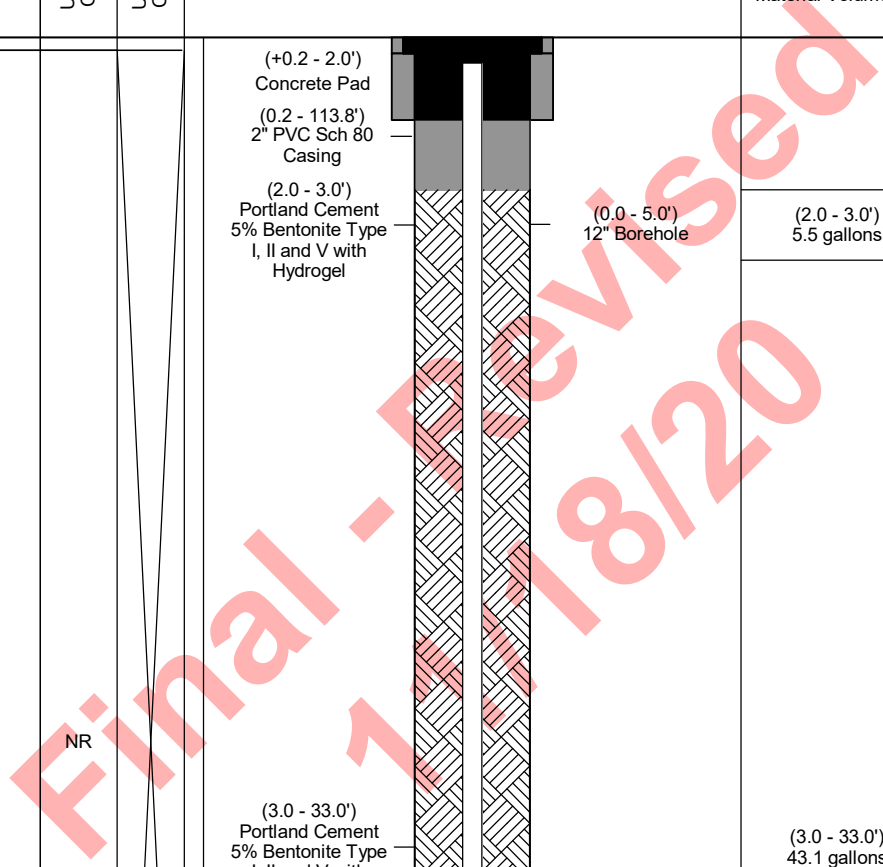


Date Started: 03/26/2019	Surface Elevation: 570.10 ft amsl	<b>Well ID: MW-85-129</b>
Date Completed: 04/12/2019	Shallow Well Elevation: 569.93 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: NA ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102321.17	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615448.12	Location: PG&E Topock, Needles, California
Drilling Asst: E. Huellmantel / J. Pacheco	Borehole Diameter: 6-12 inches	
Logger: D. Maurer / G. Willford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/3/2019	
Total Depth: 133 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
1					(+0.2 - 2.0') Concrete Pad		(+0.2 - 2.0') 8 bags Note: 2.5 x 2.5 ft concrete pad with 18" diameter lockable vault, King Kon-Crete 4000 PSI.
2					(0.2 - 113.8') 2" PVC Sch 80 Casing		
3					(2.0 - 3.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(2.0 - 3.0') 5.5 gallons	(2.0 - 3.0') 3 gallons (55%) Note: Grout seal tooped off on 4/1/19. Used <20% of the calculated volume due to grout coating borehole walls.
4							
5							
6							
7							
8							
9							
10			NR				
11					(3.0 - 33.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(3.0 - 33.0') 43.1 gallons	(3.0 - 33.0') 70 gallons (162%) Note: Grout seal, used >20% of the calculated volume due to potential voids that formed during drilling and grout migration into the formation.
12							
13							
14							
15							
16							
17							
18					(17.5 - 18.5') Centralizer		
19							



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 samples collected during the drilling of MW-85d; solid blue water table marks represent depth to water (ft. bgs.) measured post development; installed in MW-85s

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 22:01

Date Started: 03/26/2019	Surface Elevation: 570.10 ft amsl	<b>Well ID: MW-85-129</b>
Date Completed: 04/12/2019	Shallow Well Elevation: 569.93 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: NA ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102321.17	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615448.12	Location: PG&E Topock, Needles, California
Drilling Asst: E. Huellmantel / J. Pacheco	Borehole Diameter: 6-12 inches	
Logger: D. Maurer / G. Willford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/3/2019	
Total Depth: 133 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
21					(0.2 - 113.8') 2" PVC Sch 80 Casing		
22							
23							
24							
25							
26					(3.0 - 33.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(3.0 - 33.0') 43.1 gallons	(3.0 - 33.0') 70 gallons (162%) Note: Grout seal, used >20% of the calculated volume due to potential voids that formed during drilling and grout migration into the formation.
27							
28							
29							
30			NR		(5.0 - 133.0') 6" Borehole		
31							
32							
33							
34							
35							
36					(33.0 - 40.0') Bentonite seal chips Puregold medium chips	(33.0 - 40.0') 1.5 bags	(33.0 - 40.0') 1 bags (67%) Note: Installed to fill void space and prevent grout migration, used <20% of the calculated volume due to grout coating borehole walls.
37							
38							
39							

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 samples collected during the drilling of MW-85d; solid blue water table marks represent depth to water (ft. bgs.) measured post development; installed in MW-85s

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\SMCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 22:01

Date Started: 03/26/2019	Surface Elevation: 570.10 ft amsl	<b>Well ID: MW-85-129</b>
Date Completed: 04/12/2019	Shallow Well Elevation: 569.93 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: NA ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102321.17	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615448.12	Location: PG&E Topock, Needles, California
Drilling Asst: E. Huellmantel / J. Pacheco	Borehole Diameter: 6-12 inches	
Logger: D. Maurer / G. Willford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/3/2019	
Total Depth: 133 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
41					(0.2 - 113.8') 2" PVC Sch 80 Casing		
42							
43							
44							
45							
46							
47							
48							
49							
50			NR		(40.0 - 105.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(40.0 - 105.0') 74.2 gallons	(40.0 - 105.0') 200 gallons (270%) Note: Grout seal, used >20% of the calculated volume due to potential voids that formed during drilling and grout migration in to the formation.
51							
52							
53							
54							
55							
56							
57							
58							
59							

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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 samples collected during the drilling of MW-85d; solid blue water table marks represent depth to water (ft. bgs.) measured post development; installed in MW-85s

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK\_TOPOCK DRAFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 22:01

Date Started: 03/26/2019	Surface Elevation: 570.10 ft amsl	<b>Well ID: MW-85-129</b>
Date Completed: 04/12/2019	Shallow Well Elevation: 569.93 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: NA ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102321.17	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615448.12	Location: PG&E Topock, Needles, California
Drilling Asst: E. Huellmantel / J. Pacheco	Borehole Diameter: 6-12 inches	
Logger: D. Maurer / G. Willford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/3/2019	
Total Depth: 133 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
61					(0.2 - 113.8') 2" PVC Sch 80 Casing		
62							
63							
64							
65							
66							
67							
68					(67.5 - 68.5') Centralizer		
69							
70			NR		(40.0 - 105.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(40.0 - 105.0') 74.2 gallons	(40.0 - 105.0') 200 gallons (270%) Note: Grout seal, used >20% of the calculated volume due to potential voids that formed during drilling and grout migration in to the formation.
71							
72							
73							
74							
75							
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, NR=No Recovery; Notes: groundwater samples collected during the drilling of MW-85d; solid blue water table marks represent depth to water (ft. bgs.) measured post development; installed in MW-85s

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK TOPOCK DRAFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 22:01

Date Started: 03/26/2019	Surface Elevation: 570.10 ft amsl	<b>Well ID: MW-85-129</b>
Date Completed: 04/12/2019	Shallow Well Elevation: 569.93 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: NA ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102321.17	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615448.12	Location: PG&E Topock, Needles, California
Drilling Asst: E. Huellmantel / J. Pacheco	Borehole Diameter: 6-12 inches	
Logger: D. Maurer / G. Willford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/3/2019	
Total Depth: 133 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
81					(0.2 - 113.8') 2" PVC Sch 80 Casing		
82							
83							
84							
85							
86							
87							
88							
89							
90			NR		(40.0 - 105.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(40.0 - 105.0') 74.2 gallons	(40.0 - 105.0') 200 gallons (270%) Note: Grout seal, used >20% of the calculated volume due to potential voids that formed during drilling and grout migration in to the formation.
91							
92							
93							
94							
95							
96							
97							
98							
99							

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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 samples collected during the drilling of MW-85d; solid blue water table marks represent depth to water (ft. bgs.) measured post development; installed in MW-85s

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 22:01

Date Started: 03/26/2019	Surface Elevation: 570.10 ft amsl	<b>Well ID: MW-85-129</b>
Date Completed: 04/12/2019	Shallow Well Elevation: 569.93 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: NA ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102321.17	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615448.12	Location: PG&E Topock, Needles, California
Drilling Asst: E. Huellmantel / J. Pacheco	Borehole Diameter: 6-12 inches	
Logger: D. Maurer / G. Willford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/3/2019	
Total Depth: 133 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
101.0 - 105.0			NR		(0.2 - 113.8') 2" PVC Sch 80 Casing  (40.0 - 105.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(40.0 - 105.0') 74.2 gallons	(40.0 - 105.0') 200 gallons (270%) Note: Grout seal, used >20% of the calculated volume due to potential voids that formed during drilling and grout migration in to the formation.
105.0 - 112.0		Topock - Fluvial Deposits	GP		(105.0 - 112.0') Bentonite seal chips Puregold medium chips	(105.0 - 112.0') 1.5 bags	(105.0 - 112.0') 1.3 bags (87%) Note: Seal above filter pack
112.0 - 113.8		Topock - Fluvial Deposits	SM				
113.8 - 115.0		Topock - Fluvial Deposits	GP		(113.8 - 129.0') 2" Sch 80 PVC (20-slot) Screen		
115.0 - 112.0		Topock - Fluvial Deposits	SM		(112.0 - 133.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(112.0 - 133.0') 6.3 bags	(112.0 - 133.0') 8 bags (127%) Note: Filter pack, used >20% of the calculated volume due to potential voids forming during drilling.
112.0 - 119.0		Topock - Alluvium Deposits	SM		(5.0 - 133.0') 6" Borehole		

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 samples collected during the drilling of MW-85d; solid blue water table marks represent depth to water (ft. bgs.) measured post development; installed in MW-85s

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK\_C:\USERS\MCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 22:01

Date Started: 03/26/2019	Surface Elevation: 570.10 ft amsl	<b>Well ID: MW-85-129</b>
Date Completed: 04/12/2019	Shallow Well Elevation: 569.93 ft amsl	
Drilling Co.: Cascade	Deep Well Elevation: NA ft amsl	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2102321.17	Project: Final GW Remedy Phase 1
Driller Name: Dan O'Mara	Easting (NAD83): 7615448.12	Location: PG&E Topock, Needles, California
Drilling Asst: E. Huellmantel / J. Pacheco	Borehole Diameter: 6-12 inches	
Logger: D. Maurer / G. Willford	Static Water Level: See Log for Depths	Project Number: RC000753.0051
Editor: Sean McGrane	Development End Date: 4/3/2019	
Total Depth: 133 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
121	MW-N-VAS-121.0-126.0 (0.51 ppb) 2/16/2019 14:09	Topock - Alluvium Deposits	SM		(113.8 - 129.0') 2" Sch 80 PVC (20-slot) Screen		
122		Topock - Alluvium Deposits	ML		(112.0 - 133.0') Cemex #3 MESH (8x20) Lapis Lustre Sand	(5.0 - 133.0') 6" Borehole	(112.0 - 133.0') 6.3 bags
123		Topock - Alluvium Deposits	SM		(129.5 - 130.5') Centralizer		
124		Topock - Fluvial Deposits	SM		(129.0 - 131.3') Sump and PVC End Cap		
125							
126							
127							
128							
129							
130							
131							
132							
133					End of Boring at 133.0 ft bgs.		
134							
135							
136							
137							
138							
139							

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 samples collected during the drilling of MW-85d; solid blue water table marks represent depth to water (ft. bgs.) measured post development; installed in MW-85s

WELL CONSTRUCTION DETAILS\_PG&E\_TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E\_TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ\_TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 22:01

Date Started:	03/06/2019	Surface Elevation:	570.10 ft amsl	<b>Boring No.: MW-85s</b>	
Date Completed:	03/26/2019	Northing (NAD83):	2102321.17		
Drilling Co.:	Cascade	Easting (NAD83):	7615448.12	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	133 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic Track Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	120.4 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	E. Huellmantel / J. Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	D. Maurer / G. Willford	Sampling Interval:	Screen Interval		
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 - 106.0') No recovery (NR); core not collected or logged, see Boring Log MW-85d for lithology		
2									
3	72								
4									
5									
6									
7									
8									
9									
10					NR				
11	120								
12									
13									
14									
15									
16									
17									
18	120								
19									
20									

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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 and depth to water collected during the drilling of MW-85d; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; well MW-85-129 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 21:29



Date Started:	03/06/2019	Surface Elevation:	570.10 ft amsl	<b>Boring No.: MW-85s</b>	
Date Completed:	03/26/2019	Northing (NAD83):	2102321.17		
Drilling Co.:	Cascade	Easting (NAD83):	7615448.12	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	133 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic Track Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	120.4 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	E. Huellmantel / J. Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	D. Maurer / G. Willford	Sampling Interval:	Screen Interval		
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									
22									
23	120								
24									
25									
26									
27									
28									
29									
30					NR				
31	120								
32									
33									
34									
35									
36									
37									
38	120								
39									
40									

Final - Revised 11/18/20

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = No recovery; Notes: groundwater data and depth to water collected during the drilling of MW-85d; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; well MW-85-129 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 21:29

Date Started:	03/06/2019	Surface Elevation:	570.10 ft amsl	<b>Boring No.: MW-85s</b>	
Date Completed:	03/26/2019	Northing (NAD83):	2102321.17		
Drilling Co.:	Cascade	Easting (NAD83):	7615448.12	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	133 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic Track Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	120.4 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	E. Huellmantel / J. Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	D. Maurer / G. Willford	Sampling Interval:	Screen Interval		
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								(40.0 - 42.0') Rough drilling	
42									
43	120								
44									
45									
46									
47								(46.0 - 56.0') Rough drilling	
48									
49									
50					NR				
51	120								
52									
53									
54									
55									
56									
57									
58	120								
59									
60									

Final - Revised 11/18/20

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = No recovery; Notes: groundwater data and depth to water collected during the drilling of MW-85d; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; well MW-85-129 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 21:29

Date Started:	03/06/2019	Surface Elevation:	570.10 ft amsl	<b>Boring No.: MW-85s</b>	
Date Completed:	03/26/2019	Northing (NAD83):	2102321.17		
Drilling Co.:	Cascade	Easting (NAD83):	7615448.12	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	133 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic Track Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	120.4 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	E. Huellmantel / J. Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	D. Maurer / G. Willford	Sampling Interval:	Screen Interval		
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								(66.0 - 76.0') Rough drilling	
68									
69									
70					NR				
71	120								
72									
73									
74									
75									
76									
77									
78	120								
79									
80									

Final - Revised 11/18/20

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, ppb = parts per billion, NR = No recovery; Notes: groundwater data and depth to water collected during the drilling of MW-85d; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; well MW-85-129 installed in borehole

SOIL BORING LOG: PG&E TOPOCK C:\USERS\MCGRANE\DOCUMENTS\PG&E TOPOCK\DRIFT BORING LOGS\GINT FILES\11.18.20\TOPOCK DATABASE FOR PLOG.GPJ TOPOCK DATA TEMPLATE FOR PLOG.GDT 11/18/20 21:29

Date Started:	03/06/2019	Surface Elevation:	570.10 ft amsl	<b>Boring No.: MW-85s</b>	
Date Completed:	03/26/2019	Northing (NAD83):	2102321.17		
Drilling Co.:	Cascade	Easting (NAD83):	7615448.12	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	133 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic Track Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	120.4 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	E. Huellmantel / J. Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	D. Maurer / G. Willford	Sampling Interval:	Screen Interval		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
81									
82									
83	120								
84									
85									
86								(86.0 - 92.0) Drill rods chattering	
87									
88									
89									
90					NR				
91	120								
92									
93									
94									
95									
96									
97									
98	120								
99									
100									

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Logger:	D. Maurer / G. Willford	Sampling Interval:	Screen Interval		
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				NR				
102									
103									
104									
105	60				GP				
106									
107								(106.0 - 111.0') Topock - Fluvial Deposits; Poorly graded gravel (GP); grayish brown (2.5Y 5/2); boulders, angular; some very fine to fine grained sand, angular; little clay; dry; homogeneous; possibly composed of basalt, pulverized into powder and very very fine to coarse grained sand	(106.0 - 111.0') Rough drilling, core very hot.
108									
109	144				SM				
110									
111								(111.0 - 114.0') Topock - Fluvial Deposits; Silty sand with gravel (SM); pale yellow (2.5Y 7/3) trace (5R 7/1); very fine grained to very coarse grained, subangular to round; some silt; little granules to very large pebbles, subangular to round; trace subround to round; trace clay; dry; gravel composed of mixed lithology	
112								(113.0 - 114.0') dark brown (10YR 3/3); moist	
113					GP				
114									
115								(114.0 - 114.5') Topock - Fluvial Deposits; Poorly graded gravel (GP); dark red (10R 3/6); boulders; composed of rhyolite	
116								(114.5 - 117.0') Topock - Fluvial Deposits; Silty sand with gravel (SM); dark brown (10YR 3/3) little light brown (7.5YR 6/4); very fine grained to very coarse grained, subangular to round; some silt; little granules to very large pebbles, subangular to round; trace subround to round; trace clay; moist; weak cementation; gravel composed of mixed lithology	
117					SM				
118									
119								(117.0 - 123.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); brown (10YR 5/3) little reddish yellow (7.5YR 6/6); very fine grained to very coarse grained, angular to subround; some granules to large pebbles, angular to subround; some silt; little clay; moist; weak cementation	
120									

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Date Started:	03/06/2019	Surface Elevation:	570.10 ft amsl	<b>Boring No.: MW-85s</b>	
Date Completed:	03/26/2019	Northing (NAD83):	2102321.17		
Drilling Co.:	Cascade	Easting (NAD83):	7615448.12	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	133 ft bgs	Project:	Final GW Remedy Phase 1
Drill Rig Type:	Terrasonic Track Mount	Borehole Diameter:	6-12 inches	Location:	PG&E Topock, Needles, California
Driller Name:	Dan O'Mara	Depth to First Water:	120.4 ft bgs	Project Number:	RC000753.0051
Drilling Asst:	E. Huellmantel / J. Pacheco	Sampling Method:	4 inch x 10 ft Core Barrel		
Logger:	D. Maurer / G. Willford	Sampling Interval:	Screen Interval		
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	144			Topock - Alluvium Deposits	SM				
122									
123			MW-N-VAS-121.0-126.0 (0.51 ppb) 2/16/2019 14:09				(123.0 - 128.0') Topock - Alluvium Deposits; Sandy silt with gravel (ML); brown (7.5YR 5/4); low plasticity; some very fine to very coarse grained sand, angular to subround; little granules to medium pebbles, subangular to subround; little clay; moist; weak cementation		
124				Topock - Alluvium Deposits	ML				
125									
126									
127									
128	120			Topock - Alluvium Deposits	SM		(128.0 - 130.0') Topock - Alluvium Deposits; Silty sand with gravel (SM); grayish brown (10YR 5/2); very fine grained to very coarse grained, angular to subround; some silt; little granules to very large pebbles, angular to subround; little clay; trace subangular; dry		
129									
130				Topock - Fluvial Deposits	SM		(130.0 - 133.0') Topock - Fluvial Deposits; Silty sand with gravel (SM); light brown (7.5YR 6/4) little gray (10YR 6/1); very fine grained to very coarse grained, subangular to round; some granules to very large pebbles, subangular to subround; some silt; trace clay; moist to wet; weak cementation; gravel composed of mixed lithology		
131									
132									
133									
End of Boring at 133.0 ft bgs.									
134									
135									
136									
137									
138									
139									
140									

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