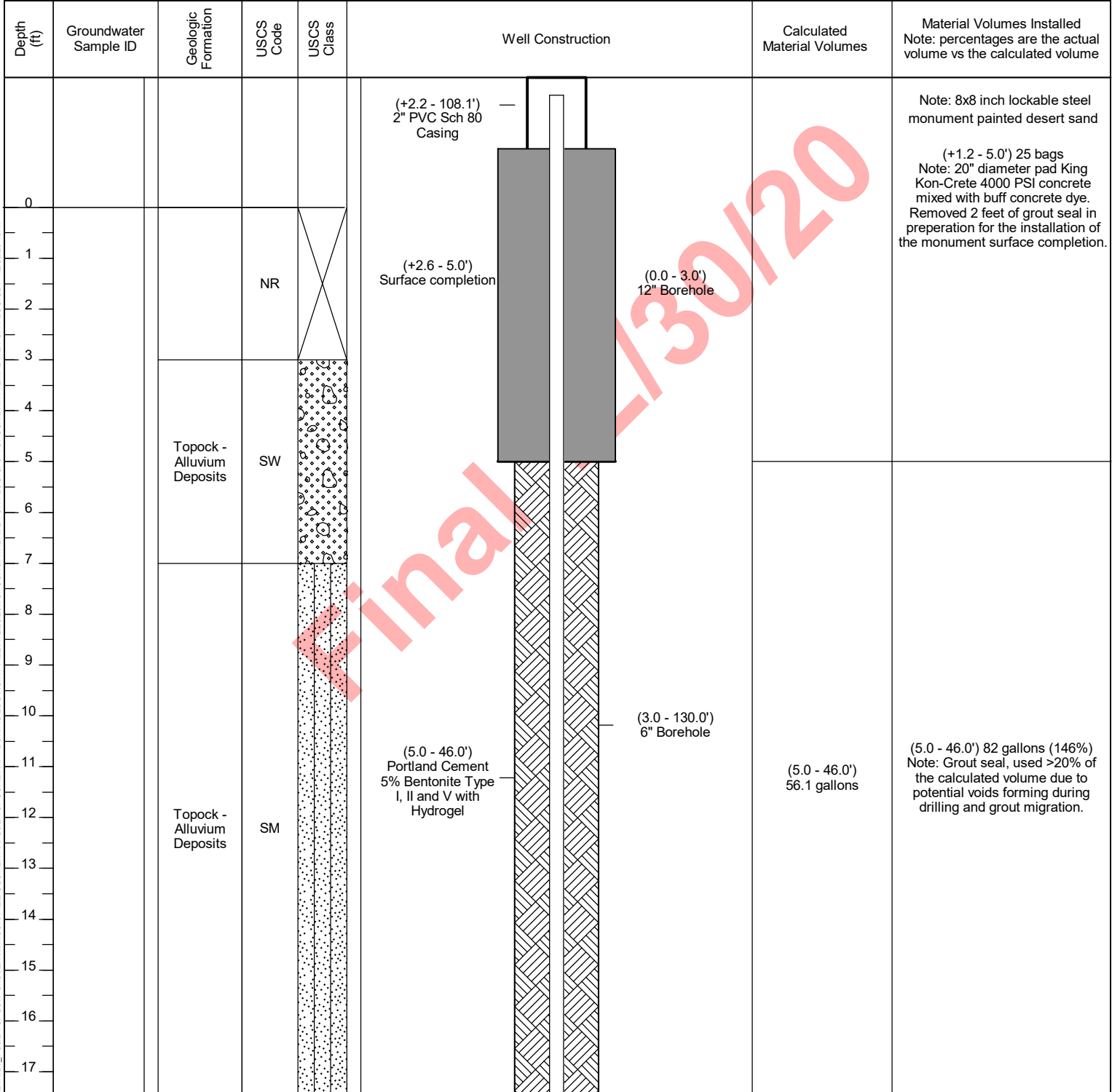


Date Started: 04/03/2019	Surface Elevation: 529.19 ft amsl	<b>Well ID: MW-10D</b>
Date Completed: 08/01/2019	Shallow Well Elevation: NA ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 531.53 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2100988.52	Project: Final GW Remedy Phase 1
Driller Name: Steve Vasquez	Easting (NAD83): 7614896.11	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 6-12 inches	
Logger: G. Jeffers/G. Wilford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/11/2019	
Total Depth: 130 ft bgs	Well Completion: <input type="checkbox"/> Flush <input checked="" type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	



Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured post development; installed in MW-10D

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 16:47

Date Started: 04/03/2019	Surface Elevation: 529.19 ft amsl	<b>Well ID: MW-10D</b>
Date Completed: 08/01/2019	Shallow Well Elevation: NA ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 531.53 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2100988.52	Project: Final GW Remedy Phase 1
Driller Name: Steve Vasquez	Easting (NAD83): 7614896.11	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 6-12 inches	
Logger: G. Jeffers/G. Wilford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/11/2019	
Total Depth: 130 ft bgs	Well Completion: <input type="checkbox"/> Flush <input checked="" type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

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		
18		Topock - Alluvium Deposits	SM		(+2.2 - 108.1') 2" PVC Sch 80 Casing				
19									
20									
21									
22									
23									
24									
25					(24.5 - 25.5') Centralizer				
26									
27					(5.0 - 46.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(3.0 - 130.0') 6" Borehole	(5.0 - 46.0') 82 gallons (146%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and grout migration.		
28		Topock - Alluvium Deposits	GM			(5.0 - 46.0') 56.1 gallons			
29									
30									
31									
32									
33		Topock - Alluvium Deposits	SM						
34									
35									
36									
37									

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured post development; installed in MW-10D

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 16:47

Date Started: 04/03/2019	Surface Elevation: 529.19 ft amsl	<b>Well ID: MW-10D</b>
Date Completed: 08/01/2019	Shallow Well Elevation: NA ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 531.53 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2100988.52	Project: Final GW Remedy Phase 1
Driller Name: Steve Vasquez	Easting (NAD83): 7614896.11	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 6-12 inches	
Logger: G. Jeffers/G. Wilford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/11/2019	
Total Depth: 130 ft bgs	Well Completion: <input type="checkbox"/> Flush <input checked="" type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

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
38					(+2.2 - 108.1') 2" PVC Sch 80 Casing		
39							
40							
41					(5.0 - 46.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(5.0 - 46.0') 56.1 gallons	(5.0 - 46.0') 82 gallons (146%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and grout migration.
42							
43							
44							
45							
46							
47		Topock - Alluvium Deposits	SM		(3.0 - 130.0') 6" Borehole		
48							
49							
50							
51					(46.0 - 101.5') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(46.0 - 101.5') 72.4 gallons	(46.0 - 101.5') 190 gallons (262%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and grout migration.
52							
53							
54							
55							
56							
57							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured post development; installed in MW-10D

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK TOPOCK DRAFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 16:47

Date Started: 04/03/2019	Surface Elevation: 529.19 ft amsl	<b>Well ID: MW-10D</b>
Date Completed: 08/01/2019	Shallow Well Elevation: NA ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 531.53 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2100988.52	Project: Final GW Remedy Phase 1
Driller Name: Steve Vasquez	Easting (NAD83): 7614896.11	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 6-12 inches	
Logger: G. Jeffers/G. Wilford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/11/2019	
Total Depth: 130 ft bgs	Well Completion: <input type="checkbox"/> Flush <input checked="" type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

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
58					(+2.2 - 108.1') 2" PVC Sch 80 Casing		
59		Topock - Alluvium Deposits	SM				
60							
61							
62							
63		Topock - Alluvium Deposits	ML				
64							
65							
66							
67					(46.0 - 101.5') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(46.0 - 101.5') 72.4 gallons	(46.0 - 101.5') 190 gallons (262%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and grout migration.
68		Topock - Alluvium Deposits	SM			(3.0 - 130.0') 6" Borehole	
69							
70							
71							
72							
73							
74							
75		Topock - Alluvium Deposits	ML				
76		Topock - Alluvium Deposits	SM				
77			GM		(74.5 - 75.5') Centralizer		

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured post development; installed in MW-10D

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK\_TOPOCK DRAFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 16:47

Date Started: 04/03/2019	Surface Elevation: 529.19 ft amsl	<b>Well ID: MW-10D</b>
Date Completed: 08/01/2019	Shallow Well Elevation: NA ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 531.53 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2100988.52	Project: Final GW Remedy Phase 1
Driller Name: Steve Vasquez	Easting (NAD83): 7614896.11	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 6-12 inches	
Logger: G. Jeffers/G. Wilford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/11/2019	
Total Depth: 130 ft bgs	Well Completion: <input type="checkbox"/> Flush <input checked="" type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

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		
78		Topock - Alluvium Deposits	GM		(+2.2 - 108.1') 2" PVC Sch 80 Casing				
79									
80									
81									
82		Topock - Alluvium Deposits	SM		(46.0 - 101.5') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(3.0 - 130.0') 6" Borehole	(46.0 - 101.5') 72.4 gallons		
83									
84									
85									
86									
87	No samples collected MW-10 screened across interval								
88									
89									
90									
91									
92									
93									
94									
95									
96									
97		Topock - Alluvium Deposits	GM						

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured post development; installed in MW-10D

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK\_TOPOCK\_DRAFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 16:47

Date Started: 04/03/2019	Surface Elevation: 529.19 ft amsl	<b>Well ID: MW-10D</b>
Date Completed: 08/01/2019	Shallow Well Elevation: NA ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 531.53 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2100988.52	Project: Final GW Remedy Phase 1
Driller Name: Steve Vasquez	Easting (NAD83): 7614896.11	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 6-12 inches	
Logger: G. Jeffers/G. Wilford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/11/2019	
Total Depth: 130 ft bgs	Well Completion: <input type="checkbox"/> Flush <input checked="" type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

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
98	No samples collected MW-10 screened across interval	Topock - Alluvium Deposits	GM	[Pattern]	(+2.2 - 108.1') 2" PVC Sch 80 Casing	(46.0 - 101.5') 72.4 gallons	(46.0 - 101.5') 190 gallons (262%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and grout migration.
99					(46.0 - 101.5') Portland Cement 5% Bentonite Type I, II and V with Hydrogel		
100					(101.5 - 105.0') Bentonite seal chips Enviroplug 3/8" chips		
101	MW-10D-VAS-107-112 (96 ppb) 4/1/2019 14:32	Topock - Alluvium Deposits	SM	[Pattern]	(3.0 - 130.0') 6" Borehole	(105.0 - 127.0') 7.8 bags	(105.0 - 127.0') 7.4 bags (95%) Note: Filter pack
102							
103	Topock - Alluvium Deposits	GM	[Pattern]	[Pattern]	(105.0 - 127.0') Cemex #3 MESH (8x10) Lapis Lustre Sand	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
104							
105	Topock - Alluvium Deposits	SM	[Pattern]	[Pattern]	[Pattern]	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
106							
107	Topock - Alluvium Deposits	GM	[Pattern]	[Pattern]	[Pattern]	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
108							
109	Topock - Alluvium Deposits	SM	[Pattern]	[Pattern]	[Pattern]	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
110							
111	Topock - Alluvium Deposits	GM	[Pattern]	[Pattern]	[Pattern]	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
112							
113	Topock - Alluvium Deposits	SM	[Pattern]	[Pattern]	[Pattern]	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
114							
115	Topock - Alluvium Deposits	GM	[Pattern]	[Pattern]	[Pattern]	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
116							
117	Topock - Alluvium Deposits	SM	[Pattern]	[Pattern]	[Pattern]	(101.5 - 105.0') 0.85 bags	(101.5 - 105.0') 1 bags (118%) Note: Seal above filter pack
118							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured post development; installed in MW-10D

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 16:47

Date Started: 04/03/2019	Surface Elevation: 529.19 ft amsl	<b>Well ID: MW-10D</b>
Date Completed: 08/01/2019	Shallow Well Elevation: NA ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 531.53 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2100988.52	Project: Final GW Remedy Phase 1
Driller Name: Steve Vasquez	Easting (NAD83): 7614896.11	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 6-12 inches	
Logger: G. Jeffers/G. Wilford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/11/2019	
Total Depth: 130 ft bgs	Well Completion: <input type="checkbox"/> Flush <input checked="" type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

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
118	MW-10D-VAS-118-123 (190 ppb) 4/2/2019 12:05	Topock - Alluvium Deposits	GM		(108.1 - 123.1') 2" Sch 80 PVC (20-slot) Screen		
119							
120		Topock - Alluvium Deposits	ML		(105.0 - 127.0') Cemex #3 MESH (8x10) Lapis Lustre Sand	(105.0 - 127.0') 7.8 bags	(105.0 - 127.0') 7.4 bags (95%) Note: Filter pack
121							
122		Topock - Weathered Bedrock - conglomerate	ML		(123.5 - 124.5') Centralizer		
123							
124		Topock - Competent Bedrock - conglomerate			(123.1 - 125.5') Sump and PVC End Cap		
125							
126					(127.0 - 130.0') Bentonite Chips Enviroplug 3/8" chips	(127.0 - 130.0') 0.8 bags	(127.0 - 130.0') 0.75 bags (94%) Note: Decommissioned rathole
127							
128							
129							
130							

End of Boring at 130.0 ft bgs.

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured post development; installed in MW-10D

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 16:47

Date Started:	03/31/2019	Surface Elevation:	529.19 ft amsl	<b>Boring No.: MW-10D</b>	
Date Completed:	04/02/2019	Northing (NAD83):	2100988.52		
Drilling Co.:	Cascade	Easting (NAD83):	7614896.11	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	130 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Steve Vasquez	Depth to First Water:	73.8 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya / O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	Gantt Jeffers	Sampling Interval:	Continuous		
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	36				NR		(0.0 - 3.0') No recovery (NR); hand augered for utility clearance, not logged	(0.0 - 3.0') Boulders and cobbles prevented hand clearing to 5 ft. bgs	(0.0 - 130.0') No water used
2									
3									
4	48			Topock - Alluvium Deposits	SW		(3.0 - 7.0') Topock - Alluvium Deposits; Well graded sand with gravel (SW); brown (10YR 5/3); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; trace angular to subangular; trace boulders; trace silt; trace mica; dry, interbedded gravel lense, larger clasts consist of meta-diorite, boulders fractured		
5									
6									
7									
8	No sieve samples collected			Topock - Alluvium Deposits	SM		(7.0 - 27.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (10YR 5/3); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; little silt; trace angular to subangular; trace boulders; trace clay; trace mica; dry, interbedded gravel lenses, larger clasts consist of meta-diorite, boulders fractured	(7.0 - 17.0') Bag for soil core broke lost part of the core, soil compaction.	
9									
10									
11									
12									
13									
14									
15									
16									
17									
18	72							(17.0 - 23.0') Rough drilling, core barrel cracked.	
19									
20									

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-10D installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.19.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/20/20 16:57



Date Started: 03/31/2019	Surface Elevation: 529.19 ft amsl	<b>Boring No.: MW-10D</b>
Date Completed: 04/02/2019	Northing (NAD83): 2100988.52	
Drilling Co.: Cascade	Easting (NAD83): 7614896.11	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 130 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Prosonic Truck Mount	Borehole Diameter: 6-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Steve Vasquez	Depth to First Water: 73.8 ft bgs	Project Number: RC000753.0051
Drilling Asst: L. Amaya / O. Flores	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: Gantt Jeffers	Sampling Interval: Continuous	
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	72			Topock - Alluvium Deposits	SM				
22									
23				Topock - Alluvium Deposits	GM		(27.5 - 29.5') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (7.5YR 4/3); granules to very large pebbles, angular; some very fine to very coarse grained sand, angular to subangular; some silt; trace angular; trace mica; dry; weak cementation; larger clasts consist of meta-diorite		
24	48								
25									
26				Topock - Alluvium Deposits	SM		(29.5 - 63.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 5/3) trace red / moderate reddish brown (10R 4/6); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; some silt; trace angular to subangular; trace boulders; trace clay; trace mica; dry; mottled; weak cementation; interbedded gravel lenses, larger clasts consist of meta-diorite, boulders fractured		
27									
28		No sieve samples collected							
29									
30	108								
31									
32				Topock - Alluvium Deposits	SM		(32.5 - 33.5'); increase in silt, decrease in sand		
33									
34									
35									
36				Topock - Alluvium Deposits	SM		(35.5 - 39.0'); increase in silt, decrease in sand, decrease granules and pebbles		
37									
38	96								
39									
40				Topock - Alluvium Deposits	SM		(39.0 - 44.0'); decrease in silt, increase in granules and pebbles		

Final 1/12/20120

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-10D installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMC\GRAND\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.19.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/20/20 16:57

Date Started:	03/31/2019	Surface Elevation:	529.19 ft amsl	<b>Boring No.: MW-10D</b>	
Date Completed:	04/02/2019	Northing (NAD83):	2100988.52		
Drilling Co.:	Cascade	Easting (NAD83):	7614896.11	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	130 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Steve Vasquez	Depth to First Water:	73.8 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya / O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	Gantt Jeffers	Sampling Interval:	Continuous		
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	96								
43									
44							(44.0 - 47.0'); little silt; increase in sand, no cobbles		
45									
46	36								
47									
48							(47.0 - 52.5'); some silt; decrease in sand, increase in granules and pebbles		
49									
50		No sieve samples collected		Topock - Alluvium Deposits	SM				
51	84								
52									
53							(52.5 - 57.0'); decrease in silt, increase sand, increase in granules and pebbles, decrease in clay		
54									
55	36								
56									
57									
58	24						(57.0 - 58.8'); some silt; moderate cementation; increase in silt, decrease in sand, decrease in granules and pebbles, fractured gravel fragments at 58.5' bgs	(57.0 - 59.0') Rough drilling, drill rods chattering.	
59									
60	96						(58.8 - 63.0'); weak cementation; decrease in silt, increase in granules, fractured gravel fragments at 62.5' bgs		

FINAL 1120120

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SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.19.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/20/20 16:57

Date Started:	03/31/2019	Surface Elevation:	529.19 ft amsl	<b>Boring No.: MW-10D</b>	
Date Completed:	04/02/2019	Northing (NAD83):	2100988.52		
Drilling Co.:	Cascade	Easting (NAD83):	7614896.11	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	130 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Steve Vasquez	Depth to First Water:	73.8 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya / O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	Gantt Jeffers	Sampling Interval:	Continuous		
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	96			Topock - Alluvium Deposits	SM						
62				Topock - Alluvium Deposits	ML		(63.0 - 64.5') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (7.5YR 5/4); no plasticity; some granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subangular; trace mica; dry; medium stiff to stiff; weak cementation; larger clasts consist of meta-diorite				
63								(64.5 - 74.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 5/3) trace dusky red / dark reddish brown (10R 3/4); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular; some silt; trace angular; trace caliche; trace mica; dry; mottled; weak cementation; larger clasts consist of meta-diorite, interbedded silt lenses, fractured gravel fragments at 71.5' and 73' bgs			
64	108	No sieve samples collected		Topock - Alluvium Deposits	SM						
65											
66											
67											
68											
69	12			Topock - Alluvium Deposits	ML		(74.0 - 75.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (7.5YR 5/4); low plasticity, no dilatency; some small to large pebbles, angular; some very fine to very coarse grained sand, angular to subangular; trace mica; moist; stiff to very stiff; weak cementation; larger clasts consist of meta-diorite				
70				Topock - Alluvium Deposits	SM		(75.0 - 77.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 5/3) trace dusky red / dark reddish brown (10R 3/4); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular; some silt; trace angular; trace mica; moist; mottled; larger clasts consist of metadiorite, interbedded silt and silty gravel lenses, fractured gravel fragments at 76.5' bgs				
71											
72	120		No samples collected MW-10 screened across interval	Topock - Alluvium Deposits	GM		(77.0 - 81.5') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (10YR 5/3); granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subround; some silt; wet; larger clasts consist of metadiorite, interbedded silt, silty sand and silty gravel lenses	(77.0 - 77.0') Approximate depth to water			
73											
74											
75											
76											
77											
78											
79											
80											

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Date Started: 03/31/2019	Surface Elevation: 529.19 ft amsl	<b>Boring No.: MW-10D</b>
Date Completed: 04/02/2019	Northing (NAD83): 2100988.52	
Drilling Co.: Cascade	Easting (NAD83): 7614896.11	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 130 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Prosonic Truck Mount	Borehole Diameter: 6-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Steve Vasquez	Depth to First Water: 73.8 ft bgs	Project Number: RC000753.0051
Drilling Asst: L. Amaya / O. Flores	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: Gantt Jeffers	Sampling Interval: Continuous	
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				Topock - Alluvium Deposits	GM		(81'); little silt; increase sand and gravel							
82				Topock - Alluvium Deposits	SM		(81.5 - 96.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/4); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; some silt; trace subangular; trace mica; wet; larger clasts consist of metadiorite, interbedded silt, silty sand and silty gravel lenses, weathered gravel							
83	120													
84				Topock - Alluvium Deposits	SM			No sieve samples collected	No samples collected MW-10 screened across interval					
85														
86														
87				Topock - Alluvium Deposits	GM		(96.5 - 104.5') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (7.5YR 4/3) trace brown (7.5YR 4/4); granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subround; little silt; trace mica; wet; mottled; larger clasts consist of metadiorite, interbedded silt and silty sand lenses, weathered gravel							
88														
89														
90														
91				Topock - Alluvium Deposits	GM			No sieve samples collected	No samples collected MW-10 screened across interval					
92	120													
93														
94														
95														
96				Topock - Alluvium Deposits	GM			No sieve samples collected	No samples collected MW-10 screened across interval					
97														
98														
99														
100														

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Date Started:	03/31/2019	Surface Elevation:	529.19 ft amsl	<b>Boring No.: MW-10D</b>	
Date Completed:	04/02/2019	Northing (NAD83):	2100988.52		
Drilling Co.:	Cascade	Easting (NAD83):	7614896.11	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	130 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Steve Vasquez	Depth to First Water:	73.8 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya / O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	Gantt Jeffers	Sampling Interval:	Continuous		
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	120		No samples collected MW-10 screened across interval	Topock - Alluvium Deposits	GM				
102									
103									
104									
105	60	No sieve samples collected	MW-10D-VAS-107-112 (96 ppb) 4/1/2019 14:32	Topock - Alluvium Deposits	SM		(104.5 - 107.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/4) little very dark gray (7.5YR 3/1); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; some silt; trace angular to subangular; trace mica; trace organics; wet; mottled; larger clasts consist of metadiorite, interbedded silty gravel, silt nodules		
106									
107									
108									
109	174			Topock - Alluvium Deposits	GM		(107.0 - 115.5') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (7.5YR 4/4) and very dark gray (7.5YR 3/1); granules to small cobbles, angular to subangular; some very fine to very coarse grained sand, angular to subround; some silt; trace mica; little organics; wet; mottled; larger clasts consist of metadiorite, interbedded silt and silty sand lenses, trace silt nodules, trace reddish brown 5YR 4/4		
110									
111									
112									
113				Topock - Alluvium Deposits	SM		(115.5 - 116.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 5/4); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular; some silt; trace angular to subangular; little mica; wet; iron oxide staining; larger clasts consist of metadiorite, trace weathered rock		
114									
115									
116									
117				Topock - Alluvium Deposits	GM		(116.5 - 121.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); very dark gray (7.5YR 3/1) some brown (7.5YR 5/4); granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subround; some silt; trace angular to subangular; trace mica; little organics; wet; mottled; iron oxide staining; larger clasts consist of metadiorite, interbedded silt and silty sand lenses, trace silt nodules, trace 5 YR 4/4 reddish brown		
118									
119									
120									

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Date Started:	03/31/2019	Surface Elevation:	529.19 ft amsl	<b>Boring No.: MW-10D</b>	
Date Completed:	04/02/2019	Northing (NAD83):	2100988.52		
Drilling Co.:	Cascade	Easting (NAD83):	7614896.11	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	130 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Steve Vasquez	Depth to First Water:	73.8 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya / O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	Gantt Jeffers	Sampling Interval:	Continuous		
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	174	No sieve samples collected	MW-10D-VAS-118-123 (190 ppb) 4/2/2019 12:05	Topock - Alluvium Deposits	GM		(121.0 - 123.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); reddish brown (5YR 4/3) and very dark gray (5YR 3/1); low plasticity; some very fine to very coarse grained sand, angular to subangular; little granules to very large pebbles, angular to subangular; trace mica; trace organics; moist to wet; stiff to very stiff; mottled; larger clasts consist of metadiorite		
122				Topock - Alluvium Deposits	ML				
123				Topock - Weathered Bedrock - conglomerate	ML		(123.0 - 127.0') Topock - Weathered Bedrock - conglomerate; Sandy silt with gravel (ML); reddish brown (2.5YR 4/3) little red (2.5YR 5/6); no plasticity, no dilatency; some very fine to very coarse grained sand, angular to subangular; little granules to very large pebbles, angular to subangular; trace mica; moist; stiff to very stiff; mottled; weak cementation; larger clasts consist of metadiorite		
124									
125	36			Topock - Competent Bedrock - conglomerate			(127.0 - 130.0') Topock - Competent Bedrock - conglomerate; red (2.5YR 4/6); dry; friable	(127.0 - 130.0') Rough drilling, bedrock encountered at 127 ft. bgs	
126									
127									
128	End of Boring at 130.0 ft bgs.								
129									
130									
131									
132									
133									
134									
135									
136									
137									
138									
139									
140									

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-10D installed in borehole

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