Commercial Organics Processing Facility

Normal-Season, Water Balance

		Climatic Data							Storage Pond								Operational Application					
		normal-year precipitation	percent normal-year precipitation	drought-year precipitation	100-year, season precipitation	mean pan evaporation	mean pan evaporation	evaporation	site runoff inflow	windrow absorbent outflow	CASP absorbent outflow	pond evaporation outflow	change in storage	pond storage	pond area	pond depth	compost demand	CASP demand	AD demand	dust control demand	operational water applied	imported water required
		(in)	(%)	(in)	(in)	(mm)	(in)	(in)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)	(ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
month	days	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
January	31	3.72	21.40	0.86	8.51	69.77	2.75	2.17	19.68	0.73	0.11	0.75	2.99	15.40	4.15	4.23	11.69	0.37	1.25	0.44	15.09	2.68
February	28	4.85	27.91	1.12	11.09	90.02	3.54	2.80	26.24	0.98	0.15	1.25	22.97	38.37	5.34	9.05	0.23	0.33	0.00	0.27	0.89	0.00
March	31	2.69	15.48	0.62	6.15	129.57	5.10	4.03	13.72	0.51	0.08	1.93	9.08	47.44	5.75	10.67	1.31	0.40	0.00	0.22	2.12	0.00
April	30	0.83	4.78	0.19	1.90	163.97	6.46	5.10	3.19	0.12	0.02	2.16	-14.75	32.69	5.07	7.97	12.30	0.46	1.25	0.22	15.66	0.00
May	31	0.35	2.01	0.08	0.80	189.37	7.46	5.89	0.81	0.03	0.00	2.40	-3.82	28.87	4.88	7.20	1.18	0.48	0.00	0.35	2.20	0.00
June	30	0.07	0.40	0.02	0.16	212.19	8.35	6.60	0.00	0.00	0.00	2.53	-5.48	23.39	4.60	6.05	1.82	0.48	0.00	0.40	2.95	0.00
July	31	0.01	0.06	0.00	0.02	239.20	9.42	7.44	0.06	0.00	0.00	2.17	-18.31	5.08	3.50	1.53	12.42	0.48	1.25	0.62	16.20	0.00
August	31	0.04	0.23	0.01	0.09	219.27	8.63	6.82	0.01	0.00	0.00	1.80	-4.56	0.52	3.17	0.17	1.21	0.48	0.00	0.88	2.76	0.00
September	30	0.16	0.92	0.04	0.37	183.26	7.22	5.70	0.14	0.01	0.00	0.00	-3.52	0.00	0.00	0.00	1.81	0.48	0.00	1.11	3.65	3.13
-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-
October	31	0.69	3.97	0.16	1.58	129.57	5.10	4.03	2.46	0.09	0.01	0.00	-14.36	0.00	0.00	0.00	12.33	0.47	1.25	1.24	16.71	16.71
November	30	1.44	8.29	0.33	3.29	86.81	3.42	2.70	6.57	0.24	0.04	0.76	3.29	3.29	3.37	1.01	0.97	0.44	0.00	0.66	2.23	2.23
December	31	2.53	14.56	0.58	5.79	59.80	2.35	1.86	12.79	0.48	0.07	0.62	9.11	12.41	3.97	3.49	1.34	0.41	0.00	0.57	2.52	0.00
total	365	17.38	100.00	4.00	39.75	1,772.77	69.80	55.14	85.66	3.19	0.49	16.36	-17.36	-	-	-	58.62	5.27	5.00	6.99	82.98	24.75

imported water saved	58.23

Climatic Data		Storage Pond		Operational Application	
pan coefficent	0.79	composite SCS CN	97	site area	70.00 ac
		equivalent pond bottom length	1,635.00 ft	number of equivalent windrows	101
		equivalent pond bottom width	83.50 ft	number of CASP lanes	32
		pond side slope (x:1)	3	% windrow rain volume capture	30 %
		maximum pond depth	10.00 ft	% CASP rain volume capture	20 %
		maximum pond area	5.58 ac	windrow length	150.00
		maximum pond volume	43.6 ac-ft	windrow width	25.00
				CASP open lane length	90.00
				CASP lane width	30.00
				dust control rate	0.10 in/sf
				irrigation efficiency	0.90

(1) monthly normal precipitation for Santa Paula GHCND:USC00047957 (1981-2010), National Oceanic & Atmospheric Administration (NOAA)

(2) percent of normal-year precipitation equal to monthly normal-year precipitation divided by total normal-year precipitation

(3) drought-year monthly precipitation values equal to percent normal-year precipitation times total drought-year precipitation which is assumed to be about 25% of total normal-year precipitation

(4) 100-year, monthly precipitation values equal to percent normal-year precipitation times 100-year, season precipitation for Lancaster AP 1212 (1950-2007), Calif. Department of Water Resources (DWR)

(5) mean pan evaporation equals (6) converted to millimeters

(6) mean pan evaporation equals (7) divided by pan coefficient - pan coefficient from DWR Bulletin 73-79, Elsinore average pan A coefficient

(7) evaporation from CIMIS, Landscape Coefficient Guide, Appendix A, Table 1, Zone 9 - south coast marine to desert transition

(8) site runoff calculated from TR55, Q=[(P-Ia)^2]/[P-Ia+S]; CN=97

(9) windrow absorbent outflow equals runoff times total windrow area times assumed percentage of windrow rain volume capture

(10) CASP absorbent outflow equals runoff times total exposed lane area times assumed percentage of CASP rain volume capture

(11) pond evaporation outflow equals (7) times (14) converted to ac-ft

(12) change in storage equals (8) minus (9) minus (10) minus (11) minus (20)

(13) pond storage equals running total of change in storage

(14) pond area calculated from pond storage and basin dimensions

(15) pond depth calculated by iteration from pond storage and pond area

(16) compost demand equals variable monthly windrow moisture conditioning rate times number of windrows minus (9)

(17) CASP demand equals variable monthly CASP moisture conditioning rate times number of lanes minus (10)

(18) AD demand equals adding 100,000 gallons each of make-up water for four modules quarterly

(19) dust control demand equals applying dust control rate to circulation lanes only for a variable number of days based on wind records

(20) operational demand equals ((16) + (17)) divided by irrigation efficiency plus (18) plus (19)

(21) imported water demand equals (20) minus (13)

County of Ventura
Notice of Preparation of an EIR
PL17-0154
Attachment 8 - Facility Water Balance Study

Commercial Organics Processing Facility

Dry-Season, Water Balance

		Climatic Data							Storage Pond								Operational Application					
month	days	normal-year precipitation (in) (1)	percent normal-year precipitation (%) (2)	drought-year precipitation (in) (3)	100-year, season precipitation (in) (4)	mean pan evaporation (mm) (5)	mean pan evaporation (in) (6)	evaporation (in) (7)	site runoff inflow (ac-ft) (8)	windrow absorbent outflow (ac-ft) (9)	CASP absorbent outflow (ac-ft) (10)	pond evaporation outflow (ac-ft) (11)	change in storage (ac-ft) (12)	pond storage (ac-ft) (13)	pond area (ac) (14)	pond depth (ft) (15)	compost demand (ac-ft) (16)	CASP demand (ac-ft) (17)	AD demand (ac-ft) (18)	dust control demand (ac-ft) (19)	operational water applied (ac-ft) (20)	imported water required (ac-ft) (21)
January	31	3.72	21.40	0.86	8.51	69.77	2.75	2.17	3.33	0.73	0.11	0.00	-12.60	0.00	0.00	0.00	11.69	0.37	1.25	0.44	15.09	15.09
February	28	4.85	27.91	1.12	11.09	90.02	3.54	2.80	4.76	0.98	0.15	0.77	1.97	1.97	3.28	0.61	0.23	0.33	0.00	0.27	0.89	0.89
March	31	2.69	15.48	0.62	6.15	129.57	5.10	4.03	2.09	0.51	0.08	1.06	-1.68	0.29	3.16	0.09	1.31	0.40	0.00	0.22	2.12	0.15
April	30	0.83	4.78	0.19	1.90	163.97	6.46	5.10	0.22	0.12	0.02	0.00	-15.57	0.00	0.00	0.00	12.30	0.46	1.25	0.22	15.66	15.36
May	31	0.35	2.01	0.08	0.80	189.37	7.46	5.89	0.01	0.03	0.00	0.00	-2.22	0.00	0.00	0.00	1.18	0.48	0.00	0.35	2.20	2.20
June	30	0.07	0.40	0.02	0.16	212.19	8.35	6.60	0.05	0.00	0.00	0.00	-2.90	0.00	0.00	0.00	1.82	0.48	0.00	0.40	2.95	2.95
July	31	0.01	0.06	0.00	0.02	239.20	9.42	7.44	0.08	0.00	0.00	0.00	-16.12	0.00	0.00	0.00	12.42	0.48	1.25	0.62	16.20	16.20
August	31	0.04	0.23	0.01	0.09	219.27	8.63	6.82	0.06	0.00	0.00	0.00	-2.70	0.00	0.00	0.00	1.21	0.48	0.00	0.88	2.76	2.76
September	30	0.16	0.92	0.04	0.37	183.26	7.22	5.70	0.01	0.01	0.00	0.00	-3.65	0.00	0.00	0.00	1.81	0.48	0.00	1.11	3.65	3.65
-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-
October	31	0.69	3.97	0.16	1.58	129.57	5.10	4.03	0.13	0.09	0.01	0.00	-16.68	0.00	0.00	0.00	12.33	0.47	1.25	1.24	16.71	16.71
November	30	1.44	8.29	0.33	3.29	86.81	3.42	2.70	0.73	0.24	0.04	0.00	-1.78	0.00	0.00	0.00	0.97	0.44	0.00	0.66	2.23	2.23
December	31	2.53	14.56	0.58	5.79	59.80	2.35	1.86	1.90	0.48	0.07	0.00	-1.16	0.00	0.00	0.00	1.34	0.41	0.00	0.57	2.52	2.52
total	365	17.38	100.00	4.00	39.75	1,772.77	69.80	55.14	13.39	3.19	0.49	1.83	-75.10	-	-	-	58.62	5.27	5.00	6.99	82.98	80.72

imported water saved	2.26

Climatic Data		Storage Pond		Operational Application	
pan coefficent	0.79	composite SCS CN	97	site area	70.00 ac
		equivalent pond bottom length	1,635.00 ft	number of equivalent windrows	101
		equivalent pond bottom width	83.50 ft	number of CASP lanes	32
		pond side slope (x:1)	3	% windrow rain volume capture	30 %
		maximum pond depth	10.00 ft	% CASP rain volume capture	20 %
		maximum pond area	5.58 ac	windrow length	150.00
		maximum pond volume	43.6 ac-ft	windrow width	25.00
				CASP open lane length	90.00
				CASP lane width	30.00
				dust control rate	0.10 in/sf
				irrigation efficiency	0.90

(1) monthly normal precipitation for Santa Paula GHCND:USC00047957 (1981-2010), National Oceanic & Atmospheric Administration (NOAA)

(2) percent of normal-year precipitation equal to monthly normal-year precipitation divided by total normal-year precipitation

(3) drought-year monthly precipitation values equal to percent normal-year precipitation times total drought-year precipitation which is assumed to be about 25% of total normal-year precipitation

(4) 100-year, monthly precipitation values equal to percent normal-year precipitation times 100-year, season precipitation for Lancaster AP 1212 (1950-2007), Calif. Department of Water Resources (DWR)

(5) mean pan evaporation equals (6) converted to millimeters

(6) mean pan evaporation equals (7) divided by pan coefficient - pan coefficient from DWR Bulletin 73-79, Elsinore average pan A coefficient

(7) evaporation from CIMIS, Landscape Coefficient Guide, Appendix A, Table 1, Zone 9 - south coast marine to desert transition

(8) site runoff calculated from TR55, Q=[(P-Ia)^2]/[P-Ia+S]; CN=97

(9) windrow absorbent outflow equals runoff times total windrow area times assumed percentage of windrow rain volume capture

(10) CASP absorbent outflow equals runoff times total exposed lane area times assumed percentage of CASP rain volume capture

(11) pond evaporation outflow equals (7) times (14) converted to ac-ft

(12) change in storage equals (8) minus (9) minus (10) minus (11) minus (20)

(13) pond storage equals running total of change in storage

(14) pond area calculated from pond storage and basin dimensions

(15) pond depth calculated by iteration from pond storage and pond area

(16) compost demand equals variable monthly windrow moisture conditioning rate times number of windrows minus (9)

(17) CASP demand equals variable monthly CASP moisture conditioning rate times number of lanes minus (10)

(18) AD demand equals adding 100,000 gallons each of make-up water for four modules quarterly

(19) dust control demand equals applying dust control rate to circulation lanes only for a variable number of days based on wind records

(20) operational demand equals ((16) + (17)) divided by irrigation efficiency plus (18) plus (19)

(21) imported water demand equals (20) minus (13)

Commercial Organics Processing Facility

Wet-Season, Water Balance

		Climatic Data							Storage Pond								Operational Application					
		normal-year precipitation	percent normal-year precipitation	drought-year precipitation	100-year, season precipitation	mean pan evaporation	mean pan evaporation	evaporation	site runoff inflow	windrow absorbent outflow	CASP absorbent outflow	pond evaporation outflow	change in storage	pond storage	pond area	pond depth	compost demand	CASP demand	AD demand	dust control demand	operational water applied	imported water required
		(in)	(%)	(in)	(in)	(mm)	(in)	(in)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac)	(ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
month	days	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
January	31	3.72	21.40	0.86	8.51	69.77	2.75	2.17	47.53	0.73	0.11	1.22	30.37	71.92	6.75	14.55	11.69	0.37	1.25	0.44	15.09	0.00
February	28	4.85	27.91	1.12	11.09	90.02	3.54	2.80	62.59	0.98	0.15	2.04	58.53	130.45	8.74	21.98	0.23	0.33	0.00	0.27	0.89	0.00
March	31	2.69	15.48	0.62	6.15	129.57	5.10	4.03	33.81	0.51	0.08	3.21	27.89	158.34	9.56	24.96	1.31	0.40	0.00	0.22	2.12	0.00
April	30	0.83	4.78	0.19	1.90	163.97	6.46	5.10	9.17	0.12	0.02	3.93	-10.56	147.79	9.25	23.86	12.30	0.46	1.25	0.22	15.66	0.00
May	31	0.35	2.01	0.08	0.80	189.37	7.46	5.89	3.04	0.03	0.00	4.49	-3.68	144.10	9.15	23.47	1.18	0.48	0.00	0.35	2.20	0.00
June	30	0.07	0.40	0.02	0.16	212.19	8.35	6.60	0.14	0.00	0.00	4.90	-7.72	136.39	8.92	22.64	1.82	0.48	0.00	0.40	2.95	0.00
July	31	0.01	0.06	0.00	0.02	239.20	9.42	7.44	0.03	0.00	0.00	5.12	-21.29	115.10	8.26	20.21	12.42	0.48	1.25	0.62	16.20	0.00
August	31	0.04	0.23	0.01	0.09	219.27	8.63	6.82	0.02	0.00	0.00	4.56	-7.31	107.79	8.02	19.33	1.21	0.48	0.00	0.88	2.76	0.00
September	30	0.16	0.92	0.04	0.37	183.26	7.22	5.70	0.88	0.01	0.00	3.71	-6.48	101.30	7.80	18.53	1.81	0.48	0.00	1.11	3.65	0.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	-	-	-	-	-
October	31	0.69	3.97	0.16	1.58	129.57	5.10	4.03	7.35	0.09	0.01	0.00	-9.47	0.00	0.00	0.00	12.33	0.47	1.25	1.24	16.71	16.71
November	30	1.44	8.29	0.33	3.29	86.81	3.42	2.70	17.20	0.24	0.04	0.91	13.78	13.78	4.05	3.83	0.97	0.44	0.00	0.66	2.23	2.23
December	31	2.53	14.56	0.58	5.79	59.80	2.35	1.86	31.68	0.48	0.07	0.85	27.76	41.54	5.49	9.63	1.34	0.41	0.00	0.57	2.52	0.00
total	365	17.38	100.00	4.00	39.75	1,772.77	69.80	55.14	213.43	3.19	0.49	34.94	91.84	-	-	-	58.62	5.27	5.00	6.99	82.98	18.94

imported water saved	64.04

Climatic Data		Storage Pond		Operational Application	
pan coefficent	0.79	composite SCS CN	97	site area	70.00 ac
		equivalent pond bottom length	1,635.00 ft	number of equivalent windrows	101
		equivalent pond bottom width	83.50 ft	number of CASP lanes	32
		pond side slope (x:1)	3	% windrow rain volume capture	30 %
		maximum pond depth	10.00 ft	% CASP rain volume capture	20 %
		maximum pond area	5.58 ac	windrow length	150.00
		maximum pond volume	43.6 ac-ft	windrow width	25.00
				CASP open lane length	90.00
				CASP lane width	30.00
				dust control rate	0.10 in/sf
				irrigation efficiency	0.90

(1) monthly normal precipitation for Santa Paula GHCND:USC00047957 (1981-2010), National Oceanic & Atmospheric Administration (NOAA)

(2) percent of normal-year precipitation equal to monthly normal-year precipitation divided by total normal-year precipitation

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(14) pond area calculated from pond storage and basin dimensions

(15) pond depth calculated by iteration from pond storage and pond area

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(19) dust control demand equals applying dust control rate to circulation lanes only for a variable number of days based on wind records

(20) operational demand equals ((16) + (17)) divided by irrigation efficiency plus (18) plus (19)

(21) imported water demand equals (20) minus (13)