

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
0					(+0.3 - 2.0') Surface completion		(+0.3 - 2.0') 14.5 bags Note: 30 inch diameter concrete pad with 18" diameter lockable vault, King Kon-Crete 4000 PSI dyed Buff Note: Removed ~18 inches of grout to install pad.
1		Topock - Fill	SW				
2					(+0.2 - 171.0') 2" PVC Sch 80 Casing		
3							
4			NR				
5							
6							
7		Topock - Fill	SW				
8							
9							
10							
11					(2.0 - 25.7') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(2.0 - 25.7') 102.4 gallons	(2.0 - 25.7') 110 gallons (107%) Note: Grout seal
12			NR				
13							
14							
15							
16							
17		Topock - Fluvial Deposits	SW				
18							
19		Topock - Fluvial Deposits	SM				

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_DRAFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
20		Topock - Fluvial Deposits	GP		(+0.2 - 171.0') 2" PVC Sch 80 Casing		
21							
22							
23			NR		(2.0 - 25.7') Portland Cement 5% Bentonite Type I, II and V with Hydrogel (21.5 - 22.5') Centralizer	(2.0 - 25.7') 102.4 gallons	(2.0 - 25.7') 110 gallons (107%) Note: Grout seal
24							
25							
26							
27							
28	MW-C-VAS-26-31 (380 ppb) 6/19/2019 10:35						
29							
30							
31		Topock - Alluvium Deposits	SM				
32							
33					(25.7 - 168.9') Bentonite seal chips Puregold medium chips	(25.7 - 168.9') 99.8 bags	(25.7 - 168.9') 103 bags (103%) Note: Seal between filter pack and grout seal.
34							
35							
36							
37		Topock - Alluvium Deposits	ML				
38							
39		Topock - Alluvium Deposits	SM				

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
40					(+0.2 - 171.0') 2" PVC Sch 80 Casing		
41					(+0.3 - 198.0') 2" PVC Sch 80 Casing		
42		Topock - Alluvium Deposits	SM				
43	--No Sample - (Interval did not produce) 6/19/2019 14:15						
44							
45							
46		Topock - Alluvium Deposits	SM				
47		Topock - Alluvium Deposits	GW-GM				
48	--No Sample - (Interval did not produce) 6/20/2019 09:55	Topock - Alluvium Deposits	SM				
49		Topock - Alluvium Deposits	GM		(25.7 - 168.9') Bentonite seal chips Puregold medium chips	(25.7 - 168.9') 99.8 bags	(25.7 - 168.9') 103 bags (103%) Note: Seal between filter pack and grout seal.
50							
51							
52		Topock - Alluvium Deposits	SM				
53	MW-C-VAS-51-56 (0.146 J ppb) 6/25/2019 12:00						
54							
55		Topock - Alluvium Deposits	SW				
56		Topock - Alluvium Deposits	SW-SM				
57		Topock - Alluvium Deposits	ML				
58		Topock - Alluvium Deposits	ML				
59		Topock - Alluvium	ML				

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
60		Deposits Topock - Alluvium Deposits	ML		(+0.2 - 171.0') 2" PVC Sch 80 Casing		
61							
62		Topock - Alluvium Deposits	GM		(61.5 - 62.5') Centralizer		
63	--No Sample-- (Interval did not produce) 6/25/2019 13:15						
64		Topock - Alluvium Deposits	GW-GM				
65							
66							
67							
68	MW-C-VAS-66-71 (<0.033 U ppb) 6/26/2019 10:44	Topock - Alluvium Deposits	SW-SM		(25.7 - 168.9') Bentonite seal chips Puregold medium chips		
69							
70						(25.7 - 168.9') 99.8 bags	(25.7 - 168.9') 103 bags (103%) Note: Seal between filter pack and grout seal.
71							
72							
73							
74							
75		Topock - Alluvium Deposits	ML				
76							
77							
78							
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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
80					(+0.2 - 171.0') 2" PVC Sch 80 Casing		
81							
82		Topock - Alluvium Deposits	ML				
83	MW-C-VAS-81-86 (<0.17 U ppb) 6/27/2019 10:58						
84							
85		Topock - Alluvium Deposits	SW-SM				
86							
87							
88							
89							
90					(25.7 - 168.9') Bentonite seal chips Puregold medium chips	(25.7 - 168.9') 99.8 bags	(25.7 - 168.9') 103 bags (103%) Note: Seal between filter pack and grout seal.
91							
92							
93		Topock - Alluvium Deposits	GM				
94							
95							
96							
97							
98							
99							

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
100		Topock - Alluvium Deposits	GM		(+0.2 - 171.0') 2" PVC Sch 80 Casing		
101		Topock - Alluvium Deposits	MH		(101.5 - 102.5') Centralizer		
102		Topock - Alluvium Deposits	ML				
103		Topock - Alluvium Deposits	ML				
104		Topock - Alluvium Deposits	MH				
105		Topock - Alluvium Deposits	MH				
106		Topock - Alluvium Deposits	ML				
107		Topock - Alluvium Deposits	ML				
108		Topock - Alluvium Deposits	ML				
109		Topock - Alluvium Deposits	ML				
110		Topock - Alluvium Deposits	ML		(25.7 - 168.9') Bentonite seal chips Puregold medium chips	(8.0 - 221.5') 10.0" Borehole	(25.7 - 168.9') 103 bags (103%) Note: Seal between filter pack and grout seal.
111		Topock - Alluvium Deposits	ML				
112		Topock - Alluvium Deposits	ML				
113		Topock - Alluvium Deposits	ML				
114		Topock - Alluvium Deposits	ML				
115		Topock - Alluvium Deposits	ML				
116		Topock - Alluvium Deposits	ML				
117		Topock - Alluvium Deposits	ML				
118	MW-C-VAS-117-122 (<0.17 U ppb) 6/28/2019 14:59		NR				
119							

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
120	MW-C-VAS-117-122 (<0.17 U ppb) 6/28/2019 14:59	Topock - Alluvium Deposits	ML		(+0.2 - 171.0') 2" PVC Sch 80 Casing		
121					(+0.3 - 198.0') 2" PVC Sch 80 Casing		
122		Topock - Alluvium Deposits	SW-SM				
123							
124		Topock - Alluvium Deposits	ML				
125							
126		Topock - Alluvium Deposits	ML				
127							
128		Topock - Alluvium Deposits	MH				
129							
130		Topock - Alluvium Deposits	SM				
131							
132		Topock - Alluvium Deposits	MH				
133							
134		Topock - Alluvium Deposits	MH				
135							
136		Topock - Alluvium Deposits	MH				
137							
138		Topock - Alluvium Deposits	MH				
139							

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMC\GRANDOCUMENTS\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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
140			MH		(+0.2 - 171.0') 2" PVC Sch 80 Casing		
141			MH				
142		Topock - Alluvium Deposits	MH		(141.5 - 142.5') Centralizer		
143							
144		Topock - Alluvium Deposits	ML				
145		Topock - Alluvium Deposits	MH				
146		Topock - Alluvium Deposits	GW-GM				
147		Topock - Alluvium Deposits	GM				
148							
149	MW-C-VAS-147-152 (<0.17 U ppb) 6/29/2019 13:58	Topock - Alluvium Deposits	ML				
150		Topock - Alluvium Deposits	SW-SM		(25.7 - 168.9') Bentonite seal chips Puregold medium chips	(8.0 - 221.5') 10.0" Borehole	(25.7 - 168.9') 103 bags
151							Note: Seal between filter pack and grout seal.
152		Topock - Alluvium Deposits	SW-SM				
153							
154		Topock - Alluvium Deposits	GM				
155							
156		Topock - Alluvium Deposits	GW-GM				
157							
158		Topock - Alluvium Deposits	SW-SM				
159							

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_TOPOCKDRAFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
160			SW-SM		(+0.2 - 171.0') 2" PVC Sch 80 Casing		
161		Topock - Alluvium Deposits	SM				
162							
163		Topock - Alluvium Deposits	GM				
164					(25.7 - 168.9') Bentonite seal chips Puregold medium chips	(25.7 - 168.9') 99.8 bags	(25.7 - 168.9') 103 bags (103%) Note: Seal between filter pack and grout seal.
165							
166		Topock - Alluvium Deposits	GW-GM				
167	MW-C-VAS-165-170 (<0.17 U ppb) 6/30/2019 11:04						
168		Topock - Alluvium Deposits	SM				
169							
170		Topock - Alluvium Deposits	SM				
171							
172					(171.0 - 181.0') 2" 20-Slot Sch 80 PVC Screen		
173							
174		Topock - Alluvium Deposits	ML				
175					(168.9 - 183.1') Cemex #3 MESH (8x20) Lapis Lustre Sand	(168.9 - 183.1') 15.3 bags	(168.9 - 183.1') 19 bags (124%) Note: Filter pack, used >20% of the calculated volume due to potential voids that formed during drilling.
176							
177		Topock - Alluvium Deposits	GM				
178	MW-C-VAS-176-181 (410 ppb) 7/1/2019 16:02	Topock - Alluvium Deposits	GW				
179		Topock - Alluvium Deposits	ML				
		Topock - Alluvium Deposits	ML				
		Topock - Alluvium Deposits	ML				

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
180		Alluvium Deposits	ML		(171.0 - 181.0') 2" 20-Slot Sch 80 PVC Screen		
181		Topock - Alluvium Deposits	ML		(168.9 - 183.1') Cemex #3 MESH (8x20) Lapis Lustre Sand (181.5 - 182.5') Centralizer	(168.9 - 183.1') 15.3 bags	(168.9 - 183.1') 19 bags (124%) Note: Filter pack, used >20% of the calculated volume due to potential voids that formed during drilling.
182		Topock - Alluvium Deposits	ML				
183		Topock - Alluvium Deposits	ML				
184		Topock - Alluvium Deposits	ML		(181.0 - 183.3') Sump and PVC End Cap		
185		Topock - Alluvium Deposits	ML				
186		Topock - Alluvium Deposits	ML				
187		Topock - Alluvium Deposits	SW-SM				
188	MW-C-VAS-185-191 (<0.17 U ppb) 7/1/2019 12:00	Topock - Alluvium Deposits	SM		(183.1 - 195.9') Bentonite seal pellets Pel-Plug (TR30) 3/8"	(183.1 - 195.9') 12.2 buckets	(183.1 - 195.9') 13 buckets (107%) Note: Pel-Plug (TR30) 3/8"
189		Topock - Alluvium Deposits	SM				
190		Topock - Alluvium Deposits	SM				
191		Topock - Alluvium Deposits	SM				
192		Topock - Alluvium Deposits	ML				
193		Topock - Alluvium Deposits	GW-GM				
194		Topock - Alluvium Deposits	ML				
195		Topock - Alluvium Deposits	SM				
196		Topock - Alluvium Deposits	SM				
197		Topock - Alluvium Deposits	ML				
198		Topock - Alluvium Deposits	ML		(195.9 - 221.5') Cemex #3 MESH (8x20) Lapis Lustre Sand	(195.9 - 221.5') 27.8 bags	(195.9 - 221.5') 31 bags (112%) Note: Filter pack
199		Topock - Alluvium Deposits	SM		(198.0 - 218.0') 2" 20-Slot Sch 80 PVC Screen		

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\MCGRANEDOCUMENTS\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 15:49

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

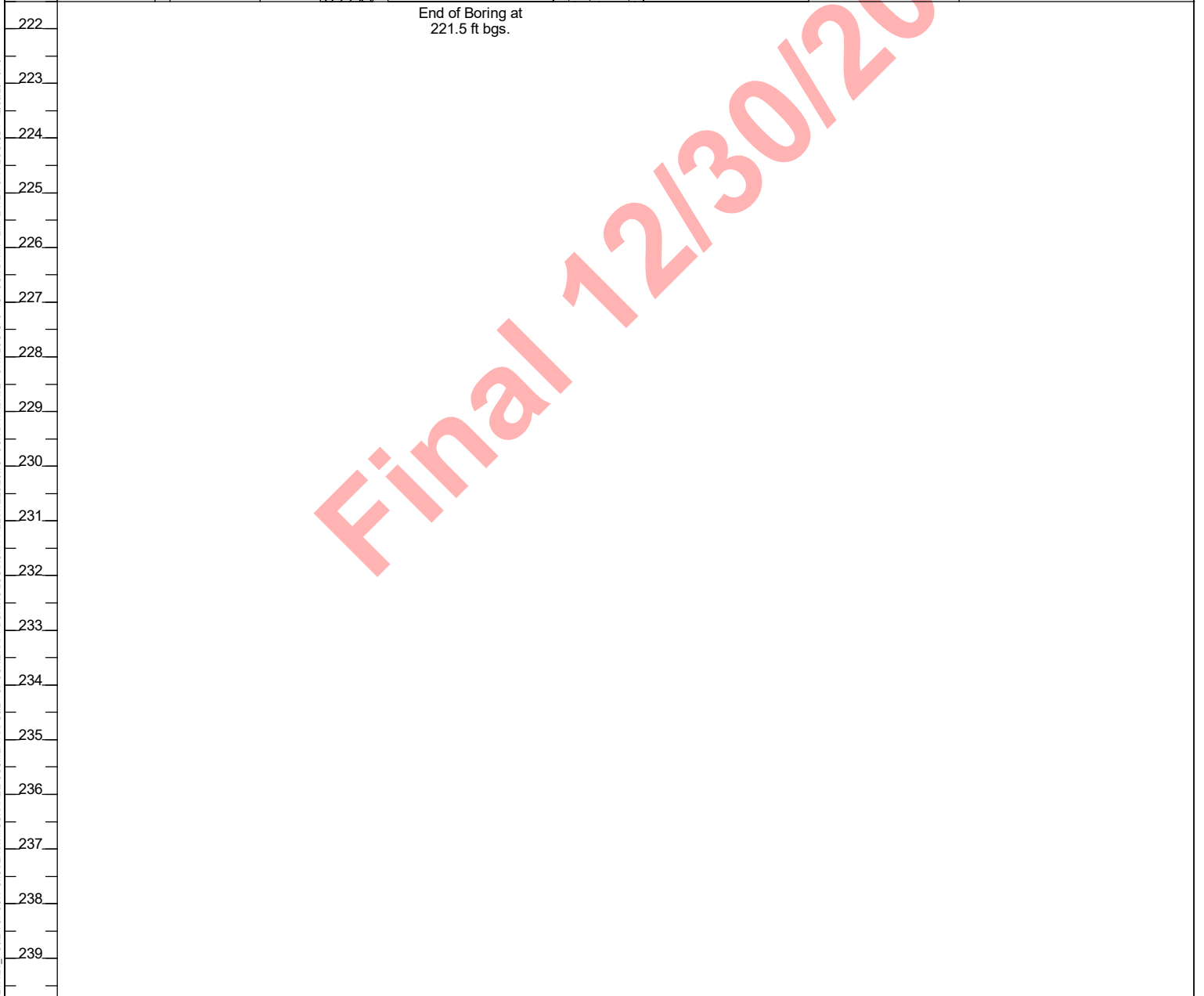
Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
200	MW-C-VAS-200-205 (<0.17 U ppb) 7/2/2019 15:24	Topock - Alluvium Deposits	ML					
201								
202		Topock - Alluvium Deposits	SM					
203								
204	Topock - Alluvium Deposits	SW-SM			(195.9 - 221.5') Cemex #3 MESH (8x20) Lapis Lustre Sand	(8.0 - 221.5') 10.0" Borehole	(195.9 - 221.5') 27.8 bags	(195.9 - 221.5') 31 bags (112%) Note: Filter pack
205								
206								
207	Topock - Alluvium Deposits	ML						
208								
209								
210	Topock - Weathered Bedrock - conglomerate	MH						
211								
212	Topock - Weathered Bedrock - conglomerate	SM						
213								
214	Topock - Competent Bedrock - conglomerate							
215								
216								
217	MW-C-VAS-216-221 (<0.17 U ppb) 7/3/2019 11:09	Topock - Competent Bedrock - conglomerate						
218								
219								
220					(218.5 - 219.5') Centralizer			

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMC\GRANDOCUMENTS\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 15:49

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

Date Started: 07/17/2019	Surface Elevation: 481.61 ft amsl	Well ID: MW-76-181, MW-76-218
Date Completed: 09/25/2019	Shallow Well Elevation: 481.43 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 481.36 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103230.28	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615748.07	Location: PG&E Topock, Needles, California
Drilling Asst: Jario Pacheco	Borehole Diameter: 10-12 inches	
Logger: Dave Cornell	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Grant Willford	Development End Date: 8/22/2019	
Total Depth: 221.5 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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
220		Topock - Competent Bedrock - conglomerate			(195.9 - 221.5') Cemex #3 MESH (8x20) Lapis Lustre Sand		(195.9 - 221.5') 27.8 bags
221			(218.0 - 220.3') Sump and PVC End Cap		(195.9 - 221.5') 31 bags (112%) Note: Filter pack		



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 15:49

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; Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) measured post development for the shallow well and deep well respectively; installed in MW-76d

Date Started: 06/16/2019	Surface Elevation: 481.61 ft amsl	Boring No.: MW-76d
Date Completed: 07/14/2019	Northing (NAD83): 2103230.28	
Drilling Co.: Cascade	Easting (NAD83): 7615748.07	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 221.5 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Terrasonic track mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Dan O'Mara	Depth to First Water: 25.7 ft bgs	Project Number: RC000753.0051
Drilling Asst: Jario Pacheco	Sampling Method: 4 inch x 10 ft Core Barrel	
Logger: Dave Cornell	Sampling Interval: Continuous	
Editor: Grant Willford	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			Topock - Fill	SW		(0.0 - 3.5') Topock - Fill; Well graded sand (SW); dark yellowish brown (10YR 4/6); fine grained to medium grained, angular to subround; trace granules to medium pebbles, subangular to round; trace silt; dry	(0.0 - 21.0') Drill rod broke down hole core barrel had to be fished out.	(0.0 - 26.0') No water used					
2														
3														
4	38.4	No Sieve Samples Collected			NR		(3.5 - 6.0') No recovery (NR); interpretation of where recovery was lost changed from draft logs based on drilling notes of core falling out of core barrel and review of core photo logs	(3.5') Loose sediments falling out of core barrel leading to no recovery.						
5														
6														
7	60			Topock - Fill	SW		(6.0 - 9.2') Topock - Fill; Well graded sand (SW); dark yellowish brown (10YR 4/6) trace black (10YR 2/1); fine grained to medium grained, subangular to subround; trace granules to small pebbles, subangular to subround; trace silt; moist	(6.0') Loose loose sediments falling out of core barrel leading to no recovery.						
8														
9														
10	60				NR		(9.2 - 16.0') No recovery (NR); interpretation of where recovery was lost changed from draft logs based on drilling notes of core falling out of core barrel and review of core photo logs							
11														
12														
13	60			Topock - Fluvial Deposits	SW		(16.0 - 18.2') Topock - Fluvial Deposits; Well graded sand with gravel (SW); dark yellowish brown (10YR 4/6) trace black (10YR 2/1); fine grained to medium grained, subangular to subround; little granules to medium pebbles, subangular to round; trace silt; dry	(16.0') Loose sediments falling out of core barrel leading to no recovery, with slough at top of core.						
14														
15														
16	60			Topock - Fluvial Deposits	SM		(18.2 - 20.0') Topock - Fluvial Deposits; Silty sand with gravel (SM); dark brown (10YR 3/3); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; little silt; trace small cobbles, subangular; dry							
17														
18														
19	60													
20														

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANED\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 15:51

Date Started:	06/16/2019	Surface Elevation:	481.61 ft amsl	Boring No.: MW-76d	
Date Completed:	07/14/2019	Northing (NAD83):	2103230.28		
Drilling Co.:	Cascade	Easting (NAD83):	7615748.07	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	221.5 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic track mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	25.7 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	Jario Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	Dave Cornell	Sampling Interval:	Continuous		
Editor:	Grant Willford	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	60			Topock - Fluvial Deposits	GP		(20.0 - 21.0') Topock - Fluvial Deposits; Poorly graded gravel (GP); pulverized boulder							
22				NR					(21.0 - 26.0') No recovery (NR); interpretation of where recovery was lost changed from draft logs based on drilling notes of core falling out of core barrel and review of core photo logs					
23														
24								(24.0 - 26.0') Rough drilling						
25														
26														
27	120	No Sieve Samples Collected	MW-C-VAS-26-31 (380 ppb) 6/19/2019 10:35	Topock - Alluvium Deposits	SM		(26.0 - 36.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); dark brown (10YR 3/3) little strong brown (7.5YR 4/6); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; some silt; wet; mottled (27'); slight decrease in silt, no mottling	(26.0') Approximate depth to water.	(26.0 - 36.0') 15 gallons of water used; 0 gallons of water recovered; 15 gallons of water lost					
28														
29														
30														
31														
32														
33							(32.5'); little silt; weak cementation; increase in granules to very large pebbles, decrease in silt							
34														
35														
36														
37	120			Topock - Alluvium Deposits	ML		(36.0 - 38.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (10YR 4/3); no plasticity, no dilatency; some granules to very large pebbles, subangular to subround; some fine to coarse grained sand, subangular to subround; trace small cobbles, angular to subround; coarser clasts composed of metadiorite; wet; soft	(36.0 - 46.0') Rough drilling	(36.0 - 150.0') No water used					
38														
39														
40				Topock - Alluvium Deposits	SM		(38.0 - 45.8') Topock - Alluvium Deposits; Silty sand with gravel (SM); dark yellowish brown (10YR 4/4); very fine grained to very coarse grained, subangular to subround; little granules to very large pebbles, angular to subround; little silt; trace small cobbles, subangular; coarser clasts composed of metadiorite; moist to dry; moderate cementation							

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK-C:\USERS\SSM\GRAND\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 15:51

Date Started:	06/16/2019	Surface Elevation:	481.61 ft amsl	Boring No.: MW-76d	
Date Completed:	07/14/2019	Northing (NAD83):	2103230.28		
Drilling Co.:	Cascade	Easting (NAD83):	7615748.07	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	221.5 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic track mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	25.7 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	Jario Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	Dave Cornell	Sampling Interval:	Continuous		
Editor:	Grant Willford	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	120		--No Sample-- (Interval did not produce) 6/19/2019 14:15	Topock - Alluvium Deposits	SM		(41') brown (7.5YR 4/4) some light reddish brown (2.5YR 7/3); some silt; mottled; moderate cementation; decrease in granules to very large pebbles	(41.0') Installed sample screen to get below cemented layer.								
42																
43																
44	60	No Sieve Samples Collected	--No Sample-- (Interval did not produce) 6/20/2019 09:55	Topock - Alluvium Deposits	SM		(44') little granules to small pebbles, subangular to subround; little silt; weak cementation; decrease in pebble grain size, increase in very fine to very coarse sand	(50.0 - 51.0') Rough drilling								
45																
46																
47																
48																
49	60		MW-C-VAS-51-56 (0.146 J ppb) 6/25/2019 12:00	Topock - Alluvium Deposits	SM		(45.8 - 47.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); strong brown (7.5YR 4/6); very fine grained to very coarse grained, subangular to subround; some granules to large pebbles, subangular to subround; some silt; wet to moist									
50																
51																
52																
53	120			Topock - Alluvium Deposits	GW-GM		(47.0 - 48.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); brown (7.5YR 4/4); granules to very large pebbles, subangular to subround; some fine to very coarse grained sand, subangular to subround; little silt; coarser clasts composed of metadiorite; wet									
54																
55																
56																
57																
58	60			Topock - Alluvium Deposits	SM		(48.0 - 49.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); strong brown (7.5YR 4/6); very fine grained to coarse grained, subangular to subround; some granules to large pebbles, subangular to subround; some silt; coarser clasts composed of metadiorite; wet to moist; trace silt nodules									
59																
60																
61	60			Topock - Alluvium Deposits	GM		(49.5 - 51.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (7.5YR 4/4); granules to small pebbles, subangular to subround; little fine to very coarse grained sand, subangular to subround; little silt; coarser clasts composed of metadiorite; wet									
62																
63																
64																
65	60			Topock - Alluvium Deposits	SW		(51.0 - 54.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/3) trace dark reddish brown (2.5YR 3/4); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; little silt; trace small cobbles, subangular; coarser clasts composed of metadiorite; wet; mottled; interbedded silt lenses									
66																
67	60			Topock - Alluvium Deposits	SW-SM		(54.5 - 55.5') Topock - Alluvium Deposits; Well graded sand with gravel (SW); brown (10YR 4/3); very fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subangular; trace small cobbles, subround; trace silt; trace mica; wet; trace silt nodules, coarser clasts composed of conglomerate and metadiorite									
68																
69																
70	60			Topock - Alluvium Deposits	ML		(55.5 - 56.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (10YR 4/3); very fine grained to very coarse grained, angular to subround; little granules to very large pebbles, angular to subround; little silt; coarser clasts composed of metadiorite; wet									
71																
72	60			Topock - Alluvium Deposits	ML		(56.0 - 57.5') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (10YR 5/3); angular to subangular; low plasticity; some small to medium pebbles, angular to subangular; some medium to very coarse grained sand, subangular to subround; moist; medium stiff									
73																
74	60			Topock - Alluvium Deposits	ML		(57.5 - 59.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (10YR 4/3); low plasticity; some granules to very large									

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SSM\GRAND\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 15:51

Date Started: 06/16/2019	Surface Elevation: 481.61 ft amsl	Boring No.: MW-76d
Date Completed: 07/14/2019	Northing (NAD83): 2103230.28	
Drilling Co.: Cascade	Easting (NAD83): 7615748.07	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 221.5 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Terrasonic track mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Dan O'Mara	Depth to First Water: 25.7 ft bgs	Project Number: RC000753.0051
Drilling Asst: Jario Pacheco	Sampling Method: 4 inch x 10 ft Core Barrel	
Logger: Dave Cornell	Sampling Interval: Continuous	
Editor: Grant Willford	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	120		--No Sample-- (Interval did not produce) 6/25/2019 13:15	Topock - Alluvium Deposits	ML		pebbles, angular to subround; some medium to very coarse grained sand, subangular to subround; trace small cobbles, angular to subangular; moist; medium stiff	(61.0 - 66.0') Rough drilling	
62					GM		(59.0 - 60.8') Topock - Alluvium Deposits; Gravelly silt with sand (ML); (10Y 4/3); low plasticity; and granules to very large pebbles, angular to subround; some small cobbles, angular to subangular; little medium to very coarse grained sand, subangular to subround; moist		
63					GW-GM		(60.8 - 63.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (10YR 4/3); granules to large cobbles, angular to subround; and silt; little fine to very coarse grained sand, subangular to subround; moist; moderate cementation		
64	60	No Sieve Samples Collected	MW-C-VAS-66-71 (<0.033 U ppb) 6/26/2019 10:44	Topock - Alluvium Deposits	GW-GM		(63.0 - 65.9') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); brown (10YR 4/3); granules to small cobbles, subangular to round; some fine to very coarse grained sand, subangular to subround; little silt; moist	(66.0 - 71.0') Soft drilling	
65					SW-SM		(65.9 - 71.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (10YR 4/3); fine grained to very coarse grained, angular to subround; some granules to large pebbles, angular to subround; little silt; moist; weak cementation		
66					ML		(71.0 - 84.6') Topock - Alluvium Deposits; Gravelly silt with sand (ML); brown (10YR 4/3); some granules to very large pebbles, angular to subangular; little fine to very coarse grained sand, angular to subround; moist to dry; coarser clast composed of weathered metadiorite		
67	162			Topock - Alluvium Deposits	ML			(71.0 - 86.0') Rough drilling	
68					ML				
69					ML				
70					ML				
71				Topock - Alluvium Deposits	ML				
72					ML				
73					ML				
74					ML				
75					ML				
76					ML				
77					ML				
78					ML				
79					ML				
80	ML								

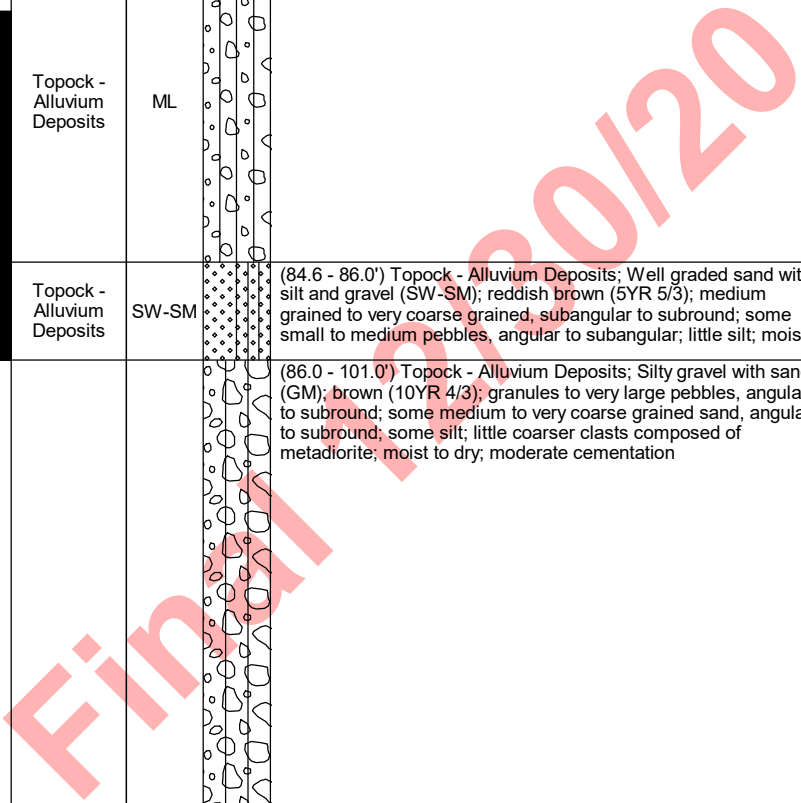
Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, J = estimated value, NR = no recovery; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMC\GRAND\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 15:51

Date Started: 06/16/2019	Surface Elevation: 481.61 ft amsl	Boring No.: MW-76d
Date Completed: 07/14/2019	Northing (NAD83): 2103230.28	
Drilling Co.: Cascade	Easting (NAD83): 7615748.07	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 221.5 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Terrasonic track mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Dan O'Mara	Depth to First Water: 25.7 ft bgs	Project Number: RC000753.0051
Drilling Asst: Jario Pacheco	Sampling Method: 4 inch x 10 ft Core Barrel	
Logger: Dave Cornell	Sampling Interval: Continuous	
Editor: Grant Willford	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	162		MW-C-VAS-81-86 (<0.17 U ppb) 6/27/2019 10:58	Topock - Alluvium Deposits	ML					
82				Topock - Alluvium Deposits	SW-SM	(84.6 - 86.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 5/3); medium grained to very coarse grained, subangular to subround; some small to medium pebbles, angular to subangular; little silt; moist				
83	207.6	No Sieve Samples Collected		Topock - Alluvium Deposits	GM		(86.0 - 101.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (10YR 4/3); granules to very large pebbles, angular to subround; some medium to very coarse grained sand, angular to subround; some silt; little coarser clasts composed of metaforite; moist to dry; moderate cementation	(86.0 - 106.0') Rough drilling		
84										
85										
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole



SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANED\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 15:51

Date Started:	06/16/2019	Surface Elevation:	481.61 ft amsl	Boring No.: MW-76d	
Date Completed:	07/14/2019	Northing (NAD83):	2103230.28		
Drilling Co.:	Cascade	Easting (NAD83):	7615748.07	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	221.5 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic track mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	25.7 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	Jario Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	Dave Cornell	Sampling Interval:	Continuous		
Editor:	Grant Willford	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	207.6			Topock - Alluvium Deposits	GM		(101.0 - 103.0') Topock - Alluvium Deposits; Gravelly elastic silt with sand (MH); brown (10YR 4/3); medium plasticity; some granules to very large pebbles, angular to subround; little coarse to very coarse grained sand; little clay; little coarser clasts composed of metadiorite; dry; medium stiff; moderate cementation		
102				Topock - Alluvium Deposits	MH				
103				Topock - Alluvium Deposits	ML				
104				Topock - Alluvium Deposits	ML				
105	192	No Sieve Samples Collected		Topock - Alluvium Deposits	MH		(104.0 - 104.5') Topock - Alluvium Deposits; Gravelly silt with sand (ML); brown (10YR 4/3); low plasticity; some granules to very large pebbles, angular to subround; little medium to very coarse grained sand, subangular to subround; trace small cobbles, subangular to subround; moist; medium stiff; moderate cementation	(106.0 - 116.0') Rough drilling	
106				Topock - Alluvium Deposits	MH		(104.5 - 106.0') Topock - Alluvium Deposits; Gravelly elastic silt with sand (MH); dark grayish brown / dark yellowish brown (10YR 4/2); medium plasticity; some granules to large pebbles, angular to subangular; some clay; little medium to very coarse grained sand, subangular to subround; moist		
107				Topock - Alluvium Deposits	ML		(106.0 - 116.0') Topock - Alluvium Deposits; Silty sand with gravel (ML); brown (7.5YR 4/3); low plasticity; some granules to large pebbles, angular to subround; some medium to very coarse grained sand, angular to subround; moist; soft; moderate cementation		
108				Topock - Alluvium Deposits	ML				
109				Topock - Alluvium Deposits	ML				
110				Topock - Alluvium Deposits	ML			(116.0 - 126.0') Rough drilling. Core fell out during drill run when core barrel got stuck.	
111				Topock - Alluvium Deposits	ML				
112				Topock - Alluvium Deposits	ML				
113				Topock - Alluvium Deposits	ML				
114				Topock - Alluvium Deposits	ML				
115				Topock - Alluvium Deposits	ML				
116				Topock - Alluvium Deposits	ML				
117						(116.0 - 120.0') No recovery (NR)			
118			MW-C-VAS-117-122 (<0.17 U ppb) 6/28/2019 14:59		NR				
119									
120									

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANED\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 15:51

Date Started:	06/16/2019	Surface Elevation:	481.61 ft amsl	Boring No.: MW-76d	
Date Completed:	07/14/2019	Northing (NAD83):	2103230.28		
Drilling Co.:	Cascade	Easting (NAD83):	7615748.07	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	221.5 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic track mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	25.7 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	Jario Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	Dave Cornell	Sampling Interval:	Continuous		
Editor:	Grant Willford	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	192		MW-C-VAS-117-122 (<0.17 U ppb) 6/28/2019 14:59	Topock - Alluvium Deposits	ML	(120.0 - 122.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (7.5YR 4/3); low plasticity; some granules to very large pebbles, subangular to subround; some medium to very coarse grained sand, subangular to subround; wet; soft; moderate cementation			
122			Topock - Alluvium Deposits	SW-SM	(122.0 - 125.1') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (10YR 4/3); very fine grained to very coarse grained, subangular to subround; some granules to medium pebbles, angular to subround; little silt; wet; weak cementation				
123	120	No Sieve Samples Collected		Topock - Alluvium Deposits	ML	(125.1 - 132.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); dark yellowish brown (10YR 4/4); low plasticity; some medium to very coarse grained sand, subangular to subround; little granules to very large pebbles, angular to subround; trace small cobbles, subround; moist to wet; very soft; moderate cementation		(126.0 - 136.0') Soft drilling	
124									
125									
126	117.6			Topock - Alluvium Deposits	MH	(132.0 - 133.0') Topock - Alluvium Deposits; Sandy elastic silt with gravel (MH); brown (7.5YR 4/3); medium plasticity; some medium to very coarse grained sand, subangular to subround; some clay; little granules to very large pebbles, angular to subround; trace small cobbles, subround; wet; soft; moderate cementation			
127									
128				Topock - Alluvium Deposits	SM	(133.0 - 136.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 5/4); very fine grained to very coarse grained, angular to subround; some granules to medium pebbles, angular to subround; some silt; moist; weak cementation			
129									
130				Topock - Alluvium Deposits	MH	(136.0 - 140.5') Topock - Alluvium Deposits; Gravelly elastic silt (MH); brown (7.5YR 4/3); medium plasticity; some granules to very large pebbles, angular to subround; little very fine to very coarse grained sand, subangular to subround; little clay; moist; soft; weak cementation		(136.0 - 146.0') Rough drilling	
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, U = not detected above the laboratory reporting limit, J = estimated value, NR = no recovery; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SSM\GRAND\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 15:51

Date Started:	06/16/2019	Surface Elevation:	481.61 ft amsl	Boring No.: MW-76d	
Date Completed:	07/14/2019	Northing (NAD83):	2103230.28		
Drilling Co.:	Cascade	Easting (NAD83):	7615748.07	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	221.5 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic track mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	25.7 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	Jario Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	Dave Cornell	Sampling Interval:	Continuous		
Editor:	Grant Willford	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
141	117.6			Topock - Alluvium Deposits	MH		(140.5 - 143.5') Topock - Alluvium Deposits; Gravelly elastic silt (MH); brown (7.5YR 4/3); medium plasticity; some granules to medium pebbles, angular to subangular; little clay; trace medium to very coarse grained sand, angular to subround; wet to moist; soft; weak cementation	No Sieve Samples Collected	
142				Topock - Alluvium Deposits	MH		(143.5 - 143.8') Topock - Alluvium Deposits; Silt (ML); brown (10YR 4/3); no plasticity; trace granules to small pebbles, subangular to subround; trace very fine to medium grained sand, subangular to subround; moist; soft; weak cementation		
143				Topock - Alluvium Deposits	MH		(143.8 - 145.0') Topock - Alluvium Deposits; Elastic silt (MH); brown (10YR 4/3); medium plasticity; little clay; trace granules to small pebbles, subangular to subround; trace fine to medium grained sand, subangular to subround; dry; soft; weak cementation		
144				Topock - Alluvium Deposits	ML		(145.0 - 145.8') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); reddish brown (5YR 4/3); granules to very large pebbles, angular to subround; some medium to very coarse grained sand, subangular to subround; little silt; moist; weak cementation		
145	120			Topock - Alluvium Deposits	GM	(145.8 - 148.5') Topock - Alluvium Deposits; Silty gravel (GM); reddish brown (5YR 4/3); granules to large pebbles, angular to subround; some silt; little medium to very coarse grained sand, subangular to subround; moist; weak cementation			
146				Topock - Alluvium Deposits	GM	(148.5 - 149.6') Topock - Alluvium Deposits; Silt with sand (ML); brown (10YR 4/3); low plasticity; little medium to very coarse grained sand, angular to subround; trace granules to medium pebbles, angular to subangular; wet; very soft; weak cementation			
147	180			Topock - Alluvium Deposits	SW-SM	(149.6 - 151.3') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); medium grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subround; little silt; wet to moist; weak cementation			
148				Topock - Alluvium Deposits	SW-SM	(151.3 - 153.5') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); medium grained to very coarse grained, angular to subround; and granules to very large pebbles, angular to subround; little silt; wet to moist; weak cementation			
149				Topock - Alluvium Deposits	GM	(153.5 - 155.3') Topock - Alluvium Deposits; Gravelly silt with sand (GM); reddish brown (5YR 4/3); granules to very large pebbles; some medium to very coarse grained sand, subangular to subround; little silt; moist; weak cementation			
150				Topock - Alluvium Deposits	GW-GM	(155.3 - 157.1') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); reddish brown (5YR 4/3); granules to small cobbles, angular to very coarse; and fine to very coarse grained sand, subangular to subround; little silt; moist; weak cementation			
151	180			Topock - Alluvium Deposits	SW-SM	(157.1 - 160.3') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; and granules to very large pebbles, angular to subround; little silt; moist; weak cementation			
152				Topock - Alluvium Deposits	SW-SM	(156'); moist; weak cementation; slight increase in granules to very large pebbles, decrease in sand			
153				Topock - Alluvium Deposits	SW-SM	(157.1 - 160.3') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; and granules to very large pebbles, angular to subround; little silt; moist; weak cementation			
154				Topock - Alluvium Deposits	SW-SM	(157.1 - 160.3') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; and granules to very large pebbles, angular to subround; little silt; moist; weak cementation			

(150.0 - 221.0')
700 gallons of water used; 550 gallons of water recovered; 150 gallons of water lost

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E - TOPOCK - C:\USERS\SSM\GRAND\DOCUMENTS\PG&E\TOPOCK\DRIFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/20/20 15:51

Date Started:	06/16/2019	Surface Elevation:	481.61 ft amsl	Boring No.: MW-76d	
Date Completed:	07/14/2019	Northing (NAD83):	2103230.28		
Drilling Co.:	Cascade	Easting (NAD83):	7615748.07	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	221.5 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic track mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	25.7 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	Jario Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	Dave Cornell	Sampling Interval:	Continuous		
Editor:	Grant Willford	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
161	180			Topock - Alluvium Deposits	SM		(160.3 - 161.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; some silt; little granules to medium pebbles, angular to subround; moist; weak cementation		
162				Topock - Alluvium Deposits	GM		(161.5 - 165.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GM); reddish brown (5YR 4/3); granules to large pebbles, angular to subangular; little medium to very coarse grained sand, subangular to subround; little silt; moist; weak cementation		
163				Topock - Alluvium Deposits	GM		(165.0 - 166.6') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); reddish brown (5YR 4/3); granules to small cobbles, angular to subround; little medium to very coarse grained sand, subangular to subround; little silt; moist; weak cementation		
164	Topock - Alluvium Deposits	SM		(166.6 - 169.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; some granules to large pebbles, angular to subround; little silt; moist; weak cementation					
165	60		MW-C-VAS-165-170 (<0.17 U ppb) 6/30/2019 11:04	Topock - Alluvium Deposits	SM		(169.5 - 171.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); fine grained to very coarse grained, subangular to subround; some granules to very large pebbles, angular to subangular; some silt; moist; weak cementation		
166				Topock - Alluvium Deposits	SM		(171.0 - 176.0') Topock - Alluvium Deposits; Gravelly silt with sand (ML); reddish brown (5YR 4/3); low plasticity; some granules to large pebbles, angular to subangular; little fine to very coarse grained sand, subangular to subround; moist; soft; weak cementation		
167				Topock - Alluvium Deposits	SM		(176.0 - 176.4') Topock - Alluvium Deposits; Gravelly silt with sand (GM); brown (7.5YR 4/3); granules to large pebbles, angular to subangular; some silt; little fine to very coarse grained sand, subangular to subround; moist; weak cementation		
168	180		MW-C-VAS-176-181 (410 ppb) 7/1/2019 16:02	Topock - Alluvium Deposits	GM		(176.4 - 177.5') Topock - Alluvium Deposits; Well graded gravel with sand (GW); brown (7.5YR 4/3); granules to large pebbles, angular to subangular; some very fine to very coarse grained sand, subangular to subround; trace silt; moist; weak cementation		
169				Topock - Alluvium Deposits	GW		(177.5 - 178.5') Topock - Alluvium Deposits; Gravelly silt (ML); brown (10YR 4/3); low plasticity; little granules to medium pebbles, subangular to subround; trace medium to very coarse grained sand, subangular to subround; moist; medium stiff; moderate cementation		
170				Topock - Alluvium Deposits	ML				
171				Topock - Alluvium Deposits	ML				
172				Topock - Alluvium Deposits	ML				
173								(170.0 - 171.0') Formation collapsed during setting of sampler.	
174								(171.0 - 186.0') Rough 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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK_C:\USERS\MCGRANED\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 15:51

Date Started:	06/16/2019	Surface Elevation:	481.61 ft amsl	Boring No.: MW-76d	
Date Completed:	07/14/2019	Northing (NAD83):	2103230.28		
Drilling Co.:	Cascade	Easting (NAD83):	7615748.07	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	221.5 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic track mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	25.7 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	Jario Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	Dave Cornell	Sampling Interval:	Continuous		
Editor:	Grant Willford	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
181	180			Deposits Topock - Alluvium Deposits	ML		(178.5 - 179.0') Topock - Alluvium Deposits; Gravelly silt (ML); brown (7.5YR 4/3); low plasticity; little granules to medium pebbles, subangular to subround; trace fine to very coarse grained sand, subangular to subround; dry; soft; weak cementation		
182				Topock - Alluvium Deposits	ML		(179.0 - 180.0') Topock - Alluvium Deposits; Gravelly silt with sand (ML); reddish brown (5YR 4/3); low plasticity; some granules to very large pebbles, angular to subround; little medium to very coarse grained sand, subangular to subround; trace small cobbles, subround; trace clay; moist; soft; weak cementation		
183				Topock - Alluvium Deposits	ML		(180.0 - 181.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (7.5YR 4/3); low plasticity; little granules to medium pebbles, angular to subround; little fine to very coarse grained sand, subangular to subround; trace clay; moist; soft; weak cementation		
184	120	No Sieve Samples Collected	MW-C-VAS-185-191 (<0.17 U ppb) 7/1/2019 12:00	Topock - Alluvium Deposits	ML		(181.0 - 184.5') Topock - Alluvium Deposits; Gravelly silt (ML); brown (7.5YR 4/3); low plasticity; little granules to large pebbles, angular to subangular; little medium to very coarse grained sand, angular to subangular; trace clay; moist; soft; weak cementation		
185				Topock - Alluvium Deposits	SW-SM		(184.5 - 186.0') Topock - Alluvium Deposits; Sandy silt (ML); brown (7.5YR 4/3); low plasticity; little granules to very large pebbles, angular to subangular; little very fine to very coarse grained sand, angular to subround; trace clay; moist; soft; weak cementation		
186				Topock - Alluvium Deposits	SM		(186.0 - 188.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); fine grained to very coarse grained, subangular to subround; some granules to large pebbles, angular to subround; moist; weak cementation		
187				Topock - Alluvium Deposits	SM		(188.0 - 191.7') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); fine grained to very coarse grained, subangular to subround; some silt; little granules to large pebbles, subangular to subround; moist; weak cementation		
188	110.4			Topock - Alluvium Deposits	ML		(191.0 - 196.0') Topock - Alluvium Deposits; Gravelly silt with sand (ML); reddish brown (5YR 4/3); low plasticity; some granules to very large pebbles, subangular to subround; little fine to very coarse grained sand, subangular to subround; moist; moderate cementation	(191.0 - 196.0') Soft drilling	
189				Topock - Alluvium Deposits	GW-GM		(191.7 - 192.4') Topock - Alluvium Deposits; Gravelly silt with sand (ML); reddish brown (5YR 4/3); low plasticity; some granules to very large pebbles, subangular to subround; little fine to very coarse grained sand, subangular to subround; moist; moderate cementation		
190				Topock - Alluvium Deposits	ML		(192.4 - 193.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); gray (10YR 6/1); granules to boulders, angular to subangular; little very fine to medium grained sand, subangular to subround; little silt; moist; weak cementation		
191				Topock - Alluvium Deposits	SM		(193.0 - 193.5') Topock - Alluvium Deposits; Gravelly silt (ML); reddish brown (5YR 4/3); low plasticity; some granules to very large pebbles, angular to subangular; little fine to very coarse grained sand, subangular to subround; moist; medium stiff; weak cementation		
192				Topock - Alluvium Deposits	ML		(193.5 - 195.4') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; some silt; little granules to very large pebbles, angular to subround; moist; weak cementation		
193				Topock - Alluvium Deposits	SM		(195.4 - 197.5') Topock - Alluvium Deposits; Sandy silt (ML); reddish brown (5YR 4/3); low plasticity; some fine to coarse grained sand, subangular to subround; little granules to medium pebbles, subangular to subround; moist; soft; weak cementation		
194				Topock - Alluvium Deposits	ML		(197.5 - 200.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; some granules to large pebbles, subangular to subround; little silt; moist; weak cementation		
195				Topock - Alluvium Deposits	SM				
196				Topock - Alluvium Deposits	SM				
197				Topock - Alluvium Deposits	SM				
198	Topock - Alluvium Deposits	SM							
199	Topock - Alluvium Deposits	SM							
200									

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SSM\GRAND\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/20/20 15:51


Date Started: 06/16/2019	Surface Elevation: 481.61 ft amsl	Boring No.: MW-76d
Date Completed: 07/14/2019	Northing (NAD83): 2103230.28	
Drilling Co.: Cascade	Easting (NAD83): 7615748.07	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 221.5 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Terrasonic track mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Dan O'Mara	Depth to First Water: 25.7 ft bgs	Project Number: RC000753.0051
Drilling Asst: Jario Pacheco	Sampling Method: 4 inch x 10 ft Core Barrel	
Logger: Dave Cornell	Sampling Interval: Continuous	
Editor: Grant Willford	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			
201	110.4		MW-C-VAS-200-205 (<0.17 U ppb) 7/2/2019 15:24	Topock - Alluvium Deposits	ML		(200.0 - 203.5') Topock - Alluvium Deposits; Sandy silt with gravel (ML); reddish brown (5YR 4/3); low plasticity; some medium to very coarse grained sand, subangular to subround; little granules to medium pebbles, subangular to subround; moist; soft; weak cementation	(201.0 - 206.0') Soft drilling				
202							(203.5 - 208.2') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; some silt; little granules to large pebbles, subangular to subround; moist; weak cementation					
203				No Sieve Samples Collected			Topock - Alluvium Deposits	SW-SM		(208.2 - 210.2') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); medium grained to very coarse grained, subangular to subround; some granules to very large pebbles, subangular to subround; some small cobbles, subround; some silt; moist; weak cementation	(206.0 - 216.0') Rough drilling with slough at top of core.	
204	Topock - Alluvium Deposits	ML								(210.2 - 214.5') Topock - Alluvium Deposits; Sandy silt with gravel (ML); reddish brown (5YR 4/3); low plasticity; and fine to very coarse grained sand, subangular to subround; little small to large pebbles, angular to subround; moist; weak cementation		
205										Topock - Weathered Bedrock - conglomerate		
206	Topock - Weathered Bedrock - conglomerate	SM					(216.0 - 218.0') Topock - Weathered Bedrock - conglomerate; Silty sand with gravel (SM); reddish brown (5YR 4/3); fine grained to very coarse grained, subangular to subround; little granules to large pebbles, angular to subround; little silt; moist; weak cementation					
207							Topock - Competent Bedrock - conglomerate			(218.0 - 221.5') Topock - Competent Bedrock - conglomerate; reddish brown (5YR 5/3); dry; Friable		
208	60					(216.0 - 221.0') Rough drilling, slough at top of core.						
209												
210												
211												
212	60											
213												
214												
215												
216	60											
217												
218												
219												
220	60											
221												
222												
223												

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK-C:\USERS\SSM\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 15:51

Date Started: 06/16/2019	Surface Elevation: 481.61 ft amsl	Boring No.: MW-76d
Date Completed: 07/14/2019	Northing (NAD83): 2103230.28	
Drilling Co.: Cascade	Easting (NAD83): 7615748.07	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 221.5 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Terrasonic track mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Dan O'Mara	Depth to First Water: 25.7 ft bgs	Project Number: RC000753.0051
Drilling Asst: Jario Pacheco	Sampling Method: 4 inch x 10 ft Core Barrel	
Logger: Dave Cornell	Sampling Interval: Continuous	
Editor: Grant Willford	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
221	60	No Sieve Samples Collected		Topock - Competent Bedrock - conglomerate					
222							End of Boring at 221.5 ft bgs.		
223									
224									
225									
226									
227									
228									
229									
230									
231									
232									
233									
234									
235									
236									
237									
238									
239									
240									

Final 12/30/20

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; Notes: depth to water was measured during first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-76-181, MW-76-218 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK C:\USERS\SMC\GRAND\DOCUMENTS\PG&E-TOPOCK\DRAFT BORING LOGS\GINT FILES\12.28.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/30/20 15:51