2017 VVWRA Annual Recycled Water Report

This report is submitted in compliance with Water Reclamation Requirements General Order WQ 2016-0068-DDW and Water Recycling Requirements Order No. R6V-2003-028, WDID No. 6B360207001.

The Victor Valley Wastewater Reclamation Authority (VVWRA) received a "Notice of Applicability" for State Water Resources Control Board Order WQ 2016-0068-DDW, Water Reclamation Requirements for Recycled Water Use (General Order)" on January 11, 2017. The 2017 Annual Report is submitted in accordance with Attachment B of the General Order (Monitoring and Reporting Program, MRP) and the location of the required information is shown below.

Report Section Title	Required by MRP Section A	Page
Recycled Water Users	Summary table of all recycled water users and use areas	2
Inspections and Enforcement	Summary of all inspections and enforcement actions, discussion of compliance and corrective actions taken	6
Performance Evaluation	Evaluation of performance of the facility, including discussion of issues, problems, and flow forecast	6
Monitoring Summary	Tabular and graphical summaries of all monitoring data collected during the year	6 Att A
Contact Information	Name and contact information for responsible recycled water operator	12

RECYCLED WATER USERS

A summary table of all recycled water users and use areas is shown in **Table 1**. All recycled water during 2017 was produced at the Regional Water Reclamation Plant (Regional WRP). The Apple Valley and Hesperia Subregional WRPs have not yet begun to produce recycled water. No new users were added in 2017.

Table 1. Recycled Water Users

User Name	Address	Water Use	Status
High Desert Power Project	19000 Perimeter Rd, Victorville, CA 92394	Cooling water (no mist or spray)	Recycled water was sent from the Regional WRP via the SCLA Storage Pond in 2017
American Organics Compost Facility	20055 Shay Rd, Victorville, CA 92394	Dust control/ management	Recycled water was sent from the Regional WRP in 2017
West Winds Golf Course	18003 West Wind Rd, Victorville, CA 92394	None currently	Decommissioned, no recycled water was delivered in 2017

Recycled water is held in the Southern California Logistics Airport (SCLA) Storage Pond prior to delivery to the High Desert Power Project (HDPP). The locations of the HDPP and SCLA Storage Pond are shown in **Figure 1**. The location of the American Organics Compost Facility is shown in **Figure 2**.

Although the West Winds Golf Course has received recycled water from the Regional WRP in the past (via the SCLA Storage Pond), it is currently closed and no recycled water was used for irrigation in 2017. The location of the West Winds Golf Course is shown in **Figure 3**.

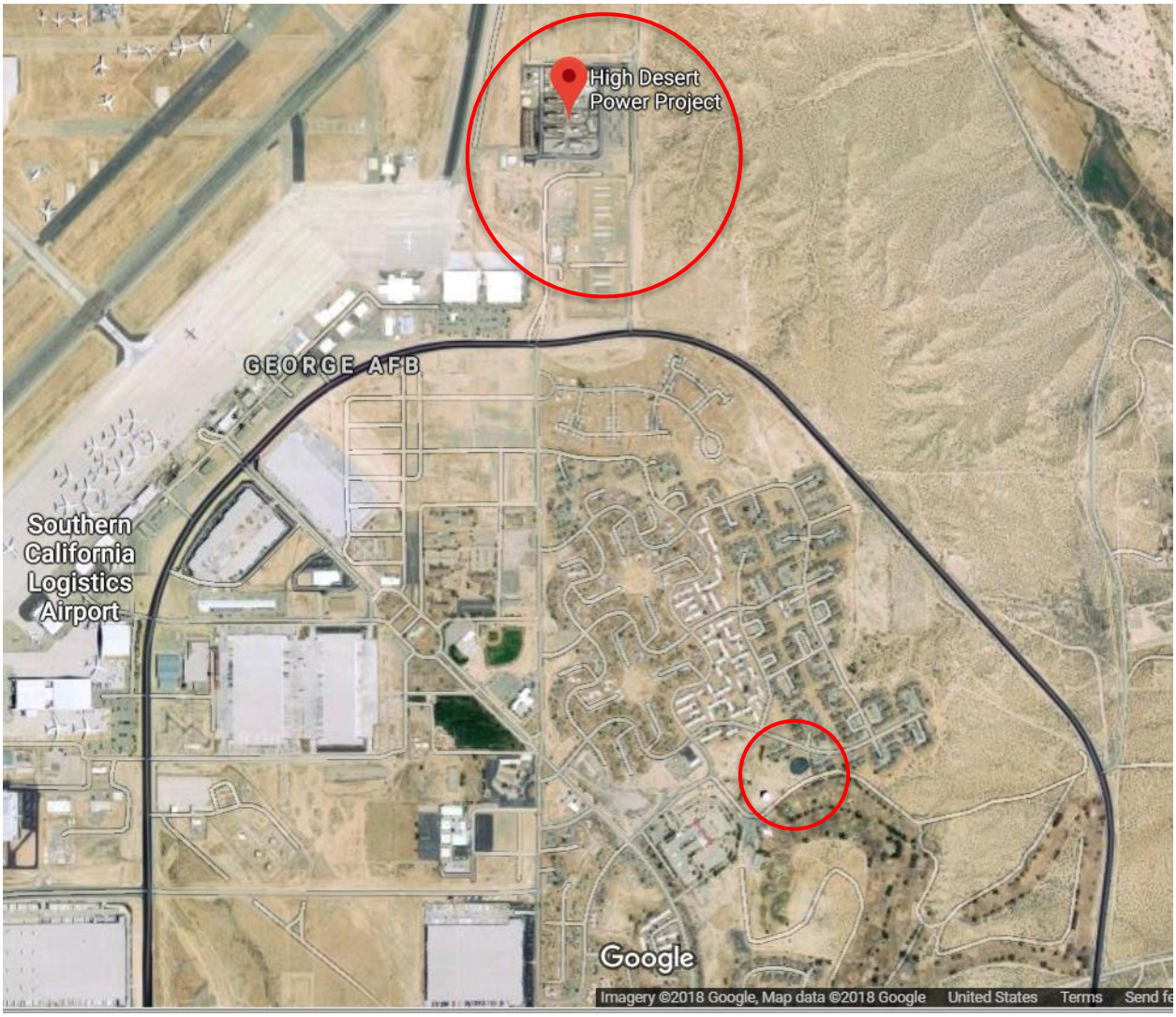

Figure 1. Location of High Desert Power Project and SCLA Storage Pond

Figure 2. Location of American Organics Compost Facility

Figure 3. Location of West Winds Golf Course (Decommissioned) and SCLA Storage Pond

INSPECTIONS AND ENFORCEMENT

No enforcement activities were necessary in 2017, as all aspects of the recycling program performed as required. Should enforcement become necessary in the future, it will be applied.

VVWRA complied with the requirements of the General Order during 2017.

PERFORMANCE EVALUATION

This section contains an evaluation of the performance of the Regional WRP, including discussion of capacity issues, system problems, and a forecast of the flows anticipated in the next year.

During 2017, there were no Regional WRP performance issues; all systems performed correctly. The recycled water met all requirements of Section 60304, Title 22, CCR and related sections of Title 22, which apply to turbidity and total coliform. Turbidity and total coliform levels complied with the 2003 Recycling Permit limits during 2017. The total flow of recycled water to the SCLA Storage Pond did not exceed its capacity, as the lowest quarterly freeboard level measured during 2017 was 27.6 inches, which was sufficient to prevent overflow. The pH and dissolved oxygen levels of effluent sent to the SCLA Storage Pond during 2017 complied with the limits set forth in the 2003 Recycling Permit during 2017.

Water delivery volumes from the Regional WRP in 2018 are expected to be similar to volumes in 2017. The Apple Valley Subregional WRP is expected to begin producing recycled water in 2018, with a permitted discharge of up to 1.0 MGD of disinfected tertiary water.

The Hesperia Subregional WRP is expected to produce recycled water during 2019.

MONITORING SUMMARY

This section includes tabular and graphical summaries of all recycled water data collected at the Regional WRP during the year. Additional daily flow and water quality data are shown in **Attachment A**.

Groundwater monitoring results and associated analytical methods were previously submitted by VVWRA in the *2017 Annual Groundwater Monitoring Report* and by the City of Victorville in the *2017 Annual Compliance Report for Percolation Pond No. 14 WDID No. 6B360911001*.

Recycled Water Monitoring

As no recycled water was used for irrigation of landscaped areas[1] in 2017, priority pollutant monitoring was not required by the General Order. However priority pollutant monitoring was performed according to requirements specified by the Regional WRP's NPDES permit (Order No. R6V-2013-0038). The results were included in the *VVWRA 2017 Annual Facility Report*, submitted via CIWQS on February 27, 2018.

[1] Landscape areas are defined in the General Order as parks; greenbelts, playgrounds; school yards; athletic fields; golf courses; cemeteries; residential landscaping; common areas; commercial landscaping (except eating areas); industrial landscaping (except eating areas); freeway, highway, and street landscaping.

Disinfection System Monitoring

Disinfection monitoring data for samples measured in tertiary treated effluent sent to recycling are shown in **Tables 3** and **4** and **Figures 3** and **4**. All water quality analyses were performed by Babcock Laboratories, Inc. Babcock Laboratories is certified through NELAP Accreditation (Certificate #4035-001), CDPH Environmental Laboratory Program (Certificate #2698), and with the American Association for Laboratory Accreditation (Certification #3232.01).

Table 4. Disinfection Monitoring Results – Total Coliform, MPN/100mL[a]

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	<2	<2	4		<2	<2	<2	<2	<2	<2	<2	2
2	<2	<2	<2	2	<2	2	<2	<2	<2	<2	<2	<2
3	<2	2	<2	<2	2	<2	2	<2	<2	<2	<2	2
4	<2	<2	<2		<2	<2	<2	<2	<2	<2	<2	<2
5	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
6	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
7	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
8	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	2
9	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
10	<2		<2	<2	2	<2	<2	<2	<2	<2	<2	<2
11	<2		<2	<2	2	<2	<2	<2	<2	<2	<2	<2
12	<2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
13	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
14	<2	2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2
15	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
16	<2	<2		<2	<2	<2	4	<2	<2	<2	<2	<2
17	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
18	<2	<2	<2	<2	<2	<2	2	<2	<2	<2	<2	<2
19	<2	<2	2	<2	<2		2	<2	<2	<2	<2	<2
20	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2
21	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2
22		2	<2	<2	<2			<2	<2	<2	<2	<2
23	<2	<2	<2	<2	<2		<2	<2	2	<2	<2	<2
24	<2	<2	<2	<2	<2		<2	<2	2	<2	<2	<2
25	<2	<2	<2	<2	<2		<2	4	<2	<2		<2
26	<2	<2	<2	<2	<2		<2	<2	<2	<2	<2	<2
27	2	<2	<2	<2	<2		<2	<2		<2	<2	<2
28	<2	<2	<2	<2	<2	2	<2	<2		<2	<2	<2
29	<2		<2	<2	<2	<2	<2		<2	<2	<2	<2
30	<2		<2	<2	<2	<2	<2	<2	<2	<2	2	<2
31	<2		<2		<2		<2	<2		<2		<2

[a] Analyzed by Standard Method 9221E.

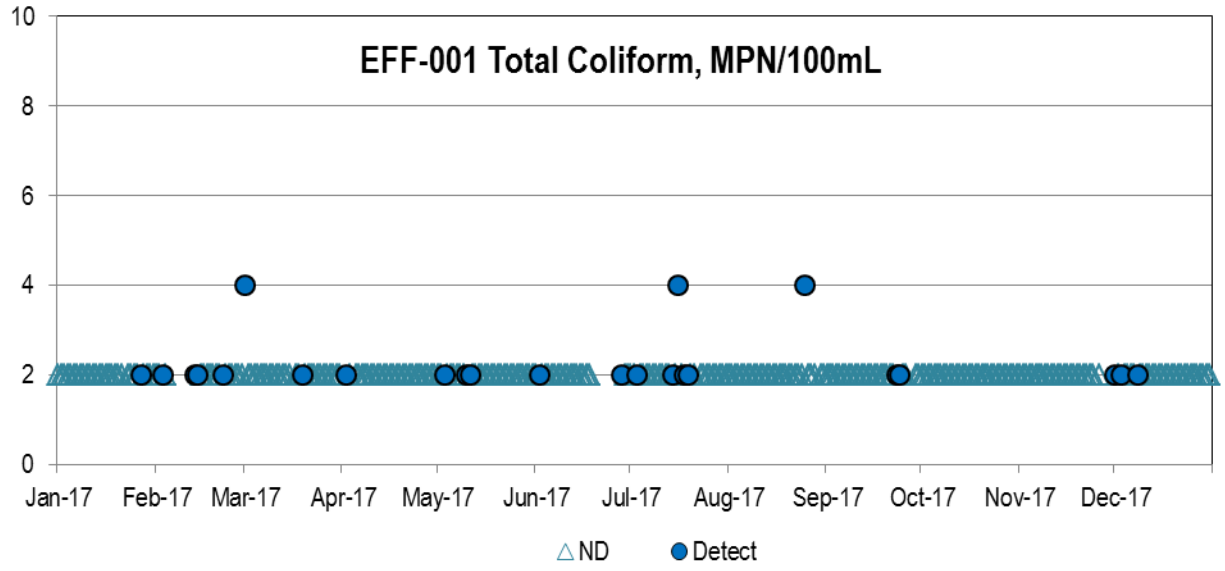

Figure 3. Disinfection Monitoring Results – Total Coliform, MPN/100mL

Table 5. Disinfection Monitoring Results – Turbidity, NTU[a]

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.421	0.859	0.37	0.635	0.334	0.608	0.408	0.388	0.386	0.44	0.4	0.383
2	0.46	0.745	0.463	0.736	0.327	0.587	0.412	0.463	0.388	0.38	0.428	0.336
3	0.5	0.737	0.362	0.95	0.307	0.59	0.349	0.304	0.238	0.32	0.431	0.335
4	0.54	0.559	0.492		0.325	0.545	0.374	0.329	0.401	0.395	0.481	0.282
5	0.55	0	0.46	0.843	0.366	0.5	0.4	0.418	0.403	0.39	0.456	0.297
6	0.57	0	0.45	0.834	0.36	0.53	0.478	0.36	0.494	0.342	0.52	0.29
7	0.566	0	0.395	0.821	0.336	0.612	0.46	0.559	0.386	0.381	0.45	0.326
8	0.514	0	0.53	0.82	0.325	0.565	0.5	0.409	0.433	0.372	0.424	0.3
9	0.73	0	0.491	0.8	0.329	0.642	0.55	0.52	0.401	0.381	0.44	0.326
10	0.6	0	0.441	0.85	0.27	0.692	0.477	0.582	0.394	0.37	0.559	0.416
11	0.65	0	0.392	0.827	0.278	0.661	0.391	0.68	0.387	0.29	0.489	0.483
12	0.78	0	0.41	0.787	0.349	0.662	0.327	0.53	0.47	0.51	0.492	0.602
13	0.962	0.611	0.45	0.66	0.438	0.749	0.389	0.48	0.386	0.56	0.45	0.618
14	0.894	0.72	0.545	0.715	0.41	0.708	0.4	0.366	0.38	0.546	0.451	0.67
15	0.764	0.692	0.5	0.839	0.38	0.755	0.397	0.417	0.238	0.555	0.6	0.54
16	0.654	0.662		0.686	0.46	0.717	0.42	0.36	0.355	0.49	0.53	0.461
17	0.711	0.728	0.534	0.68	0.59	0.66	0.41	0.314	0.416	0.447	0.48	0.616
18	0.742	0.698	0.578	0.4	0.683	0.71	0.36	0.48	0.551	0.453	0.437	0.499
19	1	0.588	0.55	0.67	0.65		0.45	0.412	0.441	0.43	0.431	0.48
20	0.749	0.654	0.51	0.61	0.746		0.319	0.397	0.588	0.44	0.53	0.46

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
21	0.791	0.656	0.545	0.547	0.621		0.188	0.351	0.391	0.348	0.662	0.39
22		0.618	0.89	0.478	0.565			0.29	0.424	0.38	0.48	0.48
23	1.097	0.52	0.445	0.46	0.38		0.515	0.286	0.549	0.377	0.65	0.459
24	1.051	0.261	0.419	0.38	1.05		0.387	0.32	0.52	0.32	0.28	0.495
25	0.904	0.467	0.479	0.5	0.484		0.337	0.35	0.58	0.39		0.446
26	0.751	0.381	0.442	0.49	0.588		0.41	0.413	0.16	0.34	0.409	0.422
27	0.719	0.307	0.463	0.503	0.48		0.329	0.317		0.346	0.388	0.427
28	0.771	0.431	0.433	0.505	0.42	0.626	0.322	0.251		0.305	0.305	0.58
29	0.787		0.476	0.929	0.631	0.551	0.33		0.459	0.469	0.29	0.38
30	0.634		0.738	0.34	0.624	0.56	0.4	0.608	0.43	0.346	0.41	0.442
31	0.735		0.655		0.514		0.331	0.386		0.37		0.412

[a] Analyzed by Standard Method 2130B.

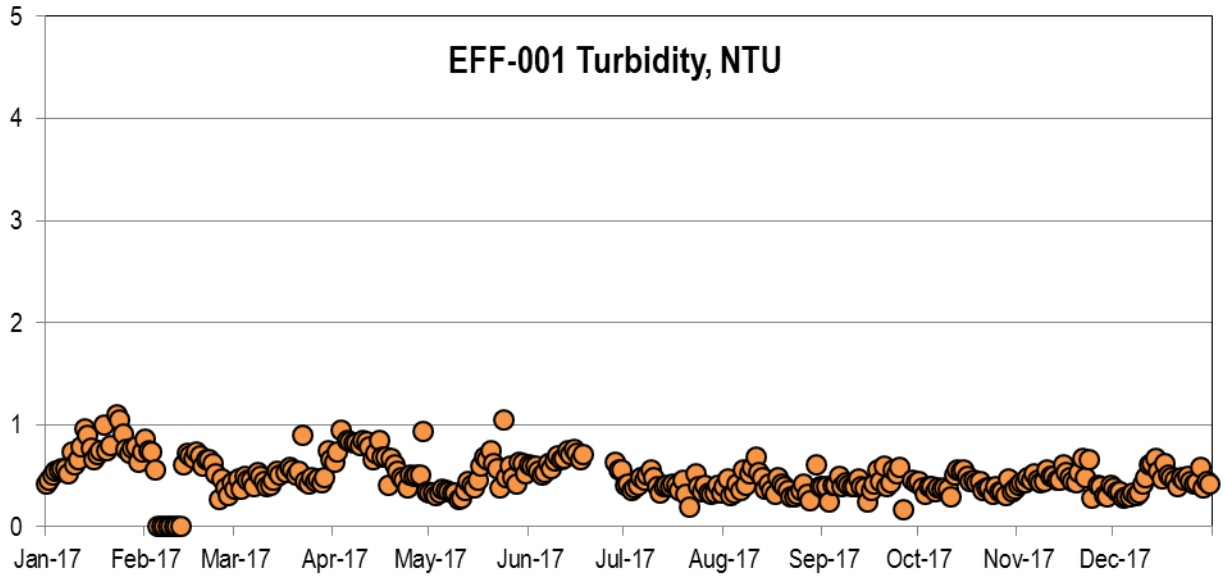

Figure 4. Disinfection Monitoring Results – Turbidity, NTU

Pond System Monitoring

During 2017, recycled water was pumped from the Regional WRP to the SCLA) Storage Pond using two 250-HP 4-stage pumps with variable frequency drive units and fully automated controls. Recycled water was held in the SCLA Storage Pond prior to delivery to the High Desert Power Project (HDPP). The SCLA Storage Pond is located on the West Winds Golf Course property, at 17961 W. Winds Road, Victorville, CA 92394. Maintenance and operation of the pond are the responsibility of the City of Victorville, as defined by Item III.L of Board Order No. R6V-2003-0028A2, WDID No.6B360207001, amending Water Recycling Requirements for City of Victorville and West Winds Golf Course. The General Order requires quarterly storage pond monitoring of freeboard and observations of odors and berm condition (MRP page B-3). The results are shown in **Table 6**.

Table 6. SCLA Storage Pond System Monitoring Results

	Date	Freeboard, inches[a]
Quarter 1	March 31, 2017	36.1
Quarter 2	June 30, 2017	27.6
Quarter 3	September 30, 2017	34.4
Quarter 4	December 31, 2017	33.4

[a] Daily monitoring results are available upon request.

No abnormal odors or berm conditions were observed during 2017.

Use Area Monitoring

The recycled water supplied in 2017 was not used for irrigation. Therefore, the number of acres applied, the application rate, soil saturation/ponding, nuisance odors/vectors, and offsite discharge information are not applicable for this report.

During 2017, 47.545 million gallons of recycled water were delivered to the SCLA Storage Pond and 7.236 million gallons to the American Organics composting facility. These users and the monthly average flows in gallons per day and total million gallons per month are shown in **Table 7**, as required by the General Order. Daily flow data are shown in **Attachment A** and by graphical representation in **Figures 5 - 7**.

Table 7. Use Area Monitoring for 2017

	Flows to HDPP		Flows to American Organics		Total Recycled Flow	
Month	GPD	MG	GPD	MG	GPD	MG
Jan	330,245	10.238	2,300	0.071	332,545	10.309
Feb	83,529	2.339	6,343	0.178	89,871	2.516
Mar	166,481	5.161	20,877	0.647	187,358	5.808
Apr	16,390	0.492	16,897	0.507	33,287	0.999
May	25,642	0.795	27,316	0.847	52,958	1.642
Jun	26,423	0.793	23,473	0.704	49,897	1.497
Jul	318,513	9.874	35,368	1.096	353,881	10.970
Aug	228,390	7.080	31,752	0.984	260,142	8.064
Sep	65,230	1.957	21,003	0.630	86,233	2.587
Oct	111,510	3.457	21,677	0.672	133,187	4.129
Nov	17,413	0.522	15,183	0.456	32,597	0.978
Dec	193,245	5.991	14,316	0.444	207,561	6.434

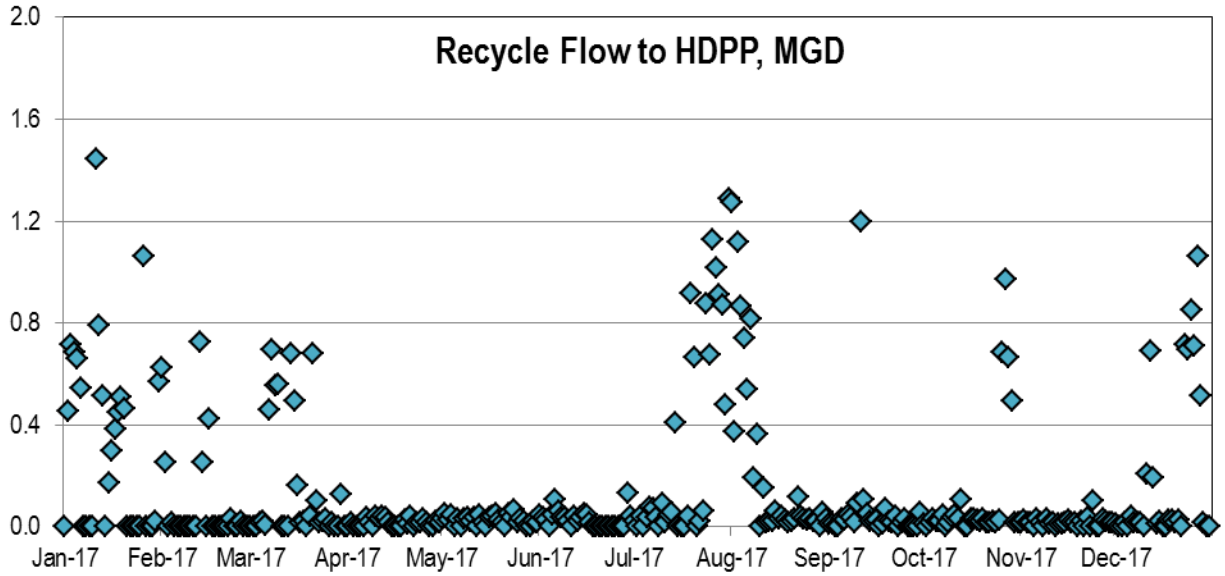

Figure 5. Use Area Monitoring Results – Flows to HDPP, MGD

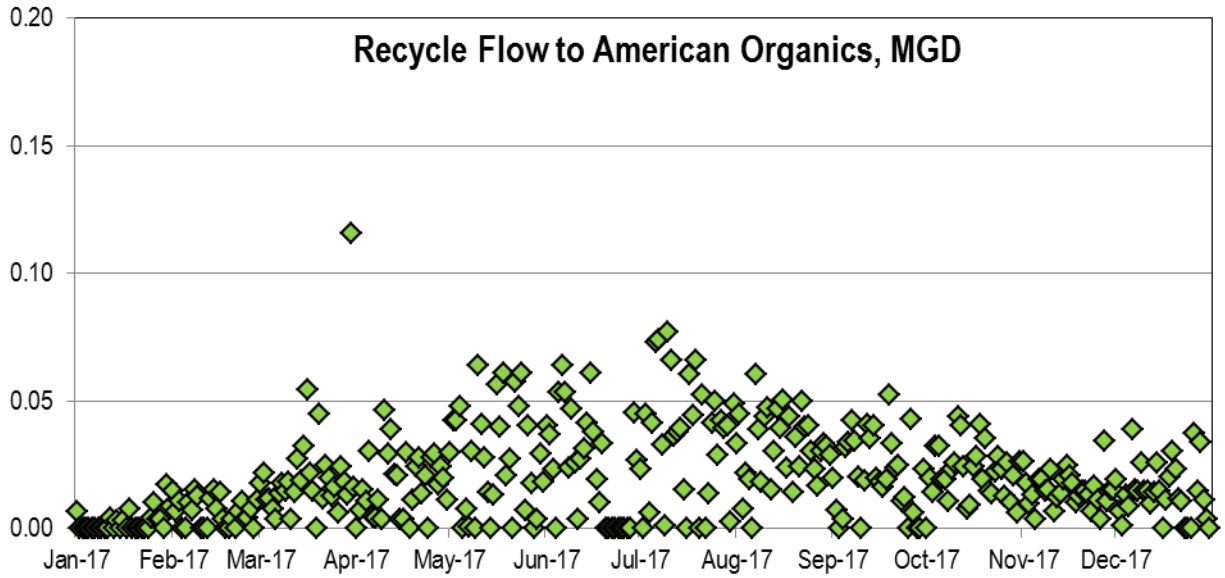

Figure 6. Use Area Monitoring Results – Flows to American Organics, MGD

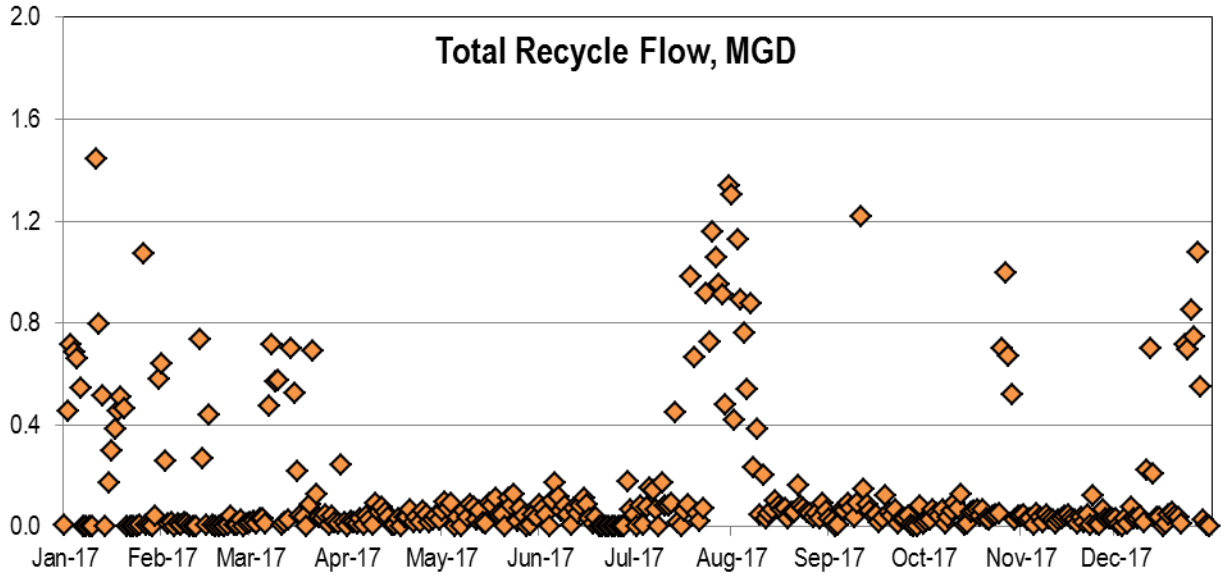

Figure 7. Total Recycled Water Flow, MGD

Cooling Uses of Recycled Water

The HDPP is responsible for implementing the requirements of California Code of Regulations, title 22, section 60306(c), under Order No. R6V-2009-0138.

CONTACT INFORMATION

Logan Olds, General Manager, is responsible for the operation of the Regional WRP. Eugene Davis is the operator responsible for the operation, maintenance, and recycled water system monitoring. Eugene and Logan can be reached at (760) 246-8638.

Attachment A. Daily Recycled Flow and Water Quality Data

Attachment A. Daily Recycled Water Flow and Water Quality Data

Table A-1. 2017 Total Daily Recycled Water Flow, MGD

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0064	0.6386	0.0178	0	0.0596	0.0862	0.044	1.3052	0.0289	0.011	0.042	0.0304
2	0.455	0.2578	0.0217	0.0213	0.0951	0.073	0	0.4169	0.019	0.0195	0.0458	0.0067
3	0.713	0.0108	0.0109	0.0151	0.0703	0.0474	0.0836	1.1257	0	0.0283	0.0248	0.001
4	0.686	0.0173	0.0295	0.0108	0.0918	0	0.0063	0.8887	0.0034	0.0645	0.0313	0.0289
5	0.66	0	0.0296	0.0301	0	0.0993	0.0761	0.7611	0.0649	0.0522	0.0035	0.0084
6	0.545	0.0102	0.0105	0.0045	0.0377	0.1711	0.1491	0.537	0.0597	0.0391	0.0512	0.0786
7	0	0.0073	0.4737	0.041	0.0005	0.1155	0.1431	0.8732	0.0895	0.0644	0.0374	0.0324
8	0	0.0154	0.7127	0.0261	0.0602	0.0607	0.068	0.2329	0.0714	0.0104	0.0147	0.0286
9	0	0.0125	0.5685	0.0038	0.037	0.0817	0.001	0.3824	0.0344	0.0374	0.048	0.0427
10	0	0	0.576	0.0893	0.0848	0.0446	0.1701	0.044	0.089	0.0606	0.0334	0.0148
11	1.442	0	0.0036	0.058	0.0768	0.0038	0.0829	0.2014	1.2179	0.0899	0.0238	0.2205
12	0.7959	0	0.0144	0.078	0.0275	0.069	0.0822	0.0322	0.1448	0.0723	0.012	0.6997
13	0.514	0.7348	0.0273	0.0554	0.0614	0.0515	0.0919	0.0523	0.0884	0.1281	0.0259	0.2071
14	0.0032	0.267	0.6987	0.0358	0.016	0.0793	0.4481	0.0666	0.0634	0.0077	0.0311	0.0367
15	0.173	0.0074	0.5253	0.0037	0.0131	0.1098	0.015	0.0991	0.0385	0.0089	0.0386	0.0336
16	0.2991	0.4384	0.2153	0.0037	0.0905	0.0846	0	0.0804	0.0442	0.0574	0.0448	0
17	0.383	0.0035	0.0399	0.0295	0.0789	0.0332	0.0603	0.0648	0.016	0.0603	0.0326	0.011
18	0.4546	0	0.0349	0	0.1099	0.01	0.0851	0.072	0.0284	0.0676	0.0252	0.0441
19	0.508	0	0	0.0361	0.0485	0.0335	0.9829	0.0284	0.1233	0.0413	0.0127	0.0552
20	0.464	0.0036	0.088	0.0353	0.0451	0	0.663	0.0556	0.0553	0.0653	0.0357	0.0413
21	0	0	0.6914	0.0685	0	0	0.0524	0.0542	0.0399	0.0317	0.0146	0.0384
22	0	0.0067	0.1279	0.0135	0.1094	0	0.023	0.1639	0.0675	0.0275	0.0483	0.0108
23	0	0.0395	0.0365	0.0345	0.0819	0	0.0725	0.0826	0.0104	0.0423	0.0068	0.715
24	0	0.0038	0.0315	0.017	0.1278	0	0.9183	0.0692	0.0289	0.0451	0.1197	0.696
25	0.0039	0.0042	0.045	0.0598	0.0213	0	0.7249	0.0553	0.032	0.049	0.0112	0.85
26	1.0701	0.0275	0.0061	0.0444	0.0703	0	1.1555	0.0524	0.043	0.6987	0.0035	0.7465
27	0.0036	0	0.0391	0.0173	0.0396	0	1.0583	0.0358	0.0059	0.9948	0.0641	1.0747
28	0.0038	0.0113	0.0182	0.0242	0	0	0.9504	0.0492	0	0.6719	0.0315	0.5487
29	0		0.0132	0.0389	0.0035	0.1771	0.9102	0.0334	0	0.5165	0.032	0.0282
30	0.0401		0.2417	0.0283	0.0481	0.0659	0.4806	0.0895	0.0811	0.0239	0.0293	0.0038
31	0.5796		0.0163		0.0362		1.3386	0.0589		0.0434		0

Table A-2. 2017 Daily Recycled Water Flow to HDPP, MGD

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0.624	0	0	0.03	0.046	0.021	1.272	0.009	0.011	0.016	0.011
2	0.455	0.251	0	0.014	0.053	0.036	0	0.372	0.012	0	0.028	0
3	0.713	0	0	0	0.028	0.024	0.039	1.118	0	0.014	0.015	0
4	0.686	0.017	0.018	0	0.044	0	0	0.867	0	0.032	0.018	0.016
5	0.66	0	0.022	0	0	0.046	0.035	0.742	0.033	0.02	0	0
6	0.545	0	0.007	0	0.03	0.107	0.076	0.537	0.026	0.02	0.032	0.04
7	0	0	0.46	0.037	0	0.062	0.069	0.813	0.047	0.045	0.018	0.017
8	0	0	0.695	0.015	0.03	0.037	0.035	0.194	0.037	0	0	0.014
9	0	0	0.554	0	0.037	0.035	0	0.364	0.014	0.014	0.033	0.017
10	0	0	0.558	0.043	0.021	0.019	0.093	0	0.089	0.035	0.01	0
11	1.442	0	0	0.029	0.036	0	0.017	0.154	1.199	0.046	0.017	0.206
12	0.792	0	0	0.039	0	0.042	0.046	0.017	0.104	0.032	0	0.69
13	0.514	0.723	0	0.034	0.047	0.02	0.054	0.022	0.053	0.104	0.012	0.193
14	0	0.252	0.68	0.015	0.016	0.038	0.409	0.02	0.023	0	0.012	0.011
15	0.173	0	0.493	0	0	0.049	0	0.06	0.019	0	0.014	0.019
16	0.296	0.424	0.161	0	0.034	0.047	0	0.03	0.026	0.033	0.024	0
17	0.383	0	0.018	0	0.039	0.014	0	0.041	0	0.032	0.015	0
18	0.447	0	0.02	0	0.049	0	0.041	0.028	0.009	0.027	0.015	0.024
19	0.508	0	0	0.025	0.028	0	0.917	0.014	0.071	0.022	0	0.025
20	0.464	0	0.043	0.011	0.018	0	0.663	0.02	0.022	0.03	0.021	0.018
21	0	0	0.68	0.041	0	0	0	0.03	0.016	0.017	0	0.027
22	0	0	0.103	0	0.052	0	0.023	0.114	0.043	0.014	0.035	0
23	0	0.029	0.017	0.014	0.034	0	0.059	0.043	0	0.02	0	0.715
24	0	0	0.019	0.017	0.067	0	0.877	0.029	0.017	0.017	0.103	0.696
25	0	0	0.029	0.032	0.014	0	0.675	0.025	0.032	0.026	0	0.85
26	1.06	0.02	0	0.015	0.03	0	1.127	0.029	0	0.686	0	0.709
27	0	0	0.015	0	0.022	0	1.016	0.019	0	0.969	0.03	1.06
28	0	0	0	0	0	0	0.911	0.019	0	0.662	0.021	0.515
29	0		0	0.019	0	0.132	0.87	0	0	0.496	0.017	0.017
30	0.023		0.126	0.017	0.019	0.039	0.478	0.057	0.058	0.018	0.014	0
31	0.571		0		0.018		1.29	0.03		0.017		0

Table A-3. 2017 Daily Recycled Water Flow to American Organics Compost Facility, MGD

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0.0064	0.0146	0.0178	0	0.0296	0.0402	0.023	0.0332	0.0199	0	0.026	0.0194
2	0	0.0068	0.0217	0.0073	0.0421	0.037	0	0.0449	0.007	0.0195	0.0178	0.0067
3	0	0.0108	0.0109	0.0151	0.0423	0.0234	0.0446	0.0077	0	0.0143	0.0098	0.001
4	0	0.0003	0.0115	0.0108	0.0478	0	0.0063	0.0217	0.0034	0.0325	0.0133	0.0129
5	0	0	0.0076	0.0301	0	0.0533	0.0411	0.0191	0.0319	0.0322	0.0035	0.0084
6	0	0.0102	0.0035	0.0045	0.0077	0.0641	0.0731	0	0.0337	0.0191	0.0192	0.0386
7	0	0.0073	0.0137	0.004	0.0005	0.0535	0.0741	0.0602	0.0425	0.0194	0.0194	0.0154
8	0	0.0154	0.0177	0.0111	0.0302	0.0237	0.033	0.0389	0.0344	0.0104	0.0147	0.0146
9	0	0.0125	0.0145	0.0038	0	0.0467	0.001	0.0184	0.0204	0.0234	0.015	0.0257
10	0	0	0.018	0.0463	0.0638	0.0256	0.0771	0.044	0	0.0256	0.0234	0.0148
11	0	0	0.0036	0.029	0.0408	0.0038	0.0659	0.0474	0.0189	0.0439	0.0068	0.0145
12	0.0039	0	0.0144	0.039	0.0275	0.027	0.0362	0.0152	0.0408	0.0403	0.012	0.0097
13	0	0.0118	0.0273	0.0214	0.0144	0.0315	0.0379	0.0303	0.0354	0.0241	0.0139	0.0141
14	0.0032	0.015	0.0187	0.0208	0	0.0413	0.0391	0.0466	0.0404	0.0077	0.0191	0.0257
15	0	0.0074	0.0323	0.0037	0.0131	0.0608	0.015	0.0391	0.0195	0.0089	0.0246	0.0146
16	0.0031	0.0144	0.0543	0.0037	0.0565	0.0376	0	0.0504	0.0182	0.0244	0.0208	0
17	0	0.0035	0.0219	0.0295	0.0399	0.0192	0.0603	0.0238	0.016	0.0283	0.0176	0.011
18	0.0076	0	0.0149	0	0.0609	0.01	0.0441	0.044	0.0194	0.0406	0.0102	0.0201
19	0	0	0	0.0111	0.0205	0.0335	0.0659	0.0144	0.0523	0.0193	0.0127	0.0302
20	0	0.0036	0.045	0.0243	0.0271	0	0	0.0356	0.0333	0.0353	0.0147	0.0233
21	0	0	0.0114	0.0275	0	0	0.0524	0.0242	0.0239	0.0147	0.0146	0.0114
22	0	0.0067	0.0249	0.0135	0.0574	0	0	0.0499	0.0245	0.0135	0.0133	0.0108
23	0	0.0105	0.0195	0.0205	0.0479	0	0.0135	0.0396	0.0104	0.0223	0.0068	0
24	0	0.0038	0.0125	0	0.0608	0	0.0413	0.0402	0.0119	0.0281	0.0167	0
25	0.0039	0.0042	0.016	0.0278	0.0073	0	0.0499	0.0303	0	0.023	0.0112	0
26	0.0101	0.0075	0.0061	0.0294	0.0403	0	0.0285	0.0234	0.043	0.0127	0.0035	0.0375
27	0.0036	0	0.0241	0.0173	0.0176	0	0.0423	0.0168	0.0059	0.0258	0.0341	0.0147
28	0.0038	0.0113	0.0182	0.0242	0	0	0.0394	0.0302	0	0.0099	0.0105	0.0337
29	0		0.0132	0.0199	0.0035	0.0451	0.0402	0.0334	0	0.0205	0.015	0.0112
30	0.0171		0.1157	0.0113	0.0291	0.0269	0.0026	0.0325	0.0231	0.0059	0.0153	0.0038
31	0.0086		0.0163		0.0182		0.0486	0.0289		0.0264		0

Table A-4. 2017 Daily Effluent pH, standard units (Analytical Standard Method SM 4500H+B)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	6.89	6.87	6.98		7.13	7.18	7.22	7.22	7.24	7.19	6.93	7.03
2	6.81	6.78	6.84	7.16	7.09	7.18	7.24	7.18	7.26	7.21	7.11	7.05
3	6.85	6.9	7.07	7.17	7.07	7.17	7.18	7.2	7.22	7.14	7.08	7.08
4	6.88	7.09	6.97		7.08	7.17	7.17	7.17	7.14	7.07	7.04	7.11
5	6.69		7.03	7.19	7.12	7.17	7.24	7.24	7.21	7.03	7.12	6.86
6	6.98		6.89	7.16	7.08	7.18	7.25	7.27	7.17	7.17	7.17	7.03
7	7.09		6.89	7.13	7.1	7.2	7.19	7.24	7.26	7.19	7.12	7.06
8	6.71		6.87	7.13	7.1	7.16	7.25	7.23	7.07	7.26	7.12	7.08
9	6.83		6.88	7.15	6.99	7.19	7.26	7.2	7.21	7.16	7.09	7.06
10	6.72		7.03	7.18	7.1	7.21	7.25	7.16	7.24	7.17	7.01	7.03
11	6.73		6.96	7.12	7.12	7.17	7.3	7.29	7.2	7.23	7.04	7.07
12	6.83		7.12	7.13	7.22	7.19	7.28	7.31	7.15	7.13	7.11	7.04
13	6.79	7.08	7.11	7.09	7.31	7.3	7.23	7.21	7.18	7.19	7.18	6.87
14	6.56	7.08	7.15	7.12	7.2	7.16	7.27	7.22	7.23	7.17	7.02	7.13
15	6.69	6.85	7.19	7.15	7.19	7.14	7.26	7.18	7.25	7.15	7.11	7.07
16	6.68	7.02		7.16	7.15	7.09	7.22	7.26	7.15	7.17	6.92	7.08
17	6.9	7.07	7.17	7	7.28	7.1	7.27	7.26	7.18	7.16	6.91	7.13
18	7.03	6.95	7.17	7.13	7.19	7.17	7.22	7.23	7.2	7.15	7	7.09
19	6.79	6.85	7.12	7.17	7.23		7.25	7.19	7.18	7.1	7.12	7.02
20	6.8	6.77	7.2	7.09	7.18		7.24	7.28	7.17	7.01	7.13	6.97
21	6.7	6.68	7.23	7	7.2		7.2	7.22	7.19	7.15	7.09	7.04
22		7.08	7.16	7.14	7.18			7.2	7.2	7.18	7.18	7.06
23	6.91	6.99	7.11	7.13	7.21		7.17	7.28	7.16	7.15	7.06	7.07
24	6.78	6.75	7.14	7.12	7.17		7.25	7.29	7.15	7.16	6.97	7.12
25	6.83	7.02	7.14	7.15	7.11		7.27	7.32	7.19	7.14		7.09
26	6.83	7.12	7.14	7.11	7.21		7.18	7.25	7.2	7.07	7.14	7.21
27	7.05	7.12	7.19	7.09	7.29		7.12	7.24		7.08	7.22	6.87
28	6.93	7.1	7.1	7.11	7.22	7.12	7.24	7.04		7.06	7	6.88
29	6.83		7.06	7.06	7.17	7.26	7.26		7.19	7.04	6.84	7.05
30	6.87		7.11	7.11	7.25	7.28	7.28	7.19	7.08	7.16	7.06	7.07
31	6.8		7.14		7.12		7.25	7.18		7.05		7.02

Table A-5. 2017 Daily Effluent Dissolved Oxygen, mg/L[a]

Date	D.O., mg/L	Date	D.O., mg/L
1/4/2017	7.51	9/6/2017	6.91
1/11/2017	7.66	9/11/2017	6.85
1/19/2017	7.52	9/13/2017	6.8
1/27/2017	7.78	9/17/2017	6.79
1/31/2017	7.42	10/3/2017	6.68
2/1/2017	7.24	10/9/2017	6.36
2/15/2017	7.07	10/10/2017	6.91
3/1/2017	7.4	10/17/2017	6.95
3/15/2017	7.32	10/24/2017	7.02
4/6/2017	6.5	10/31/2017	6.84
4/12/2017	7.5	11/1/2017	6.97
5/3/2017	7.05	11/14/2017	6.84
5/9/2017	6.99	11/22/2017	7.19
6/7/2017	6.77	11/28/2017	7.37
6/14/2017	7.25	12/6/2017	7.14
7/5/2017	6.97	12/12/2017	6.84
7/11/2017	6.87	12/13/2017	7.1
8/1/2017	6.92	12/19/2017	7.35
8/28/2017	6.4	12/26/2017	7.33

[a] Analyzed via continuous monitoring with a HACH LDO Probe.