



TOPOCK WELL COMPLETION AND ACCEPTANCE REPORT - REMEDiation WELLS

Well Name: TWB-03 (Note: Documentation referencing TWB-3 is in reference to TWB-03.)

Screen Zone (feet below ground surface [bgs]): 56 – 76

Dates Pilot Borehole Drilling and Temporary Abandonment: 5/5/2022 – 5/8/2022 and 5/08/2022 – 5/9/2022

Dates Pilot Borehole Overdrilling and Well Installation: 8/17/2022 – 8/19/2022 and 8/20/2022 – 8/23/2022

Dates Well Head Completion: The well vault was installed on 12/15/23. The well casing stick up will be cut down it's final elevation during the installation of the well head flange at a later date.

Dates of Development: 9/22/2022 – 9/29/2022

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	9/27/2022	None
Specific Capacity Test	Y	10/04/2022	None
Injectivity Test	N	--	--
Plumbness Test (Gyroscope)	N	--	--
Spinner Log	N	--	--
Downhole Video	Y	12/02/2022	None
Other	--	--	--

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).

Meets Design Criteria for Specific Capacity Testing

Goal from 100% Design:	19 gpm
Tested Rates (gallons per minute [gpm]):	10, 20, 30, and 35 gpm
Specific Capacity	Specific capacity results: 10 gpm = 2.63 gpm/ft, 20 gpm = 2.42 gpm/ft, 30 gpm = 1.98 gpm/ft, 35 gpm = 1.78 gpm/ft
Comments	Successfully tested at higher rates than the Proposed Nominal Rates

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, “Dummy Tool” alignment testing, well testing, and well sampling.

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

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

Comments: _____ Turbidity following well development meets the design criteria.

Final Turbidity at End of Well Development

Screen Zone	Turbidity (NTUs)
<u>56 – 76'</u>	6.45

Other Water Quality Parameters

Water Quality Parameters at end of development

Screen Depths	Temp (C)	pH	ORP (mV)	Cond (mS/cm)	DO
<u>56 – 76'</u>	28.5	7.42	84.6	10775	2.99

ATTACHMENTS

- Final Well Design
- Pilot Boring Log
- Temporary Abandonment Log
- Drilling Log
- Well Construction Log
- Well Development Record
- Specific Capacity Testing Package
- Photo Logs
- Video Survey Report

NOTE:

Field documentation for all phases of pilot boring drilling and decommissioning 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

TOPOCK Well Acceptance Form - Remediation Wells

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:  1/25/23

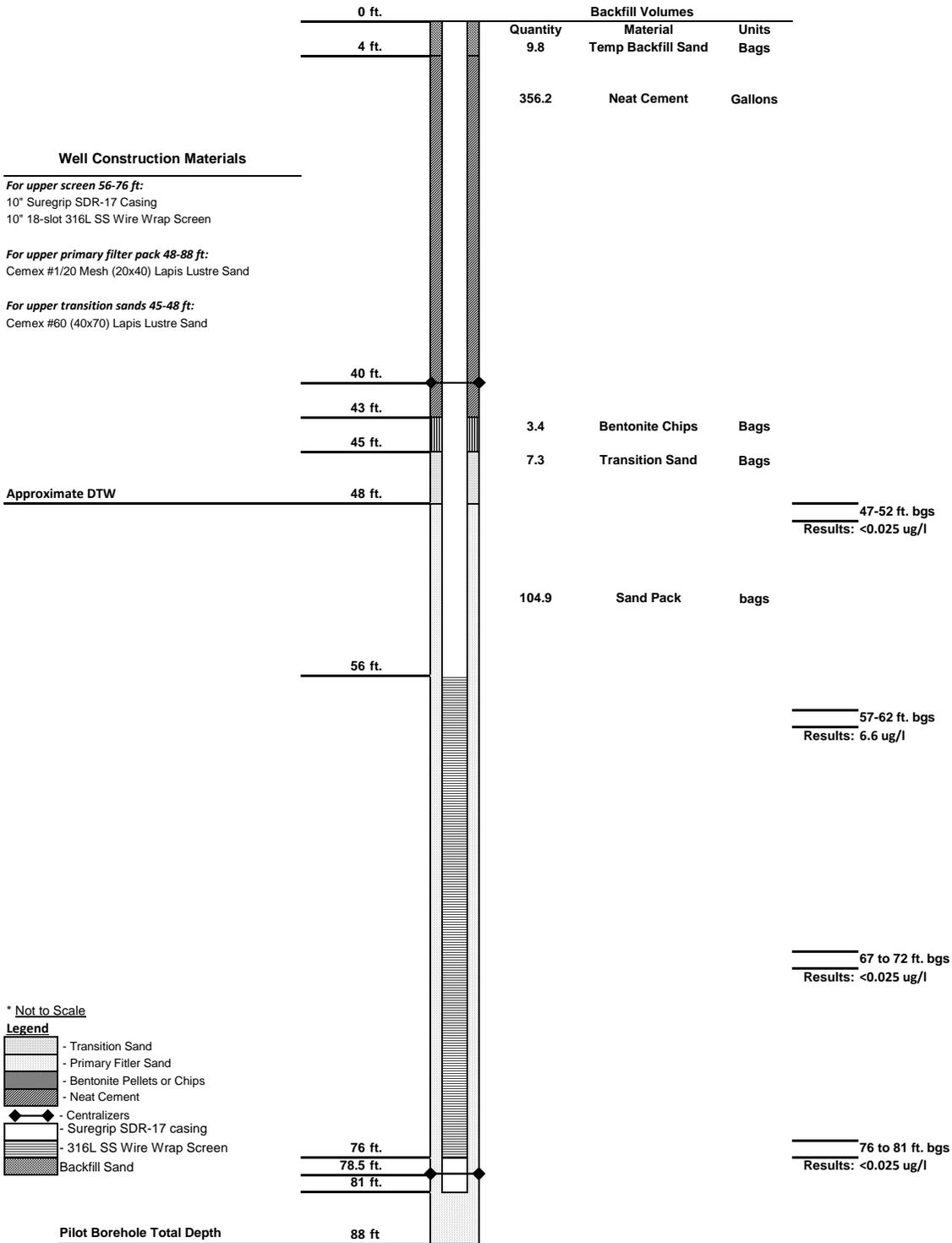
Attachment 1

Final Well Design

Final Well Design
TWB-03 (05/26/22)



Well ID: TWB-03 Well Purpose: Remediation Well Type: Single Screen
 Borehole Dia.: 18 in. Well Diameters: 10 in.



Well Construction Materials

For upper screen 56-76 ft:
 10" Suregrip SDR-17 Casing
 10" 18-slot 316L SS Wire Wrap Screen

For upper primary filter pack 48-88 ft:
 Cemex #1/20 Mesh (20x40) Lapis Lustre Sand

For upper transition sands 45-48 ft:
 Cemex #60 (40x70) Lapis Lustre Sand

* Not to Scale

- Legend**
- Transition Sand
 - Primary Filter Sand
 - Bentonite Pellets or Chips
 - Neat Cement
 - Centralizers
 - Suregrip SDR-17 casing
 - 316L SS Wire Wrap Screen
 - Backfill Sand

Attachment 2

Pilot Boring Log

Date Started:	05/05/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03 Pilot
Date Completed:	05/08/2022	Northing (NAD83):	2101174.43	
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client: PG&E
Drilling Method:	Sonic Drilling	Total Depth:	88 ft bgs	Project: Final GW Remedy Phase 2A
Drill Rig Type:	Boart Longyear drill head	Borehole Diameter:	4-7 inches	Location: PG&E Topock, Needles California
Driller Name:	Matt Arnold / Jose Hernandez	Depth to First Water:	47.0 ft bgs	
Drilling Asst:	D Hoepfner / R West	Sampling Method:	4 inch x 10 ft. Core Barrel	Project Number: 30126255
Logger:	David Cornell	Sampling Interval:	Continuous	
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid						
1	6			Fill	SM		(0-4.5 ft) Silty sand with gravel (SM); very dark brown (10YR 2/2); very fine to very coarse grained; angular to subangular; little silt; little small to large pebbles; angular to subangular; trace granules, angular to subangular; dry to moist.	(0.0 - 7.0') Fill used to build drill pad.	(0.0 - 7.0') No drilling fluid used						
2							3	4	5	6	(4.5-7 ft) Silty sand with gravel (SM); brown (10YR 5/3); very fine to very coarse grained, angular to subangular; little silt; trace granules, angular to subangular; trace small to large pebbles, angular to subangular; trace small to large cobbles, angular to subangular; dry.				
7				5	No Sieve Samples Collected	No Groundwater Samples Collected	Alluvium Deposits	SW-SM		(7-17 ft) Well graded sand with silt and gravel (SW-SM); brown (10YR 5/3); very fine to very coarse grained, angular to subangular; little granules, angular to subangular; little small to large pebbles, angular to subangular; little silt; trace small to large cobbles, angular to subangular; dry.	(7.0 - 12.0') Air-knifed for utility clearance on 4/23/22 prior to construction of the drill pad.	(7.0 - 12.0') No drilling fluid used			
8										9	10	11	12	13	14
18							4			Alluvium Deposits	SW		(17-21 ft) Well graded sand and gravel (SW); brown (10YR 5/3); very fine to very coarse grained, angular to subangular; little small to large pebbles, angular to subangular; trace granules, angular to subangular; trace small to large cobbles, angular to subangular; trace silt; trace clay; dry.		
19													20	(19.0 - 26.0') Hard drilling	(19.0 - 26.0') No drilling fluid used

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, ppb = parts per billion, Notes: Solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered from logging and depth to water measured during the first VAS interval, respectively. Apparent partial recoveries can be the result of potential compaction of sediments in the core bag.

TOPOCK SOIL BORING LOG C:\USERS\SMCGRANE\DRIVE - ARCADIS\SHARED DOCUMENTS\PHASE II DRILLING\06 FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\21 2022-07-09\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 7/9/22

Date Started:	05/05/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03 Pilot
Date Completed:	05/08/2022	Northing (NAD83):	2101174.43	
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client: PG&E
Drilling Method:	Sonic Drilling	Total Depth:	88 ft bgs	Project: Final GW Remedy Phase 2A
Drill Rig Type:	Boart Longyear drill head	Borehole Diameter:	4-7 inches	Location: PG&E Topock, Needles California
Driller Name:	Matt Arnold / Jose Hernandez	Depth to First Water:	47.0 ft bgs	
Drilling Asst:	D Hoepfner / R West	Sampling Method:	4 inch x 10 ft. Core Barrel	Project Number: 30126255
Logger:	David Cornell	Sampling Interval:	Continuous	
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
21	4			Alluvium Deposits	SW		(21-26 ft) Well graded sand and gravel (SW); brown (10YR 5/3); very fine to very coarse grained, angular to subangular; little small to large pebbles, angular to subangular; trace granules, angular to subangular; trace small to large cobbles, angular to subangular; trace silt; trace clay; dry.		
22				Alluvium Deposits	SW				
23	5			Alluvium Deposits	SW		(26-32 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 3/4); very fine to very coarse grained, angular to subangular; little small to large pebbles, angular to subangular; trace granules, angular to subangular; trace small to large cobbles, angular to subangular; trace clay; dry.		
24				Alluvium Deposits	SW				
25							(32-37 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 3/4); very fine to very coarse grained, angular to subangular; trace small to large pebbles, angular to subangular; trace granules, angular to subangular; trace small to large cobbles, angular to subangular; trace silt; trace clay; dry.	(32.0 - 37.0') In and out of hard drilling	(32.0 - 37.0') No drilling fluid used
26									
27	6	No Sieve Samples Collected	No Groundwater Samples Collected	Alluvium Deposits	SW				
28									
29							(37-47 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 4/3) with brown (10YR 3/6); very fine to very coarse grained, angular to subangular; little granules, angular to subangular; little small to large pebbles, angular to subangular; trace small to large cobbles, angular to subangular; trace silt; dry.		
30				Alluvium Deposits	SW				
31									
32	5			Alluvium Deposits	SW				
33									
34									
35									
36									
37									
38	10			Alluvium Deposits	SW				
39									
40									

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TOPOCK SOIL BORING LOG C:\USERS\SMCGRANE\DRIVE - ARCADIS\SHARED DOCUMENTS\PHASE II DRILLING\06 FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\21 GINT DATA TEMPLATE.GDT 7/9/22

Date Started:	05/05/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03 Pilot	
Date Completed:	05/08/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	88 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Boart Longyear drill head	Borehole Diameter:	4-7 inches	Location:	PG&E Topock, Needles California
Driller Name:	Matt Arnold / Jose Hernandez	Depth to First Water:	47.0 ft bgs		
Drilling Asst:	D Hoepfner / R West	Sampling Method:	4 inch x 10 ft. Core Barrel	Project Number:	30126255
Logger:	David Cornell	Sampling Interval:	Continuous		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
41		No Sieve Samples Collected					(37-47 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 4/3) with brown (10YR 3/6); very fine to very coarse grained, angular to subangular; little granules, angular to subangular; little small to large pebbles, angular to subangular; trace small to large cobbles, angular to subangular; trace silt; dry.		
42								(42.0 - 47.0') Rough drilling	(42.0 - 47.0') 5 gallons of water used; 0 gallons of water recovered; 5 gallons of water lost
43	10		No Groundwater Samples Collected	Alluvium Deposits	SW				
44		TWB-3-SS-42-47							
45		5/9/2022 09:10							
46							(45 ft) Large metabolite cobble; angular to subangular.		
47									
48							(47-57 ft) Silty sand with gravel (SM); brown (10YR 4/3) with dark yellowish brown (10YR 4/4); very fine to medium grained, angular to subangular; little silt; little small to large pebbles, angular to subangular; little granules, angular to subangular; trace small to large cobbles, angular to subangular; trace clay; moist to wet.	(47.0 - 52.0') Set sample screen for VAS after drilling to 62 ft. bgs and tagging water at ~48.7 ft bgs.	(47.0 - 52.0') No drilling fluid used
49		TWB-3-SS-47-52	TWB-3-VAS-47-52 (<0.025 ppb)						
50		5/9/2022 09:20	5/6/2022 11:15						
51									
52	10			Alluvium Deposits	SM			(51.0 - 52.0') Rough drilling	(51.0 - 52.0') No drilling fluid used
53									
54		TWB-3-SS-52-57							
55		5/9/2022 09:30							
56									
57									
58	5	TWB-3-SS-57-62	TWB-3-VAS-57-62 (6.6 ppb)	Alluvium Deposits	SW-SM		(57-62 ft) Well graded sand with silt and gravel (SW-SM); strong brown (7.5YR 4/6); very fine to very coarse grained, angular to subangular; little granules, angular to subangular; little small to large pebbles, angular to subangular; little silt; trace small to large cobbles, angular to subangular; trace clay; wet.		
59		5/9/2022 09:40	5/6/2022 14:20						
60									

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Date Started:	05/05/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03 Pilot	
Date Completed:	05/08/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	88 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Boart Longyear drill head	Borehole Diameter:	4-7 inches	Location:	PG&E Topock, Needles California
Driller Name:	Matt Arnold / Jose Hernandez	Depth to First Water:	47.0 ft bgs		
Drilling Asst:	D Hoepfner / R West	Sampling Method:	4 inch x 10 ft. Core Barrel	Project Number:	30126255
Logger:	David Cornell	Sampling Interval:	Continuous		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
61	5			Alluvium Deposits	SW-SM		(57-62 ft) Well graded sand with silt and gravel (SW-SM); strong brown (7.5YR 4/6); very fine to very coarse grained, angular to subangular; little granules, angular to subangular; little small to large pebbles, angular to subangular; little silt; trace small to large cobbles, angular to subangular; trace clay; wet.		
62				Alluvium Deposits	ML		(62-72 ft) Sandy silt with gravel (ML); strong brown (7.5YR 4/6); no plasticity, no dilatancy; little very fine to medium grained sand, angular to subangular; little clay; little small to large pebbles, angular to subangular; trace granules, angular to subangular; trace small to large cobbles, angular to subangular; stiff; moist.	(62.0 - 72.0') Rough drilling	(62.0 - 72.0') No drilling fluid used
63									
64		TWB-3-SS-62-67 5/9/2022 09:50							
65									
66									
67	10								
68									
69		TWB-3-SS-67-72 5/9/2022 10:00	TWB-3-VAS-67-72 (<0.025 ppb) 5/7/2022 11:15						
70									
71									
72									
73				Alluvium Deposits	ML		(72-79 ft) Sandy silt with gravel (ML); strong brown (7.5YR 4/6) with dark brown (10YR 3/3); no plasticity, no dilatancy; little very fine to medium grained sand, angular to subangular; little clay; little small to large pebbles, angular to subangular; trace granules, angular to subangular; trace small to large cobbles, angular to subangular; stiff; moist.	(75.0 - 76.0') Rough drilling	(75.0 - 76.0') No drilling fluid used
74		TWB-3-SS-72-77 5/9/2022 10:10							
75									
76	10								
77									
78		TWB-3-SS-77-79 5/9/2022 10:20	TWB-3-VAS-76-81 (<0.13 ppb) 5/8/2022 11:25						
79									
80				Competent Bedrock - Conglomerate	N/A	x x x x	(79-82 ft) Sedimentary Rock; dark brown (7.5YR 3/4); friable; dry; containing fragments of metadiorite.	(79.0 - 82.0') Hard drilling potentially	(79.0 - 82.0') No drilling fluid used

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, ppb = parts per billion, Notes: Solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered from logging and depth to water measured during the first VAS interval, respectively. Apparent partial recoveries can be the result of potential compaction of sediments in the core bag.

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Boring Log

Date Started:	05/05/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03 Pilot	
Date Completed:	05/08/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	88 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Boart Longyear drill head	Borehole Diameter:	4-7 inches	Location:	PG&E Topock, Needles California
Driller Name:	Matt Arnold / Jose Hernandez	Depth to First Water:	47.0 ft bgs		
Drilling Asst:	D Hoepfner / R West	Sampling Method:	4 inch x 10 ft. Core Barrel	Project Number:	30126255
Logger:	David Cornell	Sampling Interval:	Continuous		
Editor:	Sean McGrane	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Recovery (ft)	Sieve Sample ID	Groundwater Sample ID	Geologic Formation	USCS Code	USCS Class	Soil Description	Drilling Notes	Drilling Fluid
81	10			Competent Bedrock - Conglomerate	N/A	XXXXXX	(79-82 ft) Sedimentary Rock; dark brown (7.5YR 3/4); friable; dry; containing fragments of metadiorite.	bedrock.	
82						XXXXXX			
83						XXXXXX			
84		No Sieve Samples Collected	No Groundwater Samples Collected	Weathered Bedrock - Conglomerate	N/A	XXXXXX	(82-88 ft) Sedimentary Rock; dark brown (7.5YR 3/4); dry to moist; friable, pulverized from the drilling process.	(82.0 - 88.0') Consistently hard drilling.	(82.0 - 88.0') No drilling fluid used
85	4.5					XXXXXX			
86						XXXXXX			
87						XXXXXX			
88						XXXXXX			
							End of Boring at 88 ft bgs.		
89									
90									
91									
92									
93									
94									
95									
96									
97									
98									
99									
100									

Final - Revised 7/19/22

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Attachment 3

Temporary Abandonment Log

Date Started:	05/08/2022	Surface Elevation:	504.81 ft amsl	Well ID: TWB-03 Pilot	
Date Completed:	05/09/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	88 ft bgs	Project:	Final GW Remedy Phase 2A
Driller Name:	Matt Arnold / Jose Hernandez	Borehole Diameter:	4-7 inches	Location:	PG&E Topock, Needles California
Drilling Asst:	D Hoepfner / R West	Depth to First Water:	47.0 ft bgs		
Logger:	David Cornell	Editor:	Sean McGrane	Project Number:	30126255

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		Fill	SM		(0.0 - 0.5') Steel Plate		Note: Steel plate used to mark pilot borehole
2					(0.5 - 5.0') Cemex #0/30 Mesh (30x50) Lapis Lustre Sand		
3		Fill	SM				
4							
5		Alluvium Deposits	SW-SM				
6							
7		Alluvium Deposits	SW				
8							
9		Alluvium Deposits	SW				
10							
11	No Groundwater Samples Collected	Alluvium Deposits	SW				
12							
13		Alluvium Deposits	SW				
14							
15		Alluvium Deposits	SW				
16							
17		Alluvium Deposits	SW				
18							
19		Alluvium Deposits	SW				
20							
					(5.0 - 78.0') Cemex 8 Mesh (8x16) Lapis Lustre Sand	(5.0 - 78.0') 30.5 bags	(5.0 - 78.0') 53 bags (174%) Note: Backfill sand. Used >20% of the calculated volume due to a potential void below approximately 5 ft. bgs.
					(18.0 - 82.0') 6" Diameter Borehole		

Final - Revised 7/19/22

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TOPOCK TEMP ABANDONMENT LOG C:\USERS\SMC\GRANEONEDRIVE - ARCADIS\SHARED DOCUMENTS\PHASE 1\DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\21 2022-07-09\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 7/9/22

Date Started: 05/08/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03 Pilot
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Drilling Co.: Cascade	Easting (NAD83): 7615744.89	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 88 ft bgs	Project: Final GW Remedy Phase 2A
Driller Name: Matt Arnold / Jose Hernandez	Borehole Diameter: 4-7 inches	Location: PG&E Topock, Needles California
Drilling Asst: D Hoepfner / R West	Depth to First Water: 47.0 ft bgs	
Logger: David Cornell	Editor: Sean McGrane	Project Number: 30126255

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	No Groundwater Samples Collected	Alluvium Deposits	SW			(5.0 - 78.0') 30.5 bags	(5.0 - 78.0') 53 bags (174%) Note: Backfill sand. Used >20% of the calculated volume due to a potential void below approximately 5 ft. bgs.
22		Alluvium Deposits	SW				
23							
24							
25							
26	Alluvium Deposits	SW					
27							
28							
29							
30	Alluvium Deposits	SW					
31							
32							
33							
34	Alluvium Deposits	SW					
35							
36							
37							
38	Alluvium Deposits	SW					
39							
40							

Final - Revised 7/19/22

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, ppb = parts per billion, Notes: Solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered from logging and depth to water measured during the first VAS interval, respectively. Granular backfill material was removed during overdrilling of the pilot borehole.

TOPOCK TEMP ABANDONMENT LOG C:\USERS\SMCGRANE\DRIVE - ARCADIS\SHARED DOCUMENTS\PHASE II\DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\21 2022-07-09\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 7/9/22

Date Started: 05/08/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03 Pilot
Date Completed: 05/09/2022	Northing (NAD83): 2101174.43	
Drilling Co.: Cascade	Easting (NAD83): 7615744.89	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 88 ft bgs	Project: Final GW Remedy Phase 2A
Driller Name: Matt Arnold / Jose Hernandez	Borehole Diameter: 4-7 inches	Location: PG&E Topock, Needles California
Drilling Asst: D Hoepfner / R West	Depth to First Water: 47.0 ft bgs	
Logger: David Cornell	Editor: Sean McGrane	Project Number: 30126255

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 - 47	No Groundwater Samples Collected	Alluvium Deposits	SW				
47 - 52	TWB-3-VAS-47-52 (<0.025 ppb) 5/6/2022 11:15	Alluvium Deposits	SM		(5.0 - 78.0') Cemex 8 Mesh (8x16) Lapis Lustre Sand	(5.0 - 78.0') 30.5 bags	(5.0 - 78.0') 53 bags (174%) Note: Backfill sand. Used >20% of the calculated volume due to a potential void below approximately 5 ft. bgs.
52 - 57							
57 - 60	TWB-3-VAS-57-62 (6.6 ppb) 5/6/2022 14:20	Alluvium Deposits	SW-SM				

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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, ppb = parts per billion, Notes: Solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered from logging and depth to water measured during the first VAS interval, respectively. Granular backfill material was removed during overdrilling of the pilot borehole.

Date Started:	05/08/2022	Surface Elevation:	504.81 ft amsl	Well ID: TWB-03 Pilot	
Date Completed:	05/09/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Sonic Drilling	Total Depth:	88 ft bgs	Project:	Final GW Remedy Phase 2A
Driller Name:	Matt Arnold / Jose Hernandez	Borehole Diameter:	4-7 inches	Location:	PG&E Topock, Needles California
Drilling Asst:	D Hoepfner / R West	Depth to First Water:	47.0 ft bgs		
Logger:	David Cornell	Editor:	Sean McGrane	Project Number:	30126255

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		Alluvium Deposits	SW-SM	SW-SM			
62							
63							
64							
65							
66							
67		Alluvium Deposits	ML	ML			
68							
69	TWB-3-VAS-67-72 (<0.025 ppb) 5/7/2022 11:15				(5.0 - 78.0') Cemex 8 Mesh (8x16) Lapis Lustre Sand	(5.0 - 78.0') 30.5 bags	(5.0 - 78.0') 53 bags (174%) Note: Backfill sand. Used >20% of the calculated volume due to a potential void below approximately 5 ft. bgs.
70							
71							
72							
73							
74							
75		Alluvium Deposits	ML	ML			
76							
77							
78	TWB-3-VAS-76-81 (<0.13 ppb) 5/8/2022 11:25						
79					(78.0 - 88.0') Cemex #2/12 Mesh (12x20) Lapis Lustre Sand	(78.0 - 88.0') 2.6 bags	(78.0 - 88.0') 2.5 bags (96%) Note: Indicator sand
80		Competent Bedrock - Conglomerate	N/A	N/A			

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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, ppb = parts per billion, Notes: Solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered from logging and depth to water measured during the first VAS interval, respectively. Granular backfill material was removed during overdrilling of the pilot borehole.

TOPOCK TEMP ABANDONMENT LOG C:\USERS\SMC\GRANE\DRIVE - ARCADIS\SHARED DOCUMENTS\PHASE II\DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\2022-07-09\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 7/19/22

Date Started: 05/08/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03 Pilot
Date Completed: 05/09/2022	Northing (NAD83): 2101174.43	
Drilling Co.: Cascade	Easting (NAD83): 7615744.89	Client: PG&E
Drilling Method: Sonic Drilling	Total Depth: 88 ft bgs	Project: Final GW Remedy Phase 2A
Driller Name: Matt Arnold / Jose Hernandez	Borehole Diameter: 4-7 inches	Location: PG&E Topock, Needles California
Drilling Asst: D Hoepfner / R West	Depth to First Water: 47.0 ft bgs	
Logger: David Cornell	Editor: Sean McGrane	Project Number: 30126255

TOPOCK TEMP ABANDONMENT LOG C:\USERS\SMC\GRANEONEDRIVE - ARCADIS\SHARED DOCUMENTS\PHASE II\DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\21 2022-07-09\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 7/9/22

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			
82				XXXXXX			
83				XXXXXX			
84	No Groundwater Samples Collected			XXXXXX	(78.0 - 88.0') Cemex #2/12 Mesh (12x20) Lapis Lustre Sand	(78.0 - 88.0') 2.6 bags	(78.0 - 88.0') 2.5 bags (96%) Note: Indicator sand
85		Weathered Bedrock - Conglomerate	N/A	XXXXXX	(82.0 - 88.0') 4" Diameter Rathole		
86				XXXXXX			
87				XXXXXX			
88				XXXXXX			
89							
90							
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							

Final - Revised 7/19/22

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, ppb = parts per billion, Notes: Solid blue and hollow blue water table marks represent depth to water (ft. bgs.) first encountered from logging and depth to water measured during the first VAS interval, respectively. Granular backfill material was removed during overdrilling of the pilot borehole.

Attachment 4

Drilling Log

Date Started:	08/17/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03	
Date Completed:	08/19/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Dual Rotary	Total Depth:	88.9 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Foremost DR 24HD	Conductor Casing Diameter:	N/A	Location:	PG&E Topock, Needles California
Driller Name:	Josh Saldana	Drill Casing Diameter:	18 inches	Project Number:	30126255
Drilling Asst:	A. Amezquita / D. Aldana	Drill Bit:	17 5/8" Tricone		
Tool-Pusher:	Arnold Lamon	Depth to First Water:	48.0 ft bgs		
Rig Geologist:	Ellen Redner	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Drilling Run (ft) and Average Penetration Rate	USCS Code	USCS Class	Description (See Pilot boring log for full geologic descriptions)	Drilling notes and observations confirming presence of temporary backfill material in drill cuttings	Drilling Fluid
1	(0.0 - 10.0) 2.00 mins/ft	SM	SM	(0-4.5 ft) Silty sand with gravel (SM); very dark brown (10YR 2/2).	(0.0 - 0.5') Confirmed drill casing was lined up over pilot borehole. (0.5 - 10.0') Normal drilling	(0.5 - 10.0') 100 gallons of water used; 100 gallons of water recovered; 0 gallons of water lost
2				(4.5-7 ft) Silty sand with gravel (SM); brown (10YR 5/3).	(4.0') Observed little Cemex #0/30 (30x50) Lapis Lustre Sand in drill cuttings.	
3		SM	SM	(7-17 ft) Well graded sand with silt and gravel (SW-SM); brown (10YR 5/3).	(10.0 - 20.0') Normal drilling	(10.0 - 20.0') 400 gallons of water used; 300 gallons of water recovered; 100 gallons of water lost
4						
5	(10.0 - 20.0) 2.80 mins/ft	SW-SM	SW-SM	(17-21 ft) Well graded sand and gravel (SW); brown (10YR 5/3).	(15.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.	
6						
7						
8		SW	SW			
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, GW = groundwater, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured during the first VAS interval of the pilot borehole.

TOPOCK\IRZ\DRILLING LOG \ARCADIS\0365\SHAREPOINT.COM\SSL\DA\WWW\ROOT\TEAMS\PG&E\TOPOCK\CONSTRUCTION\SHARED DOCUMENTS\PHASE II\DRILLING\06_FIELD DOCUMENTATION\02_GINT FILES\00_NEW PHASE 2_GINT FILES\43_2022-11-19\GINT PROJECT\GJ_GINT DATA TEMPLATE.GDT_11/19/22

Date Started:	08/17/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03	
Date Completed:	08/19/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Dual Rotary	Total Depth:	88.9 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Foremost DR 24HD	Conductor Casing Diameter:	N/A	Location:	PG&E Topock, Needles California
Driller Name:	Josh Saldana	Drill Casing Diameter:	18 inches	Project Number:	30126255
Drilling Asst:	A. Amezcuita / D. Aldana	Drill Bit:	17 5/8" Tricone		
Tool-Pusher:	Arnold Lamon	Depth to First Water:	48.0 ft bgs		
Rig Geologist:	Ellen Redner	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Drilling Run (ft) and Average Penetration Rate	USCS Code	USCS Class	Description (See Pilot boring log for full geologic descriptions)	Drilling notes and observations confirming presence of temporary backfill material in drill cuttings	Drilling Fluid
21	(20.0 - 40.0) 3.40 mins/ft	SW		(17-21 ft) Well graded sand and gravel (SW); brown (10YR 5/3).	(20.0 - 40.0') Normal drilling	(20.0 - 40.0') 900 gallons of water used; 800 gallons of water recovered; 100 gallons of water lost
22				(21-26 ft) Well graded sand and gravel (SW); brown (10YR 5/3).		
23						
24		SW				
25						
26				(25.0') Observed trace Cemex #8 MESH (8x16) Lustré Sand in drill cuttings.		
27				(26-32 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 3/4).		
28						
29		SW				
30						
31						
32						
33				(32-37 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 3/4).		
34						
35		SW				
36						
37				(35.0') Observed trace Cemex #8 MESH (8x16) Lustré Sand in drill cuttings.		
38						
39		SW		(37-47 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 4/3) with brown (10YR 3/6).		
40						

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured from the first VAS interval of the pilot borehole.

TOPOCK IRZ DRILLING LOG \\ARCADIS0365\SHAREPOINT.COM\SSLD\AV\WWW\ROOT\TEAMS\PG&E\TOPOCK\CONSTRUCTION\SHARED DOCUMENTS\PHASE II DRILLING\06_FIELD DOCUMENTATION\02_GINT FILES\00_NEW PHASE 2 GINT FILES\43_2022-11-19\GINT PROJECT\GPJ_GINT DATA TEMPLATE.GDT_11/19/22

Date Started:	08/17/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03	
Date Completed:	08/19/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Dual Rotary	Total Depth:	88.9 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Foremost DR 24HD	Conductor Casing Diameter:	N/A	Location:	PG&E Topock, Needles California
Driller Name:	Josh Saldana	Drill Casing Diameter:	18 inches	Project Number:	30126255
Drilling Asst:	A. Amezcuita / D. Aldana	Drill Bit:	17 5/8" Tricone		
Tool-Pusher:	Arnold Lamon	Depth to First Water:	48.0 ft bgs		
Rig Geologist:	Ellen Redner	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Drilling Run (ft) and Average Penetration Rate	USCS Code	USCS Class	Description (See Pilot boring log for full geologic descriptions)	Drilling notes and observations confirming presence of temporary backfill material in drill cuttings	Drilling Fluid
41				(37-47 ft) Well graded sand and gravel (SW); dark yellowish brown (10YR 4/3) with brown (10YR 3/6).	(40.0 - 60.0') Normal drilling	(40.0 - 60.0') 800 gallons of water used; 700 gallons of water recovered; 100 gallons of water lost
42						
43						
44		SW				
45				(45 ft) Large metabolite cobble; angular to subangular.	(45.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.	
46						
47				(47-57 ft) Silty sand with gravel (SM); brown (10YR 4/3) with dark yellowish brown (10YR 4/4). ▼		
48						
49						
50	(40.0 - 60.0) 2.75 mins/ft					
51						
52		SM				
53						
54						
55					(55.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.	
56						
57						
58				(57-62 ft) Well graded sand with silt and gravel (SW-SM); strong brown (7.5YR 4/6).		
59		SW-SM				
60						

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured from the first VAS interval of the pilot borehole.

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Date Started:	08/17/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03	
Date Completed:	08/19/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Dual Rotary	Total Depth:	88.9 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Foremost DR 24HD	Conductor Casing Diameter:	N/A	Location:	PG&E Topock, Needles
Driller Name:	Josh Saldana	Drill Casing Diameter:	18 inches	California	
Drilling Asst:	A. Amezcuita / D. Aldana	Drill Bit:	17 5/8" Tricone	Project Number:	30126255
Tool-Pusher:	Arnold Lamon	Depth to First Water:	48.0 ft bgs		
Rig Geologist:	Ellen Redner	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Drilling Run (ft) and Average Penetration Rate	USCS Code	USCS Class	Description (See Pilot boring log for full geologic descriptions)	Drilling notes and observations confirming presence of temporary backfill material in drill cuttings	Drilling Fluid
61	(60.0 - 80.0) 2.00 mins/ft	SW-SM		(57-62 ft) Well graded sand with silt and gravel (SW-SM); strong brown (7.5YR 4/6).	(60.0 - 80.0') Normal/soft drilling 60-79' bgs, hard drilling 79-80' bgs	(60.0 - 80.0') 450 gallons of water used; 1200 gallons of water recovered; 750 gallons of water gained
62		ML		(62-72 ft) Sandy silt with gravel (ML); strong brown (7.5YR 4/6).		
63				(65.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
64	ML			(72-79 ft) Sandy silt with gravel (ML); strong brown (7.5YR 4/6) with dark brown (10YR 3/3).	(65.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.	
65						
66	ML			(79.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
67					ML	
68	ML			(79.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
69					ML	
70	ML			(79.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
71					ML	
72	ML			(79.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
73					ML	
74	ML			(79.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
75					ML	
76	ML			(79.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
77					ML	
78	ML			(79.0') Observed trace Cemex #8 MESH (8x16) Lapis Lustre Sand in drill cuttings.		
79					ML	
80	N/A		(79-82 ft) Sedimentary Rock; dark brown (7.5YR 3/4).	(79.0 - 88.9') Hard drilling		

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured during the first VAS interval of the pilot borehole.

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Date Started:	08/17/2022	Surface Elevation:	504.81 ft amsl	Boring No.: TWB-03	
Date Completed:	08/19/2022	Northing (NAD83):	2101174.43		
Drilling Co.:	Cascade	Easting (NAD83):	7615744.89	Client:	PG&E
Drilling Method:	Dual Rotary	Total Depth:	88.9 ft bgs	Project:	Final GW Remedy Phase 2A
Drill Rig Type:	Foremost DR 24HD	Conductor Casing Diameter:	N/A	Location:	PG&E Topock, Needles California
Driller Name:	Josh Saldana	Drill Casing Diameter:	18 inches	Project Number:	30126255
Drilling Asst:	A. Amezcuita / D. Aldana	Drill Bit:	17 5/8" Tricone		
Tool-Pusher:	Arnold Lamon	Depth to First Water:	48.0 ft bgs		
Rig Geologist:	Ellen Redner	Converted to Well:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Depth (ft)	Drilling Run (ft) and Average Penetration Rate	USCS Code	USCS Class	Description (See Pilot boring log for full geologic descriptions)	Drilling notes and observations confirming presence of temporary backfill material in drill cuttings	Drilling Fluid
81	(80.0 - 88.9) 84.41 mins/ft	N/A	xxxxx	(79-82 ft) Sedimentary Rock; dark brown (7.5YR 3/4).		(79.0 - 88.9') 350 gallons of water used; 500 gallons of water recovered; 150 gallons of water gained
82			xxxxx			
83		xxxxx				
84		xxxxx				
85		xxxxx				
86		N/A	xxxxx	(82-88 ft) Sedimentary Rock; dark brown (7.5YR 3/4).		
87		xxxxx				
88		xxxxx				
89		xxxxx				
89		End of Boring at 88.85 ft bgs.				
90						
91						
92						
93						
94						
95						
96						
97						
98						
99						
100						

Abbreviations: USCS = Unified Soil Classification System, ft = feet, bgs = below ground surface, amsl = above mean sea level, GW = groundwater, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured during the first VAS interval of the pilot borehole.

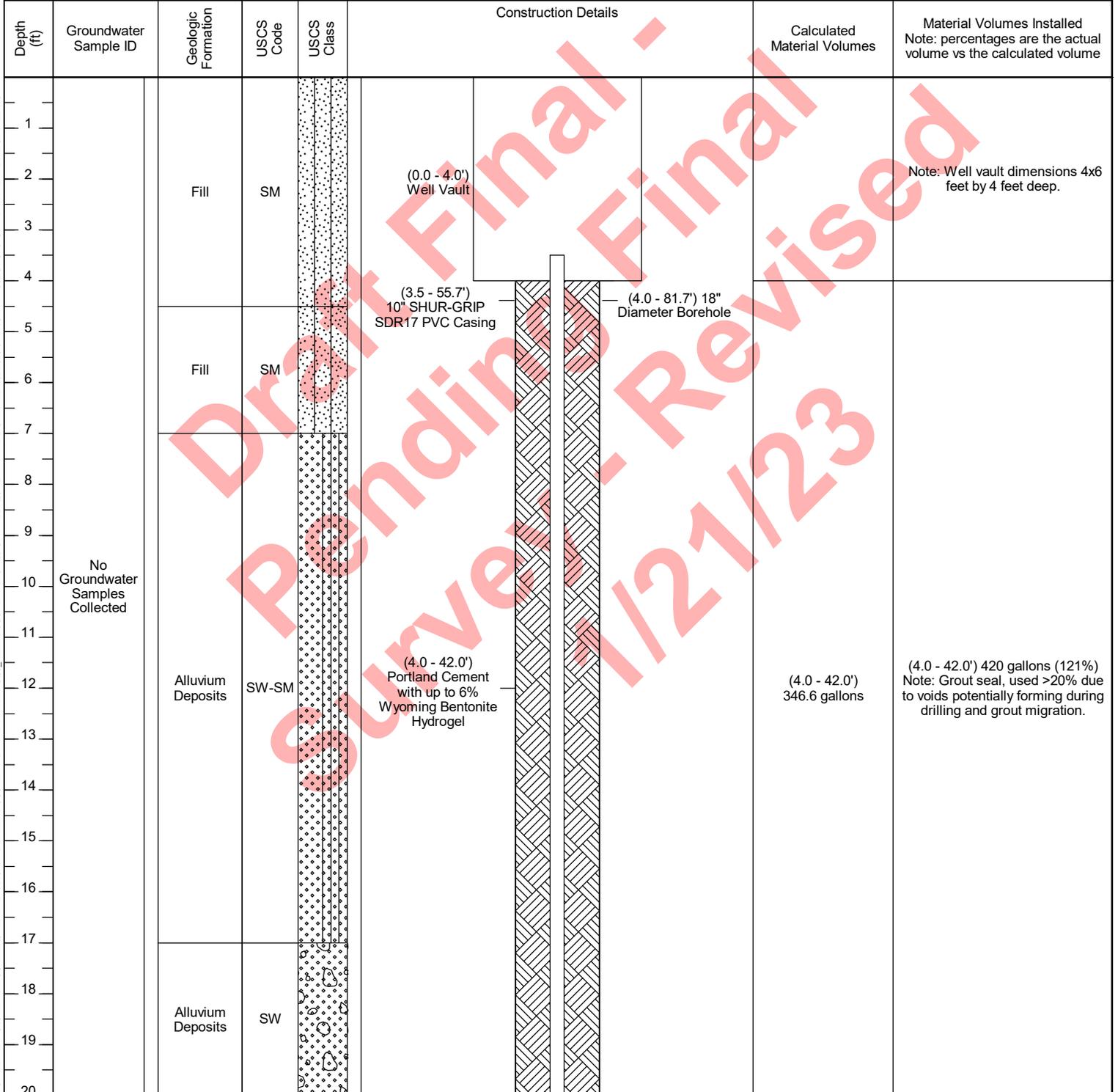
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Attachment 5

Well Construction Log

Date Started: 08/20/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03
Date Completed: 08/23/2022	Shallow Well Elevation: N/A	
Drilling Co.: Cascade	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Dual Rotary	Northing (NAD83): 2101174.43	Project: Final GW Remedy Phase 2A
Driller Name: Josh Saldana	Easting (NAD83): 7615744.89	Location: PG&E Topock, Needles California
Drilling Asst: A. Amezquita / D. Aldana	Borehole Diameter: 17.5-18 inches	
Logger: Ellen Redner	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 9/29/2022	
Total Depth: 88.85 ft bgs	Well Completion: <input type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input checked="" type="checkbox"/> Well Vault	



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, ppb = parts per billion, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured post development.

TOPOCK WELL COMPLETION DETAILS - ARCADIS\SHARE DOCUMENTS\PHASE II DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\02 2023-01-21\GINT PROJECT\GPI GINT DATA TEMPLATE.GDT 1/21/23

Date Started: 08/20/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03
Date Completed: 08/23/2022	Shallow Well Elevation: N/A	
Drilling Co.: Cascade	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Dual Rotary	Northing (NAD83): 2101174.43	Project: Final GW Remedy Phase 2A
Driller Name: Josh Saldana	Easting (NAD83): 7615744.89	Location: PG&E Topock, Needles California
Drilling Asst: A. Amezquita / D. Aldana	Borehole Diameter: 17.5-18 inches	
Logger: Ellen Redner	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 9/29/2022	
Total Depth: 88.85 ft bgs	Well Completion: <input type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input checked="" type="checkbox"/> 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	No Groundwater Samples Collected	Alluvium Deposits	SW		(3.5 - 55.7') 10" SHUR-GRIP SDR17 PVC Casing			
22		Alluvium Deposits	SW					
23		Alluvium Deposits	SW					
24		Alluvium Deposits	SW					
25		Alluvium Deposits	SW					
26		Alluvium Deposits	SW					
27		Alluvium Deposits	SW					
28		Alluvium Deposits	SW					
29		Alluvium Deposits	SW					
30		Alluvium Deposits	SW		(4.0 - 42.0') Portland Cement with up to 6% Wyoming Bentonite Hydrogel		(4.0 - 42.0') 346.6 gallons	(4.0 - 42.0') 420 gallons (121%) Note: Grout seal, used >20% due to voids potentially forming during drilling and grout migration.
31		Alluvium Deposits	SW					
32		Alluvium Deposits	SW					
33		Alluvium Deposits	SW					
34		Alluvium Deposits	SW					
35		Alluvium Deposits	SW					
36		Alluvium Deposits	SW					
37		Alluvium Deposits	SW					
38		Alluvium Deposits	SW		(37.5 - 38.5') Kwik-zip Centralizer			
39		Alluvium Deposits	SW					
40		Alluvium Deposits	SW					

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, ppb = parts per billion, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured post development.

TOPOCK WELL COMPLETION DETAILS - ARCADIS\SHARE DOCUMENTS\PHASE II DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\02 2023-01-21\GINT PROJECT\GPI - GINT DATA TEMPLATE.GDT 1/21/23

Date Started: 08/20/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03
Date Completed: 08/23/2022	Shallow Well Elevation: N/A	
Drilling Co.: Cascade	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Dual Rotary	Northing (NAD83): 2101174.43	Project: Final GW Remedy Phase 2A
Driller Name: Josh Saldana	Easting (NAD83): 7615744.89	Location: PG&E Topock, Needles California
Drilling Asst: A. Amezquita / D. Aldana	Borehole Diameter: 17.5-18 inches	
Logger: Ellen Redner	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 9/29/2022	
Total Depth: 88.85 ft bgs	Well Completion: <input type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input checked="" type="checkbox"/> 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	No Groundwater Samples Collected	Alluvium Deposits	SW	[Pattern]	(0.0 - 55.7') 10" SHUR-GRIP SDR17 PVC Casing	(4.0 - 42.0') 346.6 gallons	(4.0 - 42.0') 420 gallons (121%) Note: Grout seal, used >20% due to voids potentially forming during drilling and grout migration.
42					(4.0 - 42.0') Portland Cement with up to 6% Wyoming Bentonite Hydrogel		
43					(42.0 - 44.8') Cetco Puregold Medium Bentonite Chips		
44					(44.8 - 48.0') Cemex #60 (40x70) Mesh Lapis Lustre Sand		
45	TWB-3-VAS-47-52 (<0.025 ppb) 5/6/2022 11:15	Alluvium Deposits	SM	[Pattern]		(48.0 - 88.9') 105.3 bags	(48.0 - 88.9') 107 bags (102%) Note: Filter pack, swabbed the filter pack for approximately 30 minutes prior to installation of the transition sand.
46							
47							
48							
49							
50							
51	TWB-3-VAS-57-62 (6.6 ppb) 5/6/2022 14:20	Alluvium Deposits	SW-SM	[Pattern]		(55.7 - 75.9') 10" 18-Slot 316L SS Wire Wrap Screen	
52							
53							
54							
55							
56							
57							
58							
59							
60							

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, ppb = parts per billion, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured post development.

TOPOCK WELL COMPLETION DETAILS - ARCADIS\SHARE DOCUMENTS\PHASE II DRILLING\06 - ARCADIS\SHARE DOCUMENTS\PHASE II DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\02 2023-01-21\GINT PROJECT\GPI - GINT DATA TEMPLATE.GDT 1/21/23

Date Started: 08/20/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03
Date Completed: 08/23/2022	Shallow Well Elevation: N/A	
Drilling Co.: Cascade	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Dual Rotary	Northing (NAD83): 2101174.43	Project: Final GW Remedy Phase 2A
Driller Name: Josh Saldana	Easting (NAD83): 7615744.89	Location: PG&E Topock, Needles California
Drilling Asst: A. Amezcua / D. Aldana	Borehole Diameter: 17.5-18 inches	
Logger: Ellen Redner	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 9/29/2022	
Total Depth: 88.85 ft bgs	Well Completion: <input type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input checked="" type="checkbox"/> 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		Alluvium Deposits	SW-SM		(55.7 - 75.9') 10" 18-Slot 316L SS Wire Wrap Screen		
62							
63							
64							
65							
66							
67		Alluvium Deposits	ML				
68							
69	TWB-3-VAS-67-72 (<0.025 ppb) 5/7/2022 11:15						
70					(48.0 - 88.9') PW Gillibrand (RFS 1 20/40)	(48.0 - 88.9') 105.3 bags	(48.0 - 88.9') 107 bags (102%) Note: Filter pack, swabbed the filter pack for approximately 30 minutes prior to installation of the transition sand.
71							
72							
73							
74							
75		Alluvium Deposits	ML				
76							
77					(223.3 - 227.91') 10" SHUR-GRIP SDR-17 PVC Sump		
78	TWB-3-VAS-76-81 (<0.13 ppb) 5/8/2022 11:25						
79					(77.5 - 78.5') Kwik-zip Centralizer		
80		Competent Bedrock - Conglomerate	N/A				

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, ppb = parts per billion, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured post development.

TOPOCK WELL COMPLETION DETAILS C:\USERS\SMCGRANE\ONE\DRIVE - ARCADIS\SHARED DOCUMENTS\PHASE II DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\01-21\GINT PROJECT\GPI GINT DATA TEMPLATE.GDT 1/21/23

Date Started: 08/20/2022	Surface Elevation: 504.81 ft amsl	Well ID: TWB-03
Date Completed: 08/23/2022	Shallow Well Elevation: N/A	
Drilling Co.: Cascade	Deep Well Elevation: N/A	Client: PG&E
Drilling Method: Dual Rotary	Northing (NAD83): 2101174.43	Project: Final GW Remedy Phase 2A
Driller Name: Josh Saldana	Easting (NAD83): 7615744.89	Location: PG&E Topock, Needles California
Drilling Asst: A. Amezquita / D. Aldana	Borehole Diameter: 17.5-18 inches	
Logger: Ellen Redner	Static Water Level: See Log for Depths	Project Number: 30126255
Editor: Sean McGrane	Development End Date: 9/29/2022	
Total Depth: 88.85 ft bgs	Well Completion: <input type="checkbox"/> Flush <input type="checkbox"/> Stick-up <input checked="" 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	(80.50 - 81.08') 10" SS End Cap		
82				XXXXXX	(81.7 - 88.9') 17.5" Diameter Borehole		
83				XXXXXX			
84	No Groundwater Samples Collected			XXXXXX			
85		Weathered Bedrock - Conglomerate	N/A	XXXXXX	(48.0 - 88.9') PW Gillibrand (RFS 1 20/40)	(48.0 - 88.9') 105.3 bags	(48.0 - 88.9') 107 bags (102%) Note: Filter pack, swabbed the filter pack for approximately 30 minutes prior to installation of the transition sand.
86				XXXXXX			
87				XXXXXX			
88				XXXXXX			
89				XXXXXX			
90							
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							

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, ppb = parts per billion, Notes: Solid blue water table marks represent depth to water (ft. bgs.) measured post development.

TOPOCK WELL COMPLETION DETAILS C:\USERS\SMCGRANE\ONEDRIVE - ARCADIS\SHARED DOCUMENTS\PHASE II DRILLING\06 - FIELD DOCUMENTATION\02 GINT FILES\00 NEW PHASE 2 GINT FILES\01-21\GINT PROJECT\GPI GINT DATA TEMPLATE.GDT 1/21/23

Attachment 6

Well Development Record

ARCADIS

Well Development Record

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

PG 1 of 10

Date(s) 09/22/22-09/24/22

Project # 30126255

Arcadis Oversight: J. Alexander

ARCADIS Job Title: environmental scientist

Well ID TWB-03

Measuring Point (MP) (ags) 1.625 ft. (09.5 in.)

Total Depth (ft. BMP) 82.45'

Screen Interval (ft. bgs) 56-76 ft.

DTW (ft. BMP): 50.0'

DTW (ft. bgs): 48.375 ft

Water column in well (ft.): 32.45

Diameter of well (in.): 10 in

Gallons in well: 132.34 gal

Rig operator: Don Gonzalez

Rig type: Pulstar P12

Bailer make and size: 10ft. length

Water added: N/A

Surge block make and size: 7ft long, 8 3/8 in. dia.

Pump make and size: Gould 85 GS 50

5A 10ft long 3in. diameter.

Water source: N/A

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+/- 1.0)	ORP (mV) (+/- 10.0 mV)	Cond. (µS/cm) (+/- 3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+/- 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0917	Tag		50.0'	82.45' (btoc) - soft bottom.							
0953	Begin bailing										→ Imhoff cone: 20 ml/L sand, 175 ml/L total solids
0957	Second bail										
1000	Third bail										
1002	Fourth bail										
1006	Fifth (last) bail										→ Imhoff cone: 3 ml/L sand, 80 ml/L total solids
1008	Tag		50.11'	82.61' (hard bottom) btoc.							
1030	Begin Swabbing										interval 56'-66'
1120	End Swabbing										interval 56'-66'; Begin swabbing interval 66'-76'
1210	End Swabbing										interval 66'-76'.
1222	Tag		50.0'	82.46' (soft bottom)							
1358	Begin second round of bailing										(first bail) →
											→ Imhoff cone: 5 ml/L sand, 275 ml/L total solids
1401	Second bail										
1403	Third bail										
1406	Fourth bail										
1409	Fifth bail										
1412	Sixth bail										→ Imhoff cone: 0.5 ml/L sand, 48 ml/L total solids
1415	Tag		50.0'	82.64' (hard bottom) (btoc)							
1425	Begin swabbing										interval 56'-66'
1515	End swabbing										56'-66', Begin swabbing interval 66'-76'.
1605	End swabbing										66'-76'
1608	Tag		49.88'	82.45' (soft bottom)							

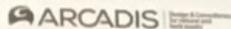
Sample ID and Time:

Finished for the day - 40 gallons bailed

Total gallons removed at completion of development: ~12762.42

Arcadis Staff: J. ALEXANDER S. McGRANE

SAMPLE ID AND TIME
TWB-03-76-092922



Well Development Record

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

PG 2 of 10

Date(s) 09/22/22-09/29/22 Project # 30126255

Arcadis Oversight: S. Alexander Well ID TWB-03

09/23/22

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0810	Tag	-	50.0'	82.45'	(soft bottom)						
0847	Bail 1	→									} 20 gal. bailed
0852	Bail 2										
0858	Bail 3										
0903	Bail 4										
0924	Bail 5	→									
0927	Bail 6	→									} Imhoff: 0 ml/L sand, 105 ml/L total solids
0933	Tag	-	50.02'	82.64'	(hard bottom)						
1306	Tag	-	49.93'								pump intake off 65.5' b/w
1310	Surge 1										
1312	Surge 2										
1314	Surge 3										
1316	Surge 4										
1318	Surge 5										
1334	Tag	-	49.83'								
1345	Pumping	@ 12.61			30.4	11.11	137.9	10693	27.7	46.5	water clear.
1350	Pump	12.61	54.6'		29.0	9.72	89.0	11140	35.3	30.7	} 605.82 gal. pumped
1355	Pump	12.44	54.91'		29.0	9.05	24.4	11362	19.0	43.29	
1400	Pump	12.28	55.03'		28.9	8.73	-16.2	11270	19.7	47.0	
1405	Pump	12.44	55.08'		28.9	8.58	-34.6	11277	13.8	50.1	
1410	Pump	12.28	55.11'		28.9	8.44	-42.5	11242	8.22	51.7	
1415	Pump	12.28	55.15'		28.9	8.31	-45.5	11201	11.8	52.4	
1420	Pump	12.28	55.18'		28.9	8.21	-43.6	11191	5.83	53.7	
1425	Pump	12.61	55.32'		28.9	8.17	-43.0	11152	3.14	54.8	
1427	Pump off										
1450	Surge 1										pump intake at 75.5' b/w
1451	Surge 2										
1453	Surge 3										
1455	Surge 4										
1457	Surge 5										
1500	Pumping	24.72	50.02'		28.9	7.87	30.4	12449	36.7	53.6	}
1505	Pump	25.22	58.55'		28.8	8.12	-7.9	10642	21.5	51.4	

TWB-03 - Well Development Record



Well Development Record
 Date(s) 9/22/22-9/27/22 Project Name: PG&E Topock Phase 2A GW Remedy PG 3 of 10
~~9/22/22-9/27/22~~ Project # 30126255 Arcadis Oversight: J. Alexander Well ID TWB-03
5/19/2022

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1510	Pump	24.72	61.31	^{Pump intake} 25.5'	28.8	8.01	-22.2	11043	19.9	51.9	} 776.6 gal. pumped
1515	Pump	24.42	62.05	"	28.8	7.73	-20.1	11592	16.3	51.9	
1520	Pump	24.22	62.46	"	28.8	7.67	-13.5	11645	12.6	52.1	
1525	Pump	24.06	66 62.62	"	28.8	7.62	-3.5	11711	9.66	52.1	
1530	Pump	24.22	62.83	"	28.8	7.59	7.0	11697	7.89	52.3	
1531	Pump off										
15	Tag										
Finished for the day - 1402.42 gallons removed -											
09/24/22											
0727	Tag		50.02								
0820	Specific capacity test start (baseline 1)										
0920	Sp. cap	25.06		^{pump intake} 75.5'	29.0	7.22	247.4	11768	8.48	52.2	
0922	Sp. cap	25.22		"	28.9	7.35	247.2	11639	8.02	48.0	
0924	Sp. cap	25.22		"	28.9	7.37	248.4	11859	6.23	47.9	
0925	Specific Capacity test end. 1652.72 gal removed.										
1033	Tag		50.14	82.64' (hard bottom)							
1050	Begin swabbing screen interval 66'-76'										
1055	Pause swabbing										
1200	Resume swabbing interval 66'-76'										
1245	End swabbing interval 66'-76'										
1335	Begin swabbing screen interval 56'-66'										
1335	End swabbing interval 56'-66'										
1339	Tag		49.92	82.46' (soft bottom)							
1352	1st bail → Imhoff: 0.5 ml/L sand, 700 ml/L total solids (silt)										
1356	2nd bail										
1400	3rd bail										
1404	4th bail										
1408	5th bail → Imhoff: 0 ml/L sand, 60 ml/L solids										
1420	6th bail Tag 50.06 DTW, 82.64 TD (hard bottom). } 20 gal. bailed										
1425	Begin swabbing screen interval 66'-76'										
1515	End swabbing interval 66'-76'										
1515	Begin swabbing interval 56'-66'										

TWB-03 - Well Development Record

ARCADIS
Well Development Record
Date(s) 9/22-29/22 Project Name: PG&E Topock Phase 2A GW Remedy PG 4 of 10
Project # 30126255 Arcadis Oversight: J. Alexander Well ID TWB-03
5/19/22

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1605	End swabbing screen interval 56'-66'										
1610	Tag 49.95' Finished for the day										1673 - 82.52' (soft bottom)
	Finished for the day - 1673 gal removed										
											09/25/22
0746	Tag		50.0'	82.54'							(soft bottom)
0824	1st Bail										→ Imhoff: 0.5 ml/L sand, 350 ml/L total solids (silt)
0828	2nd Bail										
0831	3rd Bail										
0835	4th Bail										
0839	5th Bail										
0846	6th Bail										→ Imhoff: 0 ml/L sand, 130 ml/L total solids
0848	Tag		50.06'	82.64'							(hard bottom)
0952	Tag		50.01'								
1000	Surge 1										
1002	Surge 2										
1003	Surge 3										
1005	Surge 4										
1006	Surge 5										
1010	Pumping	12.25			29.4	8.07	157	11259	493	56.3	
1015	Pump	12.57	53.79		29.2	8.12	161.3	11036	188	50.9	
1020	Pump	12.44	54.06		29.2	7.88	164.9	10808	112	47.8	
1025	Pump	12.61	54.20		29.1	7.76	169.1	10619	60.3	47.5	
1030	Pump	12.61	54.31		29.1	7.69	172.2	10336	43.0	48.4	
1035	Pump	12.78	54.40		29.2	7.63	174.7	10272	27.2	49.5	
1040	Pump	12.61	54.44		29.2	7.59	176.8	10139	18.2	49.5	
1045	Pump	12.61	54.45		29.2	7.56	178.0	10090	10.7	49.4	
1050	Pump	12.61	54.49		29.2	7.55	179.5	10059	7.37	49.7	
1051	Pump off										
1105	Tag		50.17'								Surge 1
1108	Surge 2										
1109	Surge 3										
1110	Surge 4										

20 gal. bailed

524.83 gallons pumped

ARCADIS

Well Development Record

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

PG 5 of 10

Date(s) 7/22-27/22
Project # 30126255

Arcadis Oversight: J. Alexander Well ID TWB-03

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1112	Surge 5										
1115	Pump	25.06	50.19	75.5	29.7	7.80	112.2	13459	118.0	29.3	1123.95 gallons pumped
1120	Pump	25.22	57.30	"	29.2	7.56	121.8	11064	51.8	46.3	
1125	Pump	24.88	59.32	"	29.1	7.56	131.2	11125	27.5	47.2	
1130	Pump	24.56	60.4	"	29.1	7.49	137.4	10515	23.2	44.6	
1135	Pump	24.88	60.59	"	29.1	7.46	142.1	10672	30.1	43.3	
1140	Pump	24.39	60.80	"	29.1	7.44	144.7	10753	25.0	42.0	
1145	Pump	24.72	61.00	"	29.1	7.43	148.4	10812	16.3	41.3	
1150	Pump	24.88	61.15	"	29.1	7.42	150.8	10840	18.1	40.9	
1155	Pump	24.72	61.30	"	29.1	7.41	153.5	10846	10.83	40.6	
1200	Pump	24.72	61.39	"	29.1	7.41	154.7	10925	9.89	40.3	
1201	Pump off										
1330	Tag		50.01								
1345	Start baseline specific capacity test #2.										
1448	Test	25.22	62.59		29.1	7.46	130	1168	24.4	37.7	1662.18 gal pumped.
1550	End baseline specific capacity test, pump off										
1522	Tag		50.21	82.64' (hard bottom)							
											Finished for the day - 3330.96 gal. removed
											09/26/22
0737	Tag		50.0	82.40' (soft bottom)							
0754	Bail 1										
0802	Bail 2										
0806	Bail 3										
0808	Bail 4										
0810	Bail 5										20 gal bailed
0816	Tag		50.07	82.64' (hard bottom)							
0825	Begin swabbing screen interval 66'-76'										
0915	End swabbing interval 66'-76', Begin swabbing 56'-66'										
1005	End swabbing screen interval 56'-66'										
1009	Tag		49.89	82.35' (soft bottom)							
1024	Bail 1										
1027	Bail 2										

TWB-03 - Well Development Record

ARCADIS

Well Development Record

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

PG 6 of 10

Date(s) 9/22-29/22

Project # 30126255

Arcadis Oversight: J. Alexander

Well ID TWB-03

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1030	Bail 3										
1053	Bail 4										
1046	Bails → Imhoff: 10 ml/L sand, 125 ml/L solids										(20 gal. bailed)
1052	Tag - 50.19' 82.64' (hard bottom)										
1100	Begin swabbing screen interval 66'-76'										
1150	End swabbing interval 66'-76', Begin swabbing interval 56'-66'										
1240	End swabbing interval 56'-66'										
1245	Tag - 49.90' 82.45' (soft bottom)										
1443	Begin third round of bailing → 5 ml/L sand, 85 ml/L total solids										
1447	Bail #2										20 gallons bailed
1451	Bail #3										
1455	Bail #4										
1500	Bail #5 → 9 ml/L sand, 115 ml/L total solids										
1501	Tag - 50.02' 82.64' (hard bottom)										
1501	Finished for the day - 60 gallons bailed - 09/27/22										
0750	Tag - 49.98'										
0810	Surge 1 (65.5 intake)										
0812	Surge 2										
0814	Surge 3										
0815	Surge 4										
0817	Surge 5										
0820	Pump 12.5 49.98 65.5' (intake)				29.0	7.89	11673	158.2	234	47.4	529.02 gallons pumped
0825	Pump 12.44 53.70 "				29.0	7.87	11241	162.2	119.1	42.2	
0830	Pump 12.61 53.91 "				29.0	7.79	11000	166.6	58.6	41.5	
0835	Pump 12.78 54.08 "				29.0	7.61	10782	169.1	36.2	40.1	
0840	Pump 12.61 54.19 "				29.0	7.54	10555	175.2	27.5	41.0	
0845	Pump 12.78 54.24 "				29.0	7.50	10392	179.4	16.6	41.5	
0850	Pump 12.78 54.28 "				29.0	7.48	10266	187.2	10.2	42.5	
0855	Pump 12.78 54.34 "				29.0	7.48	10225	191.9	8.55	42.9	
0900	Pump 12.78 54.35 "				29.0	7.46	10182	198.7	5.36	42.7	
0901	Pump off										

TWB-03 - Well Development Record

ARCADIS

Well Development Record

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

PG 7 of 10

Date(s) 09/27/22

Project # 30126255

Arcadis Oversight: J. ALEXANDER

Well ID

TWB-03

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+/- 0.0)	ORP (mV) (+/- 10.0 mV)	Cond. (µS/cm) (+/- 5%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+/- 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0942	Tag	-	50.04								
0942	Surge 1										
0944	Surge 2										
0945	Surge 3										
0947	Surge 4										
0949	Surge 5										
0950	Pump SC Test	25.06	59.40	75.5							
0955	"	25.06	58.65	"	28.8	7.50	185.0	10221	22.3	41.7	
1000	"	24.88	59.35	"	28.8	7.45	173.0	10536	17.0	39.6	
1005	"	24.72	59.74	"	28.8	7.45	166.3	10625	24.0	38.6	
1010	"	24.72	59.82	"	28.8	7.42	165.0	10714	21.9	37.7	
1015	"	24.72	59.93	"	28.8	7.41	163.5	10792	18.4	37.1	
1020	"	24.72	60.03	"	28.8	7.40	164.8	10800	13.3	36.9	
1025	"	24.88	60.13	"	28.8	7.40	168.0	10842	11.0	36.5	
1030	"	24.88	60.25	"	28.8	7.40	169.4	10853	10.4	36.4	
1035	"	24.72	60.34	"	28.8	7.39	171.5	10904	7.72	36.1	
1040	"	24.72	60.42	"	28.9	7.39	172.6	10866	9.87	36.1	3623.19
1045	"	24.56	60.50	"	28.9	7.39	174.3	10881	7.96	36.4	gallons pumped
1050	"	24.56	60.60	"	28.9	7.38	175.1	10920	7.98	36.2	
1055	"	24.39	60.65	"	28.9	7.38	176.5	10958	6.49	36.0	
1058	SC testing, check turbidity after attaching filter → 11.48 NTU										
1100	Take samples (sample disposed) - 1530										
1101	check turbidity → 1.24 NTU										
1103	SC Test (increase GPM to 30 GPM)										
1158	SC Test	29.65	65.56	75.5 (intake)	28.8	7.36	144.1	11302	5.14	30.8	
1200	S.C. Test end, pump off.										
1223	Outside of dummy tool is 8.642 inches										
1354	Inside dia. of riser casing = 9.416 inches 9.305 in. difference										
1355	Outside dia. of dummy is 8.642 inches - 0.663 in difference										
1502	Dummy tool tested (extra inches of space) to 75 ft. logs.										
Finished for the day - 4152.2 gallons pumped											

J. Alexander 09/27/22



Well Development Record

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

PG 8 of 10

Date(s) 09/28/22 - 09/29/22

Project # 30126255

Arcadis Oversight: J. Alexander

Well ID TWB-03

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+/- 0.1)	ORP (mV) (+/- 10.0 mV)	Cond. (µS/cm) (+/- 3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+/- 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
											09/28/22
* 0800	Measure new top of casing (measuring point) →										1.25 ft aggs. *
0803	Tag -	49.63	82.17	(soft bottom)							
0815	1st Bail → Imhoff:										9.8 m/L sand, 28 m/L total solids
0820	2nd Bail										
0822	3rd Bail										1st round 20 gal. Bailed
0825	4th Bail										
0842	5th Bail										
0851	6th Bail → Imhoff:										4 m/L sand, 120 m/L
0853	Tag -	49.70	82.22	(hard bottom)							
0905	Begin swabbing screen interval										66'-76'
0955	End swabbing screen interval										66'-76'
0955	Begin swabbing screen interval										56'-66'
1045	End swabbing screen interval										56'-66'
1048	Tag -	49.70	82.05	(soft bottom)							
1059	1st Bail → Imhoff:										18 m/L sand, 130 m/L total solids
1102	2nd Bail										2nd round 20 gal. bailed
1105	3rd Bail										
1110	4th Bail										
1112	5th Bail → Imhoff:										18 m/L sand, 70 m/L total solids
1114	Tag -	49.84	82.22	(hard bottom)							
1120	Begin swabbing screen interval										66'-76'
1210	End swabbing screen interval										66'-76'
1210	Begin swabbing screen interval										56'-66'
1300	End swabbing screen interval										56'-66'
1420	1st bail → Imhoff:										3 m/L sand, 85 m/L total solids
1434	2nd bail										3rd round 20 gal. bailed
1439	3rd bail										
1441	4th bail										
1446	5th bail										
1448	6th bail → Imhoff:										7 m/L sand, 65 m/L total solids
1453	Tag -	49.72	82.22	(hard bottom)							
Finished for the day - 60 gallons bailed											

ARCADIS

Well Development Record

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

PG 9 of 10

Date(s) 9/22/22 - 9/29/22 Project # 30126255

Arcadis Oversight: SEAN MCGRANE Well ID TWB-03

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0842	PUMP										PUMP ON PUMP INTAKE 65.5' BTOL
0843	PUMP										PUMP OFF 1ST SURGE
0843	PUMP										2ND SURGE
0844	PUMP										3RD SURGE
0844	PUMP										4TH SURGE
0846	PUMP										5TH SURGE
0850	PUMP DN										PURGE @ 65.5' BTOL
0855	PUMP	12.61	53.29	-	28.8	7.72	129.4	11630	14.3	2.91	
0900	PUMP	12.78	53.54	-	28.8	7.72	116.5	11062	31.3	2.78	
0905	PUMP	12.44	53.54	-	28.8	7.59	103.3	10953	21.2	2.25	
0907	PUMP OFF										PURGE 236.02 GALLONS
0917	LOWER PUMP										TO 75.5' BTOL
0919			49.73								
0920	PUMP										1ST SURGE
0921	PUMP										2ND SURGE
0922	PUMP										3RD SURGE
0923	PUMP										4TH SURGE
0925	PUMP										5TH SURGE
0930	PUMP										PUMP ON
0925	"	25.06	57.0	-	28.7	7.57	290.94	10059	27.2	2.97	NOTE READING WERE FROM NTU NUMBERS NOT CORRECT
0930	"	24.85	57.90	-	28.6	7.53	416.01	10503	21.2	3.09	
0935	"	24.82	58.37	-	28.5	7.49	526.91	10522	18.1	3.00	
0940	"	25.06	58.69	-	28.6	7.47	347.55	10540	16.0	2.99	
0945	"	25.06	58.84	-	28.5	7.46	286.27	10572	14.7	3.00	
1000	"	25.22	58.97	-	28.5	7.45	267.72	10621	12.3	2.99	
1005	"	25.38	59.15	-	28.5	7.44	261.10	10666	10.8	2.97	
1010	"	25.06	59.25	-	28.5	7.44	419.72	10677	7.84	2.97	
1015	"	25.06	59.31	-	28.5	7.44	279.08	10702	7.94	2.94	
1020	"	25.06	59.40	-	28.5	7.43	284.00	10714	5.69	3.04	
1025	"	24.88	59.50	-	28.5	7.43	266.3	10749	7.71	2.96	CO
1030	"	25.60	59.55	-	28.5	7.42	84.9	10753	6.67	2.94	
1035	"	25.06		-	28.5	7.42	84.6	10775	6.45	2.99	

ARCADIS

Well Development Record

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

PG 10 of 40

Date(s) 9/22 - 29/22

Project # 30126255

Arcadis Oversight

SEAN MCCORMACK
ALEXANDER

Well ID

TWB-03

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (+1.0)	ORP (mV) (+10.0 mV)	Cond. (µS/cm) (+3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (+0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1037	PUMPING	24.88							POST FILTER TURB 0.27		
1039	COLLECT								POST DEVELOPMENT SAMPLE		
									TWB-03-76-092922		
1041	TURN OF PUMP								POST SAMPLE TURB 0.71		
	END DEVELOPMENT PURLED 2043.84 GALLONS DID NOT OBSERVE ANY COLOR TO WATER										

[Handwritten signature]
9/29/22

TWB-03 - Well Development Record

Attachment 7

Specific Capacity Testing

Specific Capacity Test

Location/Well ID	TWB-03
Date	10/4/2022
Screened Interval Tested	56-76 ft bgs
Packer Set Depth	N/A
Packer Seal Test	N/A
Tests Conducted	four-step specific capacity test (10, 20, 30, and 35 gpm)
Purpose	Specific Capacity Test
Summary	Specific capacity results: 10 gpm = 2.63 gpm/ft, 20 gpm = 2.42 gpm/ft, 30 gpm = 1.98 gpm/ft, 35 gpm = 1.78 gpm/ft
Notes	The plot for the TB-03 SP test looks good. Manual data matches well with transducer data.
Oversight Signature	
Date	10/17/2022

Specific Capacity Test

Location/Well ID	TWB-03
Date	10/4/2022
Screened Interval	56-76 bgs
Pump Depth (ft btoc)	75.5 ft bgs
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	49.49
Initial Totalizer Reading (gal)	204643
Final Totalizer Reading (gal)	212644
Approx Pumped Volume (gal)	8037.58
Calculated Volume Purged (gal)	8001.00
Difference in Volume Pumped vs. Calculated	36.58
Number of Specific Capacity Steps	4
Pumping Rates (in order)	10, 20, 30 and 35 gpm

Step 1 (10 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)
9:25:00	0.00	0.00	0.00	0.00	49.49	0.00
9:25:04	0.07	0.00	10.00	0.00	51.70	2.21
9:25:26	0.37	0.37	10.00	3.67	51.95	2.46
9:25:58	0.53	0.90	10.12	9.06	52.38	2.89
9:26:00	0.03	0.93	9.96	9.40	52.43	2.94
9:27:00	1.00	1.93	10.45	19.85	52.57	3.08
9:28:00	1.00	2.93	10.45	30.30	53.75	4.26
9:29:00	1.00	3.93	10.78	41.08	52.81	3.32
9:30:00	1.00	4.93	10.78	51.86	52.89	3.40
9:31:00	1.00	5.93	10.62	62.48	52.95	3.46
9:32:00	1.00	6.93	10.45	72.93	53.00	3.51
9:33:00	1.00	7.93	10.62	83.55	53.00	3.51
9:34:00	1.00	8.93	10.62	94.17	53.02	3.53
9:35:00	1.00	9.93	10.62	104.79	53.05	3.56
9:37:00	2.00	11.93	10.78	126.35	53.11	3.62
9:39:00	2.00	13.93	10.78	147.91	53.15	3.66
9:41:00	2.00	15.93	10.78	169.47	53.18	3.69
9:43:00	2.00	17.93	10.78	191.03	53.20	3.71
9:45:00	2.00	19.93	10.78	212.59	53.22	3.73
9:47:00	2.00	21.93	10.78	234.15	53.25	3.76
9:49:00	2.00	23.93	10.78	255.71	53.27	3.78
9:51:00	2.00	25.93	10.78	277.27	53.30	3.81
9:53:00	2.00	27.93	10.78	298.83	53.30	3.81
9:55:00	2.00	29.93	10.78	320.39	53.31	3.82
10:00:00	5.00	34.93	10.78	374.29	53.34	3.85
10:05:00	5.00	39.93	10.78	428.19	53.39	3.90
10:10:00	5.00	44.93	10.78	482.09	53.40	3.91
10:15:00	5.00	49.93	10.78	535.99	53.40	3.91
10:20:00	5.00	54.93	10.78	589.89	53.42	3.93
10:25:00	5.00	59.93	10.78	643.79	53.44	3.95
10:35:00	10.00	69.93	10.78	751.59	53.48	3.99
10:45:00	10.00	79.93	10.78	859.39	53.50	4.01
10:55:00	10.00	89.93	10.78	967.19	53.52	4.03
11:05:00	10.00	99.93	10.78	1074.99	53.54	4.05
11:10:00	5.00	104.93	10.78	1128.89	53.55	4.06
Total Volume Pumped for Step 1 (gal)			1128.89			
Average Pumping Rate (gpm)			10.68			

Specific Capacity Test

Location/Well ID	TWB-03
Date	10/4/2022
Screened Interval	56-76 bgs
Pump Depth (ft btoc)	75.5 ft bgs
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	49.49
Initial Totalizer Reading (gal)	204643
Final Totalizer Reading (gal)	212644
Approx Pumped Volume (gal)	8037.58
Calculated Volume Purged (gal)	8001.00
Difference in Volume Pumped vs. Calculated	36.58
Number of Specific Capacity Steps	4
Pumping Rates (in order)	10, 20, 30 and 35 gpm
Specific Capacity (gpm/ft)	2.63

Specific Capacity Test

Location/Well ID	TWB-03
Date	10/4/2022
Screened Interval	56-76 bgs
Pump Depth (ft btoc)	75.5 ft bgs
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	49.49
Initial Totalizer Reading (gal)	204643
Final Totalizer Reading (gal)	212644
Approx Pumped Volume (gal)	8037.58
Calculated Volume Purged (gal)	8001.00
Difference in Volume Pumped vs. Calculated	36.58
Number of Specific Capacity Steps	4
Pumping Rates (in order)	10, 20, 30 and 35 gpm

Step 2 (20 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)
11:10:00	0.00	105.00	10.78	1128.89	53.55	4.06	0.00
11:15:00	5.00	110.00	19.91	1228.44	55.78	6.29	5.00
11:16:00	1.00	111.00	20.38	1248.82	55.48	5.99	6.00
11:17:00	1.00	112.00	20.24	1269.06	56.10	6.61	7.00
11:18:00	1.00	113.00	20.24	1289.30	56.35	6.86	8.00
11:19:00	1.00	114.00	20.24	1309.54	56.52	7.03	9.00
11:20:00	1.00	115.00	20.24	1329.78	56.64	7.15	10.00
11:21:00	1.00	116.00	20.24	1350.02	56.73	7.24	11.00
11:22:00	1.00	117.00	10.22	1360.24	56.81	7.32	12.00
11:23:00	1.00	118.00	20.08	1380.32	56.87	7.38	13.00
11:24:00	1.00	119.00	20.08	1400.40	56.92	7.43	14.00
11:25:00	1.00	120.00	20.08	1420.48	56.97	7.48	15.00
11:27:00	2.00	122.00	20.08	1460.64	57.04	7.55	17.00
11:29:00	2.00	124.00	20.08	1500.80	57.10	7.61	19.00
11:31:00	2.00	126.00	20.74	1542.28	57.12	7.63	21.00
11:33:00	2.00	128.00	20.08	1582.44	57.18	7.69	23.00
11:35:00	2.00	130.00	20.08	1622.60	57.20	7.71	25.00
11:37:00	2.00	132.00	20.08	1662.76	57.22	7.73	27.00
11:39:00	2.00	134.00	20.08	1702.92	57.25	7.76	29.00
11:41:00	2.00	136.00	20.08	1743.08	57.27	7.78	31.00
11:43:00	2.00	138.00	20.08	1783.24	57.29	7.80	33.00
11:45:00	2.00	140.00	20.08	1823.40	57.31	7.82	35.00
11:50:00	5.00	145.00	20.08	1923.80	57.35	7.86	40.00
11:55:00	5.00	150.00	20.08	2024.20	57.39	7.90	45.00
12:00:00	5.00	155.00	20.08	2124.60	57.41	7.92	50.00
12:05:00	5.00	160.00	20.08	2225.00	57.45	7.96	55.00
12:10:00	5.00	165.00	20.24	2326.20	57.49	8.00	60.00
12:15:00	5.00	170.00	20.24	2427.40	57.51	8.02	65.00
12:25:00	10.00	180.00	20.24	2629.80	57.56	8.07	75.00
12:35:00	10.00	190.00	20.08	2830.60	57.62	8.13	85.00
12:45:00	10.00	200.00	20.24	3033.00	57.66	8.17	95.00
12:55:00	10.00	210.00	20.08	3233.80	57.65	8.16	105.00
13:05:00	10.00	220.00	20.08	3434.60	57.69	8.20	115.00
Total Volume Pumped for Step 2 (gal)			2305.71				
Average Pumping Rate (gpm)			19.84				
Specific Capacity (gpm/ft)			2.42				

Specific Capacity Test

Location/Well ID	TWB-03
Date	10/4/2022
Screened Interval	56-76 bgs
Pump Depth (ft btoc)	75.5 ft bgs
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	49.49
Initial Totalizer Reading (gal)	204643
Final Totalizer Reading (gal)	212644
Approx Pumped Volume (gal)	8037.58
Calculated Volume Purged (gal)	8001.00
Difference in Volume Pumped vs. Calculated	36.58
Number of Specific Capacity Steps	4
Pumping Rates (in order)	10, 20, 30 and 35 gpm

Step 3 (30 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)
13:05:00	0.00	220.00	20.08	3434.60	57.69	8.20	0.00
13:10:33	5.55	225.55	29.97	3600.93	59.65	10.16	5.55
13:10:48	0.25	225.80	29.90	3608.40	59.71	10.22	5.80
13:11:17	0.48	226.28	29.82	3622.82	60.07	10.58	6.28
13:12:15	0.97	227.25	29.97	3651.79	60.73	11.24	7.25
13:13:00	0.75	228.00	30.30	3674.51	61.21	11.72	8.00
13:14:00	1.00	229.00	30.14	3704.65	61.65	12.16	9.00
13:15:00	1.00	230.00	30.14	3734.79	61.96	12.47	10.00
13:16:00	1.00	231.00	29.97	3764.76	62.17	12.68	11.00
13:17:00	1.00	232.00	29.80	3794.56	62.32	12.83	12.00
13:18:00	1.00	233.00	29.98	3824.54	62.44	12.95	13.00
13:19:00	1.00	234.00	29.98	3854.52	62.53	13.04	14.00
13:20:00	1.00	235.00	29.80	3884.32	62.59	13.10	15.00
13:22:00	2.00	237.00	29.80	3943.92	62.71	13.22	17.00
13:24:00	2.00	239.00	29.82	4003.56	62.79	13.30	19.00
13:26:00	2.00	241.00	29.80	4063.16	62.86	13.37	21.00
13:28:00	2.00	243.00	29.80	4122.76	62.91	13.42	23.00
13:30:00	2.00	245.00	29.65	4182.06	62.98	13.49	25.00
13:32:00	2.00	247.00	29.97	4242.00	63.04	13.55	27.00
13:34:00	2.00	249.00	29.50	4301.00	63.08	13.59	29.00
13:36:00	2.00	251.00	29.80	4360.60	63.12	13.63	31.00
13:38:00	2.00	253.00	29.80	4420.20	63.18	13.69	33.00
13:40:00	2.00	255.00	29.80	4479.80	63.22	13.73	35.00
13:45:00	5.00	260.00	29.80	4628.80	63.34	13.85	40.00
13:50:00	5.00	265.00	29.80	4777.80	63.42	13.93	45.00
13:55:00	5.00	270.00	29.82	4926.90	63.52	14.03	50.00
14:00:00	5.00	275.00	29.50	5074.40	63.60	14.11	55.00
14:05:00	5.00	280.00	29.65	5222.65	63.69	14.20	60.00
14:10:00	5.00	285.00	29.50	5370.15	63.78	14.29	65.00
14:20:00	10.00	295.00	29.65	5666.65	63.94	14.45	75.00
14:30:00	10.00	305.00	29.50	5961.65	64.11	14.62	85.00
14:40:00	10.00	315.00	29.50	6256.65	64.25	14.76	95.00
14:50:00	10.00	325.00	29.65	6553.15	64.40	14.91	105.00
15:00:00	10.00	335.00	29.54	6848.55	64.52	15.03	115.00
Total Volume Pumped for Step 3 (gal)			3413.96				
Average Pumping Rate (gpm)			29.80				
Specific Capacity (gpm/ft)			1.98				

Specific Capacity Test

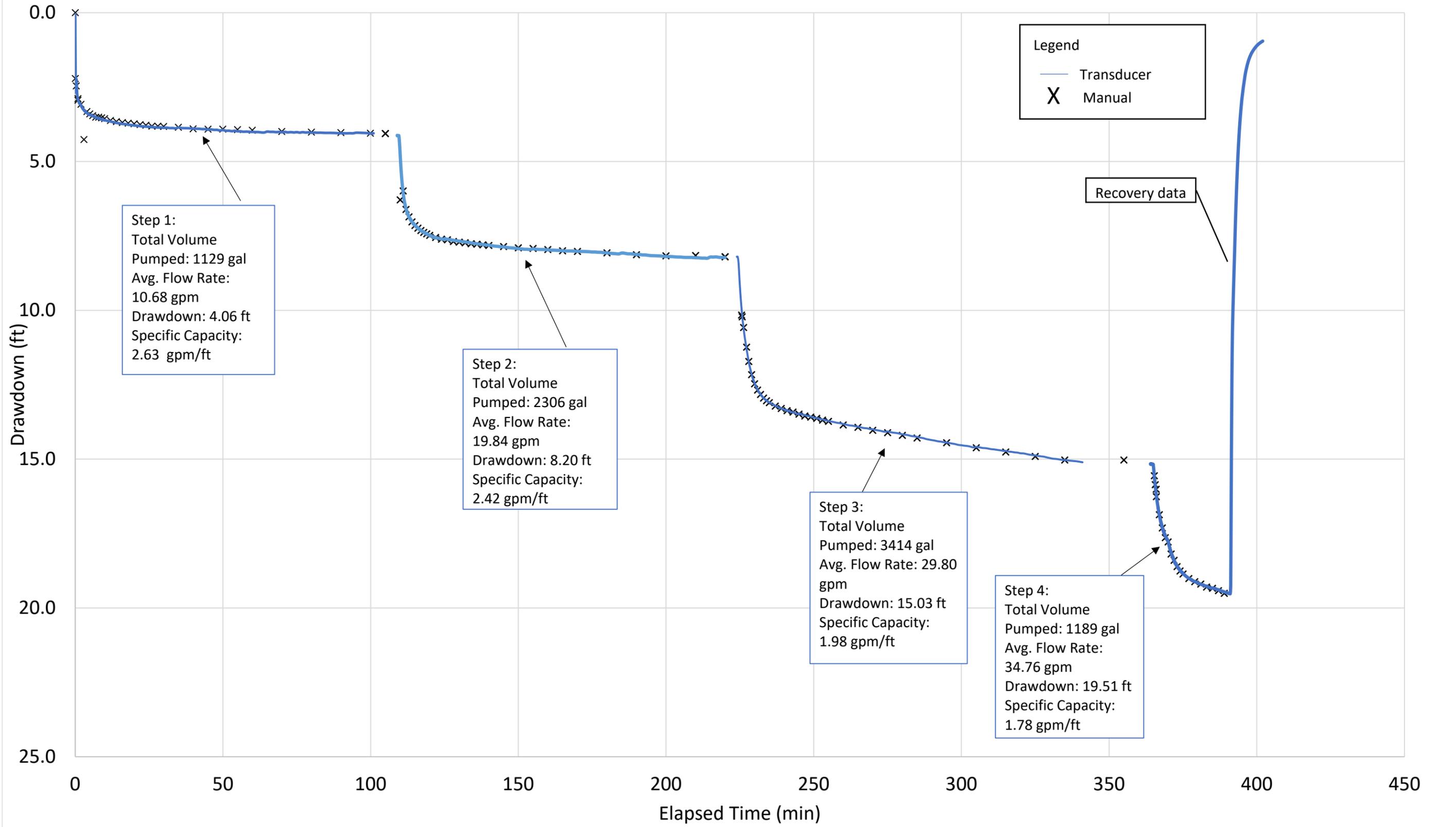
Location/Well ID	TWB-03
Date	10/4/2022
Screened Interval	56-76 bgs
Pump Depth (ft btoc)	75.5 ft bgs
Packer Depth (ft btoc)	N/A
Packer Leak Test (Pass/Fail)	N/A
Initial Water Level (ft btoc)	49.49
Initial Totalizer Reading (gal)	204643
Final Totalizer Reading (gal)	212644
Approx Pumped Volume (gal)	8037.58
Calculated Volume Purged (gal)	8001.00
Difference in Volume Pumped vs. Calculated	36.58
Number of Specific Capacity Steps	4
Pumping Rates (in order)	10, 20, 30 and 35 gpm

Step 4 (35 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)
15:00:00	0.00	355.00	29.54	6848.55	64.52	15.03	0.00
15:10:19	10.32	365.32	35.54	7215.21	65.05	15.56	10.32
15:10:36	0.28	365.60	35.04	7225.13	65.35	15.86	10.60
15:10:55	0.32	365.92	34.70	7236.12	65.50	16.01	10.92
15:11:00	0.08	366.00	34.70	7239.01	65.75	16.26	11.00
15:12:00	1.00	367.00	34.70	7273.71	66.36	16.87	12.00
15:13:00	1.00	368.00	34.21	7307.92	66.80	17.31	13.00
15:14:00	1.00	369.00	33.55	7341.47	67.13	17.64	14.00
15:15:00	1.00	370.00	35.04	7376.51	67.27	17.78	15.00
15:16:00	1.00	371.00	35.04	7411.55	67.68	18.19	16.00
15:17:00	1.00	372.00	34.70	7446.25	67.89	18.40	17.00
15:18:00	1.00	373.00	34.79	7481.04	68.10	18.61	18.00
15:19:00	1.00	374.00	34.87	7515.91	68.25	18.76	19.00
15:20:00	1.00	375.00	34.87	7550.78	68.35	18.86	20.00
15:22:00	2.00	377.00	35.04	7620.86	68.50	19.01	22.00
15:24:00	2.00	379.00	34.87	7690.60	68.61	19.12	24.00
15:26:00	2.00	381.00	34.70	7760.00	68.69	19.20	26.00
15:28:00	2.00	383.00	34.70	7829.40	68.79	19.30	28.00
15:30:00	2.00	385.00	34.54	7898.48	68.83	19.34	30.00
15:32:00	2.00	387.00	34.70	7967.88	68.91	19.42	32.00
15:34:00	2.00	389.00	34.85	8037.58	69.00	19.51	34.00
Total Volume Pumped for Step 4 (gal)			1189.03				
Average Pumping Rate (gpm)			34.76				
Specific Capacity (gpm/ft)			1.78				

Acronyms & Abbreviations

bgs = below ground surface
 btoc = below top of casing
 ft = feet
 gal = gallons
 gpm = gallons per minute
 min = minutes

TWB-03 Linear Drawdown Plot



**Specific Capacity/
Injectivity Test Monitoring Point**

Location/Well ID	MW-48
Well Being Tested	TWB-03
Screened Interval of Well Being Tested	56-76 ft bgs
Approximate Distance from Testing Well	314 ft

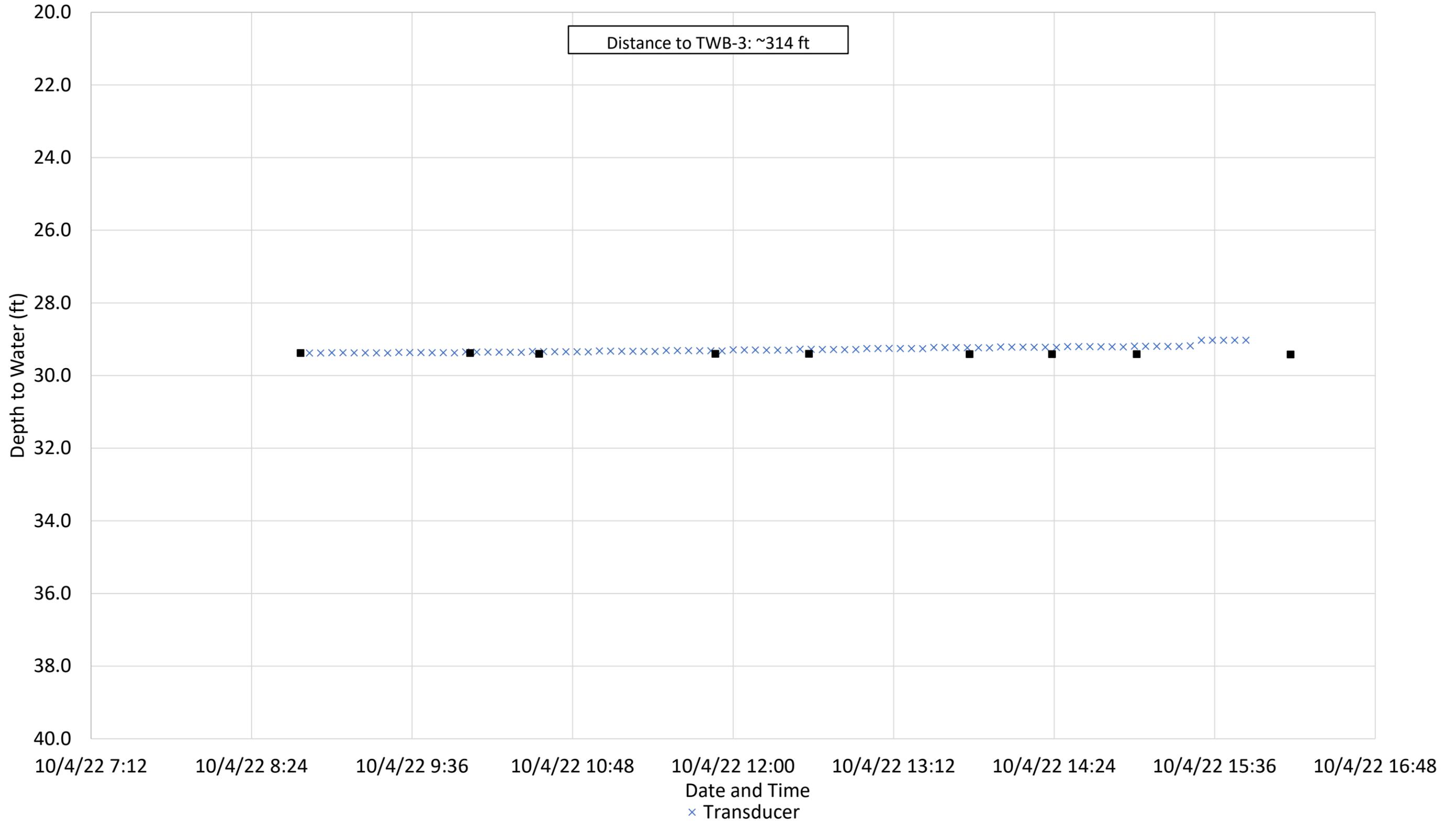
Date	Time	Date and Time	Depth to Water (ft)
10/4/22	8:46	10/4/22 8:46	29.38
10/4/22	10:02	10/4/22 10:02	29.38
10/4/22	10:33	10/4/22 10:33	29.40
10/4/22	11:52	10/4/22 11:52	29.40
10/4/22	12:34	10/4/22 12:34	29.40
10/4/22	13:46	10/4/22 13:46	29.41
10/4/22	14:23	10/4/22 14:23	29.41
10/4/22	15:01	10/4/22 15:01	29.41
10/4/22	16:10	10/4/22 16:10	29.42

Acronyms & Abbreviations

bgs = below ground surface

ft = feet

MW-48 During TWB-3 Specific Capacity Test



**Specific Capacity/
Injectivity Test Monitoring Point**

Location/Well ID	MW-12
Well Being Tested	TWB-03
Screened Interval of Well Being Tested	56-76 ft bgs
Approximate Distance from Testing Well	312 ft

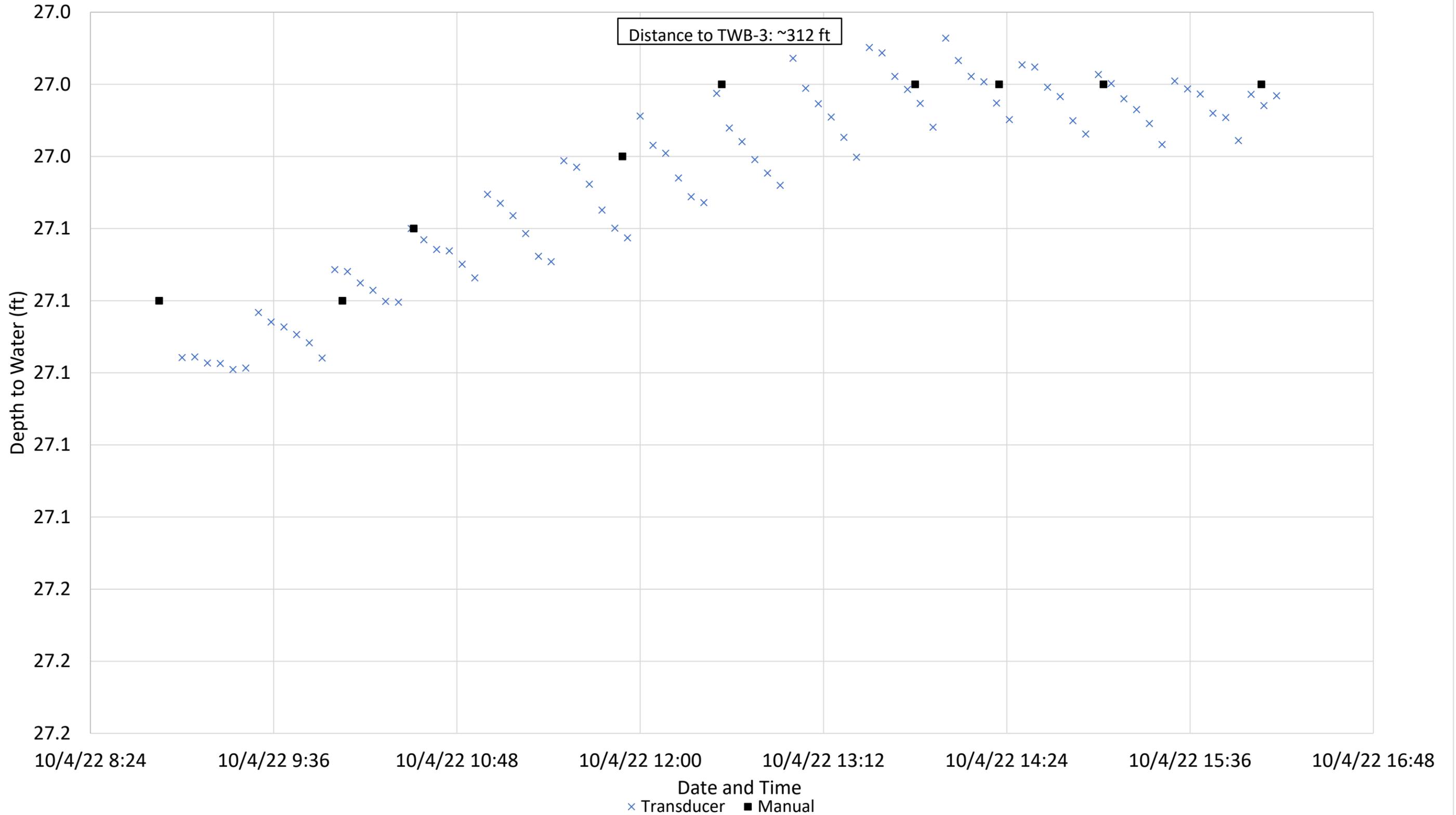
Date	Time	Date and Time	Depth to Water (ft)
10/4/22	8:51	10/4/22 8:51	27.08
10/4/22	10:03	10/4/22 10:03	27.08
10/4/22	10:31	10/4/22 10:31	27.06
10/4/22	11:53	10/4/22 11:53	27.04
10/4/22	12:32	10/4/22 12:32	27.02
10/4/22	13:48	10/4/22 13:48	27.02
10/4/22	14:21	10/4/22 14:21	27.02
10/4/22	15:02	10/4/22 15:02	27.02
10/4/22	16:04	10/4/22 16:04	27.02
10/4/22	16:12	10/4/22 16:12	

Acronyms & Abbreviations

bgs = below ground surface

ft = feet

MW-12 During TWB-3 Specific Capacity Test



**Specific Capacity/
Injectivity Test Monitoring Point**

Location/Well ID	MW-98-77
Well Being Tested	TWB-03
Screened Interval of Well Being Tested	56-76 ft bgs
Approximate Distance from Testing Well	70 ft

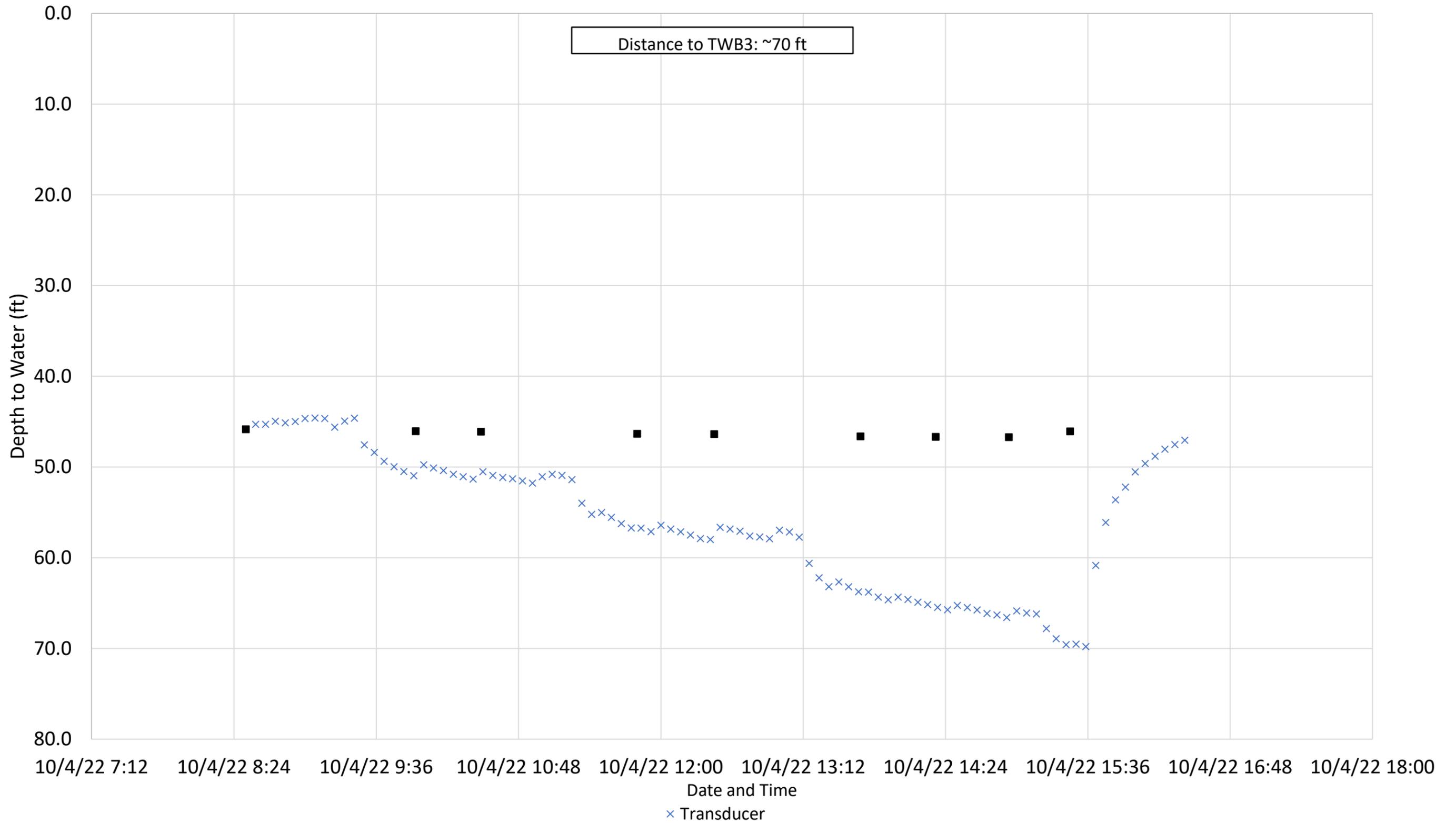
Date	Time	Date and Time	Depth to Water (ft)
10/4/22	8:30	10/4/22 8:30	45.83
10/4/22	9:56	10/4/22 9:56	46.06
10/4/22	10:29	10/4/22 10:29	46.11
10/4/22	11:48	10/4/22 11:48	46.33
10/4/22	12:27	10/4/22 12:27	46.37
10/4/22	13:41	10/4/22 13:41	46.62
10/4/22	14:19	10/4/22 14:19	46.67
10/4/22	14:56	10/4/22 14:56	46.70
10/4/22	15:27	10/4/22 15:27	46.07

Acronyms & Abbreviations

bgs = below ground surface

ft = feet

MW-98-77 During TWB-3 Specific Capacity Test



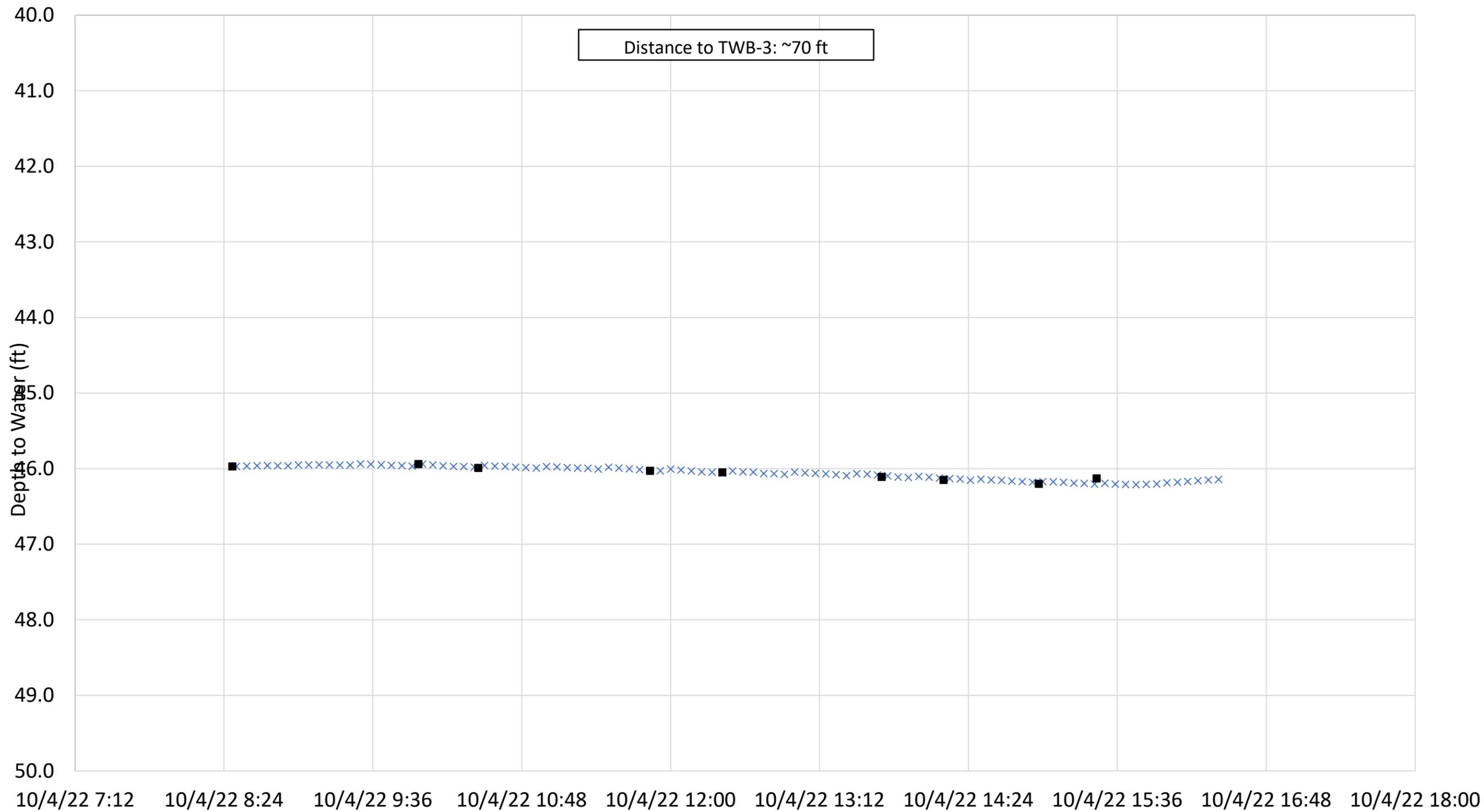
**Specific Capacity/
Injectivity Test Monitoring Point**

Location/Well ID	MW-98-55
Well Being Tested	TWB-03
Screened Interval of Well Being Tested	56-76 ft bgs
Approximate Distance from Testing Well	70 ft

Date	Time	Date and Time	Depth to Water (ft)
10/4/22	8:28	10/4/22 8:28	45.97
10/4/22	9:58	10/4/22 9:58	45.94
10/4/22	10:27	10/4/22 10:27	45.99
10/4/22	11:50	10/4/22 11:50	46.03
10/4/22	12:25	10/4/22 12:25	46.05
10/4/22	13:42	10/4/22 13:42	46.11
10/4/22	14:12	10/4/22 14:12	46.15
10/4/22	14:58	10/4/22 14:58	46.20
10/4/22	15:26	10/4/22 15:26	46.13

Acronyms & Abbreviations
 bgs = below ground surface
 ft = feet

MW-98-55 During TWB-3 Specific Capacity Test



Date and Time
× Transducer

Page 1 of 4

ARCADIS Design & Consultancy for natural and built assets **Specific Capacity Test**

Location/Well ID: TWB-03
 Date: 10/04/22
 Pumping Screened Interval: 56'-76' ft. ags
 Monitoring Point (Top of Casing): 1.25 ft. btoc
 Depth to Packer: N/A ft. btoc
 Pump Inlet Depth: 75.5
 Initial Water Level Within 56'-76' (Specify 49.49' ft. btoc)
 Screen Interval: _____
 Initial Water Level Within N/A (Specify _____ ft. btoc)
 Screen Interval: _____
 Initial Totalizer Reading: 204592 204643 gallons
 Final Totalizer Reading: 212644 gallons
 Approx. Pumped Volume: 8029.42 gallons
 Number of Specific Capacity Steps: 4 GPM
 Pumping Rates (List in Order): 10, 20, 30, 35

Time	Elapsed Time (min)	Pumping Rate (GPM)	Total Volume pumped (gallons)	Depth to Water Within <u>56'-76'</u> (Specify Screen Interval) (ft. btoc)	Drawdown (ft)	Depth to Water Within <u>N/A</u> (Specify Screen Interval) (ft. btoc)	Totalizer Reading (gallons)
0920 0925	00:04	—	—	51.70	2.21	—	—
0925	00:26	—	—	51.95	2.46	—	—
0925	00:58	10.12	—	52.38	2.89	—	—
0926	1	9.76	—	52.43	2.94	—	—
0927	2	10.45	68.94	52.57	3.10	—	204682
0928	3	10.45	75.12	52.75	3.26	—	204688
0929	4	10.78	81.22	52.81	3.32	—	204700
0929	5	10.78	94.32	52.89	3.40	—	204711
0931	6	10.62	109.06	52.95	3.46	—	204722
0932	7	10.45	118.32	53.00	3.51	—	204731
0933	8	10.62	125.52	53.00	3.51	—	204742
0934	9	10.62	139.06	53.02	3.53	—	204752
0935	10	10.62	151.00	53.05	3.56	—	204764
0937	12	10.78	170.00	53.11	3.62	—	204780
0939	14	10.78	191.74	53.15	3.66	—	204804
0941	16	10.78	211.76	53.18	3.69	—	204878
0943	18	10.78	235.26	53.20	3.71	—	204848
0945	20	10.78	254.11	53.22	3.73	—	204873
0947	22	10.78	277.59	53.25	3.76	—	204891
0949	24	10.78	300.12	53.27	3.78	—	204914
0952	26 27	10.78	329.12	53.30	3.81	—	204946
0953	28	10.78	344.80	53.30	3.81	—	204958
0955	30	10.78	365.00	53.31	3.82	—	204977
1000	35	10.78	417.19	53.34	3.85	—	205051
1005	40	10.78	486.81	53.39	3.90	—	205104
1010	45	10.78	530.82	53.40	3.91	—	205144

D. Alexander 10/04/22

* All measurements are taken from top of casing.
 Notes: _____

TWB-03 - Specific Capacity Test Form

ARCADIS Design & Consultancy
for natural and built assets

Specific Capacity Test

Location/Well ID - TWB-03
Date - 10/04/22

Time	Elapsed Time (Min)	Pumping Rate (GPM)	Total Volume pumped (Gallons)	Depth to Water Within 56-76 (Specify Screen Interval) (ft. bloc)	Drawdown (ft)	Depth to Water Within N/A (Specify Screen Interval) (ft. bloc)	Totalizer Reading (Gallons)
1015	50	10.78	582.20	53.46	3.91		205176
1020	55	10.78	690.00	53.42	3.93		205250
1025	60	10.78	805.54	53.44	3.95		205308
1035	70	10.78	910.46	53.48	3.99		205429
1045	80	10.78	1014.84	53.50	4.01		205527
1055	90	10.78	1130.00	53.52	4.03		205637
1105	100	10.78	1142.11	53.54	4.05		205753
1110	105	10.78	1194.00	53.57	4.06		205812
1115	110:30	19.91		55.78	6.29		205870
1116	111	20.38	1278.62	55.80	6.30		205898
1117	112	20.24	1293.80	56.10	6.61		205906
1118	113	20.24	1306.61	56.35	6.86		205923
1119	114	20.24	1329.55	56.52	7.03		205941
1120	115	20.24	1349.10	56.64	7.15		205961
1121	116	20.24	1367.74	56.73	7.24		205980
1122	117	20.08	1387.00	56.81	7.32		206000
1123	118	20.08	1408.76	56.87	7.38		206020
1124	119	20.08	1430.90	56.92	7.43		206041
1125	120	20.08	1451.73	56.97	7.48		206063
1127	122	20.08	1483.00	57.04	7.55		206103
1129	124	20.08	1528.61	57.10	7.61		206141
1131	126	20.74	1568.48	57.12	7.63		206180
1133	128	20.08	1613.28	57.18	7.67		206226
1135	130	20.08	1647.20	57.20	7.71		206267
1137	132	20.08	1689.90	57.22	7.73		206301
1139	134	20.08	1732.90	57.25	7.76		206344
1141	136	20.08	1766.86	57.27	7.78		206389
1143	138	20.08	1808.19	57.29	7.80		206419
1145	140	20.08	1847.21	57.31	7.82		206467
1150	145	20.08	1957.00	57.35	7.86		206571
1155	150	20.08	2052.02	57.39	7.90		206665
1200	155	20.08	2144	57.41	7.92		206760
1205	160	20.08	2233	57.45	7.96		206865
1210	165	20.24	2350	57.49	8.00		206963
1215	170	20.24	2452	57.51	8.02		207071
1225	180	20.24	2551.66	57.56	8.08		207266
1235	190	20.08	2666.66	57.62	8.13		207479

20 GPM →

J. H. H. 10/04/22

Notes:

TWB-03 - Specific Capacity Test Form

ARCADIS Design & Consultancy for natural and built assets

Specific Capacity Test

Location/Well ID: TWB-03

Date: 10/04/22

Time	Elapsed Time (Min)	Pumping Rate (GPM)	Total Volume pumped (Gallons)	Depth to Water Within 5'-7'6" (Specify Screen Interval) (ft. btoc)	Drawdown (ft)	Depth to Water Within NA (Specify Screen Interval) (ft. btoc)	Totalizer Reading (Gallons)
1245	200	20.24	3064.08	57.66	8.17		207677
1255	210	20.08	3259.96	57.63	8.16		207872
1305	220	20.08	3455.84	57.69	8.20		208070
1310:33	225	29.97	—	59.65	10.16		—
1310:48	225	—	—	59.71	10.22		—
1311:14	226	29.82	3606.52	60.07	10.58		208225
1312:15	227	29.77	3645.8	60.73	11.24		208258
1313	228	30.30	3684.1	61.21	11.72		208283
1314	229	30.14	3696.36	61.65	12.16		208307
1315	230	30.14	3722.60	61.96	12.47		208344
1316	231	29.97	3749.40	62.17	12.68		208357
1317	232	29.80	3776.40	62.32	12.83		208398
1318	233	29.98	3814.28	62.44	12.95		208426
1319	234	29.80	3857.16	62.53	13.04		208460
1320	235	29.80	3872.01	62.59	13.10		208483
1322	237	29.82	3935.06	62.71	13.22		208545
1324	239	29.80	3990	62.79	13.30		208600
1326	241	29.50	4044	62.86	13.37		208656
1328	243	29.82	4109.90	62.91	13.42		208721
1330	245	29.65	4165.95	62.98	13.49		208785
1332	247	29.97	4221.52	63.04	13.55		208845
1334	249	29.50	4288	63.08	13.59		208900
1336	251	29.80	4348	63.12	13.63		208955
1338	253	29.80	4403	63.18	13.69		209014
1340	255	29.80	4465	63.22	13.73		209089
1345	260	29.80	4633	63.34	13.85		209240
1350	265	29.80	4758	63.42	13.93		209380
1355 400	270	29.82	4916	63.52	14.03		209528
1400 405	275	29.50	5053	63.60	14.11		209666
1405 410	280	29.65	5203	63.67	14.20		209815
1410 415	285	29.65	5355	63.78	14.29		209979
1420 420	295	29.50	5642	63.94	14.45		210253
1430 430	305	29.65	5948	64.11	14.62		210556
1440 435	315	29.50	6253	64.25	14.76		210875
1450	325	29.65	6578	64.40	14.91		211191
1500	335	29.54	6819	64.52	15.03		211491
1510:10	345:19	35.54	—	65.05	15.56		—

30 GPM → (next to 1310:33)

35 GPM → (next to 1510:10)

Notes:

Page 3 of 4

TWB-03 - Specific Capacity Test Form

Location/Well ID- TWB-03

Specific Capacity Test

Date - 10/04/22

35 GPM

Time	Elapsed Time (Min)	Pumping Rate (GPM)	Total Volume pumped (Gallons)	Depth to Water Within 56-76' (Specify Screen Interval) (ft. btoc)	Drawdown (ft)	Depth to Water Within N/A (Specify Screen Interval) (ft. btoc)	Totalizer Reading (Gallons)	
1510:36	345:36	35.04	—	65.35	15.86		—	
1510:55	345:55	34.70	—	65.50	16.01		—	
1511	346	34.70	—	65.75	16.26		—	
1512	347	34.70	7202.70	66.38	16.89		211813	
1513	348	34.21	7227	66.80	17.31		211850	
1514	349	33.53	7269	67.13	17.64		211877	
1515	350	33.04	7305	67.27	17.78		211917	
1516	351	35.04	7338	67.68	18.19		211950	
1517	352	34.70	7382				212005	
1518	353			68.10	18.61			
1519	354	34.87	7449	68.25	18.76		212060	
1520	355	34.87	7475	68.35	18.86		212087	
1522	356:357	35.04	7524	68.50	19.01		212134	
1524	359	34.87	7617	68.61	19.12		212228	
1526	361	34.70	7684	68.69	19.20		212296	
1528:22	363	34.70	7749	68.79	19.30		212376	
1530	365	34.54	7823	68.83	19.34		212425	
1532	367	34.70	7880	68.91	19.42		212503	
1534:52	369	34.87	7954	69.00	19.51		212585	
1536	371							
Tag → 1534:53	DTW	49.70	→ return to static					
rate 1	specific capacity for 10.78 GPM = 2.66 gpm/ft							
rate 2	specific capacity for 20.16 GPM = 2.46 gpm/ft							
rate 3	specific capacity for 29.50 GPM = 1.96 gpm/ft							
rate 4	specific capacity for							

abort
Tag

Alexometer 10/04/22

Notes: Test aborted at 1536 (35 GPM), water stabilization was also not imminent at this rate.

ARCADIS

Well Development Record

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

PG 11 of

Date(s) 10/04/22

Project # 30126255

Arcadis Oversight: J. Alexander

ARCADIS Job Title:

Well ID TWB-03

Measuring Point (MP)
ft. (ags / bgs) 1.25

Total Depth (ft. BMP)

Screen Interval (ft. bgs) 56'-76'

DTW (ft. BMP): 49.49'

DTW (ft. bgs): 48.24

Water column in well (ft.):

Diameter of well (in.): 10

Gallons in well:

Rig operator: Javier Durate Rig type: Pulsar P12 Baller make and size:

Water added: N/A

Surge block make and size:

Pump make and size:

Water source: N/A

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 3%)	Turb NTU (± 0.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity	
0937	Tag	-	49.49	-	-	-	-	-	-	-	-	
0925	Begin	Specific Capacity Test										
1106	Test	10.78	53.54	-	29.1	7.14	228.4	9426	0.99	40.3	(10 GPM)	
1110	Test	10.78	53.55	-	29.1	7.30	227.5	9430	1.46	37.4	-	
1306	Test	20.08	57.69	-	28.7	7.34	217.5	8853	2.84	34.4	(20 GPM)	
1506	Test	29.34	64.60	-	28.8	7.35	164.6	10353	5.88	26.6	(30 GPM)	
1536	End	specific capacity test (35 GPM) (8029.42 gal pumped)										
1544	Tag	-	49.70	(back to static)								-
Finished for the day - 8029.42 gallons pumped												

Sample ID and Time:

Total gallons removed at completion of development:

Arcadis Staff:

TWB-03 - Specific Capacity Test Form

Specific Capacity/Injection Test Monitoring Point

Date(s) - 10/4/22

Monitoring Location/Well ID - MW-48

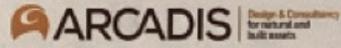
Testing Well Location/Well ID - TWB-03

Distance from monitoring well to testing well location - ~314 FT

Injectivity Test / Specific Capacity Test (Circle One)

Date	Time <i>SA 10/4/22</i>	Depth to water (ft btoc)
10/4/22	29:38 0946	29.38
10/4/22	1003	29.39
10/4/22	1033	29.40
10/4/22	1152	29.40
10/4/22	1234	29.40
10/4/22	1346	29.41
10/4/22	1423	29.41
10/4/22	1501	29.41
10/4/22	1610	29.42
<i>1622 STOP TRANSducer DOWNLOAD DATA.</i>		
<i>ALL</i>		
<i>10/4/22</i>		
<i>NOTES: DEPLOYED ~ 10FT ABOVE BOTTOM OF WELL FUTURE START 0850.</i>		

TWB-03 - Specific Capacity Test Monitoring Point Form



Specific Capacity/Injection Test Monitoring Point

Date(s) - 10/4/22
 Monitoring Location/Well ID - MW-12
 Testing Well Location/Well ID - TWB-03
 Distance from monitoring well to testing well location - ~ 3/2 FT

Injectivity Test / (Specific Capacity Test) (Circle One)

Date	Time	Depth to water (ft btoc)
10/4/22	0851	27.08
10/4/22	1003	27.08
10/4/22	1031	27.06
10/4/22	1153	27.04
10/4/22	1232	27.02
10/4/22	1348	27.02
10/4/22	1421	27.02
10/4/22	1502	27.02
10/4/22	1604	27.02
10/4/22	1612	STOP TRANSDUCER
REPROGRAMMED TRANSDUCER 30 MIN INTERVALS @ 1630 START TIME.		
mw 10/4/22		
NOTE: STOPPED TRANSDUCER AT 0853 AND DOWNLOADED DATA. FUTURE START AT 0900		

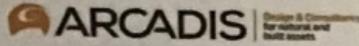
TWB-03 - Specific Capacity Test Monitoring Point Form

Specific Capacity/Injection Test Monitoring Point

Date(s): 10/4/22
 Monitoring Location/Well ID: MW-99-17
 Testing Well Location/Well ID: TWB-03
 Distance from monitoring well to testing well location: APPROX 70'

Injectivity Test / Specific Capacity Test (Circle One)

Date	Time	Depth to water (ft. btoc.)	Notes
10/4/22	0830	45.83	DEPLOYED ~ 5 FT ABOVE
10/4/22	0956	46.06	BOTTOM OF WELL FILTER
10/4/22	1029	46.11	START DATA.
"	1148	46.33	
"	1227	46.37	
"	1341	46.62	
10/4/22	1419	46.67	
10/4/22	1456	46.70	
10/4/22	1527	46.07	Transducer recovery → 1528
1657 STOPPED AND DOWNLOADED TRANSDUCER			



Specific Capacity/Injection Test Monitoring Point

Date(s): 10/4/22
 Monitoring Location/Well ID: MW-99-55
 Testing Well Location/Well ID: TWB-03
 Distance from monitoring well to testing well location: approx 70'

Injectivity Test / Specific Capacity Test (Circle One)

Date	Time	Depth to water (ft. btoc.)	Notes
10/4/22	0828	45.97	DEPLOYED ~5 FT ABOVE
10/4/22	0956	46.06	5 INCHES ABOVE BOTTOM OF WELL FILTER
10/4/22	0958	45.94	START AT 8:30
10/4/22	1027	45.99	
10/4/22	1150	46.03	
10/4/22	1225	46.05	
10/4/22	1342	46.11	
10/4/22	1417	46.15	
10/4/22	1458	46.20	
10/4/22	1626	46.13	Transducer recovery → 1628
1703	STOPPED TRANSDUCER 2 + DOWN LOADED DATA		
2 10/4/22			

TWB-03 - Specific Capacity Test Monitoring Point Form

Attachment 8

Photo Logs

CLIENT NAME: PG&E	PILOT BOREHOLE OVERDRILL: TEMPORARY BACKFILL REMOVAL VERIFICATION PHOTO LOG	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 8/19/2022



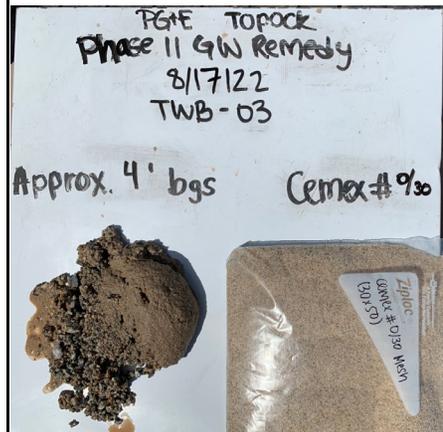
Core Depth: 0
Description: Rig centered over pilot borehole.
Date: 8/17/2022



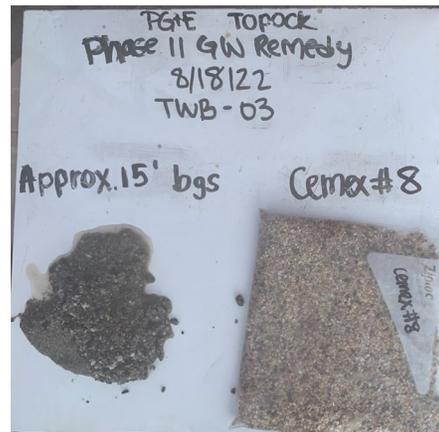
Core Depth: 0 to 0.5
Description: Casing centered over pilot borehole.
Date: 8/17/2022



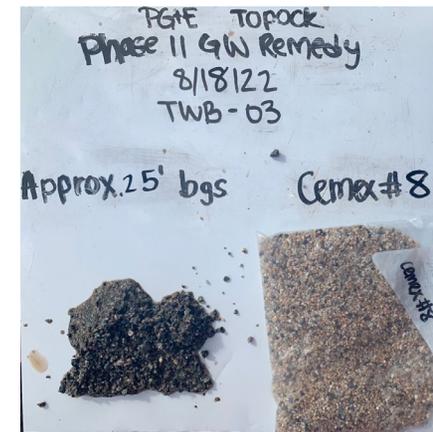
Core Depth: 0 to 0.5
Description: Casing centered over pilot borehole.
Date: 8/17/2022



Core Depth: Approx. 4' bgs
Description: Confirmation of Cemex #0/30 Lapis Lustre Sand in drill cuttings.
Date: 8/17/2022

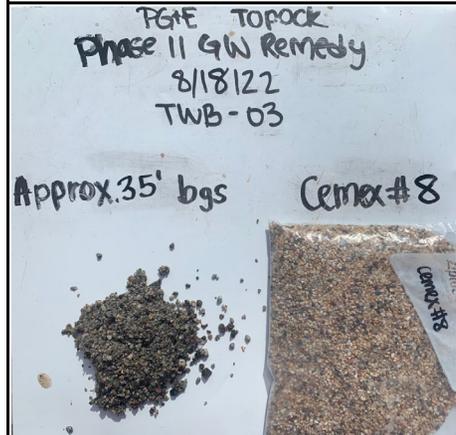


Core Depth: Approx. 15' bgs
Description: Confirmation of Cemex 8 Mesh Lapis Lustre Sand in drill cuttings.
Date: 8/18/2022

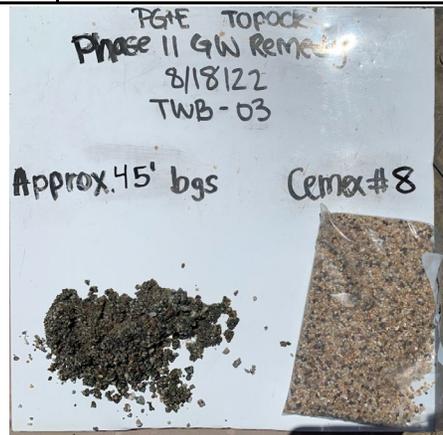


Core Depth: Approx. 25' bgs
Description: Confirmation of Cemex 8 Mesh Lapis Lustre Sand in drill cuttings.
Date: 8/18/2022

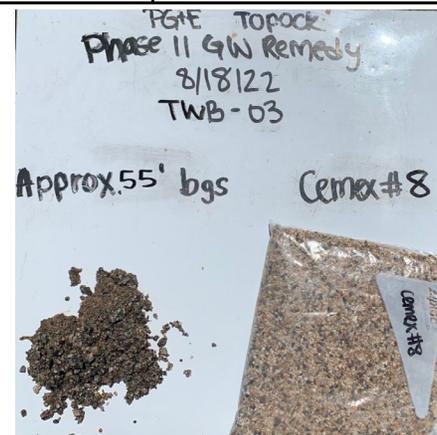
CLIENT NAME: PG&E	PILOT BOREHOLE OVERDRILL: TEMPORARY BACKFILL REMOVAL VERIFICATION PHOTO LOG	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255	TWB-03 0 to 85 ft	PHOTOS LAST ADDED: 8/19/2022



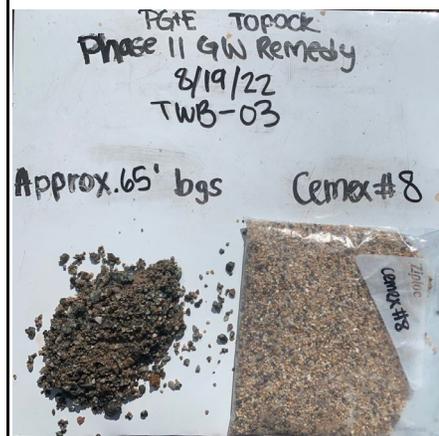
Core Depth: Approx. 35' bgs
Description: Confirmation of Cemex 8 Mesh
 Lapis Lustre Sand in drill cuttings.
Date: 8/18/2022



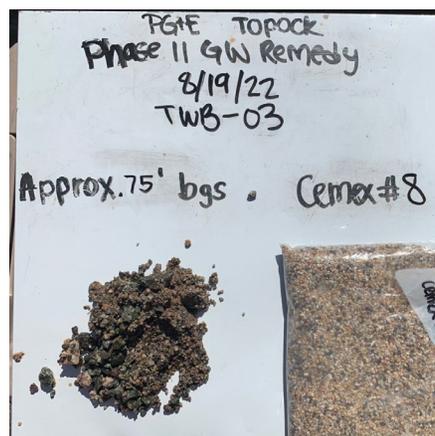
Core Depth: Approx. 45' bgs
Description: Confirmation of Cemex 8 Mesh
 Lapis Lustre Sand in drill cuttings.
Date: 8/18/2022



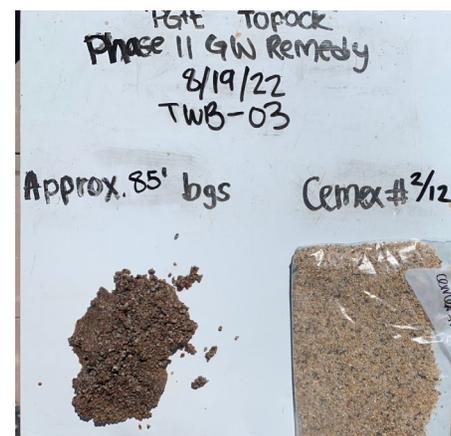
Core Depth: Approx. 55' bgs
Description: Confirmation of Cemex 8 Mesh
 Lapis Lustre Sand in drill cuttings.
Date: 8/18/2022



Core Depth: Approx. 65' bgs
Description: Confirmation of Cemex 8 Mesh
 Lapis Lustre Sand in drill cuttings.
Date: 8/19/2022



Core Depth: Approx. 75' bgs
Description: Confirmation of Cemex 8 Mesh
 Lapis Lustre Sand in drill cuttings.
Date: 8/19/2022



Core Depth: Approx. 85' bgs
Description: Confirmation of Cemex #2/12
 Lapis Lustre Sand in drill cuttings.
Date: 8/19/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG TWB-03 0 to 88 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 5/7/2022



Core Depth: 0 to 7
Description:
Date: 5/5/2022



Core Depth: 7 to 17
Description:
Date: 5/5/2022



Core Depth: 17 to 21
Description:
Date: 5/5/2022



Core Depth: 21 to 26
Description:
Date: 5/5/2022



Core Depth: 26 to 32
Description:
Date: 5/5/2022



Core Depth: 32 to 37
Description:
Date: 5/5/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG TWB-03 0 to 88 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 5/7/2022



Core Depth: 37 to 42
Description:
Date: 5/5/2022



Core Depth: 42 to 47
Description:
Date: 5/5/2022



Core Depth: 47 to 52
Description:
Date: 5/5/2022



Core Depth: 52 to 57
Description:
Date: 5/5/2022



Core Depth: 57 to 62
Description:
Date: 5/6/2022



Core Depth: 62 to 67
Description:
Date: 5/7/2022

CLIENT NAME: PG&E	WELL CORE PHOTO LOG TWB-03 0 to 88 ft	PROJECT NAME / LOCATION: Topock Compressor Station, Needles, California
Arcadis PROJECT NO: 30126255		PHOTOS LAST ADDED: 5/7/2022



Core Depth: 62 to 72
Description:
Date: 5/7/2022



Core Depth: 72 to 77
Description:
Date: 5/7/2022



Core Depth: 77 to 82
Description:
Date: 5/7/2022



Core Depth: 82 to 88
Description:
Date: 5/7/2022

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: TWB-03



**8/20/2022 – TWB-03:
10-inch Shur-Grip SDR-17 PVC casing and 10-inch 18-slot Stainless Steel 316L Wire Wrap Screen**



**8/20/2022 – TWB-03:
10-inch 18-slot Stainless Steel 316L Wire Wrap Screen stamp**



**8/20/2022 – TWB-03:
10-inch 18-slot Stainless Steel 316L Wire Wrap Screen slot size confirmation**

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: TWB-03



**8/20/2022 – TWB-03:
316L Stainless Steel Endcap**



**8/20/2022 – TWB-03:
Kwik-Zip Centralizers**

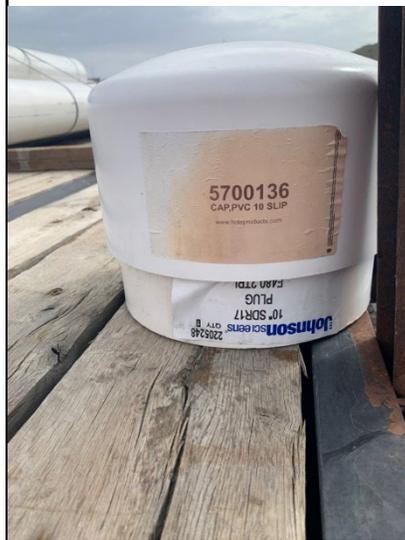


**8/20/2022 – TWB-03:
10-inch Shur-Grip SDR-17 PVC casing with an
inner diameter of 0.79 feet**

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: TWB-03	



8/20/2022 – TWB-03:
10-inch Shur-Grip SDR-17 PVC casing with an outer diameter of 0.89 feet



8/20/2022 – TWB-03:
10-inch Shur-Grip SDR-17 PVC slip cap and 10-inch Shur-Grip SDR-17 PVC plug



8/20/2022 – TWB-03:
P.W. Gillibrand filter pack sand (RFS 1 20/40)

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: TWB-03



**8/20/2022 – TWB-03:
P.W. Gillibrand filter pack sand (RFS 1 20/40)**



**8/20/2022 – TWB-03:
Installing stainless steel endcap and Shur-Grip SDR-17 PVC sump (#1)**



**8/20/2022 – TWB-03:
Kwik-Zip Centralizer set at approximately 78 ft. bgs on sump (#1)**

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: TWB-03	



**8/20/2022 – TWB-03:
Installing 316L Stainless Steel, 18-slot Wire Wrap Screen (#2)**



**8/20/2022 – TWB-03:
Installing Shur-Grip SDR-17 PVC casing (#3)**



**8/20/2022 – TWB-03:
Installing Shur-Grip SDR-17 PVC casing (#4)**

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: TWB-03



**8/20/2022 – TWB-03:
Centralizer set at approximately 38 ft. bgs. on
Shur-Grip SDR-17 PVC casing (#4)**

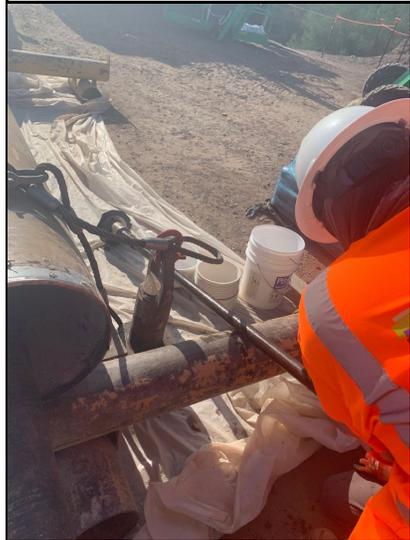


**8/20/2022 – TWB-03:
Installing Shur-Grip SDR-17 PVC casing (#5)**

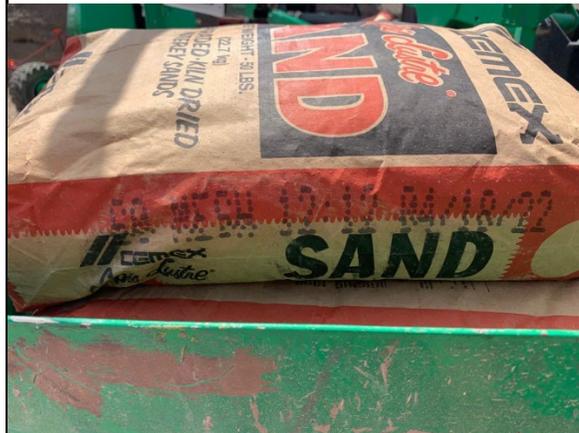


**8/20/2022 – TWB-03:
Installing temporary PVC Shur-Grip SDR-17
PVC stickup**

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: TWB-03



8/21/2022 – TWB-03:
 Swab tool used to swab screen for approximately 30 minutes in order to promote settling of the filter



8/21/2022 – TWB-03:
 Cemex #60 (40x70) Mesh Lapis Lustre Sand transition sand

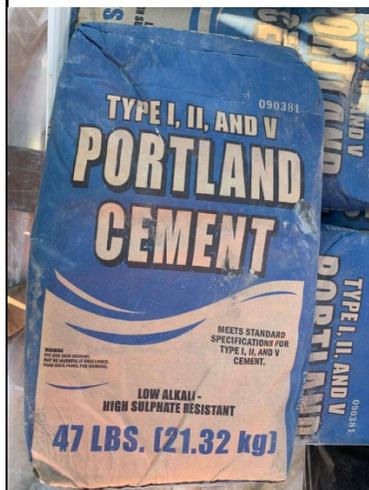


8/21/2022 – TWB-03:
 Cemex #60 (40x70) Mesh Lapis Lustre Sand transition sand

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: TWB-03



8/21/2022 – TWB-03:
 Cetco Puregold Medium Bentonite Chips used for bentonite seal



8/22/2022 – TWB-03:
 Portland Cement Type I, II and V used in cement grout



8/22/2022 – TWB-03:
 Wyoming Bentonite Hydrogel used in cement grout

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: TWB-03



**8/23/2022 – TWB-03:
Grout cured from batch #1 and #2**



**8/23/2022 – TWB-03:
Completed TWB-03 with plug/cap**



**8/23/2022 – TWB-03:
Completed TWB-03 with plug/cap and secured**

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: TWB-03



9/27/2022 – TWB-03:
Measuring outer diameter of “Dummy Tool” (8.642 inches) used for alignment test



9/27/2022 – TWB-03:
Conducting the “Dummy Tool” alignment test



9/27/2022 – TWB-03:
Lowering “Dummy Tool” during the alignment test

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: TWB-03



**9/27/2022 – TWB-03:
Conducting the “Dummy Tool” alignment test**

Attachment 9

Video Survey Report

