  
 Toughness: LOW





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-121SPT	Sample Type: bag	Tested By: cam	
Sample ID: 11-20.7-190930	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
◆	11-20.7-190930	DI-121SP	---	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:	PDI-121SPT	Sample Type:	bag
Sample ID:	21-38-190930	Test Date:	10/28/19
Depth :	---	Checked By:	bfs
		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

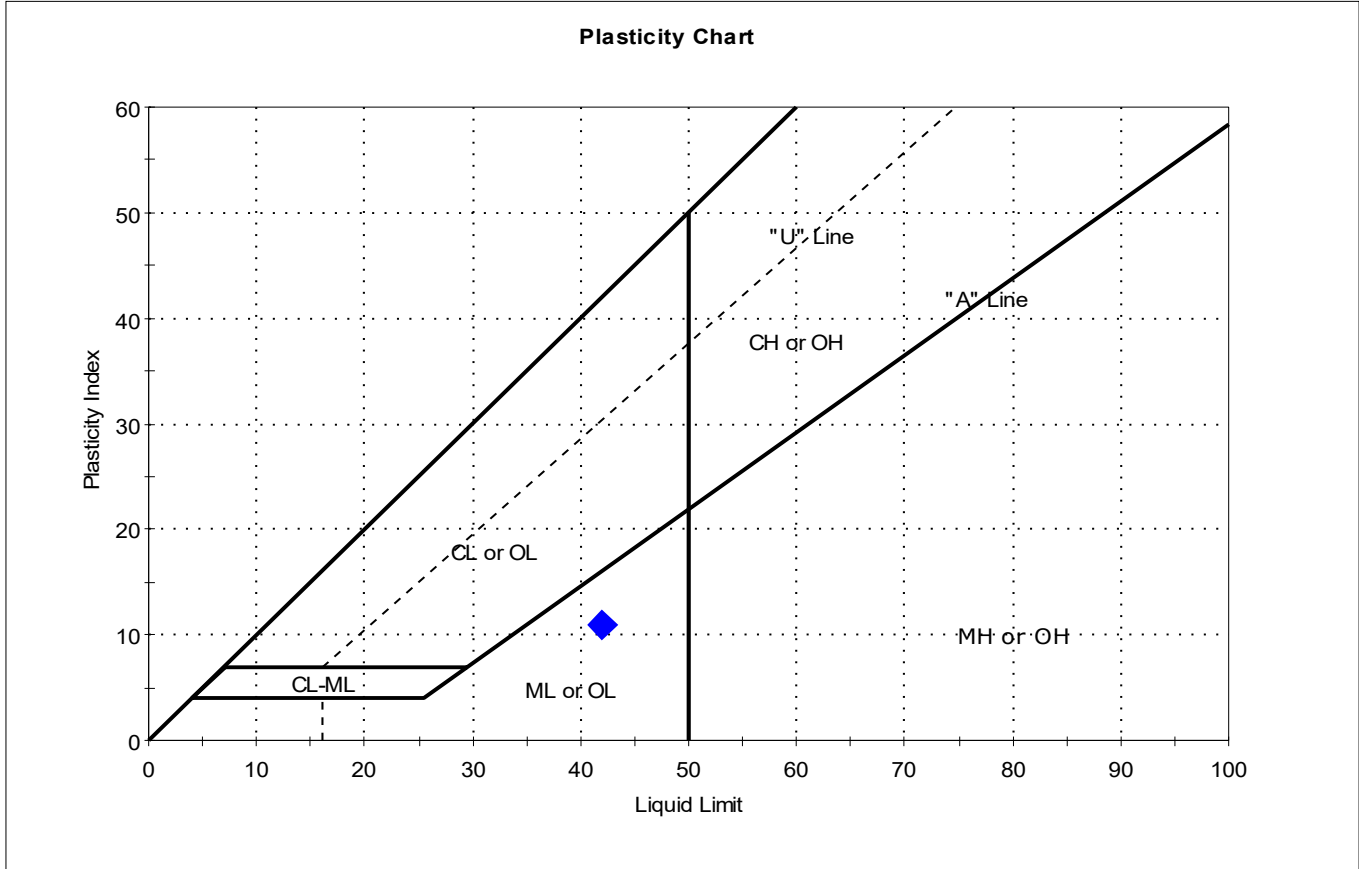
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	21-38-190930	DI-121SP	---	43	n/a	n/a	n/a	n/a	Silty SAND (SM)

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: PDI-121SPT	Sample Type: bag	Tested By: cam	
Sample ID: 49.4-54-190930	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



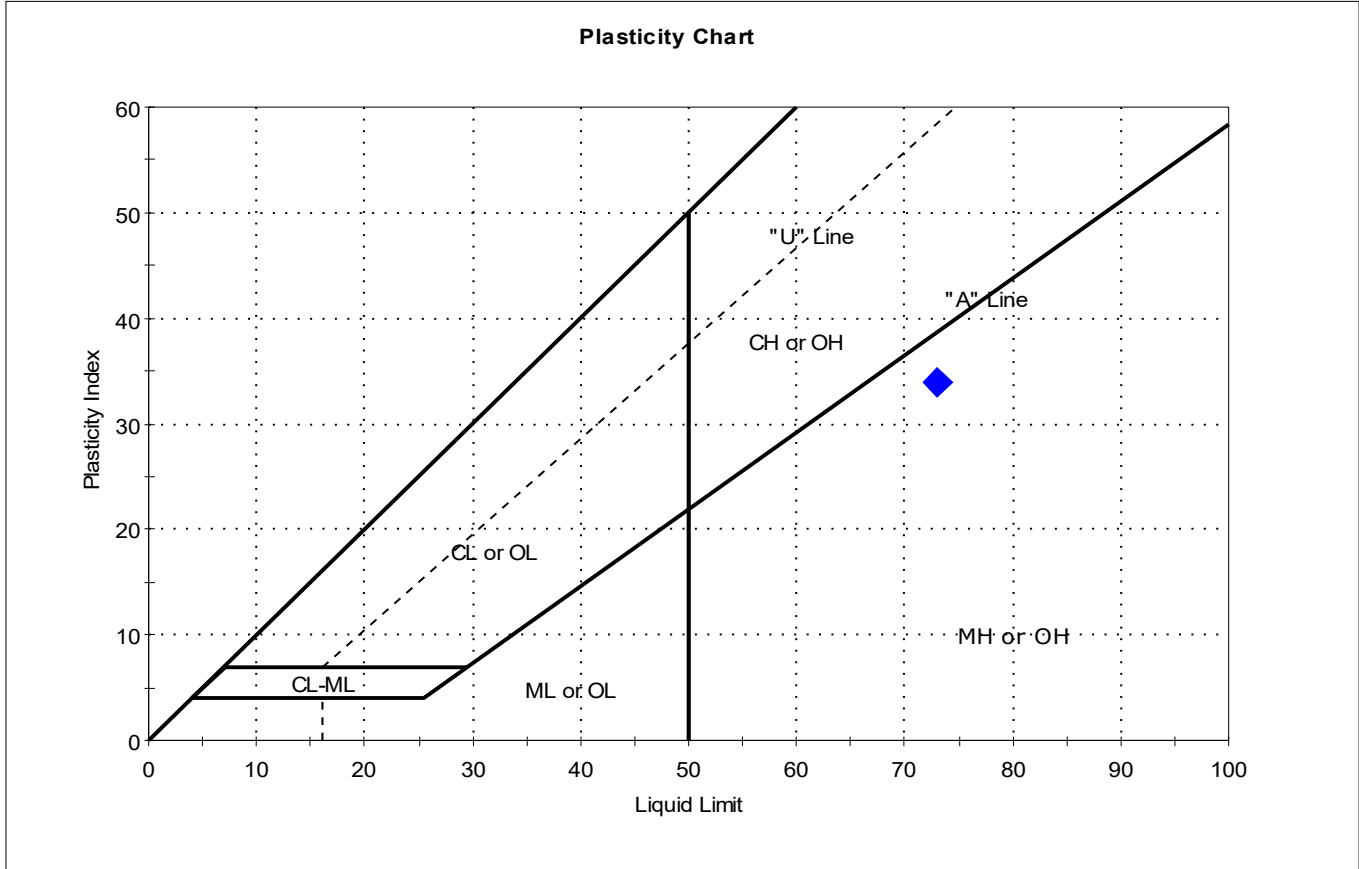
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	49.4-54-190930	DI-121SP	---	45	42	31	11	1.2	Silty SAND (SM)

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: PDI-122SPT	Sample Type: bag	Tested By: cam	
Sample ID: 04-09-190925	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
◆	04-09-190925	DI-122SP	---	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:	PDI-122SPT	Sample Type:	bag
Sample ID:	16.6-24-190925	Test Date:	11/11/19
Depth :	---	Checked By:	bfs
		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

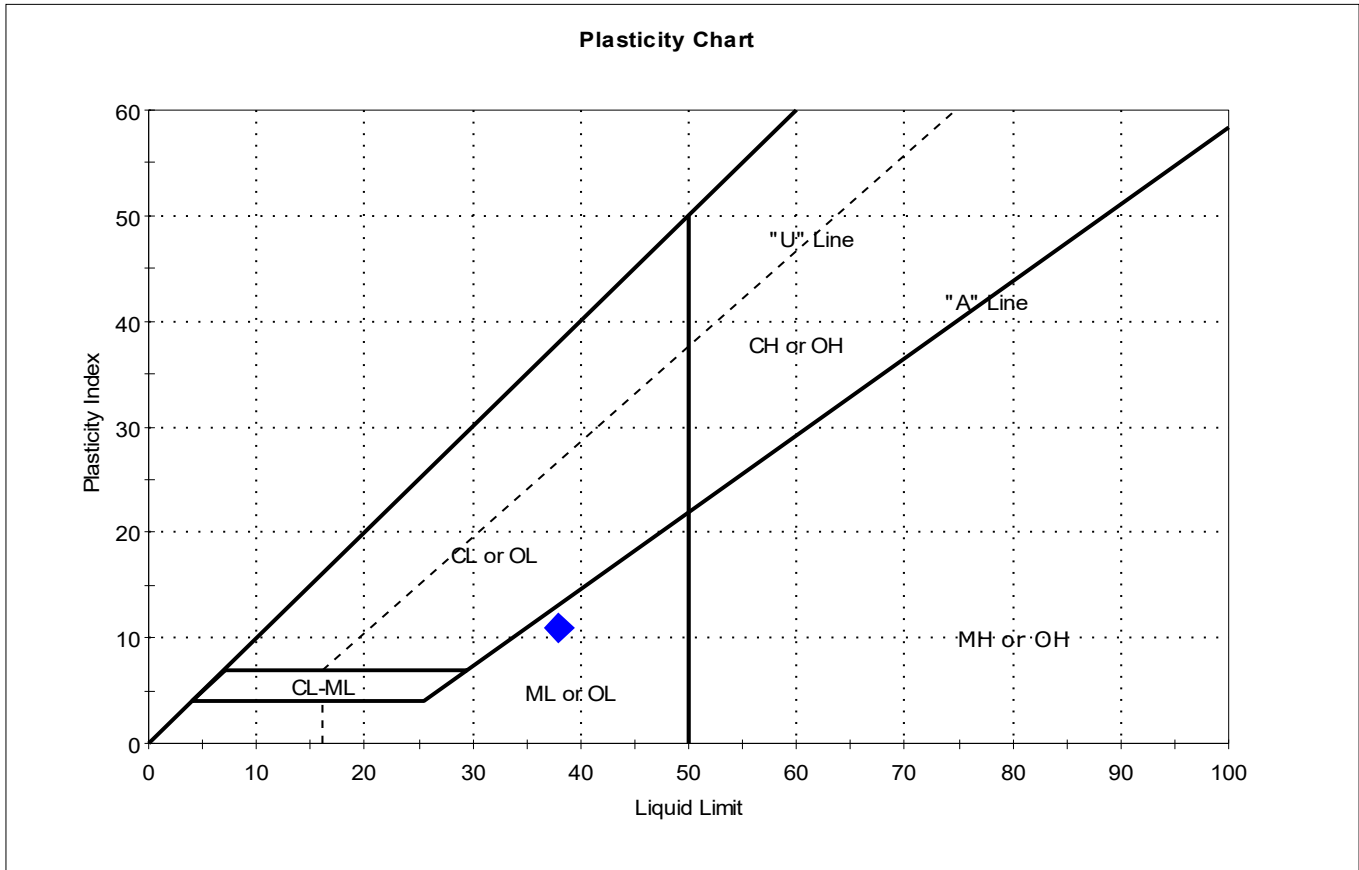
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	16.6-24-190925	DI-122SP	---	49	n/a	n/a	n/a	n/a	Silty SAND (SM)

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: PDI-122SPT	Sample Type: bag	Tested By: cam	
Sample ID: 61-66-190926	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



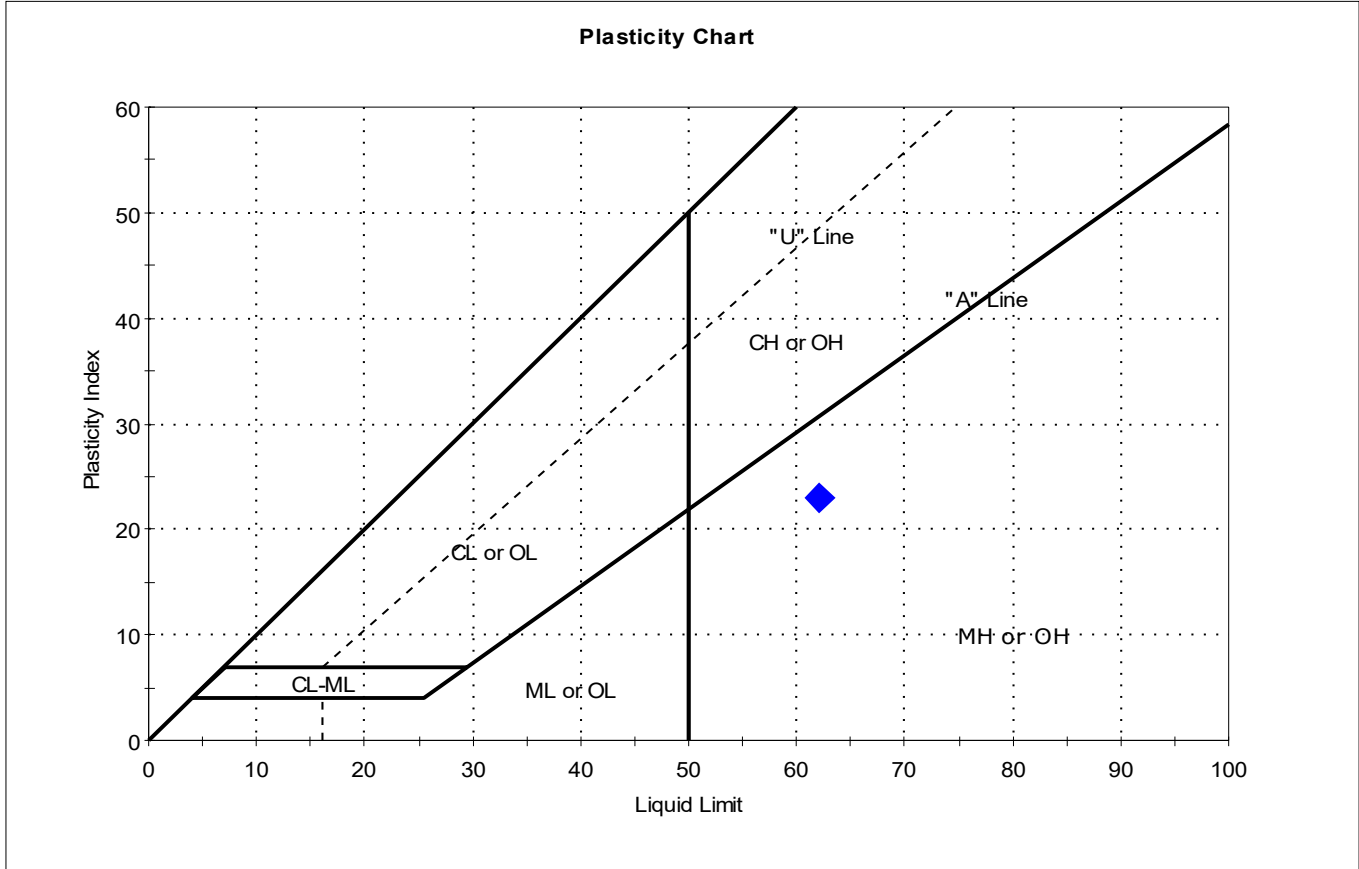
Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	61-66-190926	DI-122SP	---	42	38	27	11	1.3	Silty SAND (SM)

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



Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-123SPT	Sample Type: bag	Tested By: cam	
Sample ID: 00-4.5-190924	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
◆	00-4.5-190924	DI-123SP	---	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: PDI-123SPT	Sample Type: bag	Tested By: cam	
Sample ID: 25.5-30.5-190925	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
◆	25.5-30.5-190925	DI-123SP	---	19	n/a	n/a	n/a	n/a	Silty SAND (SM)

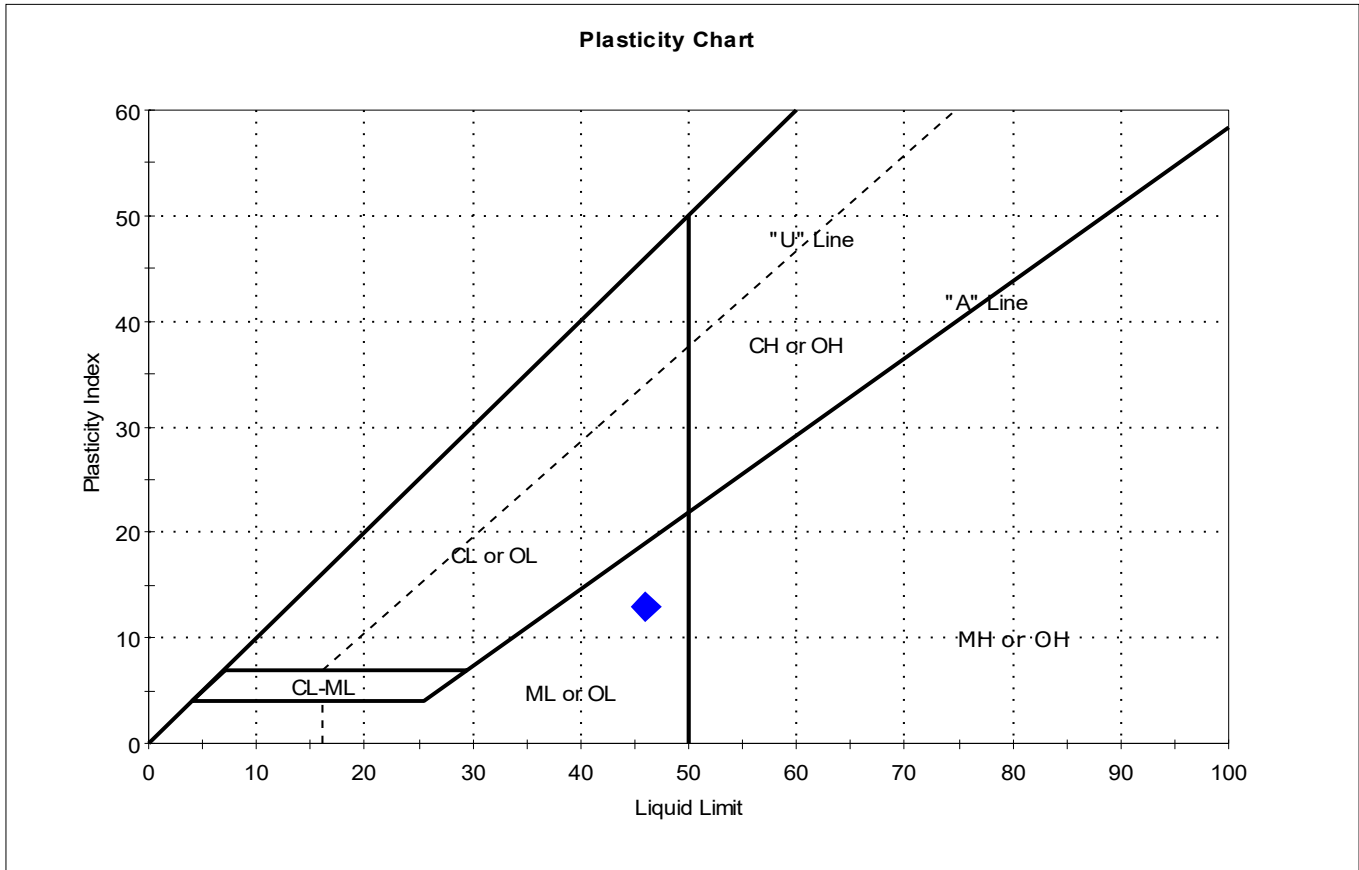
0% Retained on #40 Sieve  
 Dry Strength: LOW  
 Dilatancy: RAPID  
 Toughness: n/a  
 The sample was determined to be Non-Plastic





Client: Anchor QEA, LLC	Project: Gasco PDI	Location:	Project No: GTX-310685
Boring ID: PDI-123SPT	Sample Type: bag	Tested By: cam	
Sample ID: 63.2-65.5-190925	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
◆	63.2-65.5-190925	DI-123SP	---	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:	PDI-19SC-B	Sample Type:	bag
Sample ID:	05-07-191008	Test Date:	11/05/19
Depth :	---	Checked By:	bfs
		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
◆	05-07-191008	DI-19SC-	---	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



University of Colorado, Boulder

Dobroslav Znidarčić, Professor Emeritus

**Department of Civil, Environmental, and Architectural Engineering**

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College of Engineering and Applied Science  
428 UCB, Engineering Center, Room OT 649  
Boulder, CO 80309-0428

Telephone: 303.492.7577  
Fax: 303.492.7317  
e-mail: Dobroslav.Znidarcic@colorado.edu

Dobroslav Znidarčić

**Seepage Induced Consolidation  
Test results for slurry samples  
for the Gasco Sediments  
project**

Prepared for:

**Anchor QEA, LLC  
1201 3<sup>rd</sup> Avenue, Suite 2600  
Seattle, WA 98101-1847**

February 25, 2020

## Introduction

This report presents the results of the consolidation testing for slurry samples for the Gasco Sediments project.

We received the samples in the form of slurries and process water. The samples had following designations:

<b>Sample</b>	<b>Specific gravity</b>
PDI-107SPT-00-04-190923	2.65
PDI-113SPT-06-16-191011	2.73
PDI-114SPT-7.5-12.5-191008	2.66
PDI-118SPT-4.5-15-191014	2.53

The specific gravity values listed in the table were also provided and used in all the calculations.

The samples had the following initial water contents, solids contents and the corresponding void ratios:

<b>Sample</b>	<b>Water content</b>	<b>Solids content</b>	<b>Void ratio</b>
PDI-107SPT-00-04-190923	75.3%	57.0%	1.996
PDI-113SPT-06-16-191011	47.1%	68.0%	1.285
PDI-114SPT-7.5-12.5-191008	66.0%	60.2%	1.755
PDI-118SPT-4.5-15-191014	69.9%	58.8%	1.769

The samples had relatively stiff consistency, unsuitable for SIC testing. The samples were thoroughly mixed and additional site water was added to each sample to achieve suitable consistency for SIC testing. The following water contents, solids contents and corresponding void ratios were obtained:

<b>Sample</b>	<b>Water content</b>	<b>Solids content</b>	<b>Void ratio</b>
PDI-107SPT-00-04-190923	178.0%	36.0%	4.716
PDI-113SPT-06-16-191011	62.5%	61.6%	1.705
PDI-114SPT-7.5-12.5-191008	144.1%	41.0%	3.832
PDI-118SPT-4.5-15-191014	176.2%	36.2%	4.458

The samples were then placed into the testing cells for seepage induced consolidation and step loading tests.

## Seepage induced consolidation test

The Seepage Induced Consolidation Tests (SICT) and the step loading tests were performed on the samples. The SICT and analysis procedures are described in the attachment to this report.

## Material Characteristics

The void ratio corresponding to zero effective stress was measured and the following values were obtained for the samples:

Sample	Void ratio @ $\sigma'=0$
PDI-107SPT-00-04-190923	4.583
PDI-113SPT-06-16-191011	1.486
PDI-114SPT-7.5-12.5-191008	3.564
PDI-118SPT-4.5-15-191014	4.458

The test results are presented in Tables 1 through 6 and in Figures 1 through 8.

The model parameters A, B, Z, C and D in Tables define the compressibility and hydraulic conductivity relationships given by the following expressions, and presented in the figures

**Compressibility**                       $e = A (\sigma' + Z)^B$

**Hydraulic Conductivity**             $k = C e^D$

where  $e$  is the void ratio and  $k$  is the hydraulic conductivity. The values for the parameters A, Z and C depend on the system of units and are given for SI units.

**Table 1 – Consolidation model parameters (SI units)**

Sample	A	B	Z(kPa)	C(m/day)	D
PDI-107SPT-00-04-190923	2.90	-0.142	0.039	$2.33 \times 10^{-5}$	5.05
PDI-113SPT-06-16-191011	1.30	-0.109	0.284	$5.08 \times 10^{-4}$	3.74
PDI-114SPT-7.5-12.5-191008	2.46	-0.128	0.055	$3.62 \times 10^{-5}$	3.91
PDI-118SPT-4.5-15-191014	2.76	-0.152	0.043	$1.27 \times 10^{-5}$	4.11

Since the samples were tested at increased water contents, the obtained parameters are modified to account for the lower in situ values. This is accomplished by changing the parameter Z. The modified values are presented in Table 2 and should be used for settlement analyses of undisturbed materials in the field.

**Table 2 – Consolidation model parameters for in situ conditions (SI units)**

Sample	A	B	Z(kPa)	C(m/day)	D
PDI-107SPT-00-04-190923	2.90	-0.142	13.90	$2.33 \times 10^{-5}$	5.05
PDI-113SPT-06-16-191011	1.30	-0.109	1.07	$5.08 \times 10^{-4}$	3.74
PDI-114SPT-7.5-12.5-191008	2.46	-0.128	14.25	$3.62 \times 10^{-5}$	3.91
PDI-118SPT-4.5-15-191014	2.76	-0.152	18.50	$1.27 \times 10^{-5}$	4.11

**Table 3 – SICTA and Step Loading Results for Tailing Sample PDI-107SPT-00-04-190923 (SI units)**

<b>SICTA</b>	<b>Input</b>	<b>Results</b>	
Unit weight of water	9.81	A	2.898
Specific gravity	2.65	B	-0.142
Initial height	0.0430696	Z	0.039
Void ratio @ 0	4.583399		
Top effective stress	0.1	C	2.33E-05
Darcian velocity	6.60E-03	D	5.047
Final height	0.0346858		
Bottom effective stress	0.4030493	<b>Final calculated</b>	
		<b>Height</b>	<b>Bottom effective stress</b>
Void ratio	1.5019888	0.0346998	0.4028701
Effective stress	103.14684	<b>Normalized errors</b>	
Hydraulic conductivity	1.81E-04	0.0004031	0.0004448
		<b>Total error</b>	<b>0.0008479</b>

**Table 4 – SICTA and Step Loading Results for Tailing Sample PDI-113SPT-06-16-191011 (SI units)**

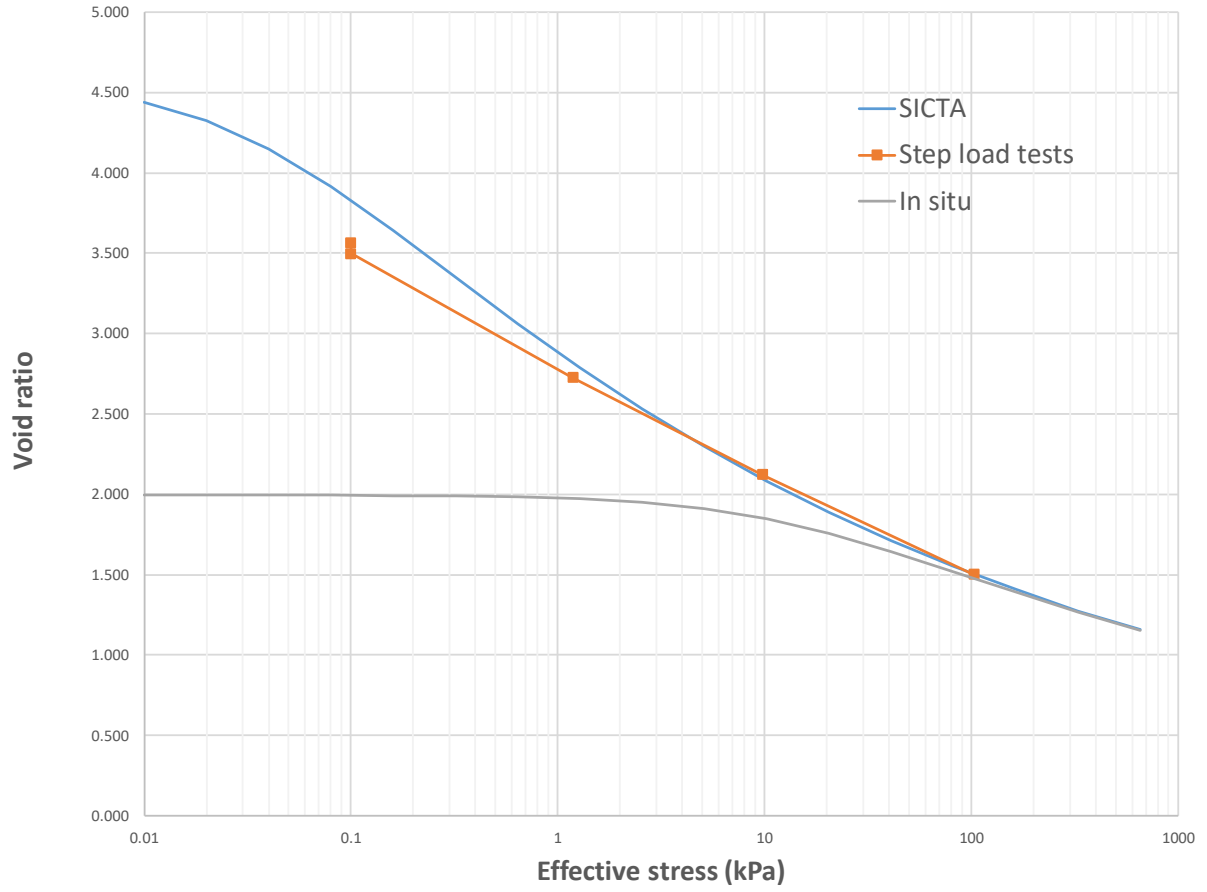
<b>SICTA</b>	<b>Input</b>	<b>Results</b>	
Unit weight of water	9.81	A	1.295
Specific gravity	2.73	B	-0.109
Initial height	0.0314094	Z	0.284
Void ratio @ 0	1.4856753		
Top effective stress	0.1	C	5.08E-04
Darcian velocity	1.32E-03	D	3.741
Final height	0.0299766		
Bottom effective stress	0.5491758	<b>Final calculated</b>	
		<b>Height</b>	<b>Bottom effective stress</b>
Void ratio	0.7807111	0.0299766	0.5491754
Effective stress	103.14684	<b>Normalized errors</b>	
Hydraulic conductivity	2.01E-04	0.0000004	0.0000008
		<b>Total error</b>	<b>0.0000012</b>

**Table 5 – SICTA and Step Loading Results for Tailing Sample PDI-114SPT-7.5-12.5-191008 (SI units)**

SICTA	Input	Results	
Unit weight of water	9.81	A	2.463
Specific gravity	2.66	B	-0.128
Initial height	0.0326351	Z	0.055
Void ratio @ 0	3.5635533		
Top effective stress	0.1	C	3.62E-05
Darcian velocity	6.60E-03	D	3.911
Final height	0.0260427		
Bottom effective stress	1.2975076	<b>Final calculated</b>	
		<b>Height</b>	<b>Bottom effective stress</b>
Void ratio	1.3632204	0.0260763	1.2930993
Effective stress	103.14684	<b>Normalized errors</b>	
Hydraulic conductivity	1.22E-04	0.0012878	0.0034090
		<b>Total error</b>	<b>0.0046968</b>

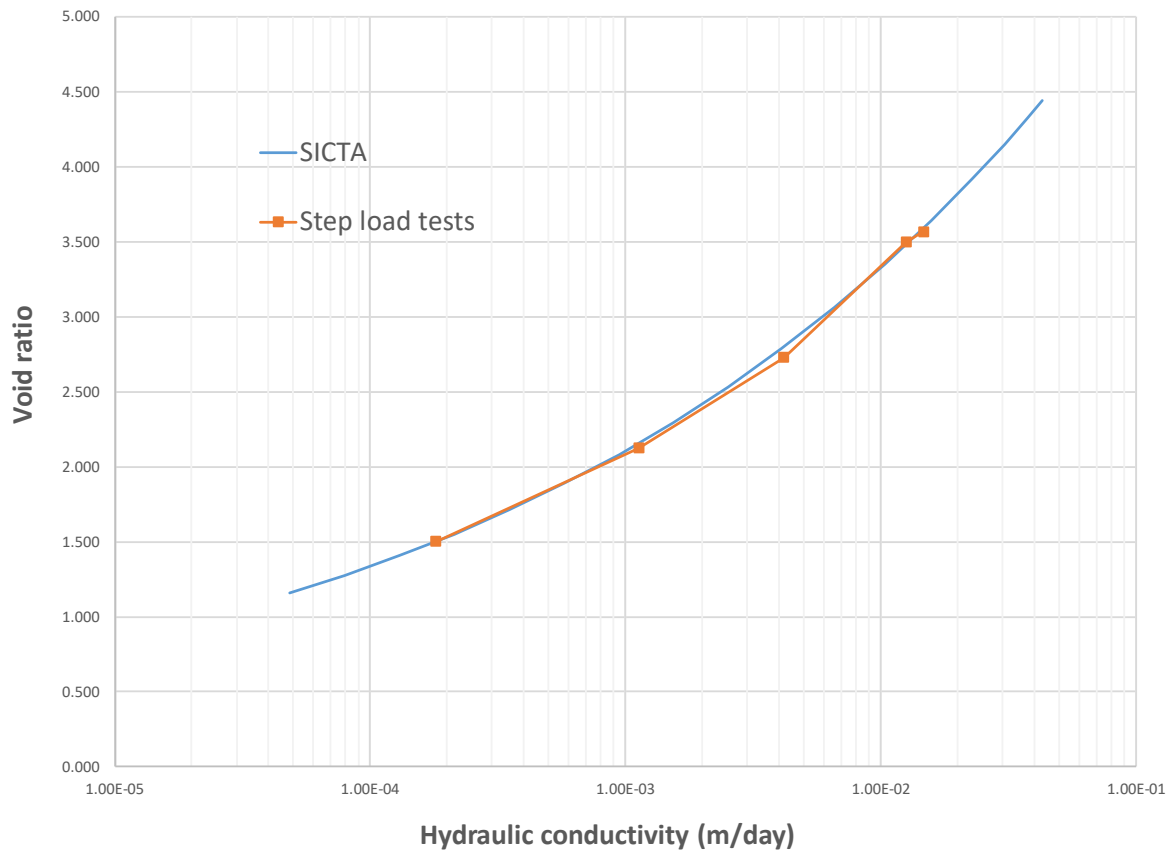
**Table 6 – SICTA and Step Loading Results for Tailing Sample PDI-118SPT-4.5-15-191014 (SI units)**

SICTA	Input	Results	
Unit weight of water	9.81	A	2.760
Specific gravity	2.53	B	-0.152
Initial height	0.0362815	Z	0.043
Void ratio @ 0	4.4575085		
Top effective stress	0.1	C	1.27E-05
Darcian velocity	1.32E-03	D	4.111
Final height	0.0290542		
Bottom effective stress	0.4037612	<b>Final calculated</b>	
		<b>Height</b>	<b>Bottom effective stress</b>
Void ratio	1.3616118	0.0290565	0.4037617
Effective stress	103.14684	<b>Normalized errors</b>	
Hydraulic conductivity	4.52E-05	0.0000758	0.0000012
		<b>Total error</b>	<b>0.0000770</b>

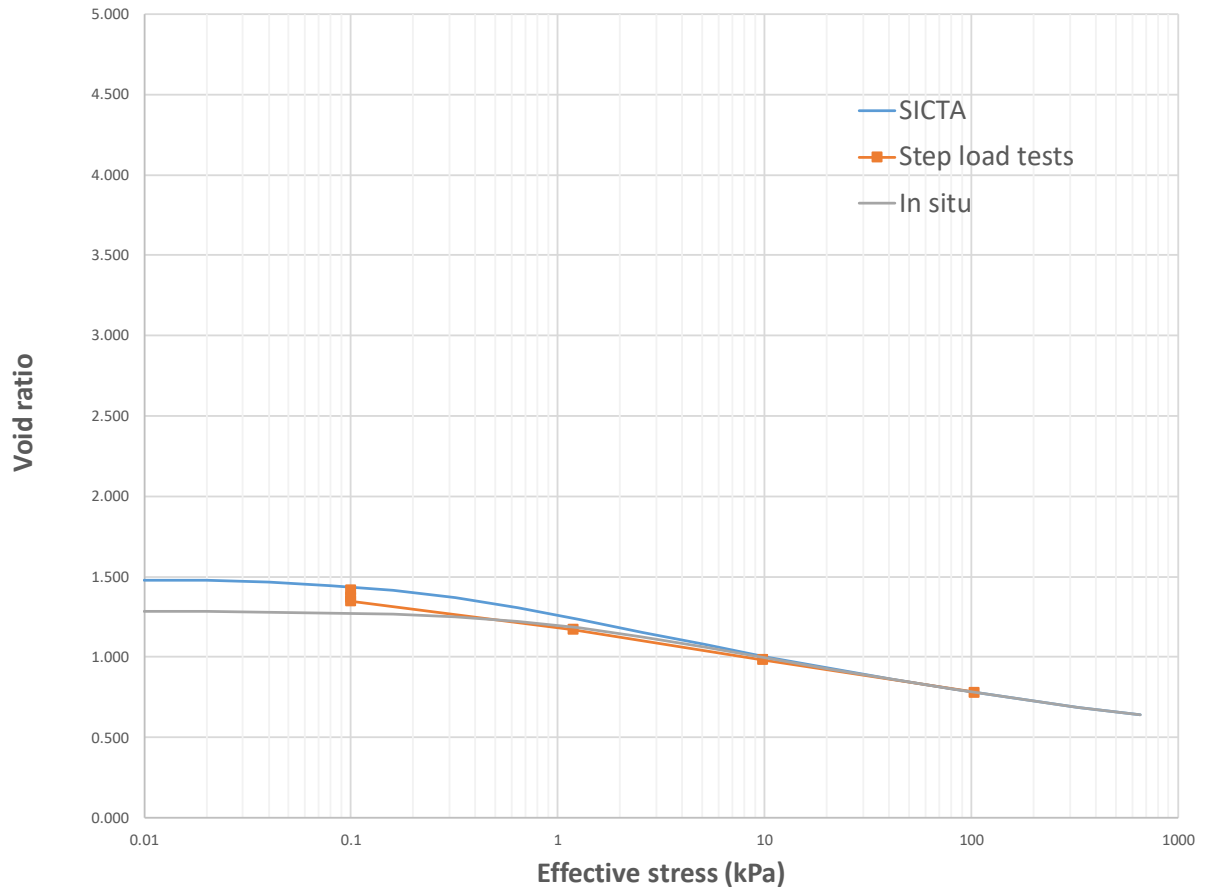


**Figure 1 – Compressibility Characteristics for Tailing Sample PDI-107SPT-00-04-190923 (SI units)**

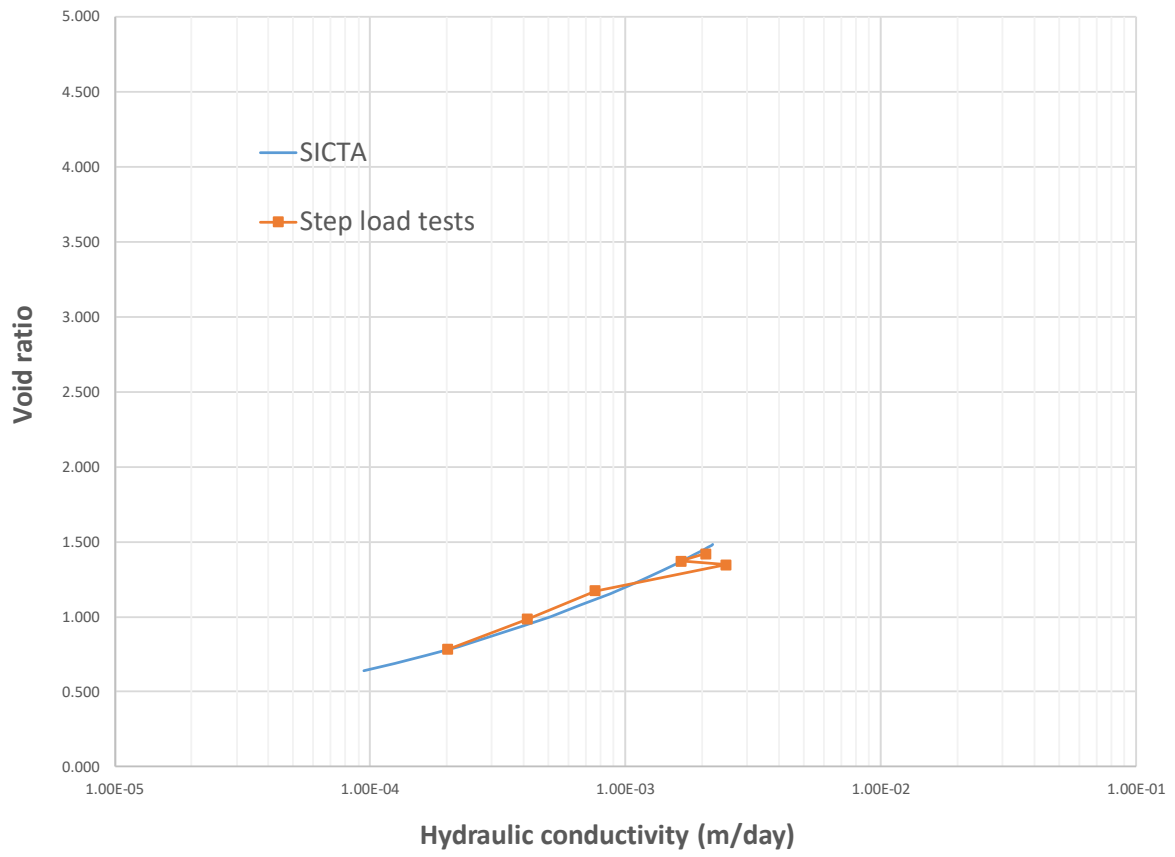




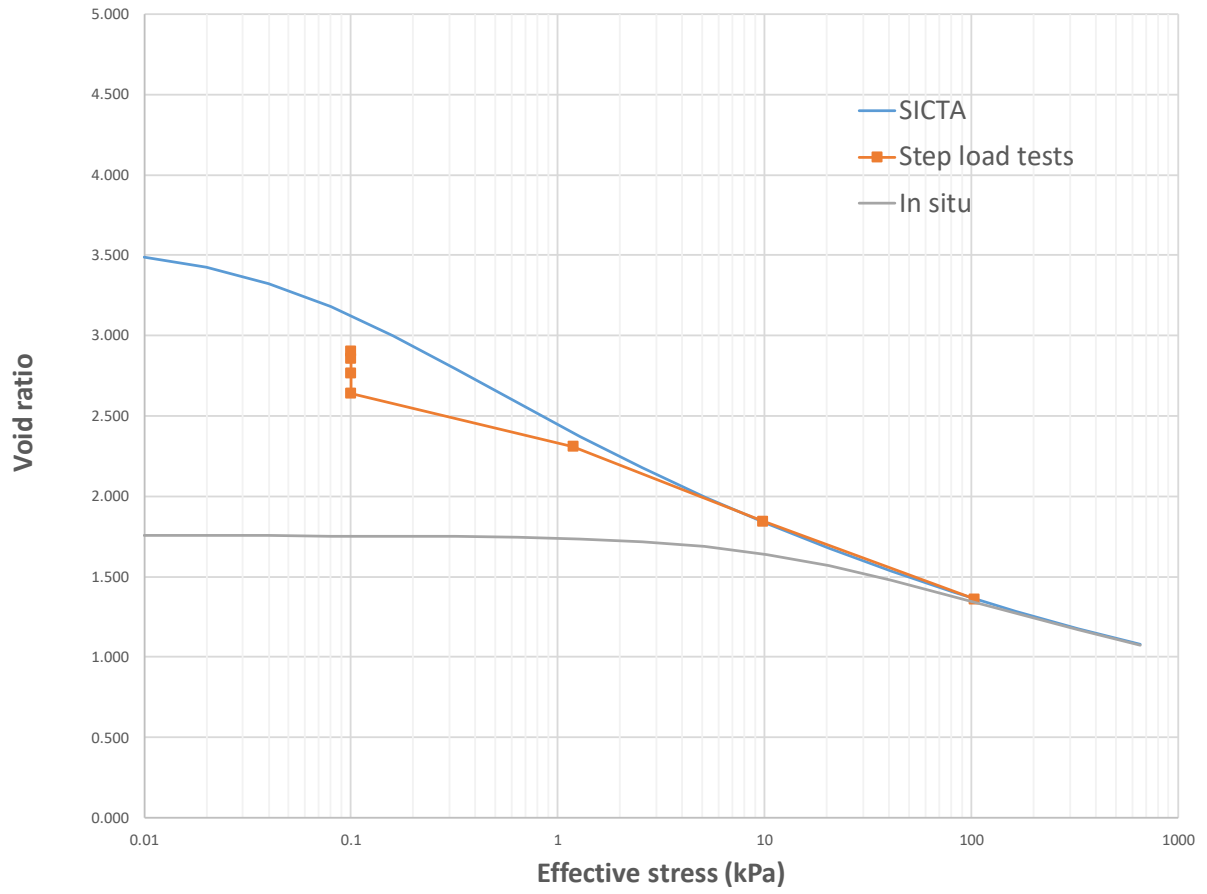
**Figure 2— Permeability Characteristics for Tailing Sample PDI-107SPT-00-04-190923 (SI units)**



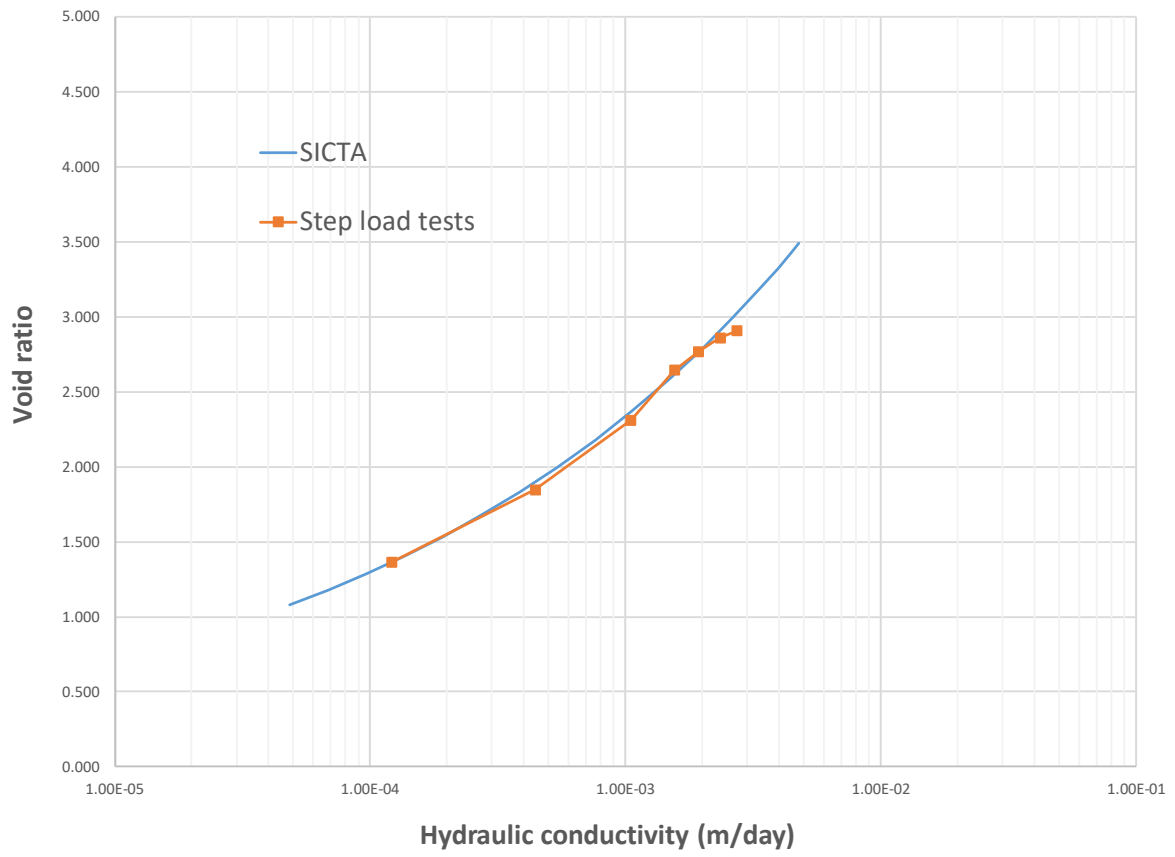
**Figure 3 – Compressibility Characteristics for Tailing Sample PDI-113SPT-06-16-191011 (SI units)**



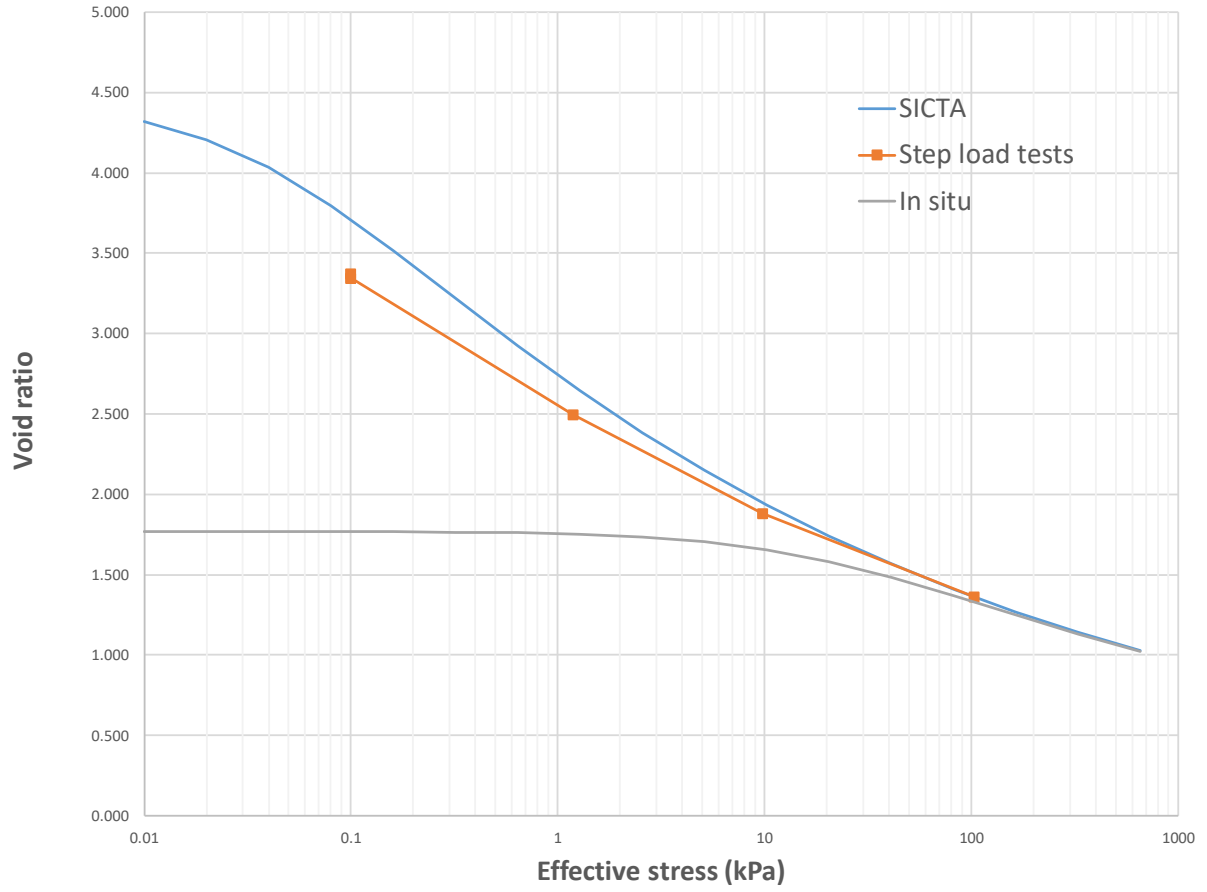
**Figure 4— Permeability Characteristics for Tailing Sample PDI-113SPT-06-16-191011 (SI units)**



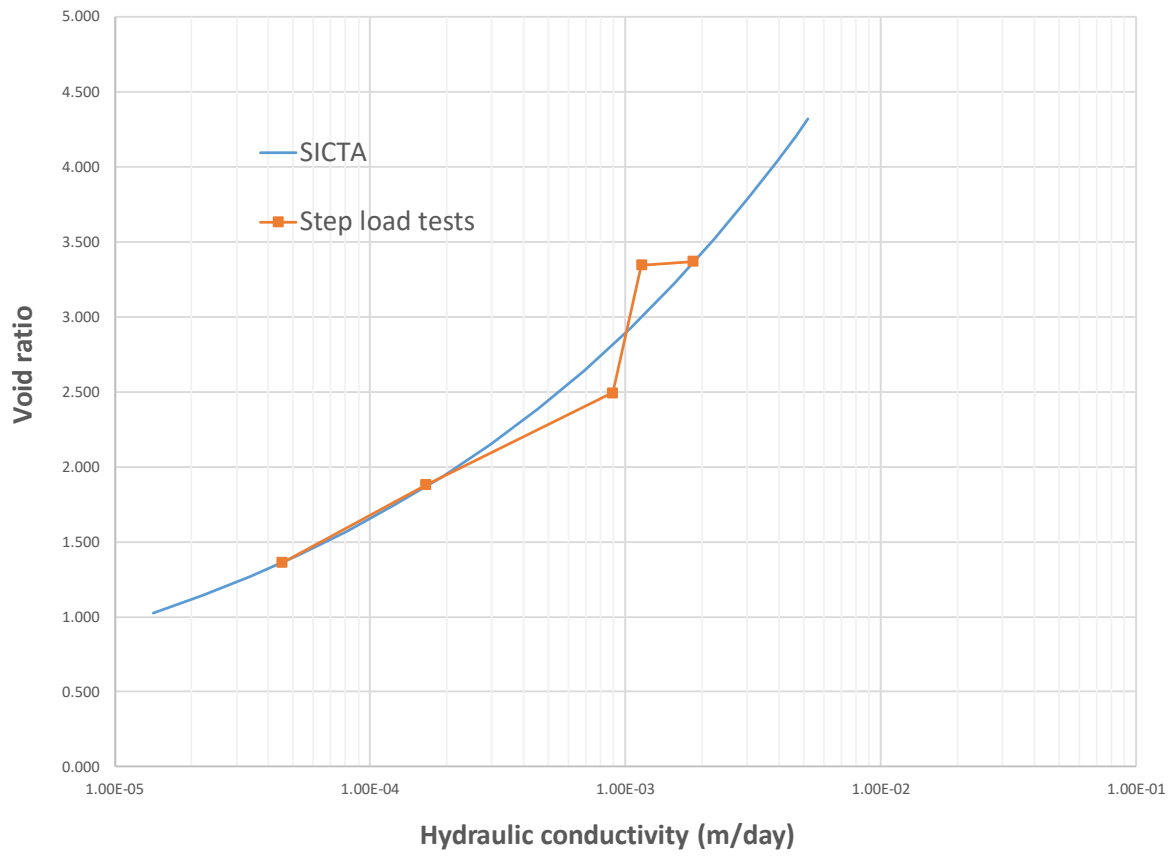
**Figure 5 – Compressibility Characteristics for Tailing Sample PDI-114SPT-7.5-12.5-191008 (SI units)**



**Figure 6— Permeability Characteristics for Tailing Sample PDI-114SPT-7.5-12.5-191008 (SI units)**



**Figure 7 – Compressibility Characteristics for Tailing Sample PDI-118SPT-4.5-15-191014 (SI units)**



**Figure 8— Permeability Characteristics for Tailing Sample PDI-118SPT-4.5-15-191014 (SI units)**

## Seepage Induced Consolidation Test (SICT)

The seepage induced consolidation test is an experimental procedure used for determining the consolidation characteristics of soft soils and soil like materials (slurry mine waste, dredged spoils, sludge from waste water treatment plants etc.). The testing procedure consists of three steps.

In the first step the void ratio at the effective stress zero is determined by allowing a slurry column about 0.05 m high to consolidate under its own weight. The average void ratio of the settled slurry is considered the void ratio at the effective stress of zero, or the void ratio at which the soil is formed and the consolidation theory, as opposed to the sedimentation theory, applies.

In the second step, seepage at a constant flow rate is applied through the soil by means of a flow pump and the sample is allowed to consolidate completely, i.e. until the steady state is reached. The steady state is determined from the pressure difference across the sample that is continuously monitored during the test. At steady state, the pressure difference and the final height of the sample are recorded. It is recognized that during this phase of the test the void ratio within the sample is non-uniform and this is correctly accounted for in the test analysis.

In the third step the sample is consolidated under the maximum desired stress level and the hydraulic conductivity is measured with the flow pump using a low flow rate to maintain sample uniformity during the test. At the end of the test the sample is dried and the total volume of solids is determined.

The analysis of the test is performed using the software package SICTA (Seepage Induced Consolidation Test Analysis). The procedure is based on the inverse problem solution approach and the theory used is compatible with the finite strain nonlinear consolidation theory (i.e. no simplifying or restrictive assumptions are made in the analysis). The input data for the SICTA program are all obtained from the described test. The output gives five parameters A, B, Z, C and D that define the consolidation properties for the sample. The compressibility and hydraulic conductivity relations with the five parameters are defined as:

$$\text{Compressibility} \quad e = A (\sigma' + Z)^B$$

$$\text{Hydraulic Conductivity} \quad k = C e^D$$

The more detailed description of the testing equipment and testing and analysis procedures can be found in the following publications:

Abu-Hejleh, A.N., and Znidarcic, D., 1992, User Manual for Computer Program SICTA, Prepared for Florida Institute of Phosphate Research, University of Colorado, Boulder, 122 pp.

Znidarcic, D., Abu-Hejleh, A.N., Fairbanks, T. and Robertson A., 1992, Seepage-Induced Consolidation Test; Equipment Description and Users Manual, Prepared for Florida Institute of Phosphate Research, University of Colorado, Boulder, 52 pp.

Abu-Hejleh, A.N. and Znidarcic, D., 1994, Estimation of the Consolidation Constitutive Relations, Computer Methods and Advances in Geomechanics, Siriwardane & Zaman (eds) Balkema, Rotterdam, pp. 499-504.

Abu-Hejleh, A. N. and Znidarcic, D., 1996, Consolidation Characteristics of Phosphatic Clays, Journal of Geotechnical Engineering, ASCE, New-York, Vol. 122, No. 4. pp. 295-301.