

Date Started:	03/13/2019	Surface Elevation:	473.2 ft amsl	Boring No.: MW-75s	
Date Completed:	03/17/2019	Northing (NAD83):	2103706.2		
Drilling Co.:	Cascade	Easting (NAD83):	7615557.7	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	121 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Boart Longyear Track	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Tyler Alymer	Depth to First Water:	21.05 ft bgs		
Drilling Asst:	R. West/J. Candelaria	Sampling Method:	8 inch x 10 ft. Core Barrel	Project Number:	RC000753.0051
Logger:	Chris Bonessi	Sampling Interval:	Screen intervals.		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
1							(0.0 - 17.0') No recovery (NR); Cores not collected or logged, see MW-B75 log for lithology		(0.0 - 121.0') No water used
2									
3									
4	84								
5									
6									
7									
8									
9					NR				
10		No sieve samples collected							
11									
12	120								
13									
14									
15									
16									
17									
18				Topock - Fluvial Deposits	SM		(17.0 - 19.0') Topock - Fluvial Deposits; Silty sand with gravel (SM); brown (10YR 5/3); very fine grained to very coarse grained, angular to subround; some small to very large pebbles, angular to subround; little silt; trace small cobbles, subangular to subround; trace clay; dry		
19	120			Topock - Fluvial Deposits	GP		(19.0 - 19.5') Topock - Fluvial Deposits; Poorly graded gravel (GP); greenish gray (GLEY2 6/1); small cobbles to large cobbles, angular; trace very fine to medium grained sand, angular to		
20					SM				

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Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J - estimated value, NR = no recovery, depth to water and groundwater samples collected during drilling of MW-75d

SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\04.23.20_NW\TOPOCK.DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 04/23/20 14:13

Date Started:	03/13/2019	Surface Elevation:	473.2 ft amsl	Boring No.: MW-75s	
Date Completed:	03/17/2019	Northing (NAD83):	2103706.2		
Drilling Co.:	Cascade	Easting (NAD83):	7615557.7	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	121 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Boart Longyear Track	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Tyler Alymer	Depth to First Water:	21.05 ft bgs		
Drilling Asst:	R. West/J. Candelaria	Sampling Method:	8 inch x 10 ft. Core Barrel	Project Number:	RC000753.0051
Logger:	Chris Bonessi	Sampling Interval:	Screen intervals.		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
21	120			Topock - Fluvial Deposits	SM		subangular; trace silt; dry; trace metadiorite boulder (19.5 - 21.0') Topock - Fluvial Deposits; Silty sand with gravel (SM); brown (10YR 5/3); very fine grained to very coarse grained, angular to subround; some small to very large pebbles, angular to subround; little silt; trace small cobbles, subangular to subround; trace clay; dry	(22.0') Approximate depth to water table.	
22				Topock - Fluvial Deposits	SP-SM		(21.0 - 26.5') Topock - Fluvial Deposits; Poorly graded sand with silt and gravel (SP-SM); dark gray (10YR 4/1); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subround; little small cobbles, subangular to subround; little silt; trace clay; dry to wet		
23					Topock - Alluvium Deposits	CH		(26.5 - 27.0') Topock - Alluvium Deposits; Fat clay with gravel (CH); yellowish red / light brown (5YR 5/6) and dark gray (10YR 4/1); high plasticity; little small to large pebbles, subangular to subround; trace small cobbles, subangular to subround; trace silt; and clay lens; wet; medium stiff	(27.0 - 37.0') Lost core downhole, was able to retrieve core.
24					Topock - Alluvium Deposits	SP-SM		(27.0 - 34.0') Topock - Alluvium Deposits; Poorly graded sand with silt and gravel (SP-SM); yellowish brown / moderate yellowish brown (10YR 5/4); very fine grained to very coarse grained, angular to subround; some small to very large pebbles, angular to subround; little silt; trace small cobbles, subangular to subround; wet	
25				Topock - Alluvium Deposits	SM		(34.0 - 37.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); yellowish brown / moderate yellowish brown (10YR 5/4); very fine grained to very coarse grained, angular to subround; some small to very large pebbles, angular to subround; trace small cobbles, subangular to subround; wet		
26									
27									
28									
29									
30									
31									
32	120								
33									
34									
35									
36									
37									
38									
39	120								
40									

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Date Started: 03/13/2019	Surface Elevation: 473.2 ft amsl	Boring No.: MW-75s
Date Completed: 03/17/2019	Northing (NAD83): 2103706.2	
Drilling Co.: Cascade	Easting (NAD83): 7615557.7	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 121 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Tyler Alymer	Depth to First Water: 21.05 ft bgs	
Drilling Asst: R. West/J. Candelaria	Sampling Method: 8 inch x 10 ft. Core Barrel	Project Number: RC000753.0051
Logger: Chris Bonessi	Sampling Interval: Screen intervals.	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
41									
42									
43									
44	120								
45									
46									
47									
48									
49			MW-B-VAS-47-52 (<0.17 U ppb) 1/9/2019 10:15						
50		No sieve samples collected			NR				
51									
52									
53									
54	240								
55									
56									
57									
58									
59									
60									

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Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J - estimated value, NR = no recovery, depth to water and groundwater samples collected during drilling of MW-75d

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRAFT BORING LOGS\GINT FILES\04_23_20_NW\TOPOCK\DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 04/23/20 14:13

Date Started: 03/13/2019	Surface Elevation: 473.2 ft amsl	Boring No.: MW-75s
Date Completed: 03/17/2019	Northing (NAD83): 2103706.2	
Drilling Co.: Cascade	Easting (NAD83): 7615557.7	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 121 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Tyler Alymer	Depth to First Water: 21.05 ft bgs	
Drilling Asst: R. West/J. Candelaria	Sampling Method: 8 inch x 10 ft. Core Barrel	Project Number: RC000753.0051
Logger: Chris Bonessi	Sampling Interval: Screen intervals.	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
61									
62									
63									
64	240								
65									
66									
67									
68									
69			MW-B-VAS-67-72 (<0.17 U ppb) 1/9/2019 14:55						
70		No sieve samples collected			NR				
71									
72									
73									
74	216								
75									
76									
77									
78									
79									
80									

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Date Started: 03/13/2019	Surface Elevation: 473.2 ft amsl	Boring No.: MW-75s
Date Completed: 03/17/2019	Northing (NAD83): 2103706.2	
Drilling Co.: Cascade	Easting (NAD83): 7615557.7	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 121 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Tyler Alymer	Depth to First Water: 21.05 ft bgs	
Drilling Asst: R. West/J. Candelaria	Sampling Method: 8 inch x 10 ft. Core Barrel	Project Number: RC000753.0051
Logger: Chris Bonessi	Sampling Interval: Screen intervals.	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
81									
82	216								
83									
84									
85									
86									
87									
88									
89					NR				
90	120	No sieve samples collected							
91									
92									
93									
94									
95									
96									
97	144			Topock - Alluvium Deposits	SM		(97.0 - 104.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 5/3); very fine grained to very coarse grained, angular to subround; some small to very large pebbles, subangular to subround; little silt; trace clay; wet; moderate cementation		
98									
99									
100									

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Date Started:	03/13/2019	Surface Elevation:	473.2 ft amsl	Boring No.: MW-75s	
Date Completed:	03/17/2019	Northing (NAD83):	2103706.2		
Drilling Co.:	Cascade	Easting (NAD83):	7615557.7	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	121 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Boart Longyear Track	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Tyler Alymer	Depth to First Water:	21.05 ft bgs		
Drilling Asst:	R. West/J. Candelaria	Sampling Method:	8 inch x 10 ft. Core Barrel	Project Number:	RC000753.0051
Logger:	Chris Bonessi	Sampling Interval:	Screen intervals.		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid	
101	144		MW-B-VAS-102-107 (<0.17 U ppb) 1/10/2019 13:00	Topock - Alluvium Deposits	SM					
102				Topock - Alluvium Deposits	SM		(104.0 - 107.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/3); very fine grained to very coarse grained, angular to subround; some small to very large pebbles, subangular to subround; some silt; trace clay; wet; moderate cementation			
103	No sieve samples collected			Topock - Alluvium Deposits	SW-SM		(107.0 - 109.0') Topock - Alluvium Deposits; Well graded sand with silt (SW-SM); brown (7.5YR 5/3); medium grained to very coarse grained, angular to subangular; trace granules to medium pebbles, angular to subangular; trace silt; wet	(107.0 - 117.0') Loose material, feel out of core barrel downhole. Formation collapsed upon tripping out core barrel.		
104				Topock - Alluvium Deposits	GW		(109.0 - 112.0') Topock - Alluvium Deposits; Well graded gravel (GW); brown (7.5YR 5/3); granules to large pebbles, angular to subangular; little medium to very coarse grained sand, angular to subangular; trace silt; wet			
105				Topock - Alluvium Deposits	GM		(112.0 - 117.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (7.5YR 4/3); granules to very large pebbles, subangular to subround; some fine to very coarse grained sand, subangular to subround; some silt; wet			
106				NR		(117.0 - 121.0') No recovery (NR); Cores not collected or logged, see MW-B75 log for lithology				
107	120									
108										
109										
110										
111	48									
112										
113										
114										
115										
116										
117										
118										
119										
120										

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SOIL BORING LOG: PG&E-TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E-TOPOCK\DRIFT BORING LOGS\GINT FILES\04_23_20_NWTOPOCK.DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 04/23/20 14:13

Date Started:	03/13/2019	Surface Elevation:	473.2 ft amsl	Boring No.: MW-75s	
Date Completed:	03/17/2019	Northing (NAD83):	2103706.2		
Drilling Co.:	Cascade	Easting (NAD83):	7615557.7	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	121 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Boart Longyear Track	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Tyler Alymer	Depth to First Water:	21.05 ft bgs		
Drilling Asst:	R. West/J. Candelaria	Sampling Method:	8 inch x 10 ft. Core Barrel	Project Number:	RC000753.0051
Logger:	Chris Bonessi	Sampling Interval:	Screen intervals.		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
121	48	No sieve samples collected			NR	X			

End of Boring at 121.0' bgs.

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Date Started: 03/17/2019	Surface Elevation: 473.2 ft amsl	Well ID: MW-75-033, MW-75-117
Date Completed: 10/16/2019	Shallow Well Elevation: 473.3 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 473.4 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103706.2	Project: Final GW Remedy Phase 1
Driller Name: Tyler Alymer	Easting (NAD83): 7615557.7	Location: PG&E Topock, Needles, California
Drilling Asst: R. West/J. Candelaria	Borehole Diameter: 10-12 inches	
Logger: Chris Bonessi	Water Level Start: 15.77 ft bgs	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 3/31/2019	
Total Depth: 121 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
0					(+0.5 - 2.0') Concrete Pad		(+0.5 - 2.0') 18 bags Note: 30" diameter Concrete Pad with 18" diameter lockable vault, Quickcrete concrete mix with buff concrete dye
1					(0.2 - 97.0') 2" PVC Sch 40 Casing		
2					(0.1 - 18.0') 2" PVC Sch 40 Casing		
3					(0.0 - 6.0') 12" Borehole		
4							
5							
6							
7							
8					(1.7 - 14.1') Portland Cement 5' Bentonite	(1.7 - 14.1') 54.2 gallons	(1.7 - 14.1') 90 gallons (166%) Note: Used Type I, II, and V with Hydrogel, used >20% due to potential voids that formed during drilling and grout migration into the formation
9		NR					
10							
11							
12					(11.5 - 12.5') Centralizer		
13							
14							
15					(14.1 - 16.0') Bentonite seal chips	(14.1 - 16.0') 1.32 bags	(14.1 - 16.0') 1.75 bags (133%) Note: Puregold Medium Chips
16							
17					(16.0 - 37.0') Cemex #3 MESH (8x10)		
18		Topock - Fluvial Deposits	SM				
19		Topock - Fluvial	GP		(18.0 - 33.0') 2" Sch 40 PVC (20-slot) Screen	(16.0 - 37.0') 19.5 bags	(16.0 - 37.0') 39 bags (200%) Note: Lapis Lustre Sand, used >20% of the calculated volume due to potential voids that formed during drilling

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J - estimated value, NR = no recovery, depth to water was measured post development, groundwater samples collected during drilling of MW-75d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMC\GRANDDOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\042320_NW\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 04/23/20 16:09

Date Started: 03/17/2019	Surface Elevation: 473.2 ft amsl	Well ID: MW-75-033, MW-75-117
Date Completed: 10/16/2019	Shallow Well Elevation: 473.3 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 473.4 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103706.2	Project: Final GW Remedy Phase 1
Driller Name: Tyler Alymer	Easting (NAD83): 7615557.7	Location: PG&E Topock, Needles, California
Drilling Asst: R. West/J. Candelaria	Borehole Diameter: 10-12 inches	
Logger: Chris Bonessi	Water Level Start: 15.77 ft bgs	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 3/31/2019	
Total Depth: 121 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
20		Deposits			(18.0 - 33.0') 2" Sch 40 PVC (20-slot) Screen		
21		Topock - Fluvial Deposits	SM				
22							
23							
24		Topock - Fluvial Deposits	SP-SM				
25							
26							
27		Topock - Alluvium Deposits	CH				
28						(16.0 - 37.0') 19.5 bags	(16.0 - 37.0') 39 bags (200%) Note: Lapis Lustre Sand, used >20% of the calculated volume due to potential voids that formed during drilling
29	MW-B-VAS-27-32 (7.7 J ppb) 1/6/2019 12:50						
30		Topock - Alluvium Deposits	SP-SM		(6.0 - 121.0') 10" Borehole		
31							
32							
33							
34					(33.5 - 34.5') Centralizer		
35		Topock - Alluvium Deposits	SM		(33.0 - 35.4') Sump and End Cap		
36							
37							
38			NR		(37.0 - 95.2') Bentonite seal pellets	(37.0 - 95.2') 48.7 buckets	(37.0 - 95.2') 51 buckets (105%) Note: Pel Plug Pellets (TR30) 3/8"
39							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J - estimated value, NR = no recovery, depth to water was measured post development, groundwater samples collected during drilling of MW-75d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_C:\USERS\SMC\GRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\04.23.20_NWTOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_04/23/2016 16:09

Date Started: 03/17/2019	Surface Elevation: 473.2 ft amsl	Well ID: MW-75-033, MW-75-117
Date Completed: 10/16/2019	Shallow Well Elevation: 473.3 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 473.4 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103706.2	Project: Final GW Remedy Phase 1
Driller Name: Tyler Alymer	Easting (NAD83): 7615557.7	Location: PG&E Topock, Needles, California
Drilling Asst: R. West/J. Candelaria	Borehole Diameter: 10-12 inches	
Logger: Chris Bonessi	Water Level Start: 15.77 ft bgs	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 3/31/2019	
Total Depth: 121 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
40					(0.2 - 97.0') 2" PVC Sch 40 Casing		
41							
42							
43							
44							
45							
46							
47							
48							
49	MW-B-VAS-47-52 (<0.17 U ppb) 1/9/2019 10:15		NR				
50					(37.0 - 95.2') Bentonite seal pellets	(6.0 - 121.0') 10" Borehole	(37.0 - 95.2') 51 buckets (105%) Note: Pel Plug Pellets (TR30) 3/8"
51							
52							
53							
54							
55							
56							
57							
58							
59							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J - estimated value, NR = no recovery, depth to water was measured post development, groundwater samples collected during drilling of MW-75d

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Date Started: 03/17/2019	Surface Elevation: 473.2 ft amsl	Well ID: MW-75-033, MW-75-117
Date Completed: 10/16/2019	Shallow Well Elevation: 473.3 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 473.4 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103706.2	Project: Final GW Remedy Phase 1
Driller Name: Tyler Alymer	Easting (NAD83): 7615557.7	Location: PG&E Topock, Needles, California
Drilling Asst: R. West/J. Candelaria	Borehole Diameter: 10-12 inches	
Logger: Chris Bonessi	Water Level Start: 15.77 ft bgs	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 3/31/2019	
Total Depth: 121 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
60					(0.2 - 97.0') 2" PVC Sch 40 Casing		
61							
62							
63							
64							
65							
66							
67							
68							
69	MW-B-VAS-67-72 (<0.17 U ppb) 1/9/2019 14:55		NR				
70					(37.0 - 95.2') Bentonite seal pellets	(6.0 - 121.0') 10" Borehole	(37.0 - 95.2') 48.7 buckets (37.0 - 95.2') 51 buckets (105%) Note: Pel Plug Pellets (TR30) 3/8"
71							
72							
73							
74							
75							
76							
77							
78					(77.5 - 78.5') Centralizer		
79							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J - estimated value, NR = no recovery, depth to water was measured post development, groundwater samples collected during drilling of MW-75d

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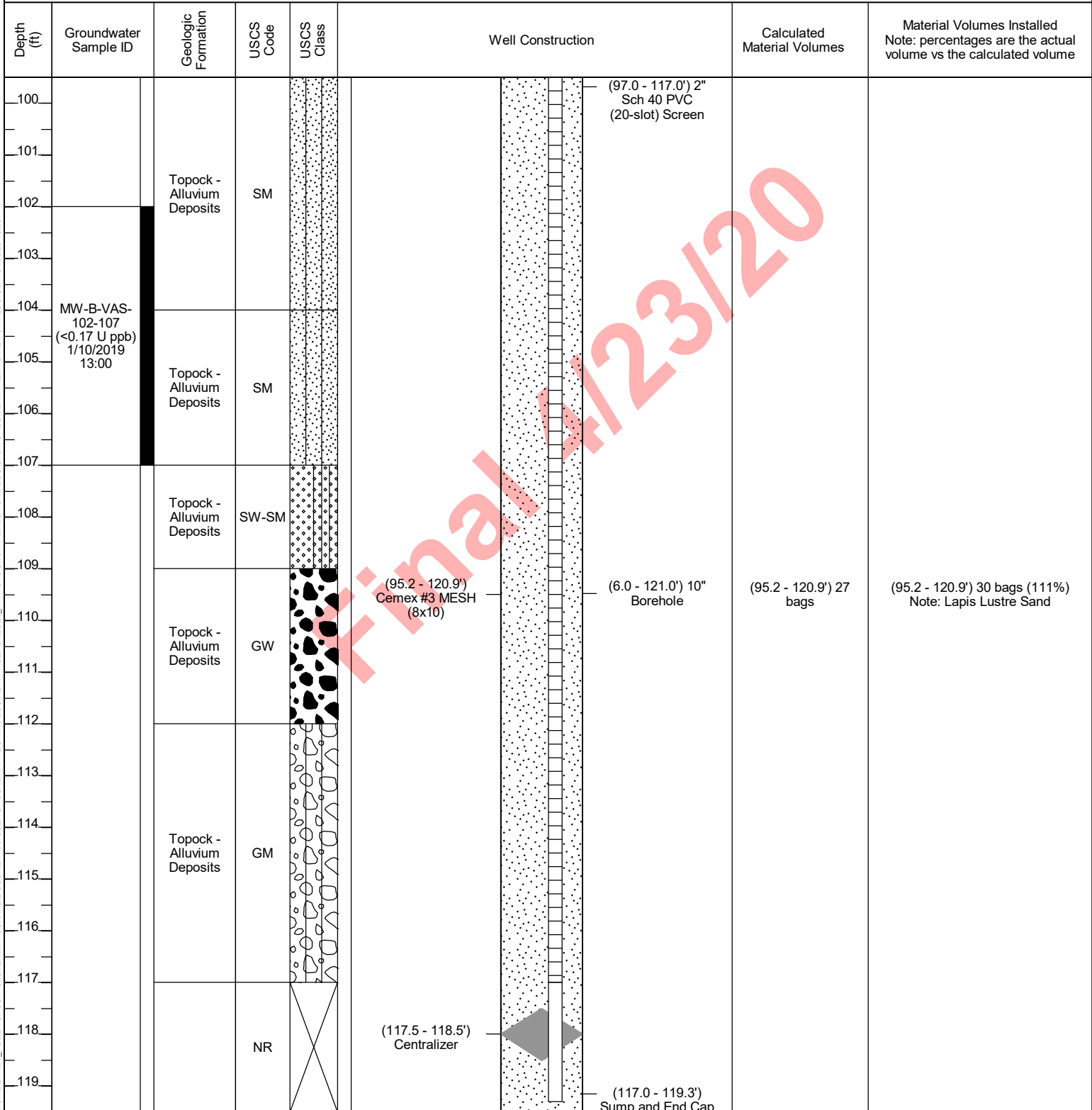
Date Started: 03/17/2019	Surface Elevation: 473.2 ft amsl	Well ID: MW-75-033, MW-75-117
Date Completed: 10/16/2019	Shallow Well Elevation: 473.3 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 473.4 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103706.2	Project: Final GW Remedy Phase 1
Driller Name: Tyler Alymer	Easting (NAD83): 7615557.7	Location: PG&E Topock, Needles, California
Drilling Asst: R. West/J. Candelaria	Borehole Diameter: 10-12 inches	
Logger: Chris Bonessi	Water Level Start: 15.77 ft bgs	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 3/31/2019	
Total Depth: 121 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
80					(0.2 - 97.0') 2" PVC Sch 40 Casing			
81								
82								
83								
84								
85								
86								
87								
88						(37.0 - 95.2') Bentonite seal pellets	(37.0 - 95.2') 48.7 buckets	(37.0 - 95.2') 51 buckets (105%) Note: Pel Plug Pellets (TR30) 3/8"
89			NR					
90						(6.0 - 121.0') 10" Borehole		
91								
92								
93								
94								
95								
96								
97								
98		Topock - Alluvium Deposits	SM		(95.2 - 120.9') Cemex #3 MESH (8x10)	(95.2 - 120.9') 27 bags	(95.2 - 120.9') 30 bags (111%) Note: Lapis Lustre Sand	
99					(97.0 - 117.0') 2" Sch 40 PVC (20-slot) Screen			

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Date Started: 03/17/2019	Surface Elevation: 473.2 ft amsl	Well ID: MW-75-033, MW-75-117
Date Completed: 10/16/2019	Shallow Well Elevation: 473.3 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 473.4 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103706.2	Project: Final GW Remedy Phase 1
Driller Name: Tyler Alymer	Easting (NAD83): 7615557.7	Location: PG&E Topock, Needles, California
Drilling Asst: R. West/J. Candelaria	Borehole Diameter: 10-12 inches	Project Number: RC000753.0051
Logger: Chris Bonessi	Water Level Start: 15.77 ft bgs	
Editor: Sean McGrane	Development End Date: 3/31/2019	
Total Depth: 121 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up	



Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J - estimated value, NR = no recovery, depth to water was measured post development, groundwater samples collected during drilling of MW-75d

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Date Started: 03/17/2019	Surface Elevation: 473.2 ft amsl	Well ID: MW-75-033, MW-75-117
Date Completed: 10/16/2019	Shallow Well Elevation: 473.3 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 473.4 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103706.2	Project: Final GW Remedy Phase 1
Driller Name: Tyler Alymer	Easting (NAD83): 7615557.7	Location: PG&E Topock, Needles, California
Drilling Asst: R. West/J. Candelaria	Borehole Diameter: 10-12 inches	
Logger: Chris Bonessi	Water Level Start: 15.77 ft bgs	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 3/31/2019	
Total Depth: 121 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
120			NR	X	(95.2 - 120.9') Cemex #3 MESH (8x10)	(95.2 - 120.9') 27 bags	(95.2 - 120.9') 30 bags (111%) Note: Lapis Lustre Sand
121					(120.9 - 121.0') Slough		Note: Slough that settled in drill casing
122					End of Boring at 121.0' bgs.		
123							
124							
125							
126							
127							
128							
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133							
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137							
138							
139							

Final 4/23/20

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