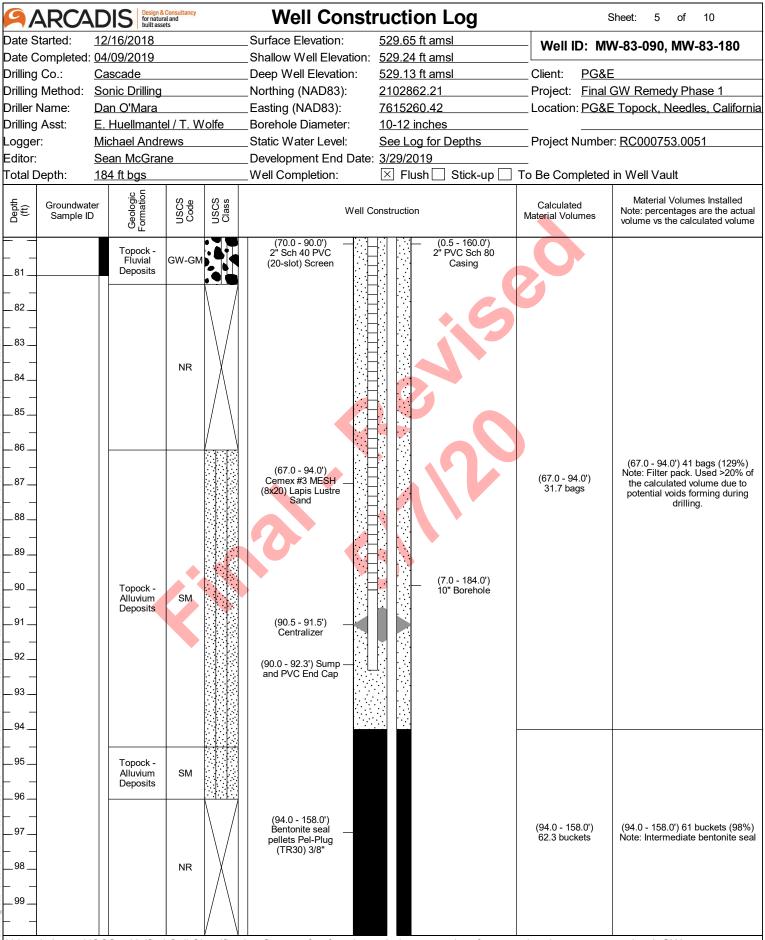
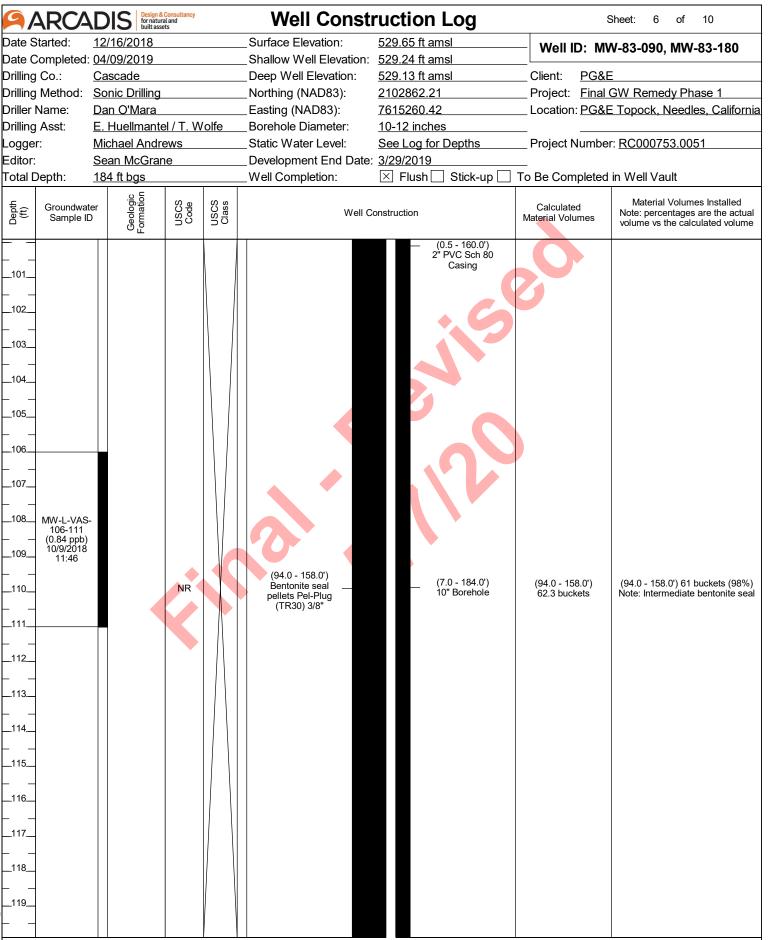
9/-	ARCA	DIS Design for nat built as	& Consultancy ural and ssets		Well Const	ruction Log		Sheet: 1 of 10		
Date S Date C		12/16/2018 04/09/2019	2000000		_Surface Elevation: _Shallow Well Elevation:	529.65 ft amsl 529.24 ft amsl	Well ID: MV	W-83-090, MW-83-180		
Drilling	Co.:	Cascade			_ Deep Well Elevation:	529.13 ft amsl	Client: PG&E	<u> </u>		
		Sonic Drilling	1		_Northing (NAD83):	2102862.21	Project: Final	GW Remedy Phase 1		
Driller N		Dan O'Mara			_Easting (NAD83):	7615260.42	Location: PG&E	Topock, Needles, California		
Drilling	Asst:	E. Huellman	tel / T. W	olfe/	_Borehole Diameter:	10-12 inches				
Logger		Michael And	rews		_Static Water Level:	See Log for Depths	Project Numbe	r: RC000753.0051		
Editor:		Sean McGra	ne		_Development End Date:	3/29/2019				
Total D	epth:	184 ft bgs			_Well Completion:		To Be Completed in Well Vault			
Depth (ft)	Groundwat Sample IE		Code	USCS Class	Well C	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume		
1 1 					(+0.1 - 2.0') Surface completion (0.4 - 70.0') 2" PVC Sch 40 Casing	(0.5 - 160.0') 2" PVC Sch 80 Casing	30	(+0.1 - 2.0') 20 bags Note: 3.5 x 3.5 ft concrete pad with 18" diameter lockable vault, King Kon-Crete 4000 PSI		
_ 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') 8 gallons (145%) Note: Grout seal topped off on 4/1/19. Used >20% of the calculated volume due potential		
4 5 6 7 8					(3.0 - 8.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(0.0 - 7.0') 12" Borehole	(3.0 - 8.0') 26.6 gallons	voids forming during drilling and grout migration into the formation. (3.0 - 8.0') 30 gallons (113%) Note: Grout seal		
9			NR		(8.0 - 18.0') Bentonite seal chips_puregold medium chips	(7.0 - 184.0') 10" Borehole	(8.0 - 18.0') 8.14 bags	(8.0 - 18.0') 25 bags (307%) Note: Chips used to fill large void. Used >20% of the calculated volume to backfill the void		
18 19 				(18.0 - 65.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel		(18.0 - 65.0') 279.6 gallons	(18.0 - 65.0') 700 gallons (250%) Note: Grout seal. Used >20% of the calculated volume due potential voids forming during drilling and grout migration			

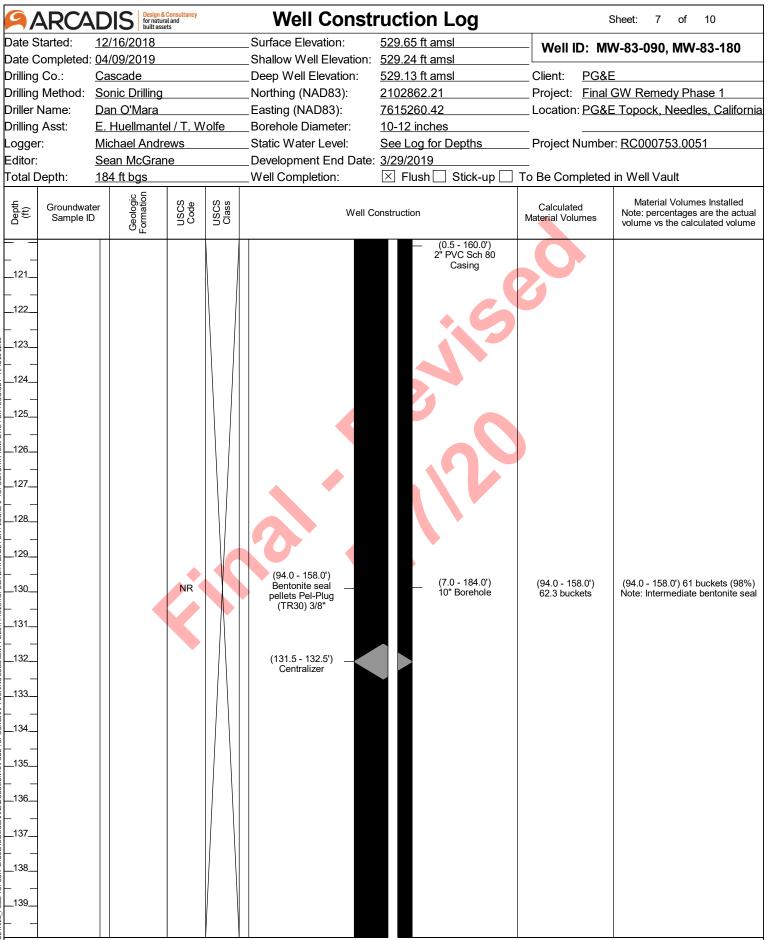
ARC/	Design & for natura built asset	Consultancy al and its		Well Consti	ruction Log	5	Sheet: 2 of 10	
Date Started: Date Completed	12/16/2018			_Surface Elevation: _Shallow Well Elevation:	529.65 ft amsl	Well ID: MV	V-83-090, MW-83-180	
Date Completed Drilling Co.:	Cascade			_ Deep Well Elevation:	529.13 ft amsl	Client: PG&E	:	
Drilling Method:				_Northing (NAD83):	2102862.21		GW Remedy Phase 1	
Driller Name:	Dan O'Mara			_Easting (NAD83):	7615260.42	•	Topock, Needles, California	
Drilling Asst:	E. Huellmante	el / T. Wo	olfe	Borehole Diameter:	10-12 inches			
Logger:	Michael Andre			Static Water Level:	See Log for Depths	Project Number: <u>RC000753.0051</u>		
Editor:	Sean McGran	ie		_Development End Date:	3/29/2019			
Total Depth:	184 ft bgs	<u> </u>		_Well Completion:		To Be Completed in Well Vault		
	Grondwater Sample ID Code Code S S S C Code S S S S S S S S S S S S S S S S S S S			Well Co	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
		NR		(18.0 - 65.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel (31.5 - 32.5') Centralizer	(7.0 - 184.0') 10" Borehole	(18.0 - 65.0') 279.6 gallons	(18.0 - 65.0') 700 gallons (250%) Note: Grout seal. Used >20% of the calculated volume due potential voids forming during drilling and grout migration	

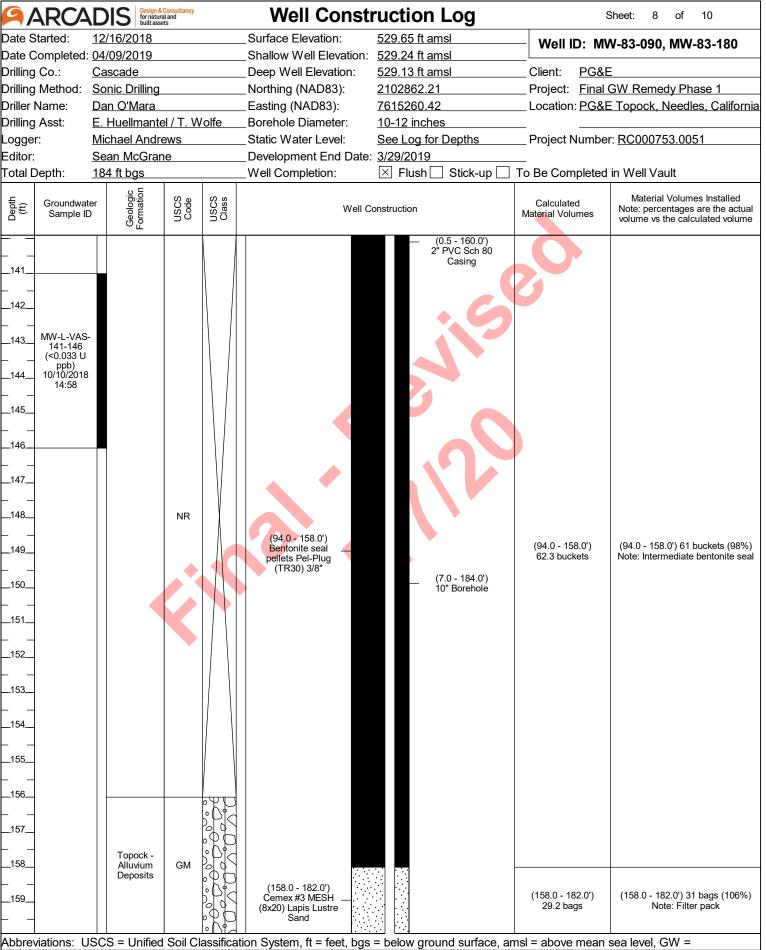
ARC/	ADIS Design & Of for natura built asset	Consultancy all and ts		Well Const	ruction Log	5	Sheet: 3 of 10	
Date Started:	12/16/2018			_Surface Elevation:	529.65 ft amsl	Well ID: MV	V-83-090, MW-83-180	
Date Completed	: <u>04/09/2019</u>			_Shallow Well Elevation:	529.24 ft amsl			
Drilling Co.:	Cascade			_Deep Well Elevation:	529.13 ft amsl	Client: PG&E	<u> </u>	
Drilling Method:	Sonic Drilling			_Northing (NAD83):	2102862.21	Project: <u>Final (</u>	GW Remedy Phase 1	
Driller Name:	Dan O'Mara			_Easting (NAD83):	7615260.42	Location: <u>PG&E</u>	<u> Topock, Needles, California</u>	
Drilling Asst:	E. Huellmante	l / T. Wo	lfe	_Borehole Diameter:	<u>10-12 inches</u>			
Logger:	Michael Andre	ews		_Static Water Level:	See Log for Depths	Project Number	r: RC000753.0051	
Editor:	Sean McGran	ie		_Development End Date:				
Total Depth:	184 ft bgs			_Well Completion:	X Flush ☐ Stick-up ☐	To Be Completed in Well Vault		
Groundwa Sample		nscs Code	USCS Class		onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume	
41		NR		(18.0 - 65.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(7.0 - 184.0') 10" Borehole	(18.0 - 65.0') 279.6 gallons	(18.0 - 65.0') 700 gallons (250%) Note: Grout seal. Used >20% of the calculated volume due potential voids forming during drilling and grout migration	

9/	ARCA	DIS Design & for natura built asset	Consultancy al and ts	Well Const	ruction Log				
Date S	ate Started: <u>12/16/2018</u>			_Surface Elevation:	529.65 ft amsl	Well ID: MV	V-83-090, MW-83-180		
l .	•	04/09/2019		_Shallow Well Elevation:	529.24 ft amsl		•		
Drilling		Cascade		_Deep Well Elevation:	529.13 ft amsl	Client: PG&E			
_		Sonic Drilling		_Northing (NAD83):	2102862.21		GW Remedy Phase 1		
Driller		Dan O'Mara		_Easting (NAD83):	7615260.42	Location: PG&E Topock, Needles, California			
Drilling		E. Huellmante		_Borehole Diameter:	<u>10-12 inches</u>				
Logge		Michael Andre		_Static Water Level:	See Log for Depths	Project Numbe	r: RC000753.0051		
Editor: Total [Sean McGran 184 ft bgs	ie	_Development End Date: _Well Completion:	: <u>3/29/2019</u>	 To Be Completed in Well Vault			
Depth (ft)	Grondwater Samble ID Geologic Code Code Code Code Code Code Code Code			·	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume		
61 62 63 64			NR	(0.4 - 70.0') 2" PVC Sch 40 Casing (18.0 - 65.0') Portland Cement 5% Bentonite Type I, II and V with Hydrogel	(0.5 - 160.0') 2" PVC Sch 80 Casing	(18.0 - 65.0') 279.6 gallons	(18.0 - 65.0') 700 gallons (250%) Note: Grout seal. Used >20% of the calculated volume due potential voids forming during drilling and grout migration		
65 66 67		Topock - Fluvial	SM	(65.0 - 67.0') Bentonite seal chips Puregold medium chips		(65.0 - 67.0') 1.63 bags	(65.0 - 67.0') 3 bags (184%) Note: Seal between filter pack and grout seal. Used >20% of the calculated volume due to potential voids forming during drilling.		
68		Topock - Fluvial Deposits	SW-SM	(70.0 - 90.0') 2" Sch 40 PVC (20-slot) Screen	(7.0 - 184.0') 10" Borehole		(67.0 - 94.0') 41 bags (129%) Note: Filter pack. Used >20% of		
74	MW-L-VAS- 76-81 (31 ppb) 10/6/2018 16:34	Topock - Fluvial Deposits Topock - Fluvial	SM	Cemex #3 MESH (8x20) Lapis Lustre Sand		(67.0 - 94.0') 31.7 bags	the calculated volume due to potential voids forming during drilling.		
		Deposits			19 [4]				

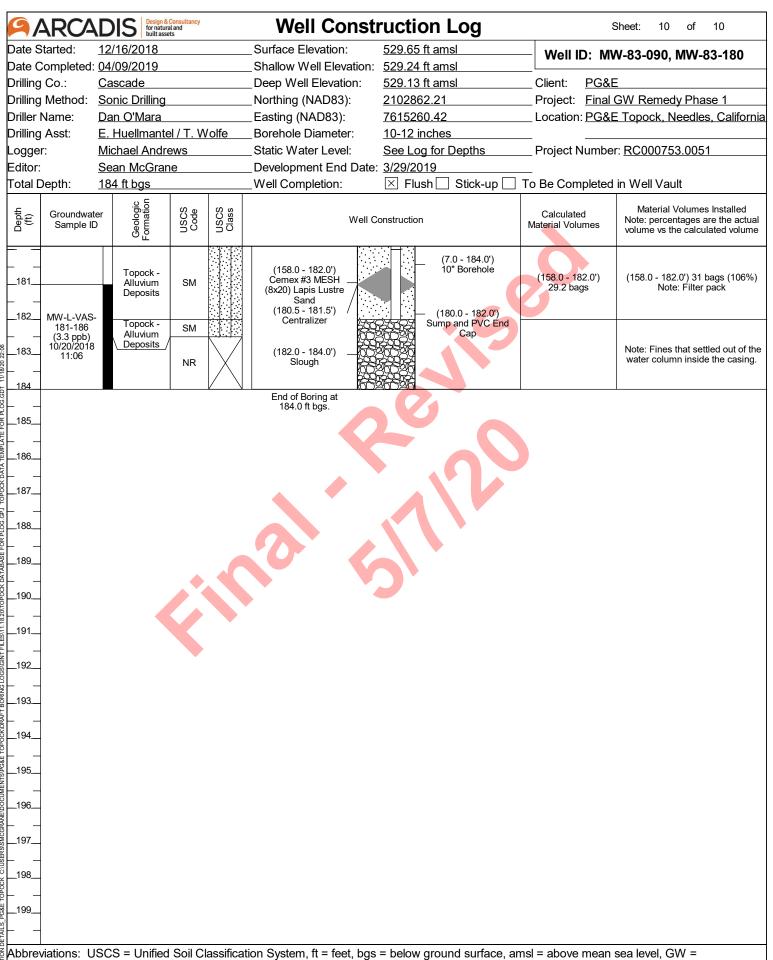








9/	ARCA	DIS Design & for natura built asset	Consultancy al and ets		Well Cons	truction Log	5	Sheet: 9 of 10			
Date S		12/16/2018			_Surface Elevation:	529.65 ft amsl	Well ID: MV	V-83-090, MW-83-180			
		04/09/2019			_Shallow Well Elevation			·			
Drilling		Cascade			_Deep Well Elevation:	529.13 ft amsl	Client: PG&E				
_		Sonic Drilling			_Northing (NAD83):	2102862.21	-	GW Remedy Phase 1			
Driller I		Dan O'Mara	-1 / T \A	/ - If -	_Easting (NAD83):	7615260.42	Location: <u>PG&E</u>	E Topock, Needles, California			
Drilling		E. Huellmante		<i>l</i> olte	_Borehole Diameter: _Static Water Level:	10-12 inches See Log for Depths	Project Number: <u>RC000753.0051</u>				
Logge Editor:		Sean McGrar			_Static vvaler Level. _Development End Dat	- -	Project Number	1. KC000733.0031			
	tal Depth: <u>184 ft bgs</u>				_Well Completion:		To Be Completed in Well Vault				
Depth (ft)	Groundwat Sample II		USCS	USCS Class	Well	l Construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume			
161 162 163 		Topock - Alluvium Deposits	SM			(160.0 - 180.0') 2" Sch 80 PVC (20-slot) Screen					
164 165 166 167		Topock - Alluvium Deposits	GM								
168 169 170		Topock - Alluvium Deposits	SM		(158.0 - 182.0') Cemex #3 MESH	(7.0 - 184.0') 10" Borehole	(158.0 - 182.0') 29.2 bags	(158.0 - 182.0') 31 bags (106%) Note: Filter pack			
171172173174175176177		Topock - Alluvium Deposits	GM		Sand						
178 179 		Topock - Alluvium Deposits	SM								



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-83d; installed in MW-83s

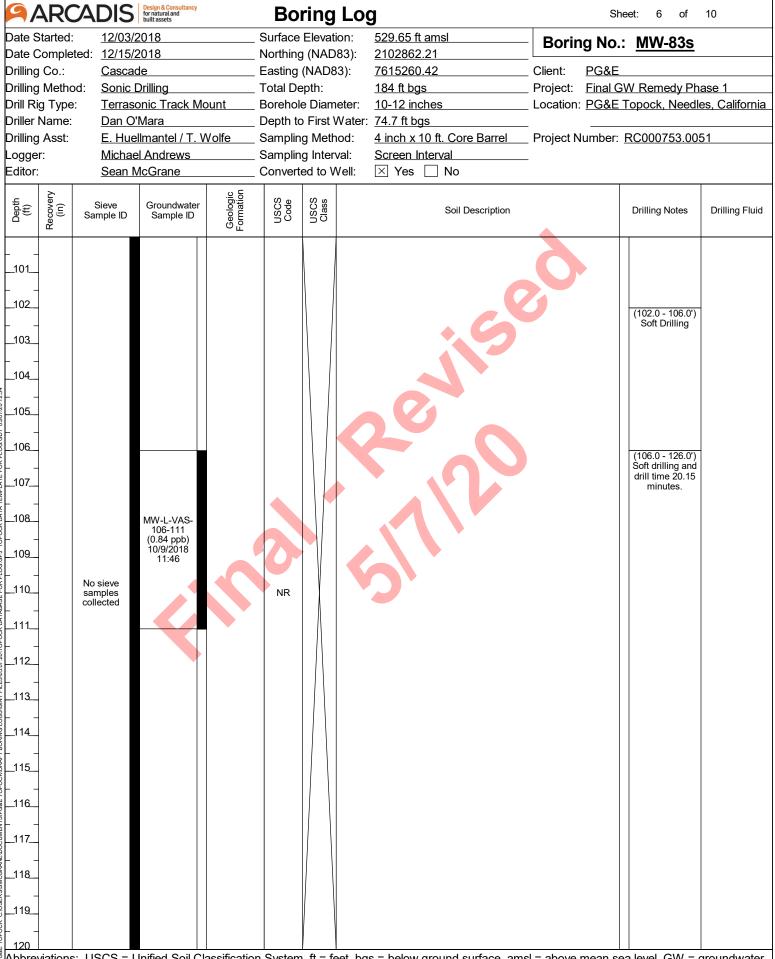
9/	ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring	J Lo	g		Sh	eet: 1 of	10
	Started:	12/03/2			Surface			529.65 ft amsl	Borir	ıg No.:	MW-83s	
	-	ted: <u>12/15/</u>			Northing			2102862.21	_	_		
Drilling	-	Casca			Easting	•	33):	7615260.42	Client:	PG&E	W. Damadı Dh	1
_	g Metho ig Type		onic Track Mo	ount	Total De Borehol	-	notor.	184 ft bgs 10-12 inches	Project:		W Remedy Ph	
	Name:	. <u>Terras</u> <u>Dan O</u>		Junt				74.7 ft bgs	Location	IGAL	G&E Topock, Needles, California	
	illing Asst: E. Huellmantel / T. Wolfe		Nolfe	_ Sampling Method:			4 inch x 10 ft. Core Barrel Project I		Number: RC000753.0051		51	
Logge			el Andrews		Samplin	-		Screen Interval				
Editor					Converted to Well:							
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS		Soil Description			Drilling Notes	Drilling Fluid
 _ 1 _ 	-							66.0') No recovery (NR); Cores not colle 3d log for lithology	ected or logg	ed, see	(0.0 - 18.0') Drilling rate 51.34 minutes (1.0 - 12.0') Drill rods chattering	(0.0 - 184.0') 600 gallons of water used; 200 gallons of water recovered; 400 gallons of water lost
_ 3 _								is				iosi
5 6 7	-							500			(6.0') Rough drilling due to 20-inch	
_											(8.0') Drilled slow due to 20-inch boulder	
10 10 11		No sieve samples collected		10	NR			3 '				
12 13											(12.0 - 18.0') Rough drilling	
14												
16	_											
17 18	-											
10 19 20											(18.0 - 26.0') Drill time 21.11 minutes, potential voids forming, rough drilling, 6-inch to 20-inch	

ARCADIS Design & Consultancy for a large state of the sta				Boring Log			Sheet: 2 of 10				
	Started:	12/03/2				Elevation:	529.65 ft amsl	Borii	na No.:	: <u>MW-83s</u>	
	-	ed: <u>12/15/</u> 2			-	g (NAD83):	2102862.21				
Drilling		<u>Casca</u>				(NAD83):	7615260.42	_ Client:	PG&E		
_	Methodig Type:		Drilling onic Track Mo		Total De	epth: le Diameter:	184 ft bgs 10-12 inches	_ Project:		W Remedy Ph Topock, Needle	
	Name:	<u>Dan O'</u>		Julit		ie Diameter. ว First Water:		_ Location	. FGaL	TOPOCK, Needle	es, Calliottia
Drilling			ellmantel / T. V	Volfe	-	ng Method:	4 inch x 10 ft. Core Barrel	Project N	Number:	RC000753.00	 51
Logge			el Andrews			ng Interval:	Screen Interval	_ ,			
Editor	ditor: <u>Sean McGrane</u>				Convert	ted to Well:					
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS	Soil Description			Drilling Notes	Drilling Fluid
21		No sieve samples collected			NR					(24.0') Heavy rig chatter (28.0') Voids forming (36.0 - 56.0') Drill time 10.35 minutes (28.0') Voids forming (31.0 - 36.0') Rough drilling Rough drilling (38.0 - 40.0') Rough drilling (38.0 - 40.0') Rough drilling	
40	<u> </u>						us - bolow ground gurfage, am				<u> </u>

9/	AKC	ADIS	for natural and built assets		Во	ring Lo	g		She	et: 3 of	10
Date S	Started:	12/03/2	2018		Surface	Elevation:	529.65 ft amsl	Borin	u No .	MW-83s	
Date 0	Comple	ted: <u>12/15/2</u>	2018		Northing	j (NAD83):	2102862.21		_	1111-003	
Drilling		<u>Cascac</u>			Easting	(NAD83):	7615260.42	_ Client:	PG&E		
Drilling			•		Total De		184 ft bgs	_ Project:		V Remedy Ph	
Drill Ri			onic Track Mo	ount		e Diameter:	<u>10-12 inches</u>	_ Location:	PG&E T	opock, Needle	es, California
Driller						First Water:		-	. —	2000750 000	- 4
Drilling			<u>llmantel / T. V</u>	<u>Volte</u>		g Method:	4 inch x 10 ft. Core Barrel	_ Project N	lumber: <u>F</u>	RC000753.00	01
Logge Editor:			l Andrews IcGrane			g Interval: ed to Well:	Screen Interval	_			
Luitor.		<u>Scarriv</u>	logiane		Conven	ed to vveii.					
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS Class	Soil Description			Drilling Notes	Drilling Fluid
41 — 42 — 43 — 44 — 45 — 46 — 47 — 48 — 47 — 48 — 49 — 55 — 56 — 57 — 55 — 56 — 57 — 57 — 57	Reco (ii	No sieve samples collected	Sample ID	Geol	Sh NR	SIN	Soil Description			(43.0') Rough drilling (56.0 - 66.0') Drill time 17.05 minutes	Drilling Fluid
60		11000		<u></u>							

9/	ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log	S	Sheet: 4 of	10
Date S	Started:	12/03	/2018		Surface	Elevat	ion: <u>529.65 ft amsl</u>	Boring No	.: <u>MW-83s</u>	
Date 0	Comple	ted: <u>12/15</u>	<u>/2018</u>		Northing	g (NAD	83): <u>2102862.21</u>		<u></u>	
Drilling	g Co.:	Casca	<u>ade</u>		Easting	(NAD8	(3): <u>7615260.42</u>	Client: PG&E	<u> </u>	
Drilling	Metho	od: <u>Sonic</u>	Drilling		Total De	•	184 ft bgs	•	GW Remedy Pha	
	ig Type		sonic Track Me	<u>ount</u>	Borehol			Location: PG&E	<u>E Topock, Needle</u>	es, California
Driller	Name:		D'Mara		•		Water: 74.7 ft bgs			
Drilling	Asst:		ellmantel / T. V	<u>Volfe</u>	Samplin	-		Project Number	: RC000753.005	51
Logge			el Andrews		Samplin	•		-		
Editor:	:	<u>Sean</u>	McGrane		Convert	ed to V	Vell: ⊠ Yes □ No		T	
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
 61						\setminus		8	(60.0') Heavy rig chatter	
 62									(61.0 - 65.0') Rough drilling, potential voids forming	
63					NR					
64										
65						//	000			
66						 	(66.0 - 68.0') Topock - Fluvial Deposits; Silty	and with grovel	(66.0 - 70.0')	
 67				Topock - Fluvial	SM		(SM); brown (10YR 4/3); very fine grained to c subangular to subround; some granule to larg to subangular; little silt; little clay; trace angul	coarse grained, ge pebbles, angular	Voids forming	
 68				Deposits		0 0 0 0	moist; no odor (67') yellowish brown / moderate yellowish br granules to very large pebbles, angular to rou h round; trace clay; little mica; dry to moist; no o	nd; little angular to		
 69	72						(68.0 - 72.0") Topock - Fluvial Deposits; Not and gravel (SW-SM); dark yellowish brown (1 grained to very coarse grained, angular to sub	graded sand with silt 0YR 4/4); fine		
 70		No sieve samples		Topock - Fluvial	SW-SM		granule to large pebble, angular to subangular to und, little silt; trace boulders, subangular to mica; dry to moist	r; some angular to		
 71		collected		Deposits			(70.5') brown (10YR 4/3); little granule to larg round; trace angular to round	e pebble, angular to		
 72	-						(71'); wet			
 73							(72.0 - 78.5') Topock - Fluvial Deposits; Silty (SM); brown (10YR 4/3); very fine grained to v subangular to round; some granule to very lar	very coarse grained, ge pebble, angular	(72.0 - 76.0') Rough drilling, drill rods	
 74	40						to round; some silt; little angular to subangula mica; dry to wet; dry to moist to wet with dept		chattering, drill time 24.30 minutes	
	48						(74') angular to round; trace clay		<u>*</u>	
75				Topock - Fluvial	SM					
	-			Deposits						
76 77							(76') dark grayish brown / dark yellowish brow granule to very large pebble, angular to round subangular to subround; trace clay; trace mic	l; some silt; trace	(76.0') Approximate depth to water	
F -			MW-L-VAS-				increase in granules and very large pebbles (77'); 6" lens with increase in fines		table (76.1 - 86.0') Drill time 24.45	
78	63		76-81 (31 ppb) 10/6/2018				(78'); 6" lens with increase in fines		(76.5 - 81.0') Drill rods	
			10/6/2018				(78.5 - 81.3') Topock - Fluvial Deposits; Well	graded gravel with	chattering	
79	-			Topock - Fluvial	GW-GM		silt and sand (GW-GM); dark grayish brown / (10YR 4/2); granules to very large pebbles, ar	ngular to round; little	Hard/rough	
				Deposits			angular to round; little very fine to medium gra subangular to round; trace boulders, boulder;	ained sand,	drilling	
80 Abbro	, detiens	v. 11606 -	Unified Sail C	ossification	n Cuatan	. # - f	est has - below ground surface amo			

9/	4RC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log		She	et: 5 of	10
Date S	Started	12/03	/2018		Surface	Elevati	on: <u>529.65 ft amsl</u>	Borine	a No:	MW-83s	
Date 0	Comple	ted: <u>12/15</u>	/2018		Northing	g (NAD	83): <u>2102862.21</u>	_	_		
Drilling	g Co.:	Casca			Easting	(NAD8	•	_ Client:	PG&E		
Drilling	Metho		Drilling		Total De	-	184 ft bgs	-		V Remedy Ph	
Drill Ri			sonic Track Mo	ount	Borehol			_ Location:	PG&E T	opock, Needle	es, California
	Name:		D'Mara				Vater: <u>74.7 ft bgs</u>	_			
Drilling			ellmantel / T. V	Volfe	Samplin	•		Project Nu	umber: <u>F</u>	RC000753.005	51
Logge			el Andrews		Samplin	-		_			
Editor	:	Sean	McGrane		Convert	ed to V	d to Well: X Yes No				
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS Class	Soil Description			Drilling Notes	Drilling Fluid
81 82 83	63			Topock - Fluvial Deposits	GW-GM		wet; no odor (81.3 - 86.0') No recovery (NR); See drilling n	ootes		(81.3') Boulder at jammed up core barrel resulting in no recovery.	
84 85 86					NR		(86.0 - 94.5') Topock - Alluvium Deposits; Sa	ndy silt with gr	avel	(86.0 - 96.0')	
87 88 90 91 92 93 94	108	No sieve samples collected		Topock - Alluvium Deposits	SM		(94.5 - 96.0') Topock - Alluvium Deposits; Sili	arse grained, to very large pa	ebble,	Soft drilling, drill time 21.30 minutes, and core very wet.	
95 96				Topock - Alluvium Deposits	SM		(7.5YR 4/3); very fine grained to coarse grain subround; and silt; little clay; trace granules to subangular to round; trace angular to subang no odor	o large pebble ular; little mica	a; wet;		
 97 _98_ _99_					NR		(96.0 - 156.0') (NR); Cores not collected or lo log for lithology	gged, see MW	/-83d	(96.0 - 106.0') Drill time 15.01 minutes and drill rods chattering 96 to 101 ft. bgs.	
		. 11000		:£:t:	- Ct	<u> </u>	et has - holow ground surface ame	-11			



9/	ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log		Sheet: 7 of	10
Date C Drilling	Co.:	ted: <u>12/15/2</u> <u>Cascac</u>	2018 de		Surface Northing Easting	g (NAD) (NAD8	83): <u>2102862.21</u> 3): <u>7615260.42</u>	Client: <u>PG</u>		
_	Metho		-		Total De	-	184 ft bgs		al GW Remedy Pha	
	ig Type Name:	: <u>I erraso</u> <u>Dan O'</u>	onic Track Mo Mara	ount	Borehol		eter: <u>10-12 inches</u> Vater: <u>74.7 ft bgs</u>	Location: PG	&E Topock, Needle	s, California
Drilling			llmantel / T. V	Volfe	Samplin		-	Proiect Numb	per: <u>RC000753.005</u>	1
Logge			l Andrews		Samplin	-		- , -		
Editor:		Sean N	<u>IcGrane</u>		Convert	ed to W	Vell: ⊠ Yes □ No			
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
121										
122							4.6			
124										
							0			
<u> </u>	-									
126									(126.0 - 146.0')	
									Soft drilling and drill time 26.30	
-121									minutes.	
5 128	-									
= -										
129_	-					1				
130		No sieve samples			NR					
		collected			INIX					
131	-									
	-									
132	-									
133										
	-									
134										
= =_136										
137										
130										
139										
140	<u> </u>			L		ليا				_

Date State 12,032/2018	9/	ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring l	_og		She	eet: 8 of	10
Nothing (No. 12.152/018 No. 12.152	l l								Borir	ng No.:	MW-83s	
Delling Mattheol: Delling Assit: De	l l	-						•	_			
Dell'E Name Dell' Type: Dorlier Name Dell' Passet Dell'	1					_	• ,		_			
Deller Name: Dan O'Maria Deproting Assist: Logger: Editor: Sean McGrane Converted to Welt: Light Sean McGra	1			•			-	-	-		-	
Delling Assit: E. Huellmandel/ T. Worlde Sampling Method: Sampling Interval: Scene Information Project Number: RC000753.0051									Location	PG&E	гороск, мееак	es, Calliornia
Logger Michael Andrews Sampling Interval						-		_	- Proiect N	Jumber	RC000753 005	51
Editor: Sean McGrane Converted to Well: Yes No Sean McGrane S		•				-	_					
141						-	-		_			
141		2			.2 5	1						
141	Depth (ft)	Recove (in)			Geolog Formati	USCS	USCS	Soil Description			Drilling Notes	Drilling Fluid
144. 143. 144. 146. (40.03. 150. 150. 150. 150. 150. 150. 150. 150									A			
144	141											
144. 14.58	_142_											
144. 10102018 145. 146. 147. 148. 147. 148. 147. 148. 149. 150. 160. 160. 160. 160. 160. 160. 160. 16	143			141-146								
148. 149. 149. 150. No sieve samples collected 151. 152. 153. 154. 155. 156. 157. 158. 117. 159. 160. 160. 17	144			ppb) 10/10/2018								
147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 117. 169. 160. 170.	145	-										
148. 149. 150. No sieve samples collected No sieve samples collected 151. 152. 153. 154. 155. 156. 157. 158. 117. 159. 159. 159. 160. 160. 170. 180.	146							~ O			(146.0 - 156.0')	
No sieve samples collected No sieve samples collected 151 152 154 155 157 158 117 159 160 No sieve samples collected No sieve samples collected 160 160 No sieve samples collected 160 160 No sieve samples collected 160 160 160 No sieve samples collected 160 160 160 160 160 160 160 16		_						, 10%			Drill rods chattering and drill time 15.05	
150 No sieve samples collected 151	148					NR					core barrel. Drill time with	
samples collected 152 153 154 155 156 157 158 117 159 159 160 160 170 170 180 180 180 180 180 18						7		/				
				•				()				
		-	collected									
154 155 156 157 158 117 159 160 160 170 160 170 170 170 170 170 170 170 170 170 17					Ť							
				Ĭ								
155 156 157 158 117 159 160 160 170 170 170 170 170 170	153_	-										
156 157 158 117 159 160 160 170 160 170 170 170 170	154											
156 157 158 117 159 160 160 170 160 170 170 170 170												
157	5											
to subangular; some very fine to very coarse grained sand, and drill time 25.31 minutes. Core barrel down hole lost downhole. Topock - Alluvium Deposits GM Topock - Alluvium Deposits (159'); little very fine to very coarse grained sand, subangular; trace down hole lost downhole. (159'); little very fine to very coarse grained sand, subangular to subround; wet; weak cementation; increase granules to very large pebbles	_156_							156.0 - 160.0') Topock - Alluvium Deposits: S	 Silty gravel w	ith sand	(156.0 - 166.0')	
Topock - Alluvium Deposits GM (159'); little very fine to very coarse grained sand, subangular to subround; wet; weak cementation; increase granules to very large pebbles	157						to a	o subangular; some very fine to very coarse ç ngular to subround; some silt; trace angular	grained sand	,	Soft drilling and drill time 25.31 minutes. Core barrel	
159 (159'); little very fine to very coarse grained sand, subangular to subround; wet; weak cementation; increase granules to very large pebbles	158	117			Alluvium	GM		•			down hole lost	
(159'); little very fine to very coarse grained sand, subangular to subround; wet; weak cementation; increase granules to very large pebbles	450				Dehosits							
160 pebbles	159 <u> </u>							ubround; wet; weak cementation; increase g	and, subangu granules to ve	ular to ery large		
INDEPOLICATION OF LIKE & - LINITION COLL MODIFICATION CLOTCH TI - 1001 MAG - Malour dround outline a contract to the contract of the contract		.: -4.	. 11000	I:E	:e: ··	. 01	19 P. [d P	ebbles			- 11 0144	

ARCADIS Design & Concultancy Personal Properties Personal Pr					Во	ring	Log	Sheet: 9 of 10			
Date S	started:	12/0	12/03/2018			Elevat	ion: <u>529.65 ft amsl</u>	Borin	a No .	MW-83s	
Date C	Comple	ted: <u>12/1</u>	12/15/2018			g (NAD	83): <u>2102862.21</u>	_		<u> </u>	
Drilling	Co.:	Caso	Cascade			(NAD8	3): <u>7615260.42</u>	Client:	PG&E		
Drilling Method: So			Sonic Drilling			epth:	184 ft bgs	•		GW Remedy Phase 1	
Drill Rig Type: <u>Terrasonic Tracl</u>			asonic Track M	ount	Borehol	e Diam	eter: 10-12 inches	Location: PG&E		Topock, Needles, California	
Driller Name: <u>Dan O'Mara</u>					Depth to	First \	Water: 74.7 ft bgs				
Drilling Asst: <u>E. Huellmantel / T. Wolfe</u>			Nolfe	Samplin	ig Meth	od: 4 inch x 10 ft. Core Barrel	Project N	umber: <u>I</u>	RC000753.00	51	
Logge	r:	<u>Mich</u>	Michael Andrews			g Inter		-			
					Convert	ed to V	Vell: ⊠ Yes ☐ No				
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	Code	USCS Class	Soil Description			Drilling Notes	Drilling Fluid
 161 162 163	117			Topock - Alluvium Deposits	SM		(160.0 - 163.5') Topock - Alluvium Deposits; S (SM); reddish brown (5YR 4/3); very fine grain grained, angular to round; little granule to larg subround; little silt; little clay; little mica; wet; cementation	ned to very coa ge pebble, and no odor; weak	arse ular to		
164 165 166 167	- - - - - - - No			Topock - Alluvium Deposits	GM		(163.5 - 167.5') Topock - Alluvium Deposits; S (GM); dark grayish brown / dark yellowish bro granules to large pebbles, angular to subang to very coarse grained sand, angular to subar clay; wet	wn (10YR 4/2 ular; some ver); y fine	(166.0 - 182.5') Drill time 45.40 minutes	
168 169 170		No sieve samples collected		Topock - Alluvium Deposits	SM		(167.5 - 170.0') Topock - Alluvium Deposits; S (SM); brown (10YR 4/3); very fine grained to vangular to subrounded; some granules to very angular to subangular; some silt; little clay; transcript	verý coarse gra y large pebble ace mica; wet	ained, s, ; no		
 171 172 173	198			Topock - Alluvium Deposits	GM		(170.0 -177.5') Topock - Alluvium Deposits; S (GM); brown (10YR 5/3); granules to very larg to subangular; some very fine to very coarse g angular to subangular; little silt; trace; trace b some mica; wet; strong cementation	je pebbles, an grained sand,	gular		
174 175 176							(174') dark grayish brown / dark yellowish bro silt; little clay; wet; strong cementation; decre very large pebbles and sand (176') brown (7.5YR 5/3); trace clay; little mic silt	ase in granule	s to	(175.0 - 179.0') Rough drilling	
177 178 179 180				Topock - Alluvium Deposits	SM		(177.5 - 182.0') Topock - Alluvium Deposits; S (SM); brown (7.5YR 5/3); very fine grained to angular; some small to very large pebbles, ar some silt; little clay; little mica; wet; moderate	very coarse gi igular to subai	ained,		

