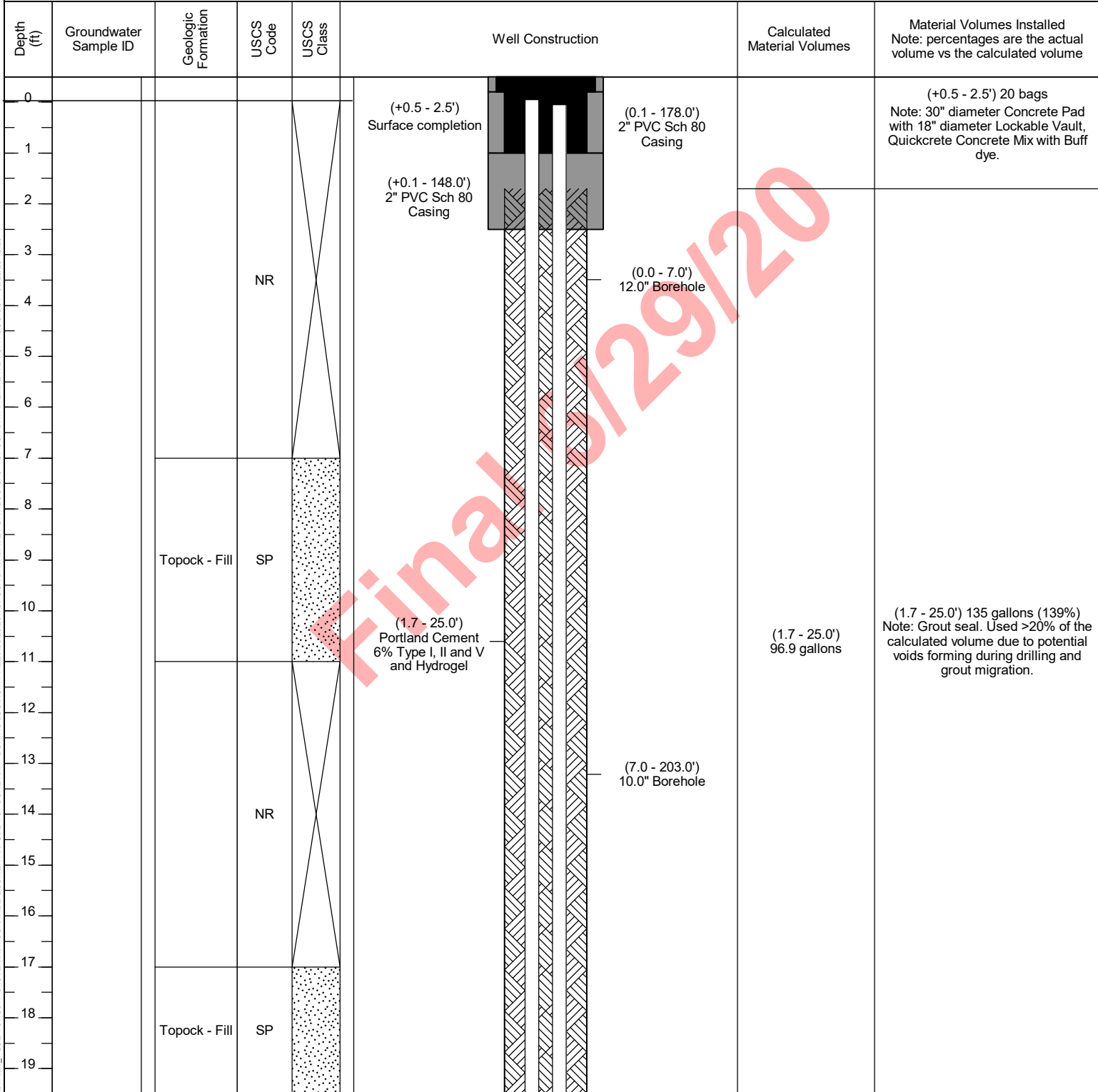


Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input 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, U = not detected above the laboratory reporting limit, 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-82d

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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 - Fill	SP	[Stippled Pattern]	(+0.1 - 148.0') 2" PVC Sch 80 Casing		
21					(0.1 - 178.0') 2" PVC Sch 80 Casing		
22		Topock - Fluvial Deposits	NR	[X-hatch Pattern]	(1.7 - 25.0') Portland Cement 6% Type I, II and V and Hydrogel	(1.7 - 25.0') 96.9 gallons	(1.7 - 25.0') 135 gallons (139%) Note: Grout seal. Used >20% of the calculated volume due to potential voids forming during drilling and grout migration.
23							
24							
25		Topock - Fluvial Deposits	SP	[Stippled Pattern]			
26							
27		Topock - Fluvial Deposits	NR	[X-hatch Pattern]	(29.5 - 30.5') Centralizer		
28					(7.0 - 203.0') 10.0" Borehole		
29							
30		Topock - Fluvial Deposits	NR	[X-hatch Pattern]	(25.0 - 100.0') Bentonite seal chips Puregold medium chips	(25.0 - 100.0') 52.4 bags	(25.0 - 100.0') 51.5 bags (98%) Note: Seal above filter pack
31							
32	MW-H-VAS-32-37 (< 0.17 U ppb) 8/7/2019 11:30	Topock - Fluvial Deposits	SP	[Stippled Pattern]			
33							
34		Topock - Fluvial Deposits	SP	[Stippled Pattern]			
35							
36		Topock - Fluvial Deposits	SP	[Stippled Pattern]			
37							
38		Topock - Fluvial Deposits	SP	[Stippled Pattern]			
39							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMC\GRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:28

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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		Topock - Fluvial Deposits	SP		(+0.1 - 148.0') 2" PVC Sch 80 Casing		
41					(0.1 - 178.0') 2" PVC Sch 80 Casing		
42							
43							
44	Attempted to collect sample (Interval did not produce.) 8/6/2019 10:00		SP				
45							
46							
47		Topock - Fluvial Deposits	CH				
48	MW-H-VAS-47-52 (< 0.17 U ppb) 8/7/2019 13:30		NR		(25.0 - 100.0') Bentonite seal chips Puregold medium chips		
49					(7.0 - 203.0') 10.0" Borehole	(25.0 - 100.0') 52.4 bags	(25.0 - 100.0') 51.5 bags (98%) Note: Seal above filter pack
50							
51							
52		Topock - Fluvial Deposits	SP				
53		Topock - Fluvial Deposits	SW-SM				
54		Topock - Fluvial Deposits	SW				
55			NR				
56							
57		Topock - Fluvial Deposits	SP-SM				
58			SW-SM				
59							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_TOPOCK_DRAFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:28

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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		Topock - Fluvial Deposits	SW-SM		(+0.1 - 148.0') 2" PVC Sch 80 Casing		
61							
62			NR				
63							
64							
65							
66							
67		Topock - Fluvial Deposits	SW-SM				
68		Topock - Fluvial Deposits	GW-GM		(25.0 - 100.0') Bentonite seal chips Puregold medium chips	(25.0 - 100.0') 52.4 bags	(25.0 - 100.0') 51.5 bags (98%) Note: Seal above filter pack
69					(69.5 - 70.5') Centralizer		
70		Topock - Alluvium Deposits	GM				
71							
72		Topock - Alluvium Deposits	GM				
73							
74							
75			NR				
76							
77							
78		Topock - Alluvium Deposits	GM				
79			SW-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, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:28

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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		Topock - Alluvium Deposits	SW-SM		(+0.1 - 148.0') 2" PVC Sch 80 Casing		
81		Topock - Alluvium Deposits	GW-GM				
82	MW-H-VAS-82-87 (< 0.0333 U ppb) 8/8/2019 11:37	Topock - Alluvium Deposits	GM				
85		Topock - Alluvium Deposits	GC				
86		Topock - Alluvium Deposits	GM				
88		Topock - Alluvium Deposits	GW-GM				
89		Topock - Alluvium Deposits	GM		(25.0 - 100.0') Bentonite seal chips Puregold medium chips	(25.0 - 100.0') 52.4 bags	(25.0 - 100.0') 51.5 bags (98%) Note: Seal above filter pack
90		Topock - Alluvium Deposits	GM				
91		Topock - Alluvium Deposits	GW-GM				
92		Topock - Alluvium Deposits	GW-GM				
93		Topock - Alluvium Deposits	GW-GM				
94		Topock - Alluvium Deposits	GW-GM				
95		Topock - Alluvium Deposits	GW-GM				
96		Topock - Alluvium Deposits	GW-GM				
97		Topock - Alluvium Deposits	GW-GM				
98		Topock - Alluvium Deposits	GW				
99		Topock - Alluvium Deposits	SW-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, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_DRAFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:26

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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	SW-SM		(+0.1 - 148.0') 2" PVC Sch 80 Casing		
101		Topock - Alluvium Deposits	SW-SM				
102		Topock - Alluvium Deposits	SW-SM				
103		Topock - Alluvium Deposits	SW-SM				
104		Topock - Alluvium Deposits	SW-SM				
105		Topock - Alluvium Deposits	SW-SM				
106		Topock - Alluvium Deposits	SW-SM				
107		Topock - Alluvium Deposits	SW-SM				
108		Topock - Alluvium Deposits	SW-SM				
109		Topock - Alluvium Deposits	SW-SM				
110		Topock - Alluvium Deposits	SW-SM		(100.0 - 145.0') Bentonite seal pellets Pel-Plug (TR30) 3/8" (109.5 - 110.5') Centralizer	(100.0 - 145.0') 36.1 buckets	(100.0 - 145.0') 43 buckets (119%) Note: Seal above filter pack
111		Topock - Alluvium Deposits	SW-SM				
112		Topock - Alluvium Deposits	SW-SM				
113		Topock - Alluvium Deposits	SW-SM				
114	MW-H-VAS-112-117 (< 0.17 U ppb) 8/9/2019 09:49	Topock - Alluvium Deposits	SW-SM				
115		Topock - Alluvium Deposits	SW-SM				
116		Topock - Alluvium Deposits	SW-SM				
117		Topock - Alluvium Deposits	SW-SM				
118		Topock - Alluvium Deposits	GM				
119		Topock - Alluvium Deposits	GM				

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WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_TOPOCK DRAFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:26

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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		Topock - Alluvium Deposits	GM		(+0.1 - 148.0') 2" PVC Sch 80 Casing		
121					(0.1 - 178.0') 2" PVC Sch 80 Casing		
122							
123							
124							
125		Topock - Alluvium Deposits	SW-SM		(100.0 - 145.0') Bentonite seal pellets Pel-Plug (TR30) 3/8"		
126							
127							
128							
129		Topock - Alluvium Deposits	GW				
130							
131							
132		Topock - Alluvium Deposits	SW-SM				
133							
134		Topock - Alluvium Deposits	GW				
135							
136		Topock - Alluvium Deposits	SW-SM				
137							
138		Topock - Alluvium Deposits	GW				
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, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_C:\USERS\MCGRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:26

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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		Topock - Alluvium Deposits	GW		(+0.1 - 148.0') 2" PVC Sch 80 Casing		
141							
142		Topock - Alluvium Deposits	GW-GM		(100.0 - 145.0') Bentonite seal pellets Pel-Plug (TR30) 3/8"	(100.0 - 145.0') 36.1 buckets	(100.0 - 145.0') 43 buckets (119%) Note: Seal above filter pack
143							
144	MW-H-VAS-142-147 (< 0.17 U ppb) 8/10/2019 10:04						
145		Topock - Alluvium Deposits	GP-GM				
146							
147		Topock - Alluvium Deposits	GM		(148.0 - 168.0') 2" Sch 80 PVC (20-slot) Screen		
148							
149							
150						(7.0 - 203.0') 10.0" Borehole	
151		Topock - Alluvium Deposits	SW-SM		(145.0 - 171.3') Cemex #3 MESH (8x20) Lapis Lustre Sand	(145.0 - 171.3') 26.1 bags	(145.0 - 171.3') 32 bags (123%) Note: Filter pack. Used >20% of the calculated volume due to potential voids forming during drilling.
152							
153							
154	MW-H-VAS-152-157 (< 0.17 U ppb) 8/10/2019 15:01						
155		Topock - Alluvium Deposits	GW-GM				
156							
157							
158		Topock - Alluvium Deposits	SM				
159							

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WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:26

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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 - 162					(148.0 - 168.0') 2" Sch 80 PVC (20-slot) Screen		
162 - 167	MW-H-VAS-162-167 (< 0.17 U ppb) 8/11/2019 12:01	Topock - Alluvium Deposits	SM		(145.0 - 171.3') Cemex #3 MESH (8x20) Lapis Lustrre Sand	(145.0 - 171.3') 26.1 bags	(145.0 - 171.3') 32 bags (123%) Note: Filter pack. Used >20% of the calculated volume due to potential voids forming during drilling.
167 - 172		Topock - Alluvium Deposits	GW-GM		(168.5 - 169.5') Centralizer (168.0 - 170.3') Sump and PVC End Cap		
172 - 175	MW-H-VAS-172-177 (< 0.17 U ppb) 8/12/2019 10:34	Topock - Alluvium Deposits	SM		(171.3 - 175.0') Bentonite seal pellets Pel-Plug (TR30) 3/8"	(171.3 - 175.0') 3.8 buckets	(171.3 - 175.0') 4 buckets (105%) Note: Intermediate seal
175 - 176		Topock - Alluvium Deposits	GW				
176 - 177		Topock - Alluvium Deposits	SM				
177 - 178					(175.0 - 203.0') Cemex #3 MESH (8x20) Lapis Lustrre Sand	(175.0 - 203.0') 29.4 bags	(175.0 - 203.0') 24 bags (82%) Note: Filter pack
178 - 179		Topock - Alluvium Deposits	SM		(178.0 - 198.0') 2" Sch 80 PVC (20-slot) 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, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:28

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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 - 182		Topock - Alluvium Deposits	SM	[Stippled Pattern]	(178.0 - 198.0') 2" Sch 80 PVC (20-slot) Screen		
182 - 187	MW-H-VAS-182-187 (< 0.17 U ppb) 8/13/2019 10:08						
187 - 192		Topock - Alluvium Deposits	SM	[Stippled Pattern]	(175.0 - 203.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(175.0 - 203.0') 29.4 bags	(175.0 - 203.0') 24 bags (82%) Note: Filter pack
192 - 197	MW-H-VAS-192-197 (< 0.17 U ppb) 8/14/2019 10:37						
197 - 198		Topock - Alluvium Deposits	GW	[Spot Pattern]			
198 - 199		Topock - Weathered Bedrock - conglomerate	SC	[Diagonal Line Pattern]	(198.5 - 199.5') Centralizer		

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:28

Date Started: 08/22/2019	Surface Elevation: 483.71 ft amsl	Well ID: MW-82-168, MW-82-198
Date Completed: 10/16/2019	Shallow Well Elevation: 483.75 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 483.66 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2103048.25	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7615993.33	Location: PG&E Topock, Topock, California
Drilling Asst: J. Colon / F. Sandoval	Borehole Diameter: 4-12 inches	
Logger: Augie Parrinello	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 9/22/2019	
Total Depth: 207 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		Topock - Weathered Bedrock - conglomerate	SC		(175.0 - 203.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(175.0 - 203.0') 29.4 bags	(175.0 - 203.0') 24 bags (82%) Note: Filter pack	
201								
202		Topock - Competent Bedrock - conglomerate			(203.0 - 207.0') Bentonite seal chips Puregold medium chips	(203.0 - 207.0') 0.48 bags	(203.0 - 207.0') 1 bags (208%) Note: Decommissioned rathole. Used >20% of the calculated volume due to potential voids that formed during drilling.	
203								
204								
205								
206								
207		End of Boring at 207.0 ft bgs.						

Final 0129120

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, 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-82d

WELL CONSTRUCTION DETAILS_PG&E_TOPOCK_TOPOCK DRAFT BORING LOGS\GINT FILES\06.29.20\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT_06/29/20 15:26

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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	0				NR		(0.0 - 7.0') No recovery (NR); see drilling notes	(0.0 - 7.0') Advanced conductor casing to 7 ft bgs did not log material from clean out run. Used bentonite and small amount of water to keep side of borehole from caving in around conductor casing.	(0.0 - 203.0') gallons of water used; gallons of water recovered; gallons of water lost; Flushed casing with water prior to well install.
2									
3									
4									
5									
6									
7									
8	No sieve samples collected			Topock - Fill	SP		(7.0 - 11.0') Topock - Fill; Poorly graded sand (SP); yellowish brown / moderate yellowish brown (10YR 5/4); very fine grained to fine grained, subangular to subround; dry		
9									
10									
11									
12	48				NR		(11.0 - 17.0') No recovery (NR); see drilling notes	(11.0 - 17.0') No recovery due to loose dredge sands	
13									
14									
15									
16	60				SP		(17.0 - 22.0') Topock - Fill; Poorly graded sand (SP); yellowish brown / moderate yellowish brown (10YR 5/4); very fine grained to fine grained, subangular to subround; dry		
17									
18									
19									
20									

Final 12113120

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, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the collection of samples from the temporary well; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-82-168, MW-82-198 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK_C:\USERS\SMC\GRANEDOCUMENTS\PG&E-TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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	60			Topock - Fill	SP						
22								(22.0 - 27.0') No recovery (NR); see drilling notes	(22.0 - 27.0') No recovery due to loose fluvial sands		
23	24	No sieve samples collected			NR						
24											
25											
26											
27	24			Topock - Fluvial Deposits	SP		(27.0 - 29.0') Topock - Fluvial Deposits; Poorly graded sand (SP); light yellowish brown (10YR 6/4); very fine grained to fine grained, subangular to subround; moist				
28											
29	120				NR						
30											
31											
32											
33	120				NR						
34											
35	120				NR						
36											
37	120				NR						
38											
39	120			Topock - Fluvial Deposits	SP		(37.0 - 42.0') Topock - Fluvial Deposits; Poorly graded sand (SP); yellowish brown / moderate yellowish brown (10YR 5/4); very fine grained to fine grained, subangular to subround; dry	(37.0 - 47.0') Soft Drilling	(37.0 - 47.0') 130 gallons of water used; 80 gallons of water recovered; 50 gallons of water lost		
40											

MW-H-VAS-32-37
(< 0.17 U ppb)
8/7/2019 11:30

Final 12113120

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SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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	120		Attempted to collect sample (Interval did not produce.) 8/6/2019 10:00	Topock - Fluvial Deposits	SP		(42.0 - 47.0') (SP); moist to wet		
42				SP					
43									
44									
45	12	No sieve samples collected	MW-H-VAS-47-52 (< 0.17 U ppb) 8/7/2019 13:30	Topock - Fluvial Deposits	CH		(47.0 - 48.0') Topock - Fluvial Deposits; Fat clay with sand (CH); dark grayish brown / dark yellowish brown (10YR 4/2); high plasticity; and very fine to fine grained sand, angular to subangular; little silt; moist to wet; very soft to soft	(47.0 - 52.0') Poor recovery loose sands fell out of core barrel into mud tub before it could be bagged. Archaeologist were notified of clay unit.	
46									
47									
48									
49									
50									
51									
52									
53	36			Topock - Fluvial Deposits	SP		(52.0 - 53.0') Topock - Fluvial Deposits; Poorly graded sand (SP); brown (7.5YR 5/4); very fine grained to fine grained; little silt; wet	(52.0 - 57.0') Partial recovery loose sands, removed sand from temporary well. Contacts adjusted based on QC review with rig geo and photo log.	
54				Topock - Fluvial Deposits	SW-SM		(53.0 - 54.0') Topock - Fluvial Deposits; Well graded sand with silt (SW-SM); light brown (7.5YR 6/4); very fine grained to very coarse grained, angular to round; little silt; wet		
55				Topock - Fluvial Deposits	SW		(54.0 - 55.0') Topock - Fluvial Deposits; Well graded sand with gravel (SW); light brown (7.5YR 6/4); very fine grained to very coarse grained, angular to round; little medium to large pebbles, subround to round; trace silt; trace clay; wet		
56									
57									
58	48			Topock - Fluvial Deposits	SP-SM		(57.0 - 59.0') Topock - Fluvial Deposits; Poorly graded sand with silt (SP-SM); light brown (7.5YR 6/4); very fine grained to fine grained; little silt; wet	(57.0 - 87.0') Normal drilling with 6-inch and 10-inch casings. Contacts and drill runs adjusted based on QC review with rig	
59				Topock - Fluvial Deposits	SW-SM		(59.0 - 61.0') Topock - Fluvial Deposits; Well graded sand with silt (SW-SM); light brown (7.5YR 6/4); very fine grained to very coarse grained, angular to round; little silt; wet		
60									

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SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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	48			Topock - Fluvial Deposits	SW-SM		(61.0 - 67.0') No recovery (NR)	geo and photo logs.	
62				NR					
63	84	No sieve samples collected		Topock - Fluvial Deposits	SW-SM		(67.0 - 68.0') Topock - Fluvial Deposits; Well graded sand with silt (SW-SM); light brown (7.5YR 6/4); very fine grained to very coarse grained, angular to round; little silt; wet		
64				Topock - Fluvial Deposits	GW-GM		(68.0 - 70.0') Topock - Fluvial Deposits; Well graded gravel with silt (GW-GM); brown (7.5YR 4/2) trace yellowish brown (10YR 5/8); granules to very large pebbles, angular to subround; little small cobbles, subround to round; little fine to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; moist to wet		
65				Topock - Alluvium Deposits	GM		(70.0 - 72.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (7.5YR 4/3); granules to large pebbles, angular to subround; some fine to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; moist to wet; weak cementation		
66				Topock - Alluvium Deposits	GM		(72.0 - 74.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); brown (7.5YR 4/3); granules to medium pebbles, angular to subround; some fine to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; moist to wet; moderate cementation		
67	120						(74.0 - 77.0') No recovery (NR)		
68				NR					
69				Topock - Alluvium Deposits	GM		(77.0 - 79.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); reddish brown (5YR 4/3); granules to very large pebbles, angular to subround; some fine to very coarse grained sand, angular to subround; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; moist to wet; lensed; weak cementation		
70				Topock - Alluvium Deposits	SW-SM		(79.0 - 81.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (7.5YR 4/3); fine grained to very coarse grained, angular to subround; some granules to 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, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the collection of samples from the temporary well; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-82-168, MW-82-198 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK_C:\USERS\SMCGRANE\DOCUMENTS\PG&E_TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started:	07/31/2019	Surface Elevation:	483.71 ft amsl	Boring No.: MW-82d	
Date Completed:	08/22/2019	Northing (NAD83):	2103048.25		
Drilling Co.:	Cascade	Easting (NAD83):	7615993.33	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	207 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Boart Longyear Track Mount	Borehole Diameter:	4-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Eddie Ramos	Depth to First Water:	28.5 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	J. Colon / F. Sandoval	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	JL / PK / AP	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	120		MW-H-VAS-82-87 (< 0.0333 U ppb) 8/8/2019 11:37	Topock - Alluvium Deposits	SW-SM		pebbles; little silt; trace clay; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; moist; moderate cementation		
82				Topock - Alluvium Deposits	GW-GM		(81.0 - 82.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); brown (10YR 4/3); granules to very large pebbles, angular to subangular; little fine to very coarse grained sand, angular to subround; little silt; coarser clasts composed of metadiorite; dry to moist; weak cementation		
83				Topock - Alluvium Deposits	GM		(82.0 - 85.0') Topock - Alluvium Deposits; Silty gravel (GM); brown (7.5YR 4/3); granules to large pebbles, angular to subangular; some silt; little fine to very coarse grained sand, angular to subround; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; moist to wet; moderate cementation		
84				Topock - Alluvium Deposits	GC		(85.0 - 85.5') Topock - Alluvium Deposits; Clayey gravel (GC); brown (7.5YR 4/4); granules to large pebbles, angular to subangular; some clay; little fine to very coarse grained sand, angular to subround; coarser clasts composed of metadiorite; moist		
85				Topock - Alluvium Deposits	GM		(85.5 - 87.0') Topock - Alluvium Deposits; Silty gravel (GM); brown (7.5YR 5/4); granules to large pebbles, angular to subangular; some silt; little fine to very coarse grained sand, angular to subangular; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; moist; moderate cementation		
86				Topock - Alluvium Deposits	GM		(87.0 - 89.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); brown (7.5YR 4/3); granules to very large pebbles, angular to subangular; some coarse to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
87				Topock - Alluvium Deposits	GM		(89.0 - 91.0') Topock - Alluvium Deposits; Silty gravel (GM); brown (7.5YR 4/3); granules to large pebbles, angular to subangular; little fine to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
88				Topock - Alluvium Deposits	GW-GM		(91.0 - 94.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); brown (7.5YR 4/3); granules to large pebbles, angular to subangular; little coarse to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
89				Topock - Alluvium Deposits	GW-GM		(94.0 - 97.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); reddish brown (5YR 4/3); granules to large pebbles, angular to subangular; little fine to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation; core bag ruptured sample disturbed		
90				120	No sieve samples collected		Topock - Alluvium Deposits		
91	Topock - Alluvium Deposits	SW-SM					(99.0 - 101.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 5/3); fine grained to very coarse grained, angular to subround; and granules to large		

(87.0 - 135.0')
Normal drilling with 6-inch and 10-inch casing.

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, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the collection of samples from the temporary well; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-82-168, MW-82-198 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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			Topock - Alluvium Deposits	SW-SM		pebbles, angular to subangular; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
102				Topock - Alluvium Deposits	SW-SM		(101.0 - 104.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 4/3); fine grained to very coarse grained, angular to subround; some granules to large pebbles, angular to subangular; trace silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
103				Topock - Alluvium Deposits	SW-SM		(104.0 - 107.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (7.5YR 4/3); medium grained to very coarse grained, angular to subangular; little granules to medium pebbles, angular to subangular; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
104	120	No sieve samples collected		Topock - Alluvium Deposits	SW-SM		(107.0 - 109.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (7.5YR 5/3); fine grained to very coarse grained, angular to subround; and granules to large pebbles, angular to subround; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of conglomerate; wet; moderate cementation		
105				Topock - Alluvium Deposits	SW-SM		(109.0 - 111.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 5/3); fine grained to very coarse grained, angular to subangular; and granules to large pebbles, angular to subround; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
106				Topock - Alluvium Deposits	SW-SM		(111.0 - 114.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 5/4); fine grained to very coarse grained, angular to subangular; and granules to very large pebbles, angular to subround; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
107	120			Topock - Alluvium Deposits	SW-SM		(114.0 - 117.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown / moderate brown (5YR 4/4); fine grained to very coarse grained, angular to subangular; and granules to large pebbles, angular to subround; little silt; coarser clasts composed of metadiorite; wet; weak cementation		
108				Topock - Alluvium Deposits	SW-SM		(117.0 - 128.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); reddish brown (5YR 4/3); granules to very large pebbles, angular to subround; little medium to very coarse grained sand, angular to subround; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation		
109				Topock - Alluvium Deposits	GM				
110	120			Topock - Alluvium Deposits	SW-SM				
111				Topock - Alluvium Deposits	SW-SM				
112				Topock - Alluvium Deposits	SW-SM				
113	120			Topock - Alluvium Deposits	SW-SM				
114				Topock - Alluvium Deposits	SW-SM				
115				Topock - Alluvium Deposits	SW-SM				
116	120			Topock - Alluvium Deposits	SW-SM				
117				Topock - Alluvium Deposits	SW-SM				
118				Topock - Alluvium Deposits	SW-SM				
119	120			Topock - Alluvium Deposits	GM				
120				Topock - Alluvium Deposits	GM				

MW-H-VAS-112-117
(< 0.17 U ppb)
8/9/2019 09:49

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, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the collection of samples from the temporary well; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-82-168, MW-82-198 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E-TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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	120			Topock - Alluvium Deposits	GM				
122									
123									
124									
125	No sieve samples collected			Topock - Alluvium Deposits	SW-SM		(128.0 - 136.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown / moderate brown (5YR 4/4); fine grained to very coarse grained, angular to subround; some granules to very large pebbles, angular to subround; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of conglomerate; wet; weak cementation		
126									
127									
128									
129									
130									
131									
132									
133									
134									
135				Topock - Alluvium Deposits	GW		(136.0 - 137.0') Topock - Alluvium Deposits; Well graded gravel (GW); greenish gray (GLE1 5/1); subround; dry; metadiorite boulder pulverized	(135.0 - 157.0') Normal drilling	
136									
137									
138									
139				Topock - Alluvium Deposits	SW-SM		(137.0 - 139.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); reddish brown (5YR 5/3); fine grained to very coarse grained, angular to subangular; little granules to small pebbles, angular to subangular; little silt; coarser clasts composed of metadiorite; wet	(137.0 - 140.0') Near full recovery, core bag ruptured on drill platform. Logged from material collected from	
140									
140				Topock - Alluvium Deposits	GW		(139.0 - 140.0') Topock - Alluvium Deposits; Well graded gravel with sand (GW); reddish brown (5YR 5/3) to reddish brown / moderate brown (5YR 4/4); granules to very large pebbles,		

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMC\GRANEDOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

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, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the collection of samples from the temporary well; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-82-168, MW-82-198 installed in borehole

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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
141	120		MW-H-VAS-142-147 (< 0.17 U ppb) 8/10/2019 10:04	Topock - Alluvium Deposits	GW-GM		(140.0 - 145.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); reddish brown (5YR 5/3) to reddish brown / moderate brown (5YR 4/4); granules to very large pebbles, angular to subround; some fine to very coarse grained sand, angular to subround; little silt; trace small cobbles, subangular to subround; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet; weak cementation	the drill platform.	
142							(145.0 - 147.0') Topock - Alluvium Deposits; Poorly graded gravel with silt and sand (GP-GM); reddish brown / moderate brown (5YR 4/4); granules to small pebbles, angular to subangular; little fine to very coarse grained sand, angular to subround; little silt; coarser clasts composed of metadiorite; wet; weak cementation		
143				Topock - Alluvium Deposits	GM		(147.0 - 149.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); reddish brown / moderate brown (5YR 4/4); granules to very large pebbles, angular to subround; some fine to very coarse grained sand, subangular to subround; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet		
144							(149.0 - 154.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (SW-SM); reddish brown / moderate brown (5YR 4/4); granules to medium pebbles, angular to subround; and fine to very coarse grained sand, subangular to subround; little silt; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet		
145	120	No sieve samples collected		Topock - Alluvium Deposits	SW-SM				
146									(154.0 - 157.0') 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 fine to very coarse grained sand, angular to subangular; little silt; little clay; coarser clasts composed of metadiorite; trace coarser clast composed of quartz; wet
147				Topock - Alluvium Deposits	GW-GM				
148									(157.0 - 167.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subangular; little silt; wet
149	108			Topock - Alluvium Deposits	SM		(157.0 - 167.0') Rough drilling last 18 inches of run.		
150									
151									
152									
153									
154									
155									
156									
157									
158									
159									
160									

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SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMC\GRAND\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started:	07/31/2019	Surface Elevation:	483.71 ft amsl	Boring No.: MW-82d	
Date Completed:	08/22/2019	Northing (NAD83):	2103048.25		
Drilling Co.:	Cascade	Easting (NAD83):	7615993.33	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	207 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Boart Longyear Track Mount	Borehole Diameter:	4-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Eddie Ramos	Depth to First Water:	28.5 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	J. Colon / F. Sandoval	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	JL / PK / AP	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
161	108		MW-H-VAS-162-167 (< 0.17 U ppb) 8/11/2019 12:01	Topock - Alluvium Deposits	SM				
162									
163									
164									
165	120	No sieve samples collected		Topock - Alluvium Deposits	GW-GM		(167.0 - 171.0') 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 fine to very coarse grained sand, angular to subangular; little silt; trace small cobbles, subangular to subround; coarser clasts composed of metadiorite; trace coarser clast composed of conglomerate; wet; weak cementation; weak HCL reaction	(167.0 - 187.0') Smooth drilling	
166									
167				Topock - Alluvium Deposits	GW-GM		(171.0 - 171.5') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); very dark grayish brown (2.5Y 3/2); granules to small pebbles, angular to subangular; little medium to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; little coarser clast composed of conglomerate; wet; moderate cementation	(171.5 - 175.0') Lithology was relogged in the field.	
168									
169				Topock - Alluvium Deposits	SM		(171.5 - 175.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to subround; some silt; little small to large pebbles, angular to subangular; coarser clasts composed of metadiorite; little coarser clast composed of conglomerate; wet; moderate cementation	(175.5 - 177.0') Lithology was relogged in the field.	
170									
171				Topock - Alluvium Deposits	GW		(175.0 - 175.5') Topock - Alluvium Deposits; Well graded gravel with sand (GW); black (2.5Y 2.5/1); granules to very large pebbles, angular to subround; some fine to very coarse grained sand, angular to subangular; coarser clasts composed of metadiorite; wet; possible wildfire scar		
172									
173				Topock - Alluvium Deposits	SM		(175.5 - 177.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very large pebbles, angular to subround; some silt; little small to large pebbles, angular to subangular; coarser clasts composed of metadiorite; little coarser clast composed of conglomerate; wet; moderate cementation		
174									
175	Topock - Alluvium Deposits	SM		(177.0 - 187.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (2.5YR 4/3); fine grained to very coarse grained, angular to subround; little granules to very large pebbles, angular to subangular; little silt; coarser clasts composed of metadiorite; little coarser clast composed of conglomerate; moist					
176									
177	120			Topock - Alluvium Deposits	SM				
178									
179									
180									

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Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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
181	120			Topock - Alluvium Deposits	SM		to wet; weak cementation		
182									
183									
184									
185									
186	120	No sieve samples collected		Topock - Alluvium Deposits	SM		(187.0 - 197.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); reddish brown (5YR 4/3); very fine grained to very coarse grained, angular to subround; little small to large pebbles, angular to subangular; little silt; coarser clasts composed of metadiorite; and coarser clast composed of conglomerate; moist to wet; strong cementation; weak HCL reaction	(187.0 - 197.0') Increase in bedrock fragments and fine grained material and a decrease in sands interpret in the field as contact with weathered bedrock. Lithology was relogged in the field and contact adjusted based on QC review. 187 to 194 ft bgs smooth drilling, 194 to 196 ft. bgs tight drilling reported by driller.	
187									
188									
189									
190									
191									
192									
193	120			Topock - Alluvium Deposits	GW		(197.0 - 198.0') Topock - Alluvium Deposits; Well graded gravel (GW); very dark greenish gray (GLE Y1 3/1); granules to very large pebbles, angular to subround; wet; iron oxide staining; logged from the drill rod shoe, coarser clasts metadiorite	(197.0') Cleanout of borehole returned a well graded gravel with no sand/fines in shoe.	
194									
195									
196	120			Topock - Weathered Bedrock - conglomerate	SC		(198.0 - 203.0') Topock - Weathered Bedrock - conglomerate; Clayey sand with gravel (SC); reddish brown / moderate brown (5YR 4/4); fine grained to very coarse grained, angular to subangular; little granules to large pebbles, angular to subround; little clay; coarser clast composed of conglomerate; some coarser clasts composed of metadiorite; wet to moist; strong cementation		
197									
198									
199									
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, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the collection of samples from the temporary well; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-82-168, MW-82-198 installed in borehole

SOIL BORING LOG: PG&E-TOPOCK_C:\USERS\SMC\DOCUMENTS\PG&E-TOPOCK\DATABASE FOR PLOG.GPJ TOPOCK DRAFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Date Started: 07/31/2019	Surface Elevation: 483.71 ft amsl	Boring No.: MW-82d
Date Completed: 08/22/2019	Northing (NAD83): 2103048.25	
Drilling Co.: Cascade	Easting (NAD83): 7615993.33	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 207 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Boart Longyear Track Mount	Borehole Diameter: 4-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 28.5 ft bgs	Project Number: RC000753.0051
Drilling Asst: J. Colon / F. Sandoval	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: JL / PK / AP	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
201				Topock - Weathered Bedrock - conglomerate	SC				
202									
203	120	No sieve samples collected					(203.0 - 207.0') Topock - Competent Bedrock - conglomerate; reddish brown / moderate brown (5YR 4/4) with brown (7.5YR 4/2); coarser clasts composed of metadiorite; dry to moist; strong cementation; friable, pulverized by drilling process	(203.0 - 207.0') Rough drilling	(203.0 - 207.0') No water used
204				Topock - Competent Bedrock - conglomerate					
205									
206									
207									

End of Boring at 207.0 ft bgs.

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\1211320\1149 TOPOCK DRAFT BORING LOGS\GINT FILES\12.08.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 12/13/20 11:49

Final 1211320

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, NR = no recovery; Notes: blue water table symbol represents depth to water measured during the collection of samples from the temporary well; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-82-168, MW-82-198 installed in borehole