

Date Started: 06/16/2019	Surface Elevation: 547.10 ft amsl	Well ID: MW-87-109, MW-87-139
Date Completed: 07/31/2019	Shallow Well Elevation: 546.94 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 546.94 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102452.98	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7614402.76	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya/ O. Flores	Borehole Diameter: 10-12 inches	
Logger: G. Jeffers / A. Mack	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 7/13/2019	
Total Depth: 143 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					(+0.4 - 1.4') Surface completion		(+0.4 - 1.4') 6.5 bags Note: 2.5 x 2.5 ft concrete pad with 18 diameter lockable vault, King Kon-Crete 4000 PSI
1					(0.2 - 89.0') 2" PVC Sch 80 Casing		
2					(1.4 - 4.0') Bentonite seal chips Puregold medium chips	(1.4 - 4.0') 2.68 bags	(1.4 - 4.0') 7 bags (261%) Note: Installed to fill void from approximately 2 to 4 ft bgs. Used >20% of the calculated volume to fill the void.
3							
4							
5							
6							
7							
8					(0.0 - 15.0') 12.0" Borehole		Note: During development an obstruction was observed at ~8 ft. bgs, a buldge in the casing was observed with a downhole camera, the casing does not appear to be compromised.
9							
10			NR				
11							
12					(4.0 - 75.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(4.0 - 75.0') 286.1 gallons	(4.0 - 75.0') 480 gallons (168%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and potential grout migration.
13							
14							
15							
16							
17							
18					(15.0 - 143.0') 10.0" Borehole		
19							

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; groundwater samples collected during drilling of MW-87d; installed in MW-87s

WELL CONSTRUCTION DETAILS_PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\112320\TOPOCK DATABASE FOR PLOG.GPJ_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/23/20 15:28

Date Started: 06/16/2019	Surface Elevation: 547.10 ft amsl	Well ID: MW-87-109, MW-87-139
Date Completed: 07/31/2019	Shallow Well Elevation: 546.94 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: 546.94 ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102452.98	Project: Final GW Remedy Phase 1
Driller Name: Eddie Ramos	Easting (NAD83): 7614402.76	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya/ O. Flores	Borehole Diameter: 10-12 inches	
Logger: G. Jeffers / A. Mack	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 7/13/2019	
Total Depth: 143 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					(0.2 - 89.0') 2" PVC Sch 80 Casing		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30			NR		(4.0 - 75.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(4.0 - 75.0') 286.1 gallons	(4.0 - 75.0') 480 gallons (168%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and potential grout migration.
31							
32					(29.5 - 30.5') Centralizer		
33							
34							
35							
36							
37							
38							
39							
					(15.0 - 143.0') 10.0" Borehole		

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Drilling Asst: L. Amaya/ O. Flores	Borehole Diameter: 10-12 inches	
Logger: G. Jeffers / A. Mack	Static Water Level: See Log for Depths	Project Number: RC000753.0051
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Total Depth: 143 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 - 89.0') 2" PVC Sch 80 Casing		
41							
42							
43							
44							
45							
46							
47							
48							
49							
50			NR		(4.0 - 75.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(4.0 - 75.0') 286.1 gallons	(4.0 - 75.0') 480 gallons (168%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and potential grout migration.
51							
52							
53							
54							
55							
56							
57							
58							
59							
					(15.0 - 143.0') 10.0" Borehole		

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Drilling Asst: L. Amaya/ O. Flores	Borehole Diameter: 10-12 inches	
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Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Well Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
60					(0.2 - 89.0') 2" PVC Sch 80 Casing		
61							
62							
63							
64							
65							
66							
67					(4.0 - 75.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(4.0 - 75.0') 286.1 gallons	(4.0 - 75.0') 480 gallons (168%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and potential grout migration.
68							
69							
70			NR		(69.5 - 70.5') Centralizer		
71							
72							
73							
74							
75							
76							
77					(75.0 - 85.0') Bentonite seal chips Puregold medium chips	(75.0 - 85.0') 6.97 bags	(75.0 - 85.0') 8 bags (115%) Note: Seal above filter pack
78							
79							

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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 - 89.0') 2" PVC Sch 80 Casing		
81							
82					(75.0 - 85.0') Bentonite seal chips Puregold medium chips	(75.0 - 85.0') 6.97 bags	(75.0 - 85.0') 8 bags (115%) Note: Seal above filter pack
83			NR				
84							
85							
86							
87							
88		Topock - Alluvium Deposits	SW-SM				
89					(89.0 - 109.0') 2" Sch 80 PVC (20-slot) Screen		
90						(15.0 - 143.0') 10.0" Borehole	
91							
92		Topock - Alluvium Deposits	GM		(85.0 - 113.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(85.0 - 113.0') 27.2 bags	(85.0 - 113.0') 34 bags (125%) Note: Filter pack, used >20% of the calculated volume due to potential voids that formed during drilling.
93							
94	MW-R-VAS-92-97 (45 ppb) 5/13/2019 11:44						
95							
96							
97		Topock - Alluvium Deposits	SM				
98							
99		Topock - Alluvium Deposits	SW-SM				

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Logger: G. Jeffers / A. Mack	Static Water Level: See Log for Depths	Project Number: RC000753.0051
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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		(89.0 - 109.0') 2" Sch 80 PVC (20-slot) Screen		
101		Topock - Alluvium Deposits	SM				
102							
103							
104							
105			NR				
106					(85.0 - 113.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(85.0 - 113.0') 27.2 bags	(85.0 - 113.0') 34 bags (125%) Note: Filter pack, used >20% of the calculated volume due to potential voids that formed during drilling.
107							
108							
109		Topock - Alluvium Deposits	SM				
110					(109.5 - 110.5') Centralizer		
111					(109.0 - 111.3') Sump and PVC End Cap		
112							
113			NR				
114							
115					(113.0 - 117.0') Bentonite seal pellets Pel-Plug (TR30) 3/8"	(113.0 - 117.0') 3.3 buckets	(113.0 - 117.0') 4 buckets (121%) Note: Intermediate seal, used >20% of the calculated volume due to potential voids that formed during drilling.
116							
117							
118	MW-R-VAS-117-122 (5.8 ppb) 5/14/2019 10:14		NR		(117.0 - 143.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(117.0 - 143.0') 27.3 bags	(117.0 - 143.0') 34 bags (125%) Note: Filter pack, used >20% of the calculated volume due to potential voids that formed during drilling.
119			SM				

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Driller Name: Eddie Ramos	Easting (NAD83): 7614402.76	Location: PG&E Topock, Needles, California
Drilling Asst: L. Amaya / O. Flores	Borehole Diameter: 10-12 inches	
Logger: G. Jeffers / A. Mack	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 7/13/2019	
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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-R-VAS-117-122 (5.8 ppb) 5/14/2019 10:14	Topock - Alluvium Deposits	SM	[Pattern]	(119.0 - 139.0') 2" Sch 80 PVC (20-slot) Screen			
121								
122		Topock - Alluvium Deposits	GW-GM	[Pattern]	[Pattern]			
123								
124								
125		Topock - Alluvium Deposits	GM	[Pattern]	(117.0 - 143.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(15.0 - 143.0') 10.0" Borehole	(117.0 - 143.0') 27.3 bags	(117.0 - 143.0') 34 bags (125%) Note: Filter pack, used >20% of the calculated volume due to potential voids that formed during drilling.
126								
127		Topock - Alluvium Deposits	GW-GM	[Pattern]	[Pattern]			
128								
129		Topock - Alluvium Deposits	SM	[Pattern]	[Pattern]			
130								
131		Topock - Alluvium Deposits	SW-SM	[Pattern]	[Pattern]			
132								
133								
134								
135								
136								
137								
138								
139								

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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	SW-SM	[USCS Class Pattern]	(139.5 - 140.5') Centralizer	(117.0 - 143.0') 27.3 bags	(117.0 - 143.0') 34 bags (125%) Note: Filter pack, used >20% of the calculated volume due to potential voids that formed during drilling.
141					(117.0 - 143.0') Cemex #3 MESH (8x20) Lapis Lustre Sand		
142					(15.0 - 143.0') 10.0" Borehole		
143					End of Boring at 143.0 ft bgs.		
144							
145							
146							
147							
148							
149							
150							
151							
152							
153							
154							
155							
156							
157							
158							
159							

Final 11123120

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Drilling Co.:	Cascade	Easting (NAD83):	7614402.76	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	143 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Eddie Ramos	Depth to First Water:	91.1 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya/ O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	G. Jeffers / A. Mack	Sampling Interval:	Screen Intervals		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
1							(0.0 - 87.0') (NR); core not collected or logged, no recovery, see boring log MW-87d for lithology		(0.0 - 133.0') No water used
2									
3	60								
4									
5									
6									
7									
8	60								
9									
10		No Sieve Samples Collected				NR			
11								(10.0 - 14.0') 12 inch conductor casing dropped and mud tub seal had to be reset.	
12									
13									
14	96								
15								(15.0') 12 inch casing dropped to 15 ft. bgs reset mud tub seal. Driller indicated formation was collapsing @ 17 ft. bgs, when examining core, ~1 ft boulder was observed, will pay close attention to	
16									
17									
18									
19	108								
20									

Final 11/23/20

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Driller Name:	Eddie Ramos	Depth to First Water:	91.1 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya/ O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	G. Jeffers / A. Mack	Sampling Interval:	Screen Intervals		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
21								borehole when installing well.	
22									
23									
24	108								
25									
26									
27									
28								(27.0') Tight formation	
29									
30		No Sieve Samples Collected			NR				
31									
32	120								
33									
34									
35									
36									
37									
38	60								
39									
40									

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Date Started:	06/13/2019	Surface Elevation:	547.10 ft amsl	Boring No.: MW-87s	
Date Completed:	06/16/2019	Northing (NAD83):	2102452.98		
Drilling Co.:	Cascade	Easting (NAD83):	7614402.76	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	143 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Eddie Ramos	Depth to First Water:	91.1 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya/ O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	G. Jeffers / A. Mack	Sampling Interval:	Screen Intervals		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
41	60								
42									
43									
44									
45	60								
46									
47									
48									
49									
50		No Sieve Samples Collected			NR				
51									
52	120								
53									
54									
55									
56									
57									
58	120								
59									
60									

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Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: groundwater data was collected from MW-87d; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-87-109, MW-87-139 installed in borehole

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Date Started: 06/13/2019	Surface Elevation: 547.10 ft amsl	Boring No.: MW-87s
Date Completed: 06/16/2019	Northing (NAD83): 2102452.98	
Drilling Co.: Cascade	Easting (NAD83): 7614402.76	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Prosonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 91.1 ft bgs	Project Number: RC000753.0051
Drilling Asst: L. Amaya/ O. Flores	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: G. Jeffers / A. Mack	Sampling Interval: Screen Intervals	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
61									
62									
63	120								
64									
65									
66									
67									
68									
69									
70		No Sieve Samples Collected			NR				
71									
72	120								
73									
74									
75									
76									
77									
78									
79	120								
80									

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Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: groundwater data was collected from MW-87d; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-87-109, MW-87-139 installed in borehole

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Date Started: 06/13/2019	Surface Elevation: 547.10 ft amsl	Boring No.: MW-87s
Date Completed: 06/16/2019	Northing (NAD83): 2102452.98	
Drilling Co.: Cascade	Easting (NAD83): 7614402.76	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Prosonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 91.1 ft bgs	Project Number: RC000753.0051
Drilling Asst: L. Amaya/ O. Flores	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: G. Jeffers / A. Mack	Sampling Interval: Screen Intervals	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
81	120				NR				
82									
83									
84									
85									
86	120	No Sieve Samples Collected		Topock - Alluvium Deposits	SW-SM		(87.0 - 88.5') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (7.5YR 4/3); very fine grained to very coarse grained, angular to subround; and granules to very large pebbles, angular to subangular; little silt; trace subangular; trace mica; moist; cobble at bottom of formation, coarser clasts consist of granodiorite and metadiorite		
87									
88									
89									
90									
91	60			Topock - Alluvium Deposits	GM		(91'); some silt; trace clay; decrease in granules to very large pebbles	(91.0 - 91.0') Approximate depth to water	
92									
93									
94									
95									
96				Topock - Alluvium Deposits	SM		(95.5 - 98.5') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/3); very fine grained to very coarse grained, angular to subangular; and granules to very large pebbles, angular to subangular; little silt; trace angular to subangular; coarser clasts composed of metadiorite; wet		
97									
98									
99									
100									

SOIL BORING LOG: PG&E TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.23.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/23/20 15:27

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = no recovery; Notes: groundwater data was collected from MW-87d; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-87-109, MW-87-139 installed in borehole

Date Started: 06/13/2019	Surface Elevation: 547.10 ft amsl	Boring No.: MW-87s
Date Completed: 06/16/2019	Northing (NAD83): 2102452.98	
Drilling Co.: Cascade	Easting (NAD83): 7614402.76	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Prosonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 91.1 ft bgs	Project Number: RC000753.0051
Drilling Asst: L. Amaya/ O. Flores	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: G. Jeffers / A. Mack	Sampling Interval: Screen Intervals	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
101	60			Topock - Alluvium Deposits	SM	(100.5 - 102.0')	Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/3); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles, angular to subround; little silt; wet; larger clasts consist of metadiorite		
102						(102.0 - 108.0')	(NR); core not logged, no recovery, see boring log MW-87d for lithology	(102.0 - 108.0') Heaving sands	
103					NR				
104									
105									
106									
107									
108				Topock - Alluvium Deposits	SM	(108.0 - 110.0')	Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 5/3); very fine grained to very coarse grained, angular to subangular; some granules to large pebbles, angular to subround; little silt; wet		
109	108	No Sieve Samples Collected				(110.0 - 117.0')	(NR); core not collected or logged, no recovery, see boring log MW-87d for lithology	(110.0 - 117.0') Core not collected	
110									
111									
112									
113									
114									
115									
116									
117									
118						(117.0 - 119.0')	(NR); core not logged, no recovery, see boring log MW-87d for lithology		
119	60		MW-R-VAS-117-122 (5.8 ppb) 5/14/2019 10:14	Topock - Alluvium Deposits	SM	(119.0 - 122.0')	Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/3); very fine grained to very coarse grained, angular to subangular; some granules to very large pebbles,		
120									

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Date Started:	06/13/2019	Surface Elevation:	547.10 ft amsl	Boring No.: MW-87s	
Date Completed:	06/16/2019	Northing (NAD83):	2102452.98		
Drilling Co.:	Cascade	Easting (NAD83):	7614402.76	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	143 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Prosonic Truck Mount	Borehole Diameter:	10-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Eddie Ramos	Depth to First Water:	91.1 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	L. Amaya/ O. Flores	Sampling Method:	4 inch x 10 ft. Core Barrel		
Logger:	G. Jeffers / A. Mack	Sampling Interval:	Screen Intervals		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
121	60		MW-R-VAS-117-122 (5.8 ppb) 5/14/2019 10:14	Topock - Alluvium Deposits	SM		angular to subround; little silt; trace clay; coarser clasts composed of metadiorite; wet (120') brown (7.5YR 4/3) with dusky red (10R 3/3); trace subangular to subround; mottled		
122				Topock - Alluvium Deposits	GW-GM		(122.0 - 129.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); dark brown (7.5YR 3/3); granules to very large pebbles, subangular to subround; and very fine to very coarse grained sand, angular to subround; little silt; coarser clasts composed of metadiorite; wet		
123							(125') dark brown (7.5YR 3/3) with dusky red (10R 3/3); trace angular to subangular; mottled		
124				Topock - Alluvium Deposits	GM		(129.0 - 132.0') Topock - Alluvium Deposits; Silty gravel with sand (GM); dark brown (7.5YR 3/3); granules to very large pebbles, subangular to subround; little very fine to very coarse grained sand, subangular to subround; little silt; trace subangular to subround; coarser clasts composed of metadiorite; wet		
125							(132.0 - 137.0') Topock - Alluvium Deposits; Well graded gravel with silt and sand (GW-GM); dark brown (7.5YR 3/3); granules to very large pebbles, angular to subangular; some very fine to very coarse grained sand, angular to subangular; little silt; coarser clasts composed of metadiorite; wet		
126				Topock - Alluvium Deposits	GW-GM		(133') dark brown (7.5YR 3/3) with dusky red (10R 3/3); mottled	(133.0 - 143.0') Water used to blow out fines before well install, volume of water used and recovered not documented.	
127							(137.0 - 139.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (7.5YR 4/3); very fine grained to very coarse grained, angular to subround; some granules to large pebbles, angular to subround; little silt; coarser clasts composed of metadiorite; wet; metadiorite boulder fragments in 6" silt matrix at 137.5 ft bgs, 1" clay lens at 138 ft bgs		
128	120			Topock - Alluvium Deposits	SW-SM		(139.0 - 143.0') Topock - Alluvium Deposits; Well graded sand with silt and gravel (SW-SM); brown (7.5YR 4/3) with dusky red (10R 3/3); very fine grained to very coarse grained, angular to		
129									
130		No Sieve Samples Collected							
131									
132									
133									
134									
135									
136	132								
137									
138									
139									
140									

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Date Started: 06/13/2019	Surface Elevation: 547.10 ft amsl	Boring No.: MW-87s
Date Completed: 06/16/2019	Northing (NAD83): 2102452.98	
Drilling Co.: Cascade	Easting (NAD83): 7614402.76	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143 ft bgs	Project: Final GW Remedy Phase 1
Drill Rig Type: Prosonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles, California
Driller Name: Eddie Ramos	Depth to First Water: 91.1 ft bgs	Project Number: RC000753.0051
Drilling Asst: L. Amaya/ O. Flores	Sampling Method: 4 inch x 10 ft. Core Barrel	
Logger: G. Jeffers / A. Mack	Sampling Interval: Screen Intervals	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
141	132	No Sieve Samples Collected		Topock - Alluvium Deposits	SW-SM		subangular; some granules to very large pebbles, angular to subround; little silt; coarser clasts composed of metadiorite; wet; mottled		

End of Boring at 143.0 ft bgs.

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