Presentation and Discussion Item 5

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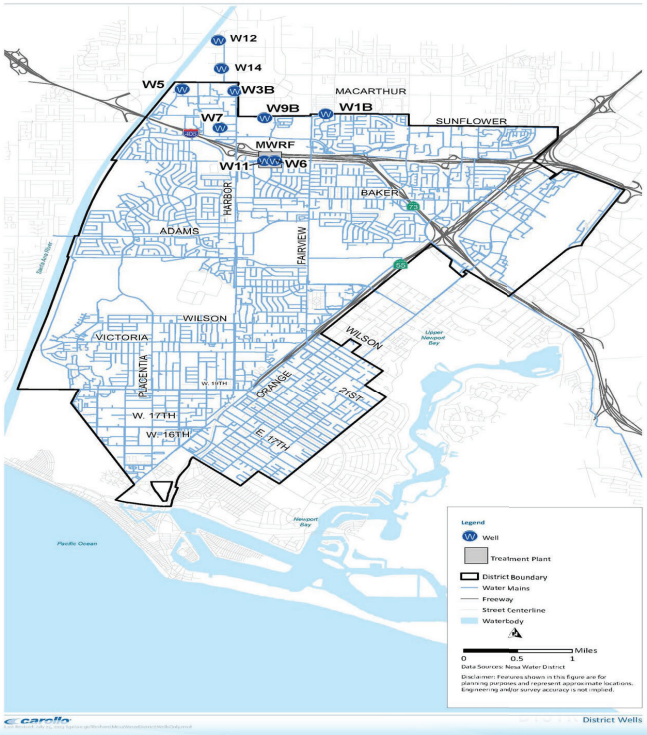
WATER PRODUCTION RESOURCES FOR A PERPETUAL AGENCY

- 7 Clear Wells
- 2 Reservoirs
- MWRF
- 5 Import Stations
- 317 Miles of Pipeline



Production System Operations Plan (PSOP) Overview

- Policies
- Material Acquisition
- **Systems Operations**
- **Water Quality**
- **Chemical Management**
- **Communications**
- Preventative Maintenance & Capital Work

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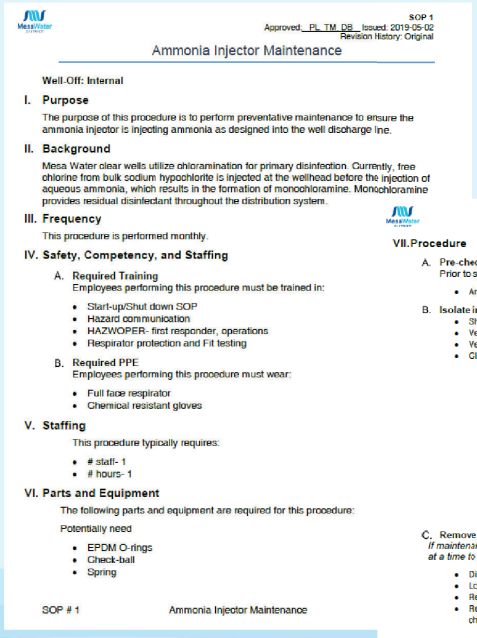
Standard Operating Procedures (SOPs)



SOP 1
Approved: PL TM DB Issued: 2019-05-02
Revision History: Original

Ammonia Injector Maintenance

Well-Off: Internal

I. Purpose

The purpose of this procedure is to perform preventative maintenance to ensure the ammonia injector is injecting ammonia as designed into the well discharge line.

II. Background

Mesa Water clear wells utilize chloramination for primary disinfection. Currently, free chlorine from bulk sodium hypochlorite is injected at the wellhead before the injection of aqueous ammonia, which results in the formation of monochloramine. Monochloramine provides residual disinfectant throughout the distribution system.

III. Frequency

This procedure is performed monthly.

IV. Safety, Competency, and Staffing

A. **Required Training**
Employees performing this procedure must be trained in:

- Start-up/Shut down SOP
- Hazard communication
- HAZWOPER- first responder, operations
- Respirator protection and Fit testing

B. **Required PPE**
Employees performing this procedure must wear:

- Full face respirator
- Chemical resistant gloves

V. Staffing

This procedure typically requires:

- # staff- 1
- # hours- 1

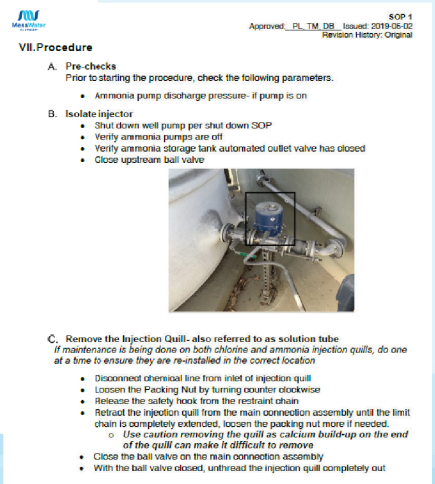
VI. Parts and Equipment

The following parts and equipment are required for this procedure:

Potentially need

- EPDM O-rings
- Check-ball
- Spring

SOP # 1 Ammonia Injector Maintenance



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VII. Procedure

A. **Pre-checks**
Prior to starting the procedure, check the following parameters.

- Ammonia pump discharge pressure- if pump is on

B. **Isolate injector**

- Shut down well pump per shut down SOP
- Verify ammonia pumps are off
- Verify ammonia storage tank automated outlet valve has closed
- Close upstream ball valve

C. **Remove the Injection Quill- also referred to as solution tube**
If maintenance is being done on both chlorine and ammonia injection quills, do one at a time to ensure they are re-installed in the correct location

- Disconnect chemical line from inlet of injection quill
- Loosen the Packing Nut by turning counter clockwise
- Release the safety hook from the restraint chain
- Retract the injection quill from the main connection assembly until the limit chain is completely extended, loosen the packing nut more if needed.
  - *Use caution removing the quill as calcium build-up on the end of the quill can make it difficult to remove*
- Close the ball valve on the main connection assembly
- With the ball valve closed, unthread the injection quill completely out

PDO Checklist

PDO DAILY CHECKLIST

Name: Alonzo Alatorre
Date: 9/4/23

RESERVOIRS

	FACILITY		DISCHARGE FLOW	FILL FLOW	RESERVOIR LEVEL	TOTAL CHLORINE MG/L	CL2/NH3 RATIO	BACKUP GENERATOR		CHLORINE PUMP		NOTES
RES 1	LEAD ✓	LAG	0	0	9.3	0.7 TO 2.5 1.61	3.5/1 TO 4.9/1 4.35	ON	OFF ✓	ON	OFF ✓	7am
RES 2	LEAD	LAG ✓	0	920	5.5	0.7 TO 2.5 1.15	3.5/1 TO 4.9/1 4.10	ON	OFF ✓	ON ✓	OFF	

WELLS

	FACILITY		DISCHARGE FLOW	MONO CHLORINE MG/L	AMMONIA MG/L	CL2/NH3 RATIO	NOTES
WELL 1	ON ✓	OFF	2297	2.2 TO 2.5 2.64	.57	4.65	
WELL 3	ON ✓	OFF	1705	2.2 TO 2.5 2.82	.60	4.70	
WELL 5	ON	OFF ✓		2.2 TO 2.5			
WELL 7	ON ✓	OFF	1205	2.2 TO 2.5 2.34	.50	3.87	
WELL 9	ON	OFF ✓		2.2 TO 2.5			
WELL 11	ON	OFF ✓		2.2 TO 2.5			
WELL 14	ON ✓	OFF	3921	2.2 TO 2.5 2.66	.50	4.40	

MWRF

FUNCTIONS	WELL 6	WELL 11	NOTES
	ON ✓ OFF	ON OFF ✓	
TRAIN 1	ON OFF ✓	ON OFF ✓	
TRAIN 2	ON ✓ OFF	ON OFF	
CO2 ROOM	PH 6.3 TO 6.5 6.17		LBS OF CO2 117
PRODUCT TRANSFER PUMP	PH 8.2 TO 8.7 8.61		
PRODUCT TRANSFER PUMP	TURBIDITY <0.7 0.41		
PRODUCT TRANSFER PUMP	MONO 2-3 2.16		
HIGH LIFT PUMP ON/OFF	ON ✓	OFF	
HIGH LIFT TOTAL CHLORINE	MG/L 2 TO 3 2.42		
HIGH LIFT NH3 RATIO	3.5/1 TO 4.9/1 4.685		
RESERVOIR LEVEL	13.56		
HIGH LIFT DISCHARGE FLOW	GPM 3054		
SCRUBBER SYSTEM PH	PH 9.5 TO 10.5 9.84		
SCRUBBER ORP	> 500 787		

		DISCHARGE FLOW	NOTES
IMPORT MESA & SANTA ANA	ON OFF ✓		
IMPORT FAIR & NEWPORT	ON OFF ✓		
IMPORT FAIR & FAIRVIEW	ON OFF ✓		
IMPORT OC44	ON ✓ OFF	10	
IMPORT OC14	ON OFF ✓		
IMPORT CM2	ON OFF ✓		
EXPORT RANGER/ OCWD	ON ✓ OFF	10	

Chemical Forecaster

Weekly Chemical Forecaster

Date: 9/28/2023
Name: Alonzo Alatorre

Ammonia

Location	Current Level (in)	Days of operation until	Existing Volume (Gal)*	Gallons to order	Max Level (in)	Max Volume (Gallons	Avg. use daily	Dose ml/m
Well 1	62	2	2461	0	81.00	3210	0.92	33
Well 3	69	2	2739	0	81.00	3210	0.13	20
Well 5	68	2	2700	0	81.00	3210	0.12	33
Well 7	52	2	2064	0	81.00	3210	0.22	23
Well 9	45	2	1781	0	81.00	3210	0.27	
MWRF	35	2	572	1028	37.32	1600.0	0.73	
Total				1028				

Input Value — Max Level is 80% of tank volume
Calculated Value
Gallons to order
MWRF HIO pump stops pumping at 22 inches
.73 in. at 3000GPM / 1.71 in. at 6000GPM

Chlorine

Location	Current Level (in)	Days of operation until	Existing Volume (Gal)*	Gallons to order	Max Level (in)	Max Volume (Gallons	Avg. use daily	Dose ml/m
Well 1	63	3	2437	0	81.0	3210	1.68	175
Well 3	64	3	2537	0	81.0	3210	0.51	95
Well 5	57	3	2256	0	81.0	3210	1.68	175
Well 7	58	3	2293	0	81.0	3210	1.03	107
Well 9	48	3	1902	0	81.0	3210	1.35	
MWRF	60	3	3648	2567	86.4	5264	5.70	
Res 1		3	0	265	38.0	285	0.76	15
Res 2		3	0	265	38.0	285	0.76	15
Total				3137				

well cl2 pumps stop pumping at 18 inches
5.26 in. at 3000 GPM / 10.36 in. at 6000GPM
If MWRF order = 4300g or more, at 6000gpm, you'll run out of CL2 before delivery on Thursday

SBS

Location	Current Level (in)	Days of operation until	Existing Volume (Gal)*	Gallons to order	Max Level (in)	Max Volume (Gallons	Avg. use daily
MWRF	72	1	1267	459	96.0	1680	4.38

MWRF sbs stops at 20 inches
2.18 in. at 3000 GPM / 4.38 in at 6000GPM

Caustic Soda

Location	Current Level (in)	Days of operation until	Existing Usable Volume	Gallons to order	Max Level (in)	Max Volume (Gallons	Avg. use daily
MWRF		9	-1000	5068	84.0	4240	5.52

1.68 in at3000GPM / 5.52 in. at 6000GPM

Scale Inhibitor

Location	Current Level (in)	Days of operation until	Existing Volume (Gal)*	Totes to order	Max Level (in)	Max Volume (Gallons	Avg. use daily	Number of Extra totes
MWRF	33	10	244	2	48.0	300	0.67	0.00

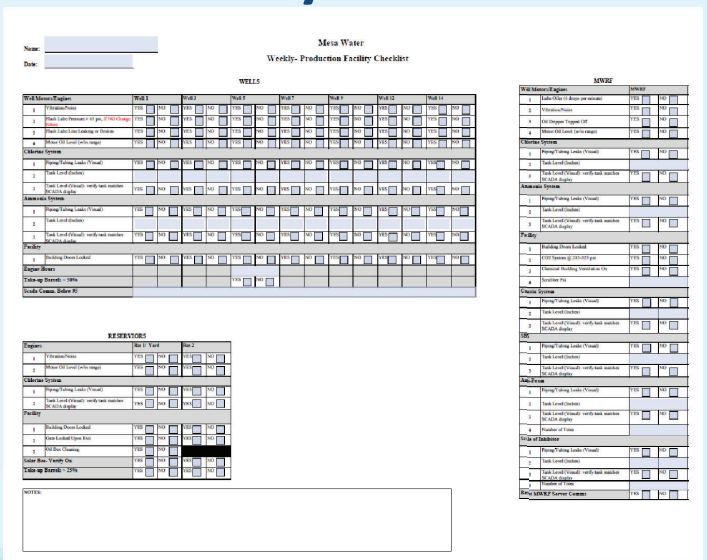
.336 in at3000GPM / .672 in. at 6000GPM

Anti Foam

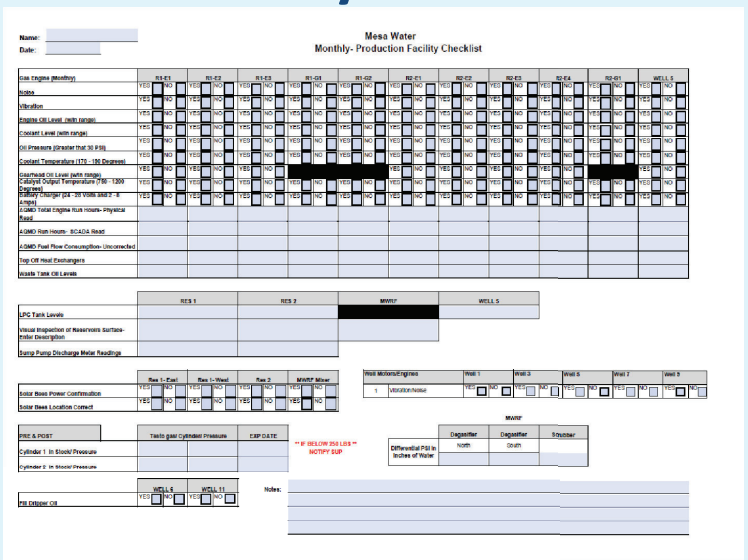
Location	Current Level (in)	Days of operation until	Existing Volume (Gal)*	Totes to order	Max Level (in)	Max Volume (Gallons	Avg. use daily	Number of Extra totes
MWRF	14	10	88	1	48.0	300	0.07	0

.0304 in at3000GPM / .072 in. at 6000GPM

Weekly Checklist


Mesa Water
Weekly- Production Facility Checklist
WELLS
MWRF
RESERVOIRS

Monthly Checklist


Mesa Water
Monthly- Production Facility Checklist

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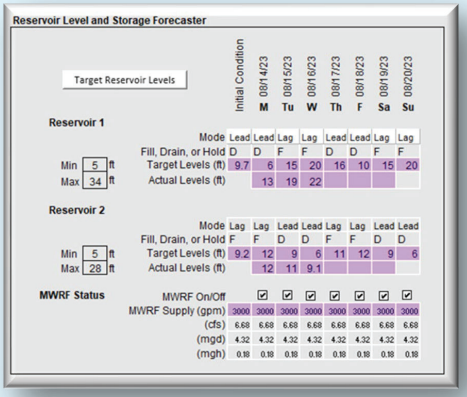
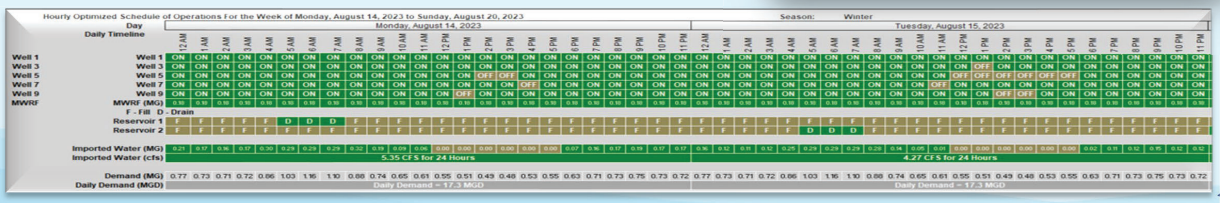
Efficiently Managing Water Supply





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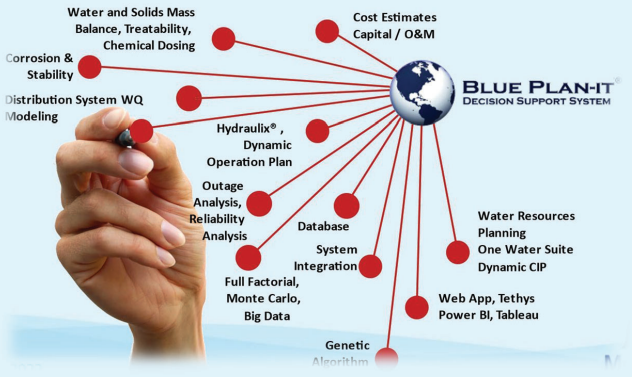
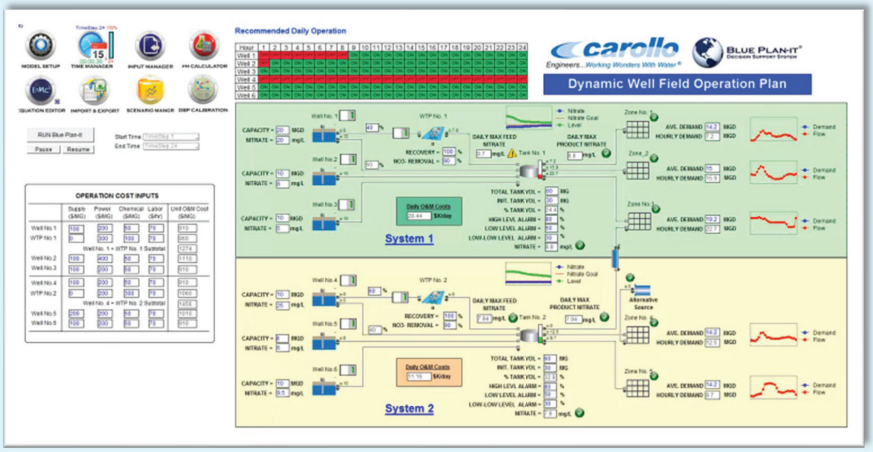
BLUE PLAN-IT





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Perpetually Renew and Improve Our Infrastructure

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Questions?