9/	ARC4	DIS for nature built ass	Consultancy ral and ets		Well Const	ruction Log	;	Sheet: 1 of 11	
Date S	tarted:	04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: M\	N-84-132, MW-84-193	
	•	07/30/2019			_Shallow Well Elevation:	·			
Drilling		Cascade			_Deep Well Elevation:	501.18 ft amsl	Client: PG&E		
Drilling Driller I	Method:	Sonic Drilling			_Northing (NAD83): _Easting (NAD83):	2102363.81	-	GW Remedy Phase 1	
Drilling		Tyler Alymer C. Winland/J.	Cande	laria	Easting (NADos). _Borehole Diameter:	7614866.21 4-12 inches	Location. <u>PG&amp;t</u>	E Topock, Needles, California	
Logge		C. Bonessi/R		iaiia	_Static Water Level:	See Log for Depths	— Project Numbe	r: RC000753.0051	
Editor:		Sean McGrar			_Development End Date		1 10,00014411100	1. 11. 11. 11. 11. 11. 11. 11. 11. 11.	
Total D		216 ft bgs			Well Completion:		To Be Completed in Well Vault		
Depth (ft)	Groundwat Sample II		USCS	USCS Class	Well C	Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
0 1					(+0.3 - 1.5') Surface completion (+0.0 - 112.0') 2" PVC Sch 80	(0.1 - 173.2') 2" PVC Sch 80 Casing		(+0.3 - 1.5') 5 bags Note: 2.5 x 2.5 ft concrete pad with 18 diameter lockable vault, King Kon-Crete 4000 PSI	
2			, ND		Casing  (1.5 - 4.0')  Portland Cement 5% Bentonite Type I, II and V with Enviroplug	(0.0 - 8.0)	(1.5 - 4.0') 13.9 gallons	(1.5 - 4.0') 8 gallons (58%) Note: Grout seal, used <20% of the calculated volume due to formation collapse.	
_ 5 6			NR		(4.0 - 8.0') Bentonite seal chips Puregold medium chips	12" Borehole	(4.0 - 8.0') 4.12 bags	(4.0 - 8.0') 15 bags (364%) Note: Installed due to some formation collapse, which shifted the well casing to side of of the borehole, well checked no obstruction was observed. Used >20% of the calcluated volume to fill void.	
8 9 10 11 12 13		Topock - Fluvial Deposits	SW-SM		(9.5 - 10.5') Centralizer (8.0 - 13.0') Portland Cement 5% Bentonite Type I, II and V with Enviroplug		(8.0 - 13.0') 19.8 gallons	(8.0 - 13.0') 70 gallons (354%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and potential grout migration.	
13		Topock - Fluvial Deposits	NR		(13.0 - 37.1') Portland Cement 5% Bentonite Type I, II and V with Enviroplug	(8.0 - 197.6') 10" Borehole	(13.0 - 37.1') 95.4 gallons	(13.0 - 37.1') 200 gallons (210%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and potential grout migration.	
A bbrox	iotions: II	SCS = Unifico	l Sail Cl		tion System ft = foot has	= below ground surface, ar	nel = above mean	and lovel CW =	

9/	ARC4	DIS Design & for natur built ass	Consultancy ral and ets		Well Const	ruction Log	;	Sheet: 2 of 11
	Started:	04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: MI	N-84-132, MW-84-193
	•	07/30/2019			_Shallow Well Elevation:			•
Drilling		Cascade			_Deep Well Elevation:	501.18 ft amsl	Client: PG&I	
_	Method:	Sonic Drilling			_Northing (NAD83):	2102363.81	•	GW Remedy Phase 1
Driller I		Tyler Alymer	0 1		_Easting (NAD83):	7614866.21	Location: <u>PG&amp;l</u>	E Topock, Needles, California
Drilling		C. Winland/J.			_Borehole Diameter:	4-12 inches	Desired Neverlee	D0000750 0054
Logge Editor:		C. Bonessi/R Sean McGrar			_Static Water Level: _Development End Date:	See Log for Depths	Project Numbe	r: RC000753.0051
Total D		216 ft bgs	<u>ie</u>		_Development End Date. _Well Completion:	× Flush Stick-up	— To Be Completed	in Well Vault
Depth (ft)	Groundwa Sample II		USCS	USCS Class	Well C	construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
20		Topock - Fluvial Deposits	GW-GM		(13.0 - 37.1') Portland Cement 5% Bentonite Type I, II and V with Enviroplug	(8.0 - 197.6') 10" Borehole	(13.0 - 37.1') 95.4 gallons	(13.0 - 37.1') 200 gallons (210%) Note: Grout seal, used >20% of the calculated volume due to potential voids forming during drilling and potential grout migration.
31		Topock - Fluvial Deposits	SW-SM		(34.5 - 35.5') Centralizer  (37.1 - 46.0') Representations		(37.1 - 46.0')	(37.1 - 46.0') 24 bags (367%) Note: Seal above high solids grout
 39 		Topock - Fluvial Deposits	SM		Bentonite seal chips Puregold/Halliburton medium chips		(37.1 - 46.0') 6.54 bags	Note: Seal above high solids grout, used >20% due to chips potentially settling into high solids grout.
Abbrev	viations: L	ISCS = Unified	Soil C	assificat	ion System, ft = feet, bgs	= below ground surface, ar	nsl = above mean	sea level, GW =

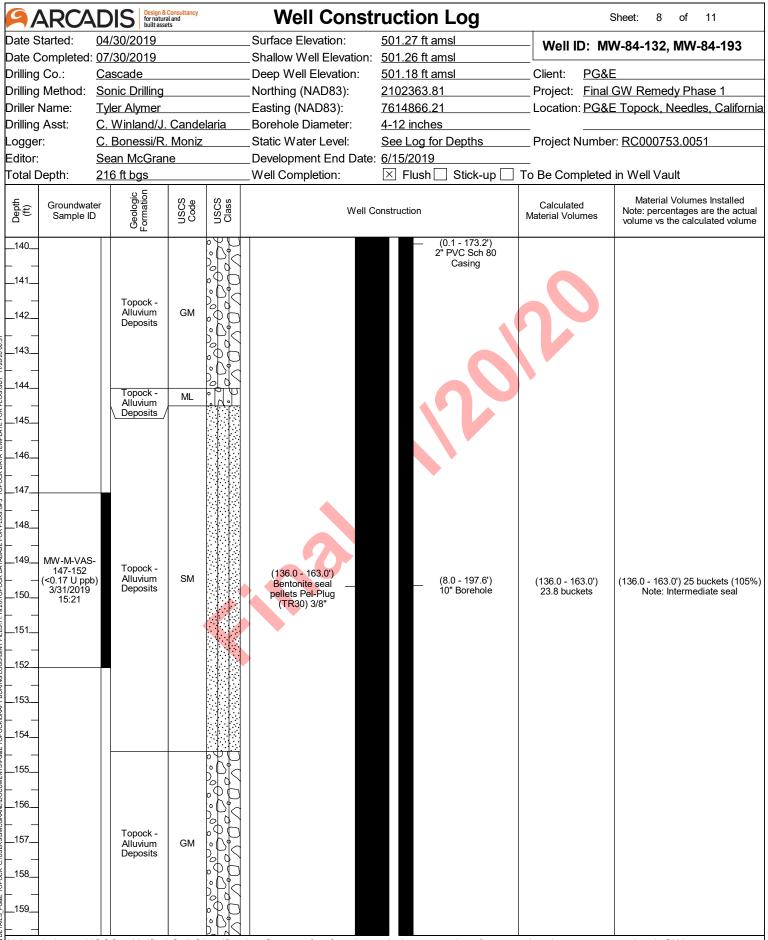
Date Started   04,00,02019	9/	ARCA	DIS Design & for nature built asso	Consultancy al and ets		Well Const	ruction Log	;	Sheet: 3 of 11
Shallow Well Elevation:   Sol.1.26 it ams	Date S	tarted:	04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: M\	N-84-132. MW-84-193
Onling Method: Sonic Delling		-	07/30/2019			_Shallow Well Elevation:	501.26 ft amsl		•
Delien   Mark   Tyler Alymer   Easting (NADB3):	_					•			
Delining Assistant   C.   C.   Andersita   C.   C.   Concessing   Monic   C.   Concessing   Concession   Co	_					<del>-</del> ', '		•	•
C. Bonesiji R. Moniz   Static Water Level:   See Log for Depths   Project Number: RC000753.0051						- '		Location: <u>PG&amp;</u>	<u> E Topock, Needles, California</u>
Sean McGrane	_					<del>-</del>			
Total Depth:   216 ft bgs		:					- ·	Project Numbe	r: <u>RC000753.0051</u>
Sample   D				ne				<del>_</del>	
-40	Total D	epth:				_Well Completion:		To Be Completed	
Topock-Fluid Deposits SM Depos	Depth (ft)		Geologi Formatic	USCS	USCS				Note: percentages are the actual
	 41 		Fluvial	SM		2" PVC Sch 80	2" PVC Sch 80	00	
48	44 45		Alluvium	GM	P 1717	Bentonite seal chips Puregold/Halliburton			Note: Seal above high solids grout, used >20% due to chips potentially
	48		Alluvium	GM			(8.0 - 197.6') 10" Borehole		
	5455565758	52-57 (28 ppb) 3/28/2019	Topock - Alluvium	GW		Agua Guard High Solids Bentonite			Note: Annular seal across the screen intervals of the wells in the
Abbreviations: LISCS - Unified Soil Classification System ft - fact bas - below ground synfood, and - above moon and level CW -									

9/	ARC4	DIS Design & for nature built ass	Consultancy ral and ets		Well Const	ruction Log	;	Sheet: 4 of 11
Date S	tarted:	04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: MI	N-84-132, MW-84-193
Date C	ompleted:	07/30/2019			_Shallow Well Elevation:	501.26 ft amsl	VVEILID. IVIN	74-04-132, IVIVV-04-193
Drilling	Co.:	Cascade			_Deep Well Elevation:	501.18 ft amsl	Client: PG&E	<u> </u>
		Sonic Drilling			_Northing (NAD83):	2102363.81	Project: Final	GW Remedy Phase 1
Driller N		Tyler Alymer			Easting (NAD83):	7614866.21	-	E Topock, Needles, California
Drilling		C. Winland/J	. Cande	laria	Borehole Diameter:	4-12 inches		
Logger		C. Bonessi/R			Static Water Level:	See Log for Depths	Project Numbe	r: RC000753.0051
Editor:		Sean McGrar			_ _Development End Date:	-	,	
Total D	epth:	216 ft bgs			 _Well Completion:		To Be Completed	in Well Vault
Depth (ft)	Grondwater Sample ID Geologic Code Code Code Code Code Code Code Code				Well C	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
60 61		Topock - Alluvium Deposits	SM		(+0.0 - 112.0') ————————————————————————————————————	(0.1 - 173.2') 2" PVC Sch 80 Casing		
 62  63		Topock - Alluvium Deposits	GM				2	
64 65 66 67		Topock - Alluvium Deposits	SM		(64.5 - 65.5') Centralizer			
686970		Topock - Alluvium Deposits	GM		(46.0 - 94.3') Agua Guard High Solids Bentonite Grout	(8.0 - 197.6') 10" Borehole	(46.0 - 94.3') 191.2 gallons	(46.0 - 94.3') 228 gallons (119%) Note: Annular seal across the screen intervals of the wells in the MW-84s borehole.
73 74 75	MW-M-VAS 72-77 (<0.033 U ppb) 3/29/2019	-						
76 77 78	14:01	Topock - Alluvium Deposits	SW-SM					
78 79 		Topock - Alluvium Deposits	GM SW-SM					

9/	ARC4	DIS for nature built ass	Consultancy ral and ets		Well Const	ruction Log	:	Sheet: 5 of 11
	started:	04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: MI	<i>N</i> -84-132, MW-84-193
	•	07/30/2019			_Shallow Well Elevation:			·
Drilling		Cascade			_Deep Well Elevation:	501.18 ft amsl	Client: PG&I	
_	Method:	Sonic Drilling			_Northing (NAD83):	2102363.81	-	GW Remedy Phase 1
Driller I		Tyler Alymer	0 1		_Easting (NAD83):	<u>7614866.21</u>	Location: <u>PG&amp;I</u>	E Topock, Needles, California
Drilling		C. Winland/J			_Borehole Diameter:	4-12 inches		D0000750 0054
Logge Editor:		C. Bonessi/R Sean McGrai			_Static Water Level: _Development End Date	See Log for Depths	Project Numbe	r: RC000753.0051
Total D		216 ft bgs	ie .		_Development End Date _Well Completion:		— To Be Completed	in Well Vault
Depth (ft)	Groundwa Sample II		USCS	USCS Class		Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
80		Alluvium Deposits	SW-SM		(+0.0 - 112.0') ————————————————————————————————————	(0.1 - 173.2') 2" PVC Sch 80		
 81  82		Topock - Alluvium Deposits	ML		Casing	Casing	00	
 83  84		Topock - Alluvium Deposits	GW-GM					
		Topock - Alluvium Deposits	SM		(46.0 - 94.3') Agua Guard High Solids Bentonite Grout	(8.0 - 197.6') 10" Borehole	(46.0 - 94.3') 191.2 gallons	(46.0 - 94.3') 228 gallons (119%) Note: Annular seal across the screen intervals of the wells in the MW-84s borehole.
95  96		Topock - Alluvium Deposits	ML		(94.3 - 96.3') Cemex #3 MESH (8x20) Lapis Lustre Sand		(94.3 - 96.3') 2.1 bags	Note: Installed because driller were concerned about bentonite swelling in casing overnight placed sand in casing and open borehole. Used >20% of the calculated volume due to a potential void.
97 98 99		Topock - Alluvium Deposits	SM		(96.3 - 106.9') Bentonite seal pellets Pel-Plug (TR30) 3/8"		(96.3 - 106.9') 9 buckets	(96.3 - 106.9') 9.5 buckets (106%) Note: Intermediate seal
Abbrev	∕iations: U	SCS = Unified	Soil C	lassificat	tion Svstem. ft = feet. bas	= below ground surface, an	nsl = above mean	sea level. GW =

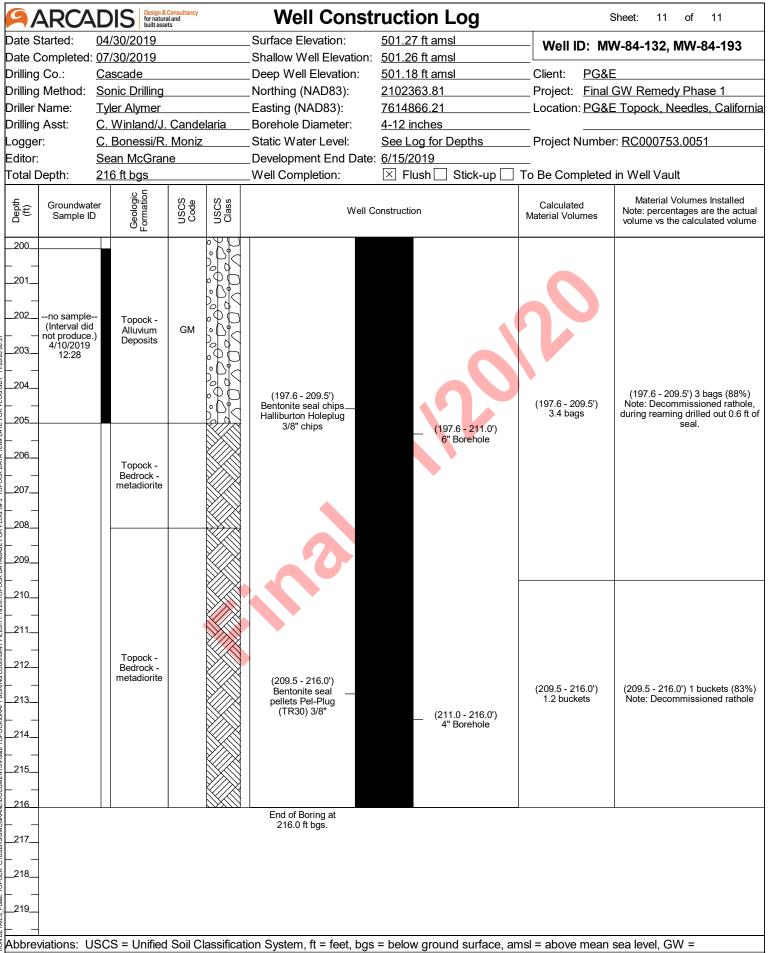
9/	ARC4	DIS Design & for natura built asset	Consultancy al and ets		Well Const	ruction Log	9	Sheet: 6 of 11	
Date S		04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: MV	V-84-132, MW-84-193	
	•	07/30/2019			_Shallow Well Elevation:				
Drilling		Cascade			_Deep Well Elevation:	501.18 ft amsl	Client: PG&E		
_		Sonic Drilling			_Northing (NAD83):	2102363.81		GW Remedy Phase 1	
Driller I		Tyler Alymer			_Easting (NAD83):	7614866.21	Location: <u>PG&amp;E</u>	Topock, Needles, California	
Drilling	Asst:	C. Winland/J.			_Borehole Diameter:	4-12 inches			
Logge		C. Bonessi/R			_Static Water Level:	See Log for Depths	Project Number: RC000753.0051		
Editor:	· · · · · · · · · · · · · · · · · · ·				_Development End Date:				
Total L					_Well Completion:	✓ Flush  Stick-up	To Be Completed	in Well Vault	
Depth (ft)	Groundwat Sample II		Code	USCS	Well C	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
100			SM		(99.5 - 100.5') Centralizer	— (0.1 - 173.2') 2" PVC Sch 80			
				[.00.]		Casing			
101				[4]	(+0.0 - 112.0') 2" PVC Sch 80 —				
		Topock -			Casing				
102		Alluvium Deposits	ML	797019					
103					(96.3 - 106.9')		(96.3 - 106.9')	(06.2 106.0') 0.5 buokata (106%)	
					Bentonite seal pellets Pel-Plug		9 buckets	(96.3 - 106.9') 9.5 buckets (106%) Note: Intermediate seal	
104		Topock -			(TR30) 3/8"				
		Alluvium Deposits	SM						
105		'							
106									
107					<u>; • • • • • • • • • • • • • • • • • • •</u>				
108									
109	MW-M-VAS 107-112	-							
	(<0.033 U	Topock -				(8.0 - 197.6')			
110	ppb) 3/30/2019	Alluvium Deposits	SM			10" Borehole			
	13:59	Берозна							
_111_									
_112_					(112.0 - 132.0')				
					2" Sch 80 PVĆ (20-slot) Screen	<u> </u>			
113					(106.9 - 136.0')		,,,,,,		
					Cemex #3 MESH (8x20) Lapis Lustre	귀기 [ ]	(106.9 - 136.0') 30.2 bags	(106.9 - 136.0') 35 bags (116%) Note: Filter pack	
114					Sand			·	
L J						<u> </u>			
115				P.X.Y					
L J				PIN					
116				PXP					
L ]				PH4					
117		Topock -		H Fig		<u> </u>			
		Alluvium Deposits	GM	10 PJd					
118				[3H		<del> </del>			
				607					
119				自		#1   H			
				CX.					
		000 11 :		<u> </u>				1 1 0 1 1	

ARC	ADIS Design & for nature built ass	Consultancy ral and ets		Well Constr	uction Log	;	Sheet: 7 of 11	
Date Started:	04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: MV	N-84-132, MW-84-193	
Date Complete				_Shallow Well Elevation:				
Drilling Co.:	Cascade			_Deep Well Elevation:	501.18 ft amsl	Client: <u>PG&amp;E</u>		
Drilling Method	_			_Northing (NAD83):	2102363.81	•	GW Remedy Phase 1	
Driller Name:	Tyler Alymer			_Easting (NAD83):	7614866.21	Location: <u>PG&amp;E</u>	E Topock, Needles, California	
Drilling Asst:	C. Winland/J			_Borehole Diameter:	4-12 inches	— — — — — — — — — — — — — — — — — — —	D0000750 0054	
Logger: Editor:	C. Bonessi/R Sean McGra			_Static Water Level: _Development End Date:	See Log for Depths	Project Numbe	r: RC000753.0051	
Editor. Total Depth:	216 ft bgs	ie		_Development End Date. _Well Completion:	<ul><li>✓ Flush ☐ Stick-up ☐</li></ul>	To Be Completed in Well Vault		
Groundw Sample		USCS	USCS Class	Well Co	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
	Topock - Alluvium Deposits	GM		(112.0 - 132.0') — :	(0.1 - 173.2') 2" PVC Sch 80 Casing	00		
	Topock - Alluvium Deposits	SM						
	Topock - Alluvium Deposits	GW-GM		(106.9 - 136.0') Cemex #3 MESH (8/20) Lapis Lustre		(106.9 - 136.0') 30.2 bags	(106.9 - 136.0') 35 bags (116%) Note: Filter pack	
129 130 131 131 132 133 134 135 136	Topock - Alluvium Deposits	GM		(132.5 - 133.5') Centralizer  (132.0 - 134.4') Sump and PVC End Cap	(8.0 - 197.6') 10" Borehole	30.2 bays	Note. Titles pack	
137 138 139 				(136.0 - 163.0') Bentonite seal pellets Pel-Plug (TR30) 3/8"		(136.0 - 163.0') 23.8 buckets	(136.0 - 163.0') 25 buckets (105%) Note: Intermediate seal	



9/	ARC4	DIS Design & for nature built asso	Consultancy al and ets		Well Const	truction Log		Sheet: 9 of 11	
Date S	Started:	04/30/2019			_Surface Elevation:	501.27 ft amsl	Well ID: M	W-84-132, MW-84-193	
	•	07/30/2019			_Shallow Well Elevation				
Drilling		Cascade Sonic Drilling			_Deep Well Elevation: _Northing (NAD83):	501.18 ft amsl 2102363.81	Client: PG&	E GW Remedy Phase 1	
_	Name:	Tyler Alymer			_Easting (NAD83):	7614866.21		E Topock, Needles, California	
Drilling		C. Winland/J.	Cande	elaria	_Borehole Diameter:	4-12 inches			
Logge	r:	C. Bonessi/R			_Static Water Level:	See Log for Depths	Project Numbe	er: RC000753.0051	
Editor:		Sean McGrar	ne		_Development End Date		To Do Commission Well Voyelt		
Total [	Jeptn:	216 ft bgs	<u> </u>		_Well Completion:		To Be Completed in Well Vault		
Depth (ft)	Groundwat Sample ID		USCS	USCS Class	Well	Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
	MW-M-VAS	Topock - Alluvium Deposits  Topock - Alluvium Deposits	GM GM		(136.0 - 163.0') Bentonite seal pellets Pel-Plug (TR30) 3/8"  (163.0 - 197.6') Cemex #3 MESH (8x20) Lapis Lustre Sand	— (0.1 - 173.2') 2" PVC Sch 80 Casing  — (8.0 - 197.6') 10" Borehole  — (173.2 - 193.2') 2" Sch 80 PVC	(136.0 - 163.0') 23.8 buckets (163.0 - 197.6') 38.2 bags	(136.0 - 163.0') 25 buckets (105%) Note: Intermediate seal  (163.0 - 197.6') 42 bags (110%) Note: Filter pack	
175 176 177 178 179	172-177 (<0.033 U ppb) 4/2/2019 14:57	Topock - Alluvium Deposits	GM	00000000000000000000000000000000000000		(20-slot) Screen			
<u> </u>									

9ARC4	DIS Design & for natura built asse	Consultancy I and ts		Well Consti	ruction Log	S	Sheet: 10 of 11
Date Started: Date Completed: Drilling Co.:	Cascade			_Surface Elevation: _Shallow Well Elevation: _Deep Well Elevation:	501.18 ft amsl		
Drilling Method: Driller Name: Drilling Asst:	Sonic Drilling Tyler Alymer C. Winland/J.		laria	_Northing (NAD83): _Easting (NAD83): _Borehole Diameter:	2102363.81 7614866.21 4-12 inches	Location: <u>PG&amp;E</u> 	GW Remedy Phase 1 Topock, Needles, California
Logger: Editor: Total Depth:	C. Bonessi/R. Sean McGran 216 ft bgs			_Static Water Level: _Development End Date: _Well Completion:		Project Number  To Be Completed	r: <u>RC000753.0051</u> in Well Vault
Groundwar Sample II		Code	USCS Class	Well Co	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
	Topock - Alluvium Deposits	GM		(163.0 - 197.6') Cemex #3 MESH (8x20) Lapis Lustre Sand	(173.2 - 193.2') 2" Sch 80 PVC (20-slot) Screen	(163.0 - 197.6') 38.2 bags	(163.0 - 197.6') 42 bags (110%) Note: Filter pack
		GM		(193.7 - 194.7') Centralizer			
	Topock - Alluvium Deposits	SM			(193.2 - 195.5') Sump and PVC End Cap		
	Topock - Alluvium Deposits	GM		(197.6 - 209.5') Bentonite seal chips Halliburton Holeplug 3/8" chips	(197.6 - 211.0')6" Borehole	(197.6 - 209.5') 3.4 bags	(197.6 - 209.5') 3 bags (88%) Note: Decommissioned rathole, during reaming drilled out 0.6 ft of seal.



9/	\R(	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log	g		She	et: 1 of	11
Date S	tarted:	03/20/2	2019		Surface	Elevat	ion:	501.27 ft amsl	Borin	a No:	MW-84d	
		ted: <u>04/30/</u> 2	2019		Northing		,	2102363.81		9 110	11111 0 1 0	
Drilling		Casca			Easting	•	33):	7614866.21	Client:	PG&E		
Drilling				_	Total De	•		216 ft bgs	Project:	•	V Remedy Ph	
Drill Ri			<u>ongyear Trad</u>	<u>ck</u>	Borehol			4-12 inches	Location:		opock, Need	les,
Driller I		Tyler A	-	-1				46.4 ft bgs	Dusiaat N	Californi		\E4
Drilling Logge			land/J. Cande essi/R. Moniz		Samplin Samplin	-		4-8 inch x 10 ft. Core Barrel Continuous	Projectiv	umber: <u>r</u>	<u> </u>	JO I
Editor:			/IcGrane	<u> </u>	Convert	-		× Yes □ No				
Laitor.		<u>coun n</u>		, , ,	Johnson		V 011.					
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS Class		Soil Description			Drilling Notes	Drilling Fluid
1	0	No Siove		Topock - Fluvial Deposits	SW-SM		foot bg boulde	0.5') No recovery (NR); and cleared for s, ~2 foot boulder encountered had to r loose, drilled to 8 ft. bgs with no core of the core of th	used rig to brocollected.	vith silt grained nules to lar to	(8.0 - 32.0') Soft drilling, formation collapsing after every' n.	(0.0 - 37.0') No water used
10111213141516171819	120	No Sieve Samples Collected		Topock - Fluvial Deposits	NR		(10.5 -	19.5') Topock - Fluvial Deposits; Well avel (SW-SM); light olive brown (2.5Y & coarse grained, subangular to subround; trace silt; trace clay; dry; some moon of bentonite	5/4); very fine nd; some grar race subangu isture present	grained nules to lar to due to		

9/-	ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log	g		Shee	et: 2 of	11
Date S		· ·			Surface			501.27 ft amsl	Boring	No.:	MW-84d	
	•	ted: <u>04/30/2</u>			Northing			2102363.81				
Drilling Drilling		Cascadod: Sonic I			Easting Total De	•	53):	7614866.21 216 ft bgs		G&E nal GW	/ Remedy Ph	1 222
Drill Ri			<u>ongyear Trac</u>	ck	Borehol	•	neter:	4-12 inches	•		opock, Needl	
Driller N		Tyler A	0.	<u> </u>				46.4 ft bgs		alifornia	•	<u>55,</u>
Drilling	Asst:	-	<u>land/J. Cande</u>	elaria	Samplin				Project Number: RC000753.0051			51
Logger			essi/R. Moniz	<u>z</u>	Samplin	-		Continuous	-			
Editor:		Sean N	<u>//cGrane</u>		Convert	ed to \	Nell:					
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS		Soil Description			Drilling Notes	Drilling Fluid
21 22 23 24 25 26 26	120			Topock - Fluvial Deposits	GW-GM		very lai coarse subrou	I sand (GW-GM); light olive brown (2.5 rge pebbles, subangular to subround; s grained sand, subangular to subround nd; trace silt; trace clay; dry	some very fine to ; trace subangula	very ar to		
28	60	No Sieve Samples Collected	4		~		and grato very very land subanç	38.0') Topock - Fluvial Deposits; Well avel (SW-SM); light olive brown (2.5Y & coarse grained, subangular to subround; light to subround; light to subround; dry	5/4); very fine grai nd; some granule ittle silt; trace	ined I I	(32 0 - 37 0')	
33	60			Topock - Fluvial Deposits	SW-SM		(32'); ir	on oxide staining; ~2 ft. diameter bould	der		(32.0 - 37.0") Hard drilling due to boulder. Borehole collapsing after each clean out run. Rod broke while doing clean out at 35 ft bgs.	(37.0') 5 gallons of
38 39 40	60	·· 11909 - 1	Initiad Sail Cl	Topock - Fluvial Deposits	SM		(SM); s grained pebble moist; of sand	42.0') Topock - Fluvial Deposits; Silty strong brown (7.5YR 5/6); very fine graid, angular to subangular; some granules, angular to subangular; some silt, littl weak cementation; iron oxide staining; distone/breccia	ned to very coars es to very large le subangular; dry cobbles compos	y to ed	chattering, change geologist from CB to RM. (37.1') Change in geologist from CB to RM.	water used; 5 gallons of water recovered; 0 gallons of water lost (37.0 - 205.0') No used

9/-	\R(	ADIS	Design & Consultancy for natural and built assets		Во	ring Lo	g	She	et: 3 of	11
Date S	tarted:	03/20/		_		Elevation:	501.27 ft amsl	Boring No.:	MW-84d	
	•	ted: <u>04/30/</u>			-	g (NAD83):	2102363.81	_		
Drilling		<u>Casca</u>			_	(NAD83):	<u>7614866.21</u>	_ Client: PG&E	M D   DI	
Drilling Drill Ri			Drilling _ongyear Trad		Total De	eptn: le Diameter:	216 ft bgs 4-12 inches	Project: Final GW Remedy Phase 1 Location: PG&E Topock, Needles,		
Driller I				<u> </u>			: 46.4 ft bgs	California		
	illing Asst: C. Winland/J. Candelaria					ng Method:		Project Number: RC000753.0051		
Logge			nessi/R. Moniz		-	ng Interval:	Continuous	_ · · · <b>,</b> · · · · · · · · · · ·		
Editor:		Sean I	McGrane		-	ted to Well:				
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
41	60			Topock - Fluvial Deposits	SM			0		
42 43 44 45 46 47				Topock - Alluvium Deposits	GM	(GM); angulasand, ceme	- 47.0') Topock - Alluvium Deposits; Si strong brown (7.5YR 5/6); granules to ar to subangular; some very fine to very angular to subround; little; little silt; mo ntation; iron oxide staining; Interbedded osed of sandstone/breccia	very large pebbles, v coarse grained vist; weak	(44.0 - 47.0') Drill rods chattering	
47 48 49 50 51 52	120	No Sieve Samples Collected		Topock - Alluvium Deposits	GM	(GM); pebblomediu	- 52.0') Topock - Alluvium Deposits; Sil dark yellowish brown (10YR 4/4); gran es, angular to subround; some silt; little im grained sand, angular to subround; lorown (7.5YR 5/4); little silt; trace clay; ntation; iron oxide staining; increase in es, decrease in sand	ules to very large ; little very fine to little clay; moist to wet  moist; weak	(48.0') Approximate depth to water table.	
5354555657	120		MW-M-VAS- 52-57 (28 ppb) 3/28/2019 11:10	Topock - Alluvium Deposits	GW	sand pebbling graine	- 59.0') Topock - Alluvium Deposits; W. (GW); strong brown (7.5YR 5/6); granues, angular to subround; some very fine dd sand, angular to subround; little; trac ntation; iron oxide staining	les to very large to very coarse	(52.0 - 57.0') Drill rods chattering, driller suggest water table has been encountered.	
58 59 60	114			Topock - Alluvium Deposits	SM	(SM);	moist  - 61.0') Topock - Alluvium Deposits; Sil grayish brown (10YR 5/2); very fine gra d; some silt; little granules to very large	nined to medium	Hard drilling and became harder at 61 ft.	

9/-	۱RC	ADIS	Design & Consultancy for natural and built assets		Во	rinç	g Log	Sh	eet: 4 of	11
Date S	tarted:	03/20/2	2019		Surface	Eleva	ition: <u>501.27 ft amsl</u>	Boring No.:	MW-84d	
Date C	omple	ted: <u>04/30/</u> 2	2019		Northing	JAN) g	· · · · · · · · · · · · · · · · · · ·		<u> </u>	
Drilling		<u>Cascac</u>			Easting	•	•	Client: PG&E		
Drilling					Total De	•	216 ft bgs	Project: Final GW Remedy Phase 1		
Drill Ri			<u>ongyear Trac</u>		Borehol			Location: PG&E Topock, Needles,		
Driller I		Tyler A	uymer ıland/J. Cande				Water: 46.4 ft bgs thod: 4-8 inch x 10 ft. Core Barrel	Californ		)E1
Drilling Loggei			nessi/R. Moniz		Samplin Samplin	-		Project Number.	RC000753.00	151
Editor:		·	McGrane		Convert	-		•		
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS Class			Drilling Notes	Drilling Fluid
				Topock - Alluvium Deposits	SM		subround; little clay; trace angular to subroun	d; moist		
61  62 				Topock - Alluvium Deposits	GM		(61.0 - 63.0') Topock - Alluvium Deposits; Silt (GM); light brownish gray / pale yellowish browgranules to very large pebbles, subangular to fine to medium grained sand, subangular to strace clay; dry	wn (10YR 6/2); subround; little very		
63 64 65 66	114			Topock - Alluvium Deposits	SM		(63.0 - 67.0') Topock - Alluvium Deposits; Silt (7.5YR 4/3); very fine grained to medium grain subround; little granules to very large pebbles subround; little silt; trace angular to subround weak cementation; iron oxide staining (65'); potential caliche deposits in sediments	ned, angular to , angular to		
67 68 69							(67.0 - 75.0') Topock - Alluvium Deposits; Silt (GM); brown (7.5YR 4/3); granules to very large to subround; some angular to subround; some coarse grained sand, angular to subround; litt	ge pebbles, angular e very fine to very	(67.0 - 77.0') Softer drilling	
70 71 		No Sieve Samples Collected		Topock - Alluvium Deposits	GM		(69.5') brown (10YR 5/3); some silt; little anguality; moist; weak cementation (70.5'); dry; potential caliche deposits in sedir (71'); moist			
72 73 74 	120		MW-M-VAS- 72-77 (<0.033 U ppb)				(72'); wet; lens of green staining			
75 76 77 77			3/29/2019 14:01	Topock - Alluvium Deposits	SW-SM		(75.0 - 78.0') Topock - Alluvium Deposits; We gravel (SW-SM); weak red (2.5YR 5/2); very f grained, angular to subround; little granules to angular to subround; little silt; trace angular to	ine grained to coarse overy large pebbles,	(77.0 - 87.0') Soft drilling, lost core 82 to	
78  79  80	120			Topock - Alluvium Deposits Topock - Alluvium Deposits	GM SW-SM		(78.0 - 79.0') Topock - Alluvium Deposits; Silt (GM); weak red (2.5YR 4/2); granules to very angular to subround; little angular to subround very coarse grained sand, angular to subround wet (79.0 - 80.0') Topock - Alluvium Deposits; Poc	large pebbles, d; little very fine to d; little silt; little clay;	87 ft downhole.	

9/-	\R(	ADIS	Design & Consultancy for natural and built assets		Во	ring	J Log	Sh	eet: 5 of	11
Date S	started:	03/20/2	2019		Surface	Elevat	tion: <u>501.27 ft amsl</u>	Boring No.	: MW-84d	
	•	ted: <u>04/30/2</u>			Northing	- '	•		<u> </u>	
Drilling		Cascac			Easting	•	•	_ Client: <u>PG&amp;E</u>		
Drilling					Total De	•	216 ft bgs	Project: Final GW Remedy Phase 1		
	Rig Type: Boart Longyear Track					e Dian		Location: PG&E Topock, Needles,		
	iller Name: <u>Tyler Alymer</u> illing Asst: <u>C. Winland/J. Candelaria</u>				•		Water: 46.4 ft bgs	Califor		
_			<u>ıand/J. Cande</u> essi/R. Moniz		Samplin Samplin	-		_ Project Number:	RC000753.00	51
Loggeı Editor:			essi/ix. Moniz /IcGrane	<u>-</u>	Convert	-	<u> </u>	_		
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS	Soil Description		Drilling Notes	Drilling Fluid
 81  82				Topock - Alluvium Deposits	ML		silt and gravel (SW-SM); weak red (2.5YR 5 very coarse grained, angular to subround; a large pebbles, angular to subround; little silt subangular; wet (80.0 - 82.0') Topock - Alluvium Deposits; S (ML); brown (7.5YR 4/3); low plasticity; som grained sand, angular to subround; little gra	nd granules to very ; trace angular to  andy silt with gravel e very fine to medium		
 83  84	120			Topock - Alluvium Deposits	GW-GM		pebbles, angular to subangular; little clay; n stiff  (82.0 - 84.0') Topock - Alluvium Deposits; V silt and sand (GW-GM); weak red (2.5YR 5 large pebbles, angular to subround; some n grained sand, angular to subround; little angular is silt; wet	/ell graded gravel with (2); granules to very nedium to very coarse		
85 86 87							(84.0 - 95.0') Topock - Alluvium Deposits; S (SM); brown (7.5YR 4/3); medium grained to angular to subround; some granules to very to subround; some silt; little angular to subr moist; interbedded with layers of silty gravel gravelly silt with sand	very coarse grained, large pebbles, angular bund; trace clay;	(87.0 - 97.0')	
88 89 90		No Sieve Samples Collected		Topock - Alluvium Deposits	SM				Soft drilling, recovered 82 to 87 ft core.	
91 92 93 94	120						(91.7'); dry; with lenses of potential caliche cementation	n sediments and weak		
95  96 				Topock - Alluvium Deposits	ML		(95.0 - 97.0') Topock - Alluvium Deposits; S (ML); brown (7.5YR 4/3); low plasticity; som coarse grained sand, angular to subround; large pebbles, angular to subround; little an trace clay; moist	e medium to very ittle granules to very		
98 98 99 	120			Topock - Alluvium Deposits	SM		(97.0 - 100.0') Topock - Alluvium Deposits; (SM); brown (7.5YR 4/3); medium grained to angular to subround; some granules to very to subround; some silt; trace angular to sub moist; interbedded with layers of silty gravel silt with sand	o very coarse grained, large pebbles, angular round; trace clay;	(97.0 - 127.0') Formation collapse during clean out drilling with 10 inch casing, soft drilling (97' to 107'), slightly rough drilling	

9/-	٩RC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log		She	et: 6 of	11
Date S					Surface			Borin	a No.:	MW-84d	
	•	ted: <u>04/30/</u>			Northing		•				
Drilling		<u>Casca</u>			Easting	•	•	Client:			
Drilling			Drilling		Total De	•	216 ft bgs	•	Project: Final GW Remedy Phase  Location: PG&E Topock, Needles,		
Drill Rig			Longyear Trac	<u> </u>	Borehol		eter: <u>4-12 inches</u> Vater: <u>46.4 ft bgs</u>	Location:	Californi	•	ies,
Driller I Drilling		<u>Tyler A</u>	nland/J. Cande	alaria	Samplin		•	 Core Barrel Project N			51
Logge		·	nessi/R. Moniz		Samplin	-		ole baller   Troject N	umber. <u>I</u>	<u> </u>	<u> </u>
Editor:			McGrane		Convert	•					
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS	Soil	Description		Drilling Notes	Drilling Fluid
101	120			Topock - Alluvium Deposits	ML		(100.0 - 103.5') Topock - Alluv (ML); brown (7.5YR 4/3); low p grained sand, angular to subro pebbles, angular to subround; clay; moist; weak cementation (101'); dry; with lens of potenti cementation	plasticity; some very fine to mound; little granules to very la trace angular to subround; to it iron oxide staining ial caliche in sediments and violate to the control of	nedium large race weak	(107' to 109'), soft drilling (109' to 117'), soft drilling lost 5 feet of sample downhole (117' to 127') with 6 inch casing.	
104  105				Topock - Alluvium Deposits	SM		(SM); grayish brown (2.5Y 5/2 grained to very coarse grained pebbles, angular to subround; trace clay; moist; interbedded (104'); to 104.5', wet silty gray	i; little granules to very large little silt; trace angular to sul color changes			
		No Sieve Samples Collected	MW-M-VAS- 107-112 (<0.033 U ppb) 3/30/2019 13:59	Topock - Alluvium Deposits	SM		(105.0 - 114.5') Topock - Alluv (SM); brown (7.5YR 4/3); med angular to subround; some silt; trace a moist; interbedded layers with (106'); to 107', dry with green: (107'); to 109.5'; wet	vium Deposits; Silty sand with lium grained to very coarse granules to very large pebbles, angular to subround; trace clar poor to moderate gradation	rained, angular	(107.0') During reaming with 10-inch casing flapper bit broke, getting poor recovery. Driller thinks material is getting pushed into formation or falling down 6-inch rathole.	
112113114	108					0	(114.5 - 122.0') Topock - Alluv				
115							(GM); brown (7.5YR 4/3); grar to subround; some very fine to subangular; some silt; little an green staining	medium grained sand, angu	ılar to		
117 118 119 120	120			Topock - Alluvium Deposits	GM		(118.2'); sand lens at 118.2 ft				

9/	۱RC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log		She	eet: 7 of	11	
Date S					Surface	Elevat		Bori	na No.:	MW-84d		
	•	ted: <u>04/30/2</u>			Northing		•					
Drilling		Casca			Easting	•	•	Client:				
_	rilling Method: <u>Sonic Drilling</u> rill Rig Type: <u>Boart Longyear Track</u>					epth:	216 ft bgs		Project: Final GW Remedy Phase 1			
			•		Borehol			Location	•			
Driller I Drilling		Tyler A	llymer lland/J. Cande		-		Vater: 46.4 ft bgs	Care Parrel - Draiget	<u>Californ</u>		NE 1	
Logge			iland/J. Cande iessi/R. Moniz		Samplir Samplir	-		Core Barrel Project I	Number. <u>i</u>	KC000753.00	15 1	
Editor:			//////////////////////////////////////		Convert	-						
		<u> </u>					1011.					
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	Code	USCS	Soil	Description		Drilling Notes	Drilling Fluid	
 _121_  _122_				Topock - Alluvium Deposits	GM		(120.5'); weathered metamor around cobble	2				
 _123_  _124_	120			Topock - Alluvium Deposits	SM		(122.0 - 124.0') Topock - Allu (SM); dark grayish brown / da fine grained to very coarse gr granules to very large pebbles trace clay; wet	ark yellowish brown (10YR 4, ained, angular to subangula s, angular to subangular; litt	/2); very r; little le silt;			
125 126 127				Topock - Alluvium Deposits	GW-GM		(124.0 - 128.0') Topock - Allu with silt and sand (GW-GM); to very large pebbles, angular very coarse grained sand, and wet; iron oxide staining; occasionate (126') brown (7.5YR 4/3); ora	light olive brown (2.5Ý 5/6); r to subangular; some very fi gular to subangular; little silt sional sandier and siltier len	granules ine to t; trace;			
	60	No Sieve	o Sieve				(127'); moist  (128.0 - 144.0') Topock - Allu (GM); light olive brown (2.5Y angular to subangular; little ve angular to subangular; little si	5/6); granules to very large pery fine to very coarse grains	pebbles, ed sand,	(127.0 - 132.0') Soft drilling, recovered lost 5 feet of sample from drilling run (117' to 127').		
131 131 132		Samples Collected	•				(131'); to 131.5' cobbles (132') brown (7.5YR 4/2)			(132.0 - 142.0')		
133 134 135 136	90			Topock - Alluvium Deposits	GM		(133.5'); dry; with potential ca cementation	liche in sediments and weal	k	Rough drilling		
137 138 139 140												

9/	۱RC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log	9		She	et:	8 of	11
Date S				_	Surface	Elevat	ion:	501.27 ft amsl	Boring	a No.:	M	W-84d	
		ted: <u>04/30/</u>			Northing		-	2102363.81	_				-
Drilling		<u>Casca</u>			Easting (NAD83):			7614866.21	Client: PG&E				
Drilling			Drilling		Total De	•		216 ft bgs	Project: Final GW Remedy Phase 1				
Drill Ri			Longyear Trac	<u>ck</u>	Borehol			4-12 inches	_ Location:		•	<u>ck, Need</u>	dles,
Driller I		-	Alymer					46.4 ft bgs	_	Californ			
Drilling			nland/J. Cand		Samplin	-		4-8 inch x 10 ft. Core Barrel	_ Project Ni	umber: J	RC00	)0753.0	051
Logge		·	nessi/R. Moniz	<u>z</u>	Samplin	-		Continuous	-				
Editor:	-	<u>Sean</u>	McGrane		Convert	ed to v	veii:						
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS		Soil Description			Drillir	ng Notes	Drilling Fluid
 _141													
'4 '	90					9	y						
142				Topock -	014	15-Pic							
				Alluvium Deposits	GM		Í						
_143_						10 P.10	}						
_144						600	1						
				Topock - Alluvium	ML		(144.0 (ML): b	- 144.5') Topock - Alluvium Deposits; srown (10YR 5/3); low plasticity; some	Sandy silt with	gravel			
_145				Deposits	1		grained pebbles	d sand, angular t <mark>o s</mark> ub <mark>ang</mark> ular; trace gr s, angular to <mark>su</mark> bround <mark>; w</mark> et; liquefied	ranules to very	large			
 _146							(SM); b	- 154.4') Topoc <mark>k</mark> - Allu <mark>vium D</mark> eposits; s brown (7.5YR 4/2) and brown (7.5YR 4 coarse grained, angular to subround; s	/3); very fine g	rained			
							very lar	rge pebbles, angular to subround; som angular; trace clay; moist to wet; occas	ne silt; trace an	ngular			
_147	120							nses 2in to 6in thick	olonal gravelly o	and			
							•						
148													
149			MW-M-VAS- 147-152	Topock -									
		No Sieve	(<0.17 U ppb)	Alluvium	SM								
150		Samples	3/31/2019 15:21	Deposits									
		Collected	10.21										
151													
152												152.0 -	_
150												167.0') ft drilling	
153													
 _154													
							(151.1	400 ED T	0:11				
_155							(GM); k	- 166.5') Topock - Alluvium Deposits; 5 prown (7.5YR 4/2) and brown (7.5YR 4	l/3); granules t	to very			
						19/2		ebbles, angular to subround; some ver I sand, angular to subround; some silt					
_156	180						subang	gular; moist to wet; iron oxide staining; Sin thick	occasional sa	nd lens			
	100					PJA	2111100	in thox					
_157				Topock -	_	12	(4 ==::	Locality of the Control of the Contr					
				Alluvium Deposits	GM		(157');	dry; with red and green staining					
158				'		PAP	(4.50")	maint					
<u> </u>							(158');	MOISt					
159						PAT.	)						
<u> </u>						13 Pic							
160		. 11000	II :	.c. 1.		ŢŸŢ	<u> </u>	n = holow ground ourfood, ame		L	<u> </u>	1 0)4/	

9/	\R(	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log	She	eet: 9 of	11
Date S					Surface			Boring No.:	MW-84d	
	•	ted: <u>04/30/</u>			Northing			-		
Drilling		Casca			Easting	•	•	Client: PG&E		
_	rilling Method: <u>Sonic Drilling</u> rill Rig Type: <u>Boart Longyear Track</u>					epth:	216 ft bgs	•	W Remedy Ph	
					Borehol		eter: 4-12 inches Water: 46.4 ft bgs	Location: <u>PG&amp;E</u> Californ	•	ies,
	riller Name: <u>Tyler Alymer</u> rilling Asst: <u>C. Winland/J. Candelaria</u>					g Meth	<b>G</b>			151
Logge			essi/R. Moniz		Samplin	-		_ r rojour rumbor.	110000100.00	.01
Editor:			McGrane		Convert	-		-		
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS	Soil Description		Drilling Notes	Drilling Fluid
161	180			Topock - Alluvium Deposits	GM		(164'); moist to dry  (166.5 - 170.0') Topock - Alluvium Deposits; \$	Silty sand with gravel		
167 168 169 170		No Sieve Samples		Topock - Alluvium Deposits	SM		(SM); reddish brown (5YR 4/3); very fine grained, angular to subround; some silt; little large pebbles, angular to subround; trace ang trace clay; wet	ned to medium granules to very gular to subangular;	(167.0 - 177.0') Soft drilling	
171 172 173 174 175 176	120	Collected	MW-M-VAS- 172-177 (<0.033 U ppb) 4/2/2019 14:57	Topock - Alluvium Deposits	GM		(170.0 - 176.5') Topock - Alluvium Deposits; S (GM); brown (7.5YR 4/3) with brown (7.5YR 5 large pebbles, angular to subround; some and little very fine to medium grained sand, angula silt; moist  (172'); dry; to 176.5', with red and green stain in sediments and weak cementation	5/2), granules to very gular to subangular; ar to subangular; little		
177 178 179 180	180			Topock - Alluvium Deposits	GM		(176.5 - 192.0') Topock - Alluvium Deposits; S (GM); reddish brown / moderate brown (5YR small pebbles, angular to subangular; some coarse grained sand; little medium to very lar to subangular; little; little silt; trace clay; wet to GW and GM with occasional well graded sand; 2in to 6 in thick	4/4); granules to very fine to very ge pebbles, angular o moist; interbedded id with gravel lenses	(177.0 - 192.0') Soft drilling	

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Date S		03/20/				Elevation:	501.27 ft amsl	Boring No.:	MW-84d	
		ed: <u>04/30/</u>			-	g (NAD83):	2102363.81			
Drilling		<u>Casca</u>			•	(NAD83):	7614866.21	_ Client: PG&E	W Remedy Pr	1
Drilling Drill Ri			_ongyear Trac		Total De	epւп. e Diameter:	216 ft bgs 4-12 inches	_ Project: <u>Final G</u> _ Location: <u>PG&amp;E</u>	•	
Driller I		<u>Tyler A</u>		<u> </u>		o First Water:		_ Location. <u>r G&amp;L</u> Çaliforr	-	163,
Drilling		-	ıland/J. Cande	elaria	-	g Method:	4-8 inch x 10 ft. Core Barrel			)51
Logge			essi/R. Moniz		-	ig Interval:	Continuous	_ · · · <b>· ,</b> · · · · · · · · · · · · · · · · · ·		
Editor:			<i>I</i> lcGrane		-	ed to Well:				
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
181	180	No Sieve Samples Collected	MW-M-VAS-	Topock - Alluvium Deposits	GM					
193 194 195			190-195 (<0.17 U ppb) 4/10/2019 16:35	Topock - Alluvium Deposits	GM	(192.0 (GM); brown subrou	- 195.0') Topock - Alluvium Deposits; reddish brown / moderate brown (5YR (2.5YR 4/4); granules to large pebbles and; some very fine to very coarse grain and; little silt; little clay; trace; wet; wea	4/4) trace reddish s, angular to ned sand, angular to	(192.0') Change in geologist to CB.	
13 <u></u> 196	120			Topock - Alluvium Deposits	SM	(SM); to coal large p	- 196.0') Topock - Alluvium Deposits; reddish brown / moderate brown (5YR rse grained, angular to subround; som rebbles, angular to subround; trace cla	4/4); very fine grained e silt; little granules to by; wet	(196.0 -	
197 198 199 200				Topock - Alluvium Deposits	GM	(GM); brown subrou	<ul> <li>- 205.0') Topock - Alluvium Deposits; reddish brown / moderate brown (5YR (2.5YR 4/4); granules to large pebbles ind; some very fine to very coarse grain and; little silt; little clay; trace; wet; wea</li> </ul>	4/4) trace reddish s, angular to ned sand, angular to	203.0') Rough drilling	

9/	ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log	She	et: 11 of	11
Date S					Surface			Boring No.:	MW-84d	
		ted: <u>04/30/2</u>			Northing		•			
Drilling		<u>Cascac</u>			Easting	•	•	Client: PG&E	A/ Dave adv Dh	1
Drilling			•		Total De Borehol	•	eter: 4-12 inches	Project: Final GW Remedy Phase 1  Location: PG&E Topock, Needles,		
Drill Ri Driller		Tyler A	<u>.ongyear Trad</u> lymer				Water: 46.4 ft bgs	Çaliforni	•	<del>C</del> S,
Drilling		-	land/J. Cand		Samplin		<del>-</del>			51
Logge			essi/R. Moniz		Samplin	-		r roject ramber. <u>I</u>	10000700.00	01
Editor:			1cGrane		Convert	-				
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
_202	120		no sample- - (Interval did not produce.)	Topock - Alluvium Deposits	GM					
			4/10/2019 12:28							
_205_					+		(205.0 - 208.0') Topock - Bedrock - metadiorit	e; grayish brown	(205.0 -	(205.0 -
206_							(2.5Y 5/2) with greenish gray (10Y 6/1); moist cementation; weathered metadiorite	; moderate	211.0') Very tight	211.0') 600 gallons of
				Topock - Bedrock -					drilling, locked up core barrel	water used; 600 gallons of
207_				metadiorite					at 208 ft. bgs.	water recovered; 0
-										gallons of water lost
_208_	72	No Sieve Samples			-		(208.0 - 216.0') Topock - Bedrock - metadiorit	ar arayiah brayın		
<u>-</u>		Collected					(2.5Y 5/2) with greenish gray (10Y 6/1); dry; m	noderate		
_209_							cementation; bedrock pulverized during drilling	g		
-										
_210_										
_211_							(211'); to 213 ft. moist, potential slough based	on QC geologist	(211.0 -	(211.0 -
212				Topock -			review of time between runs, notes, and photo	OS	216.0') Rough drilling,	216.0') No used
				Bedrock - metadiorite					hard, rods and head	
213_									chattering.	
_	48									
_214_							(2441), to 244 2 - 141 1 11 11 11 11 11	matadiavit-		
-							(214'); to 214.2 silt lens potentially pulverized	metadionite		
_215_										
-										
_216							End of Boring at 216.0 ft bo	js.		
017										
_217										
218_										
_219										
<u> </u>										
220	.: _ 4:	. 11000	I:E	:c: ·:	01		and the complete of the comple	lb	- 11 (0)47	
1							eet, bgs = below ground surface, ams			aggurad

proundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, NR = no recovery; Notes: depth to water measured during the first VAS interval; apparent partial recoveries can be the result of potential compaction of sediments in the core bag; wells MW-84-132, MW-84-193 installed in borehole