

INFORMATION SHEET

ORDER R5-2016-0028-01
CITY OF LATHROP
LATHROP CONSOLIDATED TREATMENT FACILITY
SAN JOAQUIN COUNTY

Current Facility Description

The City currently operates two adjacent wastewater treatment facilities under separate WDRs: Consolidated Treatment Facility (CTF) regulated under Order R5-2015-0006 and Crossroads Wastewater Treatment Facility (WWTF) regulated under Order 5-01-251. The CTF receives primarily domestic wastewater from a large portion of the City. The Crossroads WWTF receives high strength process wastewater from the Crossroads Industrial Park. The City currently diverts all wastewater from the Crossroads Industrial Park to the CTF and is in the process of decommissioning the Crossroads WWTF.

Communities serviced by the CTF includes Central Lathrop Specific Plan (CLSP), Mossdale Landing (Mossdale), and River Islands. The CTF provides secondary treatment, tertiary filtration, and disinfection prior to storage and discharge. The CTF currently has two Membrane Bioreactor (MBR) treatment trains for a combined treatment capacity of 1.0 million gallons per day (mgd) as an average dry weather flow (ADWF). Disinfected effluent is stored in lined storage ponds prior to discharge as recycled water for irrigation of agricultural and public landscape areas in the developments areas within the City of Lathrop.

Proposed Changes to the Facility and Discharge

With the closure of the Crossroads WWTF, the following Crossroads WWTF components will be retained and incorporated in the CTF: influent pump station, piping and associated motor control centers; former chlorine contact basin; recycled water pump station; effluent storage ponds A, B, and C; land application area site LAS-3; sludge handling facility; generator building; and maintenance garage.

LAS-1 and LAS-2 at the Crossroads WWTF have been sold and wells KMW-1 and KMW-3, that monitored groundwater near the two land application sites, have been abandoned. Based on elevated groundwater salinity concentrations near LAS-2, the City was required to investigate and mitigate any impacts from its wastewater disposal operations. Replacement wells KMW-10 and KMW-11 were installed along the western edge of LAS-2 to monitor the effectiveness of the City's corrective action plan regarding the salinity impacts from past application of Crossroads WWTF effluent.

The City has submitted the *Expansion Completion Report* dated 25 August 2015 confirming the completion of the 1.0 mgd facility expansion project. However, the City has not submitted the *Recycled Water Storage and Conveyance System Improvements Completion Report* and the *Recycled Water User Report* as required by Provisions H.1.e and H.1.f. of Order R5-2015-0006 to confirm the available storage and disposal capacity needed for the plant expansion to 1.0 mgd. The City anticipates the next CTF expansion to increase

capacity from 1.0 to 1.5 mgd with an expected completion date by the end of March 2018. Additional recycled water storage capacity and Use Areas will be added as needed.

Effluent Storage Ponds

The City currently uses five high-density polyethylene (HDPE)-lined effluent storage ponds (S1, S2, S3, S5, and S6) and a sixth pond (S16) is currently in construction. Table 1 provides a summary of existing and planned effluent storage ponds. A list of corresponding CEQA documentation with respect to each pond location is cross-referenced below the table.

Table 1: Existing and Planned Effluent Storage Ponds

Site ID	APN	Development Area	Parcel Area (acres)	Capacity (mgal) ¹	Use Status	Project Level CEQA Completed ⁴
S1	191-190-32	Mossdale	13.26	41	Existing	a, b
S2	191-190-33	Mossdale	6.89	15	Existing	a, b
S3	198-130-35	Mossdale South	9.91	21	Existing	c
S5	198-130-47	East Lathrop	9.96	28	Existing	a
	198-130-48	East Lathrop	0.59		Existing	a
S6	198-060-16	East Lathrop	5.61	34	Existing	e
	198-060-17		6.06		Existing	e
S7	198-040-14	East Lathrop	18.15	57	Planned	f
S8	241-020-70	East Lathrop	60.59	182	Planned	d
S9	241-030-13	East Lathrop	159.92	457	Planned	d
S11	213-300-07	River Islands	72.5	102	Planned	h, j
	213-300-08		86.83		Planned	h, j
S12	213-300-07	River Islands	72.5	97	Planned	h, j
	213-300-08		86.83		Planned	h, j
S13	213-210-06	River Islands	290.81	116	Planned	a
S14	213-22-001	River Islands	96.16	90	Planned	h
S15	198-120-08	East Lathrop	116.99	135	Planned	a, f
	198-120-09		48.64		Planned	a, f
	198-140-16		19.96		Planned	a, f
S16	213-290-02	River Islands	121.88	78-101 ³	Near Term	a, h, k
S17				61	Planned	a, h, k
S18				71	Planned	a, h, k
S19				55	Planned	f, h
S20	239-040-04	River Islands	142.25	66	Planned	f, h
S21				67	Planned	f, h
S22				71	Planned	f, h
S23				74	Planned	f, h

Table 1: Existing and Planned Effluent Storage Ponds

Site ID	APN	Development Area	Parcel Area (acres)	Capacity (mgal) ¹	Use Status	Project Level CEQA Completed ⁴
S24	239-040-07	River Islands	137	65	Planned	f, h
S25				56	Planned	f, h
S26				63	Planned	f, h
S27				58	Planned	f, h
S28	191-220-14	CLSP	89.82	25	Planned	i
S29				95	Planned	i
S30	191-270-05	Northern Lathrop	20	172	Planned	g
	191-270-04		7.6		Planned	g
	191-260-22		31.4		Planned	g
Pond A, B, and C	198-130-19	Crossroads WWTF	9.8	32	Near Term	l
	198-130-20					
LAS-3	198-13-032	Crossroads WWTF	19.5	Unknown ²	Near Term	l

¹ Assuming two feet of freeboard.

² Currently a land application area to be developed into percolation pond(s) for future disposal capacity.

³ ~~Pond S16 will be constructed in two phases. The initial phase will provide approximately 55 mgal of storage. The second phase will construct an additional 23 mgal.~~

⁴ Corresponding environmental documentation:

- a. City of Lathrop. 2002. Draft Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. December 31. Prepared by EDAW. AND City of Lathrop. 2003. Final Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. February 28. Prepared by EDAW.
- b. City of Lathrop. 2002. Draft Environmental Impact Report for the Mossdale Landing Urban Design Concept. SCH# 2001052059. 2002. Volume I: DEIR. August 29. Prepared by EDAW. AND City of Lathrop. Draft Environmental Impact Report for the Mossdale Landing Urban Design Concept. SCH# 2001052059. 2003. Volume I: DEIR. January. Prepared by EDAW.
- c. City of Lathrop. 2003. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. December 6. Prepared by InSite Environmental, Inc. AND City of Lathrop. 2004. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. January 30. Prepared by InSite Environmental, Inc.
- d. City of Lathrop. 2004. Draft Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. July. Prepared by EDAW. and City of Lathrop. 2004. Final Environmental impact Report for the CLSP (CLSP). SCH# 2003072132. October. Prepared by EDAW.
- e. City of Lathrop. 2004. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Nurisso Road Recycled Water Storage Ponds. November 17. Prepared by InSite Environmental, Inc.
- f. City of Lathrop. 2005. Addendum to the City of Lathrop Water, Wastewater, and Recycled Water Master Plan Environmental Impact Report. December 14. Prepared by EDAW.

- g. City of Lathrop. 2006. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Frewert Road Recycled Water Storage Pond. May 5. Prepared by InSite Environmental. Prepared by InSite Environmental, Inc.
- h. City of Lathrop. 2002. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. (SCH#1993112027). October 16. AND Prepared by EDAW. AND City of Lathrop. 2003. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. #1993112027). January 22. Prepared by EDAW
- i. City of Lathrop. 2014. CLSP Environmental Impact Report Addendum II (SCH#2003072132). March. Prepared by Ascent.
- j. City of Lathrop. Initial Study for River Islands Disposal Fields Expansion. 2004. November. Prepared by the City of Lathrop Public Works Department.
- k. City of Lathrop. 2014. River Islands at Lathrop Project Subsequent Environmental Impact Report Addendum IV. SCH#1993112027. Prepared by Ascent.
- l. City of Lathrop. 7 July 2015, Notice of Determination for the City of Lathrop Crossroads Decommissioning Project.

The Discharger currently uses recycled water for agricultural irrigation in Mossdale and River Islands. The Discharger plans to expand using recycled water for agricultural irrigation in River Islands, CLSP, and the North Lathrop areas. Table 2 provides a summary of existing and planned agricultural irrigation Use Areas. A list of corresponding CEQA documentation with respect to each agricultural irrigation Use Area is cross-referenced below the table.

Site ID	APN	Development Area	Parcel Area (acres)	Irrigated Area (acres)	Phase	Project Level CEQA Completed ¹
A 01	191-280-10	Northern Lathrop	49.49	42.1	Planned	d
A 02	191-280-09	Northern Lathrop	101.2	86.0	Planned	d
A 03	191-270-33	Northern Lathrop	58.56	49.8	Planned	d
	191-270-32	Northern Lathrop	8.2			d
A 04	191-260-25	Northern Lathrop	18.09	15.4	Planned	f
A 05	191-260-13	Northern Lathrop	19.52	16.6	Planned	f
A 06	191-250-03	Northern Lathrop	8.83	7.5	Planned	f
A 07	191-250-12	Northern Lathrop	9.48	8.1	Planned	f
A 08	191-250-06	Northern Lathrop	10.3	8.8	Planned	f
A 09	191-270-24	Northern Lathrop	95.18	80.9	Planned	d
	191-270-25	Northern Lathrop	3.26			d
A 10	191-260-27	Northern Lathrop	154.77	131.6	Planned	d
	191-270-26	Northern Lathrop	4.82			d
A 11	191-230-01	Northern Lathrop	40	34.0	Planned	d
A 12	191-230-02	Northern Lathrop	29.33	24.9	Planned	d
A 13	191-270-21	Northern Lathrop	95.54	81.2	Planned	f
A 17	191-260-21	Northern Lathrop	20	17.0	Planned	f

Table 2: Existing and Planned Agricultural Irrigation Use Areas

Site ID	APN	Development Area	Parcel Area (acres)	Irrigated Area (acres)	Phase	Project Level CEQA Completed ¹
A 18	191-260-28	Northern Lathrop	22.89	19.46	Planned	f
	191-260-29	Northern Lathrop	13.14			f
A 19	191-260-23	Northern Lathrop	12.75	10.8	Planned	f
A 20	191-220-04	CLSP	99.1	84.2	Planned	d
A 21	191-220-05	CLSP	313.88	266.8	Planned	d
A 23	191-190-49	Mosssdale	12.4	10.5	Existing	a, h
A 28	213-300-09	River Islands	33.71	28.7	Existing	a, j
A 29	213-130-05	River Islands	231.4	444.2	Planned	a
	213-130-06	River Islands	74.7			a
	213-130-07	River Islands	12.5			a
	213-200-01	River Islands	153			a
	213-200-02	River Islands	229.42			a
A 30	213-210-06	River Islands	294.72	250.5	Existing	a, h
A 31	213-110-03	River Islands	151	128.4	Existing	a, f
A 32	213-110-02	River Islands	178.12	151.4	Planned	h
A 33	213-110-01	River Islands	221.21	188.0	Planned	h
A 34	213-210-06	River Islands	294.72	250.5	Planned	a, h
A 35	213-290-02	River Islands	25.44	21.6222	Near Term	h, k
A35a	213-290-02	River Islands	121.8	25.524	Near Term	h, k
A35b	213-290-02	River Islands	121.8	22.415	Near Term	h, k
A35c	213-290-02	River Islands	121.8	15	Near Term	h, k
A 36	191-220-10	CLSP	5.15	34.5	Planned	i
	191-220-11		10.43			i
	191-220-12		0.96			i
	191-220-13		16.38			i
	191-220-37		7.72			i
A 37	191-220-15	CLSP	19.48	125.5	Planned	i
	191-220-17		9.80			i
	191-220-35		8.96			i
	191-220-18		19.61			i
	191-22014		89.82			i
A 38	191-220-44	CLSP	1.74	2.6	Planned	i
	191-220-45		1.26			i

¹ Corresponding environmental documentation:

- a. City of Lathrop. 2002. Draft Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. December 31. Prepared by EDAW. AND City of Lathrop. 2003. Final Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. February 28. Prepared by EDAW.
- b. City of Lathrop. 2002. Draft Environmental Impact Report for the Mosssdale Landing Urban Design Concept. SCH# 2001052059. 2002. Volume I: DEIR. August 29. Prepared by EDAW. AND City of Lathrop. Draft Environmental Impact Report for the Mosssdale Landing

Urban Design Concept. SCH# 2001052059. 2003. Volume I: DEIR. January. Prepared by EDAW.

- c. City of Lathrop. 2003. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. December 6. Prepared by InSite Environmental, Inc. AND City of Lathrop. 2004. Public Review Draft Supplemental Environmental Impact Report for Mossdale Landing East. January 30. Prepared by InSite Environmental, Inc.
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- g. City of Lathrop. 2006. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Frewert Road Recycled Water Storage Pond. May 5. Prepared by InSite Environmental. Prepared by InSite Environmental, Inc.
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- k. City of Lathrop. 2014. River Islands at Lathrop Project Subsequent Environmental Impact Report Addendum IV. SCH#1993112027. Prepared by Ascent.

The Discharger plans to use recycled water for landscape irrigation in the Mossdale, River Islands, and CLSP residential areas. Table 3 provides a summary of existing and planned agricultural irrigation Use Areas. A list of corresponding CEQA documentation with respect to each agricultural irrigation Use Area is cross-referenced below the table.

Table 3: Existing and Planned Landscape Irrigation Use Areas

Site ID	APN(s)	Acres	Land Development Area	Land Use	Phase	Project Level CEQA Completed ¹
L01	191-220-35; 191-220-17	3.38	CLSP ²	Park	Planned	a, d
L02	191-22015	7.80	CLSP ²	K-8(2)	Planned	d
L03	191-22017	3.38	CLSP ²	Park	Planned	d
L04	191-21032	11.10	CLSP	Park	Planned	d
L05	191-21032; 191-210-07; 191-210-33; 191-210-07; 191-210-33; 191-210-23; 191-210-17	3.38	CLSP	Park	Planned	d
	191-210-05	3.75	CLSP	Park	Planned	d
L07	191-210-23	3.75	CLSP	Park	Planned	d
L08	191-210-32	3.36	Mossdale	Park	Planned	a, b, d
L09	Right of Way	0.05	Mossdale	Median	Planned	a, d
L10	Right of Way	0.21	CLSP	Parkway	Planned	a, b, d
L11	Right of Way	0.74	Mossdale	Parkway	Planned	b
L12	Right of Way	0.05	Mossdale	Median	Planned	b
L13	Right of Way	0.45	Mossdale	Parkway	Planned	c
L14	191-330-09	6.00	Mossdale	Park	Planned	a, b
L15	Right of Way	0.10	Mossdale	Parkway	Planned	b
L16	Right of Way	0.23	Mossdale	Parkway	Planned	b
L17	Right of Way	0.04	Mossdale	Median	Planned	b
L18	Right of Way	0.26	Mossdale	Parkway	Planned	b
L19	191-540-61	1.20	Mossdale	Park	Planned	b
L20	191-350-04	6.20	Mossdale	Park	Planned	a, b
L21	Right of Way	0.29	Mossdale	Parkway	Planned	b
L22	191-210-17	3.38	Mossdale	Park	Planned	b
L23	Right of Way	0.14	Mossdale	Parkway	Planned	b
L24	Right of Way	0.91	Mossdale	Parkway	Planned	b
L25	Right of Way	0.04	Mossdale	Median	Planned	b
L26	Right of Way	0.40	Mossdale	Median	Planned	b
L27	191-360-68	0.75	Mossdale	Park	Planned	b
L28	Right of Way	0.32	Mossdale	Parkway	Planned	b
L29	Right of Way	0.34	Mossdale	Parkway	Planned	b
L30	Right of Way	0.10	Mossdale	Median	Planned	b
L31	Right of Way	0.09	Mossdale	Median	Planned	b
L32	Right of Way	0.04	Mossdale	Median	Planned	b
L33	191-380-67	1.05	Mossdale	Park	Planned	b
L34	Right of Way	0.06	Mossdale	Median	Planned	a
L35	Right of Way	0.10	Mossdale	Median	Planned	b
L36	Right of Way	0.10	Mossdale	Median	Planned	b
L37	Right of Way	0.03	Mossdale	Median	Planned	b
L38	Right of Way	0.09	Mossdale	Parkway	Planned	a
L39	Right of Way	0.37	Mossdale	Parkway	Planned	a
L40	Right of Way	0.28	Mossdale	Parkway	Planned	b
L41	Right of Way	0.18	Mossdale	Median	Planned	b
L42	Right of Way	0.31	Mossdale	Parkway	Planned	b
L43	191-190-32; 191-190-33	5.50	Mossdale	Pond Berm	Planned	a, b

Table 3: Existing and Planned Landscape Irrigation Use Areas

Site ID	APN(s)	Acres	Land Development Area	Land Use	Phase	Project Level CEQA Completed ¹
L44	Right of Way	2.30	Mossdale	Park/Median	Planned	a, b
L45	241-0020-52	2.10	Mossdale	Pond Berm	Planned	a, b
L46	198-060-16	3.00	Not Applicable ³	Pond Berm	Planned	e
L47	213-300-06	0.30	River Islands	Median	Planned	h
L48	213-300-06	6.00	River Islands	Park	Planned	h
L49	213-300-06	1.60	River Islands	Park	Planned	h
L50	213-300-06	0.20	River Islands	Median	Planned	h
L51	213-300-06	0.40	River Islands	Park	Planned	h
L52	213-300-06	0.40	River Islands	Park	Planned	h
L53	213-300-06	15.00	River Islands	Park	Planned	h
L54	213-300-06; 213-310-10	0.20	River Islands	Median	Planned	h
L55	213-300-06	0.50	River Islands	Median	Planned	h
L56	213-300-06	0.10	River Islands	Median	Planned	h
L57	213-300-06	0.40	River Islands	Median	Planned	h
L58	213-300-06	0.40	River Islands	Median	Planned	h
L59	213-300-06	1.50	River Islands	Median	Planned	h
L60	213-300-06	2.70	River Islands	Park	Planned	h
L61	213-300-06	1.20	River Islands	Median	Planned	h
L62	213-300-06	1.10	River Islands	Median	Planned	h
L63	213-300-08; 213-300-09; 213-300-11; 213-300-07; 213-300-06; 213-310-10	2.10	River Islands	Park	Planned	h
L64	213-310-10	0.40	River Islands	Median	Planned	h
L65	213-310-10	1.90	River Islands	Park	Planned	h
L66	213-310-10	2.00	River Islands	Park	Planned	h
L67	213-310-10; 213-310-09	2.30	River Islands	Park	Planned	h
L68	213-310-10	0.40	River Islands	Median	Planned	h
L69	213-310-10	0.90	River Islands	Park	Planned	h
L70	213-310-10; 213-310-08	2.50	River Islands	Park	Planned	h
L71	213-310-09	0.40	River Islands	Median	Planned	h
L72	213-310-09; 213-310-08	2.30	River Islands	Park	Planned	h
L73	213-310-09	2.00	River Islands	Park	Planned	h
L74	213-310-08	6.00	River Islands	Park	Planned	h
L75	213-310-08; 213-310-10	0.10	River Islands	Median	Planned	h
L76	213-310-10	0.50	River Islands	Median	Planned	h
L77	213-220-02	2.80	River Islands	Park	Planned	h
L78	213-220-02; 213-310-08	0.50	River Islands	Median	Planned	h
L79	213-230-05	1.10	River Islands	Park	Planned	h
L80	213-230-05	0.80	River Islands	Median	Planned	h
L81	213-230-06	4.40	River Islands	Park	Planned	h
L82	213-230-01	34.00	River Islands	Park	Planned	h
L83	213-220-02	1.10	River Islands	Park	Planned	h
L84	213-310-08	2.20	River Islands	Park	Planned	h
L85	191-200-13; 191-210-05	0.94	CLSP	Median	Planned	d
L86	191-200-13; 191-210-05	1.37	CLSP	Parkway	Planned	d
L87	191-200-13; 191-210-05	2.50	CLSP	Open Space	Planned	d

Table 3: Existing and Planned Landscape Irrigation Use Areas

Site ID	APN(s)	Acres	Land Development Area	Land Use	Phase	Project Level CEQA Completed ¹
L88	191-220-42	0.44	CLSP	Median	Planned	d
L89	191-220-42	0.64	CLSP	Parkway	Planned	d
L90	191-210-04; 191-220-42	0.41	CLSP	Median	Planned	d
L91	191-210-04; 191-220-42	0.96	CLSP	Parkway	Planned	d
L92	191-210-05	1.28	CLSP	Median	Planned	d
L93	191-210-05	1.82	CLSP	Parkway	Planned	d
L94	191-210-05	1.50	CLSP	Open Space	Planned	d
L95	191-210-05	0.13	CLSP	Median	Planned	d
L96	191-210-05	1.29	CLSP	Parkway	Planned	d
L97	191-210-05; 191-210-04	1.43	CLSP	Parkway	Planned	d
L98	191-200-13	1.11	CLSP	Parkway	Planned	d
L99	191-200-13	1.05	CLSP	Parkway	Planned	d
L100	191-210-05; 191-210-04	1.71	CLSP	Parkway	Planned	d

¹ Corresponding environmental documentation:

- a. City of Lathrop. 2002. Draft Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. December 31. Prepared by EDAW. AND City of Lathrop. 2003. Final Environmental Impact Report for the Lathrop Water Recycling Plant No. 1 Phase 1 Expansion Project. February 28. Prepared by EDAW.
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- f. City of Lathrop. 2005. Addendum to the City of Lathrop Water, Wastewater, and Recycled Water Master Plan Environmental Impact Report. December 14. Prepared by EDAW.
- g. City of Lathrop. 2006. Addendum the Environmental Impact Report for the City of Lathrop Wastewater Recycling Plant No. 1 (SCH#2001122108) relative to the Frewert Road Recycled Water Storage Pond. May 5. Prepared by InSite Environmental. Prepared by InSite Environmental, Inc.

- h. City of Lathrop. 2002. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. (SCH#1993112027). October 16. AND Prepared by EDAW. AND City of Lathrop. 2003. Draft Subsequent Environmental Impact Report for the River Islands at Lathrop Project. Volume 1a. #1993112027). January 22. Prepared by EDAW.
- i. City of Lathrop. 2014. CLSP Environmental Impact Report Addendum II (SCH#2003072132). March. Prepared by Ascent.
- j. City of Lathrop. Initial Study for River Islands Disposal Fields Expansion. 2004. November. Prepared by the City of Lathrop Public Works Department.
- k. City of Lathrop. 2014. River Islands at Lathrop Project Subsequent Environmental Impact Report Addendum IV. SCH#1993112027. Prepared by Ascent.

Because the proposed landscape Use Areas are typically small in application area, widely spaced, and typically receive small volumes of recycled water, the use of recycled water in these areas is unlikely to cause identifiable groundwater degradation as compared to baseline conditions.

Site-Specific Conditions

The City of Lathrop's water supply comes from six deep municipal wells that extract groundwater from approximately 160 to 270 feet below ground surface (bgs) and is supplemented with surface water from the Woodward Reservoir, which is distributed by the South San Joaquin Irrigation District (SSJID).

Local topography at the CTF and existing and planned recycled water Use Areas is generally level and gently slopes toward the San Joaquin River and other tributaries. Ground surface elevation at the CTF is approximately 10 feet above mean sea level (MSL).

According to Federal Emergency Management Agency (FEMA) flood zone mapping, areas immediately east of the San Joaquin River (i.e., the CTF, Northern Lathrop, CLSP, and Mossdale) are in Flood Zone X, which is outside of the currently-defined 100-year flood zone. A developed portion of River Islands bordered by Stewart Road on the west and south and the San Joaquin River on the east is also identified as within Flood Zone X. These areas are protected from the 100-year flood by levees, dikes, or other structures that may be subject to possible failure or overtopping during larger flood events. The western half of River Islands is in Zone AE, which is within the 100-year floodplain.

The average annual precipitation and 100-year annual precipitation is approximately 13 and 22 inches, respectively. The average reference evapotranspiration (ET_o) rate is approximately 52 inches per year. Surrounding land uses include agricultural, commercial, industrial, and residential developments.

Groundwater Conditions

Shallow groundwater in the Lathrop area occurs within the alluvial flood plain deposits at depths of less than 15 feet bgs. Shallow groundwater depth and flow conditions can vary depending on location, season, land use, nearby pumping (i.e. construction dewatering,

agricultural irrigation, etc.), and the proximity and flow stage of nearby surface water bodies and recycled water Use Area. As a result, changes in agricultural land use, irrigation practices, and regional pumping have likely altered groundwater flow and the distribution of salinity resulting from on-site or regional agricultural practices.

There are currently over 70 existing shallow groundwater monitoring wells near the CTF, Northern Lathrop, CLSP, Mossdale, and River Islands recycled water Use Areas. There are five monitoring wells near recycled water storage Pond S6 on East Lathrop Road. There are a total of six monitoring wells near LAS-2 and LAS-3. The current monitoring well network was installed to monitor shallow groundwater conditions near existing and planned recycled water storage, Use Areas, or percolation ponds. A well inventory was performed in October 2015 to identify existing well conditions. Based on the *Groundwater Monitoring Well Condition Survey Report and Destruction Plan* dated 27 January 2016, several wells were identified as damaged, missing, or abandoned. A summary of the existing groundwater monitoring well network is provided in Table 4, however many of these wells will only be used for the collection periodic water level measurements.

Table 4: Groundwater Monitoring Well Details and Operational Status						
Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status ¹	Proposed Use / Action
Mossdale						
MWM-01	05/16/05	21.5	4	10-20	Existing	Monitoring
MWM-02	05/16/05	21	4	10-20	Existing	Monitoring
MWM-03	07/01/05	21	4	10-20	Existing	Monitoring
MWM-04	05/16/05	21	4	10-20	Existing	Monitoring
MWM-05	05/17/05	21	4	10-20	Existing	Monitoring
MWM-06	05/17/05	21	4	10-20	Existing	Monitoring
MWM-07	05/17/05	21	4	10-20	Existing	Monitoring
MWM-08	05/16/05	21	4	10-20	Inaccessible	Unknown
MWM-09	05/19/05	30	4	18-29	Existing	Monitoring
MWM-10	11/30/01	21.5	2	5-20	Abandoned	--
MWM-11	05/18/05	21	4	10-20	Existing	Monitoring
MWM-12	06/20/05	21	4	10-20	Existing	Monitoring
MWM-13	05/20/05	21	4	10-20	Existing	Monitoring
MWM-14	05/17/05	21	4	10-20	Existing	Abandon
MWM-15	05/16/05	21	4	10-20	Existing	Monitoring
MWM-16	05/17/05	21	4	10-20	Existing	Abandon
MWM-17	05/16/05	21	4	10-20	Existing	Monitoring
MWM-18	05/16/05	21	4	10-20	Abandoned	--
MWM-19	05/18/05	21	4	10-20	Existing	Monitoring
MWM-20	05/18/05	21	4	10-20	Existing	Monitoring

Table 4: Groundwater Monitoring Well Details and Operational Status						
Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status ¹	Proposed Use / Action
MWM-21	05/18/05	21	4	10-20	Existing	Monitoring
MWM-22	01/17/01	20	2	--	Existing	Monitoring
MWM-23	07/01/05	21	4	10-20	Existing	Monitoring
MWM-24	05/16/05	21	4	10-20	Existing	Monitoring
MWM-25	05/19/05	21	4	10-20	Existing	Monitoring
MWM-26	05/18/05	21	4	10-20	Existing	Abandon
MWM-27	04/21/09	24	4	13-23	Existing	Monitoring
River Islands						
MWR-01	12/02/98	20	2	5-20	Abandoned	--
MWR-02	12/02/98	20	2	5-20	Abandoned	--
MWR-03	12/09/98	20	2	5-20	Existing	Monitoring
MWR-04	12/09/98	20	2	5-20	Existing	Monitoring
MWR-05	12/02/98	20	2	5-20	Existing	Monitoring
MWR-06	12/02/98	20	2	5-20	Damaged	Abandon
MWR-07	12/02/98	20	2	5-20	Existing	Monitoring
MWR-08	12/09/98	20	2	5-20	Existing	Monitoring
MWR-09	12/09/98	20	2	5-20	Existing	Monitoring
MWR-10	12/02/98	20	2	5-20	Existing	Monitoring
MWR-11	12/02/98	20	2	5-20	Existing	Monitoring
MWR-12	12/02/98	20	2	5-20	Existing	Monitoring
MWR-13	Prior to 1999 ²	--	--	--	Damaged	Abandon
MWR-14	Prior to 1999 ²	--	--	--	Reported missing/destroyed ²	
MWR-15	Prior to 1999 ²	--	--	--	Existing-dry	Abandon
MWR-16	Prior to 1999 ²	--	--	--	Reported missing/destroyed ²	
MWR-17	Prior to 1999 ²	--	--	--	Reported missing/destroyed ²	
MWR-18	Prior to 1999 ²	--	--	--	Abandoned	--
MWR-19	Prior to 1999 ²	--	--	--	Reported missing/destroyed ²	
MWR-20	Prior to 1999 ²	--	--	--	Existing-dry	Abandon
MWR-21	Prior to 1999 ²	--	--	--	Reported missing/destroyed ²	
MWR-22	Prior to 1999 ²	--	--	--	Reported missing/destroyed ²	
MWR-23	08/15/05	22	4	11-21	Existing	Monitoring
MWR-24	08/15/05	21.5	4	10.5-20.5	Existing	Monitoring
MWR-25	08/15/05	22	4	11-21	Existing	Monitoring
MWR-26	08/15/05	21.7	4	11-21	Existing	Monitoring
MWR-27	08/16/05	22	4	11-21	Existing	Monitoring
MWR-28	08/16/05	22	4	11-21	Existing	Monitoring

Table 4: Groundwater Monitoring Well Details and Operational Status						
Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status ¹	Proposed Use / Action
MWR-29	08/16/05	22	4	11-21	Existing	Monitoring
MWR-30	08/17/05	22	4	11-21	Existing	Monitoring
MWR-31	08/17/05	22	4	11-21	Existing	Monitoring
MWR-32	08/17/05	22.3	4	11.5-21.5	Existing	Monitoring
CTF Facility						
KMW-2	01/02/01	30	4	16-30	Existing	Monitoring
KMW-4 ³	01/02/01	25	4	--	Existing	Monitoring
KMW-6 ³	01/02/01	27.8	4	--	Existing	Monitoring
KMW-8 ³	11/13/14	31	4	15-30	Existing	Monitoring
KMW-9 ³	11/13/14	31	4	15-30	Existing	Monitoring
KMW-10 ³	12/10/15	30	4	15-30	Existing	Monitoring
KMW-11 ³	12/09/15	30	4	15-30	Existing	Monitoring
MBRMW-1	05/18/05	24	4	13-23	Existing	Monitoring
MBRMW-2	05/18/05	26	4	14-25	Existing	Monitoring
MBRMW-3	05/17/05	21	4	10-20	Existing	Monitoring
MBRMW-4	09/29/05	31	4	15-30	Existing	Monitoring
Pond S6						
RMW-1	03/31/04	30	2	15-30	Existing	Monitoring
RMW-2	03/30/04	30	2	15-30	Existing	Monitoring
RMW-3	03/30/04	30	2	15-30	Existing	Monitoring
RMW-4	09/27/05	31	4	15-30	Existing	Monitoring
RMW-5	09/27/05	31	4	15-30	Existing	Monitoring
Central Lathrop Specific Plan (CLSP)						
CLSP-1	01/22/03	16.5	2	6.5-16.5	Existing	Standby ⁵
CLSP-2	01/22/03	16.5	2	6.5-16.5	Damaged	Abandon
CLSP-3	01/22/03	16.5	2	6.5-19.5	Existing	Monitoring
CLSP-4	01/22/03	16.5	2	6.5-16.5	Existing	Abandon
CLSP-5	01/22/03	16.5	2	6.5-16.5	Abandoned	--
CLSP-6	01/14/03	16.5	2	6.5-16.5	Abandoned	--
CLSP-7	01/14/03	16.5	2	6.5-16.5	Abandoned	--
CLSP-8	01/14/03	16.5	2	6.5-16.5	Unknown	Unknown
CLSP-9	01/17/03	16.5	2	6.5-16.5	Existing	Monitoring
CLSP-10	01/17/03	16	2	6-16	Damaged	Abandon

Table 4: Groundwater Monitoring Well Details and Operational Status						
Well Name	Date Drilled	Well Depth (ft bgs)	Diameter (inches)	Screened Interval (ft bgs)	Current Status ¹	Proposed Use / Action
North Lathrop						
MW-N1	12/02/04	21.5	--	--	Unknown	Unknown
MW-N2	12/02/04	21.5	--	--	Unknown	Unknown
MW-N3	12/02/04	21.5	--	--	Existing	Standby ⁵
MW-N4	12/02/04	21.5	--	--	Existing	Standby ⁵
MW-N5	12/02/04	21.5	--	--	Inaccessible	Unknown
MW-N6	12/02/04	26.5	--	--	Inaccessible	Unknown
NMW-1	07/12/05	25.5	4	15.5-25.5	Unknown	Unknown
NMW-2	07/12/05	20	4	10-20	Existing	Standby ⁵
NMW-3	07/13/05	20	4	10-20	Existing	Standby ⁵
NMW-4	07/13/05	20	4	10-20	Unknown	Unknown
NMW-5	07/13/05	20	4	10-20	Unknown	Unknown
South Lathrop Specific Plan (SLSP)						
MW-S1	05/03/04	21	--	--	Existing	Standby ⁵
MW-S2	05/03/04	21	--	--	Existing	Standby ⁵
MW-S3	05/03/04	21	--	--	Existing	Standby ⁵
MW-S4	05/03/04	21	--	--	Existing	Standby ⁵
MW-S5	05/03/04	21	--	--	Existing	Standby ⁵

¹ Status as of October 2015.

² As documented in Monitoring Well Location Study, 13 January 2006, ENGEO.

³ Monitoring well associated with Crossroads Wastewater Treatment Facility.

⁴ Condition last observed in February 2007.

⁵ Well located where future recycled water storage or use areas are anticipated. Currently, no plans to construct specified storage or disposal features. Well may be utilized for future groundwater monitoring once initiation of recycled water use.

Groundwater monitoring data has been collected from many of these well locations for nearly ten years or more. The resulting groundwater monitoring data illustrate high spatial and temporal variability, as reflected by the variability of shallow groundwater gradient directions and water quality. Baseline groundwater conditions were identified as impacted by salinity constituents TDS, chloride, and sulfate; along with sulfates, iron, and manganese. Groundwater pollution is likely the result of local and regional long term agricultural practices. Thus, baseline conditions were used to evaluate pre-discharge groundwater quality.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Local drainage is to San Joaquin River, which is a tributary to the Sacramento-San Joaquin Delta. The beneficial uses of San Joaquin River as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial process supply; industrial service

supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

Antidegradation Analysis

Use Areas. Due to the extreme spatial variability of TDS concentrations in shallow groundwater across the Lathrop development areas, the local variability in groundwater flow, and the characteristics of recycled water, the anti-degradation analysis in Order R5-2015-0006 focused on specific Use Areas that illustrate typical groundwater conditions within each development areas that has or will have Use Areas.

As stated in Order R5-2015-006, constituents of concern that have the potential to degrade groundwater quality are salts (primarily TDS, sodium, and chloride) and nitrate, as discussed below. For the purpose of this evaluation, TDS is representative of overall salinity.

The following recycled water Use Areas were identified as representing typical groundwater conditions within their respective development area: River Islands Use Area A28, River Islands Use Areas A30/A31, Mossdale Use Area A23, Northern Lathrop planned Use Areas A1-13 and A17-19, and CLSP planned Use Areas L01 - L100. Each has an existing network of shallow groundwater monitoring wells and groundwater monitoring data collected prior to and, in the case of existing Use Areas, after initiation of recycled water discharge. Compliance wells are those that are located within recycled water Use Areas because those wells are most susceptible to water quality changes as a result of recycled water use.

- a. **River Islands – Use Area A28:** Groundwater quality in this existing Use Area is substantially more saline than the treated effluent. Pre-discharge groundwater monitoring data collected from monitoring well MWR-24 (located within recycled water Use Area A28) reflects average TDS, chloride, and sodium concentrations of 2,820 mg/L, 948 mg/L, and 1,010 mg/L, respectively. These average concentrations each exceed their corresponding water quality objectives.

Mean groundwater TDS concentrations in background monitoring wells for Area A28 (MWR-3, MWR-23, and MWR-25) currently range from 2,108 mg/L to 3,610 mg/L, which exceed both the average recycled water TDS concentration of 688 mg/L and the short-term maximum secondary MCL of 1,500 mg/L. Monitoring wells further distant around the perimeter of recycled water use Area A28 (MWR-1, MWR-4, MWR-15, and MWR-26) have mean TDS concentrations ranging from 1,090 mg/L to 1,484 mg/L. A comparison of average treated effluent and groundwater quality data for Use Area A28 is provided below.

Land Development Area: River Islands					
Recycled Water Use Area: A28			Irrigated Acres: 30.63		
Parameter ¹	Treated Effluent ²	Potential Compliance Well ³	Background Wells ³		Potential Water Quality Objective
		MWR-24	MWR-23	MWM-25	
TDS	688	5,741	2,361	2,108	450 ⁴ - 1,000 ⁵
Chloride	194	2,346	928	904	250 ⁴ - 500 ⁵
Sodium	181	655	407	347	69 ⁴
Nitrate nitrogen	7.0 ⁷	1.0	7.3	0.8	10 ⁸

- ¹ Monitoring data reported in milligrams per liter (mg/L).
- ² Mean effluent data (January 2011 through September 2013).
- ³ Average groundwater monitoring data (July 2006 through April 2014).
- ⁴ Lowest agricultural water quality goal.
- ⁵ Upper Secondary Maximum Contaminant Level.
- ⁶ Secondary Maximum Contaminant Level.
- ⁷ Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
- ⁸ Primary Maximum Contaminant Level.

TDS, chloride, and sodium concentrations both background and compliance wells greatly exceed the respective water quality objectives at this Use Area. Although compliance well concentrations for salinity constituents greatly exceed those in the background wells, this condition was apparent prior to any discharge to this Use Area. Since the discharge began in 2010, TDS concentrations in the compliance well improved somewhat but continue to exceed the water quality objective. Based on a comparison of treated effluent and groundwater quality trends, the use of recycled water in this area poses no threat of contributing to the existing condition of pollution.

Because salinity constituents in groundwater exceeded water quality objectives prior to the discharge, the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective. This Order prohibits any further degradation of groundwater quality and includes a performance based TDS effluent limit that will restrict effluent salinity to ensure compliance with the Controllable Factors Policy.

Because there is no threat of further degradation, this Order does not require continued groundwater monitoring in this area.

River Islands – Use Areas A30 & A31: Groundwater quality in and around these two Use Areas is of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from monitoring well MWR-28 (located within Use Area A30) has an average TDS concentration of 3,677 mg/L, and data from monitoring well MWR-32 (located within Use Area A31) has an average TDS concentration of 2,904 mg/L. These pre-discharge concentrations exceed the short-term maximum secondary MCL of 1,500 mg/L. Use Area A30 has received recycled water since 2010, but Use Area A31 has not yet received recycled water.

Mean groundwater TDS concentrations in A30's background monitoring wells (MWR-12 and MWR-27) currently range from 1,221 and 2,286 mg/L, which exceed both the average recycled water TDS concentration of 688 mg/L and the short-term maximum secondary MCL of 1,500 mg/L. Likewise, mean TDS concentrations in A31's background monitoring wells MWR-11, MWR-29, and MWR-31 range from 1,448 to 3,771 mg/L. A comparison of average treated effluent and groundwater quality data is provided below.

Land Development Area: River Islands				
Recycled Water Use Area: A30/A31			Irrigated Acres: 130.2	
Parameter ¹	Treated Effluent ²	Mean Analytical Results ³		Potential Water Quality Objective
		Potential Compliance Wells ⁴	Background Wells ⁵	
TDS	688	3,242	2,150	450 ⁶ – 1,000 ⁷
Chloride	194	1,194	756	250 ⁶ - 500 ⁷
Sodium	181	414	249	69 ⁶
Nitrate nitrogen	7.0 ⁹	1.3	1.9	10 ¹⁰

- ¹ All analytical data reported in milligrams per liter (mg/L).
- ² Mean effluent data (January 2011 through September 2013).
- ³ Average groundwater monitoring data (May 2010 through April 2014).
- ⁴ Compliance wells include MWR-28 (A30) and MWR-32 (A31).
- ⁵ Background wells include MWR-11, MWR-12, MWR-27, and MWR-31.
- ⁶ Lowest agricultural water quality goal.
- ⁷ Upper Secondary Maximum Contaminant Level.
- ⁸ Secondary Maximum Contaminant Level.
- ⁹ Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
- ¹⁰ Primary Maximum Contaminant Level.

TDS, chloride, and sodium concentrations in both background and compliance wells greatly exceed the respective water quality objectives at these two Use Areas. Although compliance well concentrations for salinity constituents greatly exceed those in the background wells, this condition was apparent prior to any discharge to Use Area A30. Groundwater salinity constituent concentrations in Use Areas A30

and A31 have been both spatially and temporally variable prior to and since the discharge to Use Area A30 began. TDS concentrations in A30 compliance well MWR-28 initially declined after discharge to A30 began in 2010 but then rebounded to pre-discharge conditions. In nearby A31 compliance well MWR-32, the TDS concentration trend is similar to that of MRW-28 even though there has been no discharge to Use Area A31. Based on a comparison of treated effluent and groundwater quality trends, the use or recycled water in this area poses no threat of contributing to the existing condition of pollution.

Because salinity constituents in groundwater exceeded water quality objectives prior to the discharge, the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective. This Order prohibits any further degradation of groundwater quality and includes a performance based TDS effluent limit that will restrict effluent salinity to ensure compliance with the Controllable Factors Policy.

Because there is no threat of further degradation, this Order does not require continued groundwater monitoring in this area.

- b. **Mosssdale – Use Area A23:** Groundwater quality in the Mosssdale area is generally of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from monitoring well MWM-12, which is located within recycled water Use Area A23, reflects mean TDS, chloride, and sodium concentrations of 2,820 mg/L, 948 mg/L, and 1,010 mg/L, respectively. These pre-discharge concentrations greatly exceed their corresponding water quality objectives.

Recycled water was discharged to Use Area A23 from May 2006 through September 2009. Post-discharge groundwater monitoring data collected from monitoring well MWM-12 from 2009 through 2014 reflects mean TDS, chloride, and sodium concentrations of 2,656 mg/L, 1,096 mg/L, and 1,019 mg/L, respectively, which indicates the discharge has caused no degradation. A comparison of average treated effluent and groundwater quality data are provided below.

Land Development Area: Mossdale					
Recycled Water Use Area: A23				Irrigated Acres: 11.52	
Parameter ¹	Treated Effluent ²	Compliance Well ³	Background Wells ³		Potential Water Quality Objective
		MWM-12	MWM-13	MWM-11	
TDS	688	2,811	2,035	3,110	450 ⁴ - 1,000 ⁵
Chloride	194	1,117	556	1,369	250 ⁴ - 500 ⁵
Sodium	181	1,007	702	658	69 ⁴
Sulfate	49.5	250	318	284	250 ⁶
Nitrate nitrogen	7.0 ⁷	3.4	3.7	0.4	10 ⁸

- ¹ Monitoring data reported in milligrams per liter (mg/L).
- ² Mean effluent data (January 2011 through September 2013).
- ³ Average groundwater monitoring data (July 2006 through April 2014).
- ⁴ Lowest agricultural water quality goal.
- ⁵ Upper Secondary Maximum Contaminant Level.
- ⁶ Secondary Maximum Contaminant Level.
- ⁷ Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
- ⁸ Primary Maximum Contaminant Level.

TDS, chloride, and sodium concentrations in both background and compliance wells greatly exceed the respective water quality objectives at this Use Area. Although compliance well concentrations for salinity constituents exceed those of the background wells, this condition was apparent prior to any discharge to this Use Area. Groundwater salinity concentrations in MWR-12 increased briefly during the discharge of recycled water to Use Area A23, but declined to pre-discharge levels in 2008, approximately one year before the use of recycled water stopped. After the discharge was discontinued, TDS concentrations decreased gradually to about 2,600 mg/L, but still remain above the upper Secondary Maximum Contaminant Level of 1,500 mg/L. Based on a comparison of treated effluent and groundwater quality trends, the use or recycled water in this area poses no threat of contributing to the existing condition of pollution.

Because salinity constituents in groundwater exceeded water quality objectives prior to the discharge, the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective. This Order prohibits any further degradation of groundwater quality and includes a performance based TDS effluent limit that will restrict effluent salinity to ensure compliance with the Controllable Factors Policy.

Because there is no threat of degradation, this Order does not require continued groundwater monitoring in this area.

- c. **Northern Lathrop (Planned Use Areas):** Groundwater quality in North Lathrop is generally of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from eleven monitoring wells (MW-N1 through MW-N6 and NMW-1 through NMW-5) between 2005 and 2006 show average TDS, chloride, sodium, and nitrate nitrogen concentrations that often greatly exceed the respective water quality objectives. Additionally, one monitoring well (NMW-4) exhibited TDS concentrations over ten times the Secondary Maximum Contaminant Level of 1,500 mg/L. A comparison of average treated effluent and groundwater quality data is provided below.

Land Development Area: Northern Lathrop (Planned Use Areas)				
Recycled Water Use Areas: A1 - A13 and A17 – 19			Irrigated Acres: 638.14	
Parameter ¹	Treated Effluent ²	Groundwater Concentrations ³		Potential Water Quality Objective
		Range	Mean	
TDS	688	910 – 18,000	2,740	450 ⁴ - 1,000 ⁵
Chloride	194	55 - 8,000	1,066	250 ⁴ - 500 ⁵
Sodium	181	126 – 1,800	495	69 ⁴
Sulfate	49.5	4.9 - 290	136	250 ⁶
Nitrate as N	7.0 ⁷	<0.1 – 102	29	10 ⁸

¹ Monitoring data reported in milligrams per liter (mg/L).

² Mean effluent data (January 2011 through September 2013).

³ Groundwater monitoring data MW-N1 through MW-N6 and NMW-1 through NMW-5 (January 2005 – July 2006).

⁴ Lowest agricultural water quality goal.

⁵ Upper Secondary Maximum Contaminant Level.

⁶ Secondary Maximum Contaminant Level.

⁷ Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.

⁸ Primary Maximum Contaminant Level.

Where salinity constituent concentrations in groundwater exceeded water quality objectives prior to any discharge, the Basin Plan’s Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective.

Where pre-discharge concentrations meet water quality objectives, the Anti-degradation Policy applies and it is appropriate to allow degradation, but not exceedance of a water quality objective due to the use of recycled water. With few exceptions, pre-discharge TDS, chloride, sodium, and nitrate nitrogen concentrations

greatly exceed the respective water quality objectives throughout the Northern Lathrop development area. Based on a comparison of treated effluent and groundwater quality trends, the use of recycled water in this area poses no threat of contributing to the existing condition of pollution. In the limited areas where high quality groundwater exists, the discharge might cause degradation but is not likely to cause or contribute to exceedance of a water quality objective.

This analysis is based on data obtained between 2005 and 2006. However, current groundwater quality is not known and groundwater quality may change prior to initiation of water recycling in these areas. Therefore, updated pre-discharge groundwater monitoring is necessary before these Use Areas can receive recycled water.

- d. **CLSP (Planned Use Areas):** Approximately 199 acres of land within the CLSP development area have been identified as planned agricultural irrigation Use Areas. Pre-discharge groundwater quality indicates that shallow groundwater is generally of lower quality than the treated effluent. Pre-discharge groundwater monitoring data collected from ten monitoring wells (CLSP-1 through CLSP-10) between 2005 and 2006 show that average TDS, sodium, chloride, and nitrate nitrogen concentrations that greatly exceed the respective water quality objectives. A comparison of average treated effluent and groundwater quality data is provided below.

Land Development Area: CLSP (Planned Use Areas)				
Recycled Water Use Areas: L01 - L100			Irrigated Acres: 198.98	
Parameter ¹	Treated Effluent ²	Groundwater Concentrations ³		Potential Water Quality Objective
		Range	Mean	
TDS	688	308 – 4,160	1,727	450 ⁴ - 1,000 ⁵
Chloride	194	63 – 1,320	407	250 ⁴ - 500 ⁵
Sodium	181	62 – 1,250	407	69 ⁴
Nitrate nitrogen	7.0 ⁷	<0.01 - 26	10	10 ⁸

¹ Monitoring data reported in milligrams per liter (mg/L).
² Mean effluent data (August 2005 – September 2013).
³ Groundwater monitoring data from CLSP-1 through CLSP-10 (January 2005 – July 2006).
⁴ Lowest agricultural water quality goal.
⁵ Upper Secondary Maximum Contaminant Level.
⁶ Secondary Maximum Contaminant Level.
⁷ Effluent total nitrogen is used here to evaluate the threat of degradation with nitrate nitrogen.
⁸ Primary Maximum Contaminant Level.

With few exceptions, pre-discharge TDS, chloride, and sodium concentrations greatly exceed the respective water quality objectives throughout the CLSP development area.

In the limited areas where high quality groundwater exists, Use Areas A21 and A37, the discharge might cause degradation but is not likely to cause or contribute to exceedance of a water quality objective. Where pre-discharge concentrations meet water quality objectives, the Anti-degradation Policy applies and it is appropriate to allow degradation, but not exceedance of a water quality objective due to the use of recycled water

For all other planned Use Areas, salinity constituent concentrations in groundwater exceeded water quality objectives prior to any discharge, so the Basin Plan's Controllable Factors Policy is applicable. The Controllable Factors Policy does not allow controllable factors, such as a discharge of waste, to cause further degradation of water quality where other uncontrollable factors have already caused exceedance of a water quality objective.

This analysis is based on data obtained between 2005 and 2006. However, current groundwater quality is not known and groundwater quality may change prior to initiation of water recycling in these areas. Therefore, updated pre-discharge groundwater monitoring is necessary before these Use Areas can receive recycled water.

Groundwater in the western Lathrop area has been severely compromised through a combination of long term agricultural practices and regional drainage from the Central Valley into the San Joaquin Delta. The land development areas as described in Order R5-2015-0006 that receive recycled water are located in close proximity to surface water courses that influence shallow groundwater flow and water quality conditions, creating a complex hydrogeologic model.

The primary constituents of concern from the treated effluent that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride). The presence of elevated iron and manganese in groundwater near the River Islands recycled water Use Areas indicates that reducing conditions not associated with the use of recycled water have mobilized these metals in shallow groundwater. Elevated concentrations of nitrate as nitrogen in North Lathrop are indicative of agricultural practices, as there has not been any discharge of recycled water in that area.

For TDS, sulfate, iron, manganese, and nitrate; groundwater monitoring data indicate that groundwater has not been degraded further by the discharge, and that the expanded discharge does not pose a threat of significant degradation in the future. This Order contains effluent limits that will ensure that the use of recycled water does not cause groundwater quality to get any worse. The use of recycled water at the Use Areas does not pose a threat of significant degradation because of the high quality of the effluent and the ability of landscaping and crops to consume nitrogen.

Based on the foregoing findings, this Order requires continued groundwater monitoring only for selected recycled water Use Areas that have the greatest potential to impact groundwater quality, and are of a sufficient size that such an impact will be recognizable above background conditions. Groundwater monitoring may also be required for new recycled water Use Areas, but not near existing or future lined effluent storage ponds.

LAS-3. For the purpose of evaluating potential future groundwater degradation at a new discharge location, groundwater quality was evaluated at LAS-3 in preparation of the 2016 WDRs. The primary constituents of concern from the treated effluent that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride). Based on effluent quality and pre-discharge groundwater quality, elevated nitrate concentrations are likely the result of agricultural practices. In addition, elevated sulfate, boron, and manganese concentrations in groundwater near LAS-3 are likely natural occurring. This Order contains effluent limits that will ensure that the discharge of recycled water to percolation pond(s) does not cause groundwater quality to get any worse.

This Order includes groundwater limitations that implement Resolution 68-16 and the Controllable Factors Policy as applicable. If effluent or other future monitoring data indicate an increased threat to groundwater quality, groundwater monitoring may be required in other areas at the Executive Officer's discretion.

Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations

The Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.

Discharge Prohibitions, Specification, and Provisions

This Order establishes effluent and groundwater limitations for the CTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

This Order restricts influent flows to the CTF as an average dry weather flow (ADWF) of 0.75 mgd. The flow limit can be increased up to a maximum of 6.0 mgd upon approval by the Executive Officer.

This Order contains effluent limits that ensure that the discharge will not cause exceedance of a water quality objective in groundwater and comply with Title 22. This Order prescribes groundwater limitations that ensure the discharge does not affect present and anticipated future beneficial uses of groundwater.

This Order is also a Master Recycling Permit with requirements consistent with the Water Code section 13523.1, including the requirement to establish and have authority to enforce rules and/or regulations for recycled water Users governing the design and construction of recycled water use facilities and the use of recycled water in accordance with water recycling criteria established in Title 22, California Code of Regulations and this Order.

The Monitoring and Reporting Program is designed to verify compliance with effluent limitations and operational requirements of the WDRs.