



*Pacific Gas and
Electric Company®*

**PG&E Topock
Compressor Station
Needles, California**

**Basis of Design Report /Pre-Final (90%) Design Submittal
for the Final Groundwater Remedy**

Appendix D: Plans (Engineering Drawings)

September 2014

CH2MHILL®

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Appendix D1 Equipment Lists

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TABLE D1-1
In-Situ Remediation Systems - Equipment
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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-06-04	IRZ00-	T-*721	New	1	1	Backwash Tank Type: Frac Tank Dimensions: Material: Capacity: 21,000 GAI	IRZ Carbon Amendment Building	Denbeste
	I-08-01	TWB00-	T-*901	Existing	1	1	Carbon Substrate Tank Type: SuperVault Double Wall Horizontal Saddle Tank Dimensions: Material: Capacity: 3,000 GAI	TW Bench Carbon Amendment Building	Modern Welding Co.
	I-06-02	IRZ00-	T-*701	New	1	1	Carbon Substrate Tank Type: SuperVault Double Wall Horizontal Saddle Tank Dimensions: Material: Mild Steel Capacity: 15,000 GAI	IRZ Carbon Amendment Building	Modern Welding Co.
	I-06-04	IRZ00-	T-*723	New	1	1	Clean-in-Place Tank Type: Frac Tank Dimensions: Material: Capacity: 20,000 GAI	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	T-*720	New	1	1	Conditioned Water Tank Type: Frac Tank Dimensions: Material: Capacity: 21,000 GAI	IRZ Carbon Amendment Building	Denbeste
	I-06-04	IRZ00-	T-*719	New	1	1	Well Maintenance Reagent Day Tank Type: Closed Head Vertical Bulk Storage Poly Tank Dimensions: Material: Polyethylene Capacity: 1,000 GAI	IRZ Carbon Amendment Building	Chemtainer
	I-08-02	TWB00-	T-*903	New	1	1	Well Maintenance Reagent Day Tank Type: Closed Head Vertical Bulk Storage Poly Tank Dimensions: Material: Polyethylene Capacity: 350/500 GAI	TW Bench Carbon Amendment Building	Chemtainer
	I-08-01	TWB00-	FV-*920 FV-*921	New	2	2	1" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-100/WEA2-XX Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	TW Bench Carbon Amendment Building	Triac
	I-08-01	TWB00-	FV-*924	New	2	2	2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-200/WEA2-XX Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	TW Bench Carbon Amendment Building	Triac

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	I-08-02	TWB00-	FV-*923	New	2	2	2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-200/WEA2-XX Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	TW Bench Carbon Amendment Building	Triac
	I-03-03	TCS01- TCS02-	FV-*407 FV-*408	New	2	4	1-1/2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-150/WEA2-XX Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	TCS Injection Wells	Triac
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	FV-*508 FV-*509	New Dual Screen	2	10	1-1/2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-150/WEA2-XX Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	Dual Screen IRZ Injection Wells	Triac
	I-04-03	IRZ35- IRZ37- IRZ39-	FV-*504	New Single Screen	1	3	1-1/2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-150/WEA2-XX Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	Single Screen IRZ Injection Wells	Triac
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	FV-*514 FV-*515	New	2	16	1-1/2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-150/WEA2-XX Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	Dual Screen Cluster IRZ Injection Wells	Triac
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	FV-*516 FV-*517	New	2	16	1-1/2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-150/WEA2-XX Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	Dual Screen Cluster IRZ Injection Wells	Triac
	I-05-02	IRL01- IRL02- IRL03- IRL04-	FV-*604	New	1	4	1-1/2" Electric Ball Valve Type: Three Piece On/Off or Modulating Ball Valve Model: 22-TX-150/WEA2-XX Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	IRL Injection Wells	Triac

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	I-06-03	IRZ00-	FV-*731	New	3	3	2" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-200/WEA2-XX Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	NTH IRZ Well Maintenance Bldg	Triac
	I-06-04	IRZ00-	FV-*732 FV-*733	New	6	6	2" Electric Butterfly Valve Type: Resilient Seat Open/Close Lug Style Butterfly Valve Model: OS-LI-0200-VSP-XE/WEA1 Connection: Wetted Materials: Stainless Steel Body, Disc and Shaft, Viton Seats Other: 120 VAC electric actuator	NTH IRZ Well Maintenance Bldg	Triac
	I-06-04	IRZ00-	FV-*728M FV-*728R FV-*728Q FV-*738T	New	6	6	2" Electric Butterfly Valve Type: Resilient Seat Open/Close Lug Style Butterfly Valve Model: OS-LI-0200-VSP-XE/WEA1 Connection: 2" NPT Wetted Materials: Stainless Steel Body, Disc and Shaft, Viton Seats Other: 120 VAC electric actuator	NTH IRZ Well Maintenance Bldg	Triac
	I-05-02	IRL01- IRL02- IRL03- IRL04-	FV-*621A FV-*621B	New	1	4	3" V-Smart Valve Type: Smart Valve Model: Custom Number of Ports: TBD Connection: 3" Flange Wetted Materials: Stainless Steel Other: Works with Submersible Well Pump, Quote Includes Hydraulic Hoses and Hydraulic Power Units	IRL Injection Wells	ASR
	I-05-02	IRL01- IRL02- IRL03- IRL04-	FV-*609	New	1	4	3"Electric Butterfly Valve Type: Resilient Seat Open/Close Lug Style Butterfly Valve Model: OS-LI-0300-VSP-XE/WEA1 Connection: Wetted Materials: Stainless Steel Body, Disc and Shaft, Viton Seats Other: 120 VAC electric actuator	IRL Injection Wells	Triac
	I-06-02	IRZ00-	FV-*711	New	1	1	Solenoid Valve Type: Internally Piloted Piston Valve Model: HT8210G015E Connection: 1 1/2" NPT Wetted Materials: Stainless Steel Ball, EPDM Disc, Teflon Seats Other: Electrical: 120V and 60 Hz Coil: Class H for 140 deg F	IRZ Carbon Amendment Building	ASCO

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	I-06-03	IRZ00-	FV-*729 FV-*730	New	2	2	Solenoid Valve Type: Internally Piloted Piston Valve Model: HT8210G015E Connection:1/2" NPT Wetted Materials: Stainless Steel Ball, EPDM Disc, Teflon Seats Other: Electrical: 120V and 60 Hz Coil: Class H for 140 deg F	IRZ Carbon Amendment Building	ASCO
	I-08-01	TCS00-	FV-*919	New	2	2	Solenoid Valve Type: Internally Piloted Piston Valve Model: HT8210G015E Connection:1/2" NPT Wetted Materials: Stainless Steel Ball, EPDM Disc, Teflon Seats Other: Electrical: 120V and 60 Hz Coil: Class H for 140 deg F	TW Bench Carbon Amendment Building	ASCO
	I-08-02	TCS00-	FV-*922	New	2	2	Solenoid Valve Type: Internally Piloted Piston Valve Model: HT8210G015E Connection:1/2" NPT Wetted Materials: Stainless Steel Ball, EPDM Disc, Teflon Seats Other: Electrical: 120V and 60 Hz Coil: Class H for 140 deg F	TW Bench Carbon Amendment Building	ASCO
	I-06-02	IRZ00-	FV-*712 FV-*713 FV-*714	New	6	6	1" Electric Ball Valve Type: Three Piece Open/Close Ball Valve Model: 22-TX-100/WEA1-XX Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	IRZ Carbon Amendment Building	Triac
	I-06-02	IRZ00-	FV-*715 FV-*716 FV-*717	New	6	6	1" Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-100/WEA2-XX Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	IRZ Carbon Amendment Building	Triac
	I-05-02	IRL01- IRL02- IRL03- IRL04-	FV-*605 FV-*606 FV-*607 FV-*608	New	1	4	1-1/2"Electric Ball Valve Type: Three Piece Modulating Ball Valve Model: 22-TX-150/WEA2-XX Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seats Other:	IRL Injection Wells	Triac

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	I-08-01	TWB00-	P-*940 P-*941	New	2	2	Carbon Substrate Pump Type: Hose Pump Model: APEX20 Connections: 1/2 or 3/4" Hose Barb or Tri-Clamp Style Flow Rating: 30 GPM Total Head: 200' Motor Size: TBD Wetted Material: Stainless Steel, Viton Seals Power: 120V	TW Bench Carbon Amendment Building	Watson-Marlow Bredel
	I-06-02	IRZ00-	P-*740 P-*741 P-*742	New	3	3	Carbon Substrate Pump Type: Hose Pump Model: APEX20 Connections: 1/2 or 3/4" Hose Barb or Tri-Clamp Style Flow Rating: 30 GPM Total Head: 200' Motor Size: TBD Wetted Material: Stainless Steel, Viton Seals Power: 120V	IRZ Carbon Amendment Building	Watson-Marlow Bredel
	I-03-01	ER01- ER02- ER03- ER04- ER06-	PMP-*440	New	1	5	Extraction Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 1.5 GPM Total Head: 300' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	East Ravine Extraction Wells	Grundfos
	I-03-03	TCS01- TCS02-	PMP-*442 PMP-*443	New	2	4	Backwash Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 40 GPM Total Head: 240' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	TCS Injection Wells	Grundfos
	I-03-02	TWB01- TWB02-	PMP-*441	New	1	2	Extraction Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 1.5-40 GPM Total Head: 311-313' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	Transwestern Bench Extraction Wells	Grundfos

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	I-04-02	IRZ01- IRZ05- IRZ09-	PMP-*541 PMP-*542	New	2	6	Extraction Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 50 GPM Total Head: 268' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	Dual Screen IRZ Extraction Well	Grundfos
	I-04-01	IRZ23-	PMP-*540	New	1	1	Extraction Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 50 GPM Total Head: 270' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	Single Screen IRZ Extraction Wells	Grundfos
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	PMP-*544 PMP-*545	New Dual Screen	2	10	Backwash Well Pump Type: Submersible Pump Model: 40S30-09 / 60S50-9 Connections: 1-1/2" FNPT / 2" FNPT Flow Rating: 35 gpm @ 200 ft head / 60 gpm @ 200 ft head Total Head: As above Motor Size: 3.0 hp / 5.0 hp Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	Dual Screen IRZ Injection Wells	Grundfos
	I-04-03	IRZ35- IRZ37- IRZ39-	PMP-*543	New Single Screen	1	3	Backwash Well Pump Type: Submersible Pump Model: 40S30-09 / 60S50-9 Connections: 1-1/2" FNPT / 2" FNPT Flow Rating: 35 gpm @ 200 ft head / 60 gpm @ 200 ft head Total Head: As above Motor Size: 3.0 hp / 5.0 hp Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	Single Screen IRZ Injection Wells	Grundfos
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	PMP-*546 PMP-*547	New	4	32	Backwash Well Pump Type: Submersible Pump Model: Connections: 1-1/2" FNPT / 2" FNPT Flow Rating: 40 GPM Total Head: 180' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	Dual Screen Cluster IRZ Injection Wells	Grundfos

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	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	PMP-*548 PMP-*549	New	4	32	Backwash Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 40 GPM Total Head: 180' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	Dual Screen Cluster IRZ Injection Wells	Grundfos
	I-05-02	IRL01- IRL02- IRL03- IRL04-	PMP-*641A PMP-*641B	New	1	4	Backwash Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 400 GPM Total Head: 280' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	IRL Injection Wells	Grundfos
	I-05-01	RB01- RB02- RB03- RB04- RB05-	PMP-*640	New	1	5	Extraction Well Pump Type: Submersible Pump Model: Connections: Flow Rating: 180 GPM Total Head: 319-322' Motor Size: Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	River Bank Extraction Wells	Grundfos
	I-06-04	IRZ00-	P-*743	New	1	1	Well Maintenance Reagent Hose Pump Type: Hose Pump Model: APEX20 Connections: 1/2 or 3/4" Hose Barb or Tri-Clamp Style Flow Rating: 50 GPM Total Head: 200' Motor Size: TBD Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	IRZ Carbon Amendment Building	Watson-Marlow Bredel
	I-08-02	TWB00-	P-*942	New	1	1	Well Maintenance Reagent Pump Type: Hose Pump Model: APEX 20 Connections: 1/2 or 3/4" Hose Barb or Tri-Clamp Style Flow Rating: 50 GPM Total Head: 150' Motor Size: TBD Wetted Material: Stainless Steel, Viton Seals Power: 460 VAC, 3 Phase	TW Bench Carbon Amendment Building	Watson-Marlow Bredel

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	I-06-04	IRZ00-	P-*746 P-*747	New	2	2	Sump Pump Type: Sump Pump Model: M161 Connections: 1-1/2" NPT Discharge Flow Rating: 10-15 gpm Total Head: 20-30' Motor Size: 1/2 hp Wetted Material: Stainless Steel Power: 115 V, 1PH	IRZ Carbon Amendment Building	Zoeller
	I-08-02	TWB00-	P-*944	New	2	2	Sump Pump Type: Sump Pump Model: M161 Connections: 1-1/2" NPT Discharge Flow Rating: 10-15 gpm Total Head: 20-30' Motor Size: 1/2 hp Wetted Material: Power: 115 V, 1PH	TW Bench Carbon Amendment Building	Zoeller
	I-08-02	TWB00-	P-*945	New	2	2	Sump Pump Type: High Head Sump Pump Model: BL191 Connections: 1-1/2" NPT Discharge Flow Rating: Total Head: Motor Size: 4 hp Wetted Material: Stainless Steel Carbon and Ceramic Rotary Shaft Seal, Powder Coated Epoxy Finish Power: 230 V, 3PH	TW Bench Carbon Amendment Building	Zoeller
	I-06-04	IRZ00-	P-*744	New	1	1	Clean-in-Place Reagent Pump Type: Centrifugal Pump Model: 1500 Series Connections: Flow Rating: 300 GPM Total Head: 100' Motor Size: 10 hp Wetted Material: Stainless Steel, Viton Seals Power: 460 V, 3PH PH: 1-1/2"	IRZ Carbon Amendment Building	Fybroc
	I-06-04	IRZ00-	PMP-*748	New	1	1	Conditioned Water Injection Pump Type: Model: Goulds NPE Series Connections: 1-1/2" Suction, 1" Discharge Flow Rating: 20 Total Head: 160 Motor Size: Wetted Material: Power: 460 VAC, 3-Phase PH: 1-1/2"	IRZ Carbon Amendment Building	Goulds

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	I-06-04	IRZ00-	P-*745	New	1	1	Produced Water Transfer Pump Type: Centrifugal Model: 1500 Series Connections: Flow Rating: 400 GPM Total Head: 200' Motor Size: 25 hp Wetted Material: Stainless Steel, Viton Seals Power: 460V, 3PH Wetted Material: Stainless Steel	IRZ Carbon Amendment Building	Fybroc
	I-08-02	TWB00-	LE/LT-*954	New	2	2	Well Maintenance Tank Level Sensor/Transmitter Type: Radar Level Transmitter Model: 5400 Connections: 2" Flange Output Signal: 4-20 mA Power: 24 VDC Range: 0-12 ft Wetted Material: Stainless Steel	TW Bench Carbon Amendment Building	Rosemount
	I-06-02	IRZ00-	LE/LT-*752	New	1	1	Carbon Substrate Tank Level Sensor/ Transmitter Type: Radar Level Transmitter Model: 5400 Connections: 2" Flange Output Signal: 4-20 mA Power: 24 VDC Range: 0-12' Wetted Material: Stainless Steel	IRZ Carbon Amendment Building	Rosemount
	I-06-02	IRZ00-	TE/TT-*790	New	1	1	Carbon Substrate Tank Temperature Sensor Type: General Purpose Direct Immersion Platinum RTD Model: 644-H-A-NA-J5-M5 with pt100 RTD Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 VDC Range: -328 to 752 Degrees F Wetted Material: Stainless Steel	IRZ Carbon Amendment Building	Rosemount
	I-08-01	TWB00-	TE/TT-*990	New	1	1	Carbon Substrate Tank Temperature Sensor Type: General Purpose Direct Immersion Platinum RTD Model: 644-H-A-NA-J5-M5 with pt100 RTD Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 VDC Range: -328 to 752 Degrees F Wetted Material: Stainless Steel	TW Bench Carbon Amendment Building	Rosemount
	I-06-03	IRZ00-	LT/LE-*759	New	1	1	CIP and Well Maintenance Tank Level Sensor/Transmitter Type: Radar Level Transmitter Model: 5400 Connections: 2" Flange Output Signal: 4-20 mA Power: 24 VDC Range: 0-12 ft Wetted Material: Stainless Steel	IRZ Carbon Amendment Building	Rosemount

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	I-06-04	IRZ00-	LT/LE-*756 LT/LE-*757 LT/LE-*758	New	4	4	CIP and Well Maintenance Tank Level Sensor/Transmitter Type: Radar Level Transmitter Model: 5400 Connections: 2" Flange Output Signal: 4-20 mA Power: 24 VDC Range: 0-12 ft Wetted Material: Stainless Steel	IRZ Carbon Amendment Building	Rosemount
	I-06-04	IRZ00-	PIT-*761	New	1	1	Groundwater In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel	IRZ Carbon Amendment Building	Rosemount
	I-08-01	TCS00-	PIT-*963 PIT-*964 PIT-*966	New	3	3	Groundwater In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel	TW Bench Carbon Amendment Building	Rosemount
	I-03-02	IRZ00-	PIT-*461A/ PIT-*461A	New	1	1	Groundwater In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel	Transwestern Bench Extraction Wells	Rosemount
	I-03-01	IRZ00-	PIT-*460A/ PIT-*460A	New	1	1	Groundwater In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel	East Ravine Extraction Wells	Rosemount
	I-04-02	IRZ00-	PIT-*561A/ PIT-*561A PIT-*561D/ PIT-*561D	New	1	1	Groundwater In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel	Dual Screen IRZ Extraction Wells	Rosemount

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	I-05-01	IRZ00-	PIT-*660A/ PIT-*660A	New	1	1	Groundwater In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel	River Bank Extraction Wells	Rosemount
	I-06-01	IRZ00-	ASH/AI-*750	New	1	1	LEL Sensor/Transmitter Type: LEL Sensor with Transmitter Model: 820-0204-01 823-0211-31 Connections: Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100% LEL Wetted Material: Stainless Steel Other: Rated for Class One Div Two areas, 3 wire, local display,	IRZ Carbon Amendment Building	Sensidyne
	I-08-01	TWB00-	LE/LT-*952	New	1	1	Carbon Substrate Level Sensor/Transmitter Type: Radar Level Transmitter Model: 5400 Connections: 2" Flange Output Signal: 4-20 mA Power: 24 VDC Range: 0-12 ft Wetted Material: Stainless Steel	TW Bench Carbon Amendment Building	Rosemount
	I-04-01	IRZ00-	PIT-*560A/ PIT-*560A	New	1	1	Groundwater In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: 316L SS	Single Screen IRZ Extraction Wells	Rosemount
	I-08-01	TWB00-	ASH/AI-*957	New	1	1	LEL Sensor/Transmitter Type: LEL Sensor with Transmitter Model: 820-0204-01 823-0211-31 Connections: Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100% LEL Wetted Material: Stainless Steel Other: Rated for Class One Div Two areas, 3 wire, local display,	TWB Carbon Amendment Building	Sensidyne
	I-06-02	IRZ00-	PSL-*765 PSL-*766 PSL-*767	New	3	3	Carbon Substrate In-Line Pressure Switch Type: In-Line Pressure Switch Model: B7-24 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Range: Wetted Material: Stainless Steel	IRZ Carbon Amendment Building	Ashcroft

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	I-08-01	TWB00-	PSL-*961 PSL-*962	New	5	5	Carbon Substrate In-Line Pressure Switch Type: In-Line Pressure Switch Model: B7-24 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	TW Bench Carbon Amendment Building	Ashcroft
	I-08-02	TWB00-	*PSL-*966	New	5	5	Carbon Substrate In-Line Pressure Switch Type: In-Line Pressure Switch Model: B7-24 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	TW Bench Carbon Amendment Building	Ashcroft
	I-06-01	IRZ00-	PIT-*762 PIT-*763	New	3	3	In-Line Gauge Pressure Transmitter Type: Scalable Pressure Transmitter Model: 3051S Connections: 1/2" NPT Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Materials: Stainless Steel	IRZ Carbon Amendment Building	Rosemount
	I-06-03	IRZ00-	PSH-*768	New	3	3	Pressure Switch Type: In-Line Pressure Switch Model: B7-24 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	IRZ Carbon Amendment Building	Wika
	I-06-04	IRZ00-	PSL-*769A PSL-*769B PSL-*769C	New	3	3	Pressure Switch Type: In-Line Pressure Switch Model: B7-24 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	IRZ Carbon Amendment Building	Wika
	I-03-03	TCS01- TCS02-	PSL-*462D	New	1	2	Packer Pressure Switch Type: Air/Gas Pressure Switch Model: J120 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	TCS Injection Wells	UE One Series
	I-04-02	IRZ01- IRZ05- IRZ09-	PSL-*561E	New	1	3	Packer Pressure Switch Type: Air/Gas Pressure Switch Model: J120 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	Dual Screen IRZ Extraction Well	UE One Series

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	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	PSL-*563G	New Dual Screen	1	5	Packer Pressure Switch Type: Air/Gas Pressure Switch Model: J120 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	Dual Screen IRZ Injection Wells	UE One Series
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	PSL-*564G	New	2	16	Packer Pressure Switch Type: Air/Gas Pressure Switch Model: J120 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	Dual Screen Cluster IRZ Injection Wells	UE One Series
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	PSL-*565G	New	2	16	Packer Pressure Switch Type: Air/Gas Pressure Switch Model: J120 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	Dual Screen Cluster IRZ Injection Wells	UE One Series
	I-05-01	RB01- RB02- RB03- RB04- RB05-	PSL-*660C	New	1	5	Packer Pressure Switch Type: Air/Gas Pressure Switch Model: J120 Connections: 1/2" NPT Output Signal: Digital DC Power: 24 VDC Wetted Materials: Stainless Steel	River Bank Extraction Wells	UE One Series
	I-06-03	IRZ00-	LSH-*755 LSH-*749	New	5	5	Pipe/Sump Leak Detection Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene Body, UHB 3M tape, PVC Cable	IRZ Carbon Amendment Building	Gems
	I-06-04	IRZ00-	LSH-*746 LSH-*747 LSH-*748	New	5	5	Pipe/Sump Leak Detection Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene Body, UHB 3M tape, PVC Cable	IRZ Carbon Amendment Building	Gems
	I-06-02	IRZ00-	LSH-*750 LSH-*751 LSH-*753 LSH-*754	New	4	4	Tank/Pipe/Sump Leak Detection Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	IRZ Carbon Amendment Building	Gems

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	I-03-02	TWB01- TWB02-	LSH-*451A	New	1	2	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	Transwestern Bench Extraction Wells	Gems
	I-03-03	TCS01- TCS02-	LSH-*452A LSH-*452B	New	2	4	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	TCS Injection Wells	Gems
	I-03-01	ER01- ER02- ER03- ER04- ER06-	LSH-*450A	New	1	4	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	East Ravine Extraction Wells	Gems
	I-04-02	IRZ01- IRZ05- IRZ09-	LSH-*551A LSH-*551B	New	2	6	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	Dual Screen IRZ Extraction Well	Gems
	I-04-01	IRZ23-	LSH-*550A LSH-*550B	New	2	2	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	NTH IRZ-23	Gems
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	LSH-*553A LSH-*553B	New Dual Screen	2	10	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	Dual Screen IRZ Injection Wells	Gems
	I-04-03	IRZ35- IRZ37- IRZ39-	LSH-*552A	New Single Screen	1	3	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	Single Screen IRZ Injection Wells	Gems

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	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21	LSH-*554A LSH-*554B	New	2	16	Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	Dual Screen Cluster IRZ Injection Wells	Gems
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21	LSH-*554C	New	1	8	Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	Dual Screen Cluster IRZ Injection Wells	Gems
	I-05-02	IRL01- IRL02- IRL03- IRL04-	LSH-*651A LSH-*651B	New	2	8	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	IRL Injection Wells	Gems
	I-05-01	RB01- RB02- RB03- RB04- RB05-	LSH-*650A LSH-*650B	New	2	10	Well Vault Sump Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	River Bank Extraction Wells	Gems
	I-08-01	TCS00-	LSH-*950 LSH-*951 LSH-*953 LSH-*956	New	7	7	Tank/Pipe/Sump Leak Detection Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox®, Polyethylene, UHB 3M tape, PVC Cable	TW Bench Carbon Amendment Building	Gems
	I-08-02	TCS00-	LSH-*955 LSH-*958	New	7	7	Tank/Pipe/Sump Leak Detection Level Switch Type: General Purpose Level Switch Model: LS-10 Output Signal: Digital DC Power: 24 VDC Wetted Materials: Valox® Housing, Polyethylene, UHB 3M tape, PVC Cable	TW Bench Carbon Amendment Building	Gems

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	I-03-03	TCS01- TCS02-	PI-*462A PI-*462B PI-*462C PI-*462E	New	4	8	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Oil-Filled, 2 1/2" Dial Size	TCS Injection Wells	Wika
	I-04-02	IRZ09-	PI-*561F		1	1	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Oil-Filled, 2 1/2" Dial Size	Dual Screen IRZ Extraction Well	Wika
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	PI-*563A PI-*563B PI-*563C PI-*563D	New Dual Screen	4	20	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Oil-Filled, 2 1/2" Dial Size	Dual Screen IRZ Injection Wells	Wika
	I-04-03	IRZ35- IRZ37- IRZ39-	PI-*562A PI-*562B	New Single Screen	2	6	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Oil-Filled, 2 1/2" Dial Size	Single Screen IRZ Injection Wells	Wika
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	PI-*564A PI-*564B PI-*564C PI-*564E	New	8	64	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Oil-Filled, 2 1/2" Dial Size	Dual Screen Cluster IRZ Injection Wells	Wika

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	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	PI-*565A PI-*565B PI-*565C PI-*565E	New	8	64	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Glycerin Liquid Filled, 2 1/2" Dial Size	Dual Screen IRZ Injection Wells	Wika
	I-05-02	IRL01- IRL02- IRL03- IRL04-	PI-*661A PI-*661B PI-*661C PI-*661D	New	2	8	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Glycerin Liquid Filled, 2 1/2" Dial Size	IRL Injection Wells	Wika
	I-05-01	RB01- RB02- RB03- RB04- RB05-	PI-*660A PI-*660D	New	2	10	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Glycerin Liquid Filled, 2 1/2" Dial Size	River Bank Extraction Wells	Wika
	I-06-01	IRZ00-	PI-*760A PI-*760B PI-*760C	New	3	3	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Glycerin Liquid Filled, 2 1/2" Dial Size	IRZ Carbon Amendment Building	Wika
	I-06-04	IRZ00-	PI-*760F PI-*760G PI-*760H	New	3	3	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Glycerin Liquid Filled, 2 1/2" Dial Size	IRZ Carbon Amendment Building	Wika

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	I-08-01	TCS00-	PI-*960A	New	4	4	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Other: Liquid Filled, 3 1/2" Dial Size	TW Bench Carbon Amendment Building	Wika
	I-08-02	TCS00-	PI-*960B PI-*960C PI-*960D	New	4	4	Pressure Gauge Type: Bourdon Tube Pressure Guage Model: 3051S Connections: 1/4" MNPT, Lower Mount Output Signal: 4-20 mA Power: 24 V Loop Range: 0-100 PSI Wetted Material: Stainless Steel Other: Liquid Filled, 3 1/2" Dial Size	TW Bench Carbon Amendment Building	Wika
	I-06-01	IRZ00-	M-*705 M-*706 M-*707	New	3	3	4" Static Mixer Model: Custom Connections: 4" 150lb flange Wetted materials: Stainless Steel Length: 46" Options: Removable helical design mixing elements Other: Pressure Loss 7.4 PSI @ 480 GPM	IRZ Carbon Amendment Building	Koflo
	I-08-01	TCS00-	M-*907	New	1	1	3" Static Mixer Model: Custom Connections: 3" 150lb flange Wetted materials: Stainless Steel Length: Options: Removable helical design mixing elements Other: Model: Custom	TW Bench Carbon Amendment Building	Koflo
	I-06-02	IRZ00-	FM-*771 FM-*775 FM-*776	New	3	3	Carbon Substrate Flow MagMeter Type: Magnetic Flow Meter Model: Sensor - R050S, Transmitter- 1700 Connections: 1/2" NPT Flow Rating: Output Signal: 1 mA Power: 18-100 VDC and 85-265 VAC; self switching Range: 0-12 ft Wetted Material: Stainless Steel Other: 1/2" NPT	IRZ Carbon Amendment Building	Micro Motion, Inc.

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	I-08-01	TCS00-	FM-*970	New	1	1	Groundwater/Fresh Water/Well Maintenance Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other: Meter Mounted Display	TW Bench Carbon Amendment Building	Rosemount
	I-08-01	TCS00-	FM-*973	New	1	1	Carbon Substrate Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - R050S, Transmitter - 1700 Connections: 1/2"NPT Flow Rating: Output Signal: 1 mA Power: 18-100 VDC and 85-265 VAC; self switching Wetted Material: Stainless Steel Other: Meter Mounted Display	TW Bench Carbon Amendment Building	Micro Motion, Inc.
	I-08-02	TCS00-	FM-*971 FM-*972	New	3	3	Groundwater/Fresh Water/Well Maintenance Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other: Meter Mounted Display	TW Bench Carbon Amendment Building	Rosemount
	I-03-02	TWB01- TWB02-	FM-*471A	New	1	2	Extraction Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other: Meter Mounted Display	Transwestern Bench Extraction Wells	Rosemount
	I-03-01	ER01- ER02- ER03- ER04- ER06-	FM-*470A	New	1	5	Extraction Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other: Meter Mounted Display	East Ravine Extraction Wells	Rosemount

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	I-04-02	IRZ01- IRZ05- IRZ09-	FM-*571A FM-*571B	New	2	6	Extraction Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	Dual Screen IRZ Extraction Well	Rosemount
	I-04-01	IRZ23-	FM-*570A	New	1	1	Extraction Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	Single Screen IRZ Extraction Wells	Rosemount
	I-05-01	RB01- RB02- RB03- RB04- RB05-	FM-*670A	New	1	5	Extraction Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 2", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	River Bank Extraction Wells	Rosemount
	I-06-01	IRZ00-	FM-*772 FM-*773 FM-*774	New	3	3	Groundwater Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 2", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	IRZ Carbon Amendment Building	Rosemount
	I-03-03	TCS01- TCS02-	FM-*472A FM-*472B	New	1	2	Injection Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 2", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	TCS Injection Wells	Rosemount

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	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	FM-*573A FM-*573B	New Dual Screen	2	10	Injection Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	Dual Screen IRZ Injection Wells	Rosemount
	I-04-03	IRZ35- IRZ37- IRZ39-	FM-*572A	New Single Screen	1	3	Injection Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	Single Screen IRZ Injection Wells	Rosemount
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	FM-*574A FM-*574B	New	4	32	Injection Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	Dual Screen Cluster IRZ Injection Wells	Rosemount
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	FM-*575A FM-*575B	New	4	32	Injection Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	Dual Screen IRZ Injection Wells	Rosemount
	I-05-02	IRL01- IRL02- IRL03- IRL04-	FM-*671A FM-*671B FM-*671C FM-*671D	New	4	16	Injection Well Flow MagMeter Type: Magnetic Flow Meter with HART/Analog output Model: Sensor - 8705, Transmitter- 8732 Connections: 1", 150# ANSI Flanges Flow Rating: 1-100 GPM Output Signal: 4-20 mA and Digital DC Power: 24 VDC Wetted Material: Stainless Steel Other Meter Mounted Display	IRL Injection Wells	Rosemount

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	I-06-03	IRZ00-	FM-*777 FM-*778	New	4	4	Well Maintenance/Fresh Water/CIP Flow MagMeter Type: 1" Magnetic Flow Meter with HART/Analog output Model: 8705 with 8732E Transmitter Display: Meter Mounted Connections: 150# ANSI Flanges Flow: 1-100 GPM Power Supply: 24VDC Output Signal: 4-20 mA and Digital DC	IRZ Carbon Amendment Building	Rosemount
	I-06-03	IRZ00-	FM-*779 FM-*780A FM-*780B FM-*780C	New	4	4	Well Maintenance/Fresh Water/CIP Flow MagMeter Type: 1" Magnetic Flow Meter with HART/Analog output Model: 8705 (316L SS) with 8732E Transmitter Display: Meter Mounted Connections: 150# ANSI Flanges Flow: 1-100 GPM Power Supply: 24VDC Output Signal: 4-20 mA and Digital DC	IRZ Carbon Amendment Building	Rosemount
	I-06-04	IRZ00-	FS-*781	New	1	1	Flow Switch for Eyewash Station Type: Thermal dispersion Model: FS-600 Wetted materials: 303/316 Stainless steel	IRZ Carbon Amendment Building	Gems
	I-08-02	TWB00-	FS-*974	New	1	1	Flow Switch for Eyewash Station Type: Thermal dispersion Model: FS-600 Wetted materials: 303/316 Stainless steel	TW Bench Carbon Amendment Building	Gems
	I-03-03	TCS01- TCS02-	WP-*404	New	1	2	Inflatable Well Packer Type: 12" Inflatable Well Packer Model: N/A, Custom Order Connections: (1) 1-1/4", (2)1", (1) 1/8" pipe passthroughs, welded tab for anchor Pressure Range: 0-100 psi Wetted Materials: Stainless Steel	TCS Injection Wells	Lansas
	I-04-02	IRZ01- IRZ05- IRZ09-	WP-*525	New	1	3	Inflatable Well Packer Type: 12" Inflatable Well Packer Model: N/A, Custom Order Connections: (1) 1-1/4", (2)1", (1) 1/8" pipe passthroughs, welded tab for anchor Pressure Range: 0-100 psi Wetted Materials: Stainless Steel	Dual Screen IRZ Extraction Well	Lansas
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	WP-*523	New Dual Screen	1	5	Inflatable Well Packer Type: 12" Inflatable Well Packer Model: N/A, Custom Order Connections: (1) 1-1/4", (2)1", (1) 1/8" pipe passthroughs, welded tab for anchor Pressure Range: 0-100 psi Wetted Materials: Stainless Steel	Dual Screen IRZ Injection Wells	Lansas

TABLE D1-1
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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21	WP-*532	New	1	8	Inflatable Well Packer Type: 12" Inflatable Well Packer Model: N/A, Custom Order Connections: (4) ports minimum: (1) 1-1/4", (2)1", (1) 1/4" Inflation port Pressure Range: 0-100 psi Wetted Materials: Stainless Steel, EPDM	Dual Screen Cluster IRZ Injection Wells	Lansas
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21	WP-*533	New	1	8	Inflatable Well Packer Type: 12" Inflatable Well Packer Model: N/A, Custom Order Connections: (4) ports minimum: (1) 1-1/4", (2)1", (1) 1/4" Inflation port Pressure Range: 0-100 psi Wetted Materials: Stainless Steel, EPDM	Dual Screen Cluster IRZ Injection Wells	Lansas
	I-05-01	RB01- RB02- RB03- RB04- RB05-	WP-*612	New	1	5	Inflatable Well Packer Type: 8" Inflatable Well Packer Model: N/A, Custom Order Connections: (1) 1-1/4", (2)1", (1) 1/8" pipe passthroughs, welded tab for anchor Pressure Range: 0-100 psi Wetted Materials: Stainless Steel	River Bank Extraction Wells	Lansas
	I-03-01	IRZ00-	ZS-*480A	New	1	1	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	East Ravine Extraction Wells	Honeywell
	I-03-02	IRZ00-	ZS-*481A	New	1	1	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	Transwestern Bench Extraction Wells	Honeywell
	I-03-03	TCS00-	ZS-*482A ZS-*482B	New	2	2	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	TCS Injection Loop	Honeywell
	I-04-01	IRZ00-	ZS-*580A ZS-*580B	New	1	1	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	Single Screen IRZ Extraction Wells	Honeywell

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-04-02	IRZ00-	ZS-*581A ZS-*581B	New	2	2	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	Dual Screen IRZ Extraction Wells	Honeywell
	I-04-03	IRZ00-	ZS-*582A	New	1	1	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	Single Screen IRZ Injection Wells	Honeywell
	I-04-04	IRZ00-	ZS-*583A ZS-*583B	New	2	2	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	Dual Screen IRZ Injection Wells	Honeywell
	I-04-05	IRZ00-	ZS-*584A ZS-*584B	New	2	2	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	Dual Screen Cluster IRZ Injection Wells	Honeywell
	I-04-06	IRZ00-	ZS-*584C	New	1	1	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	Dual Screen Cluster IRZ Injection Wells	Honeywell
	I-05-01	RB00-	ZS-*680A ZS-*680B	New	2	2	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	River Bank Extraction Wells	Honeywell
	I-05-02	IRL00-	ZS-*681A ZS-*681B	New	2	2	Vault Intrusion Switch Type: High Security Switch Model: 968XTP Contact Rating: 25mA @ 24VDC Tamper Rating: 1A @ 24VDC Other: 2400 VDC Surge Protection, 3' Stainless Steel Armored Cable	IRL Injection Wells	Honeywell

TABLE D1-1
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	I-03-02	TWB01- TWB02-	LT-*461B	New	1	2	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	Transwestern Bench Extraction Wells	Endress & Hauser
	I-03-03	TCS01- TCS02-	LT-*462E LT-*462F	New	2	4	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	TCS Injection Wells	Endress & Hauser
	I-03-01	ER01- ER02- ER03- ER04- ER06-	LT-*460B	New	1	5	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	East Ravine Extraction Wells	Endress & Hauser
	I-04-02	IRZ01- IRZ05- IRZ09-	LT-*561B LT-*561C	New	2	6	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	Dual Screen IRZ Extraction Wells	Endress & Hauser
	I-04-01	IRZ23-	LT-*560B	New	1	1	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	Single Screen IRZ Extraction Wells	Endress & Hauser
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	LT-*563H LT-*563I	New Dual Screen	2	10	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	Dual Screen IRZ Injection Wells	Endress & Hauser

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-04-03	IRZ35- IRZ37- IRZ39-	LT-*562E	New Single Screen	1	3	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	Single Screen IRZ Injection Wells	Endress & Hauser
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	LT-*564H LT-*564I	New	4	32	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	Dual Screen Cluster IRZ Injection Wells	Endress & Hauser
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	LT-*565H LT-*565I	New	4	32	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	Dual Screen Cluster IRZ Injection Wells	Endress & Hauser
	I-05-02	IRL01- IRL02- IRL03- IRL04-	LT-*661E LT-*661F	New	1	4	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	IRL Injection Wells	Endress & Hauser
	I-05-01	RB01- RB02- RB03- RB04- RB05-	LT-*660B	New	1	5	Submersible Pressure Transducer Type: Pressure Transducer for Hydrostatic Level Measurement Model: Waterpilot FMX21 Output Signal: 4-20 mA Power: 24 V Loop Range: TBD Cable Length: TBD Wetted Materials: Stainless Steel, Ceramic Measuring Cell	River Bank Extraction Wells	Endress & Hauser
	I-06-03	IRZ00-	E-*722	New	1	1	Eductor Type: Liqui-Jet Eductor Model: NCTLLT5 Connection: 1" NPT Motive Inlet, 1-1/2" NPT Suction and Discharge Wetted Materials: Stainless Steel Other: 5 GPM Flow Rate	IRZ Carbon Amendment Building	Elmridge

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-08-02	TCS00-	E-*908	New	2	2	Eductor Type: Liqui-Jet Eductor Model: NCTLLT5 Connection: 1" NPT Motive Inlet, 1-1/2" NPT Suction and Discharge Wetted Materials: Stainless Steel Other: 1 GPM Flow Rate	TW Bench Carbon Amendment Building	Elmridge
	I-06-03	IRZ00-	F-*720	New	1	1	Bag Filter Housing Type: CPVC Height: 34.1" Model: Housing - 29990-00, Bags - T-29990-62 Connection: 2" Wetted Materials: CPVC Other: 100 micron filter size	IRZ Carbon Amendment Building	Hayward
	I-06-02			New	1	1	Eyewash Station Type: Tempered Wate Safety Shower Model: 8780 Connection: Other:	IRZ Carbon Amendment Building	Haws Corporation

TABLE D1-2
In-Situ Remediation Systems - Manual Valves
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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-03-01	ER00-	V-*460A V-*460B	New	2	2	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	East Ravine Extraction Wells	
	I-03-02	TWB00-	V-*461A V-*461B	New	2	2	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Transwestern Bench Extraction Wells	
	I-03-03	TCS00-	V-*462A V-*462B V-*462C V-*462D V-*462E V-*462F V-*462G V-*462H	New	2	2	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TCS Injection Wells	
	I-04-01	IRZ00-	V-*501E V-*501F	New	2	2	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Single Screen IRZ Extraction Wells	
	I-04-02	IRZ00-	V-*502K V-*502L V-*502M V-*502N V-*502P V-*502Q	New	6	6	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen IRZ Extraction Wells	
	I-04-03	IRZ00-	V-*505D V-*505E V-*505F V-*505G	New	4	4	1/4" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Single Screen IRZ Injection Wells	
	I-04-04	IRZ00-	V-*507I V-*507J V-*507K V-*507L V-*507O V-*507N	New	6	6	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen IRZ Injection Wells	

TABLE D1-2
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	I-04-05	IRZ00-	V-*513H V-*513J V-*513L V-*513M V-*519E V-*519F	New	4	4	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	
	I-04-06	IRZ00-	V-*518H V-*518G V-*518K V-*518J V-*520E V-*520F	New	6	6	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seals Other:	Dual Screen Cluster IRZ Injection Wells	
	I-05-01	IRZ00-	V-*622A V-*622B	New	6	6	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	River Bank Extraction Wells	
	I-05-02	IRZ00-	V-*621A V-*621B V-*621C V-*621D V-*621E V-*621F V-*621G	New	7	7	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	IRL Injection Wells	
	I-06-01	IRZ00-	V-*708E V-*708F V-*708G V-*708H V-*708I V-*708J V-*708K V-*708L V-*708N V-*708O	New	7	7	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	IRL Injection Wells	
	I-06-03	IRZ00-	V-*770G V-*770H	New	7	7	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-04	IRZ00-	V-*770A V-*770B V-*770C V-*770D V-*770E V-*770F	New	8	8	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	

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	I-08-01	IRZ00-	V-*915A V-*915B V-*915C V-*915D V-*915E V-*915F V-*915G	New	9	9	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TW Bench Carbon Amendment Building	
	I-08-02	IRZ00-	V-*925I V-*925J	New	9	9	1/4" Ball Valve Type: Full-port ball valve Model: Connection: 1/4" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TW Bench Carbon Amendment Building	
	I-03-03	TCS00-	V-*403E V-*404H	New	2	2	1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TCS Injection Loop	
	I-04-03	IRZ00-	V-*503E	New	1	1	1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Single Screen IRZ Injection Wells	
	I-04-04	IRZ00-	V-*507M V-*507Q V-*507P V-*513N V-*513O	New	2	2	1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen IRZ Injection Wells	
	I-04-05	IRZ00-	V-*513I V-*513K	New	2	2	1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	
	I-04-06	IRZ00-	V-*518I V-*518L V-*518M V-*518N	New	3	3	1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	

TABLE D1-2
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	I-05-01	IRZ00-	V-*622C V-*622D	New	3	3	1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	River Bank Extraction Wells	
	I-06-02	IRZ00-	V-*704G V-*704H V-*704I	New	3	3	1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	River Bank Extraction Wells	
	I-06-02	IRZ00-	V-*701C	New	1	1	1" Float Valve Type: Model: Connection: 1" NPT Wetted Materials: Stainless Steel Body and Rod Other: *Included with test frame per features	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*720E	New	1	1	1" Float Valve Type: Model: Connection: 1" NPT Wetted Materials: Stainless Steel Body and Rod Other: *Included with test frame per features	IRZ Carbon Amendment Building	
	I-08-01	TWB00-	V-*910E	Existing	1	1	1" Float Valve Type: Model: Connection: 1" NPT Wetted Materials: Stainless Steel Body and Rod Other: *Included with test frame per features	TW Bench Carbon Amendment Building	
	I-08-02	TWB00-	V-*917E	New	1	1	1" Float Valve Type: Model: Connection: 1" NPT Wetted Materials: Stainless Steel Body and Rod Other:	TW Bench Carbon Amendment Building	
	I-06-04	IRZ00-	V-*725C	New	1	1	1" Gate Valve Type: Gate Valve Model: Connection: 1" NPT Wetted Materials: SCH 80 PVC Body and Stem, Teflon Seal Other:	IRZ Carbon Amendment Building	

TABLE D1-2
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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-03-01	ER01- ER02- ER03- ER04- ER06-	V-*401D	New	1	5	1" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	East Ravine Extraction Wells	
	I-06-02	IRZ00-	V-*703A V-*703C V-*703F V-*703G V-*703I V-*703L V-*703M V-*703P V-*703S V-*703V V-*703X	New	12	12	1" Ball Valve Type: Full-port ball valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*720D V-*725E	New	2	2	1" Ball Valve Type: Full-port ball valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-08-01	TCS00-	V-*910G V-*911A V-*911D V-*912A V-*912D	New	7	7	1" Ball Valve Type: Full-port ball valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	TW Bench Carbon Amendment Building	
	I-08-02	TCS00-	V-*917C V-*917N	New	7	7	1" Ball Valve Type: Full-port ball valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	TW Bench Carbon Amendment Building	
	I-03-01	ER01- ER02- ER03- ER04- ER06-	V-*401C	New	2	10	1" Check Valve Type: Y-Pattern Check Valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seal and Seat Other: Stainless Steel Spring	East Ravine Extraction Wells	

TABLE D1-2
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	I-06-02	IRZ00-	V-*703B V-*703E V-*703H V-*703K V-*703N V-*703R V-*703U V-*703W	New	9	9	1" Check Valve Type: Y-Pattern Check Valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seal and Seat Other: Stainless Steel Spring	IRZ Carbon Amendment Building	
	I-06-04	IRZ00-	V-*720C V-*725D	New	2	2	1" Check Valve Type: Y-Pattern Check Valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seal and Seat Other: Stainless Steel Spring	IRZ Carbon Amendment Building	
	I-08-01	TCS00-	V-*911C V-*912C	New	7	7	1" Check Valve Type: Y-Pattern Check Valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seal and Seat Other: Stainless Steel Spring	TW Bench Carbon Amendment Building	
	I-08-02	TCS00-	V-*917D V-*927	New	7	7	1" Check Valve Type: Y-Pattern Check Valve Model: Connection: 1" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seal and Seat Other: Stainless Steel Spring	TW Bench Carbon Amendment Building	
	I-03-01	ER01- ER02- ER03- ER04- ER06-	V-*401B	New	1	4	1" Globe Valve Type: Union Bonnet Glove Valve Model: Connection: 1" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	East Ravine Extraction Wells	
	I-03-03	TCS01- TCS02-	V-*403C V-*404I	New	2	4	1/2" Air Relief Valve Type: Air Relief Valve Model: Connection: 1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other:	TCS Injection Wells	
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	V-*507C V-*507F	New Dual Screen	2	10	1/2" Air Relief Valve Type: Air Relief Valve Model: Connection: 1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other:	Dual Screen IRZ Injection Wells	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-04-03	IRZ35- IRZ37- IRZ39-	V-*503C	New Single Screen	1	3	1/2" Air Relief Valve Type: Air Relief Valve Model: Connection: 1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other:	Single Screen IRZ Injection Wells	
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	V-*513C V-*513F	New	2	16	1/2" Air Relief Valve Type: Air Relief Valve Model: Connection: 1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	V-*518B V-*518E	New	2	16	1/2" Air Relief Valve Type: Air Relief Valve Model: Connection: 1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	
	I-06-02	IRZ00-	V-*703D V-*703J V-*703Q	New	3	1	1/2" Air Relief Valve Type: Air Relief Valve Model: Connection: 1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*729C	New	1	1	1/2" Air Relief Valve Type: Air Relief Valve Model: Connection: 1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-08-01	TCS00-	V-*911G V-*912G	New	5	5	1-1/2" Pressure Relief Valve Type: Pressure Relief Valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Bonnet and Body, Viton Seat and Seal Other: Min./Max. Set Pressure 2/500 psig	TW Bench Carbon Amendment Building	
	I-08-02	TCS00-	V-*918C	New	5	5	1-1/2" Pressure Relief Valve Type: Pressure Relief Valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Bonnet and Body, Viton Seat and Seal Other: Min./Max. Set Pressure 2/500 psig	TW Bench Carbon Amendment Building	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-03-03	TCS01- TCS02-	V-*403B V-*404G	New	1	2	1-1/2" Diaphragm Valve Type: Weir-Type Diaphragm Valve Model: Connection: 1-1/2" NPT Wetted Materials: Bronze Body, Cast Iron Bonnet, Viton Diaphragm Other:	TCS Injection Wells	
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	V-*507B V-*507E	New Dual Screen	2	10	1-1/2" Diaphragm Valve Type: Weir-Type Diaphragm Valve Model: Connection: 1-1/2" NPT Wetted Materials: Bronze Body, Cast Iron Bonnet, Viton Diaphragm Other:	Dual Screen IRZ Injection Wells	
	I-04-03	IRZ35- IRZ37- IRZ39-	V-*503B	New Single Screen	1	3	1-1/2" Diaphragm Valve Type: Weir-Type Diaphragm Valve Model: Connection: 1-1/2" NPT Wetted Materials: Bronze Body, Cast Iron Bonnet, Viton Diaphragm Other:	Single Screen IRZ Injection Wells	
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20-	V-*513B V-*513E	New	4	32	1-1/2" Diaphragm Valve Type: Weir-Type Diaphragm Valve Model: Connection: 1-1/2" NPT Wetted Materials: Bronze Body, Cast Iron Bonnet, Viton Diaphragm Other:	Dual Screen IRZ Injection Wells	
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20-	V-*518A V-*578D	New	4	32	1-1/2" Diaphragm Valve Type: Weir-Type Diaphragm Valve Model: Connection: 1-1/2" NPT Wetted Materials: Bronze Body, Cast Iron Bonnet, Viton Diaphragm Other:	Dual Screen Cluster IRZ Injection Wells	
	I-06-02	IRZ00-	V-*702B	New	1	1	1-1/2" Ball Valve Type: Full-port ball valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-02	IRZ00-	V-*702A	New	1	1	1-1/2" Foot Valve Type: Foot Valve Model: Connection: 1-1/2" NPT Wetted Materials: Bronze Body, Stainless Steel Screen Other:	IRZ Carbon Amendment Building	

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	I-03-03	TCS01- TCS02-	V-*403F V-*404J	New	2	4	1-1/2" Low Pressure Check Valve Type: Check Valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	TCS Injection Wells	
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	V-*507H V-*507G	New Dual Screen	2	10	1-1/2" Low Pressure Check Valve Type: Check Valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	Dual Screen IRZ Injection Wells	
	I-04-03	IRZ35- IRZ37- IRZ39-	V-*503D	New Single Screen	1	3	1-1/2" Low Pressure Check Valve Type: Check Valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	Single Screen IRZ Injection Wells	
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	V-*513D V-*513G	New	2	16	1-1/2" Low Pressure Check Valve Type: Check Valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	Dual Screen Cluster IRZ Injection Wells	
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	V-*518C V-*518F	New	2	16	1-1/2" Low Pressure Check Valve Type: Check Valve Model: Connection: 1-1/2" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	Dual Screen Cluster IRZ Injection Wells	
	I-05-02	IRL01- IRL02- IRL03- IRL04-	V-*612 V-*615	New	2	8	1-1/2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 1-1/2" NPT Wetted Materials: SCH 80 Body, Viton Seal Other: PVC Coil	IRL Injection Wells	
	I-08-02	TCS00-	V-*918A	New	1	1	1-1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1-1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TW Bench Carbon Amendment Building	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-05-02	IRLXXX-	V-*603A V-*603B V-*604A V-*604B V-*610 V-*611 V-*613 V-*614	New	8	8	1-1/2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 1-1/2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:		
	I-05-02	IRL00-	V-*619 V-*620	New	2	2	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	IRL Injection Wells	
	I-03-01	ER00-	V-*401A	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seals Other:	East Ravine Extraction Wells	
	I-03-02	TWB00-	V-*402A	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Transwestern Bench Extraction Wells	
	I-04-01	IRZ00-	V-*501A	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Single Screen IRZ Injection Wells	
	I-04-02	IRZ00-	V-*502A V-*502R	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen IRZ Extraction Wells	
	I-05-01	IRZ00-	V-*601A	New	2	2	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	River Bank Extraction Wells	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-05-02	IRL00-	V-*623	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	IRL Injection Wells	
	I-06-04	IRZ00-	V-*728A V-*728C V-*728E V-*728I V-*728K	New	8	8	2" Gate Valve Type: Gate Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body and Stem, Teflon Seal Other:	IRZ Carbon Amendment Building	
	I-03-03	TCS01- TCS02-	V-*405C	New Dual Screen	1	2	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TCS Injection Wells	
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	V-*510B	New Dual Screen	1	5	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen IRZ Injection Wells	
	I-04-03	IRZ35- IRZ37- IRZ39-	V-*505C	New Single Screen	1	3	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Single Screen IRZ Injection Wells	
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20-	V-*519D	New	2	16	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20-	V-*520D	New	2	16	2" Ball Valve Wetted materials: SCH 80 PVC Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-08-02	TCS00-	V-*917A	New	1	1	2" Gate Valve Type: Gate Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body and Stem, Teflon Seal Other:	TW Bench Carbon Amendment Building	
	I-06-04	IRZ00-	V-*726N	New	2	2	2" Pressure Relief Valve Type: Pressure Relief Valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Bonnet and Body, Viton Seat and Seal Other: Min./Max. Set Pressure: 2/500 psig	NTH IRZ Well Maintenance Bldg	
	I-08-01	TCS00-	V-*910C	New	1	1	Emergency Relief Valve Type: Pressure Relief Valve Model: Connection: NPT Wetted Materials: Other: Provided by tank manufacturer	TW Bench Carbon Amendment Building	
	I-08-01	TCS00-	V-*910D	New	1	1	Pressure Vacuum Vent Type: Pressure Vent Model: Connection: Wetted Materials:Aluminum Body, Viton Gaskets Other: Provided by tank manufacturer	TW Bench Carbon Amendment Building	
	I-03-02	TWB01- TWB02-	V-*402D	New	1	2	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Transwestern Bench Extraction Wells	
	I-03-03	TCS01- TCS02-	V-*403A V-*405B	New	3	6	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TCS Injection Wells	
	I-04-02	IRZ01- IRZ05- IRZ09-	V-*502D V-*502H	New	2	6	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen IRZ Extraction Well	
	I-04-01	IRZ23-	V-*501D	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Single Screen IRZ Extraction Wells	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-04-04	IRZ23-	V-*507A V-*510C	New	2	2	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	Dual Screen IRZ Injection Wells	
	I-05-01	RB01- RB02- RB03- RB04- RB05-	V-*601D	New	1	5	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	River Bank Extraction Wells	
	I-06-02	IRZ00-	V-*703T	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*704B V-*704D V-*704F	New	3	3	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-04	IRZ00-	V-*727B V-*727G V-*727H	New	14	14	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	IRZ Carbon Amendment Building	
	I-06-04	IRZ00-	V-*726D V-*726F V-*726H V-*727D	New	14	14	4" Butterfly Valve Type: True union, Full-port ball valve Model: Connection: 4" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	IRZ Carbon Amendment Building	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-06-04	IRZ00-	V-*720A V-*720F V-*720G V-*720H V-*720L V-*720J V-*720K V-*726D V-*726F V-*726H V-*727B V-*727D V-*727G	New	14	14	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	IRZ Carbon Amendment Building	
	I-08-01	TCS00-	V-*910A V-*911F V-*912F V-*912B V-*914A V-*914B V-*914C V-*916A V-*926B	New	23	23	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seal Other:	TW Bench Carbon Amendment Building	
	I-08-02	TCS00-	V-*917F V-*917G V-*917H V-*917I V-*917K V-*917L V-*925C V-*925D V-*925G	New	23	23	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TW Bench Carbon Amendment Building	
	I-06-03	IRZ00-	V-*720M V-*720N	New	24	24	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-03-02	TWB01- TWB02-	V-*402C	New	2	4	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 Body, Viton Seal Other: PVC Coil	Transwestern Bench Extraction Wells	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-03-03	TCS01- TCS02-	V-*405A	New	3	6	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	TCS Injection Wells	
	I-04-02	IRZ01- IRZ05- IRZ09-	V-*502C V-*502G	New	4	12	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	Dual Screen IRZ Extraction Well	
	I-04-01	IRZ23-	V-*501C	New	2	2	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	Single Screen IRZ Extraction Wells	
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	V-*510A	New Dual Screen	1	5	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	Dual Screen IRZ Injection Wells	
	I-04-03	IRZ35- IRZ37- IRZ39-	V-*505A	New Single Screen	1	3	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	Single Screen IRZ Injection Wells	
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20-	V-*519B	New	1	8	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	Dual Screen Cluster IRZ Injection Wells	
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20-	V-*520A	New	1	8	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	Dual Screen Cluster IRZ Injection Wells	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-05-01	RB01- RB02- RB03- RB04- RB05-	V-*601C	New	2	10	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	River Bank Extraction Wells	
	I-06-02	IRZ00-	V-*704A V-*704C V-*704E	New	3	3	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seal and Seat Other: Stainless Steel Spring	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*720B V-*720I	New	15	15	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	IRZ Carbon Amendment Building	
	I-06-04	IRZ00-	V-*726E V-*726G V-*726M V-*727A V-*727C V-*727F V-*728B V-*728D V-*728F V-*728J V-*728L V-*728N	New	15	15	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	IRZ Carbon Amendment Building	
	I-08-01	TCS00-	V-*910B	New	7	7	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Teflon Seal and Seat Other: Stainless Steel Spring	TW Bench Carbon Amendment Building	
	I-08-01	TCS00-	V-*914D V-*914E V-*914F	New	7	7	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	TW Bench Carbon Amendment Building	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-08-01	TCS00-	V-*916B	New	1	1	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	TW Bench Carbon Amendment Building	
	I-08-02	TCS00-	V-*917M V-*925F	New	2	2	2" Check Valve Type: Y-Pattern Check Valve Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Coil	TW Bench Carbon Amendment Building	
	I-03-02	TWB01- TWB02-	V-*402B	New	1	2	2" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	Transwestern Bench Extraction Wells	
	I-04-02	IRZ01- IRZ05- IRZ09-	V-*502B V-*502F	New	2	6	2" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	Dual Screen IRZ Extraction Well	
	I-04-01	IRZ23-	V-*501B	New	1	1	2" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	Single Screen IRZ Extraction Wells	
	I-04-03	IRZ35- IRZ37- IRZ39-	V-*503A V-*505B	New Single Screen	2	6	2" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	Single Screen IRZ Injection Wells	
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20-	V-*513A V-*519C	New	3	24	2" Globe Valve Type: Union Bonnet Check Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	Dual Screen Cluster IRZ Injection Wells	

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Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	V-*520C	New	3	24	2" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	Dual Screen Cluster IRZ Injection Wells	
	I-05-02	IRL01- IRL02- IRL03- IRL04-	V-*602A V-*602B	New	2	8	2" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	IRL Injection Wells	
	I-05-01	RB01- RB02- RB03- RB04- RB05-	V-*601B	New	1	5	2" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 2" NPT Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	River Bank Extraction Wells	
	I-06-03	IRZ00-	V-*725B	New	1	1	3" Check Valve Type: Swing Check Valve Model: Connection: 3" Flange Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Swing Arm	IRZ Carbon Amendment Building	
	I-08-01	TCS00-	V-*913A	New	1	1	3" Ball Valve Type: True union, Full-port ball valve Model: Connection: 3" Flange Wetted Materials: SCH 80 PVC Ball and Body, Viton Seal Other:	TW Bench Carbon Amendment Building	
	I-06-03	IRZ00-	V-*725A	New	1	1	3" Gate Valve Type: Gate Valve Model: Connection: 3" Flange Wetted Materials: SCH 80 PVC Body and Stem, Teflon Seal Other:	NTH IRZ Well Maintenance Bldg	
	I-05-02	IRL01- IRL02- IRL03- IRL04-	V-*616	New	1	4	3" Globe Valve Type: Union Bonnet Globe Valve Model: Connection: 3" Flange Wetted Materials: PVC Bonnet and Body, Teflon Seal Other:	IRL Injection Wells	

TABLE D1-2
In-Situ Remediation Systems - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-06-03	IRZ00-	V-*726I V-*727E	New	4	4	4" Butterfly Valve Type: Butterfly Valve with Position Lever Model: Connection: 4" Flange Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	IRZ Carbon Amendment Building	
	I-04-04	IRZ00-	V-*512	New	1	1	4" Gate Valve Type: Union Bonnet Gate Valve Model: Connection: 4" Flange Wetted Materials: Stainless Steel Bonnet and Body, Viton Seal Other:	Clean-In-Place Vaults	
	I-06-02	IRZ00-	V-*701F	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	IRZ Carbon Amendment Building	
	I-08-01	IRZ00-	V-*910G	New	1	1	2" Ball Valve Type: True union, Full-port ball valve Model: Connection: 2" NPT Wetted Materials: Stainless Steel Ball and Body, Viton Seals Other:	IRZ Carbon Amendment Building	
	I-06-01	IRZ00-	V-*708B	New	1	1	4" Butterfly Valve Type: Butterfly Valve with Position Lever Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body and Disc, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*726A V-*726B V-*726C V-*726O	New	3	3	4" Butterfly Valve Type: Butterfly Valve with Position Lever Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body and Disc, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-04	IRZ00-	V-*726J	New	3	3	4" Butterfly Valve Type: Butterfly Valve with Position Lever Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body and Disc, Viton Seal Other:	IRZ Carbon Amendment Building	

TABLE D1-2
In-Situ Remediation Systems - Manual Valves
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PG&E Topock Compressor Station, Needles, California

Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-06-01	IRZ00-	V-*708A V-*708D V-*709A V-*709B V-*709C V-*709D V-*709H V-*709K V-*710A V-*710C V-*710E V-*719A	New	13	13	4" Butterfly Valve Type: Butterfly Valve with Position Lever Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body and Disc, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-02	IRZ00-	V-*701A	New	13	13	4" Butterfly Valve Type: Butterfly Valve with Position Lever Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body and Disc, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-01	IRZ00-	V-*710F V-*710G	New	4	4	4" Ball Valve Type: True union, Full-port ball valve Model: Connection: 4" Flange Wetted Materials: Stainless Steel Ball and Body, Viton Seal Other:	IRZ Carbon Amendment Building	
	I-06-01 I-06-02	IRZ00-	V-*708C V-*709G V-*709J V-*710B V-*710D	New	6	6	4" Check Valve Type: Swing Check Valve Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body, Teflon Seal and Seat Other: Stainless Steel Swing Arm	IRZ Carbon Amendment Building	
	I-06-02	IRZ00-	V-*701B	New	6	6	4" Check Valve Type: Swing Check Valve Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body, Teflon Seal and Seat Other: Stainless Steel Swing Arm	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*726K	New	1	1	4" Check Valve Type: Swing Check Valve Model: Connection: 4" Flange Wetted Materials: Stainless Steel Body, Teflon Seal and Seat Other: Stainless Steel Swing Arm	IRZ Carbon Amendment Building	
	I-06-03	IRZ00-	V-*728G V-*728S	New	2	2	6" Gate Valve Type: Union Bonnet Gate Valve Model: Connection: 6" Flange Wetted Materials: Stainless Steel Bonnet and Body, Viton Seal Other:	NTH IRZ Well Maintenance Bldg	

TABLE D1-2
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PG&E Topock Compressor Station, Needles, California

Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-06-04	IRZ00-	V-*728H V-*728T	New	2	2	6" Check Valve Type: Swing Check Valve Model: Connection: 6" Flange Wetted Materials: Stainless Steel Body, Teflon Seal and Seat Other: Stainless Steel Swing Arm	IRZ Carbon Amendment Building	
	I-04-02	IRZ00-	V-*502J	New	2	2	6" Gate Valve Type: Union Bonnet Gate Valve Model: Connection: 6" Flange Wetted Materials: Stainless Steel Bonnet and Body, Viton Seal Other:	Dual Screen IRZ Extraction Wells	
	I-04-03	IRZ00-	V-*503H V-*503I	New	3	3	6" Gate Valve Type: Union Bonnet Gate Valve Model: Connection: 6" Flange Wetted Materials: Stainless Steel Bonnet and Body, Viton Seal Other:	Single Screen IRZ Injection Wells	
	I-04-06	IRZ00-	V-*524A V-*524B	New	2	2	6" Gate Valve Type: Union Bonnet Gate Valve Model: Connection: 6" Flange Wetted Materials: Stainless Steel Bonnet and Body, Viton Seal Other:	Dual Screen Cluster IRZ Injection Wells	
	I-05-02	IRL01- IRL02- IRL03- IRL04-	V-*617	New	1	1	6" Gate Valve Type: Union Bonnet Gate Valve Model: Connection: 6" Flange Wetted Materials: Stainless Steel Bonnet and Body, Viton Seal Other:	Valve Vault	
	I-08-02	IRZ00-	V-*725B	New	1	1	3" Check Valve Type: Swing Check Valve Model: Connection: 3" Flange Wetted Materials: SCH 80 PVC Body, Viton Seal Other: PVC Swing Arm	IRZ Carbon Amendment Building	
	I-03-03	TCS01- TCS02-	V-*406	New	1	2	3/4" Check Valve Type: Y-Pattern Check Valve Model: Connection: 3/4" NPT Wetted Materials: Stainless Steel and Body, Teflon Seal and Seat Other: Stainless Steel Spring	TCS Injection Wells	
	I-04-02	IRZ01- IRZ05- IRZ09-	V-*502I	New	1	3	3/4" Low Pressure Check Valve Type: Check Valve Model: Connection: 3/4" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TRD	Dual Screen IRZ Extraction Well	

TABLE D1-2
In-Situ Remediation Systems - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-04-04	IRZ25- IRZ27- IRZ29- IRZ31- IRZ33-	V-*511A	New Dual Screen	1	5	3/4" Low Pressure Check Valve Type: Check Valve Model: Connection: 3/4" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	Dual Screen IRZ Injection Wells	
	I-04-05	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	V-*521C	New	1	8	3/4" Low Pressure Check Valve Type: Check Valve Model: Connection: 3/4" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	Dual Screen Cluster IRZ Injection Wells	
	I-04-06	IRZ11- IRZ13- IRZ15- IRZ16- IRZ17- IRZ19- IRZ20- IRZ21-	V-*522C	New	1	8	3/4" Low Pressure Check Valve Type: Check Valve Model: Connection: 3/4" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	Dual Screen Cluster IRZ Injection Wells	
	I-05-01	RB01- RB02- RB03- RB04- RB05-	V-*601E	New	1	5	3/4" Low Pressure Check Valve Type: Check Valve Model: Connection: 3/4" NPT Wetted Materials: Stainless Steel Body, Viton Seal Other: Stainless Steel Spring, Pressure TBD	River Bank Extraction Wells	
	I-08-01	TCS00-	V-*910F	New	1	1	1-1/2" Foot Valve Type: Foot Valve Model: Connection: 1-1/2" NPT Wetted Materials: Bronze Body, Stainless Steel Screen Other:	TW Bench Carbon Amendment Building	
	I-05-02	IRLXX-	*V-618	New	1	2	1-1/2" Pressure Reducing Regulator (Self contained) Type: Pressure Regulator Model: Connection: 1-1/2" NPT Wetted Materials: SCH 80 PVC Body, Viton Seal Other: Pressure TBD	IRL Injection Wells	
	I-06-02	IRZ00-	V-*701D	New	1	1	Pressure Vacuum Vent Type: Pressure Vent Model: Connection: Wetted Materials:Aluminum Body, Viton Gaskets Other: Provided by tank manufacturer	IRZ Carbon Amendment Building	

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PG&E Topock Compressor Station, Needles, California

Item	Sheet No.	Location ID (*)	Unique ID	Existing/ New	Number per Vault	Total Number	Description	System Location	Manufacturer
	I-06-02	IRZ00-	V-*701E	New	1	1	Emergency Relief Valve Type: Pressure Relief Valve Model: Connection: NPT Wetted Materials: Other: Provided by tank manufacturer	IRZ Carbon Amendment Building	
	I-03-03	TCS00-	F-*403	New	1	1	2" Y Strainer Type: Wye Strainer Model: Connection: Wetted Materials: SCH 80 PVC Body Other:	TCS Injection Loop	
	I-04-03	IRZ00-	F-*503	New	1	1	2" Y Strainer Type: Wye Strainer Model: Connection: Wetted Materials: SCH 80 PVC Body Other:	Single Screen IRZ Injection Wells	
	I-04-04	IRZ00-	F-*508A F-*508B	New	2	2	2" Y Strainer Type: Wye Strainer Model: Connection: Wetted Materials: SCH 80 PVC Body Other:	Dual Screen IRZ Injection Wells	
	I-05-02	IRL00-	F-*619	New	1	2	2" Y Strainer Type: Wye Strainer Model: Connection: Wetted Materials: SCH 80 PVC Body Other:	Dual Screen IRZ Injection Wells	
	I-06-03	IRZ00-	F-*722	New	1	1	2" Y Strainer Type: Wye Strainer Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body Other:	IRZ Carbon Amendment Building	
	I-08-02	TWB00-	F-*909	New	1	1	2" Y Strainer Type: Wye Strainer Model: Connection: 2" NPT Wetted Materials: SCH 80 PVC Body Other:	TW Bench Carbon Amendment Building	

TABLE D1-3
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Equipment
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV	Location ID	Equipment Number	P&ID NUMBER (D-AC-VV) D: Discipline AC: Area Code VV: Drawing #	QTY	Name	Description	Model or Part Number	Vendor	Power (hP, unless noted otherwise)	Status New Existing	Materials Of Construction
0	HNWR1A	HNWR-1A	I-02-01	1	HNWR-1A Freshwater Supply Well	14" dia, 203 feet deep	--	--	--	Existing ¹	
0	HNWR1A	PMP-010	I-02-01	1	HNWR-1A Well Pump	Submersible, 900 gpm, 300' TDH, 154' pump motor depth	800S1000-4AA, 8" motor, 6" discharge	Grundfos	100	New	Stainless Steel
0	HNWR1A	AVRV-011	I-02-01	1	Air and Vacuum Release Valve	1" inlet, 1" outlet, 9" height, 7" max diameter	Model 142	APCO	--	New	
0	HNWR1A	STR-010	I-02-01	1	Sand Separator	Centrifugal sand separator with motorized purge valve. Separator has mechanical pipe joints.	IHB-0450, -0500	Lakos	--	New	CS with coating
0	Site B	SITE-B	I-02-01	1	Site B Freshwater Supply Well	14" dia, 315 feet deep	--	--	--	Existing ^{2,3}	
0	Site B	PMP-010	I-02-01	1	Site B Well Pump	Submersible, 900 gpm, 360' TDH, 405' pump motor depth	800S1250-4, 8" motor, 6" discharge	Grundfos	100	New ³	Stainless Steel
0	Site B	STR-010	I-02-01	1	Sand Separator	Centrifugal sand separator with motorized purge valve. Separator has mechanical pipe joints.	IHB-0450, -0500	Lakos	--	New ³	CS with coating
0	FWST	TNK-103	I-02-02	1	Remedy Freshwater Storage Tank 3	10,000 gallons, vertical flat bottom tank, 12' diameter, 16' tall	--	--	--	New	Steel
1	FW01	INJ-001	I-02-03	1	Freshwater Injection Well #1	14" dia. 353 feet deep	--	--	--	New	
1	FW01	PMP-001	I-02-03	1	Backwash well pump #1	Submersible, 400 gpm, 276' TDH	385S400-5, 6" motor, 4" discharge	Grundfos	40	New	Stainless Steel
1	FW02	INJ-001	I-02-03	1	Freshwater Injection Well #2	14" dia. 139 feet deep	--	--	--	New	
1	FW02	PMP-001	I-02-03	1	Backwash well pump #2	Submersible, 200 gpm, 204' TDH	230S150-5B, 6" motor, 3" discharge	Grundfos	15	New	Stainless Steel
0	FW02	INJ-004	I-02-03	1	Secondary Containment Pump Station Vault		--	--	--	New	Precast concrete
0	FW02	PMP-101	I-02-03	1	Secondary Containment Pump #1	Submersible Sump Pump, 250 gpm, 115' TDH	4NS12R4AC, 11" impeller, 4" discharge	Goulds	40	New	Cast iron
0	FW02	PMP-102	I-02-03	1	Secondary Containment Pump #2	Submersible Sump Pump, 250 gpm, 115' TDH	4NS12R4AC, 11" impeller, 4" discharge	Goulds	40	New	Cast iron
0	IRL04	PMP-650	C-05-07	1	Secondary Containment Pump #1	Submersible Sump Pump, 250 gpm, 115' TDH	4NS12R4AC, 11" impeller, 4" discharge	Goulds	40	New	Cast iron
0	IRL04	PMP-651	C-05-07	1	Secondary Containment Pump #2	Submersible Sump Pump, 250 gpm, 115' TDH	4NS12R4AC, 11" impeller, 4" discharge	Goulds	40	New	Cast iron
1	RTP01	TNK-201	I-11-01	1	Influent Tank #1	500 bbl Frac tank equipped with wheels	TBD	TBD	--	New	CS
1	RTP01	PMP-201	I-11-01	1	Influent Tank Recirculation Pump #1	492 gpm @ 101' TDH; self-priming	1530, 1800 RPM, 4"x6"x13"	Fybroc	30	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	EDT-211	I-11-01	1	Eductor #1	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC
1	RTP01	EDT-212	I-11-01	1	Eductor #2	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC

TABLE D1-3
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Equipment
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV	Location ID	Equipment Number	P&ID NUMBER (D-AC-VV) D: Discipline AC: Area Code VV: Drawing #	QTY	Name	Description	Model or Part Number	Vendor	Power (hP, unless noted otherwise)	Status New Existing	Materials Of Construction
1	RTP01	TNK-202	I-11-02	1	Influent Tank #2	500 bbl Frac tank equipped with wheels	TBD	TBD	--	New	CS
1	RTP01	PMP-202	I-11-02	1	Influent Tank Recirculation Pump #2	492 gpm @ 101' TDH; self-priming	1530, 1800 RPM, 4"x6"x13"	Fybroc	30	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	EDT-221	I-11-02	1	Eductor #1	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC
1	RTP01	EDT-222	I-11-02	1	Eductor #2	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC
1	RTP01	TNK-203	I-11-03	1	Influent Tank #3	500 bbl Frac tank equipped with wheels	TBD	TBD	--	New	CS
1	RTP01	PMP-203	I-11-03	1	Influent Tank Recirculation Pump #3	492 gpm @ 101' TDH; self-priming	1530, 1800 RPM, 4"x6"x13"	Fybroc	30	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	EDT-231	I-11-03	1	Eductor #1	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC
1	RTP01	EDT-232	I-11-03	1	Eductor #2	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC
1	RTP01	TNK-204	I-11-04	1	Influent Tank #4	500 bbl Frac tank equipped with wheels	TBD	TBD	--	New	CS
1	RTP01	PMP-204	I-11-04	1	Influent Tank Recirculation Pump #4	492 gpm @ 101' TDH; self-priming	1530, 1800 RPM, 4"x6"x13"	Fybroc	30	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	EDT-241	I-11-04	1	Eductor #1	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC
1	RTP01	EDT-242	I-11-04	1	Eductor #2	3" Tank Liquid Agitator PVC Eductor to complexly (3 turnovers) mix influent tank for 30 minutes. Min. dP of 20 psi.	3" Jacoby Tarbox Tank Liquid Agitator (JT TLA)	Clark-Reliance	--	New	PVC
1	RTP01	PMP-205	I-11-04	1	Influent Tank Farm Sump Pump	Sump Pump; 35 gpm at 25' TDH	WS0712B, 1750 RPM, 5.38" impeller, 2" discharge	Goulds	0.75	New	Cast iron
0	RTP01	LSH-258	I-11-04	1	Influent Tank Farm Sump High Level Switch	Float switch; Package with sump pump PMP-205	Part No. 1006043, Description No. 15SGMPCNO	SJE Rhombus	--	New	Polypropylene float housing, CPE cable
1	RTP01	PMP-310	I-12-01	1	Filter Feed Pump 1 – A Side	Centrifugal pump, 35 gpm, 47' TDH	1530, 1800 RPM, 1"x1.5"x8"	Fybroc	1.5	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	PMP-320	I-12-01	1	Filter Feed Pump 2 – A Side	Centrifugal pump, 35 gpm, 47' TDH (standby)	1530, 1800 RPM, 1"x1.5"x8"	Fybroc	1.5	New	Fiberglass construction, SS shaft, SS hardware

TABLE D1-3
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Equipment
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PG&E Topock Compressor Station, Needles, California

REV	Location ID	Equipment Number	P&ID NUMBER (D-AC-VV) D: Discipline AC: Area Code VV: Drawing #	QTY	Name	Description	Model or Part Number	Vendor	Power (hP, unless noted otherwise)	Status New Existing	Materials Of Construction
1	RTP01	FIL-311	I-12-01	1	Cartridge Filter Coarse 1A – A Side	Quad filter package with hurricane type housing rated for 35 gpm minimum capacity. Includes air actuated valves for filter isolation.	HUR 170 HP (Filter); HC/170-20 (Cartridge, 20 Nominal Micron)	Harmsco/ Geiger	--	New	Stainless steel filter housing; Polyester cartridge filter
1	RTP01	FIL-312	I-12-01	1	Cartridge Filter Fine 1B – A Side		HUR 170 HP (Filter); HC/170-5 (Cartridge, 5 Nominal Micron)		--	New	Stainless steel filter housing; Polyester cartridge filter
1	RTP01	FIL-321	I-12-01	1	Cartridge Filter Coarse 2A – A Side		HUR 170 HP (Filter); HC/170-20 (Cartridge, 20 Nominal Micron)	Harmsco/ Geiger	--	New	Stainless steel filter housing; Polyester cartridge filter
1	RTP01	FIL-322	I-12-01	1	Cartridge Filter Fine 2B – A Side		HUR 170 HP (Filter); HC/170-5 (Cartridge, 5 Nominal Micron)		--	New	Stainless steel filter housing; Polyester cartridge filter
1	RTP01	PMP-330	I-12-02	1	Filter Feed Pump 1 – B Side	Centrifugal pump, 35 gpm, 72' TDH	1530, 1800 RPM, 1"x2"x10"	Fybroc	3	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	PMP-340	I-12-02	1	Filter Feed Pump 2 – B Side	Centrifugal pump, 35 gpm, 72' TDH (standby)	1530, 1800 RPM, 1"x2"x10"	Fybroc	3	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	FIL-331	I-12-02	1	Cartridge Filter Coarse 1A – B Side	Quad filter package with hurricane type housing rated for 35 gpm minimum capacity. Includes air actuated valves for filter isolation.	HUR 170 HP (Filter); HC/170-20 (Cartridge, 20 Nominal Micron)	Harmsco/ Geiger	--	New	Stainless steel filter housing; Polyester cartridge filter
1	RTP01	FIL-332	I-12-02	1	Cartridge Filter Fine 1B – B Side		HUR 170 HP (Filter); HC/170-5 (Cartridge, 5 Nominal Micron)		--	New	
1	RTP01	FIL-341	I-12-02	1	Cartridge Filter Coarse 2A – B Side		HUR 170 HP (Filter); HC/170-20 (Cartridge, 20 Nominal Micron)	Harmsco/ Geiger	--	New	Stainless steel filter housing; Polyester cartridge filter
1	RTP01	FIL-342	I-12-02	1	Cartridge Filter Fine 2B – B Side		HUR 170 HP (Filter); HC/170-5 (Cartridge, 5 Nominal Micron)		--	New	
1	RTP01	TNK-910	I-12-03	1	Caustic Storage Tank	500 gallon HDPE tank with integral double containment (53" Dia x 79" H)	Captor Double Wall Containment, Part number 1000800N	Snyder	--	New	HDPE
1	RTP01	PMP-911	I-12-03	1	Caustic Feed Pump 1	Chemical metering pump for 25% caustic feed. 10 gph	Series C77, 0.5" suction, 0.5" discharge	Milton Roy/ LMI	87 watts	New	PVC head/fittings, flurofilm diaphragm, ceramic valve balls, FKM valve/seat/O-ring
1	RTP01	PMP-912	I-12-03	1	Caustic Feed Pump 2	Chemical metering pump for 25% caustic feed. 10 gph	Series C77, 0.5" suction, 0.5" discharge	Milton Roy/ LMI	87 watts	New	PVC head/fittings, flurofilm diaphragm, ceramic valve balls, FKM valve/seat/O-ring
0	RTP01	--	I-12-03	1	Caustic Dual Feed Pump Skid	Skid package with containment. Includes calibration column (CCOL-0910), pressure indicator (PI-961, PI-962), Y Strainer (1/2"), dampeners, piping, fittings, and manual valves	DP-PVC/V-.5-LMI	USA Bluebook	--	New	HDPE skid, SCH 80 PVC valves and Y Strainer, CPVC/EPDM pulsation dampeners
0	RTP01	CCOL-0910	I-12-03	1	Calibration Column	Included in package with caustic feed pumps (PMP-911/912)	Selected by Milton Roy/LMI	Selected by Milton Roy/LMI	--	New	

TABLE D1-3

Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Equipment

Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design

PG&E Topock Compressor Station, Needles, California

REV	Location ID	Equipment Number	P&ID NUMBER (D-AC-VV) D: Discipline AC: Area Code VV: Drawing #	QTY	Name	Description	Model or Part Number	Vendor	Power (hP, unless noted otherwise)	Status New Existing	Materials Of Construction
1	RTP01	TNK-920	I-12-03	1	Coagulant Storage Tank	30 gallon HDPE tank (18-1/2" Dia x 38-5/8" H)	11150-0030	Saint-Gobain	--	New	HDPE
1	RTP01	PMP-921	I-12-03	1	Coagulant Feed Pump 1	Metering Pump; 1.2 gph	Series C77, 0.5" suction, 0.5" discharge	Milton Roy/ LMI	87 watts	New ³	PVC head/fittings, flurofilm diaphragm, ceramic valve balls, FKM valve/seat/O-ring
1	RTP01	PMP-922	I-12-03	1	Coagulant Feed Pump 2	Metering Pump; 1.2 gph	Series C77, 0.5" suction, 0.5" discharge	Milton Roy/ LMI	87 watts	New ³	PVC head/fittings, flurofilm diaphragm, ceramic valve balls, FKM valve/seat/O-ring
0	RTP01	--	I-12-03	1	Coagulant Dual Feed Pump Skid	Skid package with containment. Includes calibration column (CCOL-0920), pressure indicator (PI-963), Y Strainer (1/2"), dampeners, piping, fittings, and manual valves	DP-PVC/V-.5-LMI	USA Bluebook	--	New ³	
0	RTP01	CCOL-0920	I-12-03	1	Calibration Column	Included in package with coagulant feed pumps (PMP-921/922)	Selected by Milton Roy/LMI	Selected by Milton Roy/LMI	--	New ³	
1	RTP01	TNK-930	I-12-04	1	Acid Storage Tank	500 gallon HDPE tank with integral double containment (53" Dia x 79" H)	Captor Double Wall Containment, Part number 1000800N	Snyder	--	New	HDPE
1	RTP01	PMP-931	I-12-04	1	Acid Feed Pump 1	Chemical metering pump for acid feed. 10 gph	Series C77, 0.5" suction, 0.5" discharge	Milton Roy/ LMI	87 watts	New	PVC head/fittings, flurofilm diaphragm, ceramic valve balls, FKM valve/seat/O-ring
1	RTP01	PMP-932	I-12-04	1	Acid Feed Pump 2	Chemical metering pump for acid feed. 10 gph	Series C77, 0.5" suction, 0.5" discharge	Milton Roy/ LMI	87 watts	New	PVC head/fittings, flurofilm diaphragm, ceramic valve balls, FKM valve/seat/O-ring
0	RTP01	--	I-12-04	1	Acid Dual Feed Pump Skid	Skid package with containment. Includes calibration column (CCOL-0930), pressure indicators (PI-964, PI-965), Y Strainer (1/2"), dampeners, piping, fittings, and manual valves	DP-PVC/V-.5-LMI	USA Bluebook	--	New	HDPE skid, SCH 80 PVC valves and Y Strainer, CPVC/Viton pulsation dampeners
0	RTP01	CCOL-0930	I-12-04	1	Calibration Column	Included in package with acid feed pumps (PMP-931/932)	Selected by Milton Roy/LMI	Selected by Milton Roy/LMI	--	New	
1	RTP01	PMP-907	I-12-04	1	Remedy Produced Water Conditioning Plant Sump Pump	Sump Pump; 35 gpm at 17' TDH	WS0511B, 1750 RPM, 5" impeller, 2" discharge	Goulds	0.5	New	Cast iron
1	RTP01	PMP-601	I-12-05	1	Solids Pump	Air Operated Diaphragm - 20 gpm @ 20' TDH	PD10P-APS-PVV, 1" suction, 1" discharge	ARO	--	New	Polypropylene center section, fluid cap/manifold, and seat; Stainless steel hardware; Viton ball and diaphragm
1	RTP01	LPS-611	I-12-05	1	Liquid Phase Separator 1	Gravity separator with filter fabric mounted on support inside 20 cy dumpster	--	Rental	--	New	CS
1	RTP01	LPS-612	I-12-05	1	Liquid Phase Separator 2	Gravity separator with filter fabric mounted on support inside 20 cy dumpster	--	Rental	--	New	CS

TABLE D1-3
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Equipment
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV	Location ID	Equipment Number	P&ID NUMBER (D-AC-VV) D: Discipline AC: Area Code VV: Drawing #	QTY	Name	Description	Model or Part Number	Vendor	Power (hP, unless noted otherwise)	Status New Existing	Materials Of Construction
1	RTP01	PMP-607	I-12-05	1	Liquid Phase Separator Sump Pump	Sump Pump; 35 gpm at 15' TDH	WS0311B, 1750 RPM, 4.7" impeller, 2" discharge	Goulds	0.33	New	Cast iron
0	RTP01	TNK-111	I-12-05	1	Seal Water Tank	Seal water system package with 2 gal tank, centrifugal pump and controller; 16 to 20 gpm, boost by 30 psi	1AB22HM1E2D0 Aquaboost II System- V6P tank, 2HM1E2D0 Pump 1-1/4X1	Goulds	--	New	Stainless steel housing, impeller, shaft, and diffuser; Carbon/Silicon Carbide seal
0	RTP01	PMP-110	I-12-05	1	Seal Water Pump				1.5		
0	RTP01	STR-110	I-12-05	1	Y Strainer	1.5" Bronze, NPT ends, full size blow off.	Mueller 351M, Nibco T-222-B or equal	Nibco or Mueller	--	New	
1	RTP01	CMP-101	I-12-05	1	Air Compressor	Single-Stage Rotary Screw, air-cooled, oil-injected	GD Integra, Style INT-25, Model EFC 99J	Gardner Denver	25	New	
1						106 acfm at 100 psig					
1	RTP01	X-102	I-12-05	1	Air Dryer/Filters	Heatless desiccant dryer. 115 scfm inlet flow at 100 psig. Dew Point of +38° F.	Model DGH115	Gardner Denver	--	New	
1	RTP01	DRM-103	I-12-05	1	Receiver	200 gal horizontal tank with top plate	Part Number 302483	Manchester Tank	--	New	CS
1	RTP01	TNK-401	I-14-01	1	Conditioned Water Storage Tank #1	500 bbl Frac tank equipped with wheels	TBD	TBD	--	New	CS
1	RTP01	TNK-402	I-14-01	1	Conditioned Water Storage Tank #2	500 bbl Frac tank equipped with wheels	TBD	TBD	--	New	CS
1	RTP01	PMP-405	I-14-01	1	Conditioned Water Transfer Pump 1	Centrifugal pump, 35 gpm at 52.4' TDH	1530, 1800 RPM, 1"x1.5"x8"	Fybroc	1.5	New	Fiberglass construction, SS shaft, SS hardware
1	RTP01	PMP-406	I-14-01	1	Conditioned Water Transfer Pump 2	Centrifugal pump, 35 gpm at 52.4' TDH	1530, 1800 RPM, 1"x1.5"x8"	Fybroc	1.5	New	Fiberglass construction, SS shaft, SS hardware
0	RTP01	MXR-407	I-14-01	1	Static Mixer	PVC Sch 40 Clear 2" with 6 Elements	2-40C-4-6-2	Koflo	--	New	
1	RTP01	PMP-407	I-14-01	1	Conditioned Water Tank Farm Sump Pump	Sump Pump; 35 gpm at 53' TDH	WS5034D3, 1750 RPM, 8" impeller, 3" discharge	Goulds	5	New	Cast iron
1	RTP01	TNK-510	I-14-02	1	Conditioned Water Storage Tank	42,000 Gal Carbon Steel	--	--	--	New	CS
1	RTP01	PMP-501	I-14-02	1	TCS Truck Fill Pump	Located at Decontamination Pad/TCS Truck Fill Station. Centrifugal Pump, 150 gpm at 90' TDH; self-priming	2876-95, 3450 RPM, 3" suction, 3" discharge	AMT (Gorman-Rupp)	7.5	New	Cast iron
1	RTP01	PMP-507	I-14-02	1	Decon Pad Sump Pump	Sump Pump; 35 gpm at 19' TDH	WS0511B, 1750 RPM, 5" impeller, 2" discharge	Goulds	0.5	New	Cast iron
1	RTP01	TNK-700	N/A	1	Lab Drain Tank	250 gal double walled	IMT 250 GAL	Assmann	--	New	PE
1	RTP01	PMP-701	N/A	1	Lab Drain Transfer Pump	30 gpm @ 40 ' TDH	Model 6470.422	Ryan Herco	0.5	New	Glass filled Noryl
1	RTP02	AHU-702	N/A	1	Mini-split Air Conditioner	3 Ton Office/Lab unit	MSZ-D36NA	Mitsubishi	Incl w/ condenser	New	
1	RTP01	COND-703	N/A	1	Mini-split Condenser	3 Ton Office/Lab unit at grade	MUZ-D36NA	Mitsubishi	1 ph - 25A	New	
1	RTP02	AHU-710	N/A	1	Mini-split Air Conditioner	3 Ton MCC Room unit #1	MSZ-D36NA	Mitsubishi	Incl w/ condenser	New	
1	RTP01	COND-711	N/A	1	Mini-split Condenser	3 Ton MCC Room unit #1 at grade	MUZ-D36NA	Mitsubishi	1 ph - 25A	New	
1	RTP02	AHU-720	N/A	1	Mini-split Air Conditioner	3 Ton MCC Room unit #2	MSZ-D36NA	Mitsubishi	Incl w/ condenser	New	

TABLE D1-3
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Equipment
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV	Location ID	Equipment Number	P&ID NUMBER (D-AC-VV) D: Discipline AC: Area Code VV: Drawing #	QTY	Name	Description	Model or Part Number	Vendor	Power (hP, unless noted otherwise)	Status New Existing	Materials Of Construction
1	RTP01	COND-721	N/A	1	Mini-split Condenser	3 Ton MCC Room unit #2 at grade	MSZ-D36NA	Mitsubishi	1 ph - 25A	New	
1	RTP01	CH-1300	M-12-07	1	Potable Water Heat Pump Chiller	Potable water temperature cooler	MACH-060-1	Multiaqua	1 ph - 240v - 70A	New	
1	RTP02	P-1300	M-12-07	1	Potable Water Transfer Pump	30 gpm @ 80' TDH - 1800 RPM	Model 1535-355, 5" impeller	Bell & Gossett	3 ph - 2 hp	New	
1	RTP02	P-1301	M-12-07	1	Circulation Pump	Potable water tank circulator	PL-55	Bell & Gossett	1 ph - 2/5 hp	New	
1	RTP02	T-1300	M-12-07	1	Potable Water Storage Tank	1000 gallon, insulated PE	ICT 1000 Vertical	Assmann	--	New	PE
1	RTP02	T-1301	M-12-07	1	Potable Water Pressure Tank	81 gal capacity tank with tank fitting package	WM-23 (tank); TFP2-1.25-RV (fitting package)	Wellmate	--	New	
1	RTP02	T-1302	M-12-07	1	Glycol Water Expansion Tank	4.4 gallon tank volume	Model PT-12	Bell & Gossett	--	New	
1	RTP02	HX-1300	M-12-07	1	Potable Water/ Glycol Heat Exchanger	Maintains potable water temperature	BPX-415-60	Bell & Gossett	--	New	
1	RTP02	WH-1300	M-12-07	1	Sample Room Water Heater	Instantaneous water heater under sink	Model S-46L	Chronomite	4600 W, 208V, 1ph	New	
1	RTP02	EF-1300	N/A	1	Gable End Exhaust Fan	18,400 cfm whole building ventilation fan, provide with wall housing and gravity shutter	TBD	TBD	TBD	New	
1	RTP02	EF-1301	N/A	1	Office sample room exhaust fan	50 cfm for room ventilation	509	Broan	1.5 A	New	
0	TW Bench Ops Bldg	AH-1	N/A	1	Air Handler	6-ton Air Handler with 10kW electric resistance heating		Trane	1.5	New	
0	TW Bench Ops Bldg	CU-1, CU-2	N/A	2	Condensing units	7-1/2 ton Condensing units	TBD	TBD	TBD	New	
0	TW Bench Ops Bldg	ERV-1	N/A	1	Energy Recover Ventilation Unit	750 cfm energy recovery unit		GreenHeck MiniVent	0.5	New	
0	TW Bench Ops Bldg	IWH-1	N/A	7	Instant Water Heater	2-kw electric water heat			2	New	

Notes

1 HNWR-1A well installed in June 2014.

2 Site B well installed in October 2013.

3 Equipment is part of a contingent system that may be constructed in the future.

TBD To be determined

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
FRESHWATER SUPPLY, STORAGE, AND INJECTION EQUIPMENT VALVES															
0	V-010A	I-01-01	HNWR1A	PMP-010	6"-FW-LCLF-010101	40 50 00	SWING CHECK	6	FW	40 27 02	V608	A	900	180	
0	V-010B	I-01-01	HNWR1A	PMP-010	6"-FW-LCLF-010101	40 50 00	BUTTERFLY	6	FW	40 27 02	V500	A	900	180	
0	V-010E	I-01-01	HNWR1A	STR-010	STR-010	40 50 00	BALL	1 1/2	FW	40 27 02	V335	A	900	180	STR-010 manual purge valve
0	V-071A	I-01-01	HNWR1A	FM-071	6"-FW-LCLF-010101	40 50 00	BUTTERFLY	6	FW	40 27 02	V500	A	900	180	
0	V-072A	I-01-01	HNWR1A	FM-072	6"-FW-LCLF-010112	40 50 00	BUTTERFLY	6	FW	40 27 02	V500	A	900	180	
0	V-061A	I-01-01	HNWR1A	PIT-061	6"-FW'-LCLF-010101	40 50 00	BUTTERFLY	6	FW	40 27 02	V500	A	900	180	
0	SP-061B	I-01-01	HNWR1A	PIT-061	6"-FW-LCLF-010101	40 50 00	GATE	1/2*	FW	40 27 02	V101 or V925	A	900	180	Sample Port Valve
0	V-061D	I-01-01	HNWR1A	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	180	Pressure indicator valve*, NC
0	V-061C	I-01-01	HNWR1A	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	180	Pressure indicator valve*
0	V-020A	I-01-01	HNWR1A		12"-FW-HALE-010101	40 50 00	BUTTERFLY	12	FW	40 27 02	V500	A	900	180	
0	V-020B	I-01-01	HNWR1A		12"-FW-HALE-0203	40 50 00	BUTTERFLY	12	FW	40 27 02	V500	A	900	180	
0	V-020C	I-01-01	HNWR1A		12"-FW-HALE-0203	40 50 00	BUTTERFLY	12	FW	40 27 02	V500	A	900	180	
0	V-010C	I-01-01	SITEB	PMP-010	6"-FW-LCLF-010103	40 50 00	SWING CHECK	6	FW	40 27 02	V608	A	900	245	Note 3
0	V-010D	I-01-01	SITEB	PMP-010	6"-FW-LCLF-010103	40 50 00	BUTTERFLY	6	FW	40 27 02	V500	A	900	245	Note 3
0	V-010F	I-01-01	SITEB	STR-010	STR-010	40 50 00	BALL	1 1/2	FW	40 27 02	V335	A	900	245	Note 3; STR-010 manual purge valve
0	V-061A	I-01-01	SITEB	PIT-061	6"-FW-LCLF-010103	40 50 00	BUTTERFLY	6	FW	40 27 02	V500	A	900	245	Note 3
0	V-071A	I-01-01	SITEB	FM-071	6"-FW-LCLF-010103	40 50 00	BUTTERFLY	6	FW	40 27 02	V500	A	900	245	Note 3
0	SP-061B	I-01-01	SITEB	PIT-061	6"-FW-LCLF-010103	40 50 00	BALL	1/2*	FW	40 27 02	V335	A	900	245	Note 3; Sample Port Valve
0	V-061C	I-01-01	SITEB	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	245	Note 3; Pressure indicator valve*
0	V-061D	I-01-01	SITEB	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	245	Note 3; Pressure indicator valve*, NC
0	V-103A	I-02-01	FWST	TNK-103	12"-FW-HALE-020204	40 50 00	BUTTERFLY	12	FW	40 27 02	V513	A	900	75	
0	V-103B	I-02-01	FWST	TNK-103	12"-FW-HALE-020103	40 50 00	BUTTERFLY	12	FW	40 27 02	V513	A	900	75	
0	V-103C	I-02-01	FWST	TNK-103	10"-FW-PULK-020204	40 50 00	BUTTERFLY	10	FW	40 27 02	V513	A	900	25	
0	V-103D	I-02-01	FWST	TNK-103	14"-FW-PULK-020203	40 50 00		10	FW	40 27 02	V513	A	900	25	
0	V-103E	I-02-01	FWST	TNK-103	2"-FW-HALE-0206	40 50 00	BALL	2	FW	40 27 02	V335	A	900	25	
0	V-001A	I-02-02	FW01	PIT-061	4"-FW-PULK-020201	40 50 00	BUTTERFLY	4	FW	40 27 02	V521	A	900	25	
0	SP-01A	I-02-02	FW01	PIT-061	4"-FW-PULK-020201	40 50 00	BALL	3/4*	FW	40 27 02	V335	A	900	25	Sample Port Valve
0	V-001B	I-02-02	FW01	FM-071	2"-FW-PULK-020202	40 50 00	BUTTERFLY	4	FW	40 27 02	V521	A	900	25	
0	V-001C	I-02-02	FW01	PMP-001	2"-FW-PULK-020202	40 50 00	BUTTERFLY	4	FW	40 27 02	V521	A	900	25	
0	V-061A	I-02-02	FW01	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-061B	I-02-02	FW01	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-062B	I-02-02	FW01	PIT-062	PIT-062	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-062A	I-02-02	FW01	PIT-062	PIT-062	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-014A	I-02-02	FW01	ARV-014	4"-FW-PULK-020203	40 50 00	BALL	1	FW	40 27 02	V335	A	900	5	Upstream of ARV
0	V-001D	I-02-02	FW01	PMP-001	6"-RW-PULK-020204	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	400	135	
0	V-001E	I-02-02	FW01	FM-072	6"-RW-PULK-020204	40 50 00	SWING CHECK	3/4	RW	40 27 02	V612	A	400	135	Split Disk Type
0	SP-01B	I-02-02	FW01	FM-072	6"-RW-PULK-020204	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	400	135	Sample Port Valve
0	V-001F	I-02-02	FW01	FM-072	6"-RW-PULK-020204	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	400	135	
0	V-001A	I-02-02	FW02	PIT-061	4"-FW-PULK-020201	40 50 00	BUTTERFLY	4	FW	40 27 02	V521	A	900	25	
0	SP-01A	I-02-02	FW02	PIT-061	4"-FW-PULK-020201	40 50 00	BALL	3/4*	FW	40 27 02	V335	A	900	25	Sample Port Valve
0	V-001B	I-02-02	FW02	FM-071	2"-FW-PULK-020202	40 50 00	BUTTERFLY	4	FW	40 27 02	V521	A	900	25	
0	V-001C	I-02-02	FW02	PMP-001	4"-FW-PULK-020203	40 50 00	BUTTERFLY	4	FW	40 27 02	V521	A	900	25	
0	V-061A	I-02-02	FW02	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-061B	I-02-02	FW02	PIT-061	PIT-061	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-062B	I-02-02	FW02	PIT-062	PIT-062	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-062A	I-02-02	FW02	PIT-062	PIT-062	40 50 00	BALL	1/2	FW	40 27 02	V335	A	900	25	Pressure indicator valve*
0	V-014A	I-02-02	FW02	ARV-014	2"-FW-PULK-020210	40 50 00	BALL	1*	FW	40 27 02	V335	A	900	5	Upstream of ARV
0	V-001D	I-02-02	FW02	PMP-001	4"-RW-PULK-020215	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	200	75	
0	V-001E	I-02-02	FW02	FM-072	4"-RW-PULK-020215	40 50 00	SWING CHECK	3/4	RW	40 27 02	V612	A	200	75	Split Disk Type

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	SP-01B	I-02-02	FW02	FM-072	4"-RW-PULK-020215	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	200	75	Sample Port Valve
0	V-001F	I-02-02	FW02	FM-072	4"-RW-PULK-020215	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	200	75	
0	V-101A	I-02-02	FW02	PMP-101	4"-RW-PULK-020202	40 50 00	SWING CHECK	4	RW	40 27 02	V608	A	250	65	
0	V-101B	I-02-02	FW02	PMP-101	4"-RW-PULK-020202	40 50 00	BUTTERFLY	4	RW	40 27 02	V521	A	250	65	
0	V-102A	I-02-02	FW02	PMP-102	4"-RW-PULK-020203	40 50 00	SWING CHECK	4	RW	40 27 02	V608	A	250	65	
0	V-102B	I-02-02	FW02	PMP-102	4"-RW-PULK-020203	40 50 00	BUTTERFLY	4	RW	40 27 02	V521	A	250	65	
REMEDY-PRODUCED WATER CONDITIONING PLANT VALVES															
0	SP-071A	I-11-01	RTP01	TNK-201	6"-RW-PULK-110101	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	48	Sample Port Valve
0	V-201A	I-11-01	RTP01	TNK-201	6"-RW-PULK-110107	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	35	48	
0	V-201B	I-11-01	RTP01	TNK-201	6"-RW-PULK-110105	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	SP-201C	I-11-01	RTP01	TNK-201	6"-RW-PULK-110105	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-201D	I-11-01	RTP01	TNK-201	6"-RW-PULK-110106	40 50 00	SWING CHECK	6	RW	40 27 02	V1692	A	492	46	
0	V-201E	I-11-01	RTP01	TNK-201	6"-RW-PULK-110106	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-201F	I-11-01	RTP01	TNK-201	6"-RW-PULK-110106	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-201G	I-11-01	RTP01	TNK-201	2"-RW-PULK-110102	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-201H	I-11-01	RTP01	TNK-201	2"-RW-PULK-110102	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-201I	I-11-01	RTP01	TNK-201	2"-RW-PULK-110103	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-201J	I-11-01	RTP01	TNK-201	2"-RW-PULK-110103	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-201K	I-11-01	RTP01	TNK-201	2"-SL-PULK-110104	40 50 00	BALL	2	SL	40 27 02	V335	A	492	46	
0	SP-201L	I-11-01	RTP01	TNK-201	2"-SL-PULK-110104	40 50 00	BALL	3/4*	SL	40 27 02	V335	A	492	46	Sample Port Valve
0	V-201M	I-11-01	RTP01	TNK-201	4"-DR-PULK-110108	40 50 00	BUTTERFLY	4	DR	40 27 02	V521	A	492	46	Drainage Valve, NC
0	V-261A	I-11-01	RTP01	PI-261	PI-261	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*
0	V-261B	I-11-01	RTP01	PI-261	PI-261	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*, NC
0	V-213A	I-11-01	RTP01	TNK-201	1/2" IN 2"-CAU-110110-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-213B	I-11-01	RTP01	TNK-201	1/2" IN 2"-CAU-110110-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-213C	I-11-01	RTP01	TNK-201	1/2" IN 2"-CAU-110110-H	40 50 00	BALL CHECK	1/2	CAU	40 27 02	V631	A	0.17	80	
0	V-214A	I-11-01	RTP01	TNK-201	1/2" IN 2"-ACD-110109	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	
0	V-214B	I-11-01	RTP01	TNK-201	1/2" IN 2"-ACD-110109	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	
0	V-214C	I-11-01	RTP01	TNK-201	1/2" IN 2"-ACD-110109	40 50 00	BALL CHECK	1/2	ACD	40 27 02	V631	A	0.17	80	
0	V-215A	I-11-01	RTP01	TNK-201	1/2" IN 2"-COG-110111	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-215B	I-11-01	RTP01	TNK-201	1/2" IN 2"-COG-110111	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-215C	I-11-01	RTP01	TNK-201	1/2" IN 2"-COG-110111	40 50 00	BALL CHECK	1/2	COG	40 27 02	V631	A	0.17	80	
0	V-202A	I-11-02	RTP01	TNK-202	6"-RW-PULK-110207	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	35	48	
0	V-202B	I-11-02	RTP01	TNK-202	6"-RW-PULK-110205	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	SP-202C	I-11-02	RTP01	TNK-202	6"-RW-PULK-110205	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-202D	I-11-02	RTP01	TNK-202	6"-RW-PULK-110206	40 50 00	WAFER CHECK	6	RW	40 27 02	V1692	A	492	46	
0	V-202E	I-11-02	RTP01	TNK-202	6"-RW-PULK-110206	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-202F	I-11-02	RTP01	TNK-202	6"-RW-PULK-110206	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-202G	I-11-02	RTP01	TNK-202	2"-RW-PULK-110202	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-202H	I-11-02	RTP01	TNK-202	2"-RW-PULK-110202	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-202I	I-11-02	RTP01	TNK-202	2"-RW-PULK-110203	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-202J	I-11-02	RTP01	TNK-202	2"-RW-PULK-110203	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-202K	I-11-02	RTP01	TNK-202	2"-SL-PULK-110204	40 50 00	BALL	2	SL	40 27 02	V335	A	492	46	
0	SP-202L	I-11-02	RTP01	TNK-202	2"-SL-PULK-110204	40 50 00	BALL	3/4*	SL	40 27 02	V335	A	492	46	Sample Port Valve
0	V-202M	I-11-02	RTP01	TNK-202	4"-DR-PULK-110208	40 50 00	BUTTERFLY	4	DR	40 27 02	V521	A	492	46	Drainage Valve, NC
0	V-262A	I-11-02	RTP01	PI-262	PI-262	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*
0	V-262B	I-11-02	RTP01	PI-262	PI-262	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*, NC
0	V-223A	I-11-02	RTP01	TNK-202	1/2" IN 2"-CAU-110211-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-223B	I-11-02	RTP01	TNK-202	1/2" IN 2"-CAU-110211-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-223C	I-11-02	RTP01	TNK-202	1/2" IN 2"-CAU-110211-H	40 50 00	BALL CHECK	1/2	CAU	40 27 02	V631	A	0.17	80	
0	V-224A	I-11-02	RTP01	TNK-202	1/2" IN 2"-ACD-110209	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	V-224B	I-11-02	RTP01	TNK-202	1/2" IN 2"-ACD-110209	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	
0	V-224C	I-11-02	RTP01	TNK-202	1/2" IN 2"-ACD-110209	40 50 00	BALL CHECK	1/2	ACD	40 27 02	V631	A	0.17	80	
0	V-225A	I-11-02	RTP01	TNK-202	1/2" IN 2"-COG-110211	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-225B	I-11-02	RTP01	TNK-202	1/2" IN 2"-COG-110211	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-225C	I-11-02	RTP01	TNK-202	1/2" IN 2"-COG-110211	40 50 00	BALL CHECK	1/2	COG	40 27 02	V631	A	0.17	80	
0	V-203A	I-11-03	RTP01	TNK-203	6"-RW-PULK-110307	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	35	48	
0	V-203B	I-11-03	RTP01	TNK-203	6"-RW-PULK-110305	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	SP-203C	I-11-03	RTP01	TNK-203	6"-RW-PULK-110305	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-203D	I-11-03	RTP01	TNK-203	6"-RW-PULK-110306	40 50 00	WAFER CHECK	6	RW	40 27 02	V1692	A	492	46	
0	V-203E	I-11-03	RTP01	TNK-203	6"-RW-PULK-110306	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-203F	I-11-03	RTP01	TNK-203	6"-RW-PULK-110306	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-203G	I-11-03	RTP01	TNK-203	2"-RW-PULK-110302	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-203H	I-11-03	RTP01	TNK-203	2"-RW-PULK-110302	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-203I	I-11-03	RTP01	TNK-203	2"-RW-PULK-110303	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-203J	I-11-03	RTP01	TNK-203	2"-RW-PULK-110303	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-203K	I-11-03	RTP01	TNK-203	2"-SL-PULK-110304	40 50 00	BALL	2	SL	40 27 02	V335	A	492	46	
0	SP-203L	I-11-03	RTP01	TNK-203	2"-SL-PULK-110304	40 50 00	BALL	3/4*	SL	40 27 02	V335	A	492	46	Sample Port Valve
0	V-203M	I-11-03	RTP01	TNK-203	4"-DR-PULK-110308	40 50 00	BUTTERFLY	4	DR	40 27 02	V521	A	492	46	Drainage Valve, NC
0	V-263A	I-11-03	RTP01	PI-263	PI-263	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*
0	V-263B	I-11-03	RTP01	PI-263	PI-263	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*, NC
0	V-233A	I-11-03	RTP01	TNK-203	1/2" IN 2"-CAU-110310-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-233B	I-11-03	RTP01	TNK-203	1/2" IN 2"-CAU-110310-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-233C	I-11-03	RTP01	TNK-203	1/2" IN 2"-CAU-110310-H	40 50 00	BALL CHECK	1/2	CAU	40 27 02	V631	A	0.17	80	
0	V-234A	I-11-03	RTP01	TNK-203	1/2" IN 2"-ACD-110309	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	
0	V-234B	I-11-03	RTP01	TNK-203	1/2" IN 2"-ACD-110309	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	
0	V-234C	I-11-03	RTP01	TNK-203	1/2" IN 2"-ACD-110309	40 50 00	BALL CHECK	1/2	ACD	40 27 02	V631	A	0.17	80	
0	V-235A	I-11-03	RTP01	TNK-203	1/2" IN 2"-COG-110311	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-235B	I-11-03	RTP01	TNK-203	1/2" IN 2"-COG-110311	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-235C	I-11-03	RTP01	TNK-203	1/2" IN 2"-COG-110311	40 50 00	BALL CHECK	1/2	COG	40 27 02	V631	A	0.17	80	
0	V-204A	I-11-04	RTP01	TNK-204	6"-RW-PULK-110407	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	35	48	
0	V-204B	I-11-04	RTP01	TNK-204	6"-RW-PULK-110405	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	SP-204C	I-11-04	RTP01	TNK-204	6"-RW-PULK-110405	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-204D	I-11-04	RTP01	TNK-204	6"-RW-PULK-110406	40 50 00	WAFER CHECK	6	RW	40 27 02	V1692	A	492	46	
0	V-204E	I-11-04	RTP01	TNK-204	6"-RW-PULK-110406	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-204F	I-11-04	RTP01	TNK-204	6"-RW-PULK-110406	40 50 00	BUTTERFLY	6	RW	40 27 02	V521	A	492	46	
0	V-204G	I-11-04	RTP01	TNK-204	2"-RW-PULK-110402	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-204H	I-11-04	RTP01	TNK-204	2"-RW-PULK-110402	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-204I	I-11-04	RTP01	TNK-204	2"-RW-PULK-110408	40 50 00	BALL	2	RW	40 27 02	V335	A	492	46	
0	SP-204J	I-11-04	RTP01	TNK-204	2"-RW-PULK-110408	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	Sample Port Valve
0	V-204K	I-11-04	RTP01	TNK-204	2"-SL-PULK-110404	40 50 00	BALL	2	SL	40 27 02	V335	A	492	46	
0	SP-204L	I-11-04	RTP01	TNK-204	2"-SL-PULK-110404	40 50 00	BALL	3/4*	SL	40 27 02	V335	A	492	46	Sample Port Valve
0	V-204M	I-11-04	RTP01	TNK-204	4"-DR-PULK-110408	40 50 00	BUTTERFLY	4	DR	40 27 02	V521	A	492	46	Drainage Valve, NC
0	V-289A	I-11-04	RTP01	AE/AIT-289	AE/AIT-289	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	492	46	turbidity analyzer*
0	V-264A	I-11-04	RTP01	PI-264	PI-264	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*
0	V-264B	I-11-04	RTP01	PI-264	PI-264	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	492	46	Pressure indicator valve*, NC
0	V-243A	I-11-04	RTP01	TNK-204	1/2" IN 2"-CAU-110410-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-243B	I-11-04	RTP01	TNK-204	1/2" IN 2"-CAU-110410-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.17	80	
0	V-243C	I-11-04	RTP01	TNK-204	1/2" IN 2"-CAU-110410-H	40 50 00	BALL CHECK	1/2	CAU	40 27 02	V631	A	0.17	80	
0	V-244A	I-11-04	RTP01	TNK-204	1/2" IN 2"-ACD-110404	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	
0	V-244B	I-11-04	RTP01	TNK-204	1/2" IN 2"-ACD-110404	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.17	80	
0	V-244C	I-11-04	RTP01	TNK-204	1/2" IN 2"-ACD-110404	40 50 00	BALL CHECK	1/2	ACD	40 27 02	V631	A	0.17	80	

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	V-245A	I-11-04	RTP01	TNK-204	1/2" IN 2"-COG-110408	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-245B	I-11-04	RTP01	TNK-204	1/2" IN 2"-COG-110408	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.17	80	
0	V-245C	I-11-04	RTP01	TNK-204	1/2" IN 2"-COG-110408	40 50 00	BALL CHECK	1/2	COG	40 27 02	V631	A	0.17	80	
0	V-265A	I-11-04	RTP01	PI-265	PI-265	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	30	Pressure indicator valve*
0	V-265B	I-11-04	RTP01	PI-265	PI-265	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	30	Pressure indicator valve*, NC
0	V-205A	I-11-04	RTP01	PMP-205	2"-WS-PULK-110409	40 50 00	BALL	2	WS	40 27 02	V335	A	35	30	
0	V-205B	I-11-04	RTP01	PMP-205	2"-WS-PULK-110409	40 50 00	WAFER CHECK	2	WS	40 27 02	V1692	A	35	30	
0	V-205C	I-11-04	RTP01	PMP-205	2"-WS-PULK-110410	40 50 00	BALL	2	WS	40 27 02	V335	A	35	30	
0	V-310A	I-12-01	RTP01	PMP-310	2"-RW-PULK-110403	40 50 00	BALL	2	RW	40 27 02	V335	A	35	46	
0	V-310B	I-12-01	RTP01	PMP-310	2"-RW-PULK-120103	40 50 00	WAFER CHECK	2	RW	40 27 02	V1692	A	35	23	
0	V-310C	I-12-01	RTP01	PMP-310	2"-RW-PULK-120103	40 50 00	BALL	2	RW	40 27 02	V335	A	35	23	
0	SP-310D	I-12-01	RTP01	PMP-310	2"-RW-PULK-120103	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	23	Sample Port Valve
0	V-310E	I-12-01	RTP01	PMP-310	2"-RW-PULK-120111	40 50 00	BALL	2	RW	40 27 02	V335	A	35	23	NC
0	V-361A	I-12-01	RTP01	PI-361	PI-361	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	23	Pressure indicator valve*
0	V-361B	I-12-01	RTP01	PI-361	PI-361	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	23	Pressure indicator valve*, NC
0	V-320A	I-12-01	RTP01	PMP-320	2"-RW-PULK-120101	40 50 00	BALL	2	RW	40 27 02	V335	A	35	46	
0	V-320B	I-12-01	RTP01	PMP-320	2"-RW-PULK-120103	40 50 00	WAFER CHECK	2	RW	40 27 02	V1692	A	35	23	
0	V-320C	I-12-01	RTP01	PMP-320	2"-RW-PULK-120103	40 50 00	BALL	2	RW	40 27 02	V335	A	35	23	
0	SP-320D	I-12-01	RTP01	PMP-320	2"-RW-PULK-120103	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	23	Sample Port Valve
0	V-320E	I-12-01	RTP01	PMP-320	2"-RW-PULK-120103	40 50 00	BALL	2	RW	40 27 02	V335	A	35	23	NC
0	V-362A	I-12-01	RTP01	PI-362	PI-362	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	23	Pressure indicator valve*
0	V-362B	I-12-01	RTP01	PI-362	PI-362	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	23	Pressure indicator valve*, NC
0	SP-311C	I-12-01	RTP01	FIL-311	2"-RW-PULK-120104	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	23	Sample Port Valve
0	SP-321C	I-12-01	RTP01	FIL-321	2"-RW-PULK-120105	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	23	Sample Port Valve
0	V-361C	I-12-01	RTP01	DPIT-361	DPIT-361	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-361D	I-12-01	RTP01	DPIT-361	DPIT-361	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-362C	I-12-01	RTP01	DPIT-362	DPIT-362	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-362D	I-12-01	RTP01	DPIT-362	DPIT-362	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-363A	I-12-01	RTP01	DPIT-363	DPIT-363	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-363B	I-12-01	RTP01	DPIT-363	DPIT-363	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-364A	I-12-01	RTP01	DPIT-364	DPIT-364	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-364B	I-12-01	RTP01	DPIT-364	DPIT-364	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	DPIT valve*, part of filter package
0	V-311	I-12-01	RTP01	FIL-311/321	?"-RW-PULK-120109	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	23	Part of filter package
0	SP-371A	I-12-01	RTP01	FIL-312/322	2"-TW-PULK-120107	40 50 00	BALL	3/4*	TW	40 27 02	V335	A	35	23	Sample Port Valve
0	V-330A	I-12-02	RTP01	PMP-330	2"-RW-PULK-110414	40 50 00	BALL	2	RW	40 27 02	V335	A	35	46	
0	V-330B	I-12-02	RTP01	PMP-330	2"-RW-PULK-120202	40 50 00	WAFER CHECK	2	RW	40 27 02	V1692	A	35	43	
0	V-330C	I-12-02	RTP01	PMP-330	2"-RW-PULK-120202	40 50 00	BALL	2	RW	40 27 02	V335	A	35	43	
0	SP-330D	I-12-02	RTP01	PMP-330	2"-RW-PULK-120202	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	43	Sample Port Valve
0	V-363C	I-12-02	RTP01	PI-363	PI-363	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	43	Pressure indicator valve*
0	V-363D	I-12-02	RTP01	PI-363	PI-363	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	43	Pressure indicator valve*. NC
0	V-340A	I-12-02	RTP01	PMP-340	2"-RW-PULK-120201	40 50 00	BALL	2	RW	40 27 02	V335	A	35	46	
0	V-340B	I-12-02	RTP01	PMP-340	2"-RW-PULK-120203	40 50 00	WAFER CHECK	2	RW	40 27 02	V1692	A	35	43	
0	V-340C	I-12-02	RTP01	PMP-340	2"-RW-PULK-120203	40 50 00	BALL	2	RW	40 27 02	V335	A	35	43	
0	SP-340D	I-12-02	RTP01	PMP-340	2"-RW-PULK-120203	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	43	Sample Port Valve
0	V-364C	I-12-02	RTP01	PI-364	PI-364	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	43	Pressure indicator valve*
0	V-364D	I-12-02	RTP01	PI-364	PI-364	40 50 00	BALL	1/2*	RW	40 27 02	V335	A	35	43	Pressure indicator valve*, NC
0	SP-331C	I-12-02	RTP01	FIL-331	2"-RW-PULK-120204	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	43	Sample Port Valve
0	SP-341C	I-12-02	RTP01	FIL-341	2"-RW-PULK-120205	40 50 00	BALL	3/4*	RW	40 27 02	V335	A	35	43	Sample Port Valve
0	V-365A	I-12-02	RTP01	DPIT-365	DPIT-365	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package
0	V-365B	I-12-02	RTP01	DPIT-365	DPIT-365	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package
0	V-366A	I-12-02	RTP01	DPIT-366	DPIT-366	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	V-366B	I-12-02	RTP01	DPIT-366	DPIT-366	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package
0	V-367A	I-12-02	RTP01	DPIT-367	DPIT-367	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package
0	V-367B	I-12-02	RTP01	DPIT-367	DPIT-367	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package
0	V-368A	I-12-02	RTP01	DPIT-368	DPIT-368	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package
0	V-368B	I-12-02	RTP01	DPIT-368	DPIT-368	40 50 00	BALL	1/2	RW	Vendor supplied	Vendor supplied	A	35	43	DPIT valve*, part of filter package
0	V-331	I-12-02	RTP01	FIL-331/341	'-RW-PULK-120209	40 50 00	BALL	Supplier	RW	Vendor supplied	Vendor supplied	A	35	43	Part of filter package
0	SP-372A	I-12-02	RTP01	FIL-332/342	2"-TW-PULK-120207	40 50 00	BALL	3/4*	TW	40 27 02	V335	A	35	43	Sample Port Valve
0	V-910A	I-12-03	RTP01	TNK-910	TNK-910	40 50 00	BALL	2*	CAU	40 27 02	V335	A	75	150	NC
0	V-910B	I-12-03	RTP01	TNK-910	1/2" IN 2"-CAU-PULK-120301-H	40 50 00	BALL	1/2	CAU	40 27 02	V335	A	0.017	80	
0	V-910C	I-12-03	RTP01	PMP-911/912	CCOL-0910	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Calibration column valve*, part of caustic feed pump package
0	V-911A	I-12-03	RTP01	PMP-911	1/2" IN 2"-CAU-PULK-120307-H	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-911B	I-12-03	RTP01	PMP-911	1/2" IN 2"-CAU-PULK-120302-H	40 50 00	PRESSURE RELIEF	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-911C	I-12-03	RTP01	PMP-911	1/2" IN 2"-CAU-PULK-120308-H	40 50 00	PRESSURE CONTROL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-911D	I-12-03	RTP01	PMP-911	1/2" IN 2"-CAU-PULK-120302-H	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	NC; Part of caustic feed pump package; spec'd per vendor quote
0	V-911E	I-12-03	RTP01	PMP-911	1/2" IN 2"-CAU-PULK-120302-H	40 50 00	SWING CHECK	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-911F	I-12-03	RTP01	PMP-911	1/2" IN 2"-CAU-PULK-120302-H	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-911G	I-12-03	RTP01	PMP-911	1/2" IN 2"-CAU-PULK-120313-H	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-912A	I-12-03	RTP01	PMP-912	1/2" IN 2"-CAU-PULK-120301-H	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-912B	I-12-03	RTP01	PMP-912	1/2" IN 2"-CAU-PULK-120303-H	40 50 00	PRESSURE RELIEF	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-912C	I-12-03	RTP01	PMP-912	1/2" IN 2"-CAU-PULK-120309-H	40 50 00	PRESSURE CONTROL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-912D	I-12-03	RTP01	PMP-912	1/2" IN 2"-CAU-PULK-120303-H	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	NC; Part of caustic feed pump package; spec'd per vendor quote
0	V-912E	I-12-03	RTP01	PMP-912	1/2" IN 2"-CAU-PULK-120303-H	40 50 00	SWING CHECK	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-912F	I-12-03	RTP01	PMP-912	1/2" IN 2"-CAU-PULK-120303-H	40 50 00	BALL	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Part of caustic feed pump package; spec'd per vendor quote
0	V-961A	I-12-03	RTP01	PI-961	PI-961	40 50 00	Vendor supplied	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Pressure indicator valve; Part of caustic feed pump package; spec'd per vendor quote
0	V-962A	I-12-03	RTP01	PI-962	PI-962	40 50 00	Vendor supplied	1/2	CAU	Vendor supplied	Vendor supplied	A	0.017	80	Pressure indicator valve; Part of caustic feed pump package; spec'd per vendor quote
0	V-920A	I-12-03	RTP01	TNK-920	1/2" IN 2"-COG-PULK-120304	40 50 00	BALL	1/2	COG	40 27 02	V335	A	0.017	80	
0	V-920B	I-12-03	RTP01	PMP-921/922	CCOL-0920	40 50 00	BALL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Calibration column valve*, part of coagulant feed pump package
0	V-921A	I-12-03	RTP01	PMP-921	1/2" IN 2"-COG-PULK-120310	40 50 00	BALL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	V-921B	I-12-03	RTP01	PMP-921	1/2" IN 2"-COG-PULK-120310	40 50 00	PRESSURE RELIEF	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote
0	V-921C	I-12-03	RTP01	PMP-921	1/2" IN 2"-COG-PULK-120311	40 50 00	PRESSURE CONTROL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote
0	V-921D	I-12-03	RTP01	PMP-921	1/2" IN 2"-COG-PULK-120305	40 50 00	BALL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	NC; Part of coagulant feed pump package; spec'd per vendor quote
0	V-921E	I-12-03	RTP01	PMP-921	1/2" IN 2"-COG-PULK-120305	40 50 00	BALL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote
0	V-922A	I-12-03	RTP01	PMP-922	1/2" IN 2"-COG-PULK-120304	40 50 00	BALL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote
0	V-922B	I-12-03	RTP01	PMP-922	1/2" IN 2"-COG-PULK-120314	40 50 00	PRESSURE RELIEF	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote
0	V-922C	I-12-03	RTP01	PMP-922	1/2" IN 2"-COG-PULK-120312	40 50 00	PRESSURE CONTROL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote
0	V-922D	I-12-03	RTP01	PMP-922	1/2" IN 2"-COG-PULK-120314	40 50 00	BALL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	NC; Part of coagulant feed pump package; spec'd per vendor quote
0	V-922E	I-12-03	RTP01	PMP-922	1/2" IN 2"-COG-PULK-120314	40 50 00	BALL	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Part of coagulant feed pump package; spec'd per vendor quote
0	V-963A	I-12-03	RTP01	PI-963	PI-963	40 50 00	Vendor supplied	1/2	COG	Vendor supplied	Vendor supplied	A	0.017	80	Pressure indicator valve; Part of coagulant feed pump package; spec'd per vendor quote
0	V-930A	I-12-04	RTP01	TNK-930	TNK-930	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.017	80	
0	V-930B	I-12-04	RTP01	TNK-930	1/2" IN 2"-ACD-PULK-120401	40 50 00	BALL	1/2	ACD	40 27 02	V335	A	0.017	80	
0	V-930C	I-12-04	RTP01	PMP-931/932	CCOL-0930	40 50 00	BALL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Calibration column valve*, part of acid feed pump package
0	V-931A	I-12-04	RTP01	PMP-931	1/2" IN 2"-ACD-PULK-120404	40 50 00	BALL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-931B	I-12-04	RTP01	PMP-931	1/2" IN 2"-ACD-PULK-120402	40 50 00	PRESSURE RELIEF	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-931C	I-12-04	RTP01	PMP-931	1/2" IN 2"-ACD-PULK-120405	40 50 00	PRESSURE CONTROL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-931D	I-12-04	RTP01	PMP-931	1/2" IN 2"-ACD-PULK-120402	40 50 00	BALL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	NC; Part of acid feed pump package; spec'd per vendor quote
0	V-931E	I-12-04	RTP01	PMP-931	1/2" IN 2"-ACD-PULK-120402	40 50 00	SWING CHECK	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-931F	I-12-04	RTP01	PMP-931	1/2" IN 2"-ACD-PULK-120402	40 50 00	BALL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-931G	I-12-04	RTP01	PMP-931/932	1/2" IN 2"-ACD-PULK-120407	40 50 00	BALL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-932A	I-12-04	RTP01	PMP-932	1/2" IN 2"-ACD-PULK-120401	40 50 00	BACK PRESSURE	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-932B	I-12-04	RTP01	PMP-932	1/2" IN 2"-ACD-PULK-120401	40 50 00	PRESSURE RELIEF	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-932C	I-12-04	RTP01	PMP-932	1/2" IN 2"-ACD-PULK-120406	40 50 00	PRESSURE RELIEF	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-932D	I-12-04	RTP01	PMP-932	1/2" IN 2"-ACD-PULK-120403	40 50 00	BALL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	NC; Part of acid feed pump package; spec'd per vendor quote
0	V-932E	I-12-04	RTP01	PMP-932	1/2" IN 2"-ACD-PULK-120403	40 50 00	SWING CHECK	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	V-932F	I-12-04	RTP01	PMP-932	1/2" IN 2"-ACD-PULK-120403	40 50 00	BALL	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Part of acid feed pump package; spec'd per vendor quote
0	V-964A	I-12-04	RTP01	PI-964	PI-964	40 50 00	Vendor supplied	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Pressure indicator valve; Part of acid feed pump package; spec'd per vendor quote
0	V-965A	I-12-04	RTP01	PI-965	PI-965	40 50 00	Vendor supplied	1/2	ACD	Vendor supplied	Vendor supplied	A	0.017	80	Pressure indicator valve; Part of acid feed pump package; spec'd per vendor quote
0	V-940A	I-12-04	RTP01	TNK-944		40 50 00	BALL		DEW	Vendor supplied	Vendor supplied	A			Note 3
0	V-940C	I-12-04	RTP01	PMP-945	CCOL-0940	40 50 00	BALL		DEW	Vendor supplied	Vendor supplied	A			Note 3; Calibration column valve*, part of dewatering aid pump package
0	V-941A	I-12-04	RTP01	DRM-941		40 50 00	BALL		DEW	Vendor supplied	Vendor supplied	A			Note 3
0	V-942A	I-12-04	RTP01	PMP-942		40 50 00	BACK PRESSURE		DEW	Vendor supplied	Vendor supplied	A			Note 3; Included in dewatering aid system package
0	V-945A	I-12-04	RTP01	PMP-945		40 50 00	BALL		DEW	Vendor supplied	Vendor supplied	A			Note 3
0	V-945B	I-12-04	RTP01	PMP-945		40 50 00	PRESSURE RELIEF		DEW	Vendor supplied	Vendor supplied	A			Note 3
0	V-971A	I-12-04	RTP01	FI-971		40 50 00	BALL		DEW	Vendor supplied	Vendor supplied	A			Note 3; Included in dewatering aid system package
0	V-907A	I-12-04	RTP01	PMP-907	2"-WS-PULK-120408	40 50 00	BALL	2	WS	40 27 02	V335	A	35	12	
0	V-966A	I-12-04	RTP01	PI-966	PI-966	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	12	Pressure indicator valve*
0	V-966B	I-12-04	RTP01	PI-966	PI-966	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	12	Pressure indicator valve*
0	V-611A	I-12-05	RTP01	LPS-611	2"-SL-PULK-120501	40 50 00	BALL	2	SL	40 27 02	V335	A	15	120	
0	V-611B	I-12-05	RTP01	LPS-611	LPS-611	40 50 00	BALL	Supplier	SL	40 27 02	By Supplier	A	15	120	Drain Valve, NC
0	V-612A	I-12-05	RTP01	LPS-612	2"-SL-PULK-120503	40 50 00	BALL	2	SL	40 27 02	V335	A	15	120	
0	V-612B	I-12-05	RTP01	LPS-612	LPS-612	40 50 00	BALL	Supplier	SL	40 27 02	By Supplier	A	15	120	Drain Valve, NC
0	V-654B	I-12-05	RTP01	PSL-654	PSL-654	40 50 00	BALL	3/4*	UA	40 27 02	V335	A	15	50	Pressure switch valve*
0	V-654A	I-12-05	RTP01	PSL-654	PSL-654	40 50 00	BALL	3/4*	UA	40 27 02	V335	A	15	50	Pressure switch valve*
0	V-110C	I-12-05	RTP01	PMP-110	1-1/2"-FW-PULK-120505	40 50 00	DOUBLE SWING CHECK	1 1/2	FW	40 27 02	V640 or V642	A	20	78	
0	V-110D	I-12-05	RTP01	PMP-110	1-1/2"-FW-PULK-120505	40 50 00	BALL	1 1/2	FW	40 27 02	V335	A	20	78	
0	V-110E	I-12-05	RTP01	PMP-110	1-1/2"-FW-PULK-120505	40 50 00	BALL	1 1/2	FW	40 27 02	V335	A	20	78	
0	V-161A	I-12-05	RTP01	PI-161	PI-161	40 50 00	BALL	1/2*	FW	Vendor supplied	Vendor supplied	A	20	78	Part of seal water packaged system, Pressure indicator valve*
0	V-161B	I-12-05	RTP01	PI-161	PI-161	40 50 00	BALL	1/2*	FW	Vendor supplied	Vendor supplied	A	20	78	Part of seal water packaged system, Pressure indicator valve*
0	V-162	I-12-05	RTP01	PI-162	PI-162	40 50 00	BALL	Supplier	UA	Vendor supplied	Vendor supplied	A	106	100	Pressure indicator valve*
0	V-101C	I-12-05	RTP01	CMP-101	CMP-101	40 50 00	PRESSURE RELIEF	Supplier	UA	40 27 02	Vendor supplied	A	106	100	
0	V-101D	I-12-05	RTP01	CMP-101	X-102	40 50 00	BALL	Supplier	UA	40 27 02	Vendor supplied	A	106	100	Bypass air dryer/filter
0	V-103F	I-12-05	RTP01	DRM-103	DRM-103	40 50 00	PRESSURE RELIEF	Supplier	UA	Vendor supplied	Vendor supplied	A	106	100	Part of air receiver
0	V-103G	I-12-05	RTP01	DRM-103	DRM-103	40 50 00	BALL	Supplier	UA	Vendor supplied	Vendor supplied	A	106	100	Part of air receiver
0	V-607A	I-12-05	RTP01	PMP-607	2"-WS-PULK-120502	40 50 00	SWING CHECK	2	WS	40 27 02	V1693	A	35	20	
0	V-607B	I-12-05	RTP01	PMP-607	2"-WS-PULK-120502	40 50 00	BUTTERFLY	2	WS	40 27 02	V521	A	35	20	
0	V-653A	I-12-05	RTP01	PI-653	PI-653	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	20	Pressure indicator valve*
0	V-653B	I-12-05	RTP01	PI-653	PI-653	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	20	Pressure indicator valve*
0	V-401A	I-14-01	RTP01	TNK-401	2"-TW-PULK-140110	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	
0	V-401B	I-14-01	RTP01	TNK-401	2"-TW-PULK-140113	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	
0	V-401C	I-14-01	RTP01	TNK-401	4"-DR-PULK-140118	40 50 00	BUTTERFLY	4	DR	40 27 02	V521	A	35	25	Drain Valve, NC
0	V-402A	I-14-01	RTP01	TNK-402	2"-TW-PULK-140111	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	
0	V-402B	I-14-01	RTP01	TNK-402	2"-TW-PULK-140114	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	
0	V-402C	I-14-01	RTP01	TNK-402	4"-DR-PULK-140119	40 50 00	BUTTERFLY	4	DR	40 27 02	V521	A	35	25	Drain Valve, NC
0	SP-405A	I-14-01	RTP01	PMP-405/406	2"-TW-PULK-140117	40 50 00	BALL	3/4*	TW	40 27 02	V335	A	35	25	Sample Port Valve
0	V-405B	I-14-01	RTP01	PMP-405	2"-TW-PULK-140118	40 50 00	SWING CHECK	2	TW	40 27 02	V631	A	35	25	

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	V-405C	I-14-01	RTP01	PMP-405	2"-TW-PULK-140118	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	
0	V-461A	I-14-01	RTP01	PI-461	PI-461	40 50 00	BALL	1/2*	TW	40 27 02	V335	A	35	25	Pressure indicator valve*
0	V-461B	I-14-01	RTP01	PI-461	PI-461	40 50 00	BALL	1/2*	TW	40 27 02	V335	A	35	25	Pressure indicator valve*, NC
0	V-406A	I-14-01	RTP01	PMP-406	2"-TW-PULK-140101	40 50 00	BALL CHECK	2	TW	40 27 02	V631	A	35	25	
0	V-406B	I-14-01	RTP01	PMP-406	2"-TW-PULK-140101	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	
0	V-462A	I-14-01	RTP01	PI-462	PI-462	40 50 00	BALL	1/2*	TW	40 27 02	V335	A	35	25	Pressure indicator valve*
0	V-462B	I-14-01	RTP01	PI-462	PI-462	40 50 00	BALL	1/2*	TW	40 27 02	V335	A	35	25	Pressure indicator valve*, NC
0	V-407A	I-14-01	RTP01	PMP-407	2"-WS-PULK-140103	40 50 00	SWING CHECK	2	WS	40 27 02	V1693	A	35	30	
0	V-407B	I-14-01	RTP01	PMP-407	2"-WS-PULK-140103	40 50 00	BUTTERFLY	2	WS	40 27 02	V521	A	35	30	
0	V-407C	I-14-01	RTP01	PMP-407	2"-WS-PULK-140119	40 50 00	SWING CHECK	2	WS	40 27 02	V1693	A	35	30	
0	V-407D	I-14-01	RTP01	PMP-407	2"-WS-PULK-140119	40 50 00	BUTTERFLY	2	WS	40 27 02	V521	A	35	30	
0	V-463A	I-14-01	RTP01	PI-463	PI-463	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	30	Pressure indicator valve*
0	V-463B	I-14-01	RTP01	PI-463	PI-463	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	30	Pressure indicator valve*, NC
0	V-510A	I-14-02	RTP01	TNK-510	2"-TW-HALE-120207	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	BURIED VALVE (Bfly type)
0	V-510B	I-14-02	RTP01	TNK-510	2"-TW-PULK-140203	40 50 00	BUTTERFLY	2	TW	40 27 02	V521	A	35	25	
0	V-510G	I-14-02	RTP01	TNK-510	6"-DR-PULK-140212	40 50 00	BUTTERFLY	6	DR	40 27 02	V521	A	35	25	
0	V-561A	I-14-02	RTP01	PI-561	PI-561	40 50 00	BALL	1/2*	TW	40 27 02	V335	A	35	25	Pressure indicator valve*
0	V-561B	I-14-02	RTP01	PI-561	PI-561	40 50 00	BALL	1/2*	TW	40 27 02	V335	A	35	25	Pressure indicator valve*
0	V-501A	I-14-02	RTP01	PMP-501	3"-TW-PULK-140203	40 50 00	BUTTERFLY	3	TW	40 27 02	V521	A	35	25	
0	V-501B	I-14-02	RTP01	PMP-501	3"-TW-PULK-140209	40 50 00	BALL CHECK	3	TW	40 27 02	V631	A	35	48	
0	V-501C	I-14-02	RTP01	PMP-501	2"-TW-PULK-140209	40 50 00	BUTTERFLY	3	TW	40 27 02	V521	A	35	48	
0	V-501D	I-14-02	RTP01	PMP-501	2"-TW-PULK-140203	40 50 00	BUTTERFLY	3*	TW	40 27 02	V521	A	75	150	External connection
0	V-562A	I-14-02	RTP01	PI-562	PI-562	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	26	Pressure indicator valve*
0	V-562B	I-14-02	RTP01	PI-562	PI-562	40 50 00	BALL	1/2*	WS	40 27 02	V335	A	35	26	Pressure indicator valve*, NC
0	V-507A	I-14-02	RTP01	PMP-507	2"-WS-PULK-140201	40 50 00	BALL	2	WS	40 27 02	V335	A	35	26	
0	V-507B	I-14-02	RTP01	PMP-507	2"-WS-PULK-140211	40 50 00	BALL	2	WS	40 27 02	V335	A	35	26	
YARD PIPING VALVES															
0	TBD	C-07-20	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 16+80 - CARV shutoff
0	TBD	C-07-20	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V101	A			Sta 16+80 - CARV shutoff
0	TBD	C-07-20	Pipeline A	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V101	A			Sta 16+80 - CARV shutoff
0	TBD	C-07-20	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 20+40 - Blowoff lateral
0	TBD	C-07-20	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V134	A			Sta 20+40 - Blowoff lateral
0	TBD	C-07-21	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 21+40 - CARV shutoff
0	TBD	C-07-21	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V101	A			Sta 21+40 - CARV shutoff
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 31+30 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 31+30 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V134	A			Sta 31+30 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V134	A			Sta 31+30 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V134	A			Sta 31+30 - Blowoff lateral,
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 31+32 - CARV shutoff
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 31+32 - CARV shutoff
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V101	A			Sta 31+32 - CARV shutoff
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V101	A			Sta 31+32 - CARV shutoff
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V101	A			Sta 31+32 - CARV shutoff
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 33+26 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 33+26 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V134	A			Sta 33+26 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V134	A			Sta 33+26 - Blowoff lateral
0	TBD	C-07-22	Pipeline A	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V134	A			Sta 33+26 - Blowoff lateral
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 46+00 - CARV shutoff
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 46+00 - CARV shutoff

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V101	A			Sta 46+00 - CARV shutoff
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V101	A			Sta 46+00 - CARV shutoff
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V101	A			Sta 46+00 - CARV shutoff
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 53+50 - Blowoff lateral
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 53+50 - Blowoff lateral
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V134	A			Sta 53+50 - Blowoff lateral
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V134	A			Sta 53+50 - Blowoff lateral
0	TBD	C-07-24	Pipeline A	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V134	A			Sta 53+50 - Blowoff lateral
0	TBD	C-07-31	Pipeline B	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 40+48 - CARV shutoff
0	TBD	C-07-31	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 40+53 - Blowoff lateral
0	TBD	C-07-31	Pipeline B	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 43+30 - CARV shutoff
0	TBD	C-07-31	Pipeline A	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 46+11 - Blowoff lateral
0	TBD	C-07-31	Pipeline B	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 46+16 - CARV shutoff
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 12+53 - Blowoff lateral
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V134	A			Sta 12+53 - Blowoff lateral
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V134	A			Sta 12+53 - Blowoff lateral
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V134	A			Sta 12+53 - Blowoff lateral
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 13+41 - CARV shutoff
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V101	A			Sta 13+41 - CARV shutoff
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V101	A			Sta 13+41 - CARV shutoff
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V101	A			Sta 13+41 - CARV shutoff
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 15+23 - Blowoff lateral
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V134	A			Sta 15+23 - Blowoff lateral
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	CA	40 27 02B	V134	A			Sta 15+23 - Blowoff lateral
0	TBD	C-07-25	Pipeline H	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V134	A			Sta 15+23 - Blowoff lateral
0	TBD	C-07-78	Pipeline I	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V101	A			Sta 12+00 - CARV shutoff
0	TBD	C-07-78	Pipeline I	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V101	A			Sta 12+00 - CARV shutoff
0	TBD	C-07-78	Pipeline I	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V101	A			Sta 12+00 - CARV shutoff
0	TBD	C-07-78	Pipeline I	TBD	TBD	TBD	GATE	1	FW	40 27 02B	V134	A			Sta 12+05 - Blowoff lateral
0	TBD	C-07-78	Pipeline I	TBD	TBD	TBD	GATE	1	RW	40 27 02B	V134	A			Sta 12+05 - Blowoff lateral
0	TBD	C-07-78	Pipeline I	TBD	TBD	TBD	GATE	1	SP	40 27 02B	V134	A			Sta 12+05 - Blowoff lateral
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	GATE	3/4	FW	40 27 02B	V101 or V925	A			Sample tap
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	GATE	3/4	FW	40 27 02B	V101 or V925	A			Sample tap
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	GATE	3/4	FW	40 27 02B	V101 or V925	A			Sample tap
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	GATE	3/4	FW	40 27 02B	V101 or V925	A			Sample tap
0	TBD	C-07-31	Pipeline B		TBD	TBD	BUTTERFLY	12	FW	40 27 02B	V500	A			Isolation Valve, north of BNSF Railroad - Sta 48+45 on Pipeline B
0	TBD	C-07-31	Pipeline B		TBD	TBD	BUTTERFLY	12	FW	40 27 02B	V500	A			Isolation Valve, south of BNSF and north of I-40, Sta 45+45 on Pipeline B
0	TBD	C-07-31	Pipeline B		TBD	TBD	BUTTERFLY	12	FW	40 27 02B	V500	A			Isolation Valve, north of I-40 and south of I-40, Sta 43+20 on Pipeline B
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	BUTTERFLY	4	FW	40 27 02B	V500	A			Downstream of meter
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	BUTTERFLY	4	FW	40 27 02B	V500	A			Downstream of flow control valve
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	FLOW CONTROL	4	FW	40 27 02B		A			Flow control valve
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	NEEDLE OR GATE	1/4	FW	40 27 02B	V101	A			Pressure gauge
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	BUTTERFLY	4	FW	40 27 02B	V500	A			Upstream of flow control valve
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	BUTTERFLY	6	RW	40 27 02B	V500	A			Upstream of meter
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	FLOW CONTROL	6	RW	40 27 02B		A			Flow control valve

TABLE D1-4
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Manual Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG	P&ID	LOCATION	SECONDARY	LINE / EQUIP.	PIPE	VALVE	SIZE	FLOW	VALVE	VALVE	VALVE	MAX	MAX OPERATING	REMARKS
	NO.	DWG. NO.	ID	LOCATION ID	NO. [Note 1]	SPEC	TYPE	(IN)	STREAM [Note 1]	SPECIFICATION	SPECIFICATION TYPE	REV.	OPERATING FLOW (GPM)	PRESSURE (PSI) [Note 2]	
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	SWING CHECK	6	RW	40 27 02B	V608	A			Check valve
0	TBD	M-02-01	FW-1	TBD	TBD	TBD	BUTTERFLY	6	RW	40 27 02B	V500	A			Downstream of sample tap
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	BUTTERFLY	3	FW	40 27 02B	V500	A			Downstream of meter
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	BUTTERFLY	3	FW	40 27 02B	V500	A			Downstream of flow control valve
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	FLOW CONTROL	3	FW	40 27 02B		A			Flow control valve
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	NEEDLE OR GATE	1/4	FW	40 27 02B	V101	A			Pressure gauge
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	BUTTERFLY	3	FW	40 27 02B	V500	A			Upstream of flow control valve
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	BUTTERFLY	4	RW	40 27 02B	V500	A			Upstream of meter
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	FLOW CONTROL	4	RW	40 27 02B		A			Flow control valve
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	SWING CHECK	4	RW	40 27 02B	V608	A			Check valve
0	TBD	M-02-01	FW-2	TBD	TBD	TBD	BUTTERFLY	4	RW	40 27 02B	V500	A			Downstream of sample tap

Notes:
1. See drawing I-00-02 for flow stream and material identification.
2. Maximum Operating Pressure ratings apply to 73 degrees farenheit.
3. The valve is part of a contingent system that may be constructed in the future.
* Valves for instrumentation and control equipment will depend on the equipment that is supplied, which is to be determined. Contractor will have to coordinate the piping and valves with equipment supplied.
NC= Normally closed
TBD= To be determined

TABLE D1-5
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Self-Contained Automated Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG NO.	P&ID DWG. NO.	LOCATION ID	SECONDARY LOCATION ID	LINE/EQUIP NO. [Note 1]	VALVE TYPE	SIZE (IN)	FLUID	FLOW STREAM [Note 1]	VALVE SPECIFICATION	VALVE SPECIFICATION TYPE	MAX OPERATING FLOW	MAX OPERATING FLOW UNITS	MAX OPERATING PRESSURE (PSI) [Note 2]	INLET PRESSURE*	OUTLET PRESSURE*	REMARKS
FRESHWATER SUPPLY, STORAGE, AND INJECTION EQUIPMENT VALVES																	
0	AVRV-011	I-01-01	HNWR1A	HNWR-1A	6"-FW-LCLF-010101	Air and vacuum release	1	Air	FW	33 12 16	TBD	1.67	scfs	180	130		Air and vacuum valve is installed on branch line from main piping, so it is smaller. In this case, with maximum flow rate of 1.67 scfs and 2 psi differential pressure, a 1 inch valve is probably sufficient. Maximum operating flow based on 750 gpm pump rate.
0	AVRV-011	I-01-01	SiteB	Site B	6"-FW-LCLF-010103	Air and vacuum release	1	Air	FW	33 12 16	TBD	1.67	scfs	245	156		Air and vacuum valve is installed on branch line from main piping, so it is smaller. In this case, with maximum flow rate of 1.67 scfs and 2 psi differential pressure, a 1 inch valve is probably sufficient. Maximum operating flow based on 750 gpm pump rate.
0	ARV-014	I-02-04	FW01	FW01	4"-FW-PVLK-020403	Air and vacuum release	1 or 2	Air	FW	33 12 16	A. Air Valve, Water Service	27	cfm	5			APCO 200 or equal
0	ARV-015	I-02-04	FW01	FW01	6"-FW-PULK-020401	Air and vacuum release	1 or 2	Air	FW	33 12 16	A. Air Valve, Water Service	54	cfm	85			APCO 200 or equal
1	FCV-012	I-02-04	FW01	FW01	4"-FW-PULK-020401	Downhole Flow Control	4	Water	FW	40 27 02	ASR LLC (Type 964)	400	gpm	208			
0	ARV-014	I-02-04	FW02	FW02	4"-FW-PVLK-020403	Air and vacuum release	1 or 2	Air	FW	33 12 16	A. Air Valve, Water Service	27	cfm	60			APCO 200A or equal
0	ARV-015	I-02-04	FW02	FW02	6"-FW-PULK-020401	Air and vacuum release	1 or 2	Air	FW	33 12 16	A. Air Valve, Water Service	13.5	cfm	85			APCO 200A or equal
1	FCV-012	I-02-04	FW02	FW02	4"-FW-PULK-020401	Downhole Flow Control	4	Water	FW	40 27 02	ASR LLC (Type 964)	200	gpm	130			
REMEDY-PRODUCED WATER CONDITIONING PLANT VALVES																	
0	FCV-511	I-14-02	RTP01	TNK-510	2"-TW-PULK-140204	Ball	2	Water	TW								Note 3
YARD PIPING VALVES																	
0	TBD	C-07-20	Pipeline A, Sta 16+80		TBD	Combination Air and vacuum valve	1	Air	FW, RW, SP	33 12 16	TBD	1.67	scfs	150			Three valves
0	TBD	C-07-21	Pipeline A, Sta 21+40		TBD	Combination Air and vacuum valve	1	Air	FW, RW	33 12 16	TBD	1.67	scfs	150			Two valves
0	TBD	C-07-22	Pipeline A, Sta 31+30		TBD	Combination Air and vacuum valve	1	Air	FW (2), RW, CA, SP	33 12 16	TBD	1.67	scfs	150			Five valves
0	TBD	C-07-24	1		TBD	Combination Air and vacuum valve	1	Air	FW (2), RW, CA, SP	33 12 16	TBD	1.67	scfs	150			Five valves
0	TBD	C-07-25	Pipeline H, Sta 13+25		TBD	Combination Air and vacuum valve	1	Air	FW, RW, CA, SP	33 12 16	TBD	1.67	scfs	150			Four valves, Sta will change to 13+41
0	TBD	C-07-27	Pipeline B		12" FW	FLANGED RESILIENT WEDGE GATE VALVE	2	Water	FW	33 12 16	Water Service	TBD	TBD	TBD			2 valves
0	TBD	C-07-28	Pipeline B		12" FW	FLANGED RESILIENT WEDGE GATE VALVE	2	Water	FW	33 12 16	Water Service	TBD	TBD	TBD			2 valves
0	TBD	C-07-31	Pipeline B, Sta 40+48		TBD	Combination Air and vacuum valve	1	Air	FW	33 12 16	TBD	1.67	scfs	150			Single valve
0	TBD	C-07-31	Pipeline B, Sta 43+30		TBD	Combination Air and vacuum valve	1	Air	FW	33 12 16	TBD	1.67	scfs	150			Single valve
0	TBD	C-07-31	Pipeline B, Sta 46+01		TBD	Combination Air and vacuum valve	1	Air	FW	33 12 16	TBD	1.67	scfs	150			Single valve
0	TBD	C-07-69	Pipeline J		8" FW	Brass Gate Valve	2	Water	FW	33 12 16	Water Service	TBD	TBD	TBD			2 valves
0	TBD	C-07-69	Pipeline B		8" FW	Brass Gate Valve	2	Water	FW	33 12 16	Water Service	TBD	TBD	TBD			2 valves
0	TBD	C-07-69	Pipeline J		12" FW	Air and vacuum release	2	Water	FW	33 12 16	A. Air Valve, Water Service	TBD	TBD	TBD			2" dia. Single body combination air valve and vaccum valve, 2 valves
0	TBD	C-07-69	Pipeline B		12" FW	Air and vacuum release	2	Water	FW	33 12 16	A. Air Valve, Water Service	TBD	TBD	TBD			2" dia. Single body combination air valve and vaccum valve, 2 valves
0	TBD	C-07-74	Pipeline L		2" TW	Air and vacuum release	3/4	Water	TW	33 12 16	A. Air Valve, Water Service	TBD	TBD	150			NETAFIM GUARDIAN MODEL 65AR1A075, 1 valve
0	TBD	C-07-74	Pipeline L		2" TW	Ball valve	3/4	Water	TW	33 12 16	A. Air Valve, Water Service	TBD	TBD	TBD			CAPRI BALL VALVE 600CP/150 SWP NO. 9302, 1 valve
0	TBD	C-07-78	Pipeline I, Sta 12+00		TBD	Combination Air and vacuum valve	1	Air	FW, RW, SP	33 12 16	TBD	1.67	scfs	150			Three valves, Not shown on drawings yet
0	TBD		Pipeline L3, Sta 82 +/-		TBD	Air Release	1	Air	TW	33 12 16	A. Air Valve, Water Service	5.2	cfm	30			Netafim Guardian 3/4" 65ARIA075

Notes
1. See drawing I-00-02 for flow stream and material identification.
2. Maximum Operating Pressure ratings apply to 73 degrees farenheit.
3. The valve is part of a contingent system that may be constructed in the future.
*Inlet/Outlet Pressure = Set pressure for pressure relief valve or downstream set pressure for pressure reducing valve.
TBD= To be determined

TABLE D1-6
Remedy-produced Water Conditioning System - Solenoid Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG NO.	P&ID NO.	LOCATION ID	SECONDARY LOCATION ID	LINE/EQUIP NO. [Note 1]	VALVE TYPE	SIZE (IN)	FLUID	FLOW STREAM [Note 1]	VALVE SPECIFICATION	VALVE SPECIFICATION TYPE	MAX OPERATING FLOW	MAX OPERATING FLOW UNITS	MAX OPERATING PRESSURE (PSI) [Note 2]	VALVE ACTUATOR TYPE	VOLTAGE (V)	FAIL POSITION	REMARKS
REMEDY-PRODUCED WATER CONDITIONING PLANT VALVES																		
0	SV-201	I-11-01	RTP01	PMP-201	1/2"-UW-PULK-110109	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-217	I-11-01	RTP01	Solenoid Panel	6"-RW-PULK-110107	Solenoid	2	Air	IA	40 27 02	V940	1.5	scfs	115	Solenoid	120	FC	--
0	SV-202	I-11-02	RTP01	PMP-202	1/2"-UW-PULK-110209	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-227	I-11-02	RTP01	Solenoid Panel	6"-RW-PULK-110207	Solenoid	2	Air	IA	40 27 02	V940	1.5	scfs	115	Solenoid	120	FC	--
0	SV-203	I-11-03	RTP01	PMP-203	1/2"-UW-PULK-110309	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-237	I-11-03	RTP01	Solenoid Panel	6"-RW-PULK-110307	Solenoid	2	Air	IA	40 27 02	V940	1.5	scfs	115	Solenoid	120	FC	--
0	SV-204	I-11-04	RTP01	PMP-204	1/2"-UW-PULK-110409	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-247	I-11-04	RTP01	Solenoid Panel	6"-RW-PULK-110407	Solenoid	2	Air	IA	40 27 02	V940	1.5	scfs	115	Solenoid	120	FC	--
0	SV-310	I-12-01	RTP01	PMP-310	1/2"-UW-PULK-120108	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-320	I-12-01	RTP01	PMP-320	1/2"-UW-PULK-120108	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-311	I-12-02	RTP01	Filter skid panel	2"-RW-PULK-120111	Solenoid	2	Air	IA	40 27 02	V940	1.5	scfs	115	Solenoid	24 VDC	FC	By filter supplier
0	SV-330	I-12-02	RTP01	PMP-330	1/2"-UW-PULK-120208	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-340	I-12-02	RTP01	PMP-340	1/2"-UW-PULK-120208	Solenoid	1/2	Water	UW	Vendor supplied	Vendor supplied	0.5	gpm	78	Solenoid	120	FC	By pump supplier
0	SV-331	I-12-02	RTP01	Filter skid panel	2"-RW-PULK-120210	Solenoid	2	Air	IA	40 27 02	V940	1.5	scfs	115	Solenoid	24 VDC	FC	By filter supplier

Notes:
1. See drawing I-00-02 for flow stream and material identification.
2. Maximum Operating Pressure ratings apply to 73 degrees fahrenheit.
FC= Fail Closed

TABLE D1-7
Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Electric Power Automated Valves
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG NO.	P&ID DWG. NO.	LOCATION ID	SECONDARY LOCATION ID	LINE/EQUIP NO. [Note 1]	VALVE TYPE	SIZE (IN)	FLUID	FLOW STREAM [Note 1]	VALVE SPECIFICATION	VALVE SPECIFICATION TYPE	MAX OPERATING FLOW (GPM)	MAX OPERATING PRESSURE (PSI) [Note 2]	CONTROL FEATURE MODIFICATIONS/SUP PLEMENTS	VALVE ACTUATOR TYPE	VOLTAGE (V)	SERVICE	TRAVEL TIME (SEC)	FAIL POSITION	REMARKS
FRESHWATER SUPPLY, STORAGE, AND INJECTION EQUIPMENT VALVES																				
0	FV-010	I-01-01	HNWR1A	STR-010	6"-FW-LCLF-0104	Butterfly	1-1/2	Water	FW	Vendor supplied	Vendor supplied	180	204	Vendor supplied	Electric Motor	120	O/C	*		Included with separator package
0	FV-010	I-01-01	SiteB	STR-010	6"-FW-LCLF-0104	Butterfly	1-1/2	Water	FW	Vendor supplied	Vendor supplied	245	264	Vendor supplied	Electric Motor	120	O/C	*		Included with separator package
0	FV-011	I-02-04	FW01	FW01	4"-FW-PULK-020401	Butterfly	4	Water	FW	40 27 02	V521	900	25	Limit switches	Electric Motor	120	O/C	*		--
0	FV-012	I-02-04	FW01	PMP-001	6"-RW-PULK-020401	Butterfly	6	Water	RW	40 27 02	V521	900	135	Limit switches	Electric Motor	120	O/C	*		--
0	FV-011	I-02-04	FW02	FW-02	4"-FW-PULK-020401	Butterfly	4	Water	FW	40 27 02	V521	900	25	Limit switches	Electric Motor	120	O/C	*		--
0	FV-012	I-02-04	FW02	PMP-001	6"-RW-PULK-020401	Butterfly	6	Water	RW	40 27 02	V521	900	75	Limit switches	Electric Motor	120	O/C	*		--
REMEDY-PRODUCED WATER CONDITIONING PLANT VALVES																				
0	FV-313	I-12-01	RTP01	FIL-311	FIL-311	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	23	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-313	I-12-02	RTP01	FIL-331	FIL-331	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	43	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-314	I-12-01	RTP01	FIL-312	FIL-312	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	23	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-314	I-12-02	RTP01	FIL-332	FIL-332	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	43	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-323	I-12-01	RTP01	FIL-321	FIL-321	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	23	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-323	I-12-02	RTP01	FIL-341	FIL-341	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	43	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-324	I-12-01	RTP01	FIL-322	FIL-322	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	23	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-324	I-12-02	RTP01	FIL-342	FIL-342	Ball	3/4	Water	DR	Vendor supplied	Vendor supplied	35	43	Vendor supplied	Electric Motor	120	O/C	*	FC	By filter supplier
0	FV-514	I-14-02	RTP01	TNK-510	2"-TW-HALE-140205	Ball	2	Water	TW	40 27 02	V335	900	25	Limit switches	Electric Motor	120	O/C	*		--

Notes

1. See drawing I-00-02 for flow stream and material identification.

2. Maximum Operating Pressure ratings apply to 73 degrees fahrenheit.

* Travel time to be determined by manufacturer

FC= Fail Closed

O/C=Open/Closed

TABLE D1-8
Remedy-produced Water Conditioning System - Pneumatic Automated Valve List
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG NO.	P&ID DWG. NO.	LOCATION ID	SECONDARY LOCATION ID	LINE/EQUIP NO. [Note 1]	VALVE TYPE	SIZE (IN)	FLUID	FLOW STREAM [Note 1]	VALVE SPECIFICATION	VALVE SPECIFICATION TYPE	MAX OPERATING FLOW (GPM)	MAX OPERATING PRESSURE (PSI) [Note 2]	ACTUATOR TYPE AND CONTROL FEATURES	SERVICE	TRAVEL TIME (SEC)	FAIL POSITION	REMARKS
REMEDY-PRODUCED WATER CONDITIONING PLANT VALVES																		
A	XV-211	I-11-01	RTP01	TNK-201	2"-RW-PULK-110102	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-212	I-11-01	RTP01	TNK-201	2"-RW-PULK-110103	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-213	I-11-01	RTP01	TNK-201	1/2" IN 2"-CAU-110110	Ball	1/2	25% NaOH	CAU	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-214	I-11-01	RTP01	TNK-201	1/2" IN 2"-ACD-110104	Ball	1/2	19% HCl	ACD	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-215	I-11-01	RTP01	TNK-201	1/2" IN 2"-COG-110108	Ball	1/2	Polymer	COG	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	Note 3, Note 4
A	XV-217	I-11-01	RTP01	TNK-201	6"-RW-PULK-110107	Butterfly	6	Water	RW	40 27 02	V521	400	48	Limit switches	O/C	*	FC	--
A	XV-221	I-11-02	RTP01	TNK-202	2"-RW-PULK-110202	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-222	I-11-02	RTP01	TNK-202	2"-RW-PULK-110203	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-223	I-11-02	RTP01	TNK-202	1/2" IN 2"-CAU-110210	Ball	1/2	25% NaOH	CAU	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-224	I-11-02	RTP01	TNK-202	1/2" IN 2"-ACD-110204	Ball	1/2	19% HCl	ACD	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-225	I-11-02	RTP01	TNK-202	1/2" IN 2"-COG-110208	Ball	1/2	Polymer	COG	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	Note 3, Note 4
A	XV-227	I-11-02	RTP01	TNK-202	6"-RW-PULK-110207	Butterfly	6	Water	RW	40 27 02	V521	400	48	Limit switches	O/C	*	FC	--
A	XV-231	I-11-03	RTP01	TNK-203	2"-RW-PULK-110302	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-232	I-11-03	RTP01	TNK-203	2"-RW-PULK-110303	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-233	I-11-03	RTP01	TNK-203	1/2" IN 2"-CAU-110310	Ball	1/2	25% NaOH	CAU	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-234	I-11-03	RTP01	TNK-203	1/2" IN 2"-ACD-110304	Ball	1/2	19% HCl	ACD	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-235	I-11-03	RTP01	TNK-203	1/2" IN 2"-COG-110308	Ball	1/2	Polymer	COG	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	Note 3, Note 4
A	XV-237	I-11-03	RTP01	TNK-203	6"-RW-PULK-110307	Butterfly	6	Water	RW	40 27 02	V521	400	48	Limit switches	O/C	*	FC	--
A	XV-241	I-11-04	RTP01	TNK-204	2"-RW-PULK-110402	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-242	I-11-04	RTP01	TNK-204	2"-RW-PULK-110408	Butterfly	2	Water	RW	40 27 02	V521	35	46	Vendor supplied	O/C		FC	--
A	XV-243	I-11-04	RTP01	TNK-204	1/2" IN 2"-CAU-110410	Ball	1/2	25% NaOH	CAU	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-244	I-11-04	RTP01	TNK-204	1/2" IN 2"-ACD-110404	Ball	1/2	19% HCl	ACD	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	--
A	XV-245	I-11-04	RTP01	TNK-204	1/2" IN 2"-COG-110408	Ball	1/2	Polymer	COG	40 27 02	V335	0.17	80	Vendor supplied	O/C		FC	Note 3, Note 4
A	XV-247	I-11-04	RTP01	TNK-204	6"-RW-PULK-110407	Butterfly	6	Water	RW	40 27 02	V521	400	48	Limit switches	O/C	*	FC	--
A	XV-311A	I-12-01	RTP01	FIL-311	2"-RW-PULK-120103	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-311C	I-12-01	RTP01	FIL-311	2"-RW-PULK-120104	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-312A	I-12-01	RTP01	FIL-312	2"-RW-PULK-120109	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-312C	I-12-01	RTP01	FIL-312	2"-RW-PULK-120106	Butterfly	2	Water	TW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-321A	I-12-01	RTP01	FIL-321	2"-RW-PULK-120103	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-321C	I-12-01	RTP01	FIL-321	2"-RW-PULK-120105	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-322A	I-12-01	RTP01	FIL-322	2"-RW-PULK-120105	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-322C	I-12-01	RTP01	FIL-322	2"-TW-PULK-120107	Butterfly	2	Water	TW	Vendor supplied	Vendor supplied	35	23	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-331A	I-12-02	RTP01	FIL-331	2"-RW-PULK-120202	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-331C	I-12-02	RTP01	FIL-331	2"-RW-PULK-120204	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-332A	I-12-02	RTP01	FIL-332	2"RW-PULK-120209	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-332C	I-12-02	RTP01	FIL-332	2"-RW-PULK-120206	Butterfly	2	Water	TW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-341A	I-12-02	RTP01	FIL-341	2"-RW-PULK-120203	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-341C	I-12-02	RTP01	FIL-341	2"-RW-PULK-120205	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-342A	I-12-02	RTP01	FIL-342	2"-RW-PULK-120205	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-342C	I-12-02	RTP01	FIL-342	2"-RW-PULK-120205	Butterfly	2	Water	RW	Vendor supplied	Vendor supplied	35	43	Vendor supplied	O/C		FC	By filter supplier, Note 5
A	XV-610	I-12-05	RTP01	PMP-601	2"-UA-HEAD-120504	Ball	2	Comp. Air	UA	40 27 02-17	V335	15 scfm	115	Vendor supplied	O/C		FC	--
A	XV-411	I-14-01	RTP01	TNK-401	2"-TW-PULK-140110	Butterfly	2	Water	TW	40 27 02-25	V521	35	43	Vendor supplied	O/C		FC	--
A	XV-412	I-14-01	RTP01	TNK-402	2"-TW-PULK-140111	Butterfly	2	Water	TW	40 27 02-25	V521	35	43	Vendor supplied	O/C		FC	--
A	XV-415	I-14-01	RTP01	PMP-405/ PMP-406	2"-TW-PULK-140101	Ball	2	Water	TW	40 27 02-17	V335	35	25	Vendor supplied	O/C		FC	--
A	XV-416	I-14-01	RTP01	PMP-405/ PMP-406	2"-TW-PULK-140102	Ball	2	Water	TW	40 27 02-17	V335	35	25	Vendor supplied	O/C		FC	--

Notes

1. See drawing I-00-02 for flow stream and material identification.

2. Maximum Operating Pressure ratings apply to 73 degrees farenheit.

3. The valve is part of a contingent system that may be constructed in the future.

4. Polymer: Nalco Ultrion 8187 (pH=3.5, SG=1.34, Visc. @ 73F = 16 cps)

5. Assume negligible head loss from filters (vendor brochure says 0.8 psi)

* Travel time to be determined by manufacturer

FC= Fail Closed

O/C=Open/Closed

TABLE D1-9
Remedy-produced Water Conditioning System - Miscellaneous Valves and Fittings
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV.	TAG NO.	P&ID NO.	LOCATION ID	SECONDARY LOCATION ID	LINE/EQUIP NO. [Note 1]	VALVE TYPE	SIZE (IN)	FLUID	FLOW STREAM [Note 1]	VALVE SPECIFICATION	VALVE SPECIFICATION TYPE	MAX OPERATING FLOW	MAX OPERATING FLOW UNITS	MAX OPERATING PRESSURE (PSI) [Note 2]	INLET PRESSURE*	OUTLET PRESSURE*	REMARKS
REMEDY-PRODUCED WATER CONDITIONING PLANT																	
0	TBD	I-12-03	RTP01	CAU FEED	TBD	Y Strainer	0.5	25% NaOH	CAU	Vendor supplied	Vendor supplied	0.17	gpm	80			Included in caustic feed package
0	TBD	I-12-03	RTP01	COG FEED SYSTEM	TBD	Y Strainer	0.5	Polymer	COG	Vendor supplied	Vendor supplied	0.17	gpm	80			Note 3; Note 4; Included in coagulant feed package
0	TBD	I-12-04	RTP01	ACD FEED SYSTEM	TBD	Y Strainer	0.5	19% HCl	ACD	Vendor supplied	Vendor supplied	0.17	gpm	80			Included in acid feed package
0	STR-110	I-12-05	RTP01	SEAL WATER	1.5"-FW-PULK-120505	Y Strainer	1.5	Water	FW	Bronze	FPTxFPT Full Cap	20	gpm	70			Mueller 351M, Nibco T-222-B or
0	FCV-511	I-14-02	RTP01	TNK-510	2"-TW-PULK-140204	Ball	2	Water	TW	Vendor supplied	Vendor supplied	0.17	gpm	80			Note 3

Notes
1. See drawing I-00-02 for flow stream and material identification.
2. Maximum Operating Pressure ratings apply to 73 degrees fahrenheit.
3. The valve is part of a contingent system that may be constructed in the future.
4. Polymer: Nalco Ultrion 8187 (pH=3.5, SG=1.34, Visc. @ 73F = 16 cps)
*Inlet/Outlet Pressure = Set pressure for pressure relief valve or downstream set pressure for pressure reducing valve.

TBD= To be determined

TABLE D1-10

Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Instruments

Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design

PG&E Topock Compressor Station, Needles, California

DWG # P&ID	Tag No.			Description	Type	Specification Section	Min. NEMA Rating	Size	SP/ Range	Units	DWG. DET. Reference	Notes
I-01-01	FE	HNWR1A	072	Flow Element	Magnetic	40_91_02.03_1.01A	4X	6"	0-1,500	GPM	FM / 1	
I-01-01	FE	HNWR1A	071	Flow Element	Magnetic	40_91_02.03_1.01A	4X	6"	0-1,500	GPM	FM / 1	
I-01-01	FE	SITEB	071	Flow Element	Magnetic	40_91_02.03_1.01A	4X	6"	0-1,500	GPM	FM / 1	Note 1
I-01-01	FIT	HNWR1A	072	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-01-01	FIT	HNWR1A	071	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-01-01	FIT	SITEB	071	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	Note 1
I-01-01	LT	HNWR1A	051	Level Transmitter	Submersible	40_91_02.05_1.01B	-	-	0-210	FT	LT / 9	Range based on well depth of 203 feet
I-01-01	LT	SITEB	051	Level Transmitter	Submersible	40_91_02.05_1.01B	-	-	0-325	FT	LT / 9	Range based on well depth of 315 feet; Note 1
I-01-01	PIT	HNWR1A	061	Pressure Indicating Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-250	PSI	PT / 7	
I-01-01	PIT	SITEB	061	Pressure Indicating Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-300	PSI	PT / 7	Note 1
I-02-01	LSH	FWST	155	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-02-01	LSL	FWST	155	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-02-01	LT	FWST	156	Level Transmitter	Submersible	40_91_02.05_1.01B	-	-	0-20	FT	LT / 9	
I-02-02	FE	FW-01	071	Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-300	GPM	FM / 1	
I-02-02	FE	FW-01	072	Flow Element	Magnetic	40_91_02.03_1.01A	4X	4"	0-500	GPM	FM / 1	
I-02-02	FIT	FW-01	071	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-02-02	FIT	FW-01	072	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-02-02	LSH	FW-01	053	Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-02-02	LSH	FW-01	051	Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-02-02	LT	FW-01	052	Level Transmitter	Submersible	40_91_02.05_1.01B	-	-	0-360	FT	LT / 9	Range based on well depth of 353 feet
I-02-02	PI	FW-01	061	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-25	PSI	PG / 13	
I-02-02	PI	FW-01	062	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-250	PSI	PG / 13	
I-02-02	PIT	FW-01	061	Pressure Indicating Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-25	-	PT / 7	
I-02-02	PIT	FW-01	062	Pressure Indicating Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-150	-	PT / 7	
I-02-02	FE	FW-02	071	Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-200	GPM	FM / 1	
I-02-02	FE	FW-02	072	Flow Element	Magnetic	40_91_02.03_1.01A	4X	4"	0-300	GPM	FM / 1	
I-02-02	FIT	FW-02	071	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X	-	Transmitter Only	-	FM / 1	
I-02-02	FIT	FW-02	072	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X	-	Transmitter Only	-	FM / 1	
I-02-02	LSH	FW-02	053	Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-02-02	LSH	FW-02	051	Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-02-02	LT	FW-02	052	Level Transmitter	Submersible	40_91_02.05_1.01B	-	-	0-150	FT	LT / 9	Range based on well depth of 139 feet
I-02-02	LT	FW-02	053	Level Transmitter	Submersible	40_91_02.05_1.01B	-	-	0-200	FT	LT / 9	
I-02-02	PI	FW-02	061	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-25	PSI	PG / 13	
I-02-02	PI	FW-02	062	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-150	PSI	PG / 13	
I-02-02	PIT	FW-02	061	Pressure Indicating Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-25	-	PT / 7	
I-02-02	PIT	FW-02	062	Pressure Indicating Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-150	-	PT / 7	
I-11-01	AE	RTP01	281 A	Sensor	pH	40_91_02.01_1.01B	4X	-	0-14	pH	Civil Detail	
I-11-01	AE	RTP01	281 B	Sensor	Conductivity	40_91_02.01_1.01E	4X	-	0-80,000	uS/cm	Civil Detail	

TABLE D1-10

Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Instruments

Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design

PG&E Topock Compressor Station, Needles, California

DWG # P&ID	Tag No.			Description	Type	Specification Section	Min. NEMA Rating	Size	SP/ Range	Units	DWG. DET. Reference	Notes
I-11-01	AE	RTP01	282	Sensor	Turbidity	40_91_02.01_1.01D	4X	-	0 - 2,000	NTU	Civil Detail	
I-11-01	AIT	RTP01	281	Analyzer Transmitter	Multiparameter	40_91_02.01_1.01A	4X	-	Transmitter Only	-	Pipe or Wall Mount	
I-11-01	FE	RTP01	071	Flow Element	Magnetic	40_91_02.03_1.01A	4X	6"	0-50	GPM	FM / 1	
I-11-01	FIT	RTP01	071	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-11-01	LE	RTP01	252	Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-15	FT	USL / 12	
I-11-01	LIT	RTP01	252	Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-11-01	LSH	RTP01	251	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-01	LSL	RTP01	251	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-01	PI	RTP01	261	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-11-02	AE	RTP01	283 A	Sensor	pH	40_91_02.01_1.01B	4X	-	0-14	pH	Civil Detail	
I-11-02	AE	RTP01	283 B	Sensor	Conductivity	40_91_02.01_1.01E	4X	-	0-80,000	uS/cm	Civil Detail	
I-11-02	AE	RTP01	284	Sensor	Turbidity	40_91_02.01_1.01D	4X	-	0 - 2000	NTU	Civil Detail	
I-11-02	AIT	RTP01	283	Analyzer Transmitter	Multiparameter	40_91_02.01_1.01A	4X	-	Transmitter Only	-	Pipe or Wall Mount	
I-11-02	LE	RTP01	254	Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-15	FT	USL / 12	
I-11-02	LIT	RTP01	254	Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-11-02	LSH	RTP01	253	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-02	LSL	RTP01	253	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-02	PI	RTP01	262	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-11-03	AE	RTP01	285 A	Sensor	pH	40_91_02.01_1.01B	4X	-	0-14	pH	Civil Detail	
I-11-03	AE	RTP01	285 B	Sensor	Conductivity	40_91_02.01_1.01E	4X	-	0-80,000	uS/cm	Civil Detail	
I-11-03	AE	RTP01	286	Sensor	Turbidity	40_91_02.01_1.01D	4X	-	0 - 2,000	NTU	Civil Detail	
I-11-03	AIT	RTP01	285	Analyzer Transmitter	Multiparameter	40_91_02.01_1.01A	4X	-	Transmitter Only	-	Pipe or Wall Mount	
I-11-03	LE	RTP01	256	Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-15	FT	USL / 12	
I-11-03	LIT	RTP01	256	Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-11-03	LSH	RTP01	255	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-03	LSL	RTP01	255	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-03	PI	RTP01	263	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-11-04	AE	RTP01	288	Sensor	Turbidity	40_91_02.01_1.01D	4X	-	0 - 2,000	NTU	Civil Detail	
I-11-04	AE	RTP01	287 A	Sensor	pH	40_91_02.01_1.01B	4X	-	0-14	pH	Civil Detail	
I-11-04	AE	RTP01	287 B	Sensor	Conductivity	40_91_02.01_1.01E	4X	-	0-80,000	uS/cm	Civil Detail	
I-11-04	AIT	RTP01	287	Analyzer Transmitter	Multiparameter	40_91_02.01_1.01A	4X	-	Transmitter Only	-	Pipe or Wall Mount	
I-11-04	AE	RTP01	289	Sensor	Turbidity	40_91_02.01_1.01D	4X	-	0 - 1,000	NTU	Civil Detail	
I-11-04	AIT	RTP01	289	Analyzer Transmitter	Turbidity	40_91_02.01_1.01A	4X	-	Transmitter Only	-	Pipe or Wall Mount	
I-11-04	FE	RTP01	271	Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-50	GPM	FM / 1	
I-11-04	FIT	RTP01	271	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-11-04	LE	RTP01	258	Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-15	FT	USL / 12	
I-11-04	LIT	RTP01	258	Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-11-04	LSH	RTP01	257	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-04	LSH	RTP01	258	Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-11-04	LSL	RTP01	257	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-11-04	PI	RTP01	264	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	

TABLE D1-10

Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Instruments

Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design

PG&E Topock Compressor Station, Needles, California

DWG # P&ID	Tag No.			Description	Type	Specification Section	Min. NEMA Rating	Size	SP/ Range	Units	DWG. DET. Reference	Notes
I-11-04	PI	RTP01	265	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-20	PSI	PG / 13	
I-12-01	DPIT	RTP01	361	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-01	DPIT	RTP01	362	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-01	DPIT	RTP01	363	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-01	DPIT	RTP01	364	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-01	FE	RTP01	371	Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-50	GPM	FM / 1	
I-12-01	FE	RTP01	372	Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-50	GPM	FM / 1	
I-12-01	FIT	RTP01	371	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-12-01	FIT	RTP01	372	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-12-01	PI	RTP01	361	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-50	PSI	PG / 13	
I-12-01	PI	RTP01	362	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-50	PSI	PG / 13	
I-12-02	DPIT	RTP01	365	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-02	DPIT	RTP01	366	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-02	DPIT	RTP01	367	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-02	DPIT	RTP01	368	Differential Pressure Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-50	PSI	Per Filter Mfg.	
I-12-02	FE	RTP01	373	Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-50	GPM	FM / 1	
I-12-02	FIT	RTP01	373	Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-12-02	PI	RTP01	363	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-02	PI	RTP01	364	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-03	LE	RTP01	951	Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-10	FT	USL / 12	
I-12-03	LE	RTP01	952	Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-5	FT	USL / 12	
I-12-03	LIT	RTP01	951	Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-12-03	LIT	RTP01	952	Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-12-03	PI	RTP01	961	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-03	PI	RTP01	962	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-03	PI	RTP01	963	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-04	LE	RTP01	953	Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-10	FT	USL / 12	
I-12-04	LIT	RTP01	953	Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-12-04	LSH	RTP01	955	Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-12-04	PI	RTP01	964	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-04	PI	RTP01	965	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-04	PI	RTP01	966	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-20	PSI	PG / 13	
I-12-05	LSH	RTP01	651	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-12-05	LSH	RTP01	652	Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-12-05	LSH	RTP01	653	Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-12-05	PI	RTP01	653	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-20	PSI	PG / 13	
I-12-05	PI	RTP01	161	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-12-05	PI	RTP01	162	Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-200	PSI	PG / 13	
I-12-05	PIT	RTP01	161	Pressure Indicating Transmitter	Diaphragm	40_91_02.07_1.01A	4X	-	0-100	PSI	PT / 7	
I-12-05	PSL	RTP01	654	Pressure Switch	Diaphragm	40_91_02.07_1.01C	4X	-	Alarm only	-	PS / 6	
I-14-01	AE	RTP01	481	A Sensor	pH	40_91_02.01_1.01B	4X	-	0-14	pH	Civil Detail	

TABLE D1-10

Freshwater Supply, Conveyance, Storage, and Injection and Remedy-produced Water Conditioning System - Instruments

Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design

PG&E Topock Compressor Station, Needles, California

DWG # P&ID	Tag No.				Description	Type	Specification Section	Min. NEMA Rating	Size	SP/ Range	Units	DWG. DET. Reference	Notes
I-14-01	AE	RTP01	481	B	Sensor	Conductivity	40_91_02.01_1.01E	4X	-	0-80,000	uS/cm	Civil Detail	
I-14-01	AE	RTP01	482		Sensor	Turbidity	40_91_02.01_1.01D	4X	-	0 - 100	NTU	Civil Detail	
I-14-01	AIT	RTP01	481		Analyzer Transmitter	Multiparameter	40_91_02.01_1.01A	4X	-	Transmitter Only	-	Pipe or Wall Mount	
I-14-01	FE	RTP01	472		Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-50	GPM	FM / 1	
I-14-01	FE	RTP01	471		Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-50	GPM	FM / 1	
I-14-01	FIT	RTP01	472		Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-14-01	FIT	RTP01	471		Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-14-01	LE	RTP01	451		Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-15	FT	USL / 12	
I-14-01	LE	RTP01	453		Level Element	Sonic	40_91_02.05_1.01A	4X	-	0-15	FT	USL / 12	
I-14-01	LIT	RTP01	451		Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-14-01	LIT	RTP01	453		Level Indicating Transmitter	Sonic	40_91_02.05_1.01A	4X	-	Transmitter Only	-	USL / 12	
I-14-01	LSH	RTP01	459		Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-14-01	LSH	RTP01	451		Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-14-01	LSH	RTP01	453		Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-14-01	LSL	RTP01	451		Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-14-01	LSL	RTP01	453		Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-14-01	PI	RTP01	463		Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-30	PSI	PG / 13	
I-14-01	PI	RTP01	461		Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-50	PSI	PG / 13	
I-14-01	PI	RTP01	462		Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-50	PSI	PG / 13	
I-14-02	AE	RTP01	581	A	Sensor	pH	40_91_02.01_1.01B	4X	-	0-14	pH	Civil Detail	
I-14-02	AE	RTP01	581	B	Sensor	Conductivity	40_91_02.01_1.01E	4X	-	0-5,000	uS/cm	Civil Detail	1000 to 2000 typ. Range
I-14-02	AIT	RTP01	581		Analyzer Transmitter	Multiparameter	40_91_02.01_1.01A	4X	-	Transmitter Only	-	Pipe or Wall Mount	
I-14-02	FE	RTP01	571		Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	-	GPM	FM / 1	Note 1
I-14-02	FE	RTP01	572		Flow Element	Magnetic	40_91_02.03_1.01A	4X	2"	0-200	GPM	FM / 1	
I-14-02	FIT	RTP01	571		Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	Note 1
I-14-02	FIT	RTP01	572		Flow Indicating Transmitter	Magnetic	40_91_02.03_1.01A	4X		Transmitter Only	-	FM / 1	
I-14-02	LI	RTP01	553		Level Gauge	Gauge	See Drawing S-14-05		-	0-12	FT	S-14-05 Detail 1	
I-14-02	LSH	RTP01	551		Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-14-02	LSH	RTP01	555		Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-14-02	LSH	RTP01	554		Level Switch	Float	40_91_02.05_1.01C	4X	-	Alarm only	-	FS / 11	
I-14-02	LSL	RTP01	551		Level Switch	Float	40_91_02.05_1.01C	-	-	Alarm only	-	FS / 8	
I-14-02	LT	RTP01	552		Level Transmitter	Submersible	40_91_02.05_1.01B	-	-	0-12	FT	LT / 9	Cable as required per plan
I-14-02	PI	RTP01	561		Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-100	PSI	PG / 13	
I-14-02	PI	RTP01	562		Pressure Gauge	Bourdon Tube	40_91_02.07_1.01B	-	-	0-20	PSI	PG / 13	

Notes

1. Instrument may not be supplied because it is part of a contingent system that may be constructed in the future.

TABLE D1-11
Other Supporting Facilities
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV	Location ID	Equipment Number	P&ID NUMBER (D-AC-VV) D: Discipline AC: Area Code VV: Drawing #	QTY	Name	Description	Vendor	Power hP	KVA	Status New Existing Future	Materials Of Construction
0	Transwestern Bench Area	XFMR 01	E-00-02, E-00-04, E-00-10, E-08-01	1	Transformer	Medium voltage transformer 12KV primary / 480 VAC secondary for SWBD-001 (TW Bench Operations, TCS Loop Carbon Amendment Building, Carbon Amendment Panel PNL-1A, Construction Trailer, TWB-1 through TWB-4, TCS00-P940 through TCS00-P945, ER-1 through ER-6, IRZ-38 through IRZ-40,)	Cooper Power Systems	Not Applicable	225	New	Not Applicable
0	South NTH Area	XFMR 02	E-00-02, E-00-05, E-00-09, E-00-10	1	Transformer	Medium voltage transformer 12KV primary / 480VAC secondary for SWBD-002 (IRZ-29 through IRZ-37, RB-3 through RB-7)	Cooper Power Systems	Not applicable	225	New	Not applicable
0	MW-20 Bench Area	XFMR 03	E-00-02, E-00-05, E-00-10	1	Transformer	Medium voltage transformer 12KV primary / 480VAC secondary for SWBD-003 (IRZ-16 through IRZ-28, MW-20 Bench)	Cooper Power Systems	Not Applicable	225	New	Not Applicable
0	North NTH Area	XFMR 04	E-00-02, E-00-06, E-00-09, E-00-10	1	Transformer	Medium voltage transformer 12KV primary / 480VAC secondary for SWBD-004 (IRZ-1 through IRZ-15, RB-1, RB-2, RB-8, RB-9)	Cooper Power Systems	Not Applicable	300	New	Not Applicable
0	Upland Area	XFMR 05	E-00-02, E-00-08, E-00-09, E-00-10	1	Transformer	Medium voltage transformer 12KV primary / 480VAC secondary for SWBD-005 (IRL-1 through IRL-7, FW-1)	Cooper Power Systems	Not Applicable	225	New	Not Applicable
0	Compressor Station Area	XFMR 99	E-00-02, E-00-03, E-00-10, E-10-01	1	Transformer	Medium voltage step-up transformer-480VAC primary /12kV secondary for groundwater remedy	Cooper Power Systems	Not Applicable	1000	New	Not Applicable

TABLE D1-12

TCS Evaporation Ponds Upgrade Equipment*Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design**PG&E Topock Compressor Station, Needles, California*

Sheet	ID	Qty	UNIT	DESCRIPTION	Location	Manufacturer
C-09-02		1520	FT	2" CONDUIT, RMC, PVC COATED, PART# 25164337	TCS Ponds	GRAYBAR
C-09-02		2070	FT	1 1/2" CONDUIT, RMC, PVC COATED, PART# 25164294	TCS Ponds	GRAYBAR
C-09-02		2070	FT	1" CONDUIT, RMC, PVC COATED, PART# 25044019	TCS Ponds	GRAYBAR
C-09-02		100	QTY	RMC CONDUIT LINER - 1 IN, CAT# LNR3	TCS Ponds	CROUSE-HINDS
C-09-02		100	QTY	RMC CONDUIT LINER - 1 1/2 IN, CAT# LNR5	TCS Ponds	CROUSE-HINDS
C-09-02		100	QTY	RMC CONDUIT LINER - 2 IN, CAT# LNR6	TCS Ponds	CROUSE-HINDS
C-09-02		20	QTY	RMC CONDUIT FITTING - 1 IN, STRAIGHT CONNECTOR, NON-INSULATED, CAT# CPR3	TCS Ponds	CROUSE-HINDS
C-09-02		10	QTY	RMC CONDUIT FITTING - 1 1/2 IN, STRAIGHT CONNECTOR, NON-INSULATED, CAT# CPR5	TCS Ponds	CROUSE-HINDS
C-09-02		4	QTY	RMC CONDUIT FITTING - 2 IN, STRAIGHT CONNECTOR, NON-INSULATED, CAT# CPR6	TCS Ponds	CROUSE-HINDS
E-09-2		per DWR	FT	WIRE - BLACK #4 AWG, CU, THHN, PART# USA4-01THHN	TCS Ponds	USA WIRE AND CABLE, INC.
E-09-2		per DWR	FT	WIRE - BLACK #8 AWG, CU, THHN, PART# USA8-01THHN	TCS Ponds	USA WIRE AND CABLE, INC.
E-09-2		per DWR	FT	CONTROL CABLE - 4 COLOR-CODED CONDUCTOR, #12 AWG, PART# USA12-04 20/10	TCS Ponds	USA WIRE AND CABLE, INC.
E-09-2		per DWR	FT	CONTROL CABLE - 3 COLOR-CODED CONDUCTOR, #16 AWG, PART# USA16-03XPTC	TCS Ponds	USA WIRE AND CABLE, INC.
E-09-2		per DWR	FT	CONTROL CABLE - TWISTED PAIR, STRANDED, #18 AWG, FOR WET LOCATION, BELDEN 88760	TCS Ponds	BELDEN
E-09-2		per DWR	FT	CONTROL CABLE - 6 COLOR CODED CONDUCTOR, #18 AWG, FOR WET LOCATION, BELDEN 83656	TCS Ponds	BELDEN
E-09-2		per DWR	FT	GROUNDING WIRE - #4 AWG, BARE, CU, STRANDED, PART# USA4-01STRSDBC	TCS Ponds	USA WIRE AND CABLE, INC.
E-09-2		4	QTY	GROUNDING ROD - 3/4 IN Diam X 10 FT LENGTH, ITEM # 2KXL5	TCS Ponds	GRAINGER
E-09-2		4	QTY	GROUNDING ROD WIRE CLAMP, ROD DIAM 3/4 IN, ITEM # 2KXN3	TCS Ponds	GRAINGER
E-09-2		4	QTY	GROUND ROD, 5/8" DIAM x 8 FT LENGTH, ITEM # 2KXL8	TCS Ponds	GRAINGER
E-09-2		4	QTY	GROUNDING ROD WIRE CLAMP, ROD DIAM 5/8 IN, ITEM # 2KXN2	TCS Ponds	GRAINGER
M-09-01		1	QTY	GENERATOR - CAPSTONE MICROTURBINE - 480V, 3P,WYE, NEUTRAL GROUNDED, 50-60 PSIG NATURAL GAS FUELED, MODEL C30	TCS Ponds	CAPSTONE
C-09-04		3	QTY	GFCI POWER OUTLET - 120V/50A, W/GFI, C/BS NEMA 3R, PART# PAK41PGFI	TCS Ponds	SQUARE D
A-09-2		1	QTY	GENERATOR BREAKER ENCLOSURE - FOR CIRCUIT BREAKER NEMA 3R, PART# FA100RB	TCS Ponds	SQUARE D

TABLE D1-12

TCS Evaporation Ponds Upgrade Equipment*Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design**PG&E Topock Compressor Station, Needles, California*

Sheet	ID	Qty	UNIT	DESCRIPTION	Location	Manufacturer
A-09-2		1	QTY	GENERATOR CIRCUIT BREAKER - MOLDED CASE CIRCUIT BREAKER 480V/100 AMP, PART# FAL34100	TCS Ponds	SQUARE D
C-09-04		6	QTY	PULL BOXES - CHECKERED COVER SIDEWALK JUNCTION BOXES (FLUSH MOUNT) - WEATHERPROOF, WATERTIGHT, RAINLIGHT, NEMA 3,4,5 - CAT# WJBF181218	TCS Ponds	CROUSE-HINDS
M-09-01		1	QTY	DEEPWELL ANODE, MATCOR, PL-SP-120-200-2BW, 30AMP. W/ STRANDED 50' ADD'L DUAL LEADS	TCS Ponds	GAS STD 013.5
M-09-01 & E- 09-06		1	QTY	OMNIMETRIX RECTIFIER, REMOTE MON. DC POWER. IRIIDIUM COMM. 6' PIGTAIL, 60AMP RELAY, RM 200	TCS Ponds	OMNIMETRIX
M-09-01		AS REQ'D	FT	WIRE, #10 HMWPE WITH 47 MIL THICKNESS 600 VOLTS, SOLID COPPER, BLACK INSULATION	TCS Ponds	GAS STD 0-10
M-09-01		1	QTY	LITTLE FINK, TEST LEAD BOX, 2-TERMINAL ORANGE	TCS Ponds	GAS STD 0-10.1
M-09-01		1	QTY	CONDUIT, 1-1/4" PVC, SCHEDULE 40 (FOR LITTLE FINK)	TCS Ponds	GAS STD 0-10.1
M-09-01		4	QTY	CARTRIDGE, CALDWELD OR THERMOWELD 15 GRAM	TCS Ponds	GAS STD 0-10
M-09-01		4	QTY	SLEEVE, COPPER, THERMOWELD A200 OR EQUIVALENT	TCS Ponds	GAS STD 0-10
M-09-01		4	QTY	HANDY CAP, ROYSTON, 4" X 4" PATCH	TCS Ponds	GAS STD F-27
M-09-01		4	QTY	ACTUATOR VALVE - ELECTRIC ACTUATED BUTTERFLY VALVE, 3" WAFER, EPDM, 12-24V, STOCK# 562614	TCS Ponds	VALWORX
M-09-01		4	QTY	PLUG CONNECTOR - ISO DIN W/ 16 FT CABLE, STOCK# 588005A	TCS Ponds	VALWORX
M-09-01		4	QTY	PLUG CONNECTOR - SUB-MICRO DIN W/ 16 FT CABLE, STOCK# 588007A	TCS Ponds	VALWORX
M-09-02	LT	4	QTY	ROSEMOUNT LEVEL TRANSMITTER, ULTRASONIC, PART# 3102 H A 1 FRC	TCS Ponds	ROSEMOUNT
M-09-02	LIC	4	QTY	ROSEMOUNT STANDARD CONTROL UNIT, UNIVERSAL, PART# 3491 L 1 P6 L1	TCS Ponds	ROSEMOUNT
M-09-02		2	QTY	LIGHTS - FLOOD - 120W LED, 120V, PART# FDL-120WLED-UNIV-4000K	TCS Ponds	INDUSTRIAL LIGHTING PRODUCTS
M-09-02		2	QTY	CAMERA POLE - 16 FT POLEVATOR LOWERING POLE, MODEL PV16	TCS Ponds	MOOG VIDEOALARM
M-09-02		1	QTY	LIGHTS GEN BLD	TCS Ponds	
M-09-02		2	QTY	IR MOTION CAMERA, UPH-C498N-L8585(CAMERA/LENS), UPH-HWDIR- 24(PAN/TILT SYSTEM WITH POWER SUPPLY), MTC-PUPH(TOP OF POLE MOUNT), UFLED20-8BD(20 DEGREE, 850 NM ILLUMINATORS)	TCS Ponds	BOSCH SECURITY
A-09-2		3	QTY	SUMP PUMP - 1HP, 2-IN DISCHARGE, ITEM# 5EAF9	TCS Ponds	GRAINGER
E-09-04		per DWR		SWITCH ETHERNET, 8 PORT	TCS Ponds	
E-09-04		per DWR		FIBER	TCS Ponds	

TABLE D1-12

TCS Evaporation Ponds Upgrade Equipment*Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design**PG&E Topock Compressor Station, Needles, California*

Sheet	ID	Qty	UNIT	DESCRIPTION	Location	Manufacturer
E-09-03		1		900 MHZ RADIO GE WIRELESS	TCS Ponds	
E-09-02		1	QTY	75 Kva TRANSFORMER - 480V, 3 PHASE - 480 DELTA PRIMARY - 120/240V SECONDARY - NEMA 3R ENCLOSURE, PART# MT-75kVA-3P-480V-240-120	TCS Ponds	LARSON ELECTRONICS
E-09-02		1	QTY	DISTRIBUTION PANEL - LOAD CENTER - 125A, 3PH, 30 CIRCUIT, PART# QO330MQ125RB	TCS Ponds	SQUARE D
E-09-02		1	QTY	SAFETY SWITCH - FUSIBLE GD 240V, 100A, 3P NEMA 3R, PART# D323NRB	TCS Ponds	SQUARE D
C-09-01		2	QTY	MOTOR CONTROL PANEL - MAGNETIC MOTOR STARTER WITH HAND/OFF /AUTO SELECTOR SWITCH - COMBINATION ENCLOSURE AND STARTER WITH 208/120V TRANSFORMER, PART# 853SBA22V84CFF4G26P1P2TX11	TCS Ponds	SQUARE D
C-09-01		5	QTY	MANUAL SWITCH (FOR LIGHTS) WITH HAND/OFF/AUTO SELECTOR, 10A/120V - CONTROL STATION + , PART# 9001SKY110	TCS Ponds	SQUARE D
E-09-06		1	QTY	DISTRIBUTED POWER SUPPLY, 18 OUTPUT, 24VAC, PSPRO-AC-18	TCS Ponds	CCTV Camera Pros
M-09-06		2	QTY	VERTICLE PUMP - 3 HP, 240V, 3P, SERIES PHF, MODEL P-3	TCS Ponds	PENGUIN FILTER PUMP INDUSTRIES
M-09-05		10	QTY	CABLE GLAND - FORM B, .125-250 CABLE ACCEPTANCE, ALUMINUM CONSTRUCTION, CAT# CGB292	TCS Ponds	CROUSE-HINDS
C-09-04		12	QTY	SINGLE GANG DEVICE BOX - 3/4", SHALLOW CONFIGURATION, CAST IRON, CAT# FSL2	TCS Ponds	CROUSE-HINDS
C-09-04		10	QTY	BLANK SINGLE GANG DEVICE BOX COVER W/ GASKET, CAT# DS100G	TCS Ponds	CROUSE-HINDS
C-09-04		10	QTY	METALLIC JUNCTION BOX - FOR 1 IN CONDUIT, CAT#NSYDB2015M	TCS Ponds	CROUSE-HINDS
C-09-04		10	QTY	PLAIN MOUNTING PLATE (FOR 1 IN METALLIC JUNCTION BOX, CAT# NSYDB2015M), CAT# NSYPMD2015	TCS Ponds	CROUSE-HINDS
C-09-04			QTY	METALLIC JUNCTION BOX - FOR 1 1/2 IN CONDUIT, CAT#NSYDB2520M	TCS Ponds	CROUSE-HINDS
C-09-04			QTY	PLAIN MOUNTING PLATE (FOR 1 1/2 IN METALLIC JUNCTION BOX, CAT# NSYDB2520M), CAT# NSYPMD2520	TCS Ponds	CROUSE-HINDS
C-09-04		1	QTY	COMMUNICATION PANEL/ENCLOSURE - NEMA 4, PART# AE 1280.500	TCS Ponds	RITTAL
C-09-04		1	QTY	WALL MOUNTING KIT FOR ENCLOSURE AE 1280.500	TCS Ponds	RITTAL
C-09-01		2	QTY	RELAY - 240VAC, 10A, TYPE K, 24VDC CONTROL CIRCUIT VOLTAGE, PART# 8501KFD12V53	TCS Ponds	SQUARE D
C-09-01		2	QTY	RELAY SOCKET - 300VAC, 10A, TYPE R+OPTION, PART# 8501NR42	TCS Ponds	SQUARE D

TABLE D1-12

TCS Evaporation Ponds Upgrade Equipment*Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design**PG&E Topock Compressor Station, Needles, California*

Sheet	ID	Qty	UNIT	DESCRIPTION	Location	Manufacturer
M-09-05		10	QTY	FLOTATION BARREL - PONTOON		AS PER M-09-05 PONTOON PLAN & DETAILS DRAWING
M-09-04		2	sets	ALUMINUM SQUARE CHANNEL		see above
M-09-05		2		GREEN SUCTION HOSE 3"		see above
M-09-06		2		CHECK VALVE		see above
M-09-06		4		GATE VALVE (Pontoon)		see above
M-09-06		per DWR		PIPING AND FITTINGS(pontoon)		see above
M-09-06		2		PUMP SCREEN SS		see above
M-09-06		2		BLEED NIPPLE AND BALL VALVE		see above
M-09-06		2		PRESSURE RELEASE VALVE AND PIPING TEES		see above
M-09-06		2		SPRAY NOZZLE		see above
M-09-04		2		ALUMINUM DECKING		see above
M-09-03		8		GUY WIRE Nylon 1/2" dia		see above
M-09-03		2		PONTOON POLE		see above
M-09-06		4		HOSE FLOATS		see above
M-09-02		2		LIQUID LEVEL SENSOR PIPING		see above
C-09-04		2		ACTUATOR NEW PIPING		see above
M-09-06		2		HDPE PIPING TO OFF SITE DISPOSAL		see above
M-09-06		2		HDPE BALL VALVE TO OFF SITE DISPOSAL		see above
M-09-01		50	FT	PIPE STEEL SEAMLESS 1.050" OD x D154" WALL. STANDARD. API-5L. GR B. SMLS. WRAP		GAS STD A-15
M-09-01		1	QTY	VALVE. 3/4" BALL. THREADED. 2500 PIC. MARPAC		GAS STD F-20
M-09-01		1	QTY	FILTER. WELKER. SULFUR REMOVAL. 1/4" FNPT		WELKER
M-09-01		1	QTY	PILOT. MOONEY. SERIES 20. HP BK SPRING 200-500#		GAS STD HBO 1
M-09-01		2	QTY	PILOT. MOONEY. SERIES 20. HP BK SPRING 25-90#		GAS STD HBO 1
M-09-01		3	QTY	VALVE NEEDLE. 1/4"MNPT X 1/4" FNPT PN H1VDC-22		GAS STD F-70
M-09-01		1	QTY	VALVE NEEDLE. 1/4"MNPT X 1/4" FNPT PN H1VDC-2		GAS STD F-70
M-09-01		1	QTY	MUELLER, 1'CURB VALVE TEE, MODEL No. H-17800		GAS STD A43.1
M-09-01		1	QTY	MUELLER, TEE. 1' MODEL No. H-17656		GAS STD C-11
M-09-01		7	QTY	ELBOW, 3/4" SOCKET WELD, 3000#		GAS STD B-21
M-09-01		1	QTY	TEE, 3/4" THREADED. 3000#		GAS STD B-14
M-09-01		2	QTY	BUSHING, 3/4" MNPT X 1/4" FNPT		INDUSTRIAL
M-09-01		6	QTY	PLUG, 1/4" FORGED STEEL. HEX HEAD		GAS STD B10.1
M-09-01		3	QTY	NIPPLE. 1/4". EXTRA STRONG. 2" LONG		GAS STD B13.1
M-09-01		3	QTY	NIPPLE. 1/4". EXTRA STRONG. 6" LONG		GAS STD B13.1

TABLE D1-12

TCS Evaporation Ponds Upgrade Equipment*Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design**PG&E Topock Compressor Station, Needles, California*

Sheet	ID	Qty	UNIT	DESCRIPTION	Location	Manufacturer
M-09-01		2	QTY	NIPPLE, 1/4". EXTRA STRONG. 18" LONG		GAS STD B13.1
M-09-01		3	QTY	ELBOW, 1/4". SWAGELOK. SS-4-E, 7200 PSIG RATING		SWAGELOK
M-09-01		19	QTY	MALE CONNECTOR, 3/8" TUBING X 1/4 PIPE THD		GAS STD B-62
M-09-01		1	QTY	CONNECTER, ALL TUBE TEE, 3/8" TUBING		GAS STD B-62
M-09-01		6	QTY	TEE, 1/4". SWAGELOK. SS-4-T, 7200 PSIG RATING		SWAGELOK
M-09-01		5	FT	TUBING, 304SS, 3/8" OD, 0.035"WT		GAS STD A-22
M-09-01		30	FT	STRUT, CHANNEL, SINGLE, 1-5/8"X 1-5/8", PN 3310T2		McMASTERCARR
M-09-01		4	QTY	STRUT,CHANNEL, MOUNT CLAMPS, 3/8", PN 3115T13		McMASTERCARR
M-09-01		2	QTY	STRUT CHANNEL, 5-HOLE GUSSET CORNER PLATE, PN 33125T22		McMASTERCARR
M-09-01		5	QTY	STRUT CHANNEL, 5-HOLE GUSSET T-PLATE, 33125T92		McMASTERCARR
M-09-01		1	QTY	STRUT,CHANNEL, CROSS PLATE, 33125T92		McMASTERCARR
M-09-01		1	QTY	STRUT, SUPPORT BASE, 33145T32		McMASTERCARR
M-09-01		per DWR	EST	STRUT, CLAMPING NUTS WITH SPRING, 3259T15		McMASTERCARR
M-09-01		1	QTY	VALVE BOX, BODY, 3' LONG		GAS STD K-40
M-09-01		3	QTY	QUICK CONNECT FITING, SS-0C6-B-4PM, SWAGELOK		SWAGELOK
M-09-01		3	QTY	BODY PROTECTOR, SS-QC4-BP, SWAGELOK		SWAGELOK
As per C-09/ E-09/ A-09		per DWR		REBAR	TCS Pond	
As per C-09/ E-09/ A-09		per DWR		BOLTS FOR HDPE	TCS Pond	
As per C-09/ E-09/ A-09		per DWR		HDPE SPILL CURTAINS	TCS Pond	
As per C-09/ E-09/ A-09		per DWR		ANCHOR BOLTS	TCS Pond	
As per C-09/ E-09/ A-09		per DWR	Qty	COVER, CONCRETE, W/ GAS VALVE" MARKING	TCS Pond	GAS STD K-40
As per C-09/ E-09/ A-09		per DWR	Qty	ANCHOR BOLT, 1/2" DIA X 12" LONG	TCS Pond	
As per C-09/ E-09/ A-09		per DWR	FT	SONATUBE, 12" DIAMETER	TCS Pond	
As per C-09/ E-09/ A-09		per DWR	FT	SONATUBE, 24" DIAMETER	TCS Pond	

TABLE D1-12

TCS Evaporation Ponds Upgrade Equipment*Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design**PG&E Topock Compressor Station, Needles, California*

Sheet	ID	Qty	UNIT	DESCRIPTION	Location	Manufacturer
As per C-09/ E-09/ A-09		per DWR	YD	CONCRETE, FC= 3000 PSI	TCS Pond	
As per C-09/ E-09/ A-09		per DWR	YD	CONCRETE, FC= 4000 PSI	TCS Pond	
As per C-09/ E-09/ A-09		per DWR	Qty	BODY, CONCRETE VALVE FRAME, 10-3/8" X 12", GR-5	TCS Pond	GAS STD K-40
As per C-09/ E-09/ A-09		per DWR	Qty	CONCRETE, VALVE CAST IRON 11-1/8" DIA, FULL TRAFFIC	TCS Pond	GAS STD K-40
As per C-09/ E-09/ A-09		per DWR	QTY	ANCHOR - NO WRENCH SCREW AND EXTENSION FOR PONTOON PUMP ANCHOR SYSTEM, 3/4 IN DIAM X 66 IN LENGTH, GALVANIZED STEEL, CAT# 6346	TCS Pond	HUBBELL POWER

TABLE D1-13
Aboveground Non-Emergency Remedy Equipment with Associated Sound Level Information
(Prepared in response to 60% RTC # FMIT-51, Hualapai-37/Chemehuevi-37/Cocopah-37/CRIT-37)
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV	Location	Equipment Number	Equipment Name	Qty	Vendor	Model or Part Number	Sound Level	Sound Level Source	Status	Remarks
0	Transwestern Bench Area	XFMR 01	Transformer	1	Cooper Power Systems	225 KVA	56 dBA ^{1,2}	Cooper Power Systems. <i>Technical Data 210-12, Three-phase pad-mounted compartmental type transformer.</i> August 2013. Page 3. (see Appendix C of O&M Manual Volume 1)	New	Inside enclosure
0	MW-20 Bench Area	XFMR 02	Transformer	1	Cooper Power Systems	225 KVA	56 dBA ^{1,2}	Cooper Power Systems. <i>Technical Data 210-12, Three-phase pad-mounted compartmental type transformer.</i> August 2013. Page 3. (see Appendix C of O&M Manual Volume 1)	New	Inside enclosure
0	MW-20 Bench Area	XFMR 03	Transformer	1	Cooper Power Systems	225 KVA	56 dBA ^{1,2}	Cooper Power Systems. <i>Technical Data 210-12, Three-phase pad-mounted compartmental type transformer.</i> August 2013. Page 3. (see Appendix C of O&M Manual Volume 1)	New	Inside enclosure
0	North Riverbank Area	XFMR 04	Transformer	1	Cooper Power Systems	300 KVA	56 dBA ^{1,2}	Cooper Power Systems. <i>Technical Data 210-12, Three-phase pad-mounted compartmental type transformer.</i> August 2013. Page 3. (see Appendix C of O&M Manual Volume 1)	New	Inside enclosure
0	Upland Area	XFMR 05	Transformer	1	Cooper Power Systems	225 KVA	56 dBA ^{1,2}	Cooper Power Systems. <i>Technical Data 210-12, Three-phase pad-mounted compartmental type transformer.</i> August 2013. Page 3. (see Appendix C of O&M Manual Volume 1)	New	Inside enclosure
0	Compressor Station Area	XFMR 99	Transformer	1	Cooper Power Systems	1000 KVA	58 dBA ^{1,2}	Cooper Power Systems. <i>Technical Data 210-12, Three-phase pad-mounted compartmental type transformer.</i> August 2013. Page 3. (see Appendix C of O&M Manual Volume 1)	New	Inside enclosure
0	MW-20 Bench Area	Node 2	Communication Panel Air Conditioning Unit	1	Rittal	3305.514	<64 dBA ¹	Rittal. <i>Assembly and Operating Instructions.</i> July 2011. Page 41. www.rittal.com/imf/none/3_821/	New	Inside enclosure
0	North Riverbank Area	Node 4	Communication Panel Air Conditioning Unit	1	Rittal	3305.514	<64 dBA ¹	Rittal. <i>Assembly and Operating Instructions.</i> July 2011. Page 41. www.rittal.com/imf/none/3_821/	New	Inside enclosure
0	Upland Area	Node 5	Communication Panel Air Conditioning Unit	1	Rittal	3305.514	<64 dBA ¹	Rittal. <i>Assembly and Operating Instructions.</i> July 2011. Page 41. www.rittal.com/imf/none/3_821/	New	Inside enclosure
0	Transwestern Bench Operations Building	CU-1 CU-2	Split System Condensing Unit	2	To be determined (TBD)	TBD	TBD	TBD	New	Located outside of building
0	MW-20 Bench Carbon Amendment Building		Heat Pump	1	Mitsubishi	PKA-A36KA4	Cooling: 48 dBA ¹ Heating: 50 dBA ¹	Mitsubishi. <i>P-Series Full-line Catalog.</i> 2011. Page 15. http://www.mitsubishicomfort.com/media/382152/p%20series_3_11-r_pages.pdf	New	Located outside of building
0	MW-20 Bench Carbon Amendment Building		Ventilation Fan ⁴	2	To be determined (TBD)	TBD	TBD	TBD	New	Mounted on side of building
0	Remedy-produced Water Conditioning Plant	CH-1300	Potable Water Heat Pump Chiller	1	Multiaqua	MACH-060-1	69 dBA ¹	Multiaqua. <i>Multiaqua Equipment Sound Levels.</i> January 2008. (see attachment to Multiaqua manual in Appendix C of O&M Manual Volume 1)	New	Located outside of building
0	Remedy-produced Water Conditioning Plant	COND-703 COND-711 COND-721	Mini-split Condenser	3	Mitsubishi	MUZ-D36NA	Cooling: 56 dBA ¹ Heating: 57 dBA ¹	Mitsubishi Electric. <i>Outdoor Unit Service Manual, No. OBH502.</i> January 2009. Page 4. (see Appendix C of O&M Manual Volume 1)	New	Located outside of building
0	Remedy-produced Water Conditioning Plant	EF-1300	Gable End Exhaust Fan ⁴	1	To be determined (TBD)	TBD	TBD	TBD	New	Mounted on side of building

TABLE D1-13
Aboveground Non-Emergency Remedy Equipment with Associated Sound Level Information
(Prepared in response to 60% RTC # FMIT-51, Hualapai-37/Chemehuevi-37/Cocopah-37/CRIT-37)
Groundwater Remedy Basis of Design Report/Pre-Final (90%) Design
PG&E Topock Compressor Station, Needles, California

REV	Location	Equipment Number	Equipment Name	Qty	Vendor	Model or Part Number	Sound Level	Sound Level Source	Status	Remarks
0	Remedy-produced Water Conditioning Plant	EF-1301	Office Sample Room Exhaust Fan	1	Broan	509	55 dBA +/- 2dBA ^{1,3}	Broan. <i>Models 508, 509, & 509S Wall Fans, Specification Sheet</i> . http://www.broan.com/common/productDigitalAssethandler.ashx?id=03f16dec-399e-4aab-9594-73ddcd8db191	New	Mounted on side of building
0	TCS Ponds		Electric Power Generator	1	Capstone	C30	65 dBA ⁴	Capstone. <i>Capstone MicroTurbine Model C30 User's Manual</i> . February 2013. Page 10. (see Appendix C of O&M Manual Volume 1)	New	Inside enclosure
0	TCS Ponds		Transformer	1	Larson Electronics	MT-75kVA-3P-480V-240-120	Not available ⁵	Larson Electronics LLC. <i>75 kVA Transformer - 480V 3 Phase - 480V Delta Primary - 120/240V Secondary - NEMA 3R Enclosure</i> . http://www.larsonelectronics.com/images/product/specsheet/68841.pdf (Product specification only. Does not include equipment sound generation)	New	Inside enclosure

- Notes:
Select equipment manuals are located in Appendix C, Volume 1 of the Operations and Maintenance Manual.
dB- decibels
dBA – A-weighted decibels
1. Distance of sound level is not specified in the equipment manual but is assumed to be 5 feet based on verbal communication with the manufacturer.
2. Transformers designed to meet NEMA® TR-1 Standard dBA rating.
3. Sound rating provided in vendor specification is 6.5 Sones. Sound rating of 55 dBA +/- 2dBA calculated using formula of dBA = 33.2 Log₁₀ (sones) + 28, Accuracy +/- 2dBA.
4. Acoustic emissions at full load power for equipment without sound enclosure, nominal at 33 feet.
5. Sound rating for equipment is not available. PG&E is in communication with vendor to obtain the information.