



TOPOCK WELL COMPLETION AND ACCEPTANCE REPORT - REMEDIATION WELLS

Well Name: ER-01 (Note: Documentation referencing ER-1 is in reference to ER-01.)

Screen Zone (feet below ground surface [bgs]): 45 – 136

Dates Pilot Borehole Drilling: 04/02/2022 – 04/20/2022

Dates Well Installation: 4/20/2022 – 5/10/2022

Dates Well Head Completion: 5/10/2022

Dates of Development: 5/17/2022 to 6/1/2022

Note: Well Testing was completed successfully and in accordance with Well Specification 33 22 00 unless noted below.

Well Testing Conducted	Required (Y/N)	Dates	Comments
Alignment Test	Y	6/3/2022	Successfully Completed
Specific Capacity Test	Y	6/2/2022	None
Injectivity Test	N	--	--
Plumbness Test (Gyroscope)	N	--	--
Spinner Log	N	--	--
Downhole Video	Y	06/30/2022	None
48-hour Constant Rate Test	Added to Phase 2a SOW	11/3/22-11/10/2022	Exceeds design rate criteria. Test results will be submitted under a separate cover.

Acceptance Criteria

Meets Design Criteria for Construction - Well installed in accordance with well specifications and final design.

Comments: As-built well construction consistent with the final well design (see Attached Logs). The Phase 2a scope of work preliminary design included the installation of a conductor casing to the top of the competent bedrock. The bedrock was planned to be reamed to a diameter of 6-inches and the well was to be completed as an open bedrock well to an estimated depth of 136 ft bgs.

However, drilling conditions and lithologic descriptions from the pilot borehole suggested the bedrock was not fully competent (See boring log). To avoid installing an open hole well with a potential for formation collapse, the well was redesigned as a fully cased well with well screen depths consistent with the depth of the originally open bedrock well (See attached Final Well Design and Well Construction Log).

Meets Design Criteria for Specific Capacity Testing

Goal from 100% Design:	0.5 gpm
Tested Rates (gallons per minute [gpm]):	1.5, 2.0, 2.5, 5.0
Specific Capacity	0.09 gpm/ft per 22.16 ft of drawdown at an extraction rate of ~2.0 gpm (4x the proposed design rate)
Comments	The tested rates exceeded the proposed 100% design rate of 0.5 gpm. Well meets the design criteria for extraction rates. See attached Specific Capacity Well Testing Data Package. Test results for the 48-hour constant-rate test will be submitted separately.

Well Functions as Designed

Comments: _____ criteria for the intended use.

Meets Design Criteria for Plumbness and Equipment Install – The well was free of blockages and of sufficient plumbness and alignment to allow for well development, well testing, and well sampling and alignment test tool deployment to total depth.

Comments: Downhole equipment has not been installed as of the submittal of this Well Completion Report. Installation of downhole equipment is planned to be completed in 2023.

Meets Design Criteria for Turbidity (Turbidity less than 50 NTU)

Comments: Turbidity at the completion of well development meets the design criteria.

Final Turbidity at End of Well Development

Screen Zone	Turbidity (NTUs)
45' – 136'	1.78

Other Water Quality Parameters

Water Quality Parameters at end of development

Screen Depths	Temp (C)	pH	ORP (mV)	Cond (mS/cm)	DO
45' – 136'	30.3	7.85	-26.6	8.64	3.29

ATTACHMENTS

- Final Well Design
- Boring Log
- Well Construction Log

TOPOCK Well Acceptance Form - Remediation Wells

- Well Development Logs
- Specific Capacity Testing Package
- Photo Logs
- Video Survey Report(s)

NOTE: Field documentation for all phases of the borehole drilling and well installation are included in the Daily Well Construction Reports. The Daily Well Construction Reports and DoR Daily Well Construction Quality Control Reports for the drilling program during Phase 2a are compiled and organized by date in *AutodeskBuild*. The parent folder for both daily reports are located on *AutodeskBuild* in the following location: Files/For the Field/DOR Drilling Quality Control/01 QC Documentation. Analytical reports are compiled and organized in *AutodeskBuild*.. The technical scopes were performed by or under the direct supervision of Designer of Record (DoR) Professional Geologists (see attached Certification Statement).

ACCEPTANCE APPROVAL

DoR Approver Name: Greg Foote

Approval Signature/Date:



January 20, 2023

Attachment 1

Final Well Design

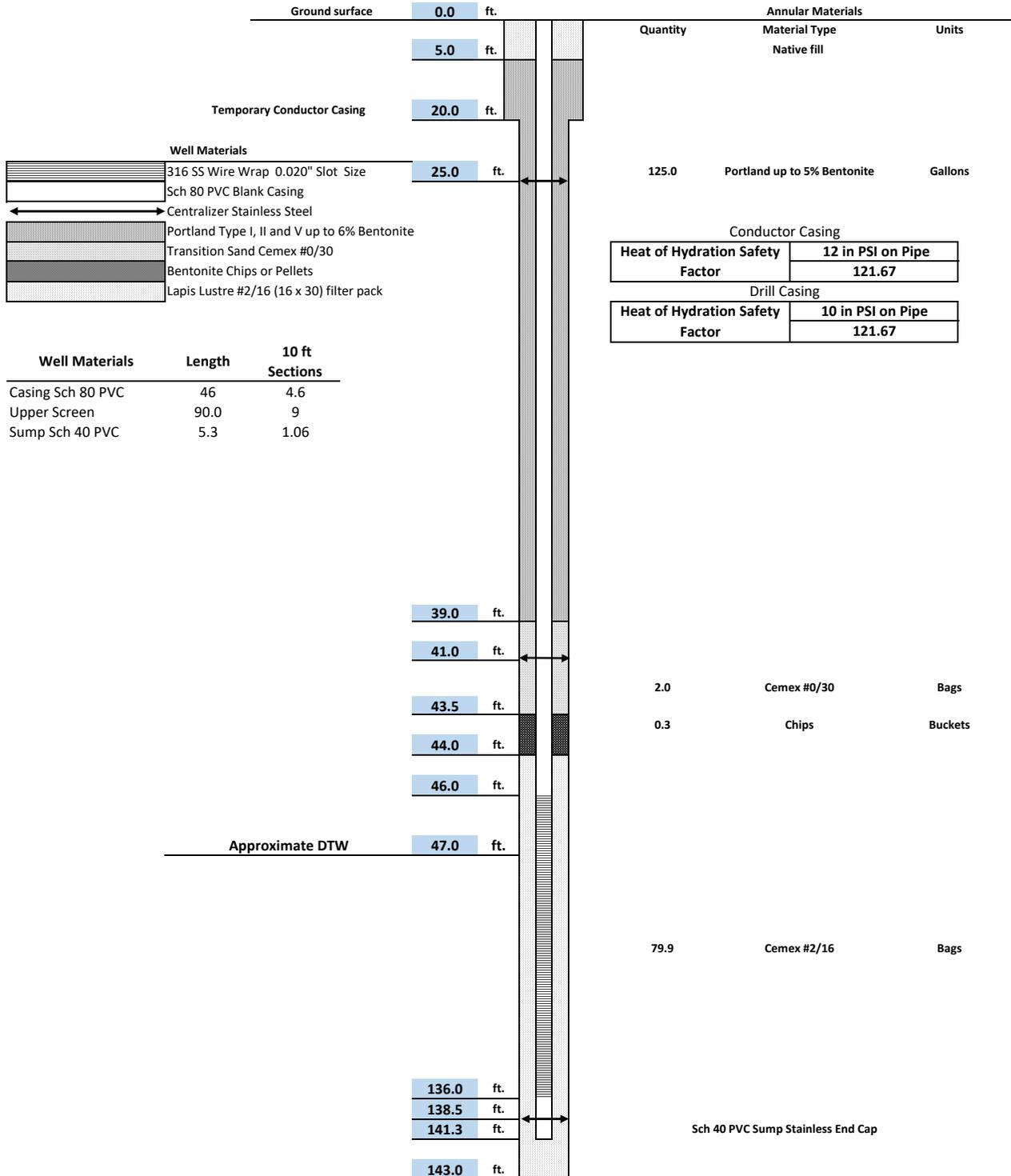


ER-01 Final Well Design 4/20/22

Conductor casing Dia: **12**
 Drill casing Dia: **10.75**
 Rathole Dia:

Well Casing Outer Diameter: **6.5**
 Well Casing Inner Diameter: **6**

Surface Completion:



Attachment 2

Boring Log

Date Started: 03/31/2022	Surface Elevation: 504.57 ft amsl	Boring No.: ER-01
Date Completed: 04/20/2022	Northing (NAD83): 2101089.85	
Drilling Co.: ABC LIOVIN	Easting (NAD83): 7616510.53	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143.1 ft bgs	Project: Final GW Remedy Phase 2A
Drill Rig Type: Terra Sonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles California
Driller Name: Eddie Ramos	Depth to First Water: 80.5 ft bgs	
Drilling Asst: J. Candelaria / F. Perez	Sampling Method: 7 inch x 10 ft. Core Barrel	Project Number: 30126255
Logger: Grant Willford	Sampling Interval: Continuous	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

TOPOCK SOIL BORING LOG \\ARCADIS\0365\SHAREPOINT.COM\SSLD\A\WWW\ROOT\TEAMS\FGETOPOCK\CONSTRUCTION\SHARED DOCUMENT\SPHASE II\DRILLING\06 FIELD DOCUMENTATION\02 GINT FILES\01 NEW PHASE 2 GINT FILES\39 2022-10-13\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 10/13/22

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
1	4.5			Alluvium Deposits	SM		(0-2 ft) Silty sand with gravel (SM); reddish brown (5YR 5/4); very fine to coarse, angular to subround; little silt; little granules, angular to subround; little small cobbles, angular to subround; little small to very large pebbles, angular to subround; trace clay; poorly sorted; dry.	(0.0 - 4.5') Air-knifed for utility clearance refusal at approximately 4.5 ft bgs due to encountering bedrock. Logged from air-knife cuttings.	(0.0 - 4.5') No drilling fluid used
2				Alluvium Deposits	SM		(2-4.5 ft) Silty sand with gravel (SM); reddish brown (5YR 5/4); very fine to very coarse, angular to subround; little small to very large pebbles, angular to subround; little silt; little granules, angular to subround; trace clay; poorly sorted; dry; coarser grained composed of mixed lithology.		
3	0			(4.5-7 ft) No Recovery.				(4.5 - 20.0') Advancing 12 inch conductor casing 4.5-20 ft bgs (5.0 - 7.0') Core fell out of core barrel into hopper.	(4.5 - 20.0') 600 gallons of water used; 500 gallons of water recovered; 100 gallons of water lost
4									
5									
6	8	No Sieve Samples Collected	No Groundwater Samples Collected	Weathered Bedrock - conglomerate	N/A		(7-36 ft) Sedimentary Rock - Conglomerate; reddish brown (2.5YR 5/4); microcrystalline to coarse grained, angular; highly weathered; hard; massive; some competent rock fragments observed, 1-2.5 inches in length; moderately to highly friable; dry; NOTE: Core sample appeared mostly pulverized drilling process.	(7.0 - 15.0') Rough drilling	
7									
8									
9									
10									
11	2							(15.0 - 17.0') Rough drilling	
12									
13	5							(17.0 - 22.0') Very rough drilling	
14									
15									
16									
17									
18									
19									
20									

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered during drilling and approximate static measured during development, respectively. Apparent partial recoveries can be the result of potential compaction of sediments in the core bag.

Date Started: 03/31/2022	Surface Elevation: 504.57 ft amsl	Boring No.: ER-01
Date Completed: 04/20/2022	Northing (NAD83): 2101089.85	
Drilling Co.: ABC LIOVIN	Easting (NAD83): 7616510.53	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143.1 ft bgs	Project: Final GW Remedy Phase 2A
Drill Rig Type: Terra Sonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles California
Driller Name: Eddie Ramos	Depth to First Water: 80.5 ft bgs	
Drilling Asst: J. Candelaria / F. Perez	Sampling Method: 7 inch x 10 ft. Core Barrel	Project Number: 30126255
Logger: Grant Willford	Sampling Interval: Continuous	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

TOPOCK SOIL BORING LOG \ARCADIS\0365\SHAREPOINT.COM\SSLLD\WWWROOT\TEAMS\FGETOPOCK\CONSTRUCTION\SHARED\DOCUMENTS\PHASE II\DRILLING\06_FIELD_DOCUMENTATION\02_GINT_FILES\00_NEW_PHASE_2_GINT_FILES\39_2022-10-19\GINT_PROJECT.GPJ_GINT_DATA_TEMPLATE.GDT 10/13/22

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
21	5					XXXXX	(7-36 ft) Sedimentary Rock - Conglomerate; reddish brown (2.5YR 5/4); microcrystalline to coarse grained, angular; highly weathered; hard; massive; some competent rock fragments observed, 1-2.5 inches in length; moderately to highly friable; dry; NOTE: Core sample appeared mostly pulverized drilling process.		
22						XXXXX	(22 ft) Observed some competent rock fragments within the mostly friable conglomerate.	(22.0 - 27.0') Very rough drilling	(22.0 - 27.0') No drilling fluid used
23						XXXXX			
24	5					XXXXX			
25						XXXXX			
26						XXXXX			
27						XXXXX			
28				Weathered Bedrock - conglomerate	N/A	XXXXX		(27.0 - 32.0') Rough drilling	(27.0 - 32.0') No drilling fluid used
29	5	No Sieve Samples Collected	No Groundwater Samples Collected			XXXXX			
30						XXXXX			
31						XXXXX		(30.0') 10-inch diameter drill casing became locked up. Advanced 12-inch diameter conductor casing to free the 10-inch drill casing.	(30.0') No drilling fluid used
32						XXXXX		(32.0 - 36.0') Rough drilling	(32.0 - 36.0') No drilling fluid used
33						XXXXX			
34	5					XXXXX			
35						XXXXX			
36						XXXXX			
37						XXXXX	(36-57 ft) Sedimentary Rock - Conglomerate; reddish brown (2.5YR 5/4); microcrystalline to coarse grained, angular; hard; massive; some competent rock fragments observed, 1 to 3 inches in length; less friable and more difficult to break; some friable rock fragments within the competent rock observed; dry; NOTE: Core sample appeared mostly pulverized drilling process.	(36.0 - 37.0') Very rough drilling; drill rate slowed significantly.	(36.0 - 37.0') No drilling fluid used
38				Competent Bedrock - conglomerate	N/A	XXXXX		(37.0 - 42.0') Drilling conditions changed from rough to normal at discrete depths	(37.0 - 42.0') No drilling fluid used
39	5					XXXXX			
40						XXXXX			

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered during drilling and approximate static measured during development, respectively. Apparent partial recoveries can be the result of potential compaction of sediments in the core bag.

Date Started: 03/31/2022	Surface Elevation: 504.57 ft amsl	Boring No.: ER-01
Date Completed: 04/20/2022	Northing (NAD83): 2101089.85	
Drilling Co.: ABC LIOVIN	Easting (NAD83): 7616510.53	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143.1 ft bgs	Project: Final GW Remedy Phase 2A
Drill Rig Type: Terra Sonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles California
Driller Name: Eddie Ramos	Depth to First Water: 80.5 ft bgs	
Drilling Asst: J. Candelaria / F. Perez	Sampling Method: 7 inch x 10 ft. Core Barrel	Project Number: 30126255
Logger: Grant Willford	Sampling Interval: Continuous	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

TOPOCK SOIL BORING LOG \\ARCADIS0365.SHAREPOINT.COM@SSL.DA\\WWWROOT\TEAMS\FGETOPOCK\CONSTRUCTION\SHARED DOCUMENTS\PHASE II DRILLING\06_FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\39 2022-10-13\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 10/13/22

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid	
81	5	ER-1-SS-67-87 4/5/2022 12:05		Competent Bedrock - conglomerate	N/A	x x x x	(80.5 ft) Rock fragments are moist.	↓		
82				Competent Bedrock - conglomerate	N/A	x x x x	(81-82.5 ft) Sedimentary Rock - Conglomerate; reddish brown (2.5YR 5/4); microcrystalline to coarse grained, angular; fresh; hard; massive; dry; NOTE: Solid rock core.			
83							x x x x			(82.5-97 ft) Sedimentary Rock - Conglomerate; reddish brown (2.5YR 5/4); microcrystalline to coarse grained, angular; hard; massive; some competent rock fragments observed, 1-3 inches in length, difficult to break; some friable rock fragments within the competent rock observed; dry; NOTE: Core appeared sample mostly pulverized drilling process.
84	5					x x x x				
85						x x x x				
86						x x x x				
87						x x x x				
88						x x x x				
89	5	ER-1-SS-87-97 4/5/2022 12:58	No Groundwater Samples Collected	Competent Bedrock - conglomerate	N/A	x x x x				
90							x x x x			
91							x x x x			
92						x x x x	(92-97 ft) Conglomerate becoming more competent, increase in the size of the rock fragments 2-4 inches.			
93						x x x x				
94	5					x x x x				
95						x x x x				
96						x x x x				
97						x x x x				
98	2.5	No Sieve Samples Collected			NR	X X X X	(97-99.5 ft) No Recovery. NOTE: See drilling notes.	(97.0 - 102.0') Top 2.5 ft of drill cuttings washed out of core barrel during extraction.	(97.0 - 102.0') No drilling fluid used	
99						X X X X				
100					N/A	X X X X				

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered during drilling and approximate static measured during development, respectively. Apparent partial recoveries can be the result of potential compaction of sediments in the core bag.

Date Started: 03/31/2022	Surface Elevation: 504.57 ft amsl	Boring No.: ER-01
Date Completed: 04/20/2022	Northing (NAD83): 2101089.85	
Drilling Co.: ABC LIOVIN	Easting (NAD83): 7616510.53	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 143.1 ft bgs	Project: Final GW Remedy Phase 2A
Drill Rig Type: Terra Sonic Truck Mount	Borehole Diameter: 10-12 inches	Location: PG&E Topock, Needles California
Driller Name: Eddie Ramos	Depth to First Water: 80.5 ft bgs	
Drilling Asst: J. Candelaria / F. Perez	Sampling Method: 7 inch x 10 ft. Core Barrel	Project Number: 30126255
Logger: Grant Willford	Sampling Interval: Continuous	
Editor: Sean McGrane	Converted to Well: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

TOPOCK SOIL BORING LOG \ARCADIS\0365\SHAREPOINT.COM\SSLD\A\WWW\ROOT\TEAMS\FGETOPOCK\CONSTRUCTION\SHARED DOCUMENTS\PHASE II DRILLING\06_FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\10-19\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 10/13/22

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
121	5					XXXXX	(99.5-143.1 ft) Sedimentary Rock - Conglomerate; reddish brown (2.5YR 5/4); microcrystalline to coarse grained, angular; hard; massive; some competent rock fragments observed, 1-3 inches in length; difficult to break; some friable rock fragments within the competent rock observed; rock fragments moist to dry; NOTE: Core sample appeared mostly pulverized drilling process.		
122						XXXXX		(122.0 - 127.0') Very rough drilling	(122.0 - 127.0') No drilling fluid used
123						XXXXX			
124						XXXXX			
125	5					XXXXX			
126						XXXXX			
127						XXXXX			
128						XXXXX		(127.0 - 137.0') Normal drilling; rough drilling in discrete intervals.	(127.0 - 137.0') No drilling fluid used
129						XXXXX			
130	5	No Sieve Samples Collected	No Groundwater Samples Collected	Competent Bedrock - conglomerate	N/A	XXXXX			
131						XXXXX			
132						XXXXX			
133						XXXXX			
134						XXXXX			
135	5					XXXXX			
136						XXXXX			
137						XXXXX			
138						XXXXX	(137.0 - 143.0') Very rough drilling	(137.0 - 143.0') No drilling fluid used	
139	6					XXXXX			
140						XXXXX			

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered during drilling and approximate static measured during development, respectively. Apparent partial recoveries can be the result of potential compaction of sediments in the core bag.

Attachment 3

Well Construction Log

Date Started: 04/20/2022	Surface Elevation: 504.57 ft amsl	Well ID: ER-01
Date Completed: 05/10/2022	Shallow Well Elevation: 503.83 ft amsl	
Drilling Co.: ABC LIOVIN	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2101089.85	Project: Final GW Remedy Phase 2A
Driller Name: Eddie Ramos	Easting (NAD83): 7616510.53	Location: PG&E Topock, Needles California
Drilling Asst: J. Candelaria / F. Perez	Borehole Diameter: 10-12 inches	
Logger: Grant Willford	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 6/1/2022	
Total Depth: 143.1 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Construction Details	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
1		Alluvium Deposits	SM		(0.0 - 1.0') Temporary Surface Completion		(0.0 - 1.0') 7 bags Note: 2.5 x 2.5 ft. concrete pad with 18 inch diameter lockable vault, High Sped 4,500 PSI Concrete.
2		Alluvium Deposits	SM		(1.0 - 2.0') Cemex #2/16 (16x30) Lapis Lustre Sand		Note: Cemex #2/16 Lapis Lustre Sand extended into skirt of vault.
3					(0.7 - 45.3') 6" Sch. 80 PVC Casing		
4		(2.0 - 5.7') Native Material					
5			NR				
6							
7							
8	No Groundwater Samples Collected	Weathered Bedrock - conglomerate	N/A		(5.7 - 39.0') Portland Cement 5% Bentonite Type I, II, and V with Hydrogel		(5.7 - 39.0') 116.1 Gallons Note: Used >20% of the calculated volume due to potential voids that formed during drilling.
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, SS = Stainless Steel, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) static water measured post development and approximate static measured during drilling, respectively.

TOPOCK WELL COMPLETION DETAILS | ARCADIS | 365.SHAREPOINT.COM | SSSLD | AVWWWROOT | TEAMSPG | TOPOCKCONSTRUCTION | SHARED | DOCUMENTS | PHASE II | DRILLING | 06.FIELD DOCUMENTATION | 02.GINT FILES | 000 | NEW PHASE 2 | GINT FILES | 39.2022-10-13 | GINT PROJECT.GPJ | GINT DATA | TEMPLATE.GDT | 1011322

Date Started: 04/20/2022	Surface Elevation: 504.57 ft amsl	Well ID: ER-01
Date Completed: 05/10/2022	Shallow Well Elevation: 503.83 ft amsl	
Drilling Co.: ABC LIOVIN	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2101089.85	Project: Final GW Remedy Phase 2A
Driller Name: Eddie Ramos	Easting (NAD83): 7616510.53	Location: PG&E Topock, Needles California
Drilling Asst: J. Candelaria / F. Perez	Borehole Diameter: 10-12 inches	
Logger: Grant Willford	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 6/1/2022	
Total Depth: 143.1 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Construction Details	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
21				XXXXXX	(0.7 - 45.3') 6" Sch. 80 PVC Casing		
22				XXXXXX			
23				XXXXXX			
24				XXXXXX			
25				XXXXXX	(24.5 - 25.5') SS Centralizer		
26				XXXXXX			
27				XXXXXX			
28		Weathered Bedrock - conglomerate	N/A	XXXXXX			
29				XXXXXX			
30	No Groundwater Samples Collected			XXXXXX	(5.7 - 39.0') Portland Cement 5% Bentonite Type I, II, and V with Hydrogel	(5.7 - 39.0') 116.1 Gallons	(5.7 - 39.0') 150 Gallons (129%) Note: Used >20% of the calculated volume due to potential voids that formed during drilling.
31				XXXXXX			
32				XXXXXX			
33				XXXXXX			
34				XXXXXX			
35				XXXXXX			
36				XXXXXX			
37				XXXXXX			
38		Competent Bedrock - conglomerate	N/A	XXXXXX			
39				XXXXXX			
40				XXXXXX		(39.0 - 43.4') 3.5 bags	(39.0 - 43.4') 3 bags (86%)

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, SS = Stainless Steel, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) static water measured post development and approximate static measured during drilling, respectively.

TOPOCK WELL COMPLETION DETAILS | ARCADIS | 0365.SHAREPOINT.COM | @SSLIDAVWWWROOTTEAMSPGETOPOCKCONSTRUCTION | SHARED DOCUMENTS | PHASE II DRILLING | 06.FIELD DOCUMENTATION | 02.GINT FILES | 00.NEW PHASE 2 | GINT FILES | 39.2022-10-13 | GINT PROJECT.GPJ | GINT DATA TEMPLATE.GDT | 1011322

Date Started: 04/20/2022	Surface Elevation: 504.57 ft amsl	Well ID: ER-01
Date Completed: 05/10/2022	Shallow Well Elevation: 503.83 ft amsl	
Drilling Co.: ABC LIOVIN	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2101089.85	Project: Final GW Remedy Phase 2A
Driller Name: Eddie Ramos	Easting (NAD83): 7616510.53	Location: PG&E Topock, Needles California
Drilling Asst: J. Candelaria / F. Perez	Borehole Diameter: 10-12 inches	
Logger: Grant Willford	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 6/1/2022	
Total Depth: 143.1 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Construction Details	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
41				XXXXXX	(0.7 - 45.3') 6" Sch. 80 PVC Casing		
42				XXXXXX	(40.5 - 41.5') SS Centralizer (39.0 - 43.4') Cemex #0/30 (30x50) Lapis Lustre Sand	(39.0 - 43.4') 3.5 bags	(39.0 - 43.4') 3 bags (86%)
43				XXXXXX			
44				XXXXXX	(43.4 - 44.0') Enviroplug Medium Chips	(43.4 - 44.0') 0.3 bags	(43.4 - 44.0') 0.5 bags (167%) Note: Hydrated bentonite with approximately 5 gallons of fresh water. Used >20% of the calculated volume due to potential voids that formed during drilling.
45				XXXXXX			
46				XXXXXX	(45.3 - 136.2') 6" 0.02-Slot 316L SS Wire Wrap Screen		
47				XXXXXX			
48		Competent Bedrock - conglomerate	N/A	XXXXXX			
49	No Groundwater Samples Collected			XXXXXX			
50				XXXXXX			
51				XXXXXX			
52				XXXXXX	(44.0 - 143.1') Cemex #2/16 (16x30) Lapis Lustre Sand	(44.0 - 143.1') 79.9 bags	(44.0 - 143.1') 85.5 bags (107%) Note: Filter pack swabbed for approximately 5 minutes in 20 ft. lifts for a total of approximately 20 minutes prior to the installation of the well seal.
53				XXXXXX			
54				XXXXXX			
55				XXXXXX			
56				XXXXXX			
57				XXXXXX			
58		Weathered Bedrock - conglomerate	N/A	XXXXXX			
59				XXXXXX			
60				XXXXXX			

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, SS = Stainless Steel, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) static water measured post development and approximate static measured during drilling, respectively.

TOPOCK WELL COMPLETION DETAILS | ARCADIS030365.SHAREPOINT.COM@SSLIDAVWWWROOTITEAMSPGETOPOCKCONSTRUCTIONSHAREDDOCUMENTS\PHASE II DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\38 2022-10-13\GINT PROJECT.GPJ_GINT DATA TEMPLATE.GDT_101322

Date Started: 04/20/2022	Surface Elevation: 504.57 ft amsl	Well ID: ER-01
Date Completed: 05/10/2022	Shallow Well Elevation: 503.83 ft amsl	
Drilling Co.: ABC LIOVIN	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2101089.85	Project: Final GW Remedy Phase 2A
Driller Name: Eddie Ramos	Easting (NAD83): 7616510.53	Location: PG&E Topock, Needles California
Drilling Asst: J. Candelaria / F. Perez	Borehole Diameter: 10-12 inches	
Logger: Grant Willford	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 6/1/2022	
Total Depth: 143.1 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Construction Details	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
61				XXXXXX	(45.3 - 136.2') 6" 0.02-Slot 316L SS Wire Wrap Screen		
62				XXXXXX			
63				XXXXXX			
64				XXXXXX			
65				XXXXXX			
66				XXXXXX			
67		Weathered Bedrock - conglomerate	N/A	XXXXXX			
68				XXXXXX			
69				XXXXXX			
70	No Groundwater Samples Collected			XXXXXX	(44.0 - 143.1') Cemex #2/16 (16x30) Lapis Lustre Sand	(44.0 - 143.1') 79.9 bags	(44.0 - 143.1') 85.5 bags (107%) Note: Filter pack swabbed for approximately 5 minutes in 20 ft. lifts for a total of approximately 20 minutes prior to the installation of the well seal.
71				XXXXXX			
72				XXXXXX			
73				XXXXXX			
74				XXXXXX			
75				XXXXXX			
76				XXXXXX			
77		Competent Bedrock - conglomerate	N/A	XXXXXX			
78				XXXXXX			
79				XXXXXX			
80				XXXXXX			

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, SS = Stainless Steel, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) static water measured post development and approximate static measured during drilling, respectively.

TOPOCK WELL COMPLETION DETAILS | ARCADIS 0365.SHAREPOINT.COM@SSLIDAVWWWROOTITEAMSPGETOPOCKCONSTRUCTIONSHARED DOCUMENTS\PHASE II DRILLING\06.FIELD DOCUMENTATION\02.GINT FILES\001 NEW PHASE 2.GINT FILES\39.2022-10-13\GINT PROJECT.GPJ.GINT DATA TEMPLATE.GDT.1011322

Date Started: 04/20/2022	Surface Elevation: 504.57 ft amsl	Well ID: ER-01
Date Completed: 05/10/2022	Shallow Well Elevation: 503.83 ft amsl	
Drilling Co.: ABC LIOVIN	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2101089.85	Project: Final GW Remedy Phase 2A
Driller Name: Eddie Ramos	Easting (NAD83): 7616510.53	Location: PG&E Topock, Needles California
Drilling Asst: J. Candelaria / F. Perez	Borehole Diameter: 10-12 inches	
Logger: Grant Willford	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 6/1/2022	
Total Depth: 143.1 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Construction Details	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
81		Competent Bedrock - conglomerate	N/A	XXXXXX	(45.3 - 136.2') 6" 0.02-Slot 316L SS Wire Wrap Screen		
82		Competent Bedrock - conglomerate	N/A	XXXXXX			
83				XXXXXX			
84				XXXXXX			
85				XXXXXX			
86				XXXXXX			
87				XXXXXX			
88				XXXXXX			
89				XXXXXX			
90	No Groundwater Samples Collected	Competent Bedrock - conglomerate	N/A	XXXXXX	(44.0 - 143.1') Cemex #2/16 (16x30) Lapis Lustre Sand	(44.0 - 143.1') 79.9 bags	(44.0 - 143.1') 85.5 bags (107%) Note: Filter pack swabbed for approximately 5 minutes in 20 ft. lifts for a total of approximately 20 minutes prior to the installation of the well seal.
91				XXXXXX			
92				XXXXXX			
93				XXXXXX			
94				XXXXXX			
95				XXXXXX			
96				XXXXXX			
97				XXXXXX			
98			NR	XXXXXX			
99				XXXXXX			
100			N/A	XXXXXX			

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, SS = Stainless Steel, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) static water measured post development and approximate static measured during drilling, respectively.

TOPOCK WELL COMPLETION DETAILS | ARCADIS0365.SHAREPOINT.COM@SSLIDAVWWWROOTTEAMSPGETOPOCKCONSTRUCTIONSHARED DOCUMENTS\PHASE II DRILLING\06 FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\39 2022-10-13\GINT PROJECT.GPJ_GINT DATA TEMPLATE.GDT 101322



Well Construction Log

Sheet: 6 of 8

Date Started: 04/20/2022	Surface Elevation: 504.57 ft amsl	Well ID: ER-01
Date Completed: 05/10/2022	Shallow Well Elevation: 503.83 ft amsl	
Drilling Co.: ABC LIOVIN	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2101089.85	Project: Final GW Remedy Phase 2A
Driller Name: Eddie Ramos	Easting (NAD83): 7616510.53	Location: PG&E Topock, Needles California
Drilling Asst: J. Candelaria / F. Perez	Borehole Diameter: 10-12 inches	
Logger: Grant Willford	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 6/1/2022	
Total Depth: 143.1 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Construction Details	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
101				XXXXXX	(45.3 - 136.2') 6" 0.02-Slot 316L SS Wire Wrap Screen		
102				XXXXXX			
103				XXXXXX			
104				XXXXXX			
105				XXXXXX			
106				XXXXXX			
107				XXXXXX			
108				XXXXXX			
109				XXXXXX			
110	No Groundwater Samples Collected	Competent Bedrock - conglomerate	N/A	XXXXXX	(44.0 - 143.1') Cemex #2/16 (16x30) Lapis Lustre Sand	(44.0 - 143.1') 79.9 bags	(44.0 - 143.1') 85.5 bags (107%) Note: Filter pack swabbed for approximately 5 minutes in 20 ft. lifts for a total of approximately 20 minutes prior to the installation of the well seal.
111				XXXXXX			
112				XXXXXX			
113				XXXXXX			
114				XXXXXX			
115				XXXXXX			
116				XXXXXX			
117				XXXXXX			
118				XXXXXX			
119				XXXXXX			
120				XXXXXX			

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, SS = Stainless Steel, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) static water measured post development and approximate static measured during drilling, respectively.

TOPOCK WELL COMPLETION DETAILS | ARCADIS0365.SHAREPOINT.COM@SSLIDAVWWWROOTTEAMSPGETOPOCKCONSTRUCTIONSHARED DOCUMENTS\PHASE II DRILLING\06. FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\39 2022-10-13\GINT PROJECT.GPJ_GINT DATA TEMPLATE.GDT 1011322

Date Started: 04/20/2022	Surface Elevation: 504.57 ft amsl	Well ID: ER-01
Date Completed: 05/10/2022	Shallow Well Elevation: 503.83 ft amsl	
Drilling Co.: ABC LIOVIN	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Sonic Drilling	Northing (NAD83): 2101089.85	Project: Final GW Remedy Phase 2A
Driller Name: Eddie Ramos	Easting (NAD83): 7616510.53	Location: PG&E Topock, Needles California
Drilling Asst: J. Candelaria / F. Perez	Borehole Diameter: 10-12 inches	
Logger: Grant Willford	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 6/1/2022	
Total Depth: 143.1 ft bgs	Well Completion: <input checked="" type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input type="checkbox"/> To Be Completed in Well Vault	

Depth (ft)	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Construction Details	Calculated Material Volumes	Material Volumes Installed Note: percentages are the actual volume vs the calculated volume
121				XXXXXX	(45.3 - 136.2') 6" 0.02-Slot 316L SS Wire Wrap Screen		
122				XXXXXX			
123				XXXXXX			
124				XXXXXX			
125				XXXXXX			
126				XXXXXX			
127				XXXXXX			
128				XXXXXX			
129				XXXXXX			
130	No Groundwater Samples Collected	Competent Bedrock - conglomerate	N/A	XXXXXX	(44.0 - 143.1') Cemex #2/16 (16x30) Lapis Lustre Sand	(44.0 - 143.1') 79.9 bags	(44.0 - 143.1') 85.5 bags (107%) Note: Filter pack swabbed for approximately 5 minutes in 20 ft. lifts for a total of approximately 20 minutes prior to the installation of the well seal.
131				XXXXXX			
132				XXXXXX			
133				XXXXXX			
134				XXXXXX			
135				XXXXXX			
136				XXXXXX			
137				XXXXXX			
138				XXXXXX	(136.2 - 141.6') 6" Sch 40 PVC Sump and SS End Cap		
139				XXXXXX	(138.0 - 139.0') SS Centralizer		
140				XXXXXX			

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, SS = Stainless Steel, NR = No Recovery, N/A = Not Applicable, GW = groundwater, Notes: solid blue and hollow blue water table marks represent depth to water (ft. bgs.) static water measured post development and approximate static measured during drilling, respectively.

TOPOCK WELL COMPLETION DETAILS | ARCADIS | 30126255 | TOPOCKCONSTRUCTION | PHASE II DRILLING | 06 FIELD DOCUMENTATION | 02 GINT FILES | 00 NEW PHASE 2 | GINT FILES | 39 2022-10-13 | GINT PROJECT | GP | GINT DATA | TEMPLATE | GDT | 101 | 322

Attachment 4

Well Development Log

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

Date(s) 5/17/22 - 6/4/22 Project # 30126255 Arcadis Oversight: Ellen Redner PG 1 of 22 ARCADIS Job Title: Geologist

Well ID ER-1 Measuring Point (MP) (ft. bgs) 0.43 Total Depth (ft. BMP) 132.42 Screen Interval (ft. bgs) 45-136

DTW (ft. BMP): 50.02 DTW (ft. bgs): 50.45 Water column in well (ft.): 81.97 Diameter of well (in.): 6 Gallons in well: 120.35

Rig operator: Jacob Herrera Rig type: Smeale Bailer make and size: 3 1/2 x 5' sinclair Water added: NA

Surge block make and size: 5' w/ 6" rubber pads Pump make and size: Grundfos ISSQE-250, 3' Water source: NA

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0930	DTW		50.02								
0932	OTB			132.42							soft bottom
0955	Begin bailing										
1000	Collect initial bail sample -										Thick, brown, silty - suspended sediments
1040	Collect end initial bail sample, stop bailing										Brown, some silty, opaque Bailed out approx 20 gal
1041	DTW		50.17	141.21							
1213	Tag		47.81	141.02							
1225	Begin swabbing			136-131' bgs							
1250	complete swabbing			136-131' bgs, begin swabbing 131-126' bgs							
1315	complete swabbing			131-126' bgs, water/AC break							
1330	Begin swabbing			126-121' bgs							
1355	complete swabbing			126-121' bgs, begin swabbing 121-116' bgs							
1420	complete swabbing			121-116' bgs, water break							
1435	Begin swabbing			116-111' bgs							
1500	complete swabbing			116-111' bgs, begin swabbing ER							
1505	Tag		47.71	141.15							
1515	end development for day										End 5/17/22
5/18/22 0713	Tag		47.53	134.14							soft bottom
0725	Begin swabbing			111-106' bgs							
0750	complete swabbing			111-106' bgs, begin swabbing 106-101' bgs							
0815	complete swabbing			106-101' bgs, begin swabbing 101-96' bgs							
0840	complete swabbing			101-96' bgs, water/AC break							
0855	Begin swabbing			96-91' bgs							

Sample ID and Time: ER-1 6/1/22 15:05

Total gallons removed at completion of development: 2555

Arcadis Staff: Ansel McCullough, Ellen Redner

ER-1 - Well Development Record

- see page 1 -

PG 2 of 22

ARCADIS Well Development Record
Project Name: PG&E Topock Phase 2A GW Remedy
Project # 30126255
Arcadis Oversight: Ellen Redner ARCADIS Job Title: _____

Date(s) _____ Measuring Point (MP) ft. _____
Well ID ER-1 (ags / bgs) _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____
DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft): _____ Diameter of well (in.): _____ Gallons in well: _____
Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____
Surge block make and size: _____ Pump make and size: _____ Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
5/18/22 cont. 0920	complete swabbing 96-91' bgs. Begin swabbing 91-86' bgs										
0945	complete swabbing 91-86' bgs. water/AC break										
1000	Begin swabbing 86-81' bgs										
1025	Complete swabbing 86-81' bgs. Begin swabbing 81-76' bgs.										
1050	complete swabbing 81-76' bgs										
1145	Begin swabbing 76-71' bgs										
1210	complete swabbing 76-71' bgs, begin swabbing 71-66' bgs										
1235	complete swabbing 71-66' bgs, begin swabbing 66-61' bgs										
1300	complete swabbing 66-61' bgs water/AC break										
1315	Begin swabbing 61-56' bgs										
1340	complete swabbing 61-56' bgs, begin swabbing 56-51' bgs										
1405	complete swabbing 56-51' bgs. water/AC break										
1420	Begin swabbing 51-46' bgs										
1445	complete swabbing 51-46' bgs. Do not need to swab 46-45' bgs because it is above the water table										
1445 cont.	Remove swab/surge block										
1510	Tag		47.50	134.31							soft bottom
1515	End development for day										soft 5/18/22
5/19/22 0655	Tag		47.47	133.01							soft bottom
0705	Begin bailing										
0710	Collect second bail sample: very thick, silty, lots of suspended sediments. brown										
0740	Collect second bail end sample. brown some silt, opaque stop bailing, remove bailer										bailed approx 25 gal
0742	Tag		51	141.15							hard bottom

Sample ID and Time: SEE PG 2

Total gallons removed at completion of development: _____

Arcadis Staff: _____

ER-1 - Well Development Record

- See page 1 -

ARCADIS Well Development Record

Project Name: PG&E Toxcock Phase 2A GW Remedy

PG 3 of 22

Date(s): _____ Project # 30126255 Arcadis Oversight: Ellen Redner ARCADIS Job Title: _____
 Well ID: ER-1 Measuring Point (MP) ft. (ags/bgs): _____ Total Depth (ft. BMP): _____ Screen Interval (ft. bgs): _____
 DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.): 611/22 Diameter of Well (in.): _____ Gallons in well: _____
 Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____
 Surge block make and size: _____ Pump make and size: _____ Water source: _____

5/19/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0830	Begin second round of swabbing, swabbing 136-131' bgs.										
0855	complete swabbing 136-131' bgs, begin swabbing 131-126' bgs										
0920	complete swabbing 131-126' bgs, begin swabbing 126-121' bgs										
0945	complete swabbing 126-121' bgs, begin swabbing 121-116' bgs										
1010	complete swabbing 121-116' bgs. AC/water break										
1025	Begin swabbing 116-111' bgs										
1050	complete swabbing 116-111' bgs, begin swabbing 111-106' bgs										
1115	complete swabbing 111-106' bgs.										
1200	Begin swabbing 106-101' bgs. Begin										
1225	complete swabbing 106-101' bgs. Begin swabbing 101-96' bgs.										
1250	complete swabbing 101-96' bgs. Begin swabbing 96-91' bgs.										
1315	complete swabbing 96-91' bgs. Begin swabbing 91-86' bgs.										
1340	complete swabbing 91-86' bgs. water/AC break										
1355	Begin swabbing 86-81' bgs										
1420	complete swabbing 86-81' bgs. Begin swabbing 81-76' bgs										
1445	complete swabbing 81-76' bgs. Begin swabbing 76-71' bgs.										
1510	complete swabbing 76-71' bgs.										
1515	Remove tooling										
1525	Tag		47.52	141.15							Hard bottom
1530	End development for day										5/19/22
5/20/22 0740	Tag		47.38	141.15							Hard bottom
0820	Begin swabbing 71-66' bgs.										
0845	complete swabbing 71-66' bgs. Begin swabbing 66-61' bgs.										

Sample ID and Time: _____
 Total gallons removed at completion of development: _____
 Arcadis Staff: _____

SEE PAGE 1

ER-1 - Well Development Record

- see page 1 -

PG 4 of 22

ARCADIS Well Development Record

Project Name: PG&E Toxcock Phase 2A GW Remedy

Date(s): _____ Project # 30126255 Arcadis Oversight: Ellen Redner ARCADIS Job Title: _____
 Well ID: ER-1 Measuring Point (MP) ft. _____ (ags / bgs) Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____
 DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft): *ditto* Diameter of well (in.): _____ Gallons in well: _____
 Rig operator: _____ Rig type: _____ Baller make and size: _____ Water added: _____
 Surge block make and size: _____ Pump make and size: _____ Water source: _____

12/20/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 0.05%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0910	complete swabbing 60-61' bgs										Begin swabbing 61-56' bgs
0935	complete swabbing 61-56' bgs										Begin swabbing 56-51' bgs
1000	complete swabbing 56-51' bgs										Begin swabbing 51-46' bgs.
1025	complete swabbing 51-46' bgs										do not have to swab 46-45' bgs due to it being above the water table.
1035	Tag	-	47.41	141.15							Hard bottom
1040	Begin bailing										
1042	collect third bail sample										Brown, silty, suspended solids - high fines
1110	collect third bail sample end										Brown/light brown, some fines, stop bailing
1150	prep to pump										Bailed approx. 25 gal.
1240	Tag	-	47.59	141.15							Hard bottom
1305	3" pump, 3 x 21' drop pipe, 3' drop pipe, 3' drop pipe for riser = sets bottom of pump @ 69' bgs										Totalizer set @ 0.
1400	Tag	-	47.37								
1401	start pumping										
1406	pump	3.0	52.75	-	30.9	7.14	178.6	7.626	130	2.07	Mostly clear 15 gal. removed approx
1410	pump	2.6	55.47	-	29.9	7.58	127.7	7.886	132	2.08	mostly clear
1415	pump	2.01	56.80	-	29.7	7.69	100.8	7.894	108	2.49	" "
1420	pump	3.09	59.15	-	29.6	7.73	96.8	7.883	202	2.31	" "
1425	pump	2.78	62.3	-	29.6	7.77	69.7	7.840	206	2.18	" "
1426	stop pumping - surge #1										
1429	Tag	-	59.5								
1431	Tag	-	57.17								

Sample ID and Time: _____
 Total gallons removed at completion of development: *SEE PAGE 2*
 Arcadis Staff: _____

ER-1 - Well Development Record

See page 1 -

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

PG 5 of 22

Date(s): _____ Project # 30126255 Arcadis Oversight: ELIEN Redner ARCADIS Job Title: _____

Well ID: ER-1 Measuring Point (MP) ft. (ags / bgs): _____ Total Depth (ft. BMP): _____ Screen Interval (ft. bgs): _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.): 611/22 Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

5/20/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1434	1433 pump on										
1439	1438 pump	2.897	61.10	-	30.2	7.84	60.2	8.185	195	2.68	mostly clear
1440	1440 pump off - surge #2										
1442	Tag	-	57.95	-							
1445	Tag	-	56.6	-							
1447	pump on										
1452	pump	2.75	60.07	-	31.1	7.85	17.9	8.283	396	1.71	Tot gal pumped so far = 96 gal. cloudy
1453	pump off - surge #3										
1458	Tag	-	56.15	-							
1459	pump on										
1504	pump	2.879	60.0	-	30.9	7.89	-4.2	8.477	628	1.82	Tot gal = 112 cloudy
1505	pump off - surge #4										
1510	Tag	-	56.7	-							
1511	pump on										
1516	pump	2.790	60.75	-	30.9	7.90	-15.7	8.659	866	1.81	Tot gal = 129 light brown, cloudy
1517	pump off - surge #5										
1523	Tag	-	56.88	-							
1524	pump on										
1529	pump	1.87	59.48	-	31.0	7.92	-20.6	8.945	846	1.97	light brown, cloudy
1534	pump	1.41	59.8	-	30.5	7.95	-38.1	9.119	Turb. too high	1.62	light brown, cloudy
1539	pump	1.37	60.05	-	29.9	7.95	-47.1	9.156	" "	2.10	" "
1544	pump	1.226	60.10	-	29.7	7.94	-50.2	9.181	" "	1.91	" "
1549	pump	1.235	60.11	-	29.9	7.96	-39.9	9.310	" "	1.79	" "

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

- See page 1 -

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

PG 6 of 22

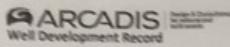
Date(s): _____ Project # 30126255 Arcadis Oversight: Ellen Redner ARCADIS Job Title: _____
 Well ID: ER-1 Measuring Point (MP) ft. (ags/bgs): _____ Total Depth (ft. BMP): _____ Screen Interval (ft. bgs): _____
 DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft): 61122 Diameter of well (in.): _____ Gallons in well: _____
 Rig operator: _____ Rig type: _____ Bailer make and size: _____
 Surge block make and size: _____ Pump make and size: _____
 Water added: _____
 Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity	
5/20/12 0	1554	pump	1.249	60.12	-	29.4	7.96	-42.5	9.357	Too high	1.94	Light brown, cloudy
	1559	pump	1.243	60.15	-	29.6	7.95	-41.8	9.399	901	1.56	" "
	1600	stop										Tot gal = 180
	1605	Tag	-	56.36	-							
	1610	End development										For day - Ellen R 5/20/12
5/21/12	0720	Tag	-	47.67	-							
	0731	Pump on										
	0736	pump	1.941	51.1	-	29.6	7.28	190.1	9.264	70.2	2.26	mostly clear
	0741	pump	1.849	53.6	-	29.5	7.61	104.3	9.256	21.7	1.73	clear
	0746	pump	1.74	55.5	-	29.2	7.75	59.8	9.281	15.1	2.50	clear
	0751	pump	1.689	56.98	-	29.3	7.80	29.6	9.299	13.5	2.06	clear
	0756	pump	1.625	58.28	-	29.4	7.92	19.0	9.334	16.8	1.97	clear. tot gal = 229
	0757	pump off										
	0800	Add another joint of drop pipe (21'). Bottom of pump now set @ 90' bgs.										
	0820	Tag	-	54.9	-							
	0823	Pump on										
	0828	pump	4.75	59.8	-	32.4	8.03	40.5	9.669	48	1.50	clear
	0832	pump	4.80	64.75	-	29.8	8.07	12.0	9.561	42.1	1.67	clear
	0837	pump	5.01	69.0	-	29.0	8.05	6.2	9.443	44.4	2.21	clear
	0838	pump off - surge #1										
	0843	Tag	-	64.05	-							
	0844	pump on										

Sample ID and Time: _____
 Total gallons removed at completion of development: SEE PAGE 1
 Arcadis Staff: _____

ER-1 - Well Development Record

- see page 1 -



Project Name: PG&E Toxcock Phase 2A GW Remedy

PG 7 of 22

Date(s):

Project # 30126255

Arcadis Oversight: Elen Redner

ARCADIS Job Title:

Well ID

ER-1

Measuring Point (MP) ft. (ags / bgs)

Total Depth (ft. BMP)

Screen Interval (ft. bgs)

DTW (ft. BMP)

DTW (ft. bgs)

Water column in well (ft.): 611/22

Diameter of well (in.):

Gallons in well:

Rig operator:

Rig type:

Bailer make and size:

Water added:

Surge block make and size:

Pump make and size:

Water source:

5/0, 5/21/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+/- 1.0)	ORP (mV) (+/- 10.0 mV)	Cond. (µS/cm) (+/- 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+/- 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0849	pump	4.77	71.05	-	29.7	8.07	21.5	9.462	56	1.88	clear
0850	pump off	- surge #2									
0855	Tag	-	65.1	-							
0856	pump on										
0901	pump	4.87	73.38	-	30.1	8.00	38.0	9.240	98.9	2.76	mostly clear
0902	pump off	- surge #3									
0907	Tag	-	68.2	-							
0908	pump on										
0913	pump	4.68	73.1	-	29.8	8.03	47.5	9.325	75.5	2.56	clear
0914	pump off	- surge #4									
0919	pump	5.27	67.2	-							
0920	pump on		67.2	-							
0925	pump	4.75	73.7	-	30.1	8.01	46.1	9.392	80.9	3.29	mostly clear
0926	pump off	- surge #5									
0931	Tag	-	67.45	-							
0932	pump on										
0936	pump	2.15	69.32	-	29.6	8.03	39.7	9.560	20	2.77	clear
0941	pump	2.12	69.8	-	29.4	8.01	34.0	9.527	24.1	2.20	clear
0942	pump off										Tot gal = 434
0945	Add another joint of drop pipe (21'). Bottom of pump now set @ 111' bgs										
1000	Tag	-	57.90	-							
1002	pump on										

Sample ID and Time:

Total gallons removed at completion of development:

SEE PAGE 1

Arcadis Staff:

see page 1
- see page 1 -

ARCADIS Well Development Record

Project Name: PG&E Topsock Phase 2A GW Remedy PG 8 of 22
Arcadis Oversight: Ellen Redner ARCADIS Job Title: _____

Date(s) _____ Project # 30126255

Well ID ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____
(ags / bgs)

DTW (ft. BMP): _____ DTW (ft. bgs): ad Water column in well (ft.): 6/11/22 Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

12:00
cont. 5/21/22

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1007	Pump	4.01	71.9	-	31.0	7.97	59.8	9.553	25.5	2.96	clear
1012	Pump	7.26	96	-	30.2	7.99	43.6	8.762	Too high	2.66	Light brown, cloudy
1015	Pump	5.12	110	-	STOP	pumping	0	CWL	too low		
1016	1016 Pump off	-	-surge #1								Tot gal = 582
1027	Tag	-	83.7	-							
1029	Pump on										
1034	Pump	6.34	92.7	-	30.8	7.89	29.2	9.472	188	1.96	Tot gal = 624 clear
1035	Pump off	-	-surge #2								
1040	Tag	-	82.8	-							
1042	Pump on										
1047	Pump	3.2	83.75	-	31.2	7.92	29.1	9.486	86	1.95	Tot gal = 643 clear
1048	Pump off	-	-surge #3								
1053	Tag	-	76.73	-							
1054	Pump on										
1059	Pump	3.45	80.1	-	31.1	7.92	30.1	9.496	78.0	2.24	clear
1100	Pump off	-	-surge #4								Tot gal = 667
1105	Tag	-	72.87	-							
1107	Pump on										
1112	Pump	5.02	78.9	-	30.9	7.90	39.0	9.41	68.3	2.30	clear
1113	Pump off	-	-surge #5								Tot gal = 695
1118	Tag	-	73.5	-							
1119	Pump on										
1124	Pump	6.90	84.2	-	30.8	7.89	36.3	9.469	54.8	2.07	clear

Sample ID and Time: _____
Total gallons removed at completion of development: SEE PAGE 1
Arcadis Staff: _____

ER-1 - Well Development Record

see page 1
— see page 1 —

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 9 of 22

Date(s) _____ Project # 30126255 Arcadis Oversight: Even Redner ARCADIS Job Title: _____

DTW Well ID ER-1 Measuring Point (MP) ft. _____ (ags/bgs) _____ Total Depth (ft. BMP) 6112² Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft): _____ Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

12' cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1125	pump off.										Break for lunch
1205	Tag	—	56.07	—							
1218	pump on										
1223	pump	4.734	63.35	—	31.5	7.90	53.2	9.383	12.2	2.51	clear
1228	pump	4.69	68.8	—	30.5	7.85	48.2	9.395	8.33	2.35	clear
1233	pump	4.89	74.02	—	30.2	7.83	44.6	9.343	13.8	2.26	clear
1234	pump off.										Tot gal = 812
1235	Add another joint of drop pipe (2") Bottom of pump now set @ 132' bgs.										
1259	Tag	—	58.7	—							
1300	pump on										
1305	pump	4.56	64.5	—	34.8	7.99	46.6	10.225	32.3	2.21	slight yellow cloudy clear
1310	pump	5.11	70.28	—	30.9	7.97	48.8	9.646	18.2	2.30	clear
1315	pump	6.02	79.3	—	30.0	7.89	41.4	9.399	16.6	2.64	clear
1316	pump off										- surge # 1
1321	Tag	—	73.1	—							
1322	+326 pump on										
1327	pump	8.97	88.0	—	29.5	7.83	37.8	9.283	8.73	2.70	clear
1328	pump off										- surge # 2
1332	Tag	—	80.3	—							Tot gal = 935
1334	pump on										
1339	pump	8.76	91.3	—	29.8	7.84	28.8	9.235	6.55	2.67	clear
1340	pump off										- surge # 3
											Tot gal = 982

Sample ID and Time: _____
Total gallons removed at completion of development: SEE PAGE 1
Arcadis Staff: _____

ER-1 - Well Development Record

- see page 1 -

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

PG 10 of 22

Date(s) _____ Project # 30126255 Arcadis Oversight: Eileen Redner ARCADIS Job Title: _____

Well ID ER-1 Measuring Point (MP) ft. _____ (ags / bgs) Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft): _____ Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Baller make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

al 6/11/22

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
5/21/22 1345	Tag	-	82.6	-							
1347	pump on										
1352	pump	8.46	95.9	-	30.3	7.85	42.3	9.226	13.4	3.01	clear
1353	pump off										Tot gal = 1029
1358	Tag	-	86.8	-							
1359	pump on										
1404	pump	8.48	99.4	-	30.3	7.84	44.3	9.267	11.3	3.25	
1405	pump off										Tot gal = 1081
1410	Tag	-	90.2	-							
1411	pump on										
1415	pump	8.35	99.7	-	30.1	7.86	46	9.206	7.79	3.25	clear
1420	pump	4.07	101.5	-	29.7	7.86	36.6	9.072	29.9	3.17	clear
1425	pump	6.25	105.5	-	29.5	7.87	37.2	8.917	36.4	3.28	clear
1426	pump off. Wait for recharge to 10% of static water level: 10% of 47.67 (where water was tagged this morning) = 4.77 → water level must recharge to 52.44' bgs.										
1450	Tag	-	76.8	-							Tot gal = 1179
1500	Tag	-	70.1	-							
1510	Tag	-	66.1	-							
1515	End development for day _____ <i>Eileen Redner</i> 5/22/22										
5/22/22 0705	Tag	-	48.34	-							
0720	pump on - bottom of pump still @ 132' ^{bgs} approx. will run 'mini specific capacity test'.										

Sample ID and Time: _____

Total gallons removed at completion of development: see PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

- see page 1 ->

PG 11 of 22

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

Date(s) _____ Project # 30126255 Arcadis Oversight: Eileen Redner ARCADIS Job Title: _____

Well ID ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.): _____ Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: cal 6/1/22 Baller make and size: _____

Surge block make and size: _____ Pump make and size: _____

5/22/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+ 1.0)	ORP (mV) (+ 10.0 mV)	Cond. (µS/cm) (+ 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+ 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0725	pump	1.55	51.4	-							
0730	pump	1.41	53.0	-							
0732	pump	1.25	53.35	-							
0734	pump	1.10	53.65	-							
0736	0734 pump	1.10	54.95	-							
0738	pump	1.10	55.25	-							
0742	pump	1.60	57.40	-							
0744	pump	1.60	55.8	-							
0746	pump	1.58	56.5	-							
0750	pump	2.91	59.1	-							increased pumping rate because want to get down to approx 60 bgs, where water stabilized before
0752	pump	2.88	60.48	-							
0755	pump	1.40	60.48	-							
0757	pump	1.20	60.38	-							
0759	pump	1.31	60.38	-							
0802	pump	1.31	60.39	-							
0805	pump	1.29	60.45	-							
0810	pump	1.29	60.56	-							
0815	pump	1.29	60.70	-							
0820	pump	1.27	60.75	-							
0821	pump off	Remove pump and tooling, approximate specific capacity = approx 1.25 gpm / (60.75 - 48.39 = 12.41) = 0.101 gpm/ft									Tot gal = 1268
0940	Tag	-	49.03	141.15							
0945	Begin bailing										

Sample ID and Time: _____
 Total gallons removed at completion of development: SEE PAGE 1
 Arcadis Staff: _____

ER-1 - Well Development Record

- see page 1 -

PG 12 of 22

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

ARCADIS Oversight: Ellen Redner

ARCADIS Job Title:

Date(s): _____ Project # 30126255

Well ID: ER-1

Measuring Point (MP) ft. (ags./bgs)

Total Depth (ft. BMP)

Screen Interval (ft. bgs)

DTW (ft. BMP):

DTW (ft. bgs):

Water column in well (ft.): 6/1/22

Diameter of well (in.):

Gallons in well:

Rig operator:

Rig type:

Bailer make and size:

Water added:

Surge block make and size:

Pump make and size:

Water source:

5/22/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+/- 1.0)	ORP (mV) (+/- 10.0 mV)	Cond. (µS/cm) (+/- 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+/- 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0950	collect fourth bail sample:										Brown, some silt/fines
1005	collect fourth bail end sample: clear w/ small amount of fines										Approx. gal removed = 20
1007	Tag -	52.47	141.15								hard bottom
1010	Prep to swab (third cycle)										
1035	Begin swabbing 136-131' bgs										
1100	complete swabbing 136-131' bgs, begin swabbing 131-126' bgs										
1125	complete swabbing 131-126' bgs.										
1215	Begin swabbing 126-121' bgs										
1240	complete swabbing 126-121' bgs. Begin swabbing 121-116' bgs										
1305	complete swabbing 121-116' bgs. Begin swabbing 116-111' bgs.										
1330	complete swabbing 116-111' bgs. water/AC break										
1340	Begin swabbing 111-106' bgs.										
1405	complete swabbing 111-106' bgs. Begin swabbing 106-101' bgs.										
1430	complete swabbing 106-101' bgs. Begin swabbing 101-96' bgs										
1455	complete swabbing 101-96. water/AC break										
1510	Remove swab, retaping sand line as needed										
1519	Tag -	48.39	141.15								
1520	End development for day										
No development/work on 5/23/22											
124/22	0730 TAG -	47.62	141.15								Hard bottom
0750	Begin swabbing 96-91' bgs.										
0815	complete swabbing 96-91' bgs. Begin swabbing 91-86' bgs.										
0840	complete swabbing 91-86' bgs. Begin swabbing 86-81' bgs.										
0915	complete swabbing 86-81' bgs. Begin swabbing 81-76' bgs.										

ELR 5/22/22
ELR 5/24/22
Hard bottom

Sample ID and Time:

Total gallons removed at completion of development:

SEE PAGE 1

Arcadis Staff:

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 13 of 22

Date(s): Project # 30126255 Arcadis Oversight: Ellen Redner ARCADIS Job Title: Geologist

Well ID: ER-1 Measuring Point (MP) ft. (ags/bgs) - see page 1 - Total Depth (ft. BMP) Screen Interval (ft. bgs)

Time	Task	GPM	D1W (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
5/24/22 cont. 0930	complete swabbing 81-76' bgs.										Water/Ac break.
0945	Begin swabbing 76-71' bgs.										
0950	pause swabbing. Rig maintenance										
1025	Resume swabbing 76-71' bgs										
1045	complete swabbing 76-71' bgs. Begin swabbing 71-66' bgs										
1110	complete swabbing 71-66' bgs.										
1155	Begin swabbing 66-61' bgs										
1220	Complete swabbing 66-61' bgs. Begin swabbing 61-56' bgs.										
1245	complete swabbing 61-56' bgs. Begin swabbing 56-51' bgs.										
1310	complete swabbing 51-46' bgs. Begin swabbing 51-46' bgs.										
1335	complete swabbing 51-46' bgs. do not need to swab 46-45' bgs due to area of screen being above water level. AC break										
1350	Remove swab, pump off drum, prep to bail										
1420	Tag - 47.67 141.15										Hard bottom
1423	Begin bailing (Fifth)										
1425	collect Fifth bail sample: some silt/fines, brown										
1435	collect Fifth bail end sample, stop bailing. troubleshoot/maintenance shiv reel - needed to be greased										
1443	Resume bailing										
1455	collect Fifth bail end sample, stop bailing. mostly clear. Bailed approx 15 gal.										
1500	Tag - 49.2 141.15										Hard bottom
1503	Prep to swab (Fourth cycle)										
1510	Begin swabbing 136-131' bgs										
1535	complete swabbing 136-131' bgs. Begin										
1540	Tag - 58.17 141.15										
1541	End development for Day										
5/25/22 0715	Tag - 47.65 141.15										Hard bottom
0730	Begin swabbing 131-126' bgs										
0755	complete swabbing 131-126' bgs. Begin swabbing 126-121' bgs										

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

- See Page 1 -

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

PG 14 of 22

Date(s) _____ Project # 30126255 Arcadis Oversight: Eileen Redner ARCADIS Job Title: _____

Well ID: ER-1 Measuring Point (MP) ft. (ags/bgs) _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.): 61/22 Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

5/25/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0820	complete swabbing			126-121' bgs.							Begin swabbing 121-116' bgs
0845	complete swabbing			121-116' bgs.							Begin swabbing 116-111' bgs
0910	complete swabbing			116-111' bgs.							Begin swabbing 111-106' bgs
0935	complete swabbing			111-106' bgs.							AC/water break
0950	Begin swabbing			111-106' bgs							
1015	complete swabbing			111-106' bgs.							Begin swabbing 106-101' bgs
1040	complete swabbing			106-101' bgs.							Begin swabbing 101-96' bgs
1105	complete swabbing			101-96' bgs.							
1155	Begin swabbing			96-91' bgs							
1220	complete swabbing			96-91' bgs.							Begin swabbing 91-86' bgs
1245	complete swabbing			91-86' bgs.							AC/water break
1315	Begin swabbing			86-81' bgs.							
1340	complete swabbing			86-81' bgs.							Begin swabbing 81-76' bgs
1405	complete swabbing			81-76' bgs.							Water/AC break
1430	Begin swabbing			76-71' bgs							
1455	complete swabbing			76-71' bgs.							begin swabbing 71-66' bgs
1520	complete swabbing			71-66' bgs							
1527	Tag	-	47.71	141.15							Hard bottom
1530	End development for day										<u>Elyse</u> 5/25/22
5/26/22 0815	Tag	-	47.67	141.15							Hard bottom
0820	Begin swabbing			66-61' bgs							
0845	complete swabbing			66-61' bgs.							Begin swabbing 61-56' bgs
0910	complete swabbing			61-56' bgs.							Begin swabbing 56-51' bgs

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

-see page 1-

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

PG 15 of 32

Date(s) _____ Project # 30126255 Arcadis Oversight: Ellen Redner ARCADIS Job Title: _____

Well ID ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column (ft. well): 61 1/2" Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

5/26/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+/- 1.0)	ORP (mV) (+/- 10.0 mV)	Cond. (µS/cm) (+/- 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+/- 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0935	complete swabbing 56-51' bgs. Begin swabbing 51-46' bgs										
1000	complete swabbing 51-46' bgs. Do not need to swab 46-45' bgs due to water level being below that section of screen, water/ARC break.										
1015	prep to bail (sixth time total, third time in second round of development)										
1028	Begin bailing 47.51' 141.15'										
1030	collect sixth bail sample:										
1100	collect sixth bail end sample, end bailing:										Bailed out approx. 25 gal
1103	Tag - 52.0 141.15'										Hard bottom
1105	End development for day										5/24/22
0802	Tag - 47.51 141.15'										Hard bottom
0820	Install 3x21' drop pump + 3' drop pipe + 3' drop pipe for riser => bottom of pump set @ 69' bgs. Totalizer set @ 0.										
0915	Tag - 47.44 -										
0920	Start pumping										
0925	pump 3.959 55.02 -				32.1	162.9	7.32	7.926	36.5	2.46	
0930	pump 3.845 60.04 -				30.9	7.82	117.7	8.102	51.1	1.86	
0935	pump 4.10 64.80 -				30.3	7.76	97.3	8.004	101	2.51	
0936	pump off -surge #1										
0941	Tag - 60.77 -				30.4	7.80	81.5	8.132		4.21	ER
0942	pump on										
0947	pump 4.03 66.7 -				30.4	7.80	81.5	8.132	106	4.21	
0948	pump off -surge #2										

5/31/22

Sample ID and Time: _____
 Total gallons removed at completion of development: SEE PAGE 1
 Arcadis Staff: _____

ER-1 - Well Development Record

- see page 7 -



Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 16 of 22

Date(s): _____ Project # 30126255 Arcadis Oversight: Ellen Ralner / Ansell McCallan ARCADIS Job Title: _____

Well ID: ER-1 Measuring Point (MP) ft. (ags./bgs): _____ Total Depth (ft. BMP): _____ Screen Interval (ft. bgs): _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.): 61/22 Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

5/31/22 cont.

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0953	Tag	-	61.4	-							
0954	pump on										
0959	pump	4.02	66.65	-	30.7	7.79	77.2	8405	35	3.25	
1000	pump off										- surge #3
1005	Tag	-	61.7	-							
1006	pump on										
1011	pump	3.95	66.54	-	30.4	7.87	81.0	8523	32.6	3.21	
1012	pump off										- surge #4
1017	Tag	-	61.7	-							
1018	pump on										
1023	pump	3.99	66.9	-	30.3	7.89	84.0	8608	29.5	2.74	
1024	pump off										- surge #5
1034	Tag	-	59.3	-							
1035	pump on										
1040	pump	3.07	64.1	-	31.1	8.01	76.2	899	26.3	2.50	
1041	pump off										interval complete of drop pipe - bottom of pump now set @ 90' bgs. Tot. gal. pumped = 174 gal.
1103	Tag	-	53.78	-							
12:08	Tag	-	48.65	-							
12:24	Pump on										
12:05	Pump	4.00	51.89	-	37.4	7.99	77	6069	1.03	2.72	
12:10	Pump	3.85	58.31	-	30.8	7.97	81.2	9.11	37.9	3.295	
12:15	Pump	3.78	63.0	-	29.5	8.93	88.5	9.026	16.8	2.51	

Sample ID and Time: _____

Total gallons removed at completion of development: 566 PAGE 7

Arcadis Staff: _____

ER-1 - Well Development Record

See page 1

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 17 of 22

Date(s) _____ Project # 30126255 Arcadis Oversight: Ansel McCloud ARCADIS Job Title: _____

Well ID _____ Measuring Point (MP) ft. _____
(ags / bgs) _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): 611.2 Water column in well (ft.): _____ Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Sailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+/- 0.1)	ORP (mV) (+/- 10.0 mV)	Cond. (µS/cm) (+/- 0.05%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+/- 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
12:20	Pump	3.69	67.78	—	29.8	7.96	77.5	8.87	15.9	3.08	
12:22	Pump off										
12:28	TAG	—	63.55								
12:30	Pump on										1st cycle
12:35	Pump	3.63	66.32	—	30.7	8.99	79.2	4.28	17.9	3.42	
12:37	Pump off										
12:42	TAG	—	62.26								
12:43	Pump on										2nd cycles
12:48	Pump	3.67	67.1	—	31.1	7.97	82.9	8.91	18.4	6.93	
12:50	Pump off										
12:55	TAG		62.54								
12:55	Pump on										3rd cycle
13:00	Pump	4.00	68.38	—	29.8	7.94	87.5	8.89	18.9	3.27	
13:02	Pump off										
13:07	TAG	—	62.64								
13:08	Pump on										4th cycle
13:13	Pump	4.82	69.97	—	29.2	7.91	88.5	8.84	11.7	3.24	
13:15	Pump off										
13:24	TAG		62.70								
13:25	Pump on										5th cycle
13:30	Pump	4.91	69.91	—	29.6	7.89	86.1	8.24	6.98	2.87	
13:32	Pump off										
Interval complete. Add another 21' of pipe downhole. Pump now set at 111' BTC											

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

SEE PAGE 1

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 18 of 22

Date(s) _____ Project # 30126255 Arcadis Oversight: Arnel McClelland ARCADIS Job Title: _____

Well ID ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.): 611/122 Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: _____ Baller make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
13:55	TAG	/	57.48								
13:56	Pump ON										
14:02	Pump	3.83	66.32	-	30.1	7.88	104.9	8.75	11.9	2.64	
14:08	Pump	3.78	69.07	-	29.1	7.84	103.8	8.816	8.74	3.03	
14:12	Pump	3.78	72.50	-	29.2	7.83	100.5	8.489	13.1	3.03	
14:14	Pump off										1st cycle
14:22	TAG	-	85.54								
14:23	Pump ON										
14:28	Pump	4.01	71.49	-	29.2	7.81	99.8	8.79	13.6	2.85	
14:30	Pump off										2nd cycle
14:35	TAG	-	65.31								
14:38	Pump ON										
14:44	Pump	3.89	71.54	-	29.6	7.81	102.6	8.79	10.2	3.44	
14:46	Pump off										3rd cycle
14:51	TAG	-	66.37								
14:52	Pump ON										
14:57	Pump	3.99	71.75	-	29.6	7.82	93.1	8.809	6.06	3.33	
14:59	Pump off										4th cycle
15:05	TAG	-	85.91								
15:05	Pump ON										
15:10	Pump	3.97	72.97	-	29.6	7.83	105.5	8.514	4.66	3.96	
15:14	Pump off										5th cycle
15:19	TAG	-	66.29								

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

See page 1

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy

PG 19 of 22

Date(s) 5 Project # 30126255 Arcadis Oversight: Ansel McClelland ARCADIS Job Title: _____
 Well ID ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____
 DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft): 66/22 Diameter of well (in.): _____ Gallons in well: _____
 Rig operator: _____ Rig type: _____ Bailer make and size: _____ Water added: _____
 Surge block make and size: _____ Pump make and size: _____ Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1/31/22	15:20 Pump on										
	15:25 Pump 4.04	22.12	—	29.4	7.80	96.0	8.74	3.73	3.21		
	15:27 Pump off										
	15:30 ended development for the day.										AM <u>CLD</u> 5/31/22
1/4/22	9:05 Add 21' drop pipe - Pump sat at 132' BTC										
	9:24 TAG -	47.92									
	9:25 Pump on, commence SWABBING / DEVELOPMENT of 4th Interval										
	9:27 Pump off - NO POWER TO PUMP										
	9:31 Pump on										
	9:36	3.87	55.72	—	31.8	7.84	153.3	9.58	38.2	3.21	
	9:41	7.85	59.88	—	29.9	7.19	-2.1	0.37	27.8	2.53	
	9:46	3.87	64.40	—	29.2	7.41	-10.0	0.41	13.2	2.2	
	9:48 Pump off										1st cycle
	9:53 Pump on	59.46									
	9:58 Pump off - ORP valves off - RESTART INTERVAL										
	10:08 Pump on	57.53									
	10:13 Pump 3.93	64.1	—	29.6	7.55	275.3	8.76	7.85	3.15		
	10:18 Pump 3.85	68.57	—	29.0	7.48	-9.1	8.74	6.26	2.68		
	10:26 Pump 3.72	73.78		29	7.43	-8.0	8.54	6.26	3.25		2nd cycle
	10:35 Pump off										
	10:46 TAG	65.89									

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

See page 1

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 20 of 22

Date(s): _____ Project # 30126255 Arcadis Oversight: Andel McNeiland ARCADIS Job Title: _____

Well ID: ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.) _____ Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: 6112 Baller make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
6/1/12 10:42	Pump on										
10:52	Pump	3.74	72.22	—	30.6	7.69	36.5	8.61	6.74	3.44	
10:56	Pump off										3rd cycle
11:02	TAG	55.81									
11:03	Pump on										
11:09	Pump	4.13	72.55	—	30.3	7.85	-26.6	8.64	1.78	3.29	
11:11	Pump off										4th cycle
11:16	TAG	4.08	67.6	—	35.2	7.82	-14.0	8.72	1.52	3.23	Remainder were from 11:09 disregarded
11:16	Pump on										
11:21	Pump	4.24	73.25	—	29.8	7.94	-15.2	8.65		3.55	
11:25	Pump off										5th cycle
12:07	TAG	55.5									$100 \cdot (47.92 / 55.5) = 8.63\%$
12:09	TAG	54.59									
12:05	Pump on										- START SPECIFIC CAPACITY TEST
12:10	TAG	1.98	57.87								
12:15	TAG	1.96	59.95								
12:20	TAG	1.95	61.31								
	Pump				30.8	7.88	1.3	8.65		3.88	YSI #1
	Pump				29.1	7.51	324	4.38		4.4	YSI #2
12:25	TAG	1.95	62.35								
12:30	TAG	1.93	63.32								
12:35	TAG	1.93	64.17								
12:40	TAG	1.92	64.86								

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 21 of 22

Date(s): _____ Project # 30126255 Arcadis Oversight: Asel McClelland ARCADIS Job Title: _____

Well ID ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.) _____ Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: Cal 6/11/22 Baller make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+ 1.0)	ORP (mV) (+ 10.0 mV)	Cond. (µS/cm) (+ 0.05%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+ 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
6/1/22 12:45	TAG	1.91	65.41								
12:50	TAG	1.89	65.92								
12:55	TAG	200.3	66.45								
13:00	TAG	200.5	66.92								
13:05	TAG	179.2	67.51								
13:10	TAG	179	67.88								
13:15	TAG	178.3	68.15								
13:20	TAG	178.3	68.41								
13:25	TAG	178.1	68.75								
13:30	TAG	178.2	68.92								
13:35	Pump TAG	176.7	69.1	—	31.3	7.27	253	9.25	1.21	3.72	
13:40	Pump	196.7	69.26	—	30.3	7.52	220	7.56	0.80	3.54	
13:45	Pump	176.6	69.45	—	29.8	7.60	198.3	9.19	1.07	3.51	
13:50	Pump	176.1	69.59	—	29.5	7.64	126.4	9.02	0.72	3.55	
13:55	Pump	176.1	69.7	—	29.3	7.66	117.6	9.34	1.86	5.96	
14:00	Pump	175.5	69.78	—	29.3	7.68	144.3	9.25	2.07	3.56	Total GAL 921.7
14:05	Pump	175.3	69.88	—	28.7	7.67	132.3	8.42	1.80	3.84	
14:10	Pump	175.3	70.03	—	29.0	7.69	90.3	1.282	1.13	3.54	SAMPLES TAKEN
14:15	Pump	off									SPECIFIC CAPACITY
14:20	Pump	on									
14:25	Pump	293	67.23	—	29.8	7.78	35.6	9.45	2.0	4.2	
14:30	Pump	202	67.92	—	29.3	7.79	42.5	9.18	0.96	3.66	
14:35	Pump	202	68.3	—	29.3	7.78	35.7	9.17	0.99	3.63	

Sample ID and Time: _____

Total gallons removed at completion of development: SEE PAGE 1

Arcadis Staff: _____

ER-1 - Well Development Record

ARCADIS Well Development Record

Project Name: PG&E Topock Phase 2A GW Remedy PG 22 of 22

Date(s) _____ Project # 30126255 Arcadis Oversight: Arvid McCulloch Arcadis Job Title: _____

Well ID ER-1 Measuring Point (MP) ft. _____ Total Depth (ft. BMP) _____ Screen Interval (ft. bgs) _____

DTW (ft. BMP): _____ DTW (ft. bgs): _____ Water column in well (ft.): _____ Diameter of well (in.): _____ Gallons in well: _____

Rig operator: _____ Rig type: 61122 Bailer make and size: _____ Water added: _____

Surge block make and size: _____ Pump make and size: _____ Water source: _____

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 0.03%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
6/1/2022 14:40	Pump	2.02	68.88	—	29.3	7.91	73	9.19	1.18	3.79	
14:45	Pump	2.02	69.22	—	29.3	7.82	77	9.36	1.42	3.65	
14:50	Pump	2.01	69.58	—	29.2	7.80	48.6	9.19	1.35	3.86	
14:55	Pump	2.01	69.9	—	29.1	7.80	35.4	9.37	1.19	3.45	SPECIFIC CAPACITY
15:00	Pump	2.00	70.08	—	29.1	7.80	54.5	9.37	0.93	3.72	(2.0/70.08 = 47.92) GPM/ft
15:01	Install filter										= 2.09
15:03	TURBIDITY W/ FILTER								0.49		
15:05	SAMPLES COLLECTED										
15:08	Pump	2.00	70.22	—	29.0	7.90	101.2	9.37	1.34	5.87	
15:10	Pump off										TOTAL LITER 1,853
— END OF SPECIFIC CAPACITY TEST —											+174 = 1227

Arvid McCulloch 6/1/2022

Sample ID and Time: _____

Total gallons removed at completion of development: _____

Arcadis Staff: _____

ER-1 - Well Development Record

Attachment 5

Specific Capacity Testing Package

Specific Capacity Test

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval Tested	45 to 136 ft bgs
Packer Set Depth	N/A
Packer Seal Test	N/A
Tests Conducted	Four-step specific capacity test (1.5, 2.0, 2.5, and 5.0 gpm, respectively)
Purpose	Well performance test
Summary	Specific capacity: 1.5 gpm = 0.10 gpm/ft, 2.0 gpm = 0.09 gpm/ft, 2.5 gpm = 0.08 gpm/ft, and 5.0 gpm = 0.07 gpm/ft.
Notes	<p>First step was extended past 2 hours to download and re-program the transducers, and collect water quality parameters.</p> <p>During the third step of the pump test it was noticed that the timer that was synchronized with the transducer was off by 1 minute.</p> <p>Manual readings and transducer data are well matched at ER-01 and MW-62-065.</p> <p>The third step was conducted at a flow rate of 5 gpm to determine the maximum flow rate possible for the well. The test plan originally intended a flow rate of 3 to 4 gpm.</p>
Oversight Signature	
Date	7/25/2022

Specific Capacity Test



Design & Consultancy
for natural and
built assets

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Step 1 (1.5 GPM) Time (HR:MN:SEC)	Change in Time Between Measurements (min)	Elapsed Time (min)	Pumping Rate (gpm)	Total Volume Pumped (gal)	Depth to Water (ft)	Drawdown (ft)
8:44:00	0.00	0.00	0.00	0.00	48.32	-0.01
8:45:00	1.00	1.00	0.00	0.00	48.73	0.40
8:45:30	0.50	1.50	0.00	0.00	48.82	0.49
8:46:00	0.50	2.00	1.58	0.79	49.00	0.67
8:47:00	1.00	3.00	1.39	2.18	49.68	1.35
8:48:00	1.00	4.00	1.49	3.67	50.03	1.70
8:49:00	1.00	5.00	1.45	5.12	50.62	2.29
8:50:00	1.00	6.00	1.45	6.57	51.05	2.72
8:51:00	1.00	7.00	1.47	8.04	51.66	3.33
8:52:00	1.00	8.00	1.52	9.56	51.83	3.50
8:53:00	1.00	9.00	1.52	11.08	52.19	3.86
8:54:00	1.00	10.00	1.51	12.59	52.60	4.27
8:55:00	1.00	11.00	1.51	14.10	52.91	4.58
8:57:00	2.00	13.00	1.50	17.11	53.58	5.25
8:59:00	2.00	15.00	1.49	20.09	54.22	5.89
9:01:00	2.00	17.00	1.49	23.07	54.73	6.40
9:03:00	2.00	19.00	1.49	26.04	55.26	6.93
9:05:00	2.00	21.00	1.48	29.00	55.76	7.43
9:07:00	2.00	23.00	1.50	32.01	56.19	7.86
9:09:00	2.00	25.00	1.52	35.04	56.68	8.35
9:11:00	2.00	27.00	1.51	38.06	57.06	8.73
9:13:00	2.00	29.00	1.50	41.07	57.41	9.08
9:15:00	2.00	31.00	1.50	44.08	57.79	9.46
9:20:00	5.00	36.00	1.50	51.56	58.55	10.22
9:25:00	5.00	41.00	1.49	58.98	59.24	10.91
9:30:00	5.00	46.00	1.48	66.39	59.82	11.49
9:35:00	5.00	51.00	1.47	73.76	60.33	12.00
9:40:00	5.00	56.00	1.48	81.15	60.81	12.48
9:45:00	5.00	61.00	1.47	88.52	61.11	12.78

Specific Capacity Test



Design & Consultancy
for natural and
built assets

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Step 1 (1.5 GPM) Time (HR:MN:SEC)	Change in Time Between Measurements (min)	Elapsed Time (min)	Pumping Rate (gpm)	Total Volume Pumped (gal)	Depth to Water (ft)	Drawdown (ft)
9:50:00	5.00	66.00	1.48	95.91	61.41	13.08
9:55:00	5.00	71.00	1.46	103.22	61.72	13.39
10:00:00	5.00	76.00	1.46	110.53	61.96	13.63
10:05:00	5.00	81.00	1.47	117.90	62.16	13.83
10:10:00	5.00	86.00	1.47	125.25	62.34	14.01
10:15:00	5.00	91.00	1.46	132.56	62.53	14.20
10:20:00	5.00	96.00	1.46	139.87	62.67	14.34
10:25:00	5.00	101.00	1.47	147.21	62.82	14.49
10:30:00	5.00	106.00	1.47	154.57	62.97	14.64
10:35:00	5.00	111.00	1.46	161.85	63.07	14.74
10:40:00	5.00	116.00	1.46	169.16	63.19	14.86
10:45:00	5.00	121.00	1.46	176.46	63.29	14.96
10:50:00	5.00	126.00	1.46	183.77	63.37	15.04
Total Volume Pumped for Step 1 (gal)			183.77			
Average Pumping Rate (gpm)			1.48			
Specific Capacity (gpm/ft)			0.10			

Specific Capacity Test

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Step 2 (2.0 GPM) Time (HR:MN:SEC)	Change in Time Between measurements (min)	Elapsed Time from Test Start (min)	Pumping Rate (gpm)	Total Volume Pumped (gal)	Depth to Water (ft)	Drawdown (ft)	Elapsed Time from Step 2 Start (min)
11:05:00	15.00	141.00	2.04	214.31	63.65	15.32	4.10
11:05:20	0.33	141.33	2.04	214.99	63.74	15.41	4.43
11:05:30	0.17	141.50	2.04	215.33	63.77	15.44	4.60
11:05:40	0.17	141.67	2.04	215.67	63.80	15.47	4.77
11:05:50	0.17	141.83	2.04	216.01	63.83	15.50	4.93
11:06:00	0.17	142.00	2.04	216.35	63.88	15.55	5.10
11:07:00	1.00	143.00	2.05	218.40	64.15	15.82	6.10
11:08:00	1.00	144.00	2.04	220.44	64.33	16.00	7.10
11:09:00	1.00	145.00	2.04	222.47	64.48	16.15	8.10
11:10:00	1.00	146.00	2.03	224.50	64.69	16.36	9.10
11:11:00	1.00	147.00	2.03	226.53	64.88	16.55	10.10
11:12:00	1.00	148.00	2.03	228.57	65.04	16.71	11.10
11:13:00	1.00	149.00	2.03	230.59	65.20	16.87	12.10
11:14:00	1.00	150.00	2.02	232.61	65.37	17.04	13.10
11:15:00	1.00	151.00	2.02	234.63	65.52	17.19	14.10
11:17:00	2.00	153.00	2.02	238.67	65.79	17.46	16.10
11:19:00	2.00	155.00	2.01	242.69	66.08	17.75	18.10
11:21:00	2.00	157.00	2.01	246.71	66.50	18.17	20.10
11:23:00	2.00	159.00	2.01	250.73	66.53	18.20	22.10
11:25:00	2.00	161.00	2.00	254.73	66.77	18.44	24.10
11:27:00	2.00	163.00	2.01	258.75	66.95	18.62	26.10
11:29:00	2.00	165.00	2.01	262.77	67.13	18.80	28.10
11:31:00	2.00	167.00	2.00	266.77	67.32	18.99	30.10
11:33:00	2.00	169.00	2.00	270.77	67.49	19.16	32.10
11:35:00	2.00	171.00	2.00	274.77	67.66	19.33	34.10
11:40:00	5.00	176.00	1.99	284.72	68.04	19.71	39.10
11:45:00	5.00	181.00	1.99	294.65	68.33	20.00	44.10
11:50:00	5.00	186.00	2.00	304.63	68.60	20.27	49.10
11:55:00	5.00	191.00	1.99	314.59	68.81	20.48	54.10

Specific Capacity Test

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Step 2 (2.0 GPM) Time (HR:MN:SEC)	Change in Time Between measurements (min)	Elapsed Time from Test Start (min)	Pumping Rate (gpm)	Total Volume Pumped (gal)	Depth to Water (ft)	Drawdown (ft)	Elapsed Time from Step 2 Start (min)
12:00:00	5.00	196.00	1.99	324.52	69.05	20.72	59.10
12:05:00	5.00	201.00	1.98	334.42	69.22	20.89	64.10
12:15:00	10.00	211.00	1.97	354.14	69.52	21.19	74.10
12:25:00	10.00	221.00	1.98	373.97	69.81	21.48	84.10
12:35:00	10.00	231.00	1.97	393.66	69.93	21.60	94.10
12:45:00	10.00	241.00	1.98	413.44	70.20	21.87	104.10
12:55:00	10.00	251.00	1.97	433.11	70.34	22.01	114.10
13:05:00	10.00	261.00	1.96	452.75	70.48	22.15	124.10
Total Volume Pumped for Step 2 (gal)			268.99				
Average Pumping Rate (gpm)			2.01				
Specific Capacity (gpm/ft)			0.09				

Specific Capacity Test

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Step 3 (2.5 gpm) Time (HR:MN:SEC)	Change in Time Between Measurements (min)	Elapsed Time from Test Start (min)	Pumping Rate (gpm)	Total Volume Pumped (Gallons)	Depth to Water (ft)	Drawdown (ft)	Elapsed Time from Step 3 Start (min)
13:10:00	5.00	266.00	2.35	464.50	70.56	22.23	2.00
13:10:20	0.33	266.33	2.60	465.37	70.61	22.28	2.33
13:10:46	0.43	266.77	2.59	466.49	70.70	22.37	2.77
13:11:00	0.23	267.00	2.58	467.09	70.85	22.52	3.00
13:12:00	1.00	268.00	2.58	469.67	70.99	22.66	4.00
13:13:00	1.00	269.00	2.58	472.25	71.25	22.92	5.00
13:14:00	1.00	270.00	2.58	474.84	71.41	23.08	6.00
13:15:00	1.00	271.00	2.58	477.41	71.62	23.29	7.00
13:16:00	1.00	272.00	2.57	479.98	71.84	23.51	8.00
13:17:00	1.00	273.00	2.56	482.54	72.02	23.69	9.00
13:18:00	1.00	274.00	2.56	485.10	72.22	23.89	10.00
13:19:00	1.00	275.00	2.55	487.65	72.36	24.03	11.00
13:20:00	1.00	276.00	2.55	490.20	72.52	24.19	12.00
13:22:00	2.00	278.00	2.54	495.28	72.85	24.52	14.00
13:24:00	2.00	280.00	2.54	500.37	73.17	24.84	16.00
13:26:00	2.00	282.00	2.54	505.45	73.41	25.08	18.00
13:28:00	2.00	284.00	2.60	510.65	73.81	25.48	20.00
13:30:00	2.00	286.00	2.60	515.85	74.03	25.70	22.00
13:32:00	2.00	288.00	2.60	521.05	74.31	25.98	24.00
13:34:00	2.00	290.00	2.59	526.23	74.59	26.26	26.00
13:36:00	2.00	292.00	2.58	531.39	74.82	26.49	28.00
13:38:00	2.00	294.00	2.57	536.53	75.04	26.71	30.00
13:40:00	2.00	296.00	2.58	541.69	75.25	26.92	32.00
13:45:00	5.00	301.00	2.57	554.53	75.71	27.38	37.00
13:50:00	5.00	306.00	2.56	567.33	76.12	27.79	42.00
13:55:00	5.00	311.00	2.56	580.13	76.48	28.15	47.00
14:00:00	5.00	316.00	2.55	592.88	76.81	28.48	52.00
14:05:00	5.00	321.00	2.55	605.63	77.19	28.86	57.00
14:10:00	5.00	326.00	2.54	618.33	77.35	29.02	62.00

Specific Capacity Test

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Step 3 (2.5 gpm) Time (HR:MN:SEC)	Change in Time Between Measurements (min)	Elapsed Time from Test Start (min)	Pumping Rate (gpm)	Total Volume Pumped (Gallons)	Depth to Water (ft)	Drawdown (ft)	Elapsed Time from Step 3 Start (min)
14:20:00	10.00	336.00	2.53	643.63	77.76	29.43	72.00
14:30:00	10.00	346.00	2.53	668.94	78.20	29.87	82.00
14:40:00	10.00	356.00	2.52	694.14	78.46	30.13	92.00
14:50:00	10.00	366.00	2.50	719.14	78.47	30.14	102.00
15:00:00	10.00	376.00	2.50	744.14	79.06	30.73	112.00
15:10:00	10.00	386.00	2.50	769.14	79.37	31.04	122.00
Total Volume Pumped for Step 3 (gal)			316.38				
Average Pumping Rate (gpm)			2.55				
Specific Capacity (gpm/ft)			0.08				

Step 4 (5.0 gpm) Time (HR:MN:SEC)	Change in Time Between Measurements (min)	Elapsed Time from Test Start (min)	Pumping Rate (gpm)	Total Volume Pumped (Gallons)	Depth to Water (ft)	Drawdown (ft)	Elapsed Time from Step 3 Start (min)
15:15:00	5.00	391.00	4.93	793.78	79.70	31.37	0.00
15:15:10	0.17	391.17	4.93	794.61	79.78	31.45	0.17
15:15:20	0.17	391.33	4.93	795.43	79.85	31.52	0.33
15:15:30	0.17	391.50	4.93	796.25	79.95	31.62	0.50
15:15:40	0.17	391.67	4.93	797.07	80.05	31.72	0.67
15:15:45	0.08	391.75	4.93	797.48	80.15	31.82	0.75
15:15:55	0.17	391.92	4.93	798.30	80.25	31.92	0.92
15:16:00	0.08	392.00	4.93	798.71	80.35	32.02	1.00
15:17:00	1.00	393.00	4.97	803.68	81.35	33.02	2.00
15:18:00	1.00	394.00	5.00	808.69	82.30	33.97	3.00
15:19:00	1.00	395.00	5.00	813.69	83.19	34.86	4.00
15:20:00	1.00	396.00	4.94	818.64	84.05	35.72	5.00
15:21:00	1.00	397.00	4.92	823.56	84.85	36.52	6.00

Specific Capacity Test

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Step 4 (5.0 gpm) Time (HR:MN:SEC)	Change in Time Between Measurements (min)	Elapsed Time from Test Start (min)	Pumping Rate (gpm)	Total Volume Pumped (Gallons)	Depth to Water (ft)	Drawdown (ft)	Elapsed Time from Step 3 Start (min)
15:22:00	1.00	398.00	4.93	828.49	85.69	37.36	7.00
15:23:00	1.00	399.00	4.94	833.42	86.43	38.10	8.00
15:24:00	1.00	400.00	4.95	838.37	87.17	38.84	9.00
15:25:00	1.00	401.00	4.92	843.29	87.93	39.60	10.00
15:27:00	2.00	403.00	4.89	853.07	89.31	40.98	12.00
15:29:00	2.00	405.00	5.03	863.14	90.69	42.36	14.00
15:31:00	2.00	407.00	4.99	873.12	91.91	43.58	16.00
15:33:00	2.00	409.00	4.94	883.00	93.14	44.81	18.00
15:35:00	2.00	411.00	4.91	892.82	94.19	45.86	20.00
15:37:00	2.00	413.00	4.97	902.76	95.22	46.89	22.00
15:39:00	2.00	415.00	5.06	912.88	96.35	48.02	24.00
15:41:00	2.00	417.00	5.00	922.88	97.32	48.99	26.00
15:43:00	2.00	419.00	4.98	932.84	98.26	49.93	28.00
15:45:00	2.00	421.00	4.94	942.72	99.15	50.82	30.00
15:50:00	5.00	426.00	5.02	967.82	101.22	52.89	35.00
15:55:00	5.00	431.00	4.90	992.32	102.70	54.37	40.00
16:00:00	5.00	436.00	4.85	1016.57	104.20	55.87	45.00
16:05:00	5.00	441.00	5.02	1041.67	105.60	57.27	50.00
16:10:00	5.00	446.00	4.94	1066.37	106.81	58.48	55.00
16:15:00	5.00	451.00	4.89	1090.82	107.82	59.49	60.00
16:25:00	10.00	461.00	5.04	1141.22	109.87	61.54	70.00
16:35:00	10.00	471.00	4.97	1190.92	111.38	63.05	80.00
16:45:00	10.00	481.00	5.04	1241.32	112.59	64.26	90.00
16:55:00	10.00	491.00	5.02	1291.52	113.45	65.12	100.00
17:05:00	10.00	501.00	5.02	1341.72	113.60	65.27	110.00
17:15:00	10.00	511.00	5.01	1391.82	113.70	65.37	120.00
17:30:00	15.00	526.00	4.97	1466.37	114.50	66.17	135.00
Total Volume Pumped for Step 4 (gal)			697.23				
Average Pumping Rate (gpm)			4.96				
Specific Capacity (gpm/ft)			0.07				

Specific Capacity Test

Location/Well ID	ER-01
Date	6/2/2022
Screened Interval	45 - 136 ft.
Pump Depth (ft btoc)	132
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	48.33
Initial Totalizer Reading (gal)	4176.27
Final Totalizer Reading (gal)	5611.88
Approx Pumped Volume (gal)	1435.61
Calculated Volume Purged (gal)	1466.37
Difference in Volume Pumped vs. Calculated	-30.76
Number of Specific Capacity Steps	4
Pumping Rates (in order)	1.5, 2.0, 2.5, and 5.0 gpm

Acronyms & Abbreviations

bgs = below ground surface

btoc = below top of casing

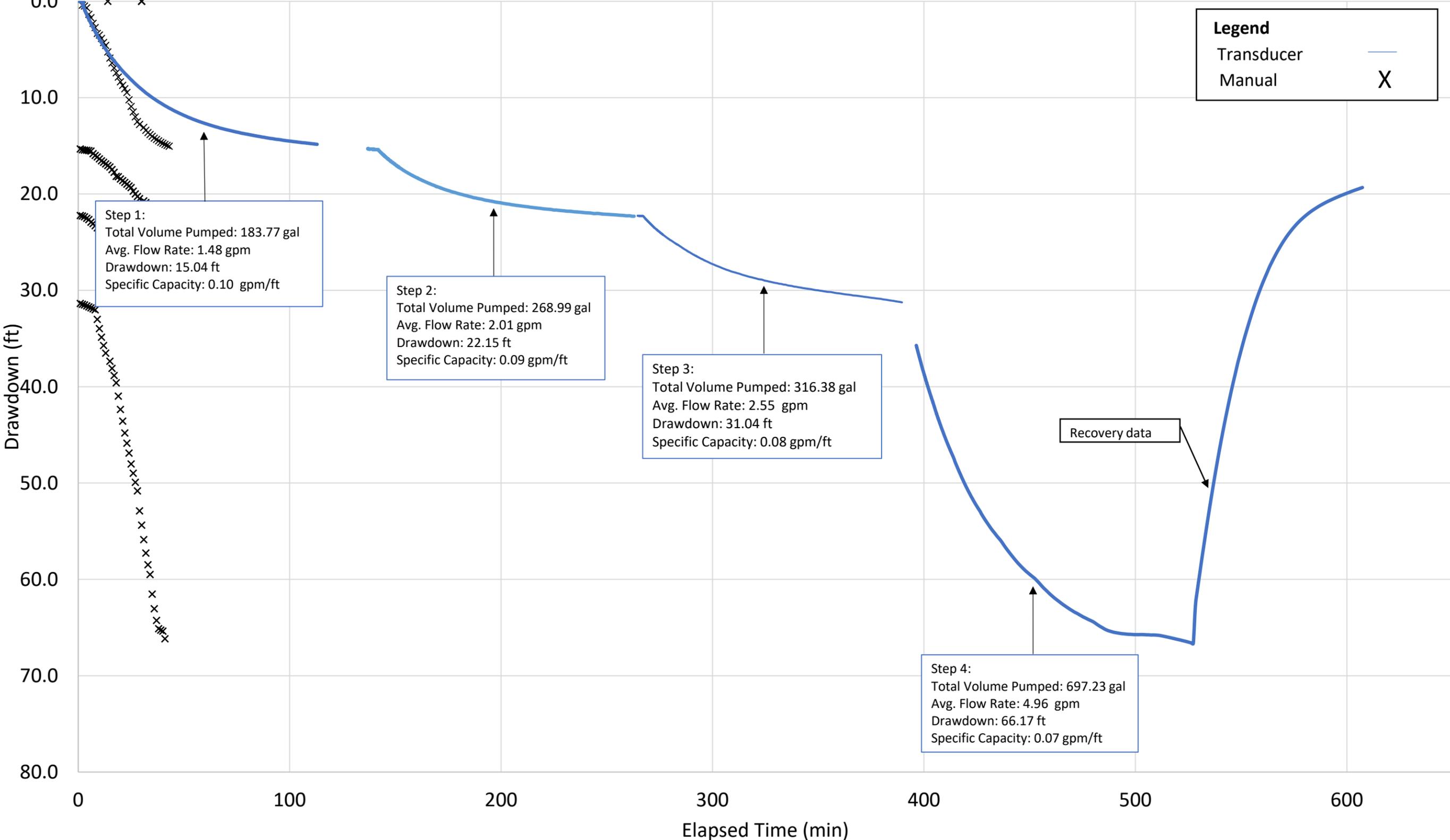
ft = feet

gal = gallons

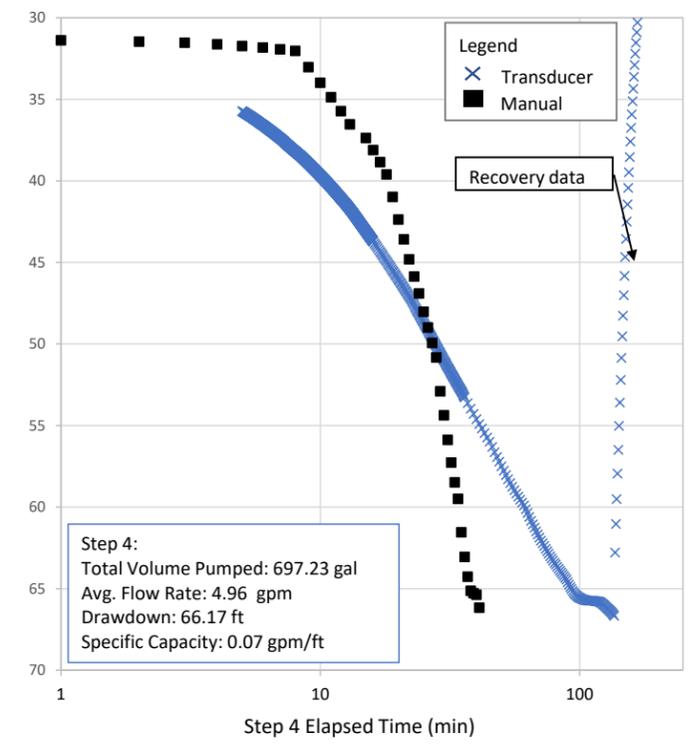
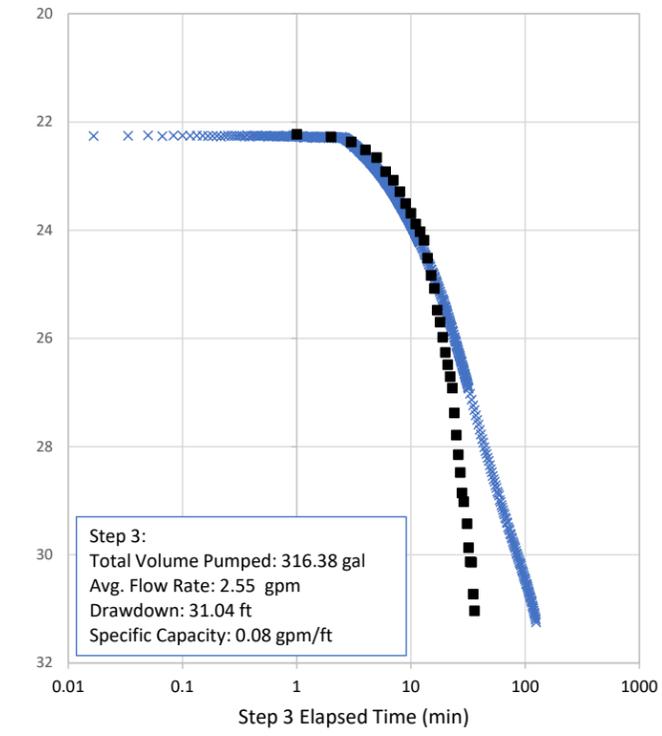
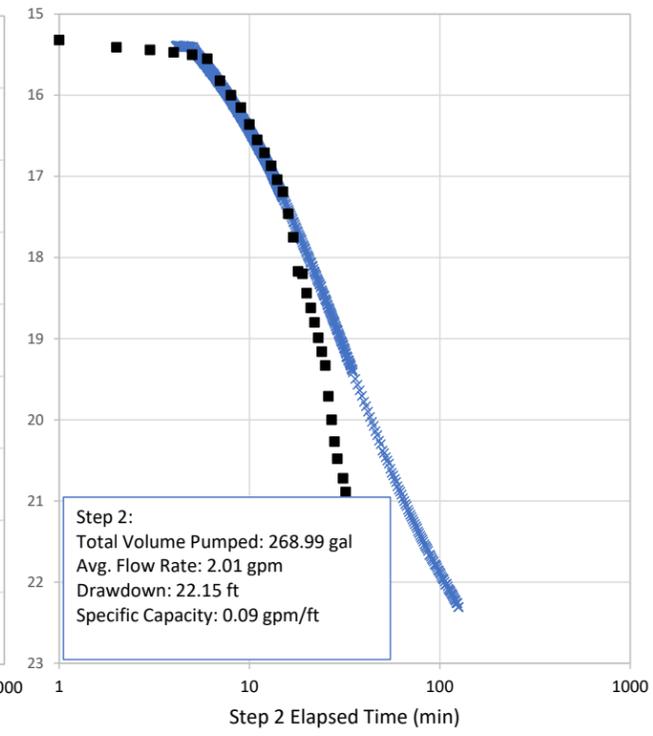
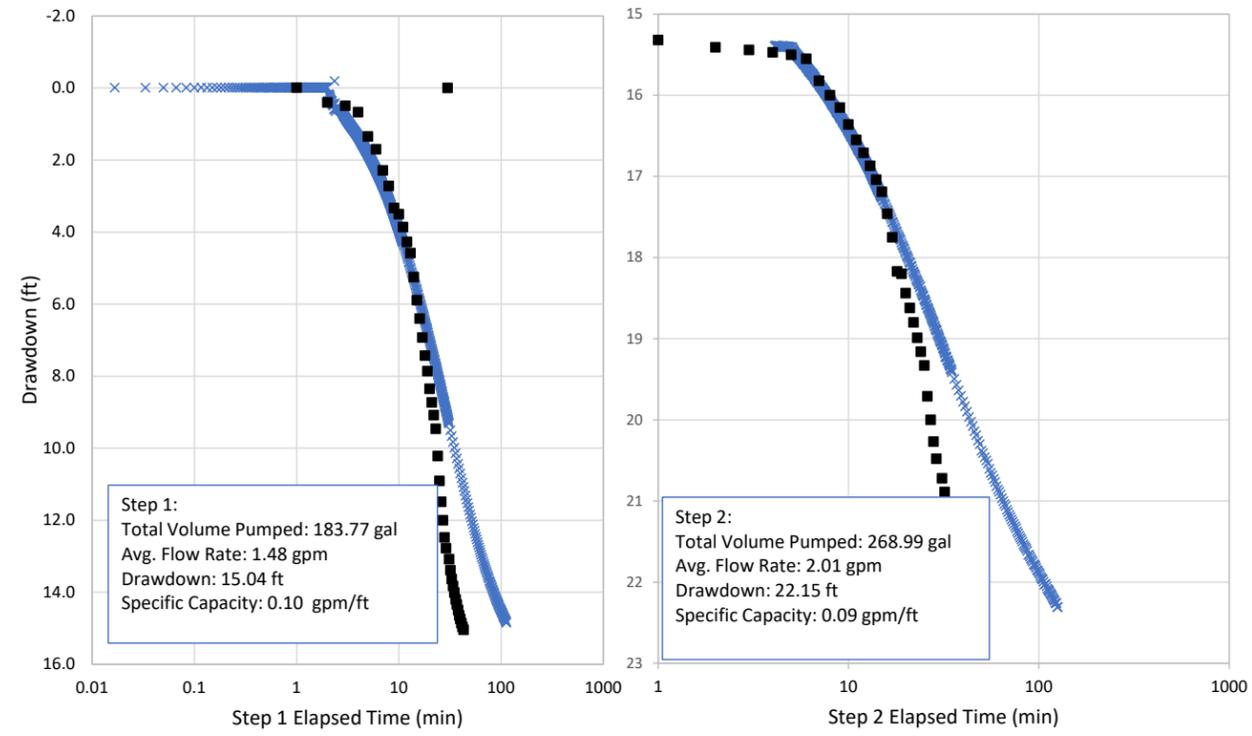
gpm = gallons per minute

min = minutes

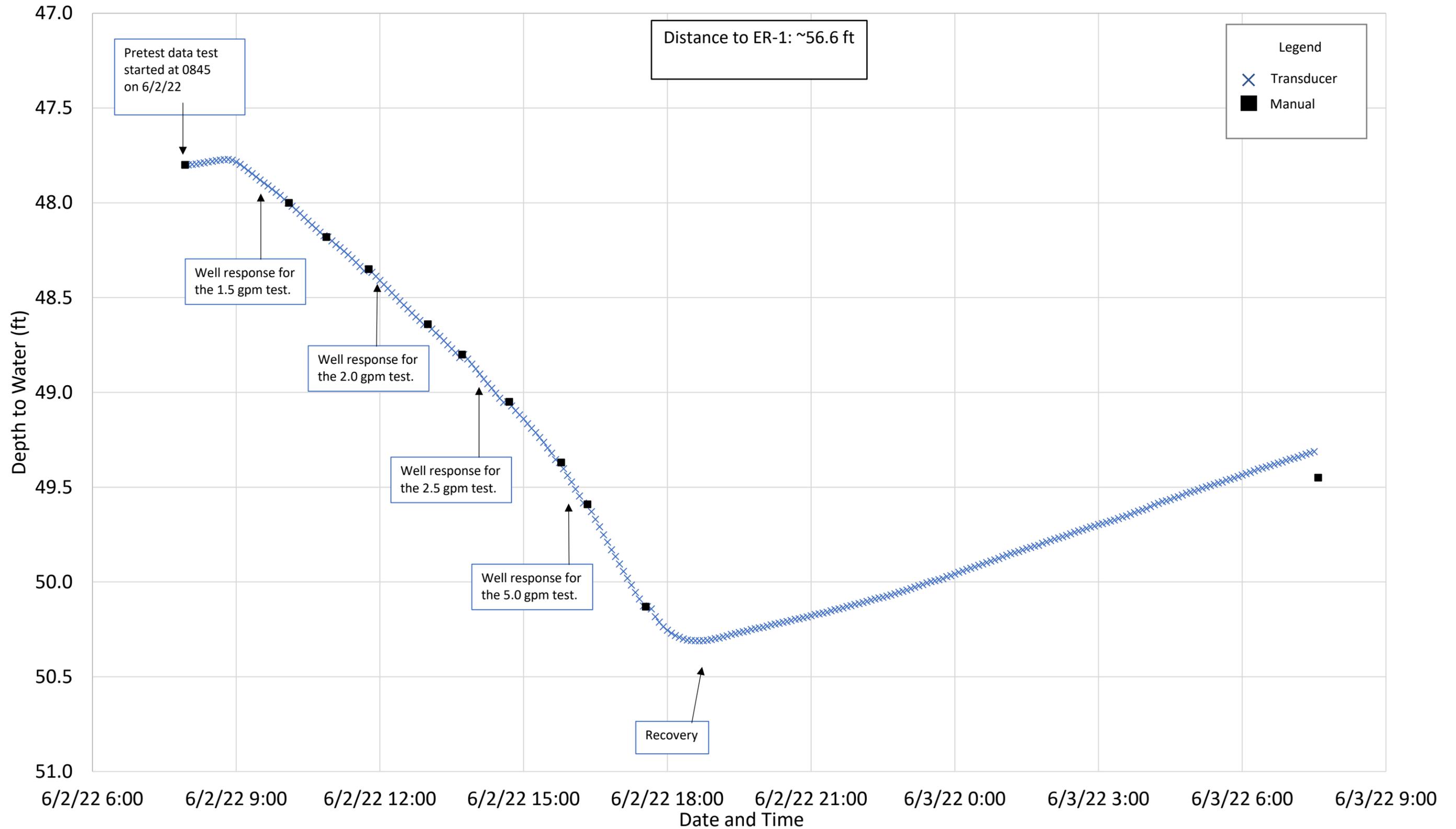
ER-01 Specific Capacity Test: Linear Drawdown Plot



ER-01 Specific Capacity Test: Semi-Log Drawdown Plot



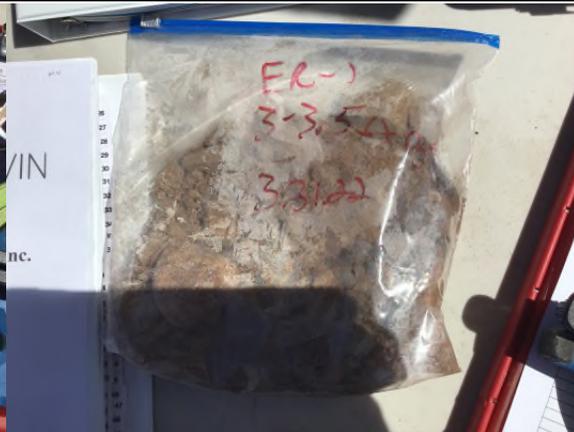
MW-62-065 During ER-01 Specific Capacity Test On 6/2/22 to 6/3/22



Attachment 7

Photo Logs

CLIENT NAME: PG&E	WELL CORE PHOTO LOG ER-01 0 to 143 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 4/13/2022



Core Depth: 1 to 1.5
Description: Samples (0-7' bgs) previously collected for logging during air knifing activities.
Date: 3/31/2022

Core Depth: 3 to 3.5
Description: Samples (0-7' bgs) previously collected for logging during air knifing activities.
Date: 3/31/2022

Core Depth: 7 to 15
Description:
Date: 4/2/2022



Core Depth: 7 to 15
Description:
Date: 4/2/2022

Core Depth: 7 to 15
Description:
Date: 4/2/2022

Core Depth: 15 to 17
Description:
Date: 4/2/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG ER-01 0 to 143 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 4/13/2022



Core Depth: 17 to 22
Description:
Date: 4/2/2022



Core Depth: 22 to 27
Description:
Date: 4/2/2022



Core Depth: 27 to 32
Description:
Date: 4/2/2022



Core Depth: 32 to 37
Description:
Date: 4/3/2022



Core Depth: 37 to 42
Description:
Date: 4/3/2022



Core Depth: 42 to 47
Description:
Date: 4/3/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG ER-01 0 to 143 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 4/13/2022



Core Depth: 47 to 52
Description:
Date: 4/3/2022



Core Depth: 52 to 57
Description:
Date: 4/3/2022



Core Depth: 57 to 62
Description:
Date: 4/4/2022



Core Depth: 62 to 67
Description:
Date: 4/4/2022



Core Depth: 67 to 72
Description:
Date: 4/4/2022



Core Depth: 72 to 74
Description:
Date: 4/4/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG ER-01 0 to 143 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 4/13/2022



Core Depth: 74 to 77
Description:
Date: 4/4/2022



Core Depth: 77 to 82
Description:
Date: 4/4/2022



Core Depth: 82 to 87
Description:
Date: 4/5/2022



Core Depth: 87 to 92
Description:
Date: 4/5/2022



Core Depth: 92 to 97
Description:
Date: 4/5/2022



Core Depth: 97 to 102
Description:
Date: 4/12/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG ER-01 0 to 143 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 4/13/2022
Core Depth: 102 to 107 Description: Date: 4/13/2022	Core Depth: 107 to 112 Description: Date: 4/13/2022	Core Depth: 112 to 117 Description: Date: 4/13/2022
Core Depth: 117 to 122 Description: Date: 4/13/2022	Core Depth: 122 to 127 Description: Date: 4/13/2022	Core Depth: 127 to 129 Description: Date: 4/13/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG ER-01 0 to 143 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 4/13/2022



Core Depth: 129 to 132
Description:
Date: 4/13/2022



Core Depth: 132 to 137
Description:
Date: 4/13/2022



Core Depth: 137 to 143
Description:
Date: 4/13/2022



Core Depth: 137 to 143
Description:
Date: 4/13/2022

CLIENT NAME: PG&E

**WELL CONSTRUCTION
PHOTO LOG**

PROJECT NAME / LOCATION: Final Groundwater Remedy,
PG&E Topock Compressor Station/Needles, CA

Arcadis PROJECT NO: 30126255

WELL ID: ER-01



**4/20/2022 – ER-01:
6" diameter Schedule 80 PVC casing, and 6-
inch diameter 20 slot 316L Stainless Steel
Wrapped Screen**



**4/20/2022 – ER-01:
6-inch diameter 20 slot 316L Stainless Steel
Wire Wrapped Screen**



**4/20/2022 – ER-01:
Confirmation gauging of the 20 slot Wire
Wrapped Screen**

CLIENT NAME: PG&E

**WELL CONSTRUCTION
PHOTO LOG**

PROJECT NAME / LOCATION: Final Groundwater Remedy,
PG&E Topock Compressor Station/Needles, CA

Arcadis PROJECT NO: 30126255

WELL ID: ER-01



**4/20/2022 – ER-01:
6-inch diameter schedule 80 PVC well casing**



**4/20/2022 – ER-01:
6-inch diameter schedule 80 PVC well casing**



**4/20/2022 – ER-01:
6-inch diameter schedule 80 PVC well casing**

CLIENT NAME: PG&E

**WELL CONSTRUCTION
PHOTO LOG**

PROJECT NAME / LOCATION: Final Groundwater Remedy,
PG&E Topock Compressor Station/Needles, CA

Arcadis PROJECT NO: 30126255

WELL ID: ER-01



**4/20/2022 – ER-01:
Stainless steel centralizers**



**4/20/2022 – ER-01:
Transition Cemex #0/30 (30 x 50) Lapis Lustré
Sand**



**4/20/2022 – ER-01:
Filter Pack Cemex #2/16 (16 x 30) Lapis Lustré
Sand**

CLIENT NAME: PG&E

**WELL CONSTRUCTION
PHOTO LOG**

PROJECT NAME / LOCATION: Final Groundwater Remedy,
PG&E Topock Compressor Station/Needles, CA

Arcadis PROJECT NO: 30126255

WELL ID: ER-01



**4/20/2022 – ER-01:
Installing Schedule 40 PVC sump with
stainless steel centralizer**



**4/20/2022 – ER-01:
Installing 20 slot 316L Stainless Steel Screen**



**4/20/2022 – ER-01:
Installing 20 slot 316L Stainless Screen and
Schedule 80 PVC well casing**

CLIENT NAME: PG&E

**WELL CONSTRUCTION
PHOTO LOG**

PROJECT NAME / LOCATION: Final Groundwater Remedy,
PG&E Topock Compressor Station/Needles, CA

Arcadis PROJECT NO: 30126255

WELL ID: ER-01



**4/20/2022 – ER-01:
Installing Schedule 80 PVC well casing and
stainless steel centralizer**



**4/20/2022 – ER-01:
Tightening the threaded joint of Schedule 80
PVC well casing**



**4/20/2022 – ER-01:
Installing Schedule 80 PVC well casing
and stainless steel centralizer**

CLIENT NAME: PG&E

**WELL CONSTRUCTION
PHOTO LOG**

PROJECT NAME / LOCATION: Final Groundwater Remedy,
PG&E Topock Compressor Station/Needles, CA

Arcadis PROJECT NO: 30126255

WELL ID: ER-01



**4/20/2022 – ER-01:
Installation of annular well materials**



**4/20/2022 – ER-01:
Swab block used for predevelopment to
promote setting of the filter pack prior to the
installation of the bentonite seal**



**4/21/2022 – ER-01:
Enviroplug Medium Bentonite Chips used for
bentonite seal**

CLIENT NAME: PG&E	WELL CONSTRUCTION PHOTO LOG	PROJECT NAME / LOCATION: Final Groundwater Remedy, PG&E Topock Compressor Station/Needles, CA
Arcadis PROJECT NO: 30126255		WELL ID: ER-01



4/21/2022 – ER-01:
Type I, II, and V Portland Cement grout mixture for the installation of the sanitary seal



4/21/2022 – ER-01:
Hydrogel Wyoming Bentonite used grout mixture for the installation of the sanitary seal



4/21/2022 – ER-01:
Mixing grout inside a 275-gallon IBC tank for sanitary seal

CLIENT NAME: PG&E

**WELL CONSTRUCTION
PHOTO LOG**

PROJECT NAME / LOCATION: Final Groundwater Remedy,
PG&E Topock Compressor Station/Needles, CA

Arcadis PROJECT NO: 30126255

WELL ID: ER-01



**4/21/2022 – ER-01:
I Installation grout for the sanitary seal using a tremie pipe**



**5/10/2022 – ER-01:
Measuring the distance from top of casing to ground surface**



**5/10/2022 – ER-01
2.5x2.5 foot form for the construction of the flush mount well pad**

CLIENT NAME: PG&E	WELL CONSTRUCTION PHOTO LOG	PROJECT NAME / LOCATION: Final Groundwater Remedy, PG&E Topock Compressor Station/Needles, CA
Arcadis PROJECT NO: 30126255		WELL ID: ER-01



**5/10/2022 – ER-01:
18-inch diameter lockable traffic rated well
vault**



**5/10/2022 – ER-01:
Completed flush mount well pad**



**5/10/2022 – ER-01:
High Spec 4,500 PSI Concrete used for the
installation of the well pad**

CLIENT NAME: PG&E	WELL CONSTRUCTION PHOTO LOG	PROJECT NAME / LOCATION: Final Groundwater Remedy, PG&E Topock Compressor Station/Needles, CA
Arcadis PROJECT NO: 30126255		WELL ID: ER-01



6/3/2022 – ER-01:
Confirming outer diameter of “Dummy Tool” used for the alignment test meets Specification 33 22 00



6/3/2022 – ER-01:
Couple used to construct the 40 foot long “Dummy Tool”



6/3/2022 – ER-01:
Connecting the “Dummy Tool” to the lifting bell

Attachment 8

Video Survey Report

Pacific Surveys

a full service geophysical well logging company

Video Survey Report

Company: ABC Liovin Drilling, Inc.	Date: 30-Jun-22
Well: ER-1	Run No.: One Truck: PS-9
Field: Topock	Job Ticket: 29875
State: California	Total Depth: 141.8 ft
Location: 145453 National Trails HWY	Water Level: 48.4 ft SWL:
GPS: 34.71515 -114.48907	Oil on Water: No Amount: N/A
Zero Datum: Ground Level	Operator: Afoh
Reason for Survey: New Well Construction	Guides Set: 5.5 inch Dead Space: 1.08 ft
Tool Zero: Side-Scan	

Depth	Observations	Well Details	
0.0 ft	Begin survey from ground level.	Perforation: Wire-Wrap	As-Built 46 ft to 135.0 ft
0.4 ft	Top of casing.		
45.9 ft	Transition of casing from PVC to Stainless Steel Casing.		
46.1 ft	Top of Screen: all are open with gravel pack visible behind the casing wall.		
48.4 ft	SWL: Water is slightly cloudy. Visibility is fair.		
105.0 ft	Wire-wrap screen are open with some minor fine sediments inside the screens.		
136.3 ft	Bottom of screen: all are open with some minor fine sediments inside the screens.		
136.8 ft	Transition of casing from Stainless Steel Casing to PVC casing.		
141.5 ft	Top of soft fill.		
141.8 ft	Hard fill encountered, end survey.		
		Casing Size (in)	As-Built
		OD ID	
		6.75 5.75	0 ft to 141.3 ft
		Casing Material	PVC
		Screen Material	Stainless Steel

909.828.7553 1785 W. Arrow Rte., Bldg. 4, Ste. 34 fax: 909.399.3180
 909.825.6262 upland, ca 91786 www.pacificsurveys.com

ER-1 - Downhole Camera Survey Report