Inland Empire Brine Line TSS Formation Target

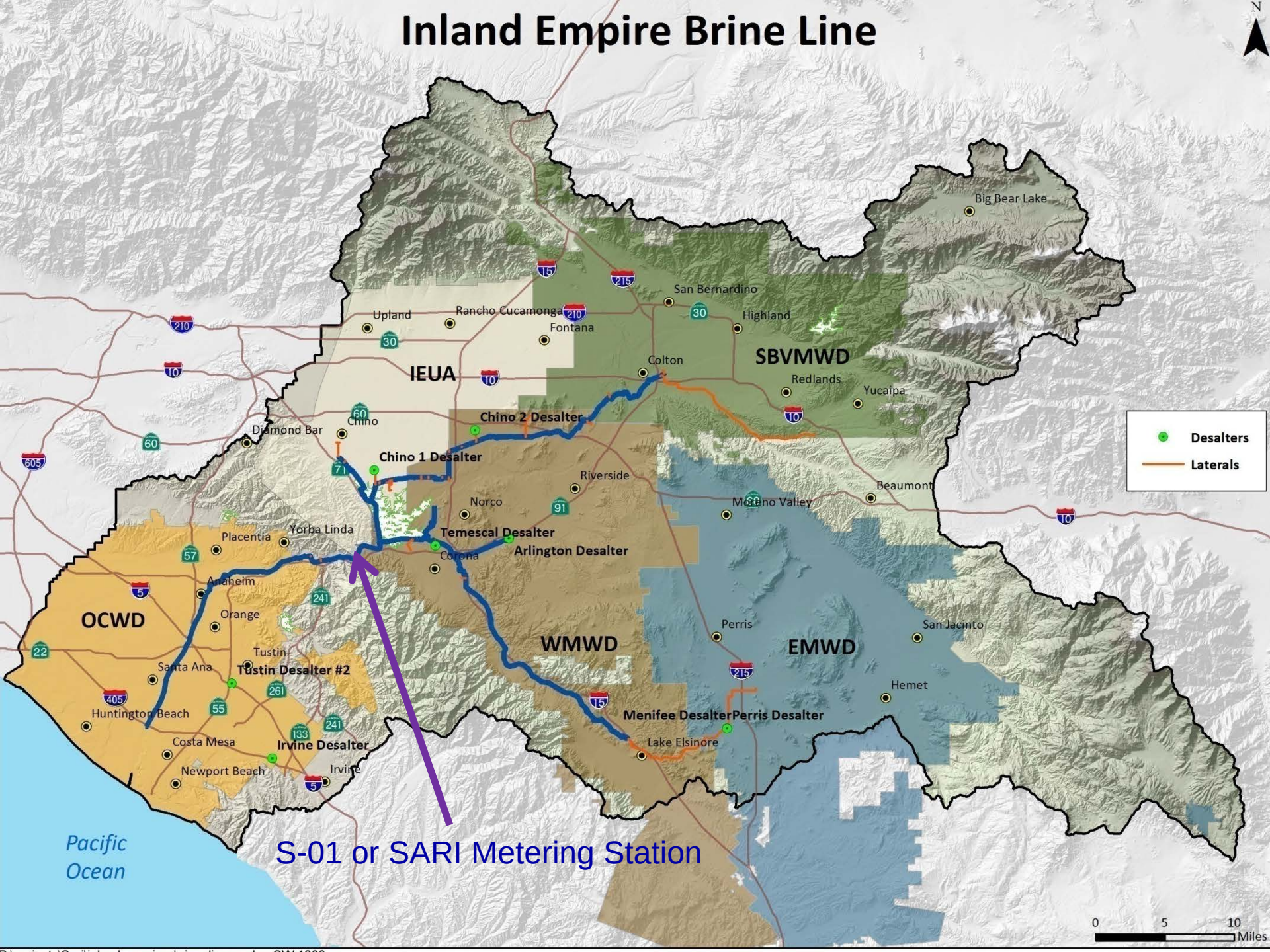
Item 5.B.

October 3, 2017

TSS Formation Target

Recommendation to SAWPA Commission

- Change the methodology to calculate the monthly TSS formation target to a 12-month rolling average effective September 1, 2017.


Inland Empire Brine Line
N
Big Bear Lake
San Bernardino
Upland
Rancho Cucamonga
Fontana
Highland
IEUA
SBVMWD
Colton
Redlands
Yucaipa
Chino
Chino 2 Desalter
Diamond Bar
Chino 1 Desalter
Riverside
Norco
Beaumont
Moreno Valley
Placentia
Yorba Linda
Temescal Desalter
Arlington Desalter
Corona
Anaheim
OCWD
Orange
WMWD
EMWD
Perris
San Jacinto
Tustin
Santa Ana
Tustin Desalter #2
Hemet
Huntington Beach
Menifee Desalter
Perris Desalter
Lake Elsinore
Costa Mesa
Irvine Desalter
Newport Beach
Irvine
Pacific Ocean
S-01 or SARI Metering Station
Desalters
Laterals
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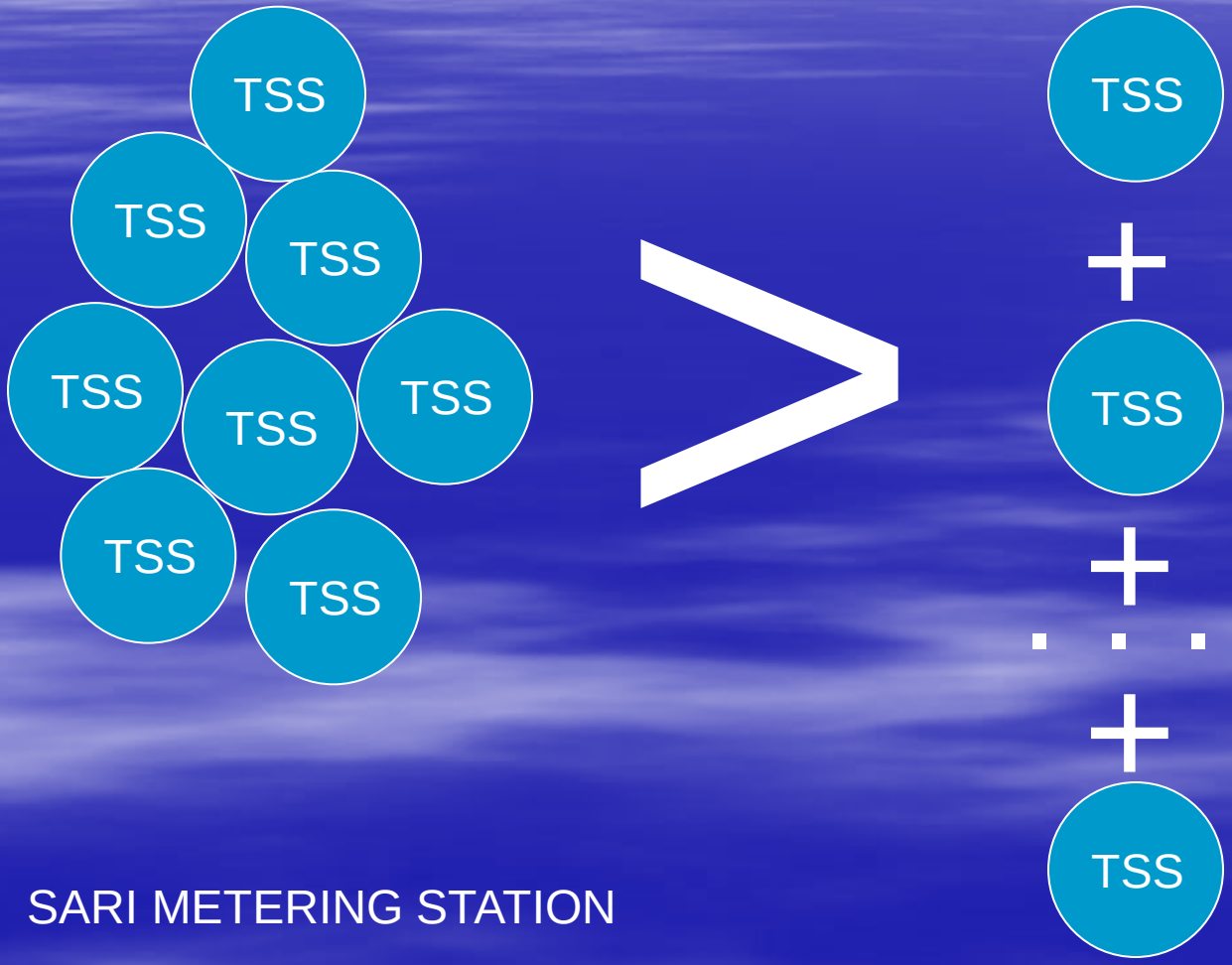
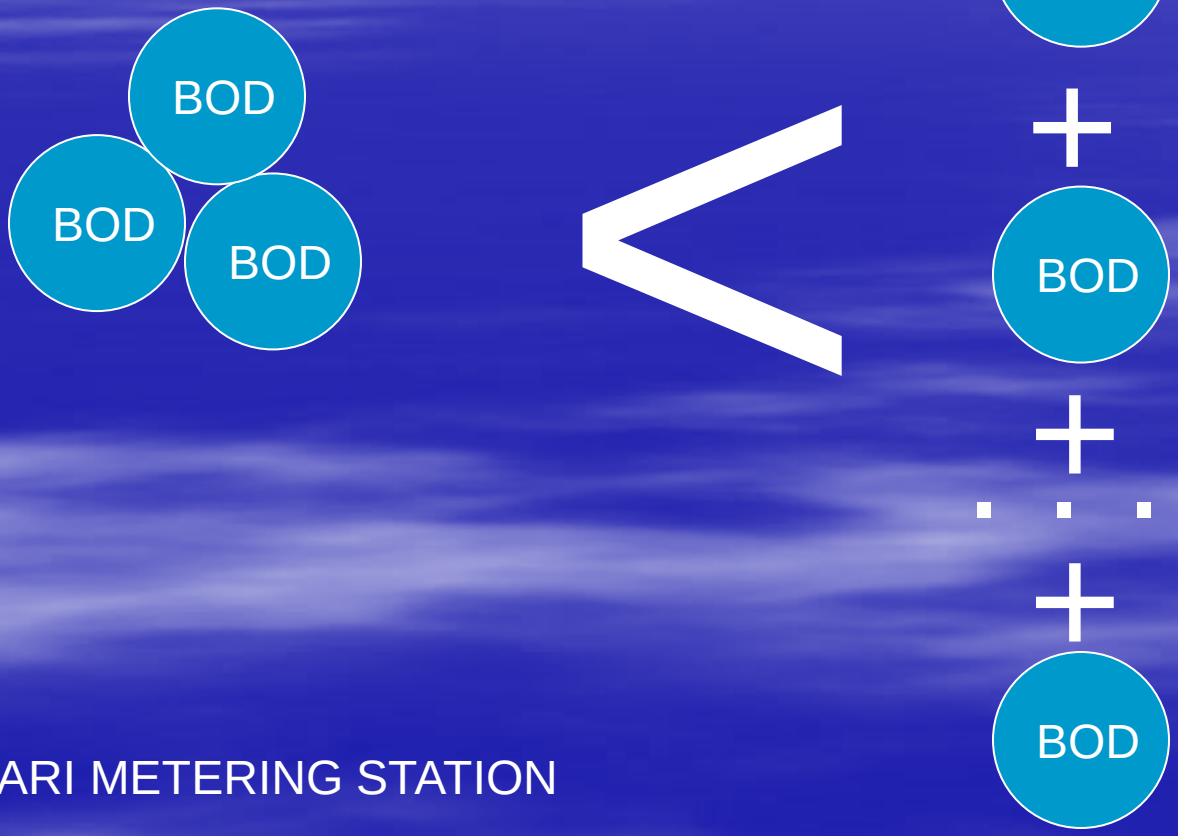
5
10
Miles



SARI METERING STATION

DISCHARGERS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SARI METERING STATION
DISCHARGERS

TSS Formation Target Background

- TSS Formation Billing Formula in use since 2007
  - Allocates TSS formed to contributing discharges
- Previous studies evaluated sample collection, labs, billing formula
  - “Representative Sample” – stinger depth, missed samples
  - Lab testing – 3 labs, triplicate samples
  - Billing Formula – last major update 2016

Refined Billing Equation

$$TSS_b = TSS_m + TSS_f * \left[\frac{dBOD_m}{dBOD_t} * (0.31) + \frac{Calcium_m}{Calcium_t} * (0.28) + \frac{Alkalinity_m}{Alkalinity_t} * (0.41)\right]$$

BOD Load **Calcium Load** **Alkalinity Load**

Where:

- TSS_b = Billed TSS to discharger
- TSS_m = Measured TSS for discharger
- TSS_f = Formed TSS in Brine Line (calculated)
- $dBOD_m$ = Dissolved BOD measured for discharger
- $dBOD_t$ = Total dissolved BOD measured for all dischargers
- $Calcium_m$ = Dissolved calcium measured for discharger
- $Calcium_t$ = Total dissolved calcium measured for all dischargers
- $Alkalinity_m$ = Dissolved alkalinity measured for discharger
- $Alkalinity_t$ = Total dissolved alkalinity measured for all dischargers

Trussell TECHNOLOGIES INC

TSS Formation Target (TSS_f)

Effective Date	TSS Formation Target (lbs)
8/1/2011	469,000
3/1/2012	447,000
7/1/2017	215,000
1/1/2013	114,000
4/1/2013	62,000
7/1/2016 - Present	196,000

TSS Formation Target Comparison (7/15 - 8/17) [lbs]

TSS Formation Target

Recommendation to SAWPA Commission

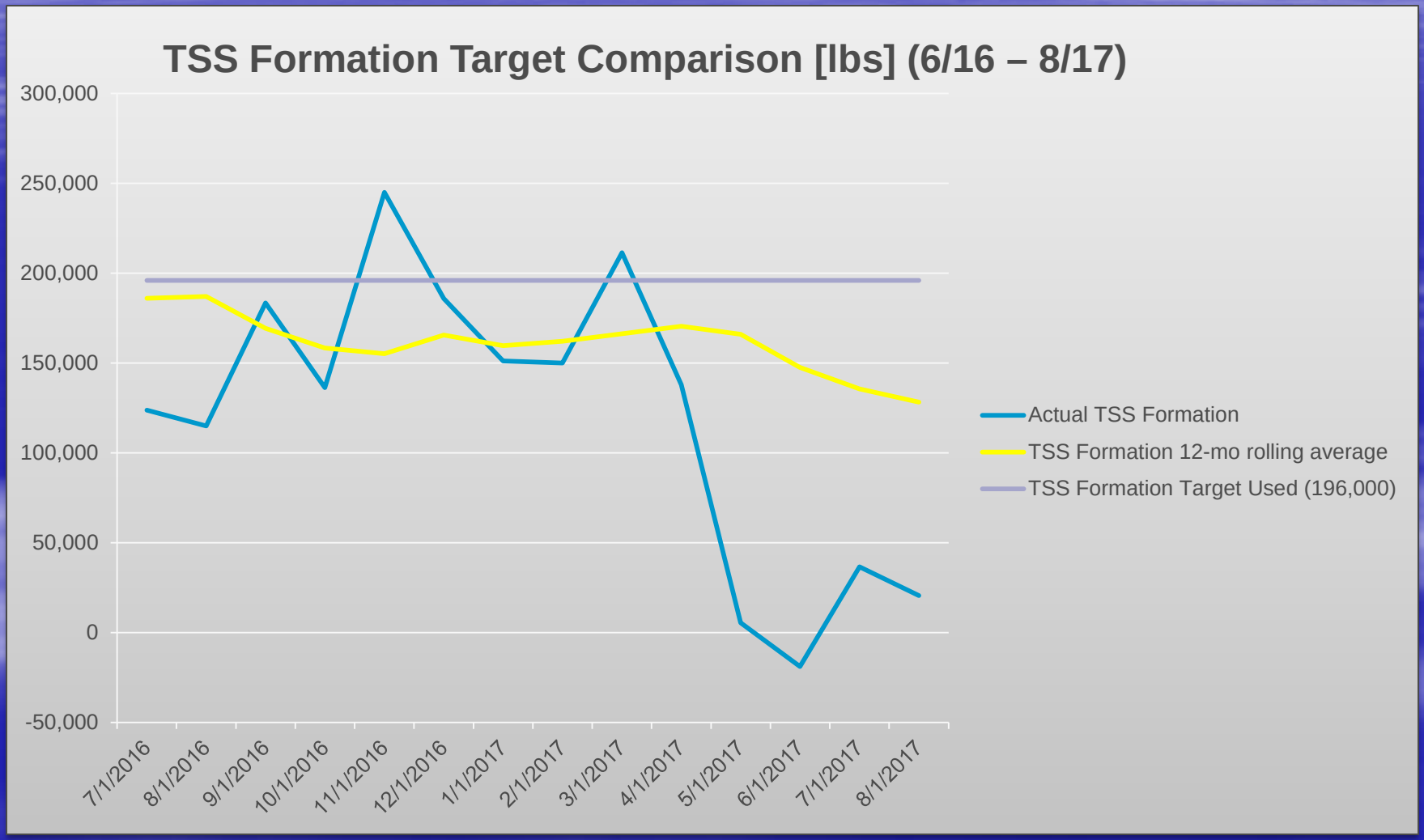
- Change the methodology to calculate the monthly TSS formation target to a 12-month rolling average effective September 1, 2017.

Questions?

TSS Formation Target
12-month rolling average

TSS Formation Target Comparison (July 2016 - August 2017)			
Month	*Actual TSS Formation*	*TSS Formation 12-mo rolling average*	*TSS Formation Target Used (196,000)*
7/1/2016	123,746	186,057	196,000
8/1/2016	115,004	187,011	196,000
9/1/2016	183,410	169,313	196,000
10/1/2016	136,323	158,375	196,000
11/1/2016	244,946	155,134	196,000
12/1/2016	185,863	165,603	196,000
1/1/2017	151,071	159,630	196,000
2/1/2017	150,030	162,128	196,000
3/1/2017	211,380	166,342	196,000
4/1/2017	137,809	170,456	196,000
5/1/2017	5,405	165,983	196,000
6/1/2017	-18,878	147,524	196,000
7/1/2017	36,588	135,509	196,000
8/1/2017	20,592	128,246	196,000
AVERAGE	120,235	161,237	196,000
ST. DEV.	77,491	15,778	0

TSS Formation Target Comparison

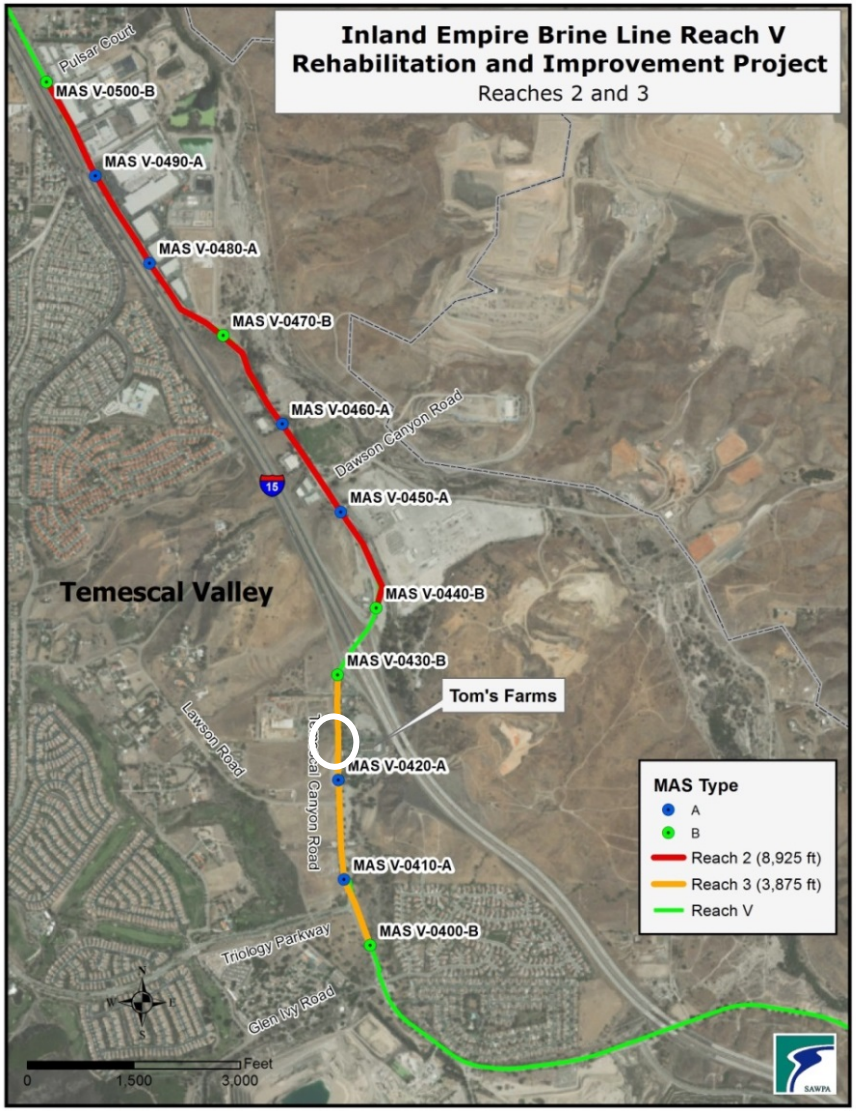


TSS Formation Target Comparison (July 2015 - August 2017) [lbs]			
Month	**Actual TSS Formation**	**TSS Formation 12-mo rolling average**	**TSS Formation Target Used**
7/1/2015	112,308	126,262	62000
8/1/2015	327,374	125,983	62000
9/1/2015	314,664	143,930	62000
10/1/2015	175,218	164,159	62000
11/1/2015	119,322	172,352	62000
12/1/2015	257,530	181,603	62000
1/1/2016	121,103	184,103	62000
2/1/2016	99,459	175,780	62000
3/1/2016	162,017	176,111	62000
4/1/2016	191,475	175,059	62000
5/1/2016	226,915	183,763	62000
6/1/2016	125,305	186,607	62000
7/1/2016	123,746	186,057	196000
8/1/2016	115,004	187,011	196000
9/1/2016	183,410	169,313	196000
10/1/2016	136,323	158,375	196000
11/1/2016	244,946	155,134	196000
12/1/2016	185,863	165,603	196000
1/1/2017	151,071	159,630	196000
2/1/2017	150,030	162,128	196000
3/1/2017	211,380	166,342	196000
4/1/2017	137,809	170,456	196000
5/1/2017	5,405	165,983	196000
6/1/2017	-18,878	147,524	196000
7/1/2017	43,296	135,509	196000
8/1/2017	21,818	128,805	196000
AVERAGE	150,920	163,599	134,154
ST. DEV.	83,106	18,516	66,801

Inland Empire Brine Line Reach V Rehabilitation and Improvement Project – Phase 1

October 3, 2017

Segment Summary



- CIPP Line 10,722 ft
- Remove and Replace 1,366 ft
- No Lining 416 ft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Questions?

Ovality Results / Segment Summary

Reach 2

Segment #	Length	Ovality Range	Action
1.	500 ft	2.5% - 9.5%	CIPP Complete
2.	450 ft	2.3% - 9.4%	CIPP Complete
3.	550 ft	1.3% - 11.5%	CIPP Complete
4.	350 ft	1.5% - 8.0%	CIPP Complete
5.	350 ft	1.4% - 3.9%	No Lining
6.	400 ft	1.3% - 9.0%	CIPP Complete
7.	350 ft	1.0% - 7.5%	CIPP Complete
8.	410 ft	1.5% - 10.4%	CIPP Complete
9.	410 ft	1.6% - 10.0%	CIPP Complete
9B.	70 ft	6.0% - 16.5%	Remove and Replace Complete
10.	220 ft	1.6% - 7.7%	CIPP Complete
11.	270 ft	0.7% - 9.0%	CIPP Complete
11B.	440 ft	0.7% - 9.0%	CIPP Complete
12.	240 ft	1.5% - 12.0%	CIPP Complete
13.	460 ft	4.0% - 18.0%	CIPP (Increase wall thickness at 18% Ovality, 9ft) Complete
14.	405 ft	3.6% - 13.5%	CIPP Complete
15.	395 ft	3.3% - 16.1%	Remove and Replace Complete

Ovality Results / Segment Summary

	Segment #	Length	Ovality Range	Action
	16.	400 ft	2.9% - 11.2%	CIPP Complete
	17.	350 ft	3.2% - 12.4%	CIPP Complete
	18.	350 ft	1.4% - 12.0%	CIPP Complete
	19.	510 ft	1.0% - 8.0%	CIPP Complete
	20.	270 ft	2.2% - 8.0%	CIPP Complete
	21.	470 ft	0.6% - 7.0%	CIPP Complete
	22.	225 ft	1.2% - 7.8%	CIPP Complete
Reach 3	23.	354 ft	0.6% - 7.0%	CIPP Complete
	24.	446 ft	1.4% - 10.6%	CIPP Line on 10/4
	25.	654 ft	1.1% - 8.5%	CIPP Line on 10/2
	26.	400 ft	0.4% - 10.2%	CIPP Complete
	27.	350 ft	0.4% - 10.2%	CIPP Complete
	28.	660 ft	0.5% - 8.5%	CIPP Complete
	29.	69 ft	1.2% - 8.2%	Remove and Replace Complete
	29B.	75 ft	0.0% - <5%	No Lining
	30.	650 ft	2.7% - 10.4%	Remove and Replace Complete
	31.	232 ft	0.9% - 7.9%	Remove and Replace Complete

Communication/Collaboration Process Relating to General Managers Report Recommendations

Rich Haller, General Manager
October 3, 2017
Item 6.A.

Workshop

- Follow up to September 19, 2017 Workshop
  - Reviewed 31 Recommendations
- 1-16 Communication/Collaboration
  - Meetings with GMs
  - Future Agendas
  - SAWPA Meetings with Outside Agencies
- 17-20 Project Agreements
  - SAWPA Projects
  - Projects Without Project Agreements
- 21-31 JPAA Amendments (next Workshop)

Project Agreements

- PA 1 SARI from OCSD plant to Prado Dam – construction and operation (1975) (IEUA, OCWD, SBVMWD, WMWD)
- PA 2 SARI Reach IV-A (1978) (IEUA, OCWD)
- PA 3, 4, 5 Not Used
- PA 6 SARI Reach IV-B (1981) (OCWD, WMWD)
- PA 7 SARI Reaches IV-A Upper and Lower (1981) (IEUA, WMWD)
- PA 8 SARI Reaches IV-D and IV-E (1982) (OCWD, SBVMWD, WMWD)
- PA 9 SARI Groundwater Salt Disposal System (1983) (OCWD, WMWD)
- PA 10 Santa Ana Basin Water Quality Studies (1984) (all member agencies)
  - PA 10A Basin Planning
  - PA 10B Bureau of Reclamation Studies
- PA 11 Regional WW Program – RIX Project (1986) (SBVMWD, WMWD)
- PA 12 LESJWA (1987) (all member agencies)
- PA 13 Water Resource Management Studies in the Chino Basin (1990) (IEUA, WMWD)

Project Agreements

- PA 14 Chino Desalters (1991), Chino 1 Deslater Amendment No. 1, Chino 2 Desalter; Amendment No. 2 2001) (IEUA, OCWD, WMWD)
- PA 15 Brine Line Reach V – (1996, 1998) (EMWD, OCWD, WMWD)
- PA 16 Water Resources Management Program for the Colton-Riverside Basins (1992) (EMWD, OCWD, SBVMWD, WMWD)
- PA 17 Bunker Hill Groundwater Basin Cooperative Studies (1994) (all member agencies)
- PA 18 IRP (now OWOW) (1994) (all member agencies)
- PA 19 TIN/TDS (1995) (OCWD, SBVMWD, WMWD)
- PA 20 Basin Monitoring Program Task Force (2004) (EMWD, IEUA, OCWD, SBVMWD, WMWD)
- PA 20 Temescal Desalter (1997) (EMWD, OCWD, WMWD)
- PA 21 OCSD/SAWPA Issues (2010) (EMWD, IEUA, SBVMWD, WMWD)
- PA 22 Water Use Efficiency (Prop 84 Drought Round and Portions of SARCCUP) (2014) (all member gencies)
- PA 23 SARCCUP (2016) (all member agencies)

Task Forces

- Basin Monitoring Program Task Force (PA 20)
- Emerging Constituents Task Force (Administration)
- Lake Elsinore and Canyon Lake TMDL Task Force (LESJWA Administration)
- Middle Santa Ana River Watershed TMDL Task Force (Administration)
- Regional Water Quality Monitoring Task Force (Administration)

Other Programs

- Arundo Habitat Management, Santa Ana River Mitigation Bank (Project)
- Forest First Program (Project, PA 10)
- Lake Elsinore/San Jacinto Watersheds Authority (Administration, PA 12)
- Imported Water Recharge Group (Administration, Transition to Task Force in FY 19)
- OWOW (Project, PA 18)
- Santa Ana Sucker Conservation Team (Project)
- Santa Ana River Trail & Parkway (Administration, Study, PA 10)
- Southern CA Salinity Coalition (Member, Study, PA 10)
- Water-Energy Community Action Network (Project, PA 10)

Project Agreements Changes?

The following list of potential changes has been prepared by SAWPA for the purposes of beginning discussions at the workshop.

<u>Projects Not Covered by a Project Agreement</u>

- OWOW – possibly modify the project description for PA 18 to clearly include all OWOW activities not already addressed by PA 22 and PA 23 (all member agencies)
- Brine Line – possibility modify the project description for PA 21 to address all Brine Line decisions such as capital projects, O&M activities, rates, Sewer System Management Plan, etc. (EMWD, IEUA, SBVMWD, WMWD)
- Arundo Habitat Management (all member agencies?)
- Santa Ana Sucker Conservation Team (current funding partners, OCWD, City of Riverside)

Project Agreements Changes?

The following list of potential changes has been prepared by SAWPA for the purposes of beginning discussions at the workshop.

Project Agreement Changes

- PA 10 revise project description to clearly identify watershed wide activities
- PA 18 revise project description to include OWOW activities not already covered by PA 22 and PA 23
- PA 21 revise project description to include all Brine Line activities

New Project Agreement(s)

- Task Force Program – prepare and approve procedures for administration of Task Forces; oversee implementation by SAWPA
- Arundo Habitat Management, Santa Ana River Mitigation Bank
- Santa Ana Sucker Conservation Team

Discussion