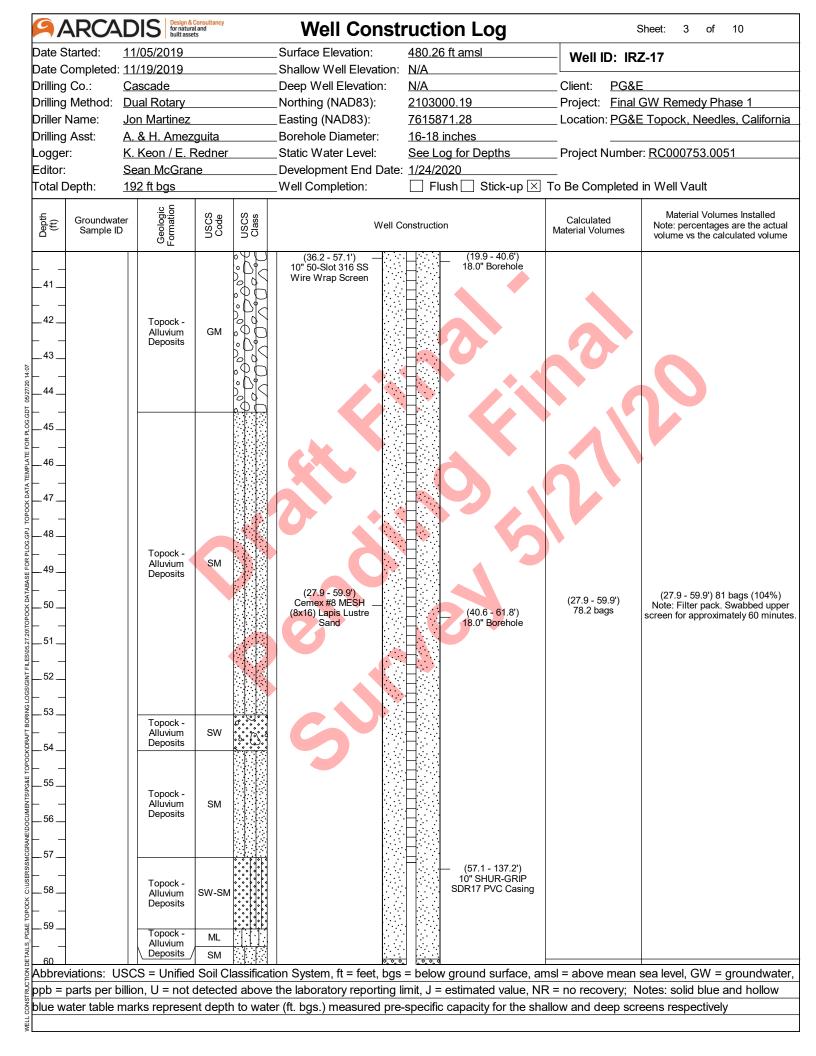
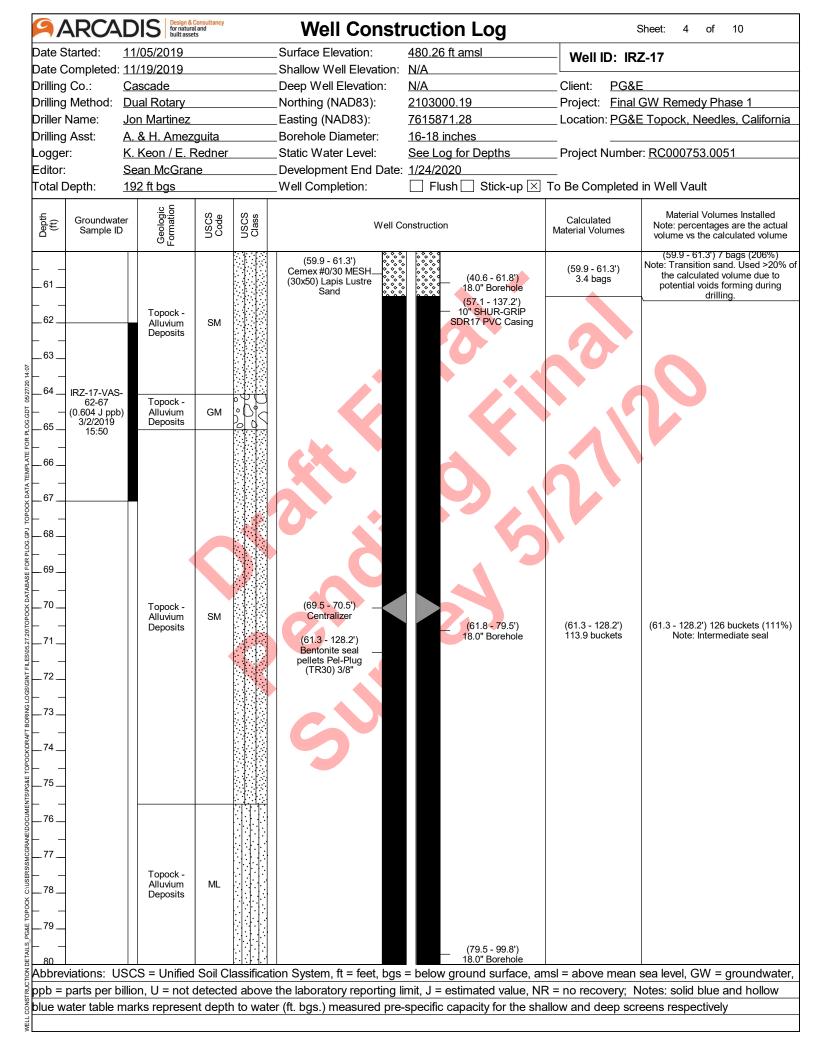
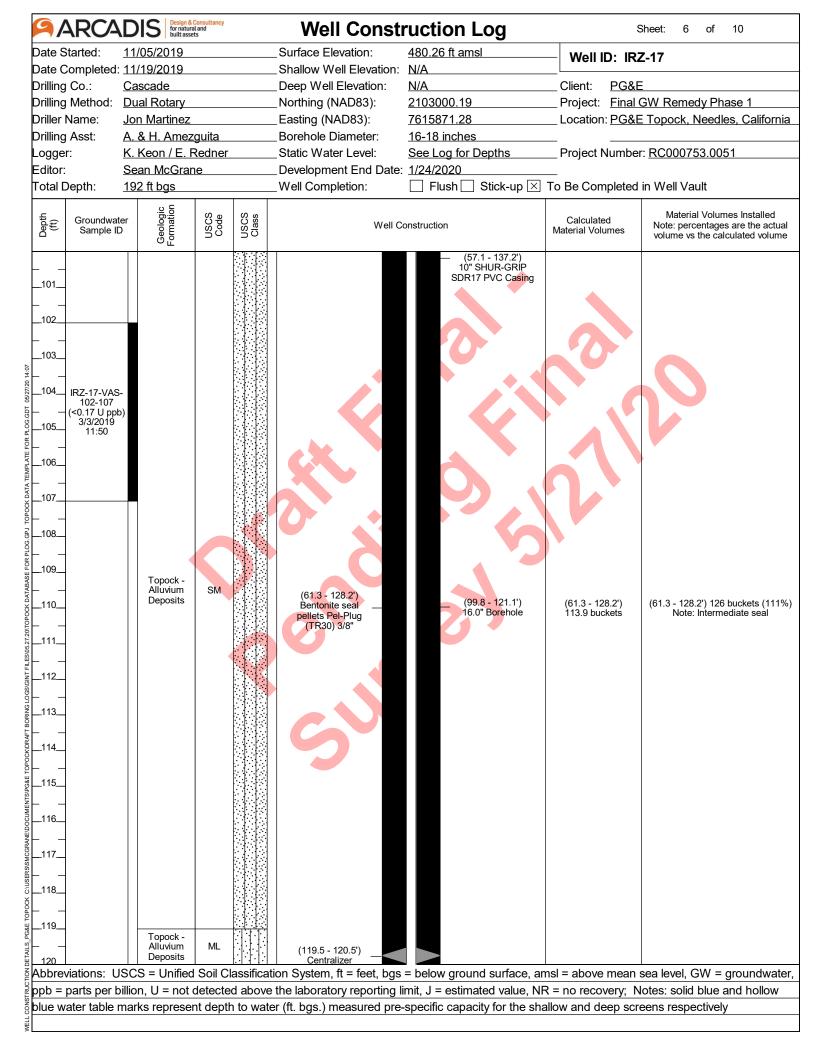


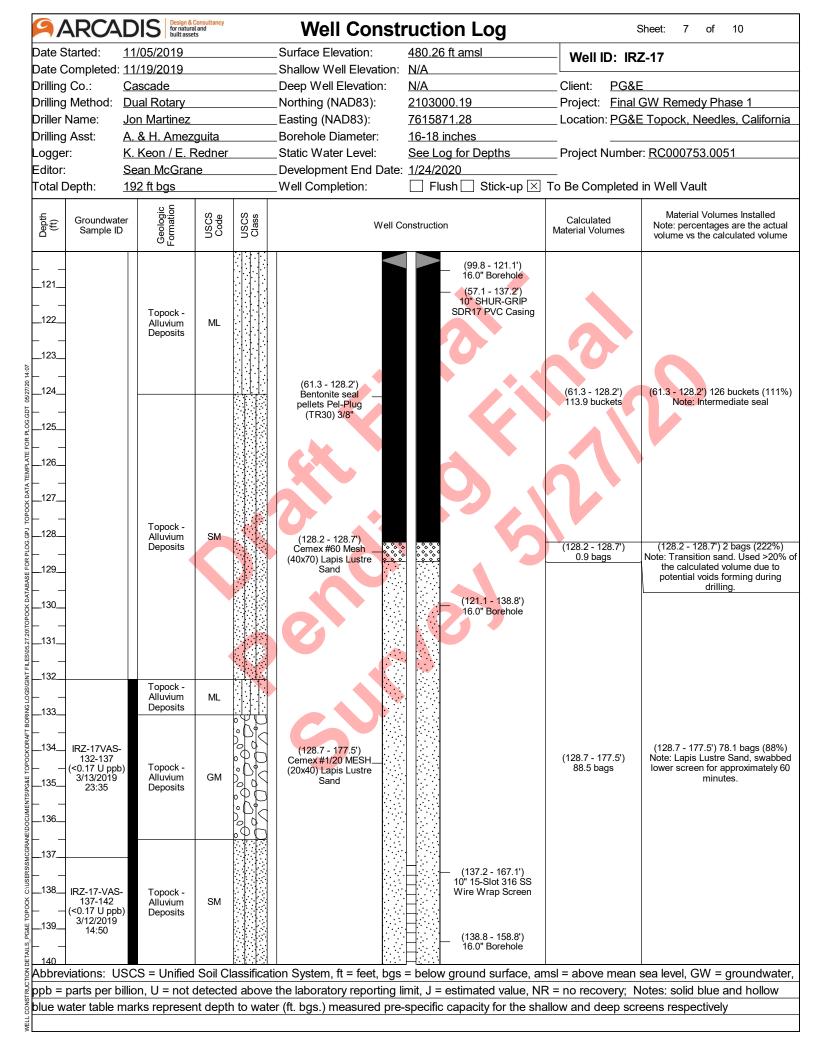
ARC	ADIS Design & for nature built asso	Consultancy al and ets	Well Const	ruction Log	S	Sheet: 2 of 10
Date Started:	11/05/2019		Surface Elevation:	480.26 ft amsl	- Well ID: IRZ	7-17
Date Complete	d: <u>11/19/2019</u>		Shallow Well Elevation:	N/A		
Drilling Co.:	Cascade		Deep Well Elevation:	<u>N/A</u>	Client: <u>PG&E</u>	
Drilling Method	Dual Rotary		Northing (NAD83):	2103000.19	Project: Final (GW Remedy Phase 1
Driller Name:	<u>Jon Martinez</u>		Easting (NAD83):	7615871.28	Location: <u>PG&E</u>	Topock, Needles, California
Drilling Asst:	<u>A. & H. Amez</u>	guita	Borehole Diameter:	16-18 inches		
Logger:	<u>K. Keon / E. I</u>	Redner	Static Water Level:	See Log for Depths	Project Number	r: <u>RC000753.0051</u>
Editor:	<u>Sean McGra</u>	ne	Development End Date			
Total Depth:	<u>192 ft bgs</u>		Well Completion:	\Box Flush \Box Stick-up $ imes$	To Be Completed	in Well Vault
Groundw G Sample		U SCS U Code	Well C	construction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
 21	Topock - Fill	SP	(0.0 - 36.2') 10" SHUR-GRIP SDR17 PVC Casing			
22 23 23 23	Topock - Fluvial Deposits	SM	(18.3 - 25.5') Portland Cement 3% Bentonite Type I, II and V with Hydrogel		(18.3 - 25.5') 65.8 gallons	(18.3 - 25.5') 230 gallons (350%) Note: Grout seal. Used >20% of the calculated volume due to voids that formed during drilling. Stopped installation and let cure before adding second lift.
AT A TEMPLATE FOR PLACE FLOOD BILL	Topock - Fluvial Deposits	ML	(24.5 - 25.5') Centralizer (25.5 - 26.9') Bentonite seal chips Puregold medium chips		(25.5 - 26.9') 2.38 bags	(25.5 - 26.9') 2 bags (84%) Note: Seal between sand and grout
a 27 b a 28			(26.9 - 27.9') Cemex #0/30 MESH (30x50) Lapis Lustre Sand		(26.9 - 27.9') 2.3 bags	(26.9 - 27.9') 2 bags (87%) Note: Transition sand
0600K DNTABASE FOR FLOO 29	Topock - Fluvial Deposits Topock - Fluvial Deposits	SM		(19.9 - 40.6') 18.0" Borehole		
OBTING TOGSIGNI FILESIOS 31 31 32 32 33 33	Topock - Fluvial Deposits	мн				
"	Topock -	SM	(27.9 - 59.9) Cemex #8 MESH (8x16) Lapis Lustre Sand		(27.9 - 59.9') 78.2 bags	(27.9 - 59.9') 81 bags (104%) Note: Filter pack. Swabbed upper screen for approximately 60 minutes.
МПО 36 36 37 37 37 37	Topock - Alluvium Deposits	SM	(36.2 - 57.1') — 10" 50-Slot 316 SS Wire Wrap Screen			
0 30 39 39 39 40	Topock - Alluvium Deposits	GM O				
Abbreviations:	USCS = Unified	Soil Classi	ification System, ft = feet, bgs	= below ground surface, a	msl = above mean s	sea level, GW = groundwater,
5			bove the laboratory reporting l	-		
<u></u>			water (ft. bgs.) measured pre			
WELL	•			· •	•	-
-						

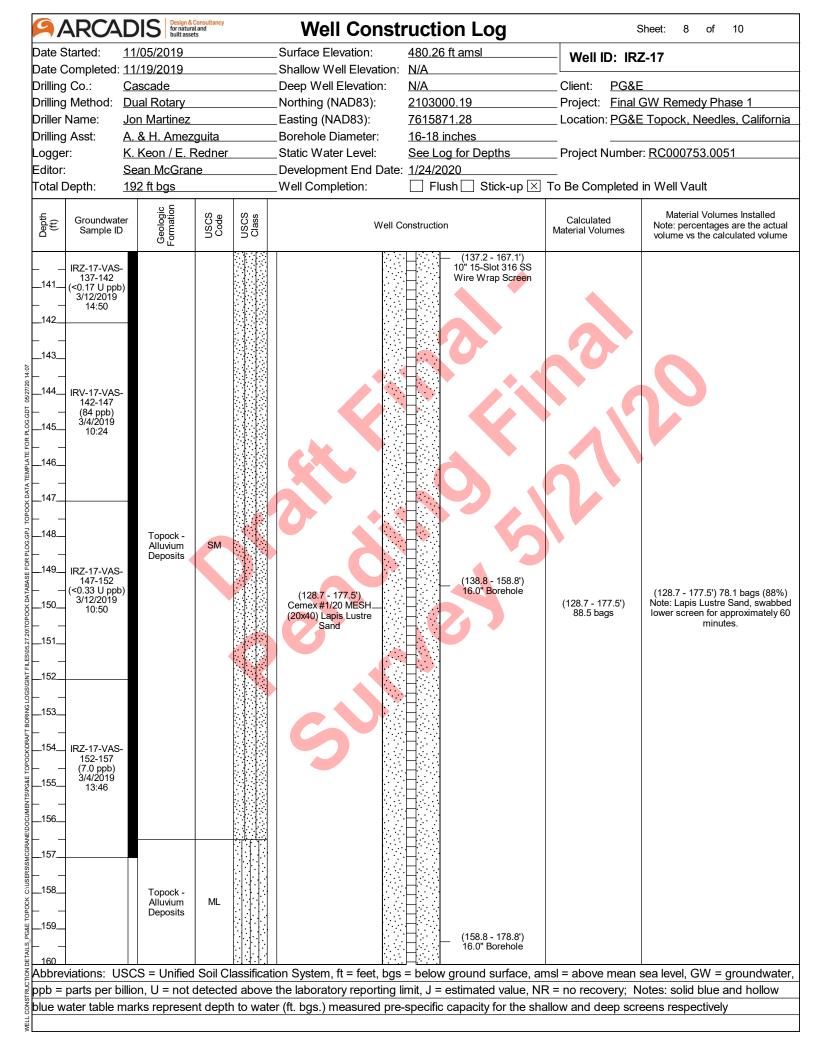


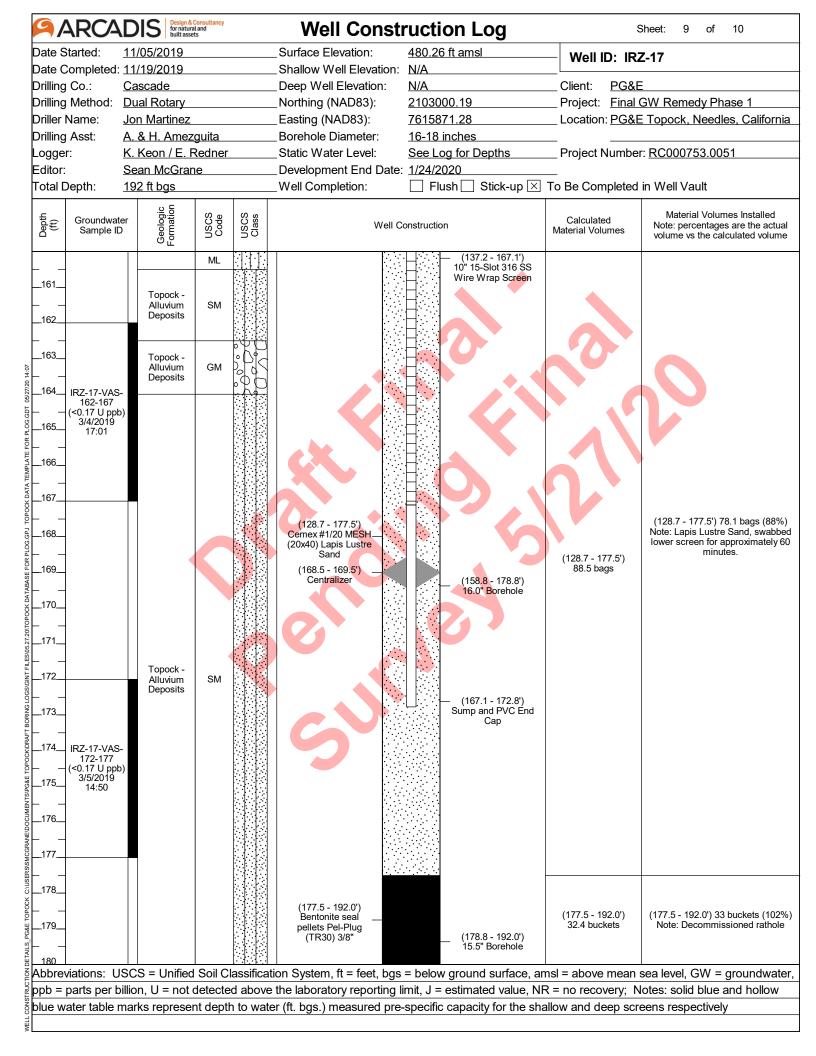


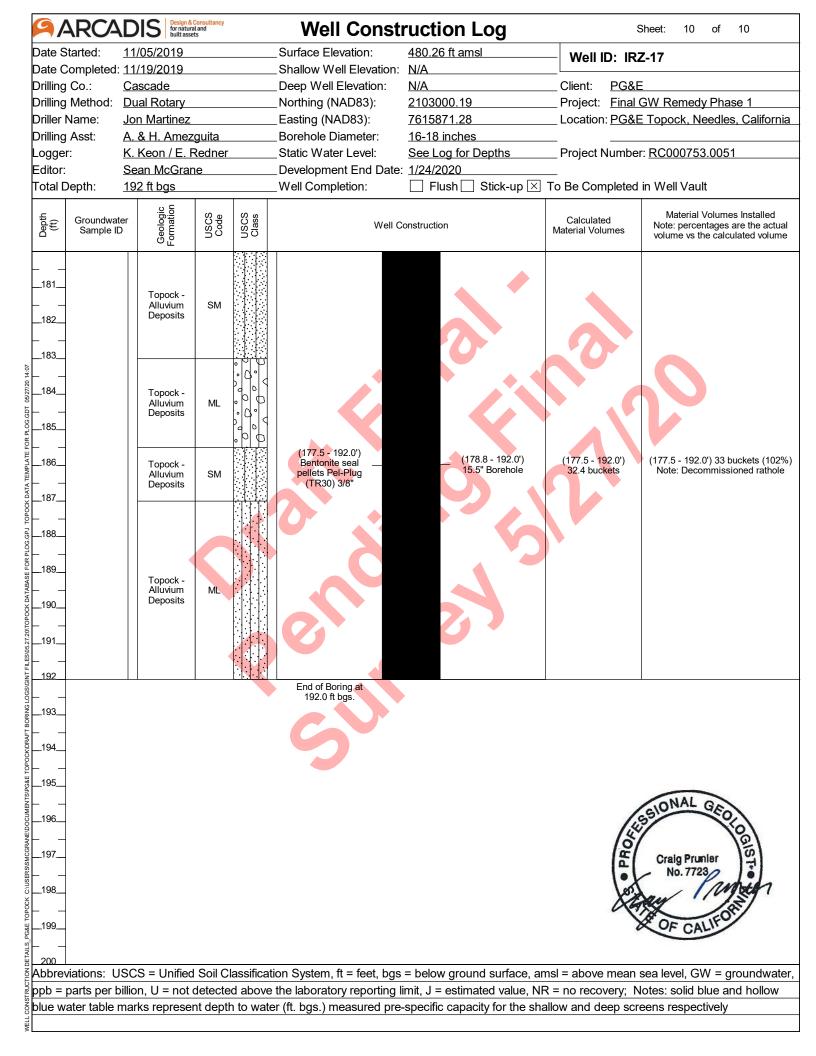
ARCA	DIS Design & for natura built asset	Consultancy al and ts		Well Const	ruction Log	5	Sheet: 5 of 10
Date Started:	11/05/2019 11/19/2019			_Surface Elevation:	480.26 ft amsl	Well ID: IR	Z-17
-	Cascade			_Deep Well Elevation:	N/A	Client: <u>PG&E</u>	-
-	Dual Rotary			_Northing (NAD83):	2103000.19		- GW Remedy Phase 1
•	Jon Martinez			_Easting (NAD83):	7615871.28	-	Topock, Needles, California
	A. & H. Amez	auita		_Borehole Diameter:	16-18 inches		
-	<u>K. Keon / E. F</u>	-		_Static Water Level:	See Log for Depths	Broject Numbe	r: <u>RC000753.0051</u>
	Sean McGrar						
	<u>3ean McGrar</u> 192 ft bgs	le		_Development End Date: _Well Completion:		 ⊠ To Be Completed	in Mall Moult
Total Depth:		1 1					
Groundwate		USCS Code	USCS Class	Well C	onstruction	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
		ML			— (57.1 - 137.2') 10" SHUR-GRIP		
81	Topock -				SDR17 PVC Casing	9	
	Alluvium	SM :					
82	Deposits						
_ 02 _							
		[
⁸³							
	Topock - Alluvium	ML					
	Deposits						
<u> </u>							
85							
	Topock -						
87	Alluvium	SM					
	Deposits						
88							
89_							
				(61.3 - 128.2')			
<u>90</u>				Bentonite seal	(79.5 - 99.8') 18.0" Borehole	(61.3 - 128.2') 113.9 buckets	(61.3 - 128.2') 126 buckets (111%) Note: Intermediate seal
				pellets Pel-Plug (TR30) 3/8"		115.9 Duckets	Note. Intermediate sear
91							
92	Tanaak						
	Topock - Alluvium	ML					
	Deposits	[
<u> </u>							
§94							
<u>5</u> 95							
96							
97]					
		:					
5 <u>98 </u>	Alluvium	SM					
	Deposits						
99_		[
100							
							sea level, GW = groundwater,
						•	lotes: solid blue and hollow
blue water table m	narks represe	nt depth	to wate	r (ft. bgs.) measured pre-	specific capacity for the	shallow and deep scr	eens respectively

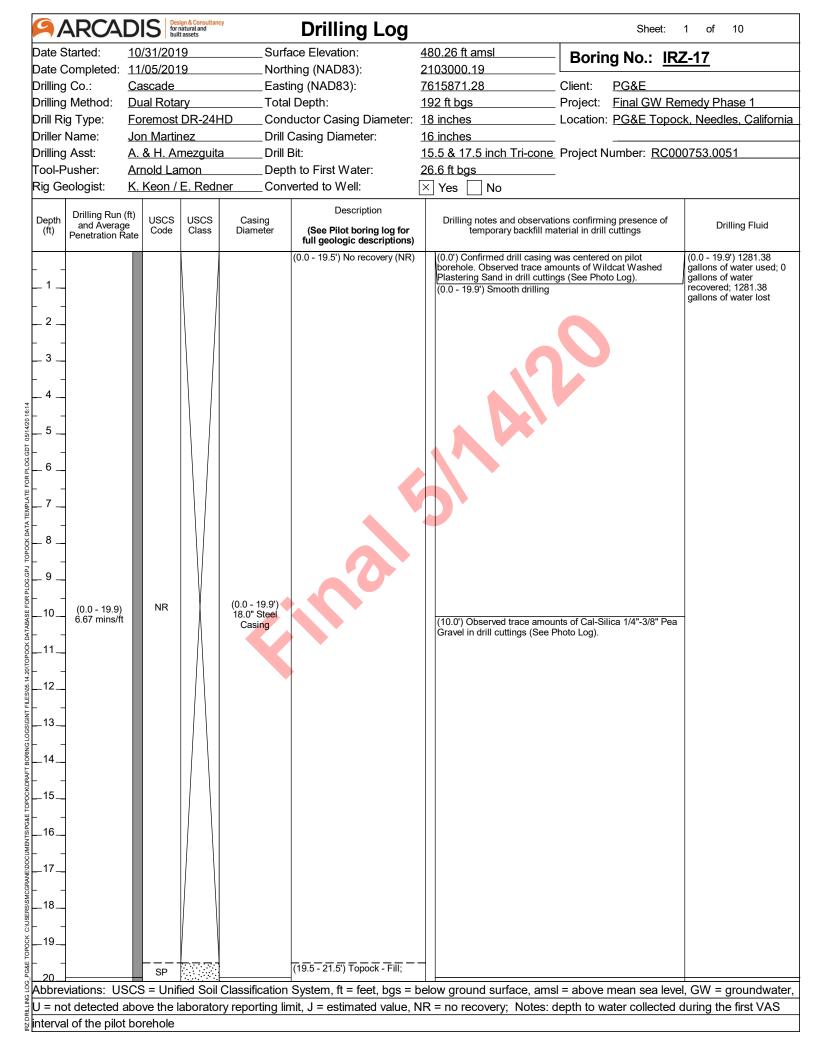




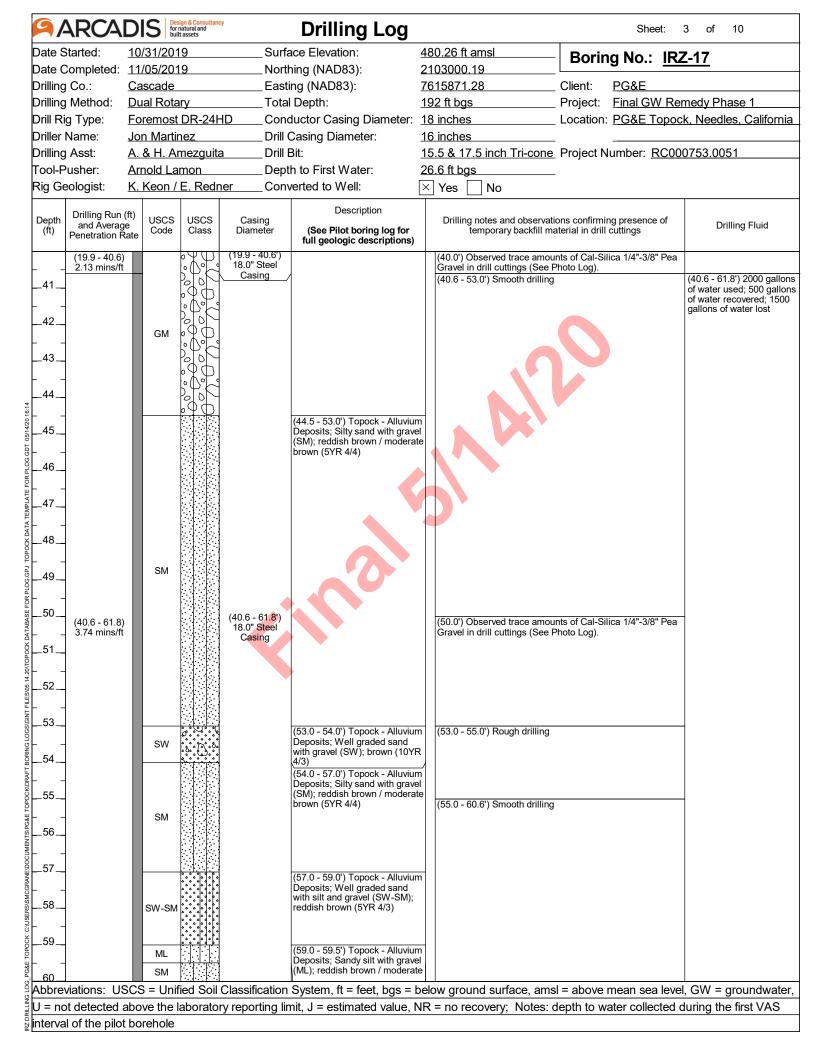


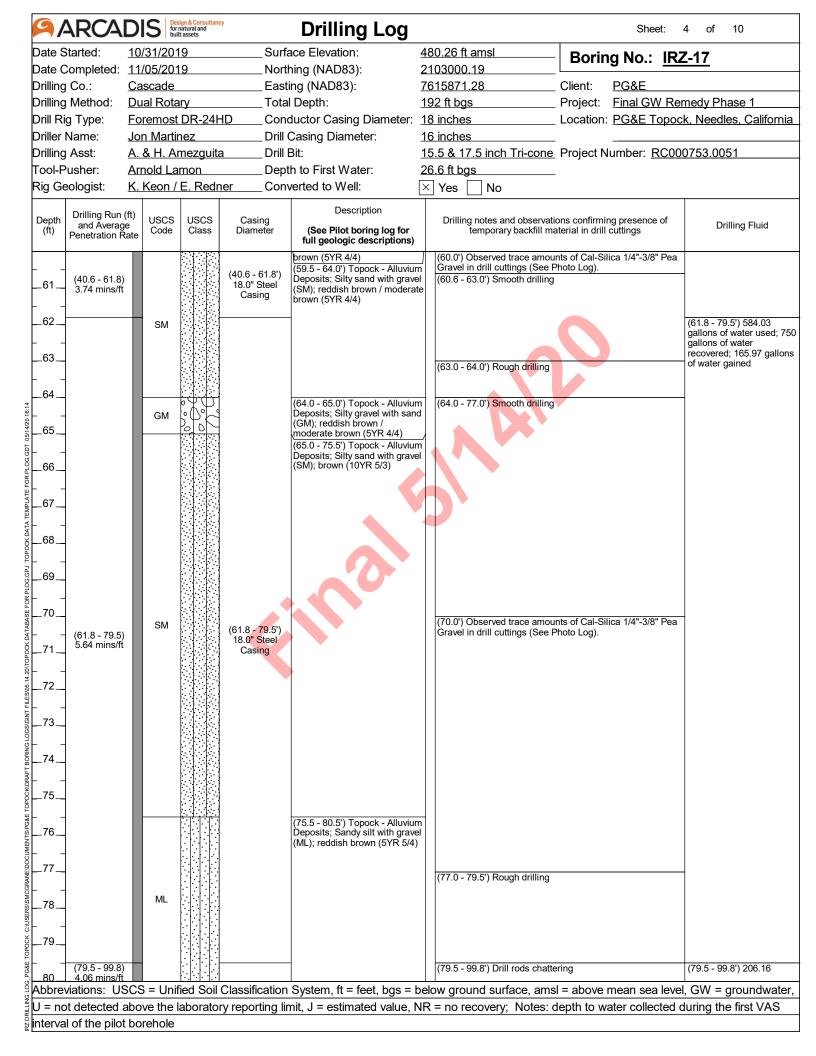


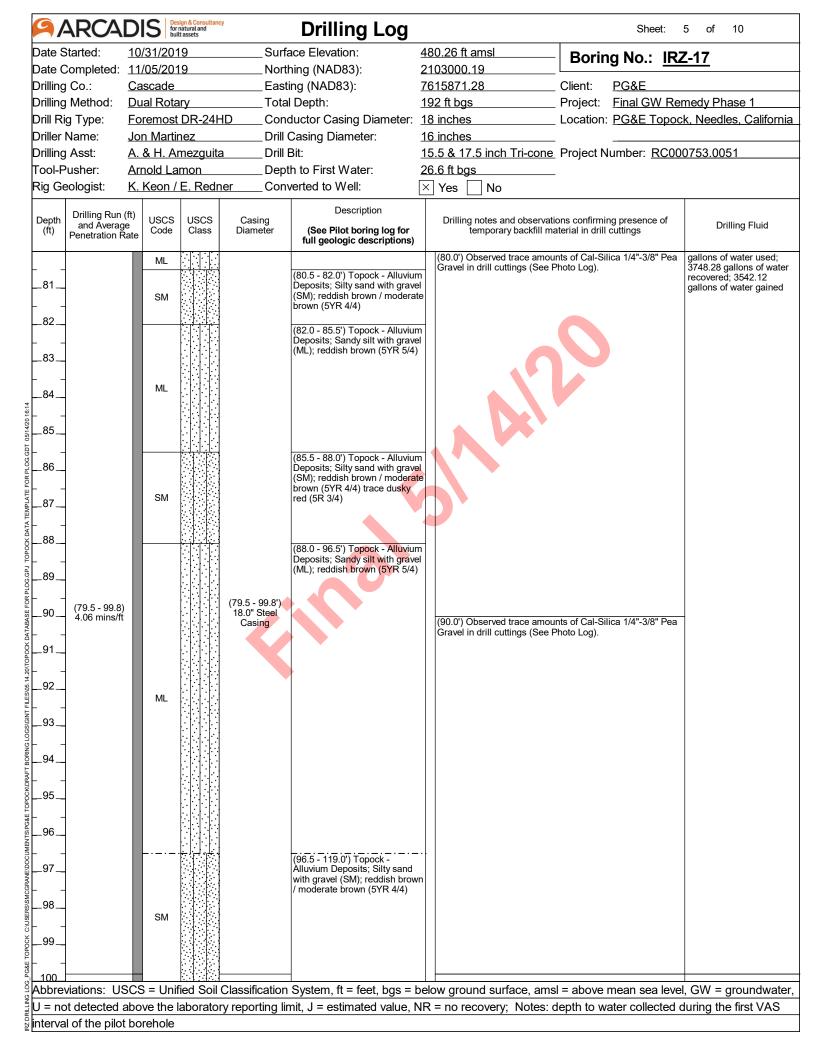


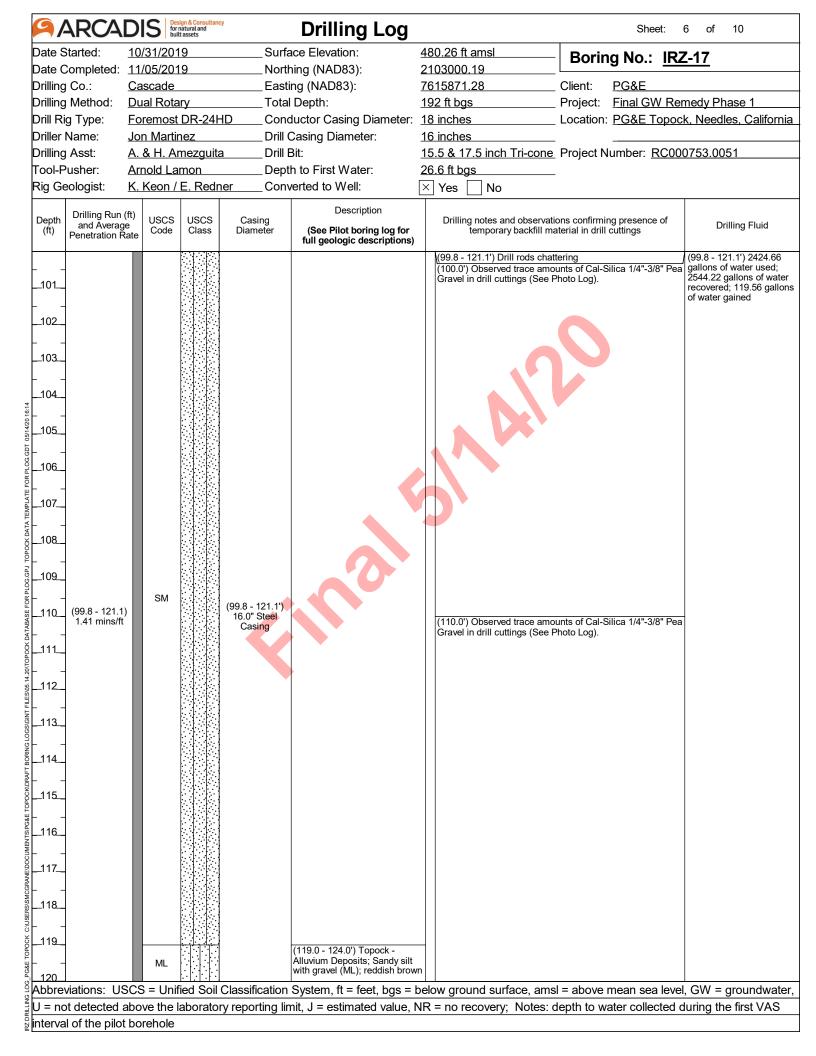


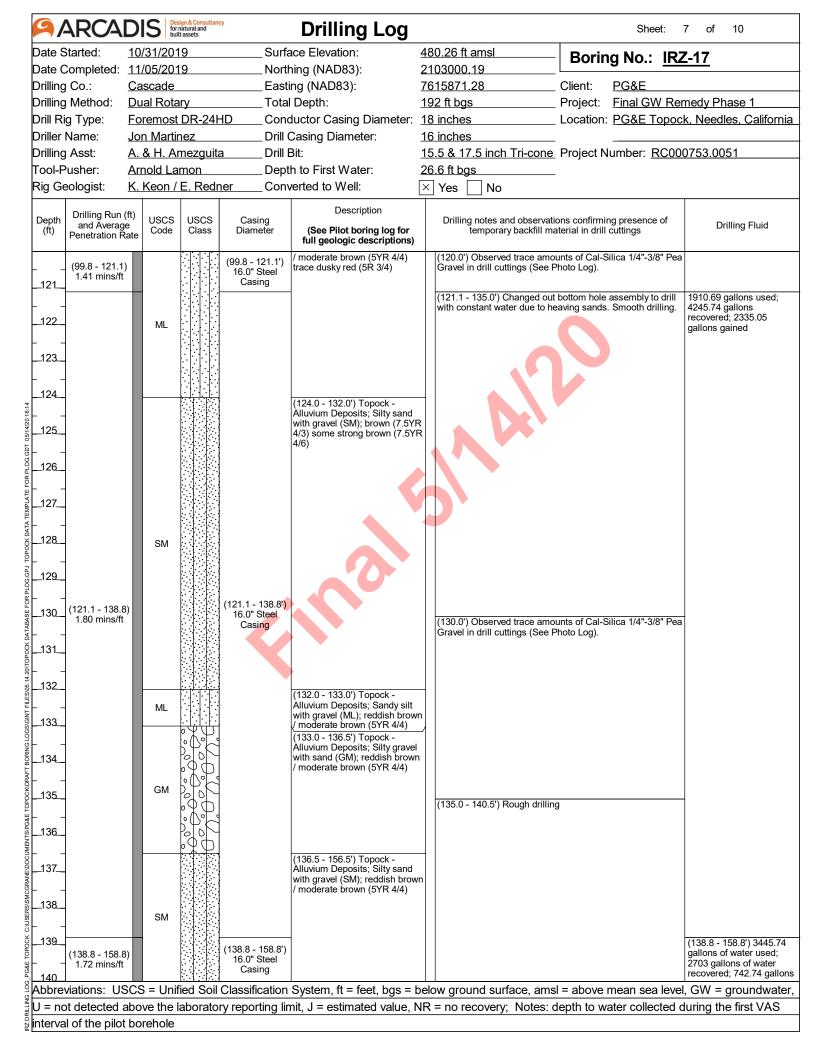
9/	ARCA	D	S for build	s <mark>ign & Consultanc</mark> natural and lt assets	:y	Drilling Log				Sheet:	2 of 10
Date S	Started:	10	/31/201	19	Surfa	ace Elevation:	4	80.26 ft amsl	Borir	ng No.: IRZ	2-17
	Completed:	11	/05/201	19		hing (NAD83):		103000.19			
Drilling			scade			ing (NAD83):		615871.28	Client:	PG&E	
-	g Method:		al Rota	•		I Depth:		92 ft bgs	Project:	Final GW Rei	
	ig Type:			DR-24H		ductor Casing Diameter:			Location	: PG&E Topoc	k, Needles, California
	Name:		n Martii			Casing Diameter:		6 inches			
-	g Asst:			mezguita				5.5 & 17.5 inch Tri-cone	Project N	Number: <u>RC00</u>	0753.0051
	Pusher:		<u>nold La</u>			h to First Water:		6.6 ft bgs			
Rig Ge	eologist:	<u>K.</u>	Keon /	E. Redn	ierConv	verted to Well:	Ľ	Yes No			[
Depth	Drilling Run		USCS	USCS	Casing	Description		Drilling notes and observation	ons confirmi	ing presence of	
(ft)	and Average Penetration F		Code	Class	Diameter	(See Pilot boring log for full geologic descriptions)		temporary backfill ma			Drilling Fluid
						Poorly graded sand (SP); yellowish brown / moderate		(19.9 - 40.6') Smooth drilling (20.0') Observed trace amou	nts of Cal-Si	ilica 1/4"-3/8" Pea	(19.9 - 40.6') 427.14 gallons of water used;
21			SP			yellowish brown (10YR 5/4)		Gravel in drill cuttings (See P			1250 gallons of water recovered; 822.86 gallons
						L					of water gained
22]					(21.5 - 24.0') Topock - Fluvial Deposits; Silty sand with grav					
						(SM); dark yellowish brown					
23			SM			(10YR 4/4)					
24											
<u>_</u>						(24.0 - 28.0') Topock - Fluvial					
						Deposits; Sandy silt with grave (ML); yellowish brown /	ei				
25						moderate yellowish brown (10YR 5/4)					
	-										
26			ML								
								Z			
27											
28						(28.0 - 29.0') Topock - Fluvial	_				
	-		SM			Deposits; Silty sand with grav (SM); yellowish brown /	el				
29	-					moderate yellowish brown					
5	-		ML		(19.9 - 40.6')	(10YR 5/4) (29.0 - 30.0') Topock - Fluvial	_				
30	(19.9 - 40.6) 2.13 mins/ft				18.0" Steel	Deposits; Sandy silt with grave (ML); yellowish brown /	el	(30.0') Observed trace amou	nts of Cal-Si	ilica 1/4"-3/8" Pea	-
					Casing	moderate yellowish brown (10YR 5/4)		Gravel in drill cuttings (See P			
31						(30.0 - 33.5') Topock - Fluvial	-				
	-					Deposits; Elastic silt with sand (MH); yellowish brown /	d				
32	-		MH		•	moderate yellowish brown (10YR 5/4)					
	-										
33	ļ										
						(33.5 - 35.5') Topock - Fluvial					
34						Deposits; Silty sand with grav					
	-		SM			(SM); yellowish brown / moderate yellowish brown					
35						(10YR 5/4)					
			L								
36						(35.5 - 38.0') Topock - Alluviu Deposits; Silty sand with grav	m el				
						(SM); yellowish brown / moderate yellowish brown					
37			SM			(10YR 5/4)					
38											
				e Aola		(38.0 - 44.5') Topock - Alluviu Deposits: Silty gravel with san	m				
			C14	Polon		Deposits; Silty gravel with san (GM); reddish brown (5YR 4/3	3)				
]		GM	[p]							
40	1			5P.H							
	viations: U	SCS	S = Unif	fied Soil	Classification	System, ft = feet, bgs =	be	low ground surface, ams	l = above	mean sea leve	, GW = groundwater,
				aborato	ry reporting lir	nit, J = estimated value,	NR	R = no recovery; Notes: c	lepth to w	ater collected o	luring the first VAS
interva	al of the pilo	t bo	rehole								

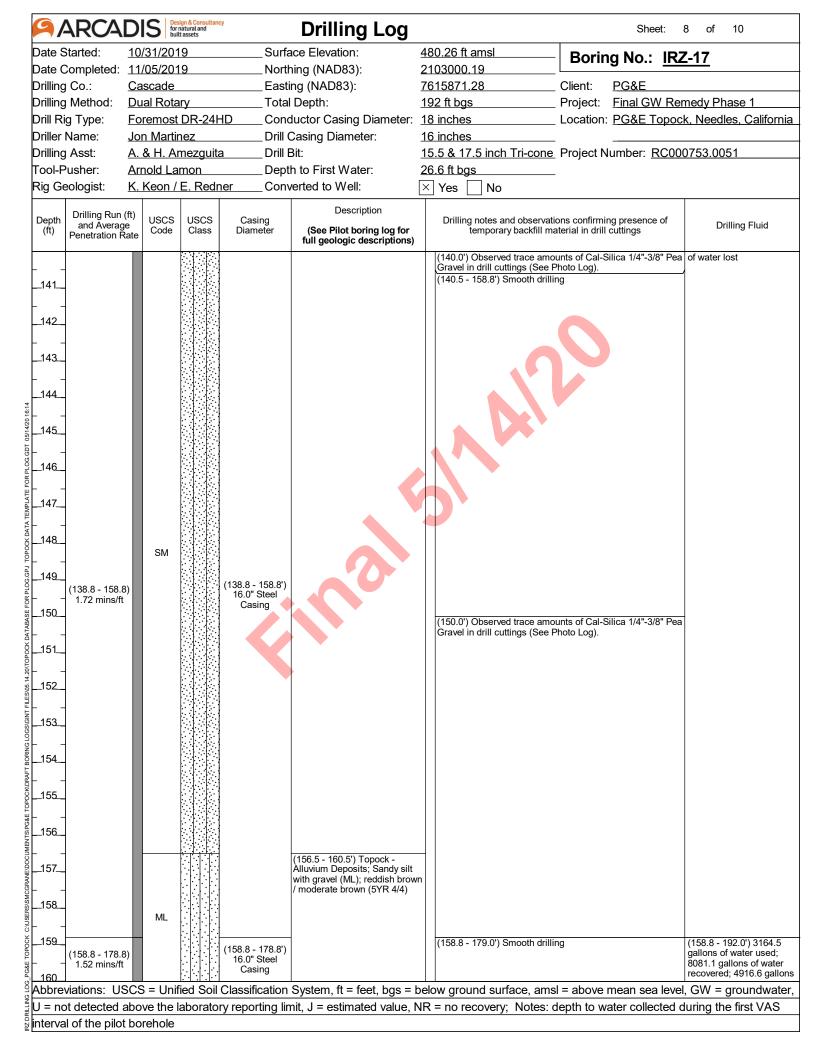


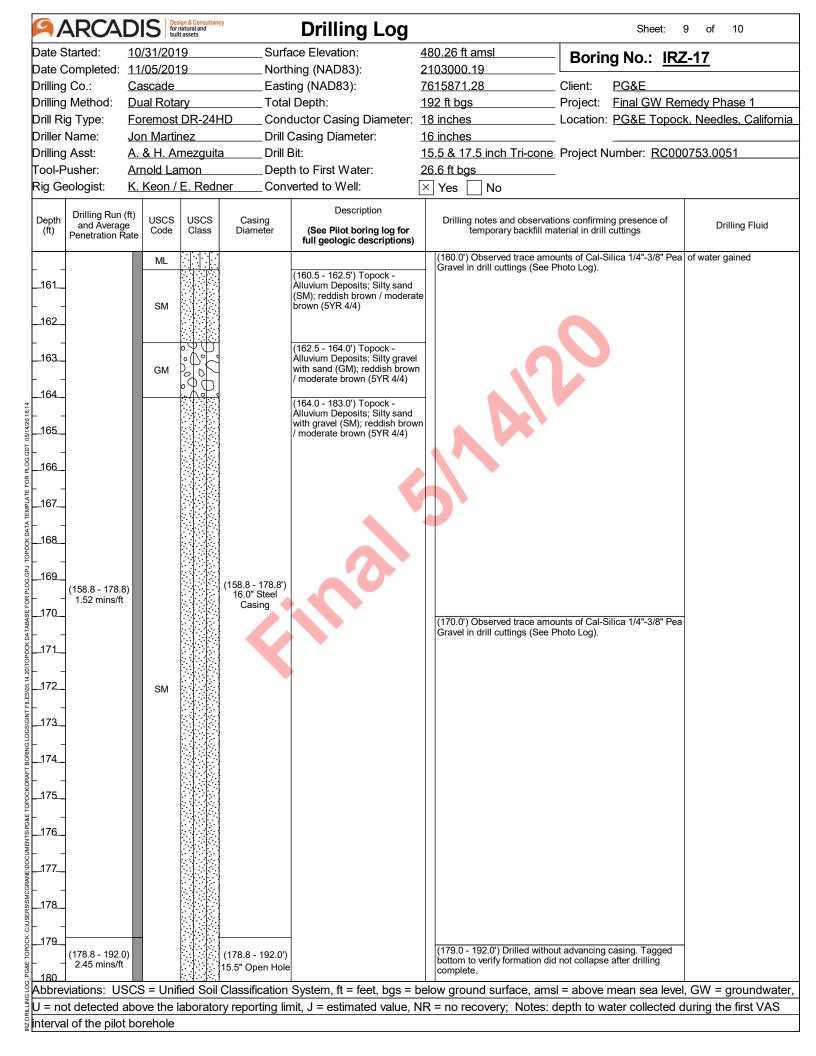


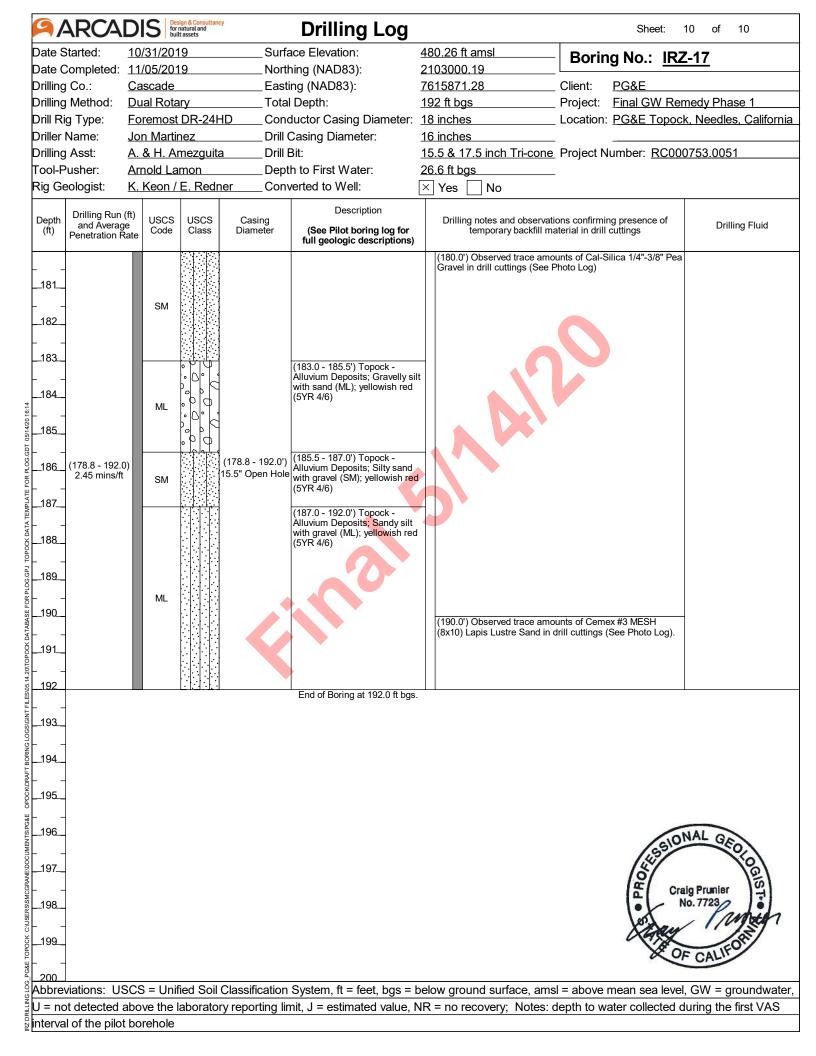












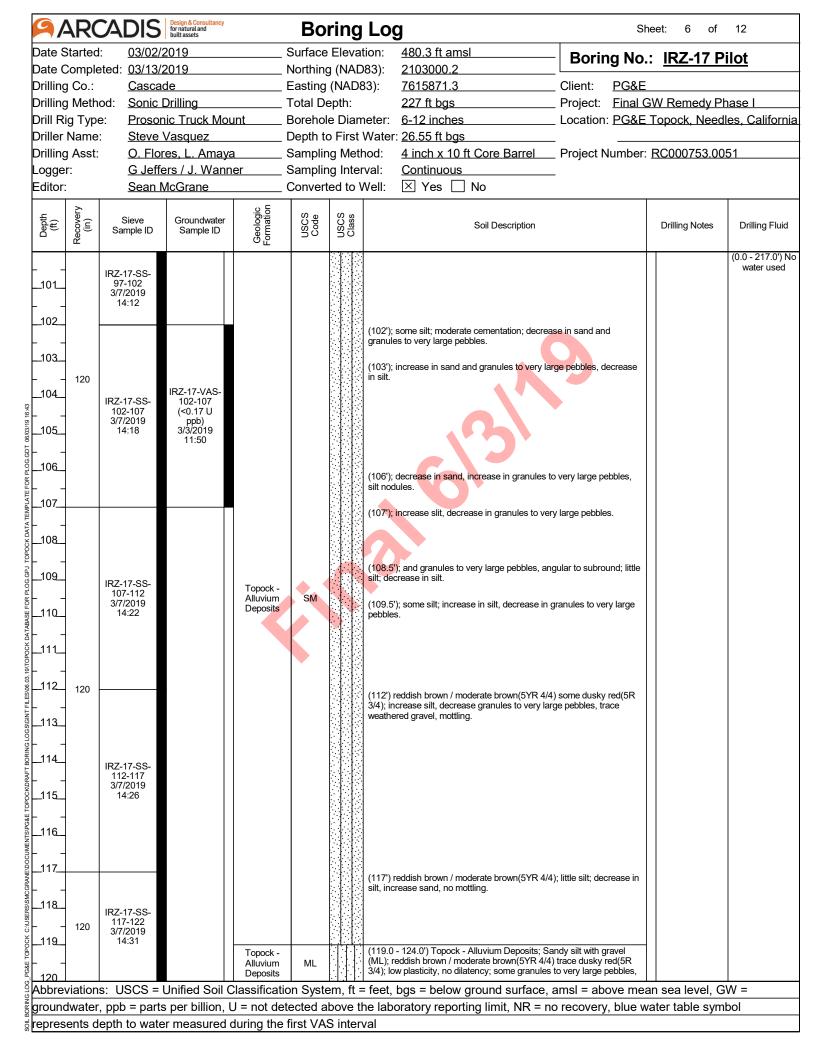
ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring	Lo	9			She	et: 1 of	12
Date Started	: <u>03/02/2</u>	2019		Surface	Eleva	tion:	480.3 ft amsl		Borin	a No .	IRZ-17 Pi	lot
Date Comple	ted: 03/13/2	2019		Northing	g (NAC	083):	2103000.2		Donin	g 110		
Drilling Co.:	<u>Casca</u>	de		Easting	(NAD8	33):	7615871.3		Client:	PG&E		
Drilling Meth	od: <u>Sonic I</u>	Drilling		Total De	epth:		<u>227 ft bgs</u>		Project:	Final G	<u> N Remedy Ph</u>	ase I
Drill Rig Type	e: <u>Proson</u>	ic Truck Mou	Int	Borehol	e Dian	neter:	6-12 inches		Location:	PG&E T	opock, Needle	es, California
Driller Name	Steve V	Vasquez		Depth to	o First	Water	: <u>26.55 ft bgs</u>					
Drilling Asst:	<u>O. Flor</u>	es, L. Amaya	ı	Samplir	ig Metl	hod:	4 inch x 10 ft	Core Barrel	Project N	umber: [RC000753.005	51
Logger:	<u>G Jeffe</u>	ers / J. Wann	er	Samplir	ig Inter	rval:	Continuous					
Editor:	<u>Sean N</u>	/IcGrane		Convert	ed to \	Nell:	🛛 Yes 🗌	No				
2			. <u>e</u> F		(0)							
Depth (ft) Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class			Soil Description			Drilling Notes	Drilling Fluid
			Topock - Fill			barrel c	21.5 [°]) Topock - Fill;	Poorly graded sand (s	SP); yellowish	brown /	(0.0 - 17.0') Due to loose dredge sand, little to no recovery, push 6" casing to try and get recovery, was not successful (17.0 - 19.5') Loose dredge sands continuosly fell out of core barrel	(0.0 - 217.0') No water used
2				-				ng limit, NR = no				
grepresents d								<u> </u>	,			-

-	AK	ADIS	Design & Consultancy for natural and built assets				Log	She	eet: 2 of	12
	started				Surface			Boring No.:	IRZ-17 Pi	lot
	•	eted: <u>03/13/</u>			Northin				<u></u>	
-	Co.:	<u>Casca</u>			Easting	•		Client: <u>PG&E</u>		
	Meth		-	1			227 ft bgs	Project: Final G	•	
	д Тур		<u>nic Truck Mo</u>		Boreho			Location: <u>PG&E</u>	<u>Fopock, Needl</u>	es, Californ
	Name		Vasquez				Water: <u>26.55 ft bgs</u>			
	Asst:		res, L. Amay		Samplir	0		Project Number:	RC000753.00	51
oggei			<u>ers / J. Wanı</u>		Samplir	-				
ditor:		<u>Sean</u>	McGrane	-	Conver		Vell: 🛛 Yes 🗌 No			
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
_ 				Topock - Fill	SP		moderate yellowish brown(10YR 5/4); very fine g grained, angular to subround; trace silt; little mica odor; no staining; moist at 20.5' bgs			(0.0 - 217.0') water used
.22 .23 .24	90			Topock - Fluvial Deposits	SM		(21.5 - 24.0') Topock - Fluvial Deposits; Silty sar dark yellowish brown (10YR 4/4); very fine grain grained, subangular to round; some granules to subangular to round; little silt; trace cobbles, sub moist; no odor; no staining; larger clasts consist granodiorite and metadiorite. Higher gravel conte bed.	ed to very coarse very large pebbles, angular to subround; of sandstone,		
24 - 25 - 26 - 27		IRZ-17-SS- 22-27 3/7/2019 11:28		Topock - Fluvial Deposits	ML		 (24.0 - 28.0') Topock - Fluvial Deposits; Sandy s yellowish brown / moderate yellowish brown(10Y slow dilatency; some very fine to fine grained sau subround; little granules to very large pebbles, subrace cobbles, subround to round; trace mica; we odor; no staining. (26'); some granules to very large pebbles, suba fine to very course sand, 3" lense at 26' bgs of discussion. 	R 5/4); no plasticity, nd, subangular to ubangular to round; it; medium stiff; no ngular to round; trace	(24.0') Approximate depth of water table	
28_ 28_ 29_ 30_	60	IRZ-17-SS- 27-32 3/7/2019 11:33		Topock - Fluvial Deposits Topock - Fluvial Deposits	SM ML		(28.0 - 29.0') Topock - Fluvial Deposits; Silty sar yellowish brown / moderate yellowish brown(10Y grained to fine grained, subangular to round; and very large pebbles, subangular to round; little mid staining; trace med to very fine sand. (29.0 - 30.0') Topock - Fluvial Deposits; Sandy s yellowish brown / moderate yellowish brown(10Y	R 5/4); very fine s silt; little granules to ca; wet; no odor; no ilt with gravel (ML); R 5/4); medium	(27.0 - 32.0') Set temporary well screen, ~6" of water in screen, due to silt and clays, drilled an additonal 5 ft to collect sample	
31_ 32_ 33_				Topock - Fluvial Deposits	мн		plasticity, slow dilatency; some very fine to fine g subangular to subround; little granules to very la subangular to round; trace mica; wet; medium st staining (30.0 - 33.5') Topock - Fluvial Deposits; Elastic yellowish brown / moderate yellowish brown(10Y no dilatency; little very fine grained sand, subang trace granules to very large pebbles, subround to cobbles, round; trace clay; trace mica; wet; very staining; increase granules to very large pebbles	rge pebbles, ff; no odor; no silt with sand (MH); R 5/4); high plasticity, jular to subround; or ound; trace soft; no odor; no at bottom of soil bed		
34_ 34_ 35_	48	IRZ-17-SS- 32-37 3/7/2019 11:36	IRZ-17-VAS- 32-37 (67 ppb) 3/2/2019 13:14	Topock - Fluvial Deposits	SM		(4"), oxidized staining observed at bottom of bed (33.5 - 35.5') Topock - Fluvial Deposits; Silty sar yellowish brown / moderate yellowish brown(10Y grained to very coarse grained, subangular to roi granules to very large pebbles, subround to roun round; trace clay; little mica; wet; no odor; iron ox	nd with gravel (SM); R 5/4); very fine und; some silt; little d; trace cobbles,		
- 36_ - 37_ -		IRZ-17-SS-		Topock - Alluvium Deposits	SM		(35.5 - 38.0°) Topock - Alluvium Deposits; Silty s yellowish brown / moderate yellowish brown(10Y grained to very coarse grained, angular to suban to very large pebbles, angular to subangular; little no odor; no staining	R 5/4); very fine gular; some granules		
38 39 40	240	36-42 3/7/2019 11:45		Topock - Alluvium Deposits	GM		(38.0 - 44.5') Topock - Alluvium Deposits; Silty g reddish brown (5YR 4/3); granules to very large subround; some very fine to very coarse grained subround; little silt; trace mica; wet; no odor; no s consist of granodiorite.	pebbles, angular to sand, angular to staining; larger clasts		
ahra	/iation	s: USCS =	Unified Soil	Classificatio	on Syste	em, ft =	feet, bgs = below ground surface, a	amsl = above mea	n sea level, G	N =

d: <u>03/02/2</u> eted: <u>03/13/2</u> <u>Cascad</u>								
	2019			Elevatio		Boring No.:	IRZ-17 P	ilot
Cascad			-) (NAD8		_		
			•	(NAD83		_ Client: <u>PG&E</u>		
nod: <u>Sonic [</u> e: <u>Proson</u>	Jrilling iic Truck Mou		Total De	eptn: e Diame	227 ft bgs er: <u>6-12 inches</u>	_ Project: <u>Final G</u> _ Location: <u>PG&E</u>	-	
	√asquez				ater: <u>26.55 ft bgs</u>			
	•					Proiect Number:	RC000753.00	51
				•				- ·
<u>Sean N</u>	/IcGrane		-	-				
Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
IRZ-17-SS- 36-42 3/7/2019 11:45 IRZ-17-SS- 42-47 3/7/2019 11:50		Topock - Alluvium Deposits	GM		4.5 - 53.0') Topock - Alluvium Deposits; Silty ddish brown / moderate brown(5YR 4/4); very arse grained, angular to subangular; little gra ibbles, angular to subangular; little silt; trace of ca; wet; no odor; no staining; larger clasts co	sand with gravel (SM); / fine grained to very nules to very large sobbles, angular; little		(0.0 - 217.0') N water used
IRZ-17-SS- 47-52 377/2019 11:55		Topock - Alluvium Deposits	SM		erease in sand and silt. 9'); increase in silt, decrease in granules to v			
IRZ-17-SS-		Topock - Alluvium Deposits	sw		avel (SW); brown (10YR 4/3); very fine grain ained, angular to subround; little granules to gular to subround; trace cobbles, subround;	ed to very coarse very large pebbles, trace silt; little mica;		
52-57 3/7/2019 12:10		Topock - Alluvium Deposits	SM	() () () () () () () () () () () () () (arsen downward. 4.0 - 57.0') Topock - Alluvium Deposits; Silty ddish brown / moderate brown(5YR 4/4); ven arse grained, subangular to subround; some bbles, angular to subround; little silt; little mic	sand with gravel (SM); / fine grained to very granules to very large		
IRZ-17-SS- 57-62 3/7/2019 12:25		Topock - Alluvium Deposits	SW-SM		d gravel (ŚW-SM); reddish brown (5YR 4/3) ry coarse grained, angular to subround; som bbles, angular to subround; little silt; trace mi aining; larger clasts consist of granodiorite.	very fine grained to e granules to very large ca; wet; no odor; no		
		Alluvium	ML	l∶l;l,l,i r	ddish brown / moderate brown(5YR 4/4); low	plasticity, no dilatency;		
		· · · ·	SM		, , ,	. .		
	G Jeffe Sean N Sieve Sample ID IRZ-17-SS- 36-42 3/7/2019 11:45 IRZ-17-SS- 42-47 3/7/2019 11:50 IRZ-17-SS- 42-47 3/7/2019 11:50 IRZ-17-SS- 47-52 3/7/2019 11:55 IRZ-17-SS- 52-57 3/7/2019 11:55 IRZ-17-SS- 52-57 3/7/2019 12:10 IRZ-17-SS- 57-62 3/7/2019 12:10 IRZ-17-SS- 57-62 3/7/2019 12:10	G Jeffers / J. Wann Sean McGrane Sieve Sample ID Groundwater Sample ID IRZ-17-SS- 36-42 3/7/2019 11:45 IRZ-17-SS- 42-47 3/7/2019 11:50 IRZ-17-SS- 42-47 3/7/2019 11:50 IRZ-17-SS- 47-52 3/7/2019 11:55 IRZ-17-SS- 52-57 3/7/2019 12:10 IRZ-17-SS- 57-62 3/7/2019 12:10 IRZ-17-SS- 57-62 3/7/2019 12:10 IRZ-17-SS- 57-62 3/7/2019 12:10 IRZ-17-SS- 57-62 3/7/2019 12:25 IRZ-17-SS- 57-62 3/7/2019 12:25 IRZ-17-SS- 57-62 3/7/2019 12:25 IRZ-17-SS- 57-62 3/7/2019 12:25	G Jeffers / J. Wanner Sean McGrane Sieve Sample ID Groundwater Sample ID Soft Sean Soft Soft Soft Soft Soft Soft Soft Soft	G Jeffers / J. Wanner Samplin Sean McGrane Convert Sieve Groundwater 905 900 IRZ-17-SS- 3/7/2019 Groundwater 0000 900 900 IRZ-17-SS- 3/7/2019 70pock - Alluvium GM GM IRZ-17-SS- 42-47 7/7/2019 GM GM IRZ-17-SS- 47-52 7/7/2019 Topock - Alluvium SM IRZ-17-SS- 47-52 7/7/2019 SM SM IRZ-17-SS- 52-57 SM Topock - Alluvium SW IRZ-17-SS- 52-62 SM SM SW IRZ-17-SS- 52-62 SM SM SW IRZ-17-SS- 52-62 SM SW SW IRZ-17-SS- 52-62 SM SM SM IRZ-17-SS- 57-62 SM SM SM IRZ-17-SS- 57-62	G. Jeffers / J. Wanner Sampling Interva Sean McGrane Converted to We Sample ID Groundwater Sample ID Sample ID IRZ-17-SS- 36-42 Groundwater Sample ID Image: Sample ID Image: Sample ID Image: Sample ID IRZ-17-SS- 36-42 Topock - Alluvium Deposits GM Image: Sample ID Image: Sample ID IRZ-17-SS- 42-47 Image: Sample ID Topock - Alluvium Deposits GM Image: Sample ID IRZ-17-SS- 47-52 Image: Sample ID Topock - Alluvium Deposits SM Image: Sample ID IRZ-17-SS- 37/2019 Image: Sample ID Topock - Alluvium Deposits SM Image: Sample ID IRZ-17-SS- 52-57 Image: Sample ID Topock - Alluvium Deposits SM Image: Sample ID IRZ-17-SS- 52-57 Image: Sample ID Topock - Alluvium Deposits SM Image: Sample ID IRZ-17-SS- 57-62 Image: Sample ID Image: Sample ID Image: Sample ID Image: Sample ID IRZ-17-SS- 57-62 Image: Sample ID Image: Sample ID Image: Sample ID Image: Sample ID IRZ-17-SS- 57-62 Image: Sample ID Image: Sample ID Image: Sample ID Image: Sample ID <td>G. Jeffers / J. Wanner Sampling Interval: Continuous Sample ID Groundwater Goog Stample ID Soil Description Sieve Sample ID Groundwater Goog Stample ID Soil Description IR2-17-SS- 42-47 Topock- Aluxium GM O D GM O D IR2-17-SS- 42-47 Topock- Aluxium GM O D GM O D IR2-17-SS- 42-47 Topock- Aluxium GM O D GM O D IR2-17-SS- 47-2019 Topock- Aluxium SM GM O D O D IR2-17-SS- 37/2019 Topock- Aluxium SM GM O D O D O D IR2-17-SS- 37/2019 Topock- Aluxium SM GM O D <t< td=""><td>G. Jeffers J. J. Wanner Sampling Interval: Continuous Sean McGrane Converted to Well: Itele Interval: Converted to Well: Itele Interval: Swepe B Countwater 8/9 9/9 9/9 Sul Description IR2.17.85:- 37/2019 0 0 0 0 0 0 IR2.17.85:- 42-47 0 <t< td=""><td>Sean McGrane Sampling Interval: Continuous Simple II Groundwater Simple II Simple III Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIIIIIIIIIII Simple IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</td></t<></td></t<></td>	G. Jeffers / J. Wanner Sampling Interval: Continuous Sample ID Groundwater Goog Stample ID Soil Description Sieve Sample ID Groundwater Goog Stample ID Soil Description IR2-17-SS- 42-47 Topock- Aluxium GM O D GM O D IR2-17-SS- 42-47 Topock- Aluxium GM O D GM O D IR2-17-SS- 42-47 Topock- Aluxium GM O D GM O D IR2-17-SS- 47-2019 Topock- Aluxium SM GM O D O D IR2-17-SS- 37/2019 Topock- Aluxium SM GM O D O D O D IR2-17-SS- 37/2019 Topock- Aluxium SM GM O D <t< td=""><td>G. Jeffers J. J. Wanner Sampling Interval: Continuous Sean McGrane Converted to Well: Itele Interval: Converted to Well: Itele Interval: Swepe B Countwater 8/9 9/9 9/9 Sul Description IR2.17.85:- 37/2019 0 0 0 0 0 0 IR2.17.85:- 42-47 0 <t< td=""><td>Sean McGrane Sampling Interval: Continuous Simple II Groundwater Simple II Simple III Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIIIIIIIIIII Simple IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</td></t<></td></t<>	G. Jeffers J. J. Wanner Sampling Interval: Continuous Sean McGrane Converted to Well: Itele Interval: Converted to Well: Itele Interval: Swepe B Countwater 8/9 9/9 9/9 Sul Description IR2.17.85:- 37/2019 0 0 0 0 0 0 IR2.17.85:- 42-47 0 <t< td=""><td>Sean McGrane Sampling Interval: Continuous Simple II Groundwater Simple II Simple III Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIIIIIIIIIII Simple IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII</td></t<>	Sean McGrane Sampling Interval: Continuous Simple II Groundwater Simple II Simple III Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIII Simple IIIIIIIIIIII Simple IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII

		Design & Consultancy for natural and built assets			ring	LOG		eet: 4 of	12
e Starte		/2019		Surface			Boring No.:	IRZ-17 Pi	lot
	eted: <u>03/13</u>			Northing					
ling Co.:	<u>Casc</u>			Easting	•		Client: <u>PG&E</u>		
ling Meth		•			•	<u>227 ft bgs</u>	•	W Remedy Ph	
I Rig Typ		onic Truck Mo				neter: <u>6-12 inches</u>	Location: <u>PG&E</u>	Topock, Needl	es, Californ
ler Name		Vasquez				Water: <u>26.55 ft bgs</u>			- 4
ling Asst		ores, L. Amaya		Samplin	•		Project Number:	RC000753.008	51
lger:		fers / J. Wanr McGrane		Samplin Convert	-		-		
tor:	<u>Sean</u>	McGrane	1						
(ft) Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
- 1 2 3	IRZ-17-SS- 57-62 3/7/2019 12:25		Topock - Alluvium Deposits	SM		granules to very large pebbles, angular to subar medium stiff to stiff; no odor; no staining (59.5 - 64.0') Topock - Alluvium Deposits; Silty : reddish brown / moderate brown(5YR 4/4); very coarse grained, subangular to subround; some ; pebbles, angular to subangular; some silt; little r staining; larger clasts consist of metadiorite and (60'); little silt; increase in sand. (61'); some silt; decrease in sand.	sand with gravel (SM); fine grained to very granules to very large nica; wet; no odor; no		(0.0 - 217.0') water used
- 120 4 5	IRZ-17-SS- 62-67 3/7/2019 13:05	IRZ-17-VAS- 62-67 (0.604 J ppb) 3/2/2019 15:50	Topock - Alluvium Deposits	GM		(64.0 - 65.0') Topock - Alluvium Deposits; Silty reddish brown / moderate brown(5YR 4/4); gran pebbles, angular to subangular; and very fine to sand, subangular to subround; little silt; little mic staining	ules to very large very coarse grained a; wet; no odor; no		
6 7 8 -						(65.0 - 75.5') Topock - Alluvium Deposits; Sitly s brown (10YR 5/3); very fine grained to very coa subround; some granules to very large pebbles, subangular; little silt; trace mica; wet; no odor; w staining (66') reddish brown / moderate brown(5YR 4/4); granules to very large pebbles, no cementation. (67'); little granules to very large pebbles, angula increase in sand, increase in silt, weathered gra pebbles observed.	rse grained, angular to angular to eak cementation; no some silt; decrease in ar to subangular;	(67.0 - 87.0') Core compaction observed. switch back to 10' runs.	
9 0 1 2	IRZ-17-SS- 67-72 3/7/2019 13:12		Topock - Alluvium Deposits	SM		(70.5'); some granules to very large pebbles, an weathered granules to very large pebbles obser	gular to subangular; ved.		
- 3_ - 192 4_ 5_	IRZ-17-SS- 72-77 3/7/2019 13:25					(73.5'); little granules to very large pebbles, ang increase in silt.	ular to subangular;		
- 6 7 8 9	IRZ-17-SS- 77-82 3/7/2019 13:35		Topock - Alluvium Deposits	ML		(75.5 - 80.5') Topock - Alluvium Deposits; Sand reddish brown (5YR 5/4); no plasticity, slow dilat to very large pebbles, angular to subangular; so coarse grained sand, subangular to subround; t no odor; no staining	tency; some granules me very fine to very		
	r, ppb = par		J = not dei	tected a	bove t	= feet, bgs = below ground surface, a ne laboratory reporting limit, NR = no			

	AK	ADIS	Design & Consultancy for natural and built assets		Во	ring	Log	S	heet: 5 of	12
	started				Surface			Borina No	.: <u>IRZ-17 P</u>	ilot
		eted: <u>03/13/</u>			Northing			_		
Drilling		<u>Casca</u>		I	-	•		Client: PG&E		
Drilling	y Meth	od: <u>Sonic</u>	Drilling		Total De	epth:	<u>227 ft bgs</u>	Project: Final	<u>GW Remedy Pł</u>	nase I
Drill Ri	д Тур	e: <u>Prosor</u>	nic Truck Mou	int I	Borehol	e Diar	neter: <u>6-12 inches</u>	Location: PG&E	Topock, Need	les, Californ
Driller	Name	<u>Steve</u>	Vasquez	I	Depth to	o First	Water: <u>26.55 ft bgs</u>			
Drilling	Asst:	<u>O. Flor</u>	<u>es, L. Amaya</u>	L 9	Samplir	ng Met	hod: <u>4 inch x 10 ft Core Barrel</u>	Project Number	: <u>RC000753.00</u>	51
oggei	r:	<u>G Jeffe</u>	ers / J. Wann	er s	Samplir	ng Inte	rval: <u>Continuous</u>			
ditor:		<u>Sean N</u>	<i>I</i> cGrane	(Convert	ed to	Well: 🗵 Yes 🗌 No			
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
					ML				(67.0 - 87.0')	(0.0 - 217.0') N
_81 _82		IRZ-17-SS- 77-82 3/7/2019 13:35		Topock - Alluvium Deposits	SM		(80.5 - 82.0') Topock - Alluvium Deposits; Silty s reddish brown / moderate brown(5YR 4/4); very coarse grained, angular to subround; some gran pebbles, angular to subangular; some silt; trace staining	fine grained to very ules to very large	Core compaction observed. switch back to 10' runs.	water used
_82 _83 _84 _85	192	IRZ-17-SS- 82-87 3/7/2019 13:51		Topock - Alluvium Deposits	ML		(82.0 - 85.5') Topock - Alluvium Deposits; Sand reddish brown (5YR 5/4); no plasticity, no dilater very large pebbles, angular to subangular; some coarse grained sand, subangular to subround; tr stiff; no odor; weak cementation; iron oxide stain	cy; some granules to very fine to very ace mica; wet; very		
- -86 - -87 - -88				Topock - Alluvium Deposits	SM		(85.5 - 88.0') Topock - Alluvium Deposits; Silty s reddish brown / moderate brown(5YR 4/4) trace very fine grained to very coarse grained, angular granules to very large pebbles, angular to suban mica; wet; no odor; iron oxide staining; crushed o bottom of formation.	dusky red(5R 3/4); to subround; some gular; some silt; trace	-	
_89 _89 _90 _91		IRZ-17-SS- 87-92 3/7/2019 14:01					(88.0 - 96.5') Topock - Alluvium Deposits; Sandy reddish brown (5YR 5/4); no plasticity, no dilater very large pebbles, angular; some very fine to ve sand, angular to subround; trace mica; wet; very	icy; some granules to ery coarse grained		
- _92_ _93_ _93_ _ _94_ _	120	IRZ-17-SS- 92-97 3/7/2019		Topock - Alluvium Deposits	ML		(92'); moist; weak cementation; increase in grant pebbles, decrease in sand.	ules to very large		
-95 -96 -97 -98		14:07		Topock -			(96.5 - 119.0') Topock - Alluvium Deposits; Silty (SM); reddish brown / moderate brown(5YR 4/4) very coarse grained, angular to subround; some pebbles, angular to subround; some silt; trace m staining	; very fine grained to granules to very large	-	
-99 -99 100_ bbrev	120 /iation	97-102 3/7/2019 14:12	Unified Soil C	Alluvium Deposits	SM SM	em. ft	(99.5'); little silt; increase in granules to very larg		an sea level. G	W =
							he laboratory reporting limit, NR = no			
	water		r measured o					recovery, blue V	valei labie sym	



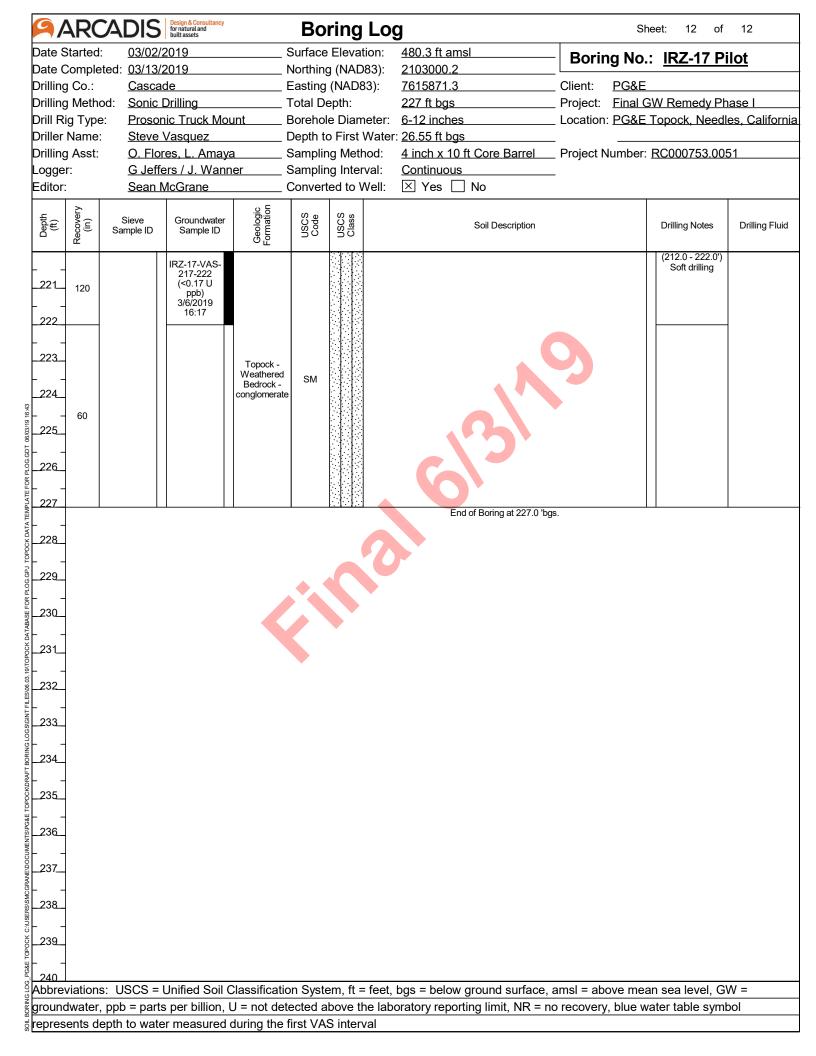
AR(CADIS	Design & Consultancy for natural and built assets		Во	ring	Log	She	et: 7 of	12
ate Starteo				Surface			Boring No.:	IRZ-17 P	ilot
	eted: <u>03/13/</u>			Northing					
rilling Co.:				Easting	•		Client: <u>PG&E</u>	A/ Domody Dk	
orilling Meth Irill Rig Typ		Drilling nic Truck Mou		Total De Borehol	-	227 ft bgs neter: <u>6-12 inches</u>	Project: <u>Final G</u> Location: <u>PG&E T</u>	<u>N Remedy Pr</u> opock Need	
riller Name		Vasquez				Water: <u>26.55 ft bgs</u>	Location. <u>FGal 1</u>	OPOCK, NEEU	
rilling Asst		res, L. Amaya		Samplir		-	Proiect Number: F	RC000753.00	51
ogger:		ers / J. Wann		Samplir	-				
ditor:	<u>Sean</u>	McGrane		Conver	ted to \	Vell: 🗵 Yes 🗌 No			
Depth (ft) Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
.121 .122 .123	IRZ-17-SS- 117-122 3/7/2019 14:31		Topock - Alluvium Deposits	ML		angular to subangular; some very fine to very co angular to subround; wet; medium stiff to stiff; no larger clasts consist of granodiorite and metadio (120'); decrease in sand, increase in granules to (122'); decrease silt, increase sand.	o odor; no staining; rite.		(0.0 - 217.0') N water used
- 120 124 - 125 - 126 - 127	IRZ-17-SS- 122-127 3/7/2019 14:36					(124.0 - 132.0') Topock - Alluvium Deposits; Silt (SM); brown (7.5YR 4/3) some (7.5R 4/6); very coarse grained, angular to subround; some gran pebbles, angular to subround; little silt; trace mic staining; larger clasts consist of quartzite, granor metadiorite, weathered gravel observed. (126') reddish brown / moderate brown(5YR 4/4) sand.	fine grained to very ules to very large a; wet; no odor; no diorite, and		
- 128 - 129 - 130 - 131 -	IRZ-17-SS- 127-132 3/7/2019 14:40		Topock - Alluvium Deposits	SM		(129.5 - 132.0'); little silt; increase sand.			
_132 ₁₂₀ 			Topock - Alluvium Deposits	ML		(132.0 - 133.0') Topock - Alluvium Deposits; Sa (ML); reddish brown / moderate brown(5/YR 4/4) dilatency; some granules to very large pebbles, some very fine to very coarse grained sand, ang trace cobbles, subangular to subround; wet; stiff	; low plasticity, no angular to subround; jular to subround;	(132.0 - 137.0') Sample collected during the installation of temporary	
 	IRZ-17-SS- 132-137 3/7/2019 14:45	IRZ-17VAS- 132-137 (<0.17 U ppb) 3/13/2019 12:05	Topock - Alluvium Deposits	GM		larger clasts consist of metadiorite. (133.0 - 136.5') Topock - Alluvium Deposits; Silt (GM); reddish brown / moderate brown(5YR 4/4 large pebbles, angular to subround; some very fi grained sand, angular to subround; some silt; tra subangular to subround; trace mica; wet; no odc clasts consist of granite, granodiorite, and metac granules to very large pebbles observed. 4" Silty lense at 134' bgs.); granules to very ine to very coarse ace cobbles, rr; no staining; larger liorite, weathered	backfill	
137 138 139	IRZ-17-SS- 137-142 3/7/2019 14:47	IRZ-17-VAS- 137-142 (<0.17 U ppb) 3/12/2019 14:50	Topock - Alluvium Deposits	SM		(136.5 - 156.5') Topock - Alluvium Deposits; Silt (SM); reddish brown / moderate brown(5YR 4/4) very coarse grained, angular to subround; some pebbles, angular to subangular; some silt; trace staining; larger clasts consist of metadiorite and weathered granules to very coarse pebbles. (137'); decrease granules to very large pebbles,	; very fine grained to granules to very large mica; wet; no odor; no granodiorite, trace	(137.0 - 142.0') Sample collected during the installation of temporary backfill	
140		Unified Soil (Classificati	on Svste	em, ft =	feet, bgs = below ground surface, a	amsl = above mear	n sea level. G	W =
bbreviation	18 11 1 1 1 =								

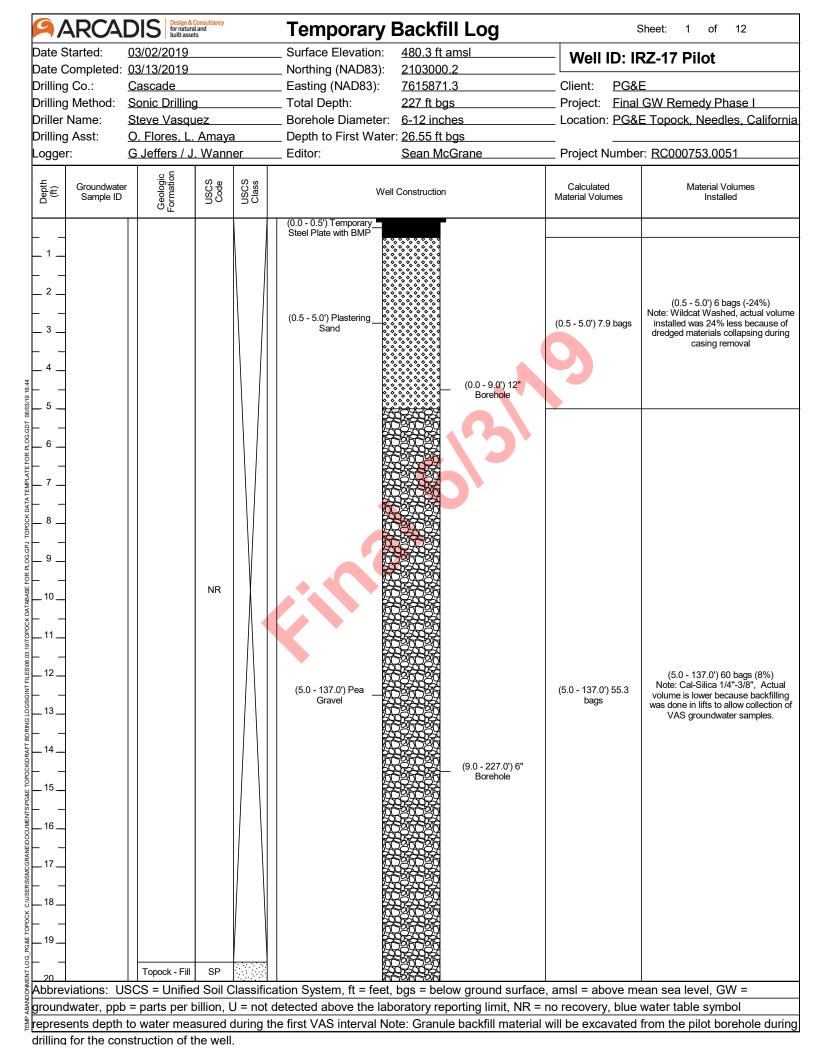
9/-	ARC	ADIS	Design & Consultancy for natural and built assets		Во	ring Lo	g	SI	neet: 8 of	12
	started					Elevation:	480.3 ft amsl	- Boring No	: <u>IRZ-17 P</u>	ilot
	•	eted: <u>03/13/</u>				g (NAD83):	2103000.2			<u></u>
Drilling		<u>Casca</u>			-	(NAD83):	7615871.3	Client: PG&E		
-	Meth		Drilling		Total D	-	<u>227 ft bgs</u>	-	GW Remedy Ph	
	g Type Name:		nic Truck Mou			e Diameter:	<u>6-12 inches</u>	Location: <u>PG&E</u>	I opock, Needl	es, Californ
	Name: J Asst:		Vasquez res, L. Amaya		-	ng Method:	: <u>26.55 ft bgs</u> <u>4 inch x 10 ft Core Barrel</u>	Project Number:	PC000753 00	51
.oggei			ers / J. Wanne		-	ng Interval:	<u>Continuous</u>		<u>NC000733.00</u>	51
ditor:			McGrane		-	ted to Well:	X Yes No			
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
_141		IRZ-17-SS- 137-142 3/7/2019 14:47	IRZ-17-VAS- 137-142 (<0.17 U ppb) 3/12/2019 14:50						(137.0 - 142.0') Sample collected during the installation of temporary backfill	(0.0 - 217.0') N water used
_ _143_ _144_ _145_ _ _146_ _ _ _147_	120	IRZ-17-SS- 142-147 3/7/2019 14:50	IRZ-17-VAS- 142-147 (84 ppb) 3/4/2019 10:24			sand.	little silt; decrease in granules to very some silt; decrease in sand.	large peoples, increase in	(147.0 - 152.0')	
		IRZ-17-SS- 147-152 3/7/2019 14:53	IRZ-17-VAS- 147-152 (<0.33 U ppb) 3/12/2019 11:05	Topock - Alluvium Deposits	SM				Sample collected during the installation of temporary backfill	
_152	120						dark grayish brown (2.5Y 4/2); decrea	se in sand, increase silt,		
						Some	mottling.			
						(153');	increase in sand, decrease silt, no m	oddling.		
154_ - 155_ - 156_		IRZ-17-SS- 152-157 3/7/2019 14:57	IRZ-17-SS- 152-157 3/4/2019 12:00			(154.5	'); 12-24 mm silt nodules.			
1.00										
- _157 _158 _ _159	120	IRZ-17-SS- 157-162 3/7/2019 14:59		Topock - Alluvium Deposits	ML	(ML); dilaten some stiff; n metad (158');	 160.5') Topock - Alluvium Deposits reddish brown / moderate brown(5YR cy; some granules to very large pebbl very fine to very coarse grained sand, o odor; no staining; larger clasts consi orite, and feldspars. moist; hard; weak cementation; decre '); wet; very stiff; increase silt, no cem 	4/4); low plasticity, no es, angular to subround; angular to subround; wet; st of granodiorite, ease silt, increase sand.		
160 bbrev	viation	e: 11909 -	Unified Soil C	lassificati	on Suct	<u> .</u> am_ft = foot	bgs = below ground surfac	e amel - abovo mo	an sea level. C	<u> </u>
							oratory reporting limit, NR =			
	a a a col	, <u>PPP – Pait</u>			u a		statory reporting innit, NIX -	no recovery, blue v	ator table sylli	

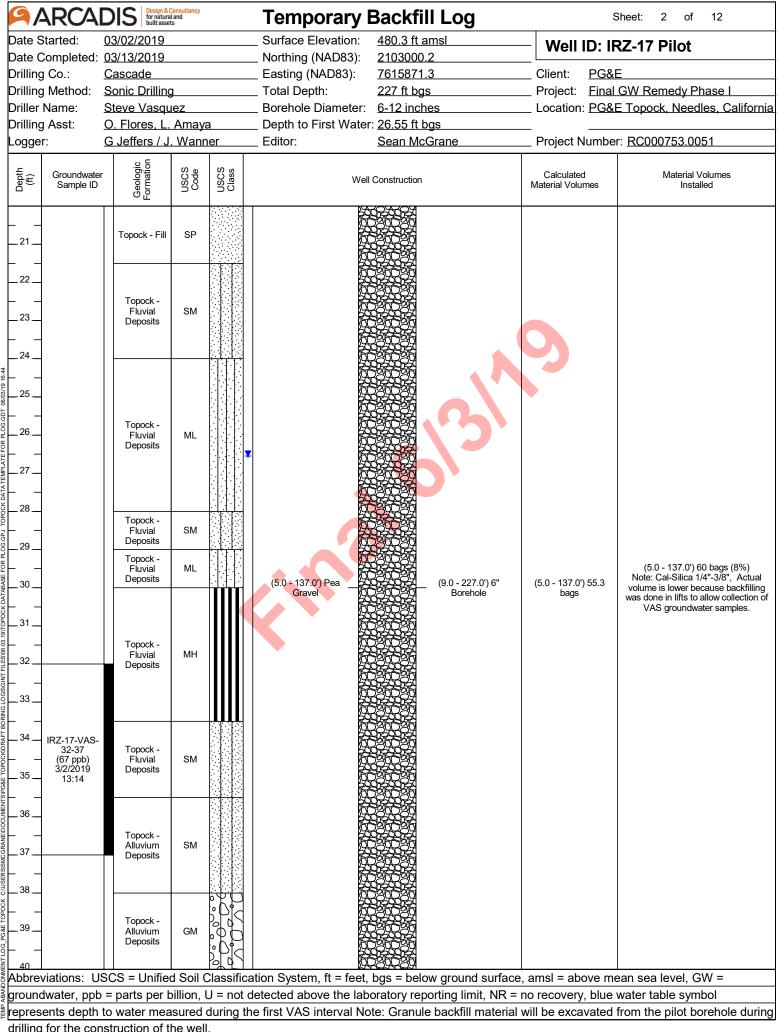
- /-		ADIS	Design & Consultancy for natural and built assets		Bo	ring	Log	She	eet: 9 of	12
	tarted				Surface			Boring No.:	IRZ-17 P	ilot
	•	eted: <u>03/13/</u>			Northin					
)rilling		<u>Casca</u>			Easting	•		Client: <u>PG&E</u>		
	Meth		Drilling		Total D Boreho	•	<u>227 ft bgs</u>	_ Project: <u>Final G</u> _ Location: <u>PG&E</u>	<u>W Remedy P</u>	
	g Type Name		<u>nic Truck Mo</u> Vasquez				neter: <u>6-12 inches</u> Water: <u>26.55 ft bgs</u>		TOPOCK, NEED	lies, Californ
	Asst:		<u>res, L. Amay</u>		Sampli		-	Project Number:	RC000753.00)51
oggei			ers / J. Wani		Sampliı	-		-		
ditor:		<u>Sean I</u>	McGrane		Conver	ted to	Vell: 🛛 Yes 🗌 No			
Depth (ft)	Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluid
					ML					(0.0 - 217.0') Mater used
		IRZ-17-SS- 157-162					(160.5 - 162.5') Topock - Alluvium Deposits; Sil brown / moderate brown(5YR 4/4); very fine gra	ty sand (SM); reddish		water used
		3/7/2019 14:59		Topock - Alluvium	SM		grained, angular to subangular; little granules to subangular to subround; little silt; trace mica; we	large pebbles,		
162				Deposits	SIVI		2-15 mm silt nodules, larger clasts consist of m			
163				Topock -		0 K	(162.5 - 164.0') Topock - Alluvium Deposits; Sil (GM); reddish brown / moderate brown(5YR 4/4	ty gravel with sand); granules to very		
_	120			Alluvium	GM	Polo	large pebbles, angular to subround; and very fir grained sand, angular to subround; little silt; trac	e to very coarse		
164_		IRZ-17-SS-	IRZ-17-VAS- 162-167	Dopoond			no staining; larger clasts consist of granodiorite	and metadiorite.		
_		162-167 3/7/2019	(<0.17 U				(164.0 - 183.0') Topock - Alluvium Deposits; Sil (SM); reddish brown / moderate brown(5YR 4/4); very fine grained to		
165_		15:01	ppb) 3/4/2019 17:01				very coarse grained, angular to subangular; little pebbles, angular to subround; little silt; trace mid	e granules to large ca; wet; no odor; no		
_			17.01				staining; larger clasts consist of metadiorite. (165.5'); some granules to large pebbles, angula	ar to subround:		
166							decrease in sand, increase in silt.	ar to subround,		
_										
167										
_										
168_										
_										
169		IRZ-17-SS-								
-		167-172 3/7/2019								
170_		15:02					(170') dark reddish brown (5YR 3/3); and granu	les to large pebbles,		
-							angular to subround; decrease in sand.			
171										
_				Topock -						
172	120			Alluvium	SM					
-				Depusits						
173_							(173') dark reddish brown (5YR 3/3) and black ((5YR 2.5/1); silt		
			IRZ-17-VAS-				mottled. (173.5') reddish brown / moderate brown(5YR 4			
174		IRZ-17-SS- 172-177	172-177 (<0.17 U				large pebbles, angular to subround; trace cobble in sand, no mottling.	es, subround; increase		
- 175_		3/7/2019 15:04	(<0.17 0 ppb) 3/5/2019				. .			
., , ,		13.04	15:20							
_ 176_										
.,, 0										
177_										
							(177'); some silt; trace clay; decrease in granule pebbles and grain size, decrease sand.	es to very large		
	120	IRZ-17-SS- 177-182								
179_	120	3/7/2019 15:05					(178.5'); little silt; no clay, increase sand, trace v very large pebbles.	weathered granules to		
180							(179.5'); some silt; decrease in sand.			
							feet, bgs = below ground surface,			
AUDA	Iwater	, ppb = part	s per billion,	U = not de		bove t S inter	ne laboratory reporting limit, NR = n	o recovery, blue wa	ater table sym	lodi

AR	CADIS	Design & Consultancy for natural and built assets		Во	ring	Log	She	eet: 10 of	12
Date Starte					Elevati		Boring No.:	IRZ-17 P	ilot
•	leted: <u>03/13/</u>				g (NAD8	,			
Drilling Co.				-	(NAD83		Client: PG&E		
Drilling Met		Drilling		Total D	-	227 ft bgs	-	W Remedy Pl	
Drill Rig Ty	-	nic Truck Mou			le Diame		Location: <u>PG&E</u>	lopock, Need	les, Califorr
Driller Nam		Vasquez				/ater: <u>26.55 ft bgs</u> od: <u>4 inch x 10 ft Core Barrel</u>	Project Number:]		E 1
Drilling Ass .ogger:		<u>res, L. Amaya</u> ers / J. Wann		-	ng Metho ng Interv			KC000755.00	51
ditor:		McGrane			ted to W		-		
	1								
Depth (ft) (ft) Recovery (in)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description		Drilling Notes	Drilling Fluic
	IRZ-17-SS- 177-182 3/7/2019 15:05		Topock - Alluvium Deposits	SM		180.5'); little granules to large pebbles, angular and.	to subround; increase		(0.0 - 217.0') water used
_ _183_ _ 120 _184_ _ _185_	IRZ-17-SS- 182-187 3/7/2019 15:06		Topock - Alluvium Deposits	ML		183.0 - 185.5') Topock - Alluvium Deposits; Gr ML); yellowish red (5YR 4/6); low plasticity, no granules to very large pebbles, angular to subar o very coarse grained sand, angular to subrour o very stiff; no odor; no staining; larger clasts co and metadiorite.	dilatency; some ngular; some very fine id; trace mica; wet; stiff		
_ _186 _ _187			Topock - Alluvium Deposits	SM		185.5 - 187.0') Topock - Alluvium Deposits; Sil SM); yellowish red (5YR 4/6); medium grained grained, angular to subangular; some silt; little s ingular to subangular; little mica; wet; no odor; r dasts consist of metadiorite. 187.0 - 192.0') Topock - Alluvium Deposits; Sa	to very coarse mall to large pebbles, no staining; larger		
	IRZ-17-SS- 187-192 3/7/2019 15:07		Topock - Alluvium Deposits	ML		ND, yellowish red (5YR 4/6); low plasticity, no granules to very large pebbles, angular to subro rery coarse grained sand, angular to subround; to odor; no staining; larger clasts consist of mel	dilatency; some und; some very fine to trace mica; wet; stiff;		
 			Topock - Weathered Bedrock - conglomerate	SM		192.0 - 206.5') Topock - Weathered Bedrock - and with gravel (SM); reddish brown (2.5YR 4/ rery coarse grained, angular to subangular; some arge pebbles, angular to subangular; some silt; dor; weak cementation; no staining; trace weat ormation.	4); very fine grained to ne granules to very some mica; wet; no		
197 		IRZ-17-VAS- 197-202 (<0.17 U ppb) 3/6/2019 11:20							
						eet, bgs = below ground surface, a			
		-				e laboratory reporting limit, NR = no	o recovery, blue wa	ater table sym	bol
	depth to wate	-							~~

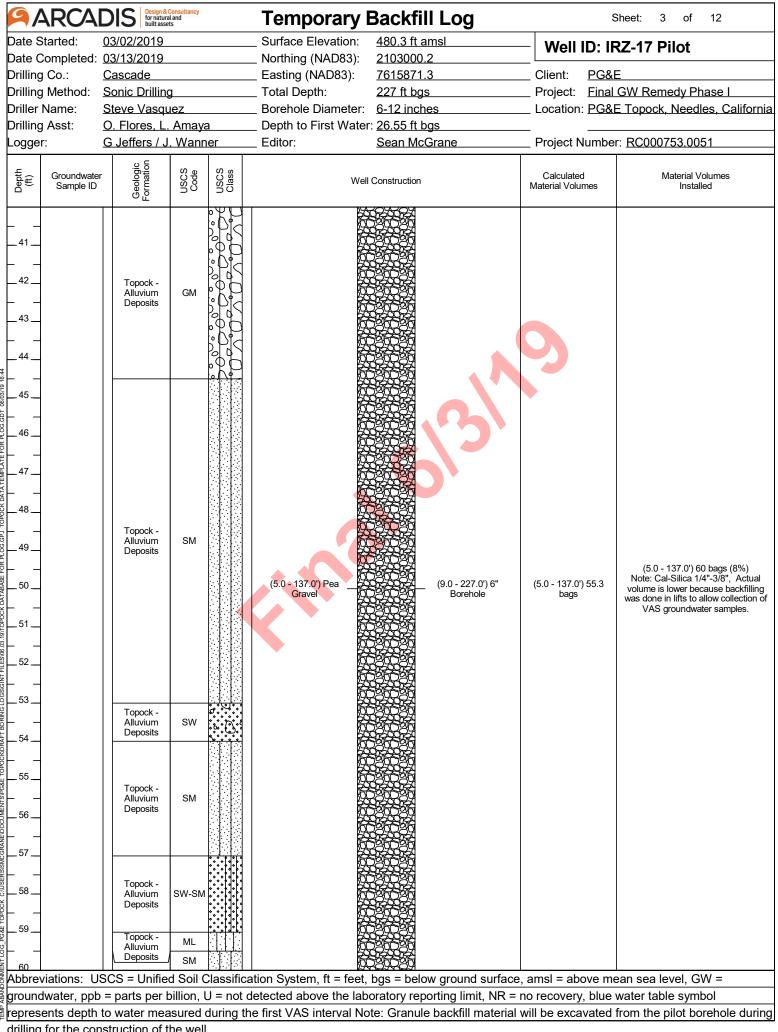
Date Started: 03/02/2019 Surface Elevation: 480.3 ft amsl Boring No.: IRZ-17 Date Completed: 03/13/2019 Northing (NAD83): 2103000.2 Client: PG&E Drilling Co.: Cascade Easting (NAD83): 7615871.3 Client: PG&E Drilling Method: Sonic Drilling Total Depth: 227 ft bgs Project: Final GW Remedy I Drill Rig Type: Prosonic Truck Mount Borehole Diameter: 6-12 inches Location: PG&E Drilling Asst: O. Flores, L. Amaya Depth to First Water: 26.55 ft bgs Project Number: RC000753.0 Logger: G Jeffers / J. Wanner Sampling Interval: Continuous Continuous Final GW Remedy I Editor: Sean McGrane Converted to Well: X Yes No No	Phase I dles, California
Date Completed: 03/13/2019 Northing (NAD83): 2103000.2 Drilling Co.: Cascade Easting (NAD83): 7615871.3 Client: PG&E Drilling Method: Sonic Drilling Total Depth: 227 ft bgs Project: Final GW Remedy I Drill Rig Type: Prosonic Truck Mount Borehole Diameter: 6-12 inches Location: PG&E Driller Name: Steve Vasquez Depth to First Water: 26.55 ft bgs	Phase I dles, California
Drilling Method: Sonic Drilling Total Depth: 227 ft bgs Project: Final GW Remedy I Drill Rig Type: Prosonic Truck Mount Borehole Diameter: 6-12 inches Location: PG&E Topock, Nee Driller Name: Steve Vasquez Depth to First Water: 26.55 ft bgs	dles, California
Drill Rig Type: Prosonic Truck Mount Borehole Diameter: 6-12 inches Location: PG&E Topock, Nee Driller Name: Steve Vasquez Depth to First Water: 26.55 ft bgs	dles, California
Driller Name: Steve Vasquez Depth to First Water: 26.55 ft bgs Drilling Asst: O. Flores, L. Amaya Sampling Method: 4 inch x 10 ft Core Barrel Project Number: RC000753.0 Logger: G Jeffers / J. Wanner Sampling Interval: Continuous Editor: Sean McGrane Converted to Well: X Yes No	
Drilling Asst: O. Flores, L. Amaya Sampling Method: 4 inch x 10 ft Core Barrel Project Number: RC000753.0 Logger: G Jeffers / J. Wanner Sampling Interval: Continuous Editor: Sean McGrane Converted to Well: Yes No	054
Logger: G Jeffers / J. Wanner Sampling Interval: Continuous Editor: Sean McGrane Converted to Well: X Yes No	
Editor: <u>Sean McGrane</u> Converted to Well: X Yes No	J51
Image: state of the state o	Drilling Fluid
201 60 IR2.17.VAG- typed, pb0) 362019 Topock - weathered Betrock - congiomerate SM Image: Congiomerate in the second second second sec	
217_ 218_ 219_ 219_ 219_ 219_ 219_ 219_ 219_ 210_ 210_ 210_ 210_ 210_ 210_ 210_ 210	
Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level,	GW =
groundwater, ppb = parts per billion, U = not detected above the laboratory reporting limit, NR = no recovery, blue water table syl	
	IUUI
represents depth to water measured during the first VAS interval	



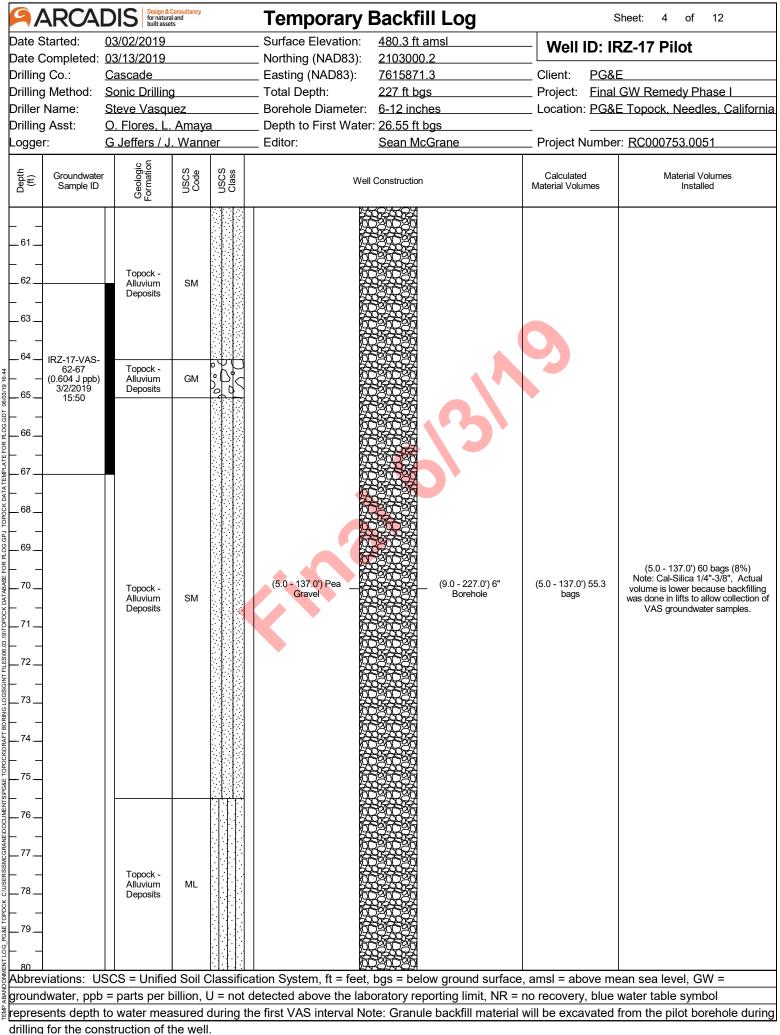




drilling for the construction of the well.

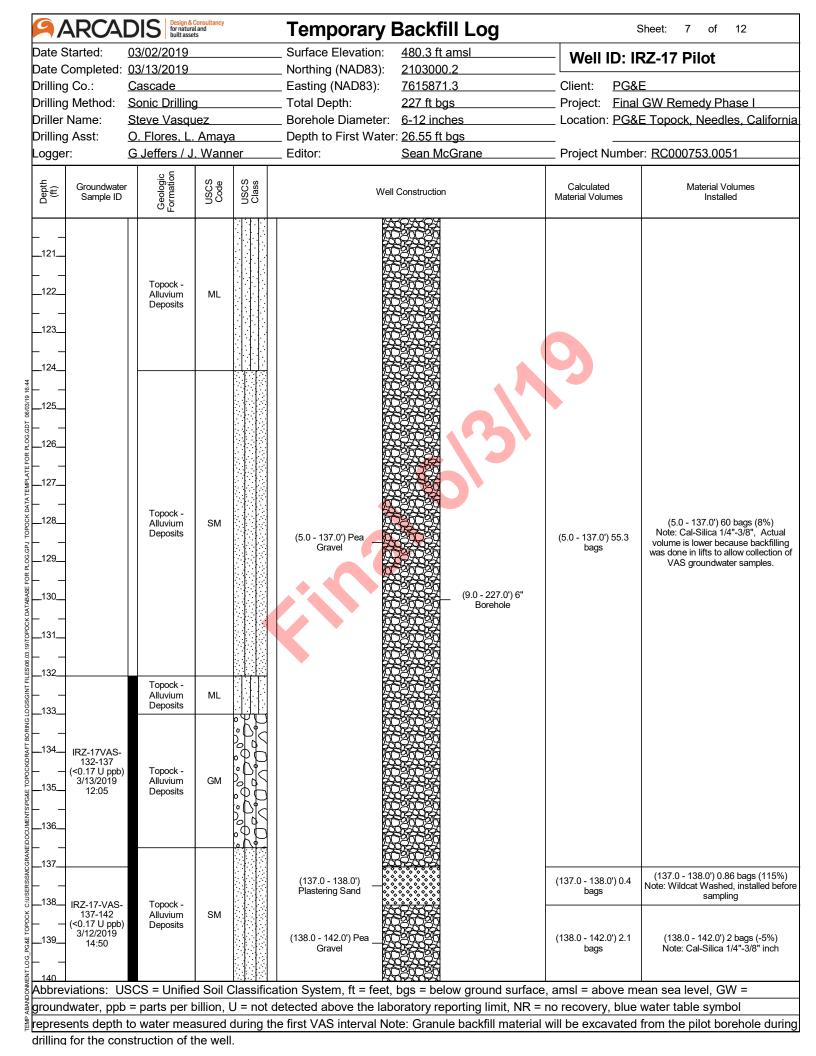


drilling for the construction of the well.

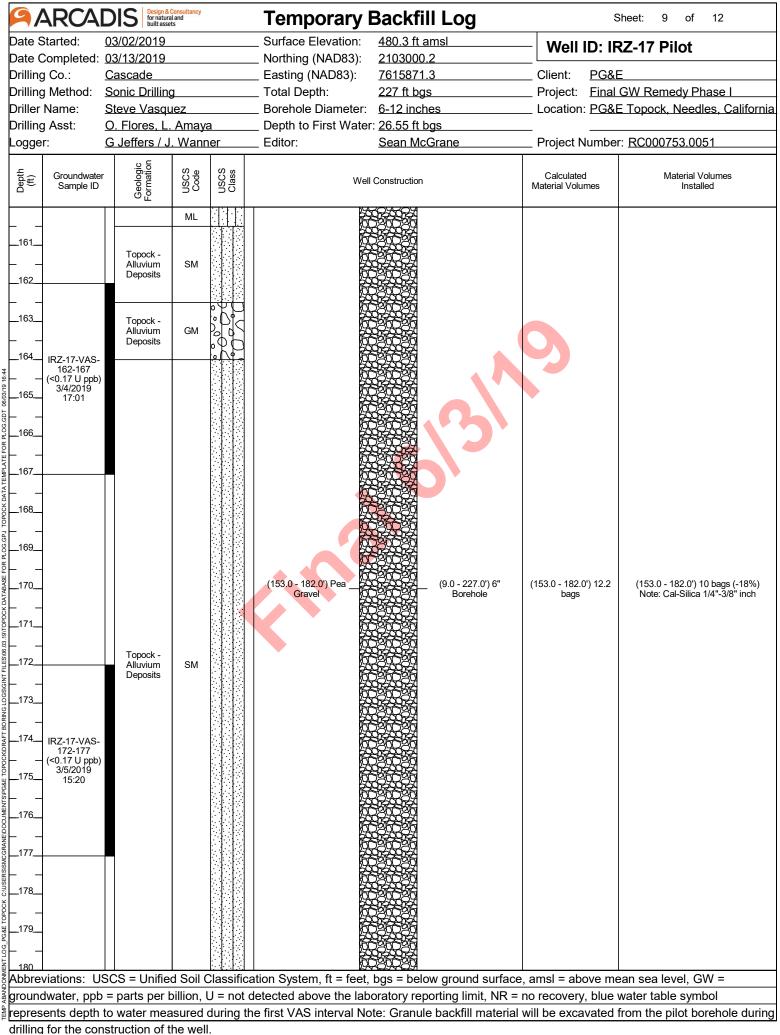


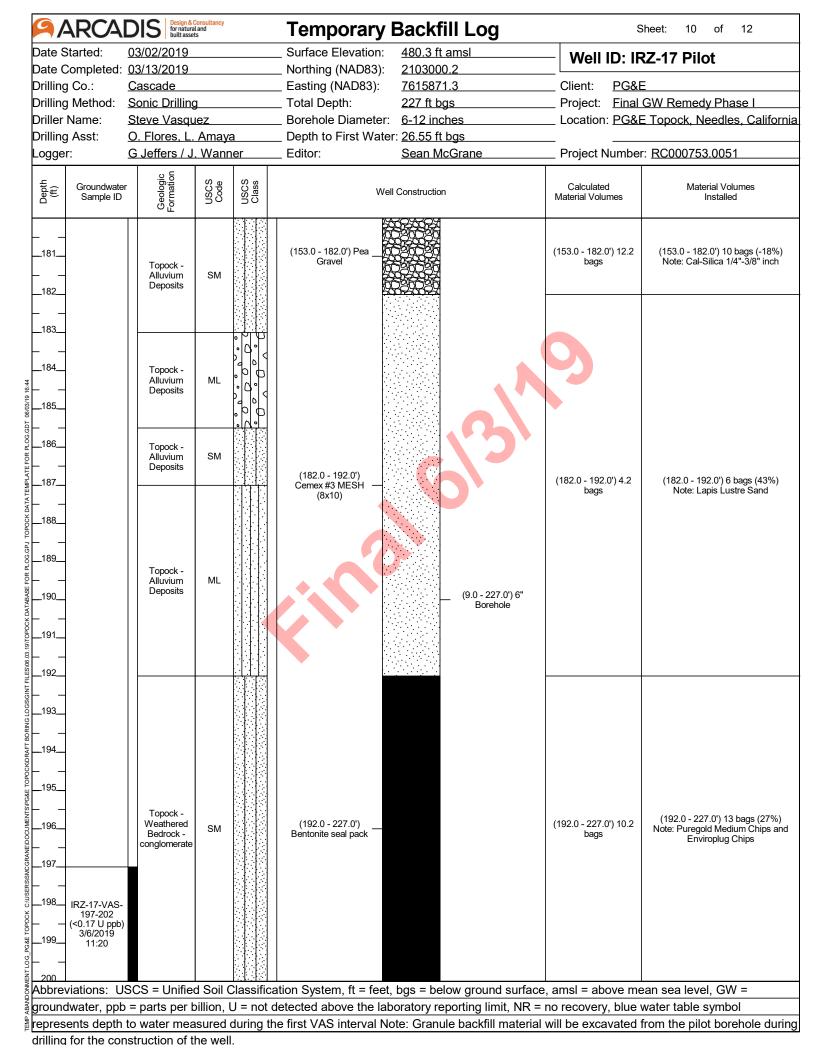
ARCA	DIS Design & for nature built ass	Consultancy al and ets		Temporary I	Backfill Log	s	Sheet: 5 of 12			
ate Started:	03/02/2019						_ Surface Elevation:	480.3 ft amsl		RZ-17 Pilot
te Completed: 03/13/2019				_ Northing (NAD83):	2103000.2					
rilling Co.:	Cascade			_ Easting (NAD83):	7615871.3	Client: PG&I				
rilling Method:	Sonic Drillin	g		_ Total Depth:	<u>227 ft bgs</u>	Project: Final	GW Remedy Phase I			
riller Name:	Steve Vasq	uez		_ Borehole Diameter:	6-12 inches	Location: <u>PG&</u>	<u>E Topock, Needles, Califorr</u>			
rilling Asst:	O. Flores, L	. Amaya	a	_ Depth to First Water	: <u>26.55 ft bgs</u>					
ogger:	<u>G Jeffers / .</u>	I. Wann	er	_ Editor:	Sean McGrane	Project Numbe	r: <u>RC000753.0051</u>			
Groundwate		USCS Code	USCS Class	Well	Construction	Calculated Material Volumes	Material Volumes Installed			
		ML								
_										
.81	Topock - Alluvium	SM								
	Deposits									
82										
83										
	Topock - Alluvium	ML								
³⁴	Deposits									
_										
35										
	Topock -	CM								
37	Alluvium Deposits	SM								
_										
38										
-										
39										
_							(5.0 - 137.0') 60 bags (8%)			
90				(5.0 - 137.0') Pea	(9.0 - 227.0') 6"	(5.0 - 137.0') 55.3	Note: Cal-Silica 1/4"-3/8", Actua volume is lower because backfillir			
				Gravel	Borehole Borehole	bags	was done in lifts to allow collection			
							VAS groundwater samples.			
91										
-										
92	Topock -									
	Alluvium Deposits	ML								
03					225225					
_					286586					
					200000					
94					20020					
					36636					
95										
6										
16										
-										
07										
_										
98	Topock -									
	Alluvium	SM								
<u> </u>	Deposits									
99										
		 		$\int_{1}^{1} \int_{1}^{1} \int_{1$			an and lower $OM =$			
	ere _ 11-## -			MUUL OVSIENT IT = TEET	DUS - DEIOW OLOUNO SUITAO	.e. amsi = apove me				
breviations: U bundwater, ppb										
oundwater, ppb	o = parts per	billion, l	J = not c	letected above the lab	oratory reporting limit, NR te: Granule backfill materia	= no recovery, blue	water table symbol			

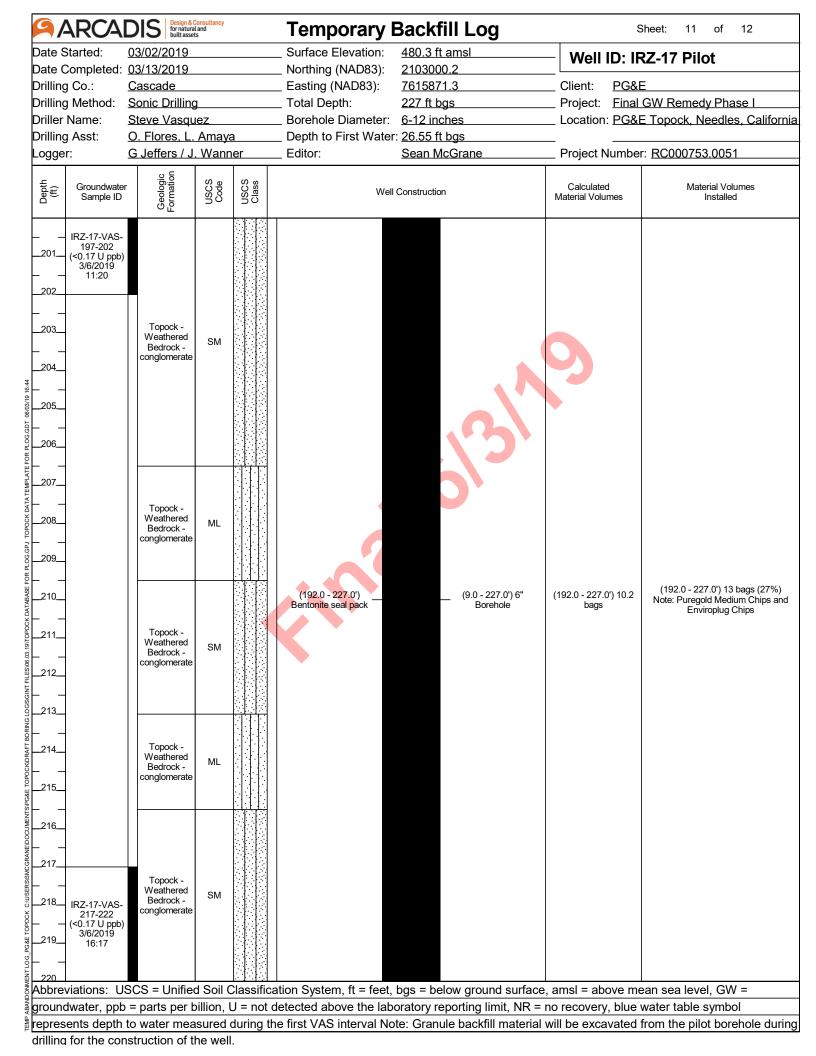
	DIS Design & for nature built asset	Consultancy al and ets		Temporary I	Backfill Log	S	Sheet: 6 of 12
ate Started: ate Completed: rilling Co.: rilling Method:	03/02/2019 03/13/2019 Cascade Sonic Drilling Steve Vasquez O. Flores, L. Amaya G Jeffers / J. Wanner			Surface Elevation: Northing (NAD83): Easting (NAD83): Total Depth:	480.3 ft amsl 2103000.2 7615871.3 227 ft bgs	Well ID: IRZ-17 Pilot Client: PG&E Project: Final GW Remedy Phase I	
riller Name: rilling Asst: ogger:				Borehole Diameter: <u>6-12 inches</u> Depth to First Water: <u>26.55 ft bgs</u> Editor: <u>Sean McGrane</u>		Location: <u>PG&E Topock, Needles, Californ</u>	
Groundwate (#) Sample ID	logic lation	USCS Code	USCS Class		Construction	Calculated Material Volumes	Material Volumes Installed
		SM		(5.0 + 137.0) Pea Gravel	(9.0 - 227.0') 6" Borehole	(5.0 - 137.0') 55.3 bags	(5.0 - 137.0') 60 bags (8%) Note: Cal-Silica 1/4"-3/8", Actual volume is lower because backfilling was done in lifts to allow collection o VAS groundwater samples.

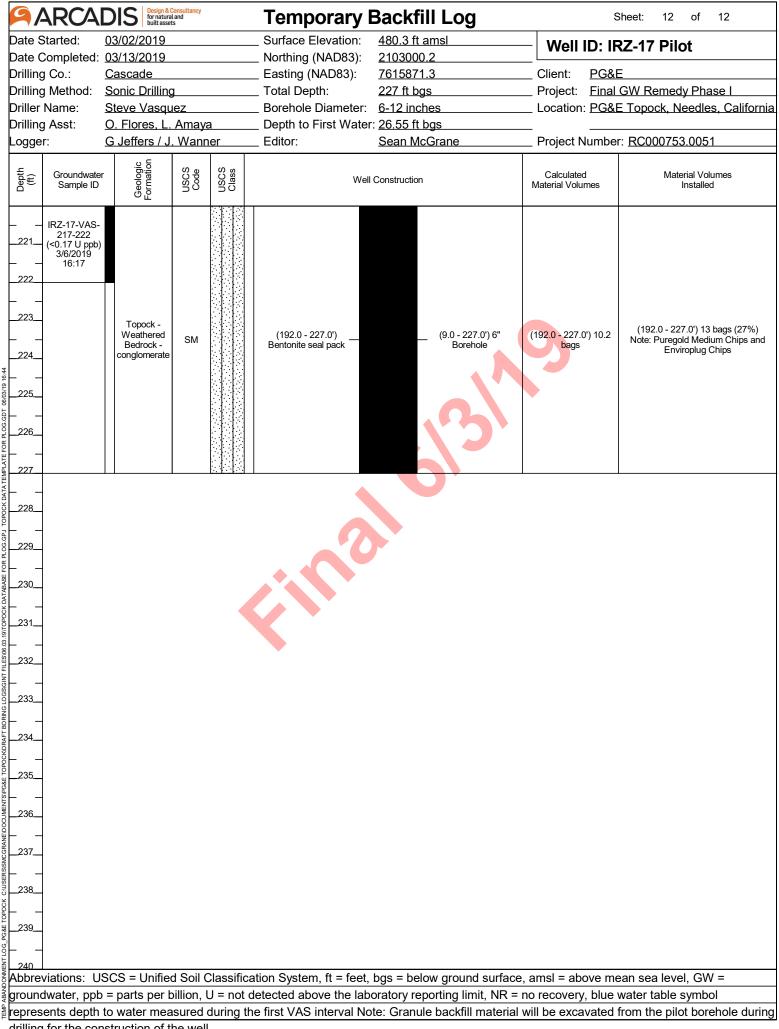


ARCA	DIS Design & for natura built asse	Consultancy al and ts		Temporary I	Backfill Log	S	Sheet: 8 of 12			
Date Started:	03/02/2019						RZ-17 Pilot			
	d: <u>03/13/2019</u> Cascade							2103000.2		
Drilling Co.:				_ Easting (NAD83):	7615871.3	Client: PG&	E			
Drilling Method:	Sonic Drilling	r		_ Total Depth:	227 ft bgs		GW Remedy Phase I			
Driller Name:	Steve Vasqu	-		_ Borehole Diameter:	-	•	E Topock, Needles, California			
Drilling Asst:	<u>O. Flores, L.</u>			_ Depth to First Water		Location. <u>r Oo</u>				
•	<u>G Jeffers / J</u>	-		_ Editor:	Sean McGrane	Broiget Numbe	r: <u>RC000753.0051</u>			
Logger:	-	. wann			Sean McGrane		<u>KC000753.005</u>			
Groundwate		USCS Code	USCS Class	Well	Construction	Calculated Material Volumes	Material Volumes Installed			
IRZ-17-VAS- 137-142 (<0.17 U ppb) 3/12/2019 14:50				(138.0 - 142.0') Pea _ C Gravel		(138.0 - 142.0') 2.1 bags	(138.0 - 142.0') 2 bags (-5%) Note: Cal-Silica 1/4"-3/8" inch			
142 143				(142.0 - 143.0')		(142.0 - 143.0') 0.4 bags	(142.0 - 143.0') 0.88 bags (120%) Note: Wildcat Washed, installed before sampling			
IRZ-17-VAS- 142-147 (84 ppb) 3/4/2019 145 10:24 146 						9				
		SM		(143.0 - 152.3') Pea Gravel	(9.0 - 227.0') 6' Borehole	(143.0 - 152.3') 3.9 bags	(143.0 - 152.3') 5 bags (28%) Note: Cal-Silica 1/4"-3/8" inch			
				(152.3 - 153.0') (152.3 - 153.0')	<u>, </u>	(152.3 - 153.0') 0.3	(152.3 - 153.0') 0.25 bags (-17%) Note: Wildcat Washed, installed before			
153 154IRZ-17-SS- 152_157 155122:00 155122:00 156				(153.0 - 182.0') Pea _ C		bags (153.0 - 182.0') 12.2 bags	sampling (153.0 - 182.0') 10 bags (-18%) Note: Cal-Silica 1/4"-3/8" inch			
157 159 	Topock - Alluvium Deposits	ML								
					has - helow around our	taaa amaal — ahayya ma				
	o = parts per t	billion, L	J = not d	letected above the lab	oratory reporting limit, N	R = no recovery, blue				









drilling for the construction of the well.