ATTACHMENT 1
TABULATED MODEL OUTPUT

2mgd_sunny

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	5.6785	8.6785	11.6785	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.5256	8.6876	10.0815	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.7243	8.6979	10.4275	8.2953	542.11
PMWWTF	2	0	3.11	1.542	7.0469	13.6454	31.5613	7.2397	7.4119	7.7139	8.3026	1318.96
	2	0.5	3.1093	1.4559	6.6535	13.7315	29.9782	5.9968	7.2209	9.5924	8.3026	1318.96
	2	1	3.1086	1.3746	6.2819	13.8128	28.4745	5.6205	7.2135	10.2592	8.3026	1318.96
	2	1.5	3.1079	1.2978	5.9309	13.8896	27.0462	5.5301	7.2718	10.4886	8.3026	1318.96
	2	2	3.1073	1.2254	5.6001	13.9621	25.6896	5.5582	7.3518	10.5525	8.3026	1318.96
	2	2.37	3.1067	1.1744	5.3670	14.0131	24.7297	5.6037	7.4148	10.5982	8.3026	1318.96
Wrights Run	3	2.37	2.8957	1.088	4.9722	12.9826	23.0824	5.7836	7.5144	10.5162	8.3109	1261.52
	3	3	2.8942	0.9577	4.3767	13.113	20.5878	4.4371	6.2176	8.8388	8.3109	1261.52
	3	3.5	2.8929	0.8655	3.9553	13.2053	18.8013	4.0433	5.8661	7.8837	8.3109	1261.52
	3	4	2.8917	0.7822	3.5747	13.2886	17.1698	4.2223	5.8167	7.6808	8.3109	1261.52
	3	4.5	2.8905	0.707	3.2310	13.364	15.6799	4.5239	5.924	7.7765	8.3109	1261.52
	3	5	2.8892	0.6391	2.9207	13.432	14.3193	4.6711	6.1072	7.9894	8.3109	1261.52
	3	5.5	2.888	0.5777	2.6401	13.4936	13.0768	4.8276	6.3221	8.2653	8.3109	1261.52
	3	5.91	2.887	0.5318	2.4303	13.5396	12.1387	4.9992	6.5049	8.4645	8.3109	1261.52
falo Lick Run	4	5.91	2.7693	0.5089	2.3257	12.9723	11.6889	5.2115	6.6457	8.5139	8.3164	1229.54
	4	6.5	2.7679	0.4447	2.0323	13.0367	10.3522	6.2707	7.7492	10.1447	8.3164	1229.54
FCL	5	6.5	2.8392	0.6656	3.0418	12.3142	12.783	5.922	7.3593	9.6601	8.3199	1238.11
	5	7	2.8381	0.6066	2.7722	12.3732	11.7615	5.3654	7.7406	11.7113	8.3199	1238.11
	5	7.5	2.8371	0.553	2.5272	12.427	10.8216	5.1039	8.0024	12.5184	8.3199	1238.11
	5	8.01	2.836	0.5031	2.2992	12.477	9.9403	5.1214	8.203	12.5798	8.3199	1238.11
ır Spring Run	6	8.01	2.7025	0.4776	2.1826	11.9101	9.509	5.2021	8.1829	12.3218	8.3272	1205.1
	6	8.5	2.7014	0.4357	1.9911	11.9522	8.7531	5.5455	8.2738	11.9585	8.3272	1205.1
	6	9	2.7004	0.3966	1.8125	11.9913	8.0437	5.794	8.3737	11.8955	8.3272	1205.1
	6	9.5	2.6993	0.3611	1.6502	12.0269	7.3918	5.9909	8.4722	11.9776	8.3272	1205.1
	6	10	2.6982	0.3289	1.5031	12.0594	6.7927	6.0814	8.5659	12.1111	8.3272	1205.1
	6	10.5	2.6972	0.2995	1.3687	12.0889	6.2422	6.1559	8.6534	12.2117	8.3272	1205.1
	6	11	2.6961	0.2728	1.2467	12.1157	5.7363	6.2236	8.7343	12.3017	8.3272	1205.1
	6	11.62	2.6948	0.243	1.1105	12.1457	5.1655	6.3142	8.8259	12.3912	8.3272	1205.1
OWRF	7	11.62	4.0805	1.7418	7.9600	6.4901	26.0778	6.8858	7.5671	8.526	8.3327	1419.37
	7	11.91	4.0802	1.7013	7.7749	6.5306	25.5337	6.3773	7.2294	8.4738	8.3327	1419.37
brams Creek	8	11.91	3.9725	1.6549	7.5629	6.4065	24.8878	6.4436	7.2686	8.4754	8.3336	1398.24
	8	12.38	3.9719	1.594	7.2846	6.4675	24.0652	6.045	7.0108	8.5555	8.3336	1398.24
edbud Creek	9	12.38	3.9303	1.577	7.2069	6.4176	23.8282	6.0575	7.0203	8.5557	8.3351	1390.13
	9	13.16	3.9295	1.4874	6.7974	6.5073	22.6108	5.8208	6.8747	8.6838	8.3351	1390.13
Marsh Creek	10	13.16	3.857	1.4595	6.6699	6.4243	22.2145	5.8124	6.8698	8.6729	8.3375	1375.31
	10	13.5	3.8566	1.424	6.5077	6.4599	21.7284	5.4038	6.6522	8.7895	8.3375	1375.31
	10	14	3.8561	1.3732	6.2755	6.5107	21.0329	4.9697	6.4143	8.8492	8.3375	1375.31
	10	14.5	3.8555	1.3243	6.0521	6.5597	20.3596	4.6779	6.2545	8.894	8.3375	1375.31
	10	15	3.855	1.2771	5.8363	6.607	19.7078	4.4339	6.1552	8.8927	8.3375	1375.31
	10	15.51	3.8544	1.2308	5.6248	6.6534	19.0645	4.2522	6.102	8.8732	8.3375	1375.31
Lick Run	11	15.51	3.785	1.2078	5.5196	6.558	18.7423	4.3003	6.14	8.8495	8.3408	1359.7
	11	16	3.7845	1.1689	5.3419	6.5969	18.2	4.4913	6.2778	8.8313	8.3408	1359.7
	11	16.5	3.784	1.1305	5.1664	6.6354	17.6628	4.6685	6.4011	8.7942	8.3408	1359.7
	11	17	3.7835	1.0934	4.9968	6.6726	17.1415	4.8436	6.5111	8.7847	8.3408	1359.7
	11	17.5	3.783	1.0575	4.8328	6.7086	16.6355	4.9857	6.6104	8.8349	8.3408	1359.7
	11	18.07	3.7824	1.0181	4.6527	6.7481	16.0769	5.1149	6.7137	8.9401	8.3408	1359.7
NWRF	12	18.07	3.7813	1.0178	4.6513	6.7466	16.0725	5.1122	6.714	8.9276	8.3429	1359.46
	12	18.26	3.7811	1.006	4.5974	6.7584	15.9052	5.4945	6.9184	8.9122	8.3429	1359.46
earbrook Run	13	18.26	3.7504	0.9975	4.5586	6.7124	15.7854	5.5236	6.929	8.8855	8.3446	1352.86
	13	18.5	3.7502	0.983	4.4923	6.7269	15.5793	5.7904	7.0804	8.9055	8.3446	1352.86
	13	19	3.7497	0.9535	4.3575	6.7565	15.1584	6.1846	7.3093	8.9477	8.3446	1352.86
	13	19.42	3.7493	0.9293	4.2469	6.7807	14.8137	6.4124	7.4398	8.999	8.3446	1352.86
Slate Run	14	19.42	3.6794	0.9113	4.1646	6.6819	14.5586	6.4243	7.4478	9.0081	8.3464	1338.19
	14	19.83	3.6791	0.8906	4.0700	6.7027	14.2603	6.3784	7.4621	9.1666	8.3464	1338.19
Turkey Run	15	19.83	3.5299	0.8531	3.8987	6.4934	13.7281	6.4428	7.4764	9.1043	8.3517	1307
	15	26	3.5247	0.6088	2.7822	6.7385	10.1349	6.5935	7.8524	9.8284	8.3517	1307

3mgd_sunny

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	5.6785	8.6785	11.6785	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.5256	8.6876	10.0815	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.7243	8.6979	10.4275	8.2953	542.11
PMWWTF	2	0	1.3182	0.8663	3.9590	0.6754	33.5826	7.1993	7.3217	7.5363	8.3026	1371.32
	2	0.5	1.3179	0.8266	3.7776	0.715	32.2036	6.2507	7.2949	9.3172	8.3026	1371.32
	2	1	1.3177	0.7887	3.6044	0.7527	30.8813	5.9319	7.3268	10.0499	8.3026	1371.32
	2	1.5	1.3175	0.7526	3.4394	0.7888	29.6132	5.833	7.3812	10.3121	8.3026	1371.32
	2	2	1.3173	0.7181	3.2817	0.8232	28.3972	5.8316	7.4433	10.4152	8.3026	1371.32
	2	2.37	1.3171	0.6936	3.1698	0.8476	27.5297	5.8585	7.4905	10.4525	8.3026	1371.32
Wrights Run	3	2.37	1.2599	0.6566	3.0007	0.8059	26.183	5.9648	7.5588	10.4114	8.3109	1326.79
	3	3	1.2594	0.5908	2.7000	0.8715	23.8243	4.7438	6.3829	9.0059	8.3109	1326.79
	3	3.5	1.2589	0.5433	2.4829	0.9188	22.1045	4.2797	5.9997	8.1331	8.3109	1326.79
	3	4	1.2585	0.4997	2.2836	0.9623	20.5089	4.2285	5.8819	7.75	8.3109	1326.79
	3	4.5	1.2581	0.4595	2.0999	1.0023	19.0284	4.4337	5.9139	7.7758	8.3109	1326.79
	3	5	1.2577	0.4226	1.9313	1.0391	17.6548	4.6596	6.0274	7.8722	8.3109	1326.79
	3	5.5	1.2573	0.3886	1.7759	1.0729	16.3804	4.7935	6.1825	8.0429	8.3109	1326.79
	3	5.91	1.2569	0.3628	1.6580	1.0986	15.4043	4.9005	6.3241	8.2153	8.3109	1326.79
falo Lick Run	4	5.91	1.2225	0.3514	1.6059	1.0793	14.9692	5.0609	6.4333	8.2584	8.3164	1301.2
	4	6.5	1.222	0.3139	1.4345	1.1166	13.5318	6.1433	7.5278	9.7651	8.3164	1301.2
FCL	5	6.5	1.3427	0.4845	2.2142	1.0975	15.2079	5.8717	7.2464	9.4403	8.3199	1304.47
	5	7	1.3423	0.4481	2.0478	1.1338	14.1812	5.394	7.5807	11.2964	8.3199	1304.47
	5	7.5	1.3419	0.4145	1.8943	1.1674	13.2239	5.1712	7.8163	12.106	8.3199	1304.47
	5	8.01	1.3415	0.3827	1.7489	1.199	12.314	5.1317	7.9993	12.3271	8.3199	1304.47
ır Spring Run	6	8.01	1.2998	0.3682	1.6827	1.218	11.8934	5.169	7.9922	12.1222	8.3272	1276.86
	6	8.5	1.2994	0.3405	1.5561	1.2456	11.0886	5.4121	8.074	11.8016	8.3272	1276.86
	6	9	1.299	0.3144	1.4368	1.2716	10.3234	5.6423	8.1645	11.6363	8.3272	1276.86
	6	9.5	1.2986	0.2902	1.3262	1.2956	9.6111	5.8147	8.2553	11.6993	8.3272	1276.86
	6	10	1.2982	0.268	1.2248	1.3178	8.9479	5.96	8.3431	11.7889	8.3272	1276.86
	6	10.5	1.2978	0.2474	1.1306	1.3382	8.3304	6.0404	8.4264	11.8916	8.3272	1276.86
	6	11	1.2973	0.2284	1.0438	1.3571	7.7556	6.1082	8.5047	11.9793	8.3272	1276.86
	6	11.62	1.2968	0.2069	0.9455	1.3785	7.0976	6.188	8.5949	12.0778	8.3272	1276.86
OWRF	7	11.62	3.5105	1.6101	7.3582	3.4048	25.0408	6.7935	7.5918	8.7305	8.3327	1425.81
	7	11.91	3.5102	1.5745	7.1955	3.4404	24.5436	6.375	7.3031	8.6587	8.3327	1425.81
brams Creek	8	11.91	3.4252	1.5349	7.0145	3.4039	23.9729	6.437	7.3374	8.6546	8.3336	1406.17
	8	12.38	3.4248	1.481	6.7682	3.4578	23.2176	6.1331	7.1223	8.6773	8.3336	1406.17
edbud Creek	9	12.38	3.3918	1.4665	6.7019	3.4413	23.0073	6.1452	7.1299	8.675	8.3351	1398.61
	9	13.16	3.3911	1.3869	6.3381	3.521	21.8857	5.9753	7.0111	8.7624	8.3351	1398.61
Marsh Creek	10	13.16	3.3335	1.3629	6.2285	3.4962	21.5321	5.9639	7.0042	8.7497	8.3375	1384.76
	10	13.5	3.3332	1.3312	6.0836	3.528	21.0825	5.5894	6.8089	8.8729	8.3375	1384.76
	10	14	3.3327	1.2859	5.8766	3.5733	20.4383	5.1934	6.5948	8.9489	8.3375	1384.76
	10	14.5	3.3323	1.2421	5.6764	3.6171	19.8138	4.9265	6.4503	9.0029	8.3375	1384.76
	10	15	3.3318	1.1999	5.4835	3.6594	19.2084	4.7138	6.3599	9.0201	8.3375	1384.76
	10	15.51	3.3314	1.1583	5.2934	3.7011	18.6099	4.5423	6.3105	9.0188	8.3375	1384.76
Lick Run	11	15.51	3.2763	1.1383	5.2020	3.664	18.3195	4.5773	6.3421	8.9983	8.3408	1370.15
	11	16	3.2759	1.1033	5.0421	3.6991	17.8132	4.7497	6.4656	8.9797	8.3408	1370.15
	11	16.5	3.2754	1.0686	4.8835	3.7337	17.311	4.9125	6.576	8.9391	8.3408	1370.15
	11	17	3.275	1.0351	4.7304	3.7673	16.8229	5.0685	6.6741	8.9185	8.3408	1370.15
	11	17.5	3.2746	1.0026	4.5819	3.7998	16.3486	5.1957	6.7627	8.9505	8.3408	1370.15
	11	18.07	3.2741	0.9668	4.4183	3.8357	15.8241	5.3084	6.8547	9.0369	8.3408	1370.15
NWRF	12	18.07	3.2732	0.9666	4.4174	3.8351	15.8201	5.2915	6.8549	9.0273	8.3429	1369.93
	12	18.26	3.2731	0.9559	4.3685	3.8458	15.6629	5.6501	7.041	8.996	8.3429	1369.93
ɜarbrook Run	13	18.26	3.2487	0.9484	4.3342	3.8262	15.5538	5.6763	7.0499	8.9699	8.3446	1363.74
	13	18.5	3.2485	0.9352	4.2739	3.8394	15.3598	5.9264	7.1875	8.9759	8.3446	1363.74
	13	19	3.2481	0.9083	4.1509	3.8663	14.9633	6.3032	7.3954	8.9958	8.3446	1363.74
	13	19.42	3.2478	0.8864	4.0508	3.8883	14.6382	6.5167	7.5138	9.0404	8.3446	1363.74
Slate Run	14	19.42	3.1921	0.8705	3.9782	3.8492	14.4048	6.5236	7.5198	9.0475	8.3464	1349.93
	14	19.83	3.1918	0.8515	3.8914	3.8683	14.1226	6.4794	7.5317	9.1953	8.3464	1349.93
Turkey Run	15	19.83	3.0724	0.8181	3.7387	3.7859	13.6329	6.5361	7.5423	9.1354	8.3517	1320.45
	15	26	3.068	0.5921	2.7059	4.0125	10.195	6.6653	7.8793	9.8133	8.3517	1320.45

4mgd_sunny

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	5.6785	8.6785	11.6785	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.5256	8.6876	10.0815	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.7243	8.6979	10.4275	8.2953	542.11
PMWWTF	2	0	1.359	0.8963	4.0961	0.636	34.697	7.177	7.272	7.4385	8.3026	1400.19
	2	0.5	1.3588	0.8609	3.9343	0.6713	33.4701	6.4292	7.3265	9.0623	8.3026	1400.19
	2	1	1.3586	0.8269	3.7789	0.7052	32.2866	6.1783	7.382	9.7513	8.3026	1400.19
	2	1.5	1.3584	0.7943	3.6300	0.7378	31.1449	6.1043	7.4369	10.0041	8.3026	1400.19
	2	2	1.3582	0.7629	3.4865	0.769	30.0436	6.1015	7.4903	10.0988	8.3026	1400.19
	2	2.37	1.358	0.7405	3.3841	0.7914	29.2537	6.1217	7.5288	10.1424	8.3026	1400.19
Wrights Run	3	2.37	1.3114	0.7095	3.2424	0.761	28.1238	6.1866	7.5808	10.1469	8.3109	1364.01
	3	3	1.3109	0.6476	2.9595	0.8227	25.9188	5.0158	6.4636	8.9542	8.3109	1364.01
	3	3.5	1.3106	0.6023	2.7525	0.8679	24.2925	4.5657	6.0816	8.1809	8.3109	1364.01
	3	4	1.3102	0.5602	2.5601	0.9099	22.7682	4.4256	5.9451	7.8179	8.3109	1364.01
	3	4.5	1.3098	0.5211	2.3814	0.9489	21.3396	4.5072	5.9488	7.7682	8.3109	1364.01
	3	5	1.3095	0.4847	2.2151	0.9852	20.0006	4.6844	6.0304	7.8514	8.3109	1364.01
	3	5.5	1.3091	0.4508	2.0602	1.0189	18.7457	4.8564	6.1533	7.9616	8.3109	1364.01
	3	5.91	1.3088	0.4248	1.9413	1.0448	17.7756	4.965	6.2695	8.0824	8.3109	1364.01
falo Lick Run	4	5.91	1.2803	0.4142	1.8929	1.0309	17.3717	5.0899	6.3572	8.1168	8.3164	1342.84
	4	6.5	1.2799	0.3756	1.7165	1.0694	15.9135	6.1796	7.4247	9.46	8.3164	1342.84
FCL	5	6.5	1.3742	0.5095	2.3284	1.0558	17.1678	5.9499	7.2038	9.2203	8.3199	1344
	5	7	1.3738	0.4759	2.1749	1.0893	16.1513	5.5275	7.4859	10.8902	8.3199	1344
	5	7.5	1.3735	0.4445	2.0314	1.1206	15.195	5.3553	7.6858	11.634	8.3199	1344
	5	8.01	1.3731	0.4147	1.8952	1.1504	14.2779	5.2854	7.8421	11.9046	8.3199	1344
ır Spring Run	6	8.01	1.3386	0.402	1.8371	1.1672	13.8769	5.3122	7.8414	11.741	8.3272	1320.53
	6	8.5	1.3382	0.3753	1.7151	1.1938	13.0493	5.5096	7.9098	11.497	8.3272	1320.53
	6	9	1.3379	0.3499	1.5990	1.2191	12.2557	5.6928	7.9885	11.2989	8.3272	1320.53
	6	9.5	1.3375	0.3262	1.4907	1.2427	11.5104	5.8135	8.0691	11.3462	8.3272	1320.53
	6	10	1.3371	0.3041	1.3897	1.2647	10.8104	5.9555	8.1481	11.4104	8.3272	1320.53
	6	10.5	1.3368	0.2836	1.2961	1.2852	10.153	6.0456	8.2239	11.4984	8.3272	1320.53
	6	11	1.3364	0.2644	1.2083	1.3042	9.5356	6.1174	8.296	11.5748	8.3272	1320.53
	6	11.62	1.336	0.2424	1.1078	1.3261	8.8218	6.193	8.3798	11.6652	8.3272	1320.53
OWRF	7	11.62	3.3614	1.5197	6.9450	3.235	24.3647	6.7406	7.5847	8.8202	8.3327	1431.3
	7	11.91	3.3611	1.4875	6.7979	3.2671	23.9025	6.3819	7.3366	8.7703	8.3327	1431.3
brams Creek	8	11.91	3.2858	1.4528	6.6393	3.2372	23.3881	6.4401	7.3677	8.763	8.3336	1412.95
	8	12.38	3.2854	1.4041	6.4167	3.2861	22.6832	6.1999	7.1906	8.7592	8.3336	1412.95
edbud Creek	9	12.38	3.2561	1.3913	6.3582	3.2724	22.4928	6.2117	7.197	8.7551	8.3351	1405.87
	9	13.16	3.2554	1.319	6.0278	3.3447	21.443	6.0885	7.1036	8.8151	8.3351	1405.87
Marsh Creek	10	13.16	3.2041	1.2978	5.9309	3.3246	21.1215	6.0752	7.0957	8.8012	8.3375	1392.88
	10	13.5	3.2038	1.2688	5.7984	3.3535	20.6992	5.7254	6.917	8.9262	8.3375	1392.88
	10	14	3.2034	1.2275	5.6097	3.3949	20.0934	5.3593	6.7207	9.0146	8.3375	1392.88
	10	14.5	3.203	1.1875	5.4269	3.4349	19.5054	5.109	6.5877	9.0666	8.3375	1392.88
	10	15	3.2026	1.1488	5.2500	3.4737	18.9346	4.9182	6.5038	9.0956	8.3375	1392.88
	10	15.51	3.2021	1.1106	5.0754	3.5119	18.3696	4.7569	6.4573	9.1063	8.3375	1392.88
Lick Run	11	15.51	3.153	1.0928	4.9941	3.4804	18.1033	4.7808	6.4843	9.0892	8.3408	1379.15
	11	16	3.1526	1.0606	4.8469	3.5127	17.6237	4.9415	6.5977	9.0721	8.3408	1379.15
	11	16.5	3.1522	1.0287	4.7012	3.5446	17.1475	5.0952	6.6987	9.0308	8.3408	1379.15
	11	17	3.1518	0.9977	4.5595	3.5756	16.6842	5.2382	6.7884	9.0034	8.3408	1379.15
	11	17.5	3.1514	0.9677	4.4224	3.6057	16.2333	5.3557	6.8691	9.0217	8.3408	1379.15
	11	18.07	3.151	0.9346	4.2711	3.6388	15.7342	5.4576	6.9528	9.0923	8.3408	1379.15
NWRF	12	18.07	3.1502	0.9344	4.2702	3.6383	15.7305	5.4293	6.953	9.085	8.3429	1378.95
	12	18.26	3.15	0.9245	4.2250	3.6482	15.5807	5.7696	7.1262	9.0432	8.3429	1378.95
ɜarbrook Run	13	18.26	3.1282	0.9177	4.1939	3.6315	15.4798	5.7935	7.1339	9.018	8.3446	1373.11
	13	18.5	3.1281	0.9055	4.1381	3.6437	15.2947	6.0308	7.2617	9.0142	8.3446	1373.11
	13	19	3.1277	0.8806	4.0243	3.6687	14.9162	6.3944	7.4548	9.0261	8.3446	1373.11
	13	19.42	3.1274	0.8601	3.9307	3.6891	14.6056	6.5965	7.5645	9.0598	8.3446	1373.11
Slate Run	14	19.42	3.0775	0.8457	3.8648	3.6561	14.3885	6.5991	7.5692	9.0654	8.3464	1360.08
	14	19.83	3.0772	0.8281	3.7844	3.6738	14.1181	6.5562	7.5792	9.2038	8.3464	1360.08
Turkey Run	15	19.83	2.9699	0.7977	3.6455	3.604	13.6604	6.6071	7.5872	9.1468	8.3517	1332.14
	15	26	2.9659	0.5847	2.6721	3.8174	10.3339	6.7214	7.8936	9.7868	8.3517	1332.14

5mgd_sunny

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	5.6785	8.6785	11.6785	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.5256	8.6876	10.0815	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.7243	8.6979	10.4275	8.2953	542.11
PMWWTF	2	0	1.3848	0.9153	4.1829	0.6111	35.403	7.1629	7.2405	7.3764	8.3026	1418.48
	2	0.5	1.3846	0.8832	4.0362	0.6431	34.292	6.5629	7.3575	8.8928	8.3026	1418.48
	2	1	1.3845	0.8523	3.8950	0.674	33.2159	6.3616	7.4326	9.544	8.3026	1418.48
	2	1.5	1.3843	0.8224	3.7584	0.7038	32.1736	6.3058	7.4894	9.8003	8.3026	1418.48
	2	2	1.3841	0.7936	3.6268	0.7325	31.1639	6.3046	7.5378	9.8952	8.3026	1418.48
	2	2.37	1.384	0.7729	3.5322	0.7531	30.4372	6.3207	7.5707	9.9292	8.3026	1418.48
Wrights Run	3	2.37	1.3447	0.7463	3.4106	0.7294	29.4661	6.3599	7.6121	9.9733	8.3109	1388.07
	3	3	1.3443	0.688	3.1442	0.7875	27.4013	5.2448	6.5553	8.8843	8.3109	1388.07
	3	3.5	1.344	0.6451	2.9481	0.8304	25.8661	4.8378	6.1823	8.236	8.3109	1388.07
	3	4	1.3437	0.6048	2.7639	0.8705	24.4169	4.6576	6.037	7.8902	8.3109	1388.07
	3	4.5	1.3433	0.567	2.5912	0.9082	23.0489	4.6726	6.0226	7.793	8.3109	1388.07
	3	5	1.343	0.5316	2.4294	0.9435	21.7575	4.7879	6.0821	7.848	8.3109	1388.07
	3	5.5	1.3427	0.4985	2.2781	0.9766	20.5385	4.9398	6.1816	7.9437	8.3109	1388.07
	3	5.91	1.3424	0.4728	2.1607	1.0021	19.5901	5.0558	6.2788	8.0345	8.3109	1388.07
falo Lick Run	4	5.91	1.3181	0.463	2.1159	0.9915	19.2182	5.1522	6.3512	8.0632	8.3164	1370.06
	4	6.5	1.3177	0.4243	1.9391	1.0302	17.7722	6.2378	7.3793	9.2617	8.3164	1370.06
FCL	5	6.5	1.3951	0.5343	2.4418	1.02	18.7617	6.0418	7.1968	9.0714	8.3199	1370.23
	5	7	1.3948	0.5026	2.2969	1.0515	17.7639	5.6542	7.4382	10.5837	8.3199	1370.23
	5	7.5	1.3945	0.4729	2.1612	1.0812	16.8192	5.5082	7.6103	11.2965	8.3199	1370.23
	5	8.01	1.3941	0.4443	2.0305	1.1097	15.9072	5.4311	7.7459	11.5401	8.3199	1370.23
ır Spring Run	6	8.01	1.3647	0.4329	1.9784	1.1249	15.5283	5.4463	7.7479	11.4891	8.3272	1349.9
	6	8.5	1.3644	0.407	1.8600	1.1507	14.6939	5.6213	7.8058	11.2344	8.3272	1349.9
	6	9	1.3641	0.3822	1.7467	1.1754	13.8886	5.7679	7.8748	11.0334	8.3272	1349.9
	6	9.5	1.3637	0.3589	1.6402	1.1987	13.1275	5.8658	7.9468	11.0555	8.3272	1349.9
	6	10	1.3634	0.337	1.5401	1.2205	12.4081	5.9842	8.0183	11.1135	8.3272	1349.9
	6	10.5	1.3631	0.3164	1.4459	1.2409	11.7281	6.0792	8.0876	11.1842	8.3272	1349.9
	6	11	1.3628	0.2971	1.3577	1.2602	11.0854	6.1475	8.1538	11.2569	8.3272	1349.9
	6	11.62	1.3624	0.2748	1.2558	1.2824	10.3371	6.2207	8.2315	11.3359	8.3272	1349.9
OWRF	7	11.62	3.2329	1.4453	6.6050	3.085	23.9316	6.7076	7.5771	8.8944	8.3327	1436.04
	7	11.91	3.2327	1.416	6.4711	3.1143	23.4964	6.3948	7.3606	8.849	8.3327	1436.04
brams Creek	8	11.91	3.1652	1.3852	6.3304	3.0897	23.0255	6.4495	7.3891	8.8398	8.3336	1418.82
	8	12.38	3.1649	1.3406	6.1265	3.1344	22.3596	6.2577	7.242	8.8176	8.3336	1418.82
edbud Creek	9	12.38	3.1385	1.3292	6.0744	3.1229	22.1847	6.2692	7.2476	8.8121	8.3351	1412.17
	9	13.16	3.1379	1.2629	5.7715	3.1893	21.1905	6.1794	7.1741	8.8505	8.3351	1412.17
Marsh Creek	10	13.16	3.0917	1.2439	5.6846	3.1728	20.8939	6.1668	7.1657	8.8359	8.3375	1399.93
	10	13.5	3.0915	1.2172	5.5626	3.1995	20.4927	5.8365	6.9997	8.9605	8.3375	1399.93
	10	14	3.0911	1.1791	5.3885	3.2376	19.9167	5.4944	6.817	9.0566	8.3375	1399.93
	10	14.5	3.0907	1.1422	5.2199	3.2746	19.3568	5.2561	6.6927	9.104	8.3375	1399.93
	10	15	3.0904	1.1065	5.0567	3.3103	18.8127	5.0814	6.6138	9.1414	8.3375	1399.93
	10	15.51	3.09	1.0711	4.8949	3.3457	18.2735	4.9293	6.5693	9.1606	8.3375	1399.93
Lick Run	11	15.51	3.0457	1.0551	4.8218	3.3188	18.0259	4.9436	6.5929	9.1465	8.3408	1386.99
	11	16	3.0453	1.0252	4.6852	3.3487	17.567	5.0954	6.6934	9.132	8.3408	1386.99
	11	16.5	3.045	0.9955	4.5494	3.3784	17.1108	5.2426	6.7921	9.0919	8.3408	1386.99
	11	17	3.0446	0.9667	4.4178	3.4072	16.6664	5.3756	6.8751	9.0604	8.3408	1386.99
	11	17.5	3.0443	0.9388	4.2903	3.4352	16.2336	5.4849	6.9497	9.0685	8.3408	1386.99
	11	18.07	3.0438	0.9079	4.1491	3.4661	15.7538	5.5759	7.0268	9.1257	8.3408	1386.99
NWRF	12	18.07	3.0431	0.9077	4.1482	3.4657	15.7503	5.5429	7.027	9.1207	8.3429	1386.79
	12	18.26	3.043	0.8985	4.1061	3.4749	15.6063	5.8682	7.1904	9.0707	8.3429	1386.79
earbrook Run	13	18.26	3.0233	0.8923	4.0778	3.4605	15.5117	5.8901	7.1971	9.0548	8.3446	1381.28
	13	18.5	3.0232	0.8809	4.0257	3.4719	15.3334	6.1167	7.3175	9.0446	8.3446	1381.28
	13	19	3.0228	0.8576	3.9192	3.4952	14.9687	6.469	7.4991	9.0438	8.3446	1381.28
	13	19.42	3.0226	0.8385	3.8319	3.5144	14.669	6.6621	7.6022	9.0674	8.3446	1381.28
Slate Run	14	19.42	2.9775	0.8253	3.7716	3.4862	14.4646	6.661	7.6061	9.0718	8.3464	1368.95
	14	19.83	2.9773	0.8087	3.6958	3.5028	14.2032	6.619	7.6143	9.202	8.3464	1368.95
Turkey Run	15	19.83	2.8799	0.7809	3.5687	3.4432	13.7706	6.6652	7.6206	9.1479	8.3517	1342.41
	15	26	2.8762	0.579	2.6460	3.6455	10.5258	6.3862	7.7701	9.8804	8.3517	1342.41

2mgd_cloudy

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	8.2035	8.6785	9.1535	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.822	8.6876	10.3319	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.6395	8.6979	10.5612	8.2953	542.11
PMWWTF	2	0	3.11	1.542	7.0469	13.6454	31.5613	7.225	7.4119	7.7368	8.3026	1318.96
	2	0.5	3.1093	1.4559	6.6535	13.7315	29.9782	6.3159	6.966	8.1866	8.3026	1318.96
	2	1	3.1086	1.3746	6.2819	13.8128	28.4745	6.0523	6.8626	8.3911	8.3026	1318.96
	2	1.5	3.1079	1.2978	5.9309	13.8896	27.0462	6.0091	6.8848	8.4905	8.3026	1318.96
	2	2	3.1073	1.2254	5.6001	13.9621	25.6896	6.0533	6.9512	8.5496	8.3026	1318.96
	2	2.37	3.1067	1.1744	5.3670	14.0131	24.7297	6.1044	7.0099	8.6006	8.3026	1318.96
Wrights Run	3	2.37	2.8957	1.088	4.9722	12.9826	23.0824	6.2741	7.1395	8.6394	8.3109	1261.52
	3	3	2.8942	0.9577	4.3767	13.113	20.5878	4.8149	5.879	7.4678	8.3109	1261.52
	3	3.5	2.8929	0.8655	3.9553	13.2053	18.8013	4.3886	5.5424	6.928	8.3109	1261.52
	3	4	2.8917	0.7822	3.5747	13.2886	17.1698	4.4217	5.5014	6.786	8.3109	1261.52
	3	4.5	2.8905	0.707	3.2310	13.364	15.6799	4.6375	5.6133	6.87	8.3109	1261.52
	3	5	2.8892	0.6391	2.9207	13.432	14.3193	4.8303	5.7992	7.0582	8.3109	1261.52
	3	5.5	2.888	0.5777	2.6401	13.4936	13.0768	5.0251	6.0156	7.3008	8.3109	1261.52
	3	5.91	2.887	0.5318	2.4303	13.5396	12.1387	5.2001	6.1991	7.4975	8.3109	1261.52
falo Lick Run	4	5.91	2.7693	0.5089	2.3257	12.9723	11.6889	5.4017	6.3532	7.591	8.3164	1229.54
	4	6.5	2.7679	0.4447	2.0323	13.0367	10.3522	6.4067	7.5687	9.5054	8.3164	1229.54
FCL	5	6.5	2.8392	0.6656	3.0418	12.3142	12.783	6.0591	7.1894	9.0492	8.3199	1238.11
	5	7	2.8381	0.6066	2.7722	12.3732	11.7615	5.8176	7.3108	9.7544	8.3199	1238.11
	5	7.5	2.8371	0.553	2.5272	12.427	10.8216	5.7274	7.4454	9.997	8.3199	1238.11
	5	8.01	2.836	0.5031	2.2992	12.477	9.9403	5.81	7.5829	10.0482	8.3199	1238.11
ır Spring Run	6	8.01	2.7025	0.4776	2.1826	11.9101	9.509	5.8942	7.5953	9.9266	8.3272	1205.1
	6	8.5	2.7014	0.4357	1.9911	11.9522	8.7531	6.0827	7.7648	10.1143	8.3272	1205.1
	6	9	2.7004	0.3966	1.8125	11.9913	8.0437	6.2306	7.9027	10.2834	8.3272	1205.1
	6	9.5	2.6993	0.3611	1.6502	12.0269	7.3918	6.3592	8.0192	10.3868	8.3272	1205.1
	6	10	2.6982	0.3289	1.5031	12.0594	6.7927	6.4457	8.1214	10.4984	8.3272	1205.1
	6	10.5	2.6972	0.2995	1.3687	12.0889	6.2422	6.5397	8.2128	10.5883	8.3272	1205.1
	6	11	2.6961	0.2728	1.2467	12.1157	5.7363	6.6222	8.2957	10.6717	8.3272	1205.1
	6	11.62	2.6948	0.243	1.1105	12.1457	5.1655	6.715	8.3882	10.7633	8.3272	1205.1
OWRF	7	11.62	4.0805	1.7418	7.9600	6.4901	26.0778	6.995	7.4488	8.0876	8.3327	1419.37
	7	11.91	4.0802	1.7013	7.7749	6.5306	25.5337	6.4558	7.1365	8.1662	8.3327	1419.37
brams Creek	8	11.91	3.9725	1.6549	7.5629	6.4065	24.8878	6.5198	7.1783	8.1762	8.3336	1398.24
	8	12.38	3.9719	1.594	7.2846	6.4675	24.0652	6.0804	6.9551	8.4183	8.3336	1398.24
edbud Creek	9	12.38	3.9303	1.577	7.2069	6.4176	23.8282	6.0925	6.9651	8.4256	8.3351	1390.13
	9	13.16	3.9295	1.4874	6.7974	6.5073	22.6108	5.8324	6.8491	8.6645	8.3351	1390.13
Marsh Creek	10	13.16	3.857	1.4595	6.6699	6.4243	22.2145	5.8199	6.8447	8.6539	8.3375	1375.31
	10	13.5	3.8566	1.424	6.5077	6.4599	21.7284	5.4069	6.6308	8.7871	8.3375	1375.31
	10	14	3.8561	1.3732	6.2755	6.5107	21.0329	4.9711	6.3975	8.8532	8.3375	1375.31
	10	14.5	3.8555	1.3243	6.0521	6.5597	20.3596	4.6746	6.2413	8.903	8.3375	1375.31
	10	15	3.855	1.2771	5.8363	6.607	19.7078	4.42	6.1449	8.9022	8.3375	1375.31
	10	15.51	3.8544	1.2308	5.6248	6.6534	19.0645	4.2344	6.0939	8.8803	8.3375	1375.31
Lick Run	11	15.51	3.785	1.2078	5.5196	6.558	18.7423	4.2828	6.1321	8.8565	8.3408	1359.7
	11	16	3.7845	1.1689	5.3419	6.5969	18.2	4.4738	6.2719	8.8355	8.3408	1359.7
	11	16.5	3.784	1.1305	5.1664	6.6354	17.6628	4.6551	6.3968	8.7964	8.3408	1359.7
	11	17	3.7835	1.0934	4.9968	6.6726	17.1415	4.832	6.5078	8.7857	8.3408	1359.7
	11	17.5	3.783	1.0575	4.8328	6.7086	16.6355	4.9768	6.6081	8.8352	8.3408	1359.7
	11	18.07	3.7824	1.0181	4.6527	6.7481	16.0769	5.1093	6.712	8.9397	8.3408	1359.7
NWRF	12	18.07	3.7813	1.0178	4.6513	6.7466	16.0725	5.1076	6.7123	8.9273	8.3429	1359.46
	12	18.26	3.7811	1.006	4.5974	6.7584	15.9052	5.4911	6.917	8.9117	8.3429	1359.46
arbrook Run	13	18.26	3.7504	0.9975	4.5586	6.7124	15.7854	5.5204	6.9277	8.885	8.3446	1352.86
	13	18.5	3.7502	0.983	4.4923	6.7269	15.5793	5.7882	7.0793	8.9048	8.3446	1352.86
	13	19	3.7497	0.9535	4.3575	6.7565	15.1584	6.1834	7.3087	8.9469	8.3446	1352.86
	13	19.42	3.7493	0.9293	4.2469	6.7807	14.8137	6.4119	7.4394	8.998	8.3446	1352.86
Slate Run	14	19.42	3.6794	0.9113	4.1646	6.6819	14.5586	6.4241	7.4473	9.0071	8.3464	1338.19
	14	19.83	3.6791	0.8906	4.0700	6.7027	14.2603	6.3784	7.4618	9.1657	8.3464	1338.19
Turkey Run	15	19.83	3.5299	0.8531	3.8987	6.4934	13.7281	6.4428	7.4761	9.1034	8.3517	1307
	15	26	3.5247	0.6088	2.7822	6.7385	10.1349	6.5935	7.8524	9.8284	8.3517	1307

3mgd_cloudy

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	8.2035	8.6785	9.1535	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.822	8.6876	10.3319	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.6395	8.6979	10.5612	8.2953	542.11
PMWWTF	2	0	1.3182	0.8663	3.9590	0.6754	33.5826	7.1888	7.3217	7.5526	8.3026	1371.32
	2	0.5	1.3179	0.8266	3.7776	0.715	32.2036	6.5264	7.0785	8.1221	8.3026	1371.32
	2	1	1.3177	0.7887	3.6044	0.7527	30.8813	6.3113	7.0207	8.3859	8.3026	1371.32
	2	1.5	1.3175	0.7526	3.4394	0.7888	29.6132	6.2591	7.038	8.5033	8.3026	1371.32
	2	2	1.3173	0.7181	3.2817	0.8232	28.3972	6.2771	7.0847	8.5693	8.3026	1371.32
	2	2.37	1.3171	0.6936	3.1698	0.8476	27.5297	6.3099	7.1266	8.6066	8.3026	1371.32
Wrights Run	3	2.37	1.2599	0.6566	3.0007	0.8059	26.183	6.4168	7.2144	8.6398	8.3109	1326.79
	3	3	1.2594	0.5908	2.7000	0.8715	23.8243	5.1041	6.07	7.6526	8.3109	1326.79
	3	3.5	1.2589	0.5433	2.4829	0.9188	22.1045	4.6271	5.7006	7.1162	8.3109	1326.79
	3	4	1.2585	0.4997	2.2836	0.9623	20.5089	4.5157	5.591	6.8849	8.3109	1326.79
	3	4.5	1.2581	0.4595	2.0999	1.0023	19.0284	4.6186	5.6279	6.8957	8.3109	1326.79
	3	5	1.2577	0.4226	1.9313	1.0391	17.6548	4.8014	5.7443	6.9899	8.3109	1326.79
	3	5.5	1.2573	0.3886	1.7759	1.0729	16.3804	4.9639	5.9011	7.1466	8.3109	1326.79
	3	5.91	1.2569	0.3628	1.6580	1.0986	15.4043	5.0956	6.0435	7.3005	8.3109	1326.79
falo Lick Run	4	5.91	1.2225	0.3514	1.6059	1.0793	14.9692	5.2479	6.1617	7.3747	8.3164	1301.2
	4	6.5	1.222	0.3139	1.4345	1.1166	13.5318	6.2813	7.3564	9.1497	8.3164	1301.2
FCL	5	6.5	1.3427	0.4845	2.2142	1.0975	15.2079	6.0108	7.0824	8.8409	8.3199	1304.47
	5	7	1.3423	0.4481	2.0478	1.1338	14.1812	5.8064	7.1944	9.5043	8.3199	1304.47
	5	7.5	1.3419	0.4145	1.8943	1.1674	13.2239	5.7347	7.3133	9.7787	8.3199	1304.47
	5	8.01	1.3415	0.3827	1.7489	1.199	12.314	5.7649	7.4341	9.8712	8.3199	1304.47
ır Spring Run	6	8.01	1.2998	0.3682	1.6827	1.218	11.8934	5.8128	7.4494	9.775	8.3272	1276.86
	6	8.5	1.2994	0.3405	1.5561	1.2456	11.0886	5.9511	7.5956	9.927	8.3272	1276.86
	6	9	1.299	0.3144	1.4368	1.2716	10.3234	6.1047	7.7197	10.0408	8.3272	1276.86
	6	9.5	1.2986	0.2902	1.3262	1.2956	9.6111	6.2206	7.8276	10.1528	8.3272	1276.86
	6	10	1.2982	0.268	1.2248	1.3178	8.9479	6.3253	7.924	10.2383	8.3272	1276.86
	6	10.5	1.2978	0.2474	1.1306	1.3382	8.3304	6.407	8.0117	10.3306	8.3272	1276.86
	6	11	1.2973	0.2284	1.0438	1.3571	7.7556	6.4887	8.0923	10.4116	8.3272	1276.86
	6	11.62	1.2968	0.2069	0.9455	1.3785	7.0976	6.5796	8.1838	10.5042	8.3272	1276.86
OWRF	7	11.62	3.5105	1.6101	7.3582	3.4048	25.0408	6.9249	7.4567	8.2154	8.3327	1425.81
	7	11.91	3.5102	1.5745	7.1955	3.4404	24.5436	6.4712	7.197	8.2901	8.3327	1425.81
brams Creek	8	11.91	3.4252	1.5349	7.0145	3.4039	23.9729	6.5308	7.234	8.2952	8.3336	1406.17
	8	12.38	3.4248	1.481	6.7682	3.4578	23.2176	6.1789	7.0585	8.5066	8.3336	1406.17
edbud Creek	9	12.38	3.3918	1.4665	6.7019	3.4413	23.0073	6.1905	7.0667	8.5059	8.3351	1398.61
	9	13.16	3.3911	1.3869	6.3381	3.521	21.8857	5.9895	6.9817	8.7331	8.3351	1398.61
Marsh Creek	10	13.16	3.3335	1.3629	6.2285	3.4962	21.5321	5.9757	6.9753	8.7209	8.3375	1384.76
	10	13.5	3.3332	1.3312	6.0836	3.528	21.0825	5.5962	6.7843	8.8648	8.3375	1384.76
	10	14	3.3327	1.2859	5.8766	3.5733	20.4383	5.1979	6.5755	8.9572	8.3375	1384.76
	10	14.5	3.3323	1.2421	5.6764	3.6171	19.8138	4.9258	6.4352	9.0113	8.3375	1384.76
	10	15	3.3318	1.1999	5.4835	3.6594	19.2084	4.7019	6.348	9.0309	8.3375	1384.76
	10	15.51	3.3314	1.1583	5.2934	3.7011	18.6099	4.5253	6.3012	9.0278	8.3375	1384.76
Lick Run	11	15.51	3.2763	1.1383	5.2020	3.664	18.3195	4.5606	6.333	9.0072	8.3408	1370.15
	11	16	3.2759	1.1033	5.0421	3.6991	17.8132	4.7319	6.4588	8.9855	8.3408	1370.15
	11	16.5	3.2754	1.0686	4.8835	3.7337	17.311	4.8989	6.5709	8.9425	8.3408	1370.15
	11	17	3.275	1.0351	4.7304	3.7673	16.8229	5.0559	6.6704	8.9203	8.3408	1370.15
	11	17.5	3.2746	1.0026	4.5819	3.7998	16.3486	5.1853	6.76	8.9514	8.3408	1370.15
	11	18.07	3.2741	0.9668	4.4183	3.8357	15.8241	5.3011	6.8527	9.0371	8.3408	1370.15
NWRF	12	18.07	3.2732	0.9666	4.4174	3.8351	15.8201	5.2849	6.853	9.0275	8.3429	1369.93
	12	18.26	3.2731	0.9559	4.3685	3.8458	15.6629	5.6452	7.0394	8.9959	8.3429	1369.93
earbrook Run	13	18.26	3.2487	0.9484	4.3342	3.8262	15.5538	5.6714	7.0483	8.9699	8.3446	1363.74
	13	18.5	3.2485	0.9352	4.2739	3.8394	15.3598	5.9231	7.1863	8.9757	8.3446	1363.74
	13	19	3.2481	0.9083	4.1509	3.8663	14.9633	6.3011	7.3947	8.9953	8.3446	1363.74
	13	19.42	3.2478	0.8864	4.0508	3.8883	14.6382	6.5157	7.5133	9.0396	8.3446	1363.74
Slate Run	14	19.42	3.1921	0.8705	3.9782	3.8492	14.4048	6.523	7.5193	9.0467	8.3464	1349.93
	14	19.83	3.1918	0.8515	3.8914	3.8683	14.1226	6.4792	7.5314	9.1944	8.3464	1349.93
Turkey Run	15	19.83	3.0724	0.8181	3.7387	3.7859	13.6329	6.5359	7.5419	9.1346	8.3517	1320.45
	15	26	3.068	0.5921	2.7059	4.0125	10.195	6.6653	7.8793	9.8133	8.3517	1320.45

4mgd_cloudy

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	8.2035	8.6785	9.1535	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.822	8.6876	10.3319	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.6395	8.6979	10.5612	8.2953	542.11
PMWWTF	2	0	1.359	0.8963	4.0961	0.636	34.697	7.1689	7.272	7.4511	8.3026	1400.19
	2	0.5	1.3588	0.8609	3.9343	0.6713	33.4701	6.6687	7.1407	8.0361	8.3026	1400.19
	2	1	1.3586	0.8269	3.7789	0.7052	32.2866	6.508	7.1193	8.3089	8.3026	1400.19
	2	1.5	1.3584	0.7943	3.6300	0.7378	31.1449	6.4721	7.1422	8.4252	8.3026	1400.19
	2	2	1.3582	0.7629	3.4865	0.769	30.0436	6.4865	7.1824	8.4861	8.3026	1400.19
	2	2.37	1.358	0.7405	3.3841	0.7914	29.2537	6.5121	7.2164	8.5226	8.3026	1400.19
Wrights Run	3	2.37	1.3114	0.7095	3.2424	0.761	28.1238	6.5839	7.2815	8.5639	8.3109	1364.01
	3	3	1.3109	0.6476	2.9595	0.8227	25.9188	5.341	6.1923	7.6681	8.3109	1364.01
	3	3.5	1.3106	0.6023	2.7525	0.8679	24.2925	4.8792	5.8225	7.2058	8.3109	1364.01
	3	4	1.3102	0.5602	2.5601	0.9099	22.7682	4.7185	5.6932	6.9765	8.3109	1364.01
	3	4.5	1.3098	0.5211	2.3814	0.9489	21.3396	4.7452	5.7012	6.9393	8.3109	1364.01
	3	5	1.3095	0.4847	2.2151	0.9852	20.0006	4.8711	5.7854	7.0128	8.3109	1364.01
	3	5.5	1.3091	0.4508	2.0602	1.0189	18.7457	5.0285	5.9098	7.1239	8.3109	1364.01
	3	5.91	1.3088	0.4248	1.9413	1.0448	17.7756	5.149	6.0268	7.2397	8.3109	1364.01
falo Lick Run	4	5.91	1.2803	0.4142	1.8929	1.0309	17.3717	5.27	6.1206	7.2979	8.3164	1342.84
	4	6.5	1.2799	0.3756	1.7165	1.0694	15.9135	6.3105	7.2757	8.8962	8.3164	1342.84
FCL	5	6.5	1.3742	0.5095	2.3284	1.0558	17.1678	6.0867	7.0599	8.6657	8.3199	1344
	5	7	1.3738	0.4759	2.1749	1.0893	16.1513	5.9009	7.1483	9.2752	8.3199	1344
	5	7.5	1.3735	0.4445	2.0314	1.1206	15.195	5.8557	7.2463	9.5232	8.3199	1344
	5	8.01	1.3731	0.4147	1.8952	1.1504	14.2779	5.8578	7.3484	9.6492	8.3199	1344
ır Spring Run	6	8.01	1.3386	0.402	1.8371	1.1672	13.8769	5.8895	7.3635	9.5719	8.3272	1320.53
	6	8.5	1.3382	0.3753	1.7151	1.1938	13.0493	5.9985	7.4892	9.7102	8.3272	1320.53
	6	9	1.3379	0.3499	1.5990	1.2191	12.2557	6.1266	7.5978	9.7861	8.3272	1320.53
	6	9.5	1.3375	0.3262	1.4907	1.2427	11.5104	6.218	7.6935	9.898	8.3272	1320.53
	6	10	1.3371	0.3041	1.3897	1.2647	10.8104	6.3226	7.7803	9.9695	8.3272	1320.53
	6	10.5	1.3368	0.2836	1.2961	1.2852	10.153	6.4004	7.86	10.0503	8.3272	1320.53
	6	11	1.3364	0.2644	1.2083	1.3042	9.5356	6.4747	7.9341	10.1239	8.3272	1320.53
	6	11.62	1.336	0.2424	1.1078	1.3261	8.8218	6.5593	8.019	10.2102	8.3272	1320.53
OWRF	7	11.62	3.3614	1.5197	6.9450	3.235	24.3647	6.8851	7.4483	8.2722	8.3327	1431.3
	7	11.91	3.3611	1.4875	6.7979	3.2671	23.9025	6.4902	7.2294	8.3661	8.3327	1431.3
brams Creek	8	11.91	3.2858	1.4528	6.6393	3.2372	23.3881	6.5459	7.263	8.3683	8.3336	1412.95
	8	12.38	3.2854	1.4041	6.4167	3.2861	22.6832	6.2546	7.126	8.5642	8.3336	1412.95
edbud Creek	9	12.38	3.2561	1.3913	6.3582	3.2724	22.4928	6.2659	7.133	8.5619	8.3351	1405.87
	9	13.16	3.2554	1.319	6.0278	3.3447	21.443	6.1057	7.0738	8.7755	8.3351	1405.87
Marsh Creek	10	13.16	3.2041	1.2978	5.9309	3.3246	21.1215	6.0921	7.0664	8.7623	8.3375	1392.88
	10	13.5	3.2038	1.2688	5.7984	3.3535	20.6992	5.7372	6.8921	8.911	8.3375	1392.88
	10	14	3.2034	1.2275	5.6097	3.3949	20.0934	5.3679	6.7011	9.0196	8.3375	1392.88
	10	14.5	3.203	1.1875	5.4269	3.4349	19.5054	5.1125	6.5723	9.0724	8.3375	1392.88
	10	15	3.2026	1.1488	5.2500	3.4737	18.9346	4.9109	6.4917	9.1062	8.3375	1392.88
	10	15.51	3.2021	1.1106	5.0754	3.5119	18.3696	4.7438	6.4478	9.1162	8.3375	1392.88
Lick Run	11	15.51	3.153	1.0928	4.9941	3.4804	18.1033	4.7679	6.475	9.099	8.3408	1379.15
	11	16	3.1526	1.0606	4.8469	3.5127	17.6237	4.9262	6.5908	9.0791	8.3408	1379.15
	11	16.5	3.1522	1.0287	4.7012	3.5446	17.1475	5.0835	6.6936	9.0353	8.3408	1379.15
	11	17	3.1518	0.9977	4.5595	3.5756	16.6842	5.2265	6.7846	9.006	8.3408	1379.15
	11	17.5	3.1514	0.9677	4.4224	3.6057	16.2333	5.3453	6.8663	9.0233	8.3408	1379.15
	11	18.07	3.151	0.9346	4.2711	3.6388	15.7342	5.4496	6.9508	9.0931	8.3408	1379.15
NWRF	12	18.07	3.1502	0.9344	4.2702	3.6383	15.7305	5.4215	6.9511	9.0857	8.3429	1378.95
	12	18.26	3.15	0.9245	4.2250	3.6482	15.5807	5.7637	7.1246	9.0437	8.3429	1378.95
earbrook Run	13	18.26	3.1282	0.9177	4.1939	3.6315	15.4798	5.7875	7.1323	9.0185	8.3446	1373.11
	13	18.5	3.1281	0.9055	4.1381	3.6437	15.2947	6.0264	7.2605	9.0144	8.3446	1373.11
	13	19	3.1277	0.8806	4.0243	3.6687	14.9162	6.3918	7.454	9.0257	8.3446	1373.11
	13	19.42	3.1274	0.8601	3.9307	3.6891	14.6056	6.595	7.564	9.0593	8.3446	1373.11
Slate Run	14	19.42	3.0775	0.8457	3.8648	3.6561	14.3885	6.5981	7.5688	9.0649	8.3464	1360.08
	14	19.83	3.0772	0.8281	3.7844	3.6738	14.1181	6.5557	7.5788	9.2032	8.3464	1360.08
Turkey Run	15	19.83	2.9699	0.7977	3.6455	3.604	13.6604	6.6066	7.5869	9.1462	8.3517	1332.14
	15	26	2.9659	0.5847	2.6721	3.8174	10.3339	6.7214	7.8936	9.7868	8.3517	1332.14

5mgd_cloudy

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9785	1.784	8.2035	8.6785	9.1535	8.2953	542.11
	1	-0.4	0.1366	0.0036	0.0165	1.9787	1.6123	7.822	8.6876	10.3319	8.2953	542.11
	1	0	0.1365	0.003	0.0137	1.9789	1.4571	7.6395	8.6979	10.5612	8.2953	542.11
PMWWTF	2	0	1.3848	0.9153	4.1829	0.6111	35.403	7.1563	7.2405	7.3868	8.3026	1418.48
	2	0.5	1.3846	0.8832	4.0362	0.6431	34.292	6.7766	7.193	7.9843	8.3026	1418.48
	2	1	1.3845	0.8523	3.8950	0.674	33.2159	6.6566	7.1999	8.2609	8.3026	1418.48
	2	1.5	1.3843	0.8224	3.7584	0.7038	32.1736	6.6335	7.2284	8.384	8.3026	1418.48
	2	2	1.3841	0.7936	3.6268	0.7325	31.1639	6.6472	7.2651	8.4431	8.3026	1418.48
	2	2.37	1.384	0.7729	3.5322	0.7531	30.4372	6.6684	7.2941	8.4728	8.3026	1418.48
Wrights Run	3	2.37	1.3447	0.7463	3.4106	0.7294	29.4661	6.7184	7.345	8.5251	8.3109	1388.07
	3	3	1.3443	0.688	3.1442	0.7875	27.4013	5.5439	6.3135	7.6797	8.3109	1388.07
	3	3.5	1.344	0.6451	2.9481	0.8304	25.8661	5.1141	5.9515	7.2782	8.3109	1388.07
	3	4	1.3437	0.6048	2.7639	0.8705	24.4169	4.9288	5.8127	7.0674	8.3109	1388.07
	3	4.5	1.3433	0.567	2.5912	0.9082	23.0489	4.9185	5.8023	7.0051	8.3109	1388.07
	3	5	1.343	0.5316	2.4294	0.9435	21.7575	4.9979	5.8641	7.0539	8.3109	1388.07
	3	5.5	1.3427	0.4985	2.2781	0.9766	20.5385	5.1254	5.965	7.1468	8.3109	1388.07
	3	5.91	1.3424	0.4728	2.1607	1.0021	19.5901	5.2375	6.0629	7.2384	8.3109	1388.07
falo Lick Run	4	5.91	1.3181	0.463	2.1159	0.9915	19.2182	5.3312	6.1398	7.2861	8.3164	1370.06
	4	6.5	1.3177	0.4243	1.9391	1.0302	17.7722	6.3627	7.2462	8.7379	8.3164	1370.06
FCL	5	6.5	1.3951	0.5343	2.4418	1.02	18.7617	6.1724	7.0676	8.5534	8.3199	1370.23
	5	7	1.3948	0.5026	2.2969	1.0515	17.7639	5.9974	7.1356	9.1178	8.3199	1370.23
	5	7.5	1.3945	0.4729	2.1612	1.0812	16.8192	5.9625	7.2167	9.3519	8.3199	1370.23
	5	8.01	1.3941	0.4443	2.0305	1.1097	15.9072	5.9524	7.3038	9.4652	8.3199	1370.23
ır Spring Run	6	8.01	1.3647	0.4329	1.9784	1.1249	15.5283	5.9745	7.3176	9.4358	8.3272	1349.9
	6	8.5	1.3644	0.407	1.8600	1.1507	14.6939	6.0682	7.4274	9.5385	8.3272	1349.9
	6	9	1.3641	0.3822	1.7467	1.1754	13.8886	6.1707	7.5236	9.5928	8.3272	1349.9
	6	9.5	1.3637	0.3589	1.6402	1.1987	13.1275	6.2483	7.6094	9.6923	8.3272	1349.9
	6	10	1.3634	0.337	1.5401	1.2205	12.4081	6.3422	7.6878	9.7636	8.3272	1349.9
	6	10.5	1.3631	0.3164	1.4459	1.2409	11.7281	6.417	7.7606	9.8315	8.3272	1349.9
	6	11	1.3628	0.2971	1.3577	1.2602	11.0854	6.4852	7.8287	9.9007	8.3272	1349.9
	6	11.62	1.3624	0.2748	1.2558	1.2824	10.3371	6.5645	7.9075	9.9785	8.3272	1349.9
OWRF	7	11.62	3.2329	1.4453	6.6050	3.085	23.9316	6.86	7.4406	8.3194	8.3327	1436.04
	7	11.91	3.2327	1.416	6.4711	3.1143	23.4964	6.5106	7.2535	8.4191	8.3327	1436.04
brams Creek	8	11.91	3.1652	1.3852	6.3304	3.0897	23.0255	6.5628	7.2843	8.4193	8.3336	1418.82
	8	12.38	3.1649	1.3406	6.1265	3.1344	22.3596	6.3183	7.1773	8.6034	8.3336	1418.82
edbud Creek	9	12.38	3.1385	1.3292	6.0744	3.1229	22.1847	6.3293	7.1834	8.5998	8.3351	1412.17
	9	13.16	3.1379	1.2629	5.7715	3.1893	21.1905	6.2003	7.1443	8.8015	8.3351	1412.17
Marsh Creek	10	13.16	3.0917	1.2439	5.6846	3.1728	20.8939	6.1873	7.1363	8.7877	8.3375	1399.93
	10	13.5	3.0915	1.2172	5.5626	3.1995	20.4927	5.8518	6.9748	8.9381	8.3375	1399.93
	10	14	3.0911	1.1791	5.3885	3.2376	19.9167	5.5061	6.7974	9.0575	8.3375	1399.93
	10	14.5	3.0907	1.1422	5.2199	3.2746	19.3568	5.2629	6.6773	9.1064	8.3375	1399.93
	10	15	3.0904	1.1065	5.0567	3.3103	18.8127	5.0784	6.6017	9.1508	8.3375	1399.93
	10	15.51	3.09	1.0711	4.8949	3.3457	18.2735	4.9201	6.5598	9.1707	8.3375	1399.93
Lick Run	11	15.51	3.0457	1.0551	4.8218	3.3188	18.0259	4.9346	6.5836	9.1565	8.3408	1386.99
	11	16	3.0453	1.0252	4.6852	3.3487	17.567	5.0832	6.6915	9.1397	8.3408	1386.99
	11	16.5	3.045	0.9955	4.5494	3.3784	17.1108	5.2332	6.787	9.0971	8.3408	1386.99
	11	17	3.0446	0.9667	4.4178	3.4072	16.6664	5.3654	6.8713	9.0637	8.3408	1386.99
	11	17.5	3.0443	0.9388	4.2903	3.4352	16.2336	5.4736	6.9469	9.0706	8.3408	1386.99
	11	18.07	3.0438	0.9079	4.1491	3.4661	15.7538	5.5675	7.0248	9.1268	8.3408	1386.99
NWRF	12	18.07	3.0431	0.9077	4.1482	3.4657	15.7503	5.5345	7.025	9.1216	8.3429	1386.79
	12	18.26	3.043	0.8985	4.1061	3.4749	15.6063	5.8615	7.1888	9.0716	8.3429	1386.79
ɜarbrook Run	13	18.26	3.0233	0.8923	4.0778	3.4605	15.5117	5.8835	7.1956	9.0554	8.3446	1381.28
	13	18.5	3.0232	0.8809	4.0257	3.4719	15.3334	6.1117	7.3163	9.045	8.3446	1381.28
	13	19	3.0228	0.8576	3.9192	3.4952	14.9687	6.4663	7.4984	9.0437	8.3446	1381.28
	13	19.42	3.0226	0.8385	3.8319	3.5144	14.669	6.6603	7.6017	9.0672	8.3446	1381.28
Slate Run	14	19.42	2.9775	0.8253	3.7716	3.4862	14.4646	6.6596	7.6056	9.0716	8.3464	1368.95
	14	19.83	2.9773	0.8087	3.6958	3.5028	14.2032	6.6182	7.6139	9.2017	8.3464	1368.95
Turkey Run	15	19.83	2.8799	0.7809	3.5687	3.4432	13.7706	6.6644	7.6203	9.1476	8.3517	1342.41
	15	26	2.8762	0.579	2.6460	3.6455	10.5258	6.3862	7.7701	9.8804	8.3517	1342.41

Winter Notes

Sheet	Description
2mgd_cloudy_winter	Winter wet, 2MGD, cloudy conditions, temp=15.7C
3mgd_cloudy_winter	Winter wet, 3MGD, cloudy conditions, temp=15.7C
43mgd_cloudy_winter	Winter wet, 4.3MGD, cloudy conditions, temp=15.7C
63mgd_cloudy_winter	Winter wet, 6.3MGD, cloudy conditions, temp=15.7C
76mgd_cloudy_winter	Winter wet, 7.6MGD, cloudy conditions, temp=15.7C
2mgd_cloudyT_winter	Winter wet, 2MGD, cloudy conditions, temp=14C
3mgd_cloudyT_winter	Winter wet, 3MGD, cloudy conditions, temp=14C
43mgd_cloudyT_winter	Winter wet, 4.3MGD, cloudy conditions, temp=14C
63mgd_cloudyT_winter	Winter wet, 6.3MGD, cloudy conditions, temp=14C
76mgd_cloudyT_winter	Winter wet, 7.6MGD, cloudy conditions, temp=14C
2mgd_cloudyB_winter	Winter wet, 2MGD, cloudy conditions, temp=15.7C, BOD5=7.5
3mgd_cloudyB_winter	Winter wet, 3MGD, cloudy conditions, temp=15.7C, BOD5=7.5
43mgd_cloudyB_winter	Winter wet, 4.3MGD, cloudy conditions, temp=15.7C, BOD5=7.5
63mgd_cloudyB_winter	Winter wet, 6.3MGD, cloudy conditions, temp=15.7C, BOD5=7.5
76mgd_cloudyB_winter	Winter wet, 7.6MGD, cloudy conditions, temp=15.7C, BOD5=7.5
2mgd_cloudyE_winter	Winter wet, 2MGD w/ ENR, cloudy conditions, temp=15.7C
3mgd_cloudyE_winter	Winter wet, 3MGD w/ ENR, cloudy conditions, temp=15.7C
43mgd_cloudyE_winter	Winter wet, 4.3MGD w/ ENR, cloudy conditions, temp=15.7C
63mgd_cloudyE_winter	Winter wet, 6.3MGD w/ ENR, cloudy conditions, temp=15.7C
76mgd_cloudyE_winter	Winter wet, 7.6MGD w/ ENR, cloudy conditions, temp=15.7C

2mgd_cloudy_winter

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9781	1.784	8.2035	8.6785	9.1535	9.7154	542.11
	1	-0.4	0.1367	0.004	0.0183	1.9782	1.7167	9.0293	9.5294	10.6016	9.7154	542.11
	1	0	0.1366	0.0038	0.0174	1.9782	1.6518	9.1891	9.781	11.2141	9.7154	542.11
PMWWTF	2	0	4.3352	2.141	9.7844	10.7277	42.8399	7.8735	8.1249	8.6142	9.7239	1127.18
	2	0.5	4.3346	2.0851	9.5289	10.7835	41.5651	7.455	8.0219	9.3614	9.7239	1127.18
	2	1	4.334	2.0307	9.2803	10.8378	40.3281	7.3028	8.0039	9.6942	9.7239	1127.18
	2	1.5	4.3334	1.9778	9.0385	10.8907	39.128	7.2445	8.0259	9.8402	9.7239	1127.18
	2	2	4.3329	1.9262	8.8027	10.9423	37.9636	7.2453	8.0662	9.8734	9.7239	1127.18
	2	2.37	4.3324	1.8889	8.6323	10.9795	37.1243	7.265	8.1016	9.8929	9.7239	1127.18
Wrights Run	3	2.37	3.7569	1.6232	7.4180	9.441	32.2331	7.3812	8.1947	9.6787	9.7337	1044.62
	3	3	3.7557	1.5346	7.0131	9.5295	30.2294	6.2623	7.1627	8.8184	9.7337	1044.62
	3	3.5	3.7548	1.4677	6.7074	9.5963	28.7282	5.7426	6.7452	8.201	9.7337	1044.62
	3	4	3.7538	1.4038	6.4154	9.6602	27.3015	5.4853	6.5452	7.8402	9.7337	1044.62
	3	4.5	3.7529	1.3427	6.1361	9.7212	25.9457	5.4996	6.483	7.7774	9.7337	1044.62
	3	5	3.7519	1.2842	5.8688	9.7797	24.6573	5.5974	6.5071	7.7661	9.7337	1044.62
	3	5.5	3.751	1.2283	5.6133	9.8356	23.4328	5.7122	6.5841	7.8345	9.7337	1044.62
	3	5.91	3.7502	1.1843	5.4123	9.8796	22.4742	5.7896	6.6713	7.9455	9.7337	1044.62
falo Lick Run	4	5.91	3.464	1.0898	4.9804	9.1272	20.8161	6.0689	6.9173	8.0423	9.74	1003.06
	4	6.5	3.463	1.0282	4.6989	9.1887	19.4756	7.2097	8.1885	10.1573	9.74	1003.06
FCL	5	6.5	3.4863	1.1451	5.2331	8.7797	20.5922	6.8291	7.9028	9.6915	9.7442	1014.03
	5	7	3.4856	1.1001	5.0275	8.8247	19.6681	6.7519	8.0437	10.4941	9.7442	1014.03
	5	7.5	3.4848	1.0568	4.8296	8.8679	18.7854	6.7686	8.1647	10.7981	9.7442	1014.03
	5	8.01	3.4841	1.0144	4.6358	8.9102	17.9259	6.7191	8.2743	10.8143	9.7442	1014.03
ir Spring Run	6	8.01	3.1869	0.9216	4.2117	8.2367	16.4173	6.7208	8.2321	10.4622	9.7527	976.33
	6	8.5	3.1862	0.8865	4.0513	8.2718	15.7031	6.9355	8.448	10.7739	9.7527	976.33
	6	9	3.1855	0.852	3.8936	8.3062	15.0063	7.1492	8.6037	11.0228	9.7527	976.33
	6	9.5	3.1848	0.8189	3.7424	8.3393	14.3404	7.2357	8.7207	11.1175	9.7527	976.33
	6	10	3.1841	0.7871	3.5970	8.3711	13.7041	7.3415	8.8145	11.1896	9.7527	976.33
	6	10.5	3.1834	0.7565	3.4572	8.4017	13.096	7.4345	8.8938	11.28	9.7527	976.33
	6	11	3.1827	0.7271	3.3228	8.431	12.5149	7.488	8.9638	11.3443	9.7527	976.33
	6	11.62	3.1818	0.6923	3.1638	8.4659	11.83	7.5698	9.0419	11.426	9.7527	976.33
OWRF	7	11.62	5.1881	2.3871	10.9090	5.3319	60.3382	7.1835	7.5482	8.0767	9.7592	1377.99
	7	11.91	5.1879	2.3657	10.8112	5.3532	59.7208	6.7657	7.2796	8.1247	9.7592	1377.99
brams Creek	8	11.91	4.9823	2.2695	10.3716	5.2162	57.3662	6.8232	7.336	8.1184	9.7602	1348.19
	8	12.38	4.982	2.2375	10.2254	5.2483	56.441	6.4993	7.1758	8.4209	9.7602	1348.19
edbud Creek	9	12.38	4.9043	2.2021	10.0636	5.1935	55.5764	6.4735	7.1872	8.3913	9.762	1336.96
	9	13.16	4.9038	2.1539	9.8433	5.2416	54.1885	6.2396	7.0839	8.7736	9.762	1336.96
Marsh Creek	10	13.16	4.7701	2.0944	9.5714	5.1546	52.7292	6.1901	7.0709	8.6629	9.7647	1316.61
	10	13.5	4.7699	2.075	9.4828	5.1739	52.1726	5.7848	6.8065	8.7274	9.7647	1316.61
	10	14	4.7696	2.0469	9.3543	5.202	51.3648	5.328	6.4772	8.7805	9.7647	1316.61
	10	14.5	4.7692	2.0192	9.2277	5.2297	50.5694	4.9581	6.2094	8.7703	9.7647	1316.61
	10	15	4.7689	1.9918	9.1025	5.2571	49.7864	4.6951	5.9939	8.714	9.7647	1316.61
	10	15.51	4.7686	1.9643	8.9769	5.2846	49.0003	4.4214	5.8197	8.6297	9.7647	1316.61
Lick Run	11	15.51	4.6427	1.9109	8.7328	5.1831	47.7145	4.396	5.8828	8.516	9.7686	1295.5
	11	16	4.6424	1.8876	8.6263	5.2063	47.0507	4.4866	5.9601	8.5429	9.7686	1295.5
	11	16.5	4.6421	1.8642	8.5194	5.2298	46.3829	4.5717	6.0347	8.5631	9.7686	1295.5
	11	17	4.6418	1.841	8.4134	5.2529	45.7246	4.6843	6.1058	8.568	9.7686	1295.5
	11	17.5	4.6415	1.8182	8.3092	5.2758	45.0756	4.7944	6.1737	8.5727	9.7686	1295.5
	11	18.07	4.6412	1.7924	8.1913	5.3015	44.347	4.8666	6.2478	8.5999	9.7686	1295.5
NWRF	12	18.07	4.6391	1.7916	8.1876	5.2998	44.327	4.6987	6.2486	8.5079	9.7711	1295.17
	12	18.26	4.639	1.7838	8.1520	5.3076	44.1063	5.0857	6.5298	8.6117	9.7711	1295.17
arbrook Run	13	18.26	4.5836	1.7617	8.0510	5.2587	43.581	5.1283	6.5502	8.6037	9.7731	1286.36
	13	18.5	4.5835	1.7521	8.0071	5.2683	43.3092	5.4242	6.7708	8.6947	9.7731	1286.36
	13	19	4.5832	1.7323	7.9166	5.2881	42.7484	5.9518	7.1377	8.9066	9.7731	1286.36
	13	19.42	4.583	1.7158	7.8412	5.3046	42.2829	6.2848	7.3706	9.0702	9.7731	1286.36
Slate Run	14	19.42	4.4589	1.6677	7.6214	5.204	41.1411	6.2806	7.384	8.9846	9.7752	1267.12
	14	19.83	4.4587	1.6534	7.5560	5.2183	40.7399	6.2983	7.4193	9.1155	9.7752	1267.12
Turkey Run	15	19.83	4.2012	1.5545	7.1041	5.012	38.3946	6.3875	7.442	9.0099	9.7814	1227.34
	15	26	4.1982	1.373	6.2746	5.1935	33.3093	6.8692	7.9379	9.9776	9.7814	1227.34

3mgd_cloudy_winter

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9781	1.784	8.2035	8.6785	9.1535	9.7154	542.11
	1	-0.4	0.1367	0.004	0.0183	1.9782	1.7167	9.0293	9.5294	10.6016	9.7154	542.11
	1	0	0.1366	0.0038	0.0174	1.9782	1.6518	9.1891	9.781	11.2141	9.7154	542.11
PMWWTF	2	0	4.9606	2.4599	11.2417	12.0588	48.9789	7.692	7.8844	8.2589	9.7239	1214.67
	2	0.5	4.96	2.4051	10.9913	12.1135	47.7347	7.4342	7.9083	9.046	9.7239	1214.67
	2	1	4.9595	2.3516	10.7468	12.167	46.5221	7.3512	7.9462	9.4216	9.7239	1214.67
	2	1.5	4.9589	2.2993	10.5078	12.2193	45.3403	7.3263	7.9902	9.5811	9.7239	1214.67
	2	2	4.9584	2.2481	10.2738	12.2705	44.1885	7.3372	8.0364	9.6553	9.7239	1214.67
	2	2.37	4.958	2.211	10.1043	12.3076	43.355	7.3581	8.071	9.6828	9.7239	1214.67
Wrights Run	3	2.37	4.4326	1.9647	8.9787	10.9415	38.7879	7.4177	8.1481	9.5232	9.7337	1139.56
	3	3	4.4314	1.8712	8.5514	11.035	36.6836	6.2037	7.0171	8.6029	9.7337	1139.56
	3	3.5	4.4305	1.8001	8.2265	11.106	35.0951	5.6518	6.5446	8.016	9.7337	1139.56
	3	4	4.4296	1.7318	7.9143	11.1743	33.5753	5.3499	6.3034	7.6119	9.7337	1139.56
	3	4.5	4.4286	1.666	7.6136	11.24	32.1214	5.2606	6.2096	7.4847	9.7337	1139.56
	3	5	4.4277	1.6028	7.3248	11.3032	30.7304	5.3153	6.2091	7.4782	9.7337	1139.56
	3	5.5	4.4268	1.542	7.0469	11.3641	29.3997	5.4169	6.2665	7.5101	9.7337	1139.56
	3	5.91	4.426	1.4938	6.8267	11.4122	28.3516	5.5116	6.3406	7.5781	9.7337	1139.56
falo Lick Run	4	5.91	4.152	1.3978	6.3879	10.7076	26.6374	5.7486	6.5599	7.6761	9.74	1099.98
	4	6.5	4.151	1.3282	6.0699	10.7772	25.1254	7.0285	7.9201	9.7116	9.74	1099.98
FCL	5	6.5	4.1423	1.4112	6.4492	10.381	25.8064	6.7124	7.6986	9.3462	9.7442	1105.01
	5	7	4.1416	1.3621	6.2248	10.4301	24.781	6.6094	7.8014	10.0955	9.7442	1105.01
	5	7.5	4.1409	1.3147	6.0082	10.4775	23.7963	6.6531	7.8992	10.376	9.7442	1105.01
	5	8.01	4.1401	1.268	5.7948	10.5242	22.8323	6.6175	7.9945	10.456	9.7442	1105.01
ır Spring Run	6	8.01	3.8437	1.1717	5.3547	9.8427	21.2064	6.5985	7.9811	10.1593	9.7527	1066.81
	6	8.5	3.843	1.1318	5.1723	9.8826	20.3811	6.7853	8.1749	10.4209	9.7527	1066.81
	6	9	3.8423	1.0925	4.9927	9.922	19.5721	6.9849	8.3185	10.6245	9.7527	1066.81
	6	9.5	3.8416	1.0545	4.8191	9.9599	18.7952	7.0593	8.4297	10.7493	9.7527	1066.81
	6	10	3.8408	1.0179	4.6518	9.9966	18.0491	7.1467	8.5212	10.8011	9.7527	1066.81
	6	10.5	3.8401	0.9825	4.4900	10.0319	17.3326	7.2499	8.6005	10.8899	9.7527	1066.81
	6	11	3.8394	0.9484	4.3342	10.0661	16.6446	7.3191	8.6717	10.9586	9.7527	1066.81
	6	11.62	3.8385	0.9077	4.1482	10.1067	15.8292	7.3948	8.7524	11.036	9.7527	1066.81
OWRF	7	11.62	5.2705	2.3665	10.8149	5.9114	59.1746	7.1473	7.5399	8.1239	9.7592	1383.59
	7	11.91	5.2703	2.3459	10.7208	5.932	58.5858	6.7668	7.3003	8.1893	9.7592	1383.59
brams Creek	8	11.91	5.0705	2.2548	10.3044	5.7785	56.3793	6.8218	7.3535	8.1802	9.7602	1354.89
	8	12.38	5.0702	2.2238	10.1628	5.8095	55.494	6.5417	7.2242	8.4743	9.7602	1354.89
edbud Creek	9	12.38	4.9945	2.1901	10.0088	5.7486	54.6813	6.5164	7.2344	8.4447	9.762	1344.04
	9	13.16	4.994	2.1435	9.7958	5.7952	53.3512	6.3217	7.1595	8.8259	9.762	1344.04
Marsh Creek	10	13.16	4.8636	2.0867	9.5362	5.6971	51.9758	6.2709	7.145	8.7172	9.7647	1324.36
	10	13.5	4.8634	2.0679	9.4503	5.7159	51.4412	5.885	6.8944	8.7843	9.7647	1324.36
	10	14	4.8631	2.0406	9.3255	5.7432	50.6649	5.4519	6.5822	8.8449	9.7647	1324.36
	10	14.5	4.8627	2.0137	9.2026	5.7701	49.9003	5.0945	6.3281	8.8463	9.7647	1324.36
	10	15	4.8624	1.9871	9.0810	5.7967	49.1473	4.8424	6.1235	8.8035	9.7647	1324.36
	10	15.51	4.8621	1.9603	8.9586	5.8235	48.3909	4.5939	5.958	8.7238	9.7647	1324.36
Lick Run	11	15.51	4.739	1.9092	8.7250	5.712	47.174	4.5501	6.0149	8.6069	9.7686	1303.91
	11	16	4.7387	1.8866	8.6218	5.7347	46.534	4.6405	6.0906	8.6395	9.7686	1303.91
	11	16.5	4.7384	1.8637	8.5171	5.7575	45.8899	4.7257	6.1634	8.6643	9.7686	1303.91
	11	17	4.7381	1.8411	8.4138	5.7801	45.2546	4.8357	6.2324	8.6723	9.7686	1303.91
	11	17.5	4.7378	1.8188	8.3119	5.8024	44.6282	4.9453	6.298	8.6773	9.7686	1303.91
	11	18.07	4.7375	1.7937	8.1972	5.8275	43.9247	5.0142	6.3694	8.701	9.7686	1303.91
NWRF	12	18.07	4.7354	1.7929	8.1936	5.8257	43.9057	4.8557	6.37	8.6115	9.7711	1303.6
	12	18.26	4.7353	1.7853	8.1588	5.8333	43.6925	5.2302	6.6415	8.7064	9.7711	1303.6
ɜarbrook Run	13	18.26	4.6811	1.7641	8.0619	5.78	43.1935	5.2696	6.6597	8.6977	9.7731	1295.05
	13	18.5	4.6809	1.7547	8.0190	5.7894	42.9307	5.5556	6.8726	8.7807	9.7731	1295.05
	13	19	4.6806	1.7354	7.9308	5.8088	42.3884	6.0648	7.2265	8.9821	9.7731	1295.05
	13	19.42	4.6804	1.7192	7.8567	5.8249	41.9381	6.3894	7.451	9.1347	9.7731	1295.05
Slate Run	14	19.42	4.5586	1.6729	7.6452	5.7142	40.8509	6.38	7.4617	9.0494	9.7752	1276.33
	14	19.83	4.5584	1.659	7.5816	5.7281	40.462	6.395	7.4951	9.1741	9.7752	1276.33
Turkey Run	15	19.83	4.3047	1.5635	7.1452	5.5	38.2201	6.4757	7.5126	9.0686	9.7814	1237.5
	15	26	4.3018	1.3848	6.3285	5.6787	33.2642	6.9353	7.9826	10.0023	9.7814	1237.5

3mgd_cloudy_winter_tw

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9781	1.784	8.2035	8.6785	9.1535	9.7154	542.11
	1	-0.4	0.1367	0.004	0.0183	1.9782	1.7167	9.0293	9.5294	10.6016	9.7154	542.11
	1	0	0.1366	0.0038	0.0174	1.9782	1.6518	9.1891	9.781	11.2141	9.7154	542.11
PMWWTF	2	0	4.2581	2.1086	9.6363	13.1126	48.9789	7.692	7.8844	8.2589	9.7239	1214.67
	2	0.5	4.2576	2.0617	9.4220	13.1595	47.7347	7.4595	7.9337	9.0713	9.7239	1214.67
	2	1	4.2571	2.0158	9.2122	13.2053	46.5221	7.3882	7.9832	9.4585	9.7239	1214.67
	2	1.5	4.2567	1.9709	9.0070	13.2501	45.3403	7.3683	8.0322	9.6231	9.7239	1214.67
	2	2	4.2562	1.9271	8.8068	13.294	44.1885	7.3811	8.0804	9.6992	9.7239	1214.67
	2	2.37	4.2558	1.8952	8.6611	13.3258	43.355	7.4024	8.1153	9.7271	9.7239	1214.67
Wrights Run	3	2.37	3.8088	1.6842	7.6968	11.846	38.7879	7.4571	8.1875	9.5626	9.7337	1139.56
	3	3	3.8078	1.604	7.3303	11.9261	36.6836	6.2735	7.0869	8.6728	9.7337	1139.56
	3	3.5	3.807	1.5431	7.0520	11.987	35.0951	5.7348	6.6276	8.0991	9.7337	1139.56
	3	4	3.8062	1.4845	6.7842	12.0455	33.5753	5.4401	6.3935	7.7021	9.7337	1139.56
	3	4.5	3.8055	1.4281	6.5264	12.1019	32.1214	5.354	6.303	7.5781	9.7337	1139.56
	3	5	3.8047	1.3739	6.2787	12.156	30.7304	5.4095	6.3033	7.5724	9.7337	1139.56
	3	5.5	3.8039	1.3218	6.0406	12.2082	29.3997	5.5103	6.3599	7.6035	9.7337	1139.56
	3	5.91	3.8032	1.2805	5.8519	12.2494	28.3516	5.6037	6.4327	7.6701	9.7337	1139.56
falo Lick Run	4	5.91	3.5694	1.1982	5.4758	11.4908	26.6374	5.8347	6.6461	7.7623	9.74	1099.98
	4	6.5	3.5685	1.1386	5.2034	11.5504	25.1254	7.082	7.9736	9.7651	9.74	1099.98
FCL	5	6.5	3.5832	1.2292	5.6174	11.1232	25.8064	6.7638	7.75	9.3976	9.7442	1105.01
	5	7	3.5826	1.1864	5.4218	11.166	24.781	6.662	7.8539	10.148	9.7442	1105.01
	5	7.5	3.5819	1.1451	5.2331	11.2073	23.7963	6.7056	7.9517	10.4285	9.7442	1105.01
	5	8.01	3.5813	1.1044	5.0471	11.2479	22.8323	6.6691	8.0461	10.5077	9.7442	1105.01
r Spring Run	6	8.01	3.3279	1.0207	4.6646	10.5107	21.2064	6.6462	8.0288	10.2069	9.7527	1066.81
	6	8.5	3.3273	0.9859	4.5056	10.5454	20.3811	6.8309	8.2204	10.4665	9.7527	1066.81
	6	9	3.3267	0.9516	4.3488	10.5797	19.5721	7.0286	8.3622	10.6682	9.7527	1066.81
	6	9.5	3.3261	0.9186	4.1980	10.6128	18.7952	7.1014	8.4717	10.7913	9.7527	1066.81
	6	10	3.3254	0.8866	4.0518	10.6447	18.0491	7.1872	8.5617	10.8416	9.7527	1066.81
	6	10.5	3.3248	0.8558	3.9110	10.6755	17.3326	7.2889	8.6395	10.9289	9.7527	1066.81
	6	11	3.3242	0.8261	3.7753	10.7052	16.6446	7.3567	8.7093	10.9962	9.7527	1066.81
	6	11.62	3.3234	0.7906	3.6130	10.7406	15.8292	7.4308	8.7884	11.072	9.7527	1066.81
OWRF	7	11.62	5.1337	2.3354	10.6728	6.0797	59.1746	7.1569	7.5494	8.1335	9.7592	1383.59
	7	11.91	5.1335	2.3151	10.5800	6.1	58.5858	6.7761	7.3096	8.1986	9.7592	1383.59
brams Creek	8	11.91	4.9391	2.2251	10.1687	5.94	56.3793	6.8307	7.3624	8.1892	9.7602	1354.89
	8	12.38	4.9388	2.1946	10.0293	5.9706	55.494	6.5498	7.2323	8.4824	9.7602	1354.89
edbud Creek	9	12.38	4.8651	2.1614	9.8776	5.9072	54.6813	6.5244	7.2424	8.4526	9.762	1344.04
	9	13.16	4.8646	2.1153	9.6669	5.9533	53.3512	6.3287	7.1666	8.8329	9.762	1344.04
Marsh Creek	10	13.16	4.7376	2.0593	9.4110	5.851	51.9758	6.2777	7.1519	8.724	9.7647	1324.36
	10	13.5	4.7374	2.0408	9.3265	5.8695	51.4412	5.8922	6.9016	8.7915	9.7647	1324.36
	10	14	4.7371	2.0138	9.2031	5.8964	50.6649	5.4595	6.5899	8.8526	9.7647	1324.36
	10	14.5	4.7368	1.9872	9.0815	5.923	49.9003	5.1026	6.3362	8.8543	9.7647	1324.36
	10	15	4.7364	1.961	8.9618	5.9493	49.1473	4.8507	6.1319	8.8119	9.7647	1324.36
	10	15.51	4.7361	1.9346	8.8411	5.9757	48.3909	4.6025	5.9666	8.7324	9.7647	1324.36
Lick Run	11	15.51	4.6163	1.8841	8.6103	5.8602	47.174	4.5584	6.0233	8.6153	9.7686	1303.91
	11	16	4.616	1.8618	8.5084	5.8826	46.534	4.6486	6.0988	8.6476	9.7686	1303.91
	11	16.5	4.6157	1.8392	8.4051	5.9051	45.8899	4.7336	6.1713	8.6722	9.7686	1303.91
	11	17	4.6154	1.8169	8.3032	5.9274	45.2546	4.8434	6.2401	8.68	9.7686	1303.91
	11	17.5	4.6152	1.7949	8.2027	5.9494	44.6282	4.9528	6.3055	8.6848	9.7686	1303.91
	11	18.07	4.6148	1.7702	8.0898	5.9742	43.9247	5.0215	6.3768	8.7083	9.7686	1303.91
NWRF	12	18.07	4.6128	1.7694	8.0862	5.9723	43.9057	4.863	6.3774	8.6189	9.7711	1303.6
	12	18.26	4.6127	1.7619	8.0519	5.9798	43.6925	5.237	6.6483	8.7132	9.7711	1303.6
arbrook Run	13	18.26	4.56	1.7409	7.9559	5.9248	43.1935	5.2763	6.6664	8.7044	9.7731	1295.05
	13	18.5	4.5598	1.7317	7.9139	5.9341	42.9307	5.5618	6.8788	8.787	9.7731	1295.05
	13	19	4.5596	1.7125	7.8261	5.9532	42.3884	6.0702	7.232	8.9875	9.7731	1295.05
	13	19.42	4.5593	1.6966	7.7535	5.9691	41.9381	6.3944	7.456	9.1397	9.7731	1295.05
Slate Run	14	19.42	4.4408	1.651	7.5451	5.8545	40.8509	6.3849	7.4665	9.0542	9.7752	1276.33
	14	19.83	4.4406	1.6372	7.4820	5.8682	40.462	6.3998	7.4999	9.1789	9.7752	1276.33
Turkey Run	15	19.83	4.1937	1.5429	7.0511	5.632	38.2201	6.4802	7.5171	9.0732	9.7814	1237.5
	15	26	4.1909	1.3666	6.2454	5.8083	33.2642	6.9393	7.9866	10.0063	9.7814	1237.5

43mgd_cloudy_winter

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9781	1.784	8.2035	8.6785	9.1535	9.7154	542.11
	1	-0.4	0.1367	0.004	0.0183	1.9782	1.7167	9.0293	9.5294	10.6016	9.7154	542.11
	1	0	0.1366	0.0038	0.0174	1.9782	1.6518	9.1891	9.781	11.2141	9.7154	542.11
PMWWTF	2	0	1.1909	0.7728	3.5317	0.7983	53.6501	7.5539	7.7014	7.9885	9.7239	1281.24
	2	0.5	1.1908	0.7581	3.4645	0.813	52.4859	7.5863	7.9873	8.9507	9.7239	1281.24
	2	1	1.1907	0.7436	3.3983	0.8273	51.3469	7.6345	8.1439	9.4229	9.7239	1281.24
	2	1.5	1.1906	0.7294	3.3334	0.8414	50.2326	7.671	8.2377	9.6322	9.7239	1281.24
	2	2	1.1905	0.7155	3.2698	0.8552	49.1425	7.7037	8.301	9.7214	9.7239	1281.24
	2	2.37	1.1904	0.7054	3.2237	0.8653	48.3511	7.7284	8.3375	9.7633	9.7239	1281.24
Wrights Run	3	2.37	1.1079	0.6438	2.9422	0.7955	44.3168	7.7213	8.3748	9.6235	9.7337	1216.26
	3	3	1.1076	0.6171	2.8201	0.822	42.2264	6.6398	7.3739	8.8431	9.7337	1216.26
	3	3.5	1.1075	0.5967	2.7269	0.8423	40.6377	6.1522	6.947	8.3805	9.7337	1216.26
	3	4	1.1073	0.5769	2.6364	0.8619	39.1088	5.8921	6.7205	8.037	9.7337	1216.26
	3	4.5	1.1071	0.5578	2.5491	0.8809	37.6375	5.7669	6.6225	7.862	9.7337	1216.26
	3	5	1.1069	0.5394	2.4651	0.8992	36.2215	5.7641	6.6061	7.8449	9.7337	1216.26
	3	5.5	1.1067	0.5215	2.3833	0.9169	34.8587	5.8282	6.6408	7.8715	9.7337	1216.26
	3	5.91	1.1065	0.5073	2.3184	0.931	33.7796	5.9021	6.6936	7.9111	9.7337	1216.26
falo Lick Run	4	5.91	1.0588	0.4815	2.2005	0.9086	32.1318	6.0624	6.8505	7.9633	9.74	1180.72
	4	6.5	1.0586	0.4604	2.1040	0.9295	30.5328	7.2465	8.0584	9.6844	9.74	1180.72
FCL	5	6.5	1.1514	0.5552	2.5373	0.9285	30.9064	6.9788	7.8757	9.386	9.7442	1182.16
	5	7	1.1513	0.5381	2.4591	0.9454	29.8258	6.704	7.8449	10.0585	9.7442	1182.16
	5	7.5	1.1511	0.5215	2.3833	0.9619	28.783	6.6569	7.8576	10.3451	9.7442	1182.16
	5	8.01	1.1509	0.5052	2.3088	0.9781	27.7568	6.5702	7.8976	10.4214	9.7442	1182.16
ır Spring Run	6	8.01	1.0969	0.4745	2.1685	1.0221	26.1187	6.5211	7.8928	10.1491	9.7527	1146.1
	6	8.5	1.0967	0.4601	2.1027	1.0364	25.2163	6.6295	8.0294	10.3373	9.7527	1146.1
	6	9	1.0965	0.4458	2.0373	1.0505	24.3277	6.7937	8.1426	10.4762	9.7527	1146.1
	6	9.5	1.0963	0.432	1.9742	1.0642	23.4703	6.8395	8.2384	10.5968	9.7527	1146.1
	6	10	1.0962	0.4186	1.9130	1.0775	22.6432	6.9096	8.3227	10.6376	9.7527	1146.1
	6	10.5	1.096	0.4056	1.8536	1.0904	21.8452	7.0024	8.399	10.7031	9.7527	1146.1
	6	11	1.0958	0.393	1.7960	1.1028	21.0753	7.0977	8.4696	10.7795	9.7527	1146.1
	6	11.62	1.0956	0.378	1.7275	1.1177	20.1583	7.1737	8.5511	10.8529	9.7527	1146.1
OWRF	7	11.62	4.3486	2.1221	9.6980	3.3892	58.0686	7.0871	7.5462	8.2256	9.7592	1390.13
	7	11.91	4.3484	2.1042	9.6162	3.4071	57.5104	6.7606	7.3434	8.2903	9.7592	1390.13
brams Creek	8	11.91	4.1934	2.0269	9.2629	3.3549	55.4628	6.8175	7.3921	8.2774	9.7602	1362.73
	8	12.38	4.1931	1.9999	9.1395	3.3818	54.6203	6.5967	7.3016	8.5551	9.7602	1362.73
edbud Creek	9	12.38	4.1341	1.9713	9.0088	3.359	53.8635	6.5752	7.3102	8.5163	9.762	1352.36
	9	13.16	4.1337	1.9306	8.8228	3.3996	52.5951	6.4347	7.2709	8.9011	9.762	1352.36
Marsh Creek	10	13.16	4.0317	1.8822	8.6017	3.3669	51.3103	6.3841	7.2544	8.7945	9.7647	1333.49
	10	13.5	4.0315	1.8658	8.5267	3.3833	50.799	6.0238	7.0228	8.8662	9.7647	1333.49
	10	14	4.0313	1.8419	8.4175	3.4072	50.0564	5.623	6.7343	8.9382	9.7647	1333.49
	10	14.5	4.031	1.8183	8.3096	3.4307	49.3246	5.2856	6.4994	8.9561	9.7647	1333.49
	10	15	4.0308	1.795	8.2032	3.454	48.6036	5.0498	6.3102	8.9322	9.7647	1333.49
	10	15.51	4.0305	1.7716	8.0962	3.4774	47.879	4.8408	6.157	8.8742	9.7647	1333.49
Lick Run	11	15.51	3.9343	1.7278	7.8960	3.4299	46.7364	4.7693	6.2061	8.7503	9.7686	1313.85
	11	16	3.934	1.7079	7.8051	3.4497	46.1217	4.8597	6.2799	8.7793	9.7686	1313.85
	11	16.5	3.9338	1.6878	7.7132	3.4698	45.5028	4.9446	6.3503	8.8105	9.7686	1313.85
	11	17	3.9336	1.668	7.6228	3.4896	44.8921	5.0512	6.4165	8.8235	9.7686	1313.85
	11	17.5	3.9333	1.6484	7.5332	3.5092	44.2897	5.1596	6.4793	8.8301	9.7686	1313.85
	11	18.07	3.9331	1.6263	7.4322	3.5312	43.6128	5.2282	6.5472	8.8507	9.7686	1313.85
NWRF	12	18.07	3.9315	1.6257	7.4294	3.5305	43.5948	5.0783	6.5477	8.7643	9.7711	1313.55
	12	18.26	3.9314	1.619	7.3988	3.5371	43.3897	5.4355	6.805	8.8467	9.7711	1313.55
ɜarbrook Run	13	18.26	3.889	1.6007	7.3152	3.5126	42.9191	5.4707	6.8204	8.8368	9.7731	1305.31
	13	18.5	3.8889	1.5924	7.2773	3.5209	42.6659	5.7431	7.0222	8.9091	9.7731	1305.31
	13	19	3.8886	1.5754	7.1996	3.5379	42.1432	6.227	7.3575	9.096	9.7731	1305.31
	13	19.42	3.8885	1.5612	7.1347	3.5521	41.709	6.5393	7.5701	9.2338	9.7731	1305.31
Slate Run	14	19.42	3.793	1.5212	6.9519	3.5054	40.6807	6.5238	7.5772	9.1484	9.7752	1287.24
	14	19.83	3.7928	1.5089	6.8957	3.5176	40.3049	6.5354	7.6083	9.2657	9.7752	1287.24
Turkey Run	15	19.83	3.5931	1.4261	6.5173	3.4222	38.175	6.6052	7.6187	9.1596	9.7814	1249.6
	15	26	3.5908	1.2673	5.7916	3.5808	33.3541	7.0358	8.0569	10.0516	9.7814	1249.6

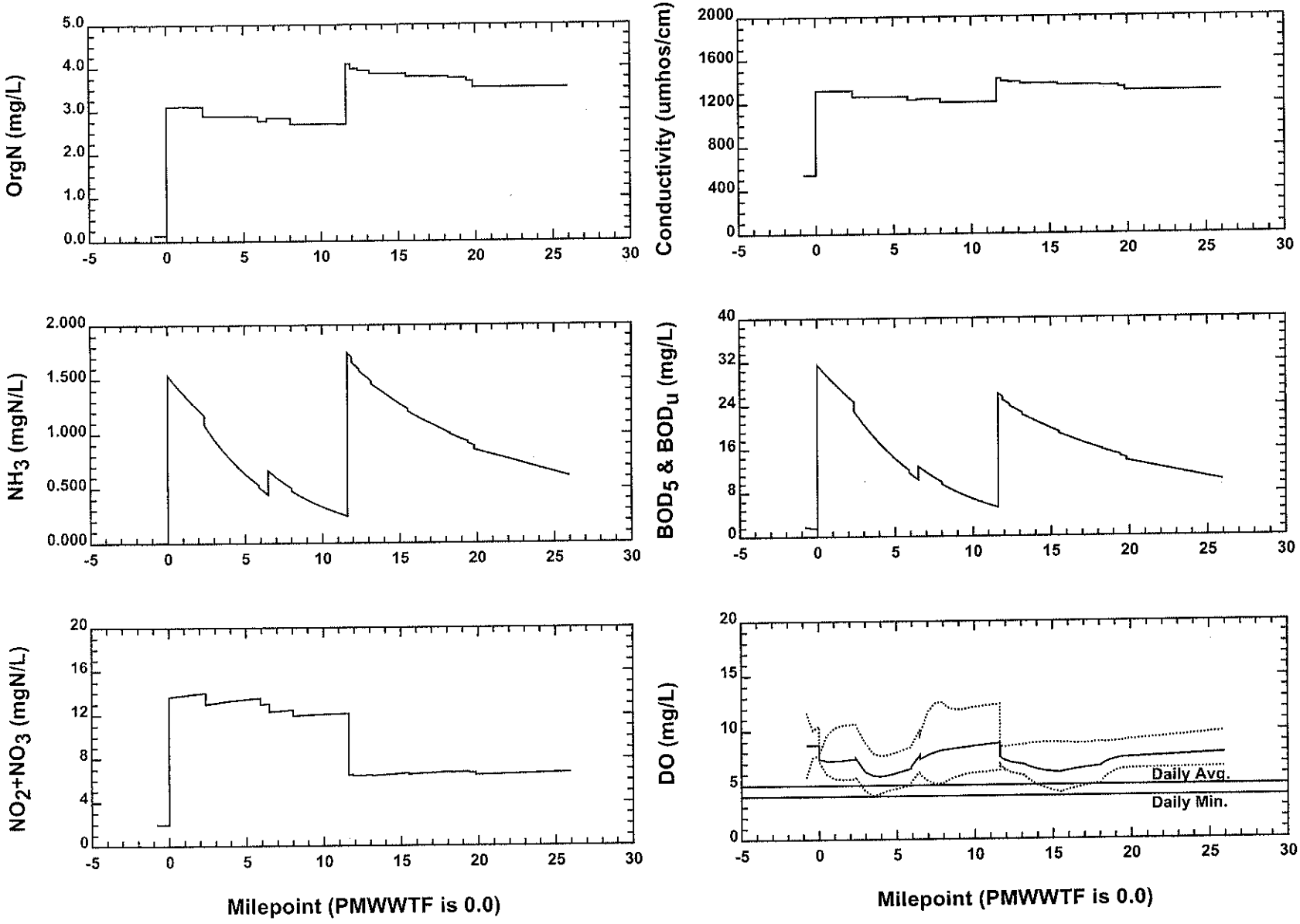
63mgd_cloudy_winter

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9781	1.784	8.2035	8.6785	9.1535	9.7154	542.11
	1	-0.4	0.1367	0.004	0.0183	1.9782	1.7167	9.0293	9.5294	10.6016	9.7154	542.11
	1	0	0.1366	0.0038	0.0174	1.9782	1.6518	9.1891	9.781	11.2141	9.7154	542.11
PMWWTF	2	0	1.2727	0.8329	3.8064	0.7194	57.712	7.4338	7.5422	7.7534	9.7239	1339.13
	2	0.5	1.2726	0.8197	3.7460	0.7325	56.6686	7.4977	7.8448	8.6777	9.7239	1339.13
	2	1	1.2725	0.8067	3.6866	0.7455	55.644	7.5587	8.0201	9.1817	9.7239	1339.13
	2	1.5	1.2724	0.7939	3.6281	0.7582	54.638	7.605	8.1276	9.4417	9.7239	1339.13
	2	2	1.2723	0.7813	3.5705	0.7707	53.6502	7.6402	8.1988	9.565	9.7239	1339.13
	2	2.37	1.2723	0.7721	3.5285	0.7799	52.9307	7.664	8.2383	9.6109	9.7239	1339.13
Wrights Run	3	2.37	1.2047	0.7213	3.2963	0.733	49.5904	7.6347	8.273	9.5152	9.7337	1286.38
	3	3	1.2045	0.696	3.1807	0.7581	47.6101	6.548	7.2687	8.7331	9.7337	1286.38
	3	3.5	1.2044	0.6765	3.0916	0.7775	46.0948	6.0328	6.7968	8.2474	9.7337	1286.38
	3	4	1.2042	0.6576	3.0052	0.7963	44.6278	5.7143	6.5143	7.8841	9.7337	1286.38
	3	4.5	1.204	0.6392	2.9211	0.8146	43.2075	5.5316	6.3609	7.6302	9.7337	1286.38
	3	5	1.2039	0.6213	2.8393	0.8324	41.8323	5.4553	6.2949	7.5224	9.7337	1286.38
	3	5.5	1.2037	0.6039	2.7598	0.8496	40.501	5.4618	6.2879	7.5179	9.7337	1286.38
	3	5.91	1.2036	0.59	2.6963	0.8634	39.4409	5.5058	6.3122	7.5386	9.7337	1286.38
falo Lick Run	4	5.91	1.1634	0.5671	2.5916	0.849	37.9619	5.6249	6.4469	7.5775	9.74	1256.52
	4	6.5	1.1632	0.5459	2.4948	0.87	36.3502	6.8502	7.6656	9.2172	9.74	1256.52
FCL	5	6.5	1.2319	0.6166	2.8179	0.8707	36.493	6.6518	7.5349	8.9893	9.7442	1255.75
	5	7	1.2317	0.6004	2.7438	0.8868	35.4008	6.541	7.5944	9.6071	9.7442	1255.75
	5	7.5	1.2316	0.5846	2.6716	0.9025	34.3412	6.5721	7.6595	9.9289	9.7442	1255.75
	5	8.01	1.2314	0.5689	2.5999	0.9181	33.2931	6.5768	7.7287	10.0592	9.7442	1255.75
ir Spring Run	6	8.01	1.1854	0.5418	2.4760	0.9553	31.7439	6.501	7.7332	9.8517	9.7527	1224.02
	6	8.5	1.1852	0.5276	2.4111	0.9694	30.7969	6.6241	7.8681	10.0486	9.7527	1224.02
	6	9	1.185	0.5135	2.3467	0.9834	29.8597	6.7886	7.9775	10.1812	9.7527	1224.02
	6	9.5	1.1849	0.4998	2.2841	0.9971	28.951	6.8482	8.0686	10.2847	9.7527	1224.02
	6	10	1.1847	0.4864	2.2228	1.0103	28.0699	6.8948	8.1477	10.3338	9.7527	1224.02
	6	10.5	1.1846	0.4734	2.1634	1.0233	27.2157	6.9689	8.2188	10.3837	9.7527	1224.02
	6	11	1.1844	0.4607	2.1054	1.0358	26.3874	7.0473	8.2842	10.4574	9.7527	1224.02
	6	11.62	1.1842	0.4455	2.0359	1.0509	25.3953	7.1357	8.3598	10.5285	9.7527	1224.02
OWRF	7	11.62	4.1214	2.0075	9.1743	3.184	56.943	7.0663	7.557	8.3143	9.7592	1398.89
	7	11.91	4.1212	1.9914	9.1007	3.2001	56.4221	6.7886	7.3916	8.3987	9.7592	1398.89
brams Creek	8	11.91	3.9859	1.9239	8.7922	3.1589	54.5691	6.8401	7.4349	8.3822	9.7602	1373.3
	8	12.38	3.9856	1.8995	8.6807	3.1833	53.7788	6.6761	7.3832	8.6507	9.7602	1373.3
edbud Creek	9	12.38	3.9338	1.8744	8.5660	3.1648	53.0907	6.655	7.39	8.6061	9.762	1363.57
	9	13.16	3.9335	1.8375	8.3974	3.2017	51.8977	6.565	7.3857	8.9791	9.762	1363.57
Marsh Creek	10	13.16	3.8437	1.7948	8.2022	3.176	50.7245	6.513	7.3677	8.8764	9.7647	1345.85
	10	13.5	3.8436	1.7798	8.1337	3.191	50.2418	6.1808	7.1549	8.9487	9.7647	1345.85
	10	14	3.8433	1.7581	8.0345	3.2127	49.5403	5.8088	6.8897	9.0271	9.7647	1345.85
	10	14.5	3.8431	1.7366	7.9363	3.2342	48.8486	5.4943	6.6735	9.0575	9.7647	1345.85
	10	15	3.8429	1.7154	7.8394	3.2554	48.1666	5.2718	6.499	9.0498	9.7647	1345.85
	10	15.51	3.8426	1.694	7.7416	3.2767	47.4807	5.0948	6.3576	9.012	9.7647	1345.85
Lick Run	11	15.51	3.7577	1.6551	7.5638	3.2373	46.4302	5.0003	6.3985	8.8921	9.7686	1327.35
	11	16	3.7575	1.6369	7.4806	3.2555	45.8463	5.0884	6.4694	8.9191	9.7686	1327.35
	11	16.5	3.7573	1.6185	7.3965	3.2738	45.258	5.1745	6.5367	8.9405	9.7686	1327.35
	11	17	3.7571	1.6003	7.3134	3.292	44.6773	5.275	6.5995	8.9591	9.7686	1327.35
	11	17.5	3.7569	1.5823	7.2311	3.31	44.104	5.3806	6.6587	8.9679	9.7686	1327.35
	11	18.07	3.7566	1.5621	7.1388	3.3302	43.4595	5.4537	6.7223	8.9852	9.7686	1327.35
NWRF	12	18.07	3.7552	1.5615	7.1361	3.3296	43.4429	5.311	6.7227	8.9027	9.7711	1327.06
	12	18.26	3.7551	1.5553	7.1077	3.3357	43.2475	5.6503	6.9658	8.9733	9.7711	1327.06
arbrook Run	13	18.26	3.7176	1.539	7.0332	3.3151	42.8122	5.6811	6.9784	8.9629	9.7731	1319.27
	13	18.5	3.7175	1.5315	6.9990	3.3227	42.5706	5.9395	7.169	9.0328	9.7731	1319.27
	13	19	3.7173	1.5157	6.9267	3.3383	42.0717	6.397	7.4854	9.199	9.7731	1319.27
	13	19.42	3.7172	1.5027	6.8673	3.3514	41.6571	6.6967	7.6859	9.3204	9.7731	1319.27
Slate Run	14	19.42	3.6325	1.4669	6.7037	3.3127	40.702	6.675	7.6897	9.2367	9.7752	1302.13
	14	19.83	3.6323	1.4556	6.6521	3.3241	40.3419	6.6834	7.7178	9.3439	9.7752	1302.13
Turkey Run	15	19.83	3.4542	1.381	6.3112	3.245	38.3515	6.7405	7.7219	9.24	9.7814	1266.22
	15	26	3.452	1.233	5.6348	3.3927	33.6914	7.1374	8.1212	10.0787	9.7814	1266.22

76mgd_cloudy_winter

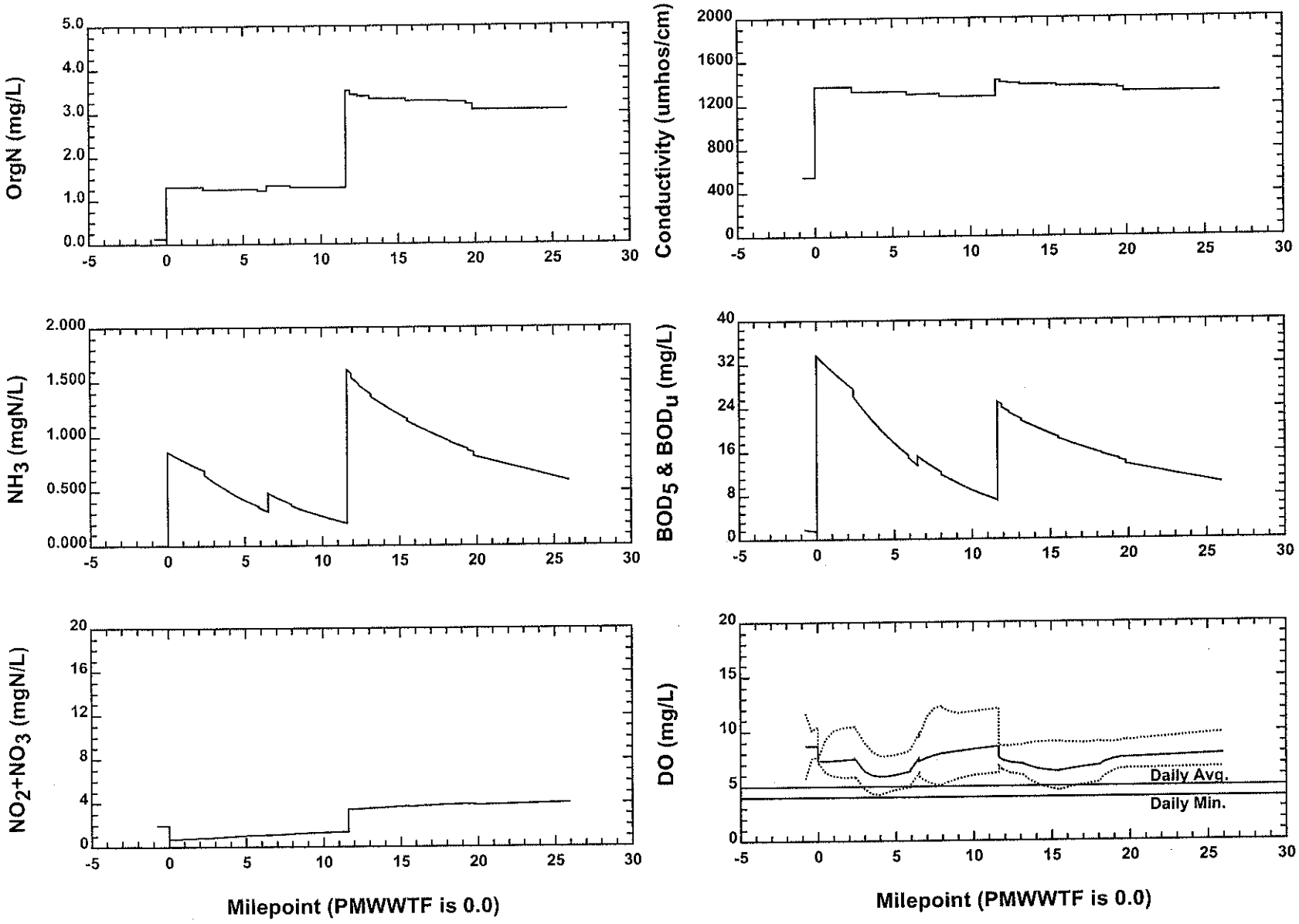
	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NBODu (mg/L) - calc	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)
Upstream	1	-0.8	0.1367	0.0042	0.0192	1.9781	1.784	8.2035	8.6785	9.1535	9.7154	542.11
	1	-0.4	0.1367	0.004	0.0183	1.9782	1.7167	9.0293	9.5294	10.6016	9.7154	542.11
	1	0	0.1366	0.0038	0.0174	1.9782	1.6518	9.1891	9.781	11.2141	9.7154	542.11
PMWWTF	2	0	1.306	0.8574	3.9183	0.6872	59.3651	7.3849	7.4775	7.6577	9.7239	1362.69
	2	0.5	1.3059	0.845	3.8617	0.6996	58.3883	7.5401	7.8537	8.6063	9.7239	1362.69
	2	1	1.3058	0.8328	3.8059	0.7117	57.4275	7.6452	8.066	9.1245	9.7239	1362.69
	2	1.5	1.3057	0.8208	3.7511	0.7237	56.4826	7.7146	8.191	9.3977	9.7239	1362.69
	2	2	1.3056	0.8089	3.6967	0.7355	55.5532	7.7607	8.2695	9.5349	9.7239	1362.69
	2	2.37	1.3056	0.8002	3.6569	0.7441	54.8753	7.7876	8.3107	9.5889	9.7239	1362.69
Wrights Run	3	2.37	1.2455	0.7549	3.4499	0.7057	51.8854	7.7424	8.3365	9.5029	9.7337	1315.88
	3	3	1.2453	0.7306	3.3388	0.7298	49.9869	6.6961	7.3672	8.7602	9.7337	1315.88
	3	3.5	1.2451	0.7119	3.2534	0.7484	48.5297	6.2039	6.9075	8.2922	9.7337	1315.88
	3	4	1.245	0.6936	3.1698	0.7666	47.115	5.888	6.6284	7.967	9.7337	1315.88
	3	4.5	1.2448	0.6759	3.0889	0.7842	45.7416	5.7202	6.4725	7.7311	9.7337	1315.88
	3	5	1.2447	0.6585	3.0093	0.8014	44.4081	5.6218	6.4004	7.6024	9.7337	1315.88
	3	5.5	1.2445	0.6417	2.9326	0.8182	43.1136	5.6097	6.3848	7.5784	9.7337	1315.88
	3	5.91	1.2444	0.6282	2.8709	0.8316	42.0803	5.637	6.401	7.5965	9.7337	1315.88
falo Lick Run	4	5.91	1.2082	0.607	2.7740	0.8202	40.7087	5.7177	6.5147	7.6235	9.74	1289
	4	6.5	1.208	0.5861	2.6785	0.8409	39.1198	6.9152	7.6893	9.1605	9.74	1289
FCL	5	6.5	1.2668	0.6468	2.9559	0.8421	39.1843	6.735	7.5751	8.959	9.7442	1287.63
	5	7	1.2667	0.6311	2.8841	0.8577	38.1046	6.6305	7.6177	9.52	9.7442	1287.63
	5	7.5	1.2665	0.6158	2.8142	0.8729	37.0546	6.6439	7.6697	9.8261	9.7442	1287.63
	5	8.01	1.2664	0.6006	2.7447	0.888	36.0134	6.6631	7.7281	9.9727	9.7442	1287.63
ır Spring Run	6	8.01	1.2245	0.5756	2.6305	0.9219	34.5409	6.5703	7.7321	9.7842	9.7527	1258.49
	6	8.5	1.2244	0.5616	2.5665	0.9357	33.5887	6.6849	7.8509	9.9699	9.7527	1258.49
	6	9	1.2242	0.5477	2.5030	0.9495	32.644	6.8344	7.9484	10.0844	9.7527	1258.49
	6	9.5	1.2241	0.5342	2.4413	0.9629	31.7259	6.9026	8.0305	10.1822	9.7527	1258.49
	6	10	1.224	0.521	2.3810	0.9761	30.8336	6.9384	8.1026	10.2281	9.7527	1258.49
	6	10.5	1.2238	0.5081	2.3220	0.9888	29.9665	6.9938	8.1679	10.2719	9.7527	1258.49
	6	11	1.2237	0.4956	2.2649	1.0013	29.1237	7.067	8.2284	10.3376	9.7527	1258.49
	6	11.62	1.2235	0.4804	2.1954	1.0163	28.1115	7.1493	8.2987	10.4097	9.7527	1258.49
OWRF	7	11.62	3.9925	1.9445	8.8864	3.0656	56.4612	7.069	7.5724	8.3727	9.7592	1403.86
	7	11.91	3.9923	1.9294	8.8174	3.0807	55.96	6.8154	7.4253	8.4607	9.7592	1403.86
brams Creek	8	11.91	3.8676	1.8671	8.5326	3.0453	54.2102	6.8633	7.4654	8.4425	9.7602	1379.33
	8	12.38	3.8674	1.8441	8.4275	3.0683	53.4475	6.727	7.432	8.7046	9.7602	1379.33
edbud Creek	9	12.38	3.8195	1.8208	8.3211	3.0522	52.7958	6.7061	7.4378	8.6587	9.762	1369.98
	9	13.16	3.8192	1.786	8.1620	3.087	51.6429	6.6403	7.4498	9.0215	9.762	1369.98
Marsh Creek	10	13.16	3.7361	1.7464	7.9810	3.065	50.5292	6.5878	7.4312	8.9213	9.7647	1352.92
	10	13.5	3.7359	1.7323	7.9166	3.0792	50.0617	6.2705	7.228	8.9929	9.7647	1352.92
	10	14	3.7357	1.7117	7.8225	3.0997	49.382	5.9113	6.9746	9.0732	9.7647	1352.92
	10	14.5	3.7355	1.6913	7.7292	3.1201	48.7115	5.6111	6.7678	9.1091	9.7647	1352.92
	10	15	3.7353	1.6712	7.6374	3.1401	48.0502	5.3951	6.6009	9.1089	9.7647	1352.92
	10	15.51	3.7351	1.6509	7.5446	3.1604	47.3849	5.2255	6.4653	9.0808	9.7647	1352.92
Lick Run	11	15.51	3.6563	1.6148	7.3796	3.1253	46.3836	5.128	6.502	8.9637	9.7686	1335.1
	11	16	3.6561	1.5975	7.3006	3.1425	45.816	5.2141	6.5711	8.9945	9.7686	1335.1
	11	16.5	3.6559	1.58	7.2206	3.16	45.2441	5.3009	6.6364	9.0041	9.7686	1335.1
	11	17	3.6557	1.5627	7.1415	3.1772	44.6792	5.3973	6.6972	9.0258	9.7686	1335.1
	11	17.5	3.6555	1.5457	7.0638	3.1943	44.1214	5.5005	6.7542	9.0361	9.7686	1335.1
	11	18.07	3.6553	1.5264	6.9756	3.2135	43.494	5.5778	6.8154	9.0522	9.7686	1335.1
NWRF	12	18.07	3.654	1.5258	6.9729	3.213	43.4782	5.4375	6.8158	8.9718	9.7711	1334.82
	12	18.26	3.6539	1.52	6.9464	3.2188	43.2879	5.7671	7.0513	9.0371	9.7711	1334.82
;arbrook Run	13	18.26	3.6191	1.5048	6.8769	3.2002	42.8715	5.7956	7.0625	9.026	9.7731	1327.3
	13	18.5	3.619	1.4976	6.8440	3.2075	42.6361	6.0465	7.247	9.0975	9.7731	1327.3
	13	19	3.6188	1.4826	6.7755	3.2224	42.1497	6.4897	7.5533	9.2512	9.7731	1327.3
	13	19.42	3.6187	1.4702	6.7188	3.2348	41.7455	6.7827	7.7472	9.3638	9.7731	1327.3
Slate Run	14	19.42	3.5399	1.4367	6.5657	3.2005	40.8298	6.7558	7.7494	9.2814	9.7752	1310.72
	14	19.83	3.5397	1.4259	6.5164	3.2113	40.4781	6.7648	7.7759	9.3827	9.7752	1310.72
Turkey Run	15	19.83	3.3735	1.3558	6.1960	3.141	38.5631	6.8133	7.7769	9.2807	9.7814	1275.87
	15	26	3.3715	1.214	5.5480	3.2827	33.987	7.1931	8.1544	10.0886	9.7814	1275.87

ATTACHMENT 2
GRAPHICAL MODEL OUTPUT



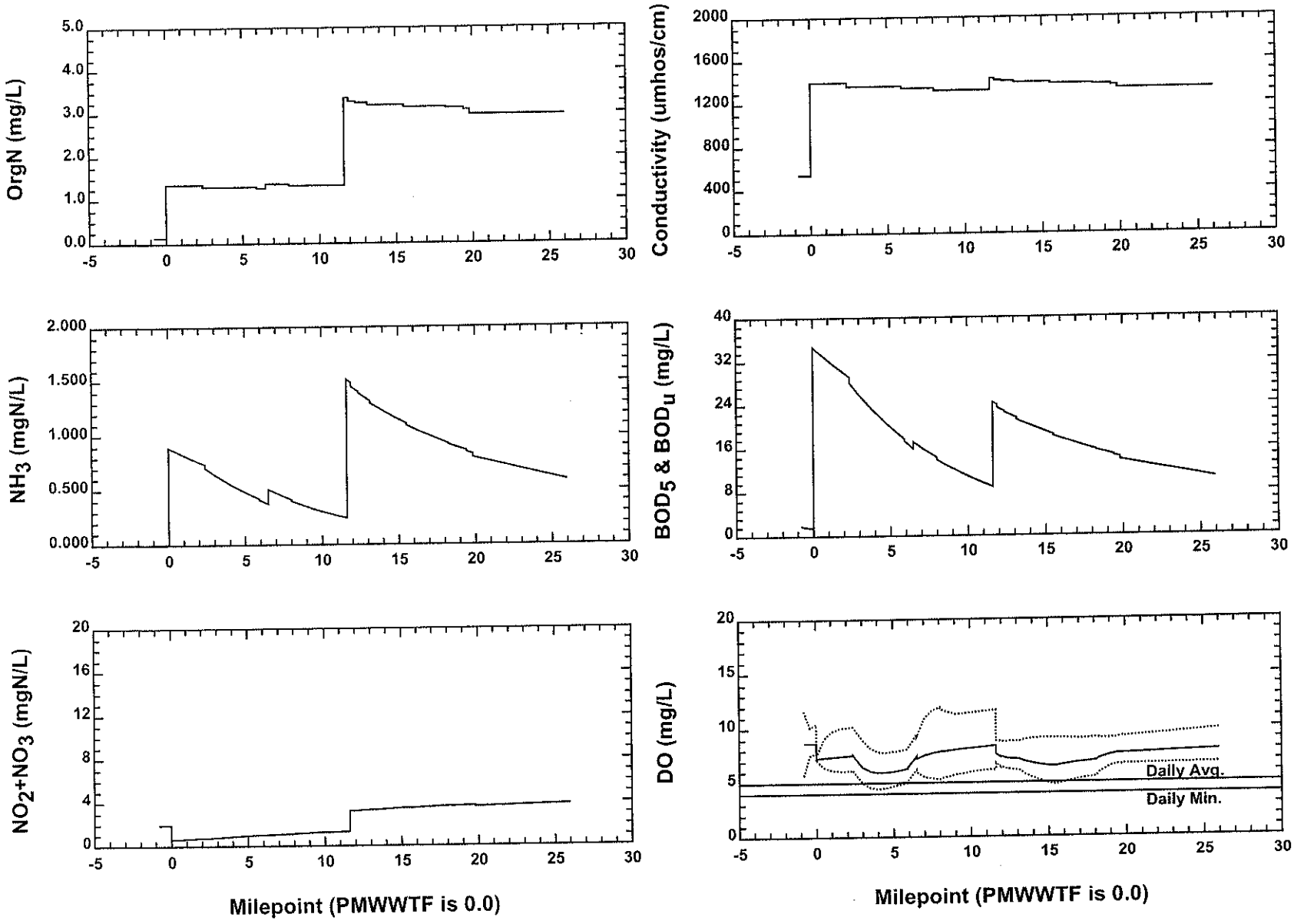
PMWWTF Water Quality Projections - 2 MGD, Summer Dry Creek Flow, Sunny

DATE: 6/22/2005 TIME: 14:19: 1 /usersm/obag0060/HEIDI/MODEL/PROJECTION/DRY_LOW_FLOW/CLOUDY/2mgd.gdp



PMWWTF Water Quality Projections - 3 MGD, Summer Dry Creek Flow, Sunny

DATE: 6/22/2005 TIME: 14:15: 6 /usersm/obag0060/HEIDI/MODEL/PROJECTION/DRY_LOW_FLOW/CLOUDY/3mgd.gdp



PMWWTF Water Quality Projections - 4 MGD, Summer Dry Creek Flow, Sunny

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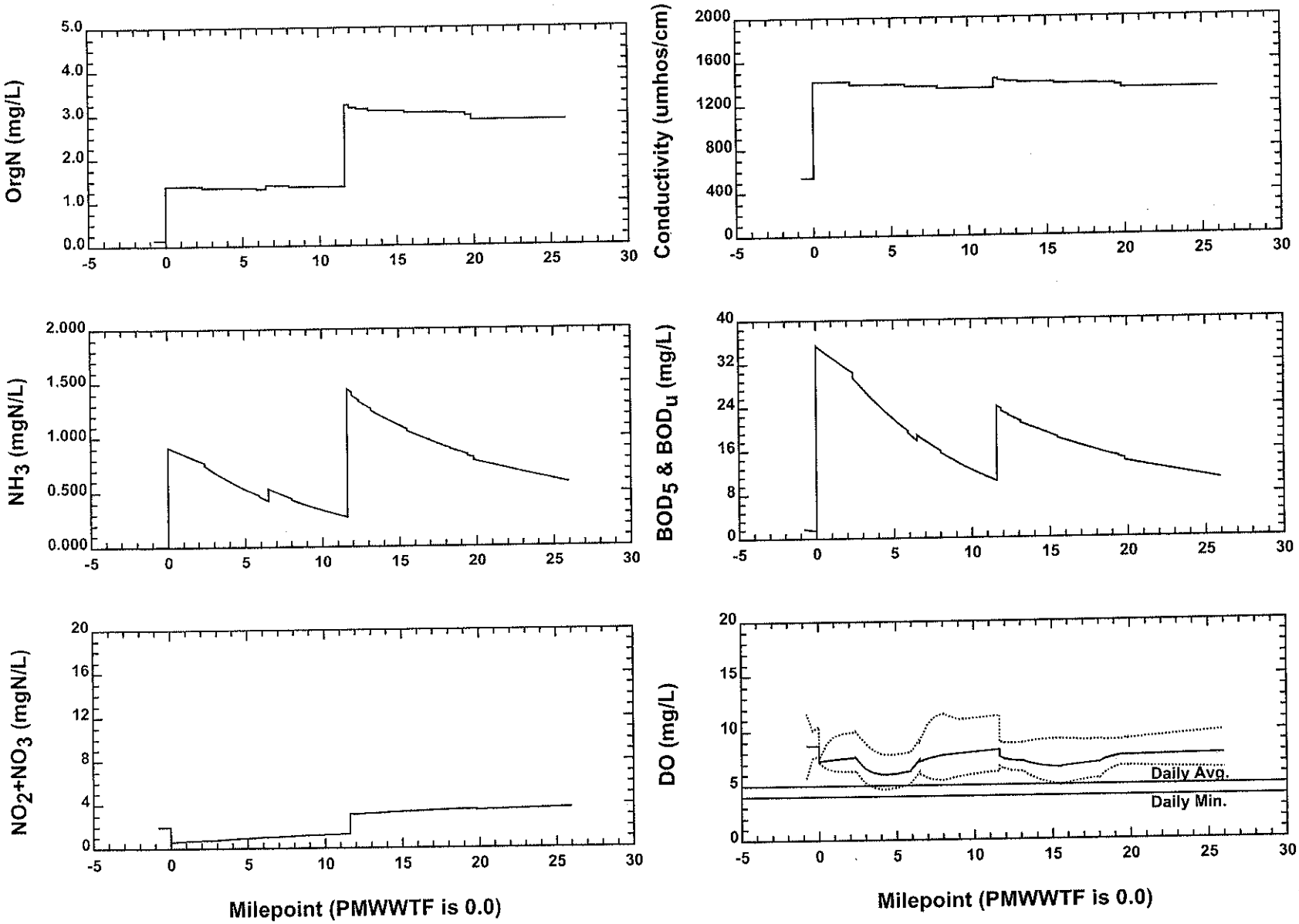
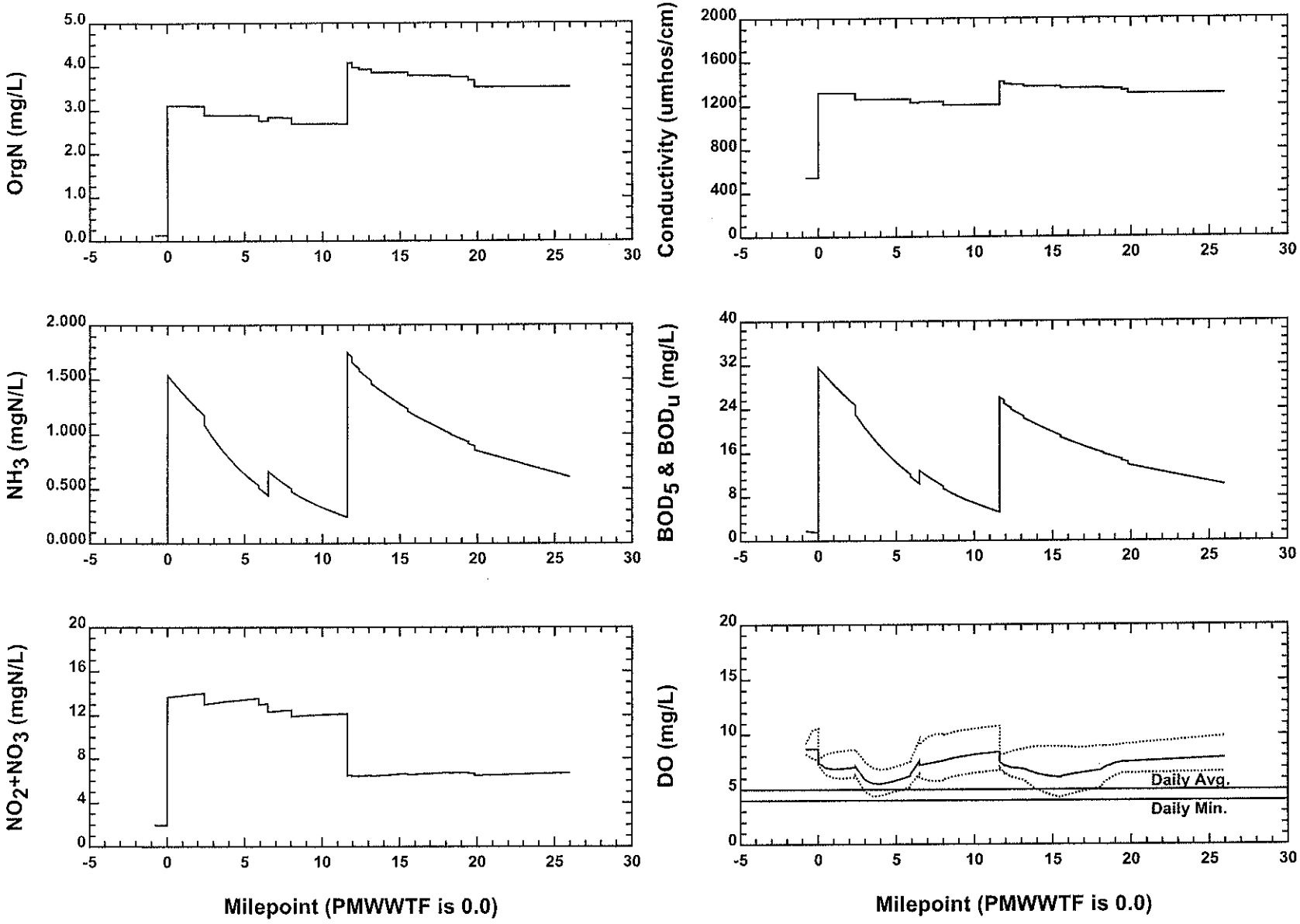


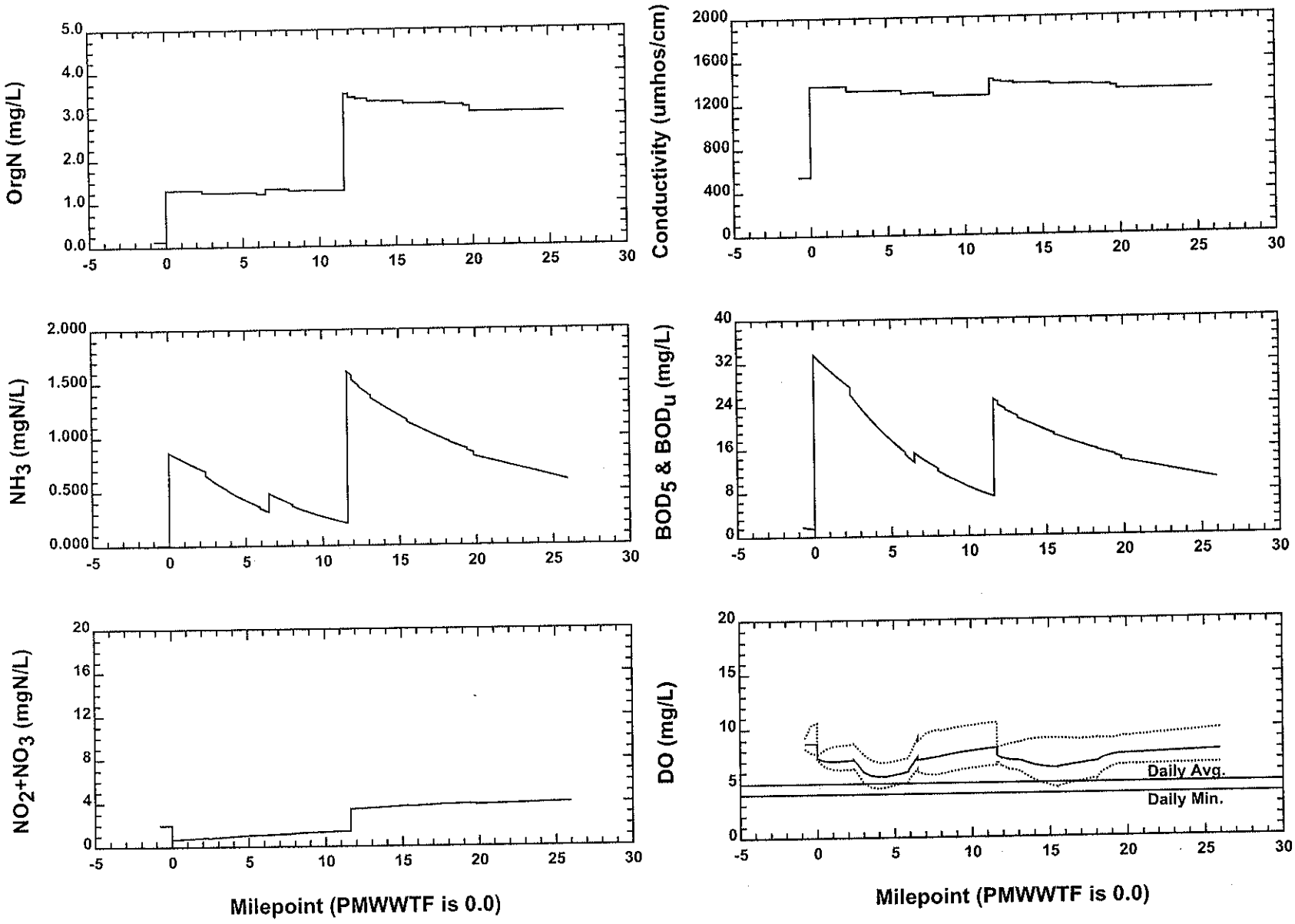
PMWWTF Water Quality Projections - 5 MGD, Summer Dry Creek Flow, Sunny

DATE: 6/22/2005 TIME: 14:24: 5 /usersm/obag0060/HEIDI/MODEL/PROJECTION/DRY_LOW_FLOW/CLOUDY/5mgd.gdp



PMWWTF Water Quality Projections - 2 MGD, Summer Dry Creek Flow, Cloudy

DATE: 6/22/2005 TIME: 13: 4:42 /usersm/obag0060/HEIDI/MODEL/PROJECTION/DRY_LOW_FLOW/CLOUDY/2mgd_cl.gdp



PMWWTF Water Quality Projections - 3 MGD, Summer Dry Creek Flow, Cloudy

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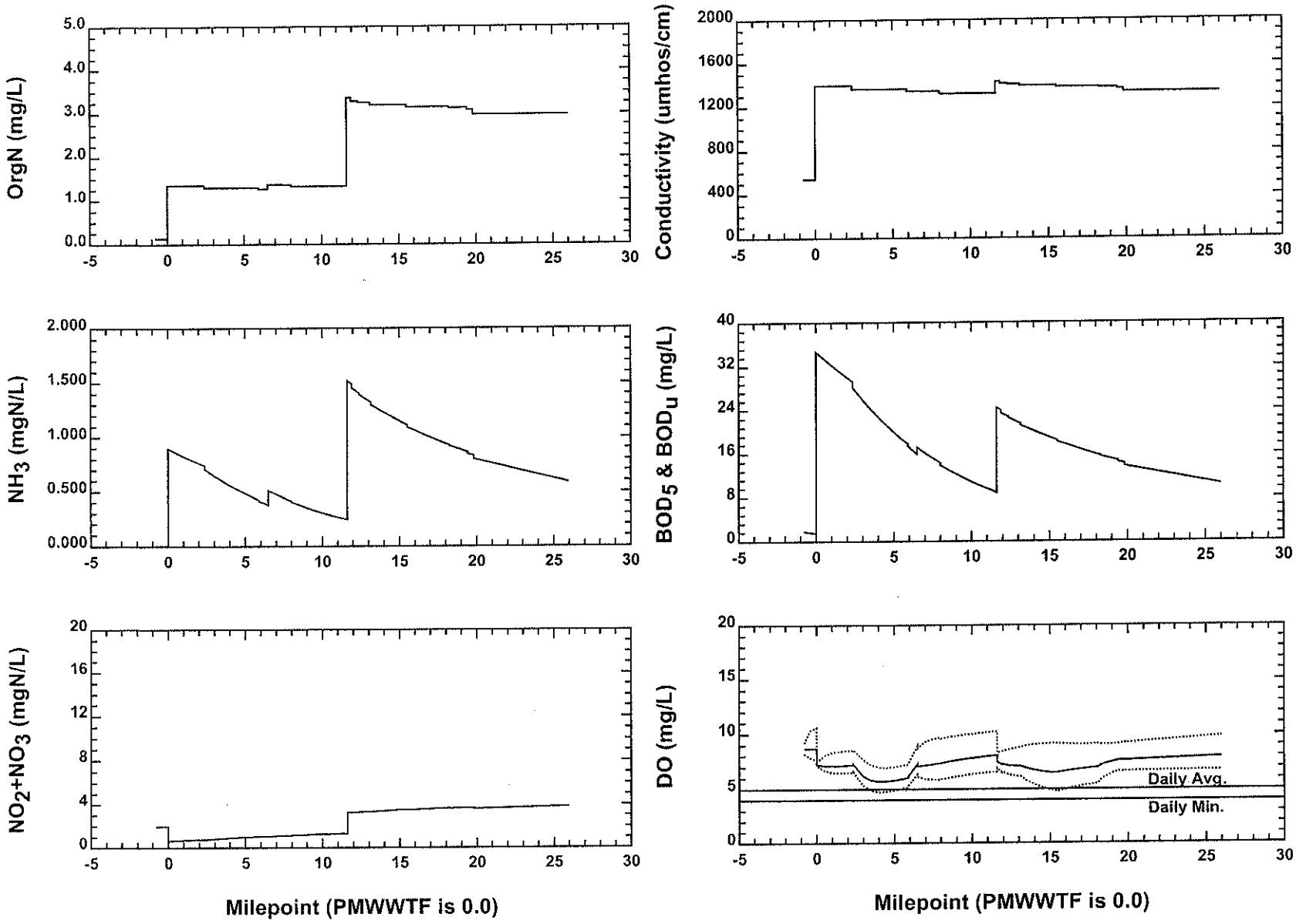

PMWWTF Water Quality Projections - 4 MGD, Summer Dry Creek Flow, Cloudy

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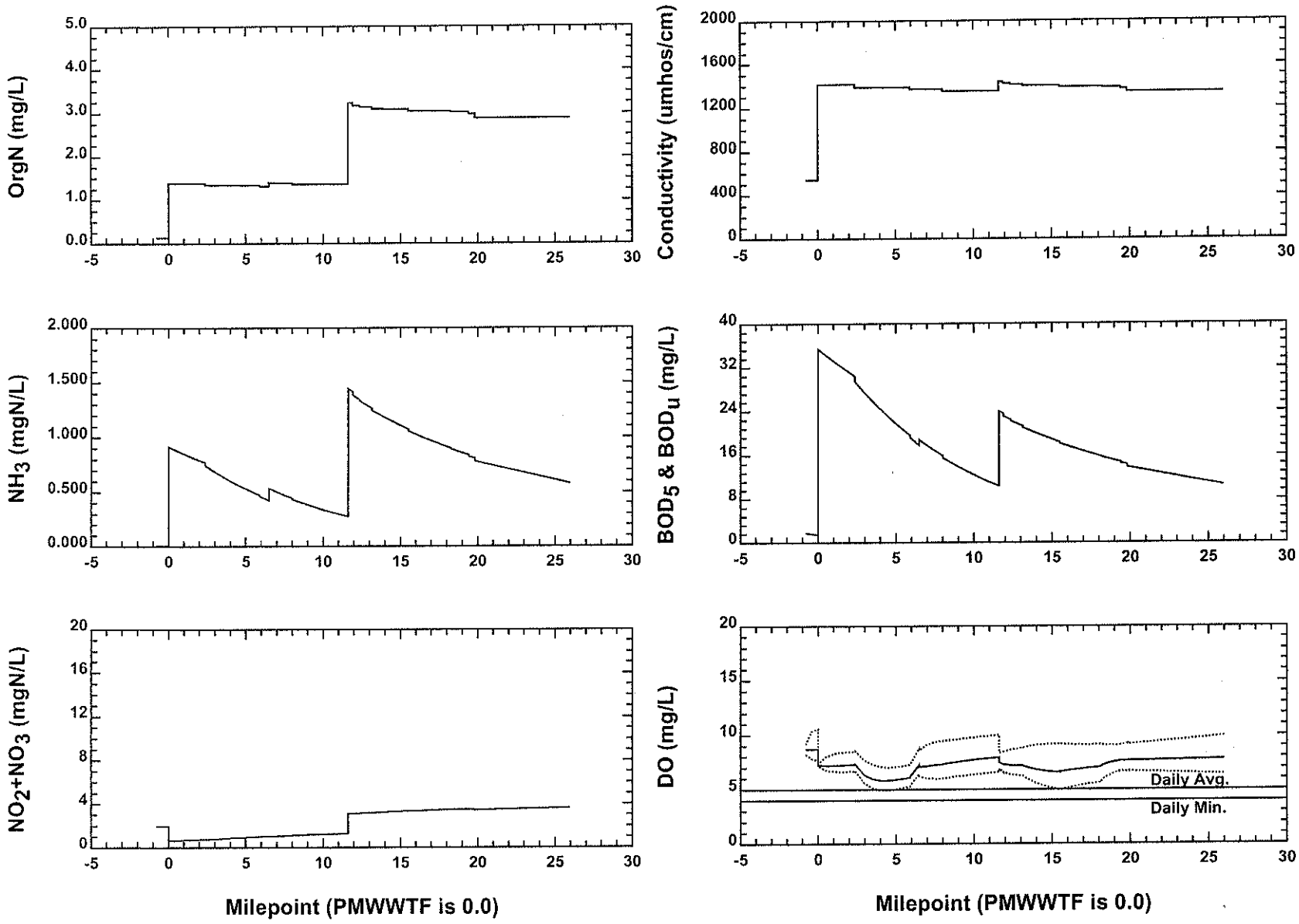

PMWWTF Water Quality Projections - 5 MGD, Summer Dry Creek Flow, Cloudy

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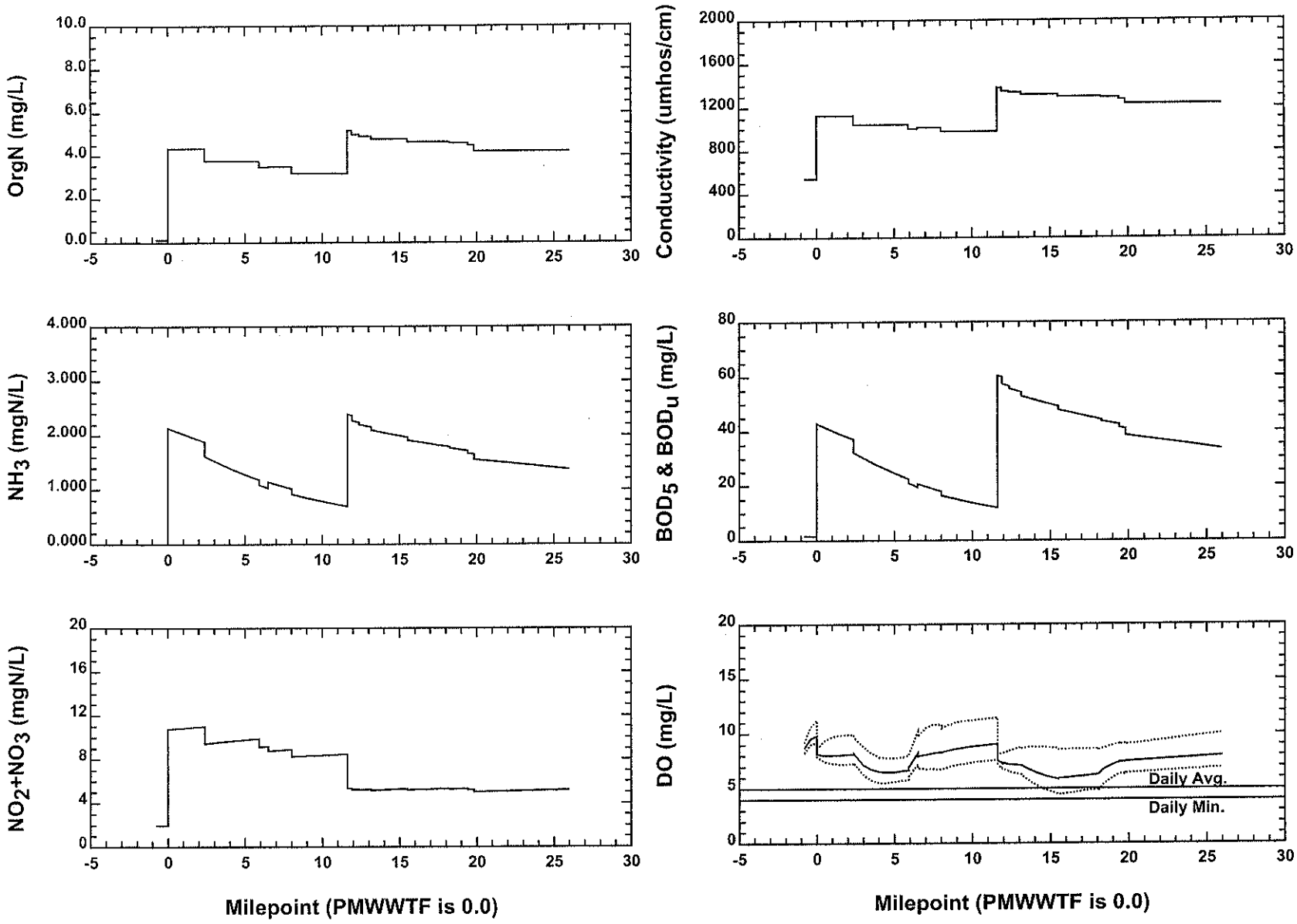
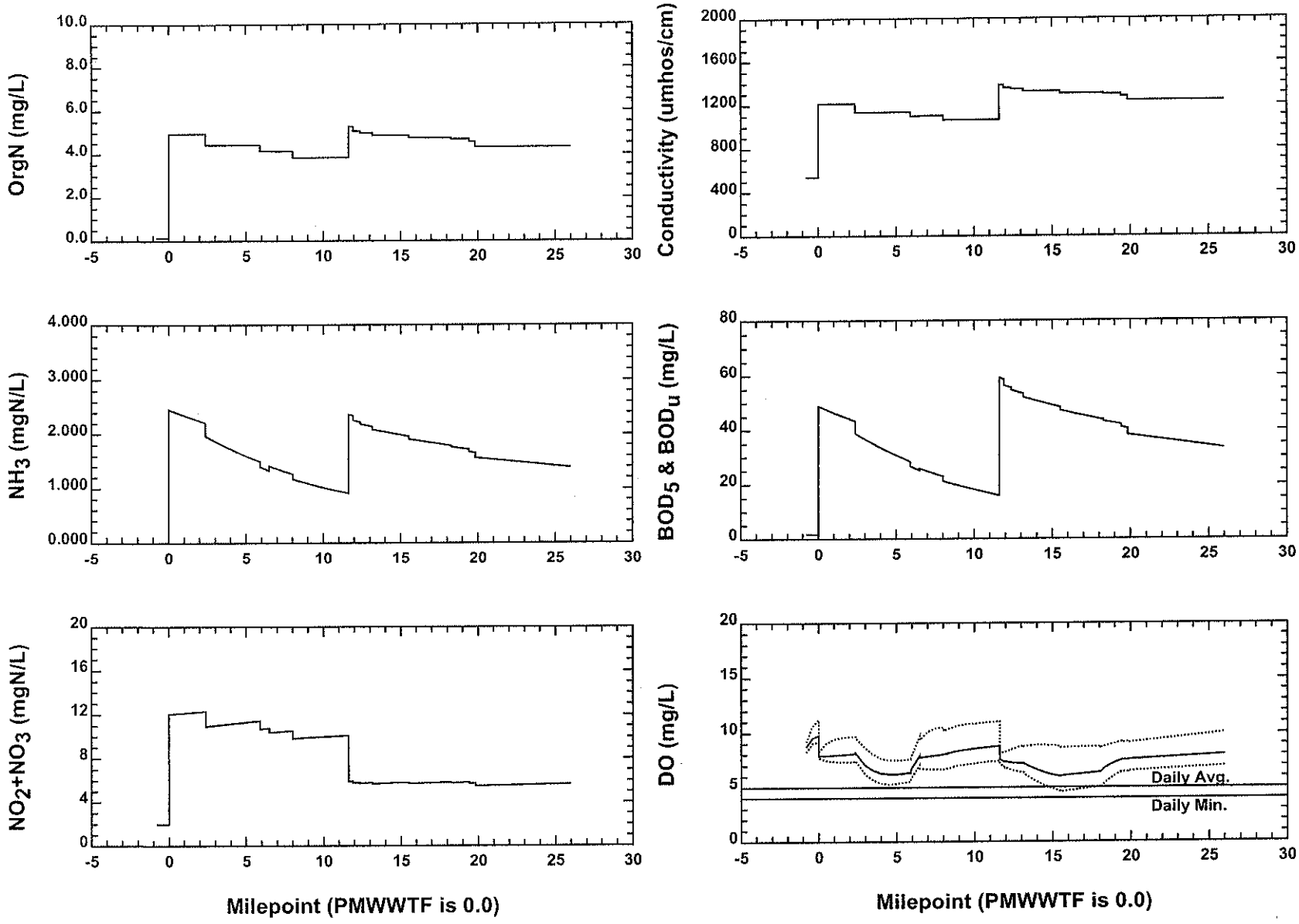


PMWWTF Water Quality Projections - 2 MGD, Winter Dry Creek Flow, Cloudy

DATE: 7/03/2005 TIME: 18:34:47 /usersm/obag0060/HEIDI/MODEL/PROJECTION/WET_LOW_FLOW/CLOUDY/2mgd_cl.gdp



PMWWTF Water Quality Projections - 3 MGD, Winter Dry Creek Flow, Cloudy

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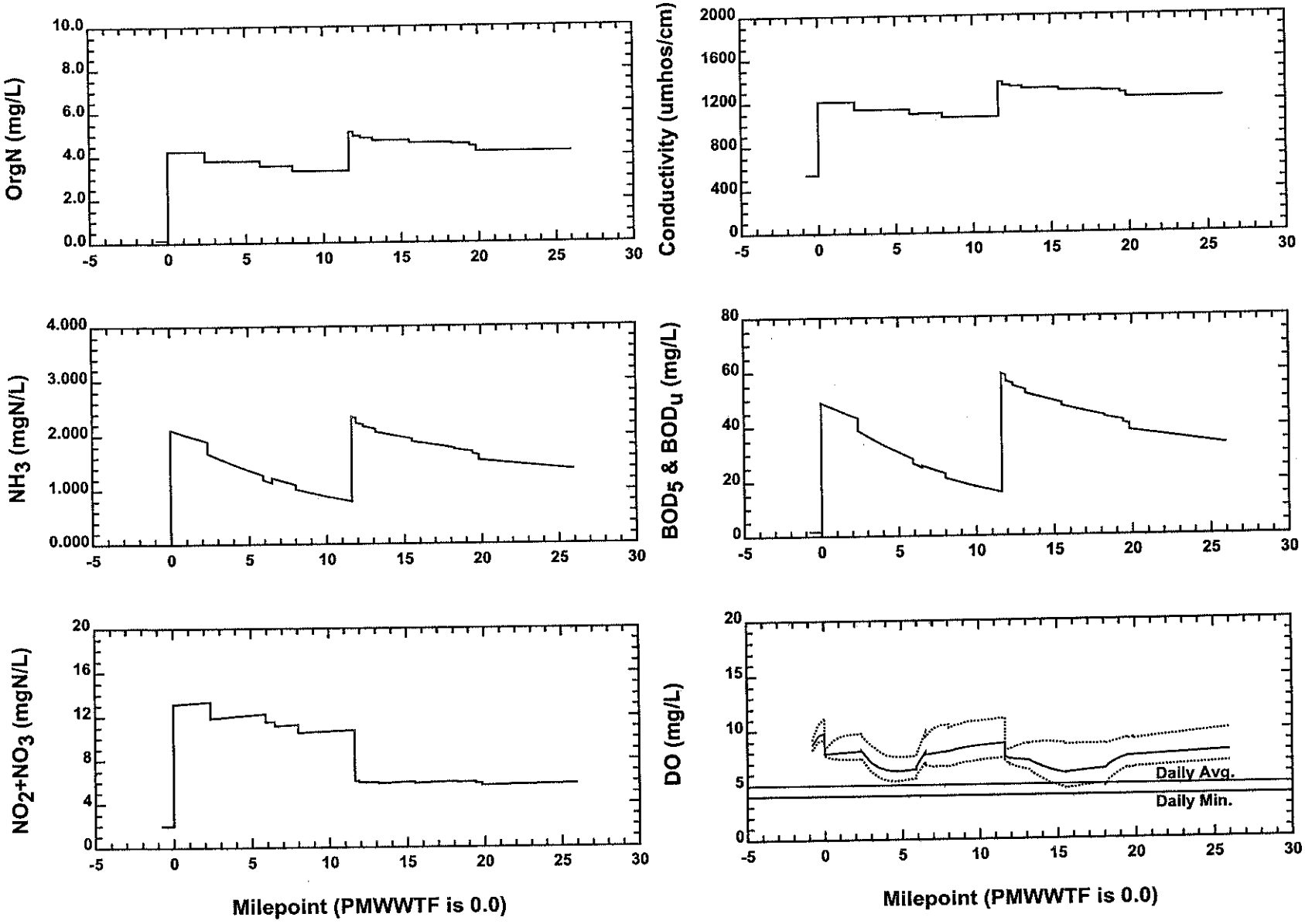
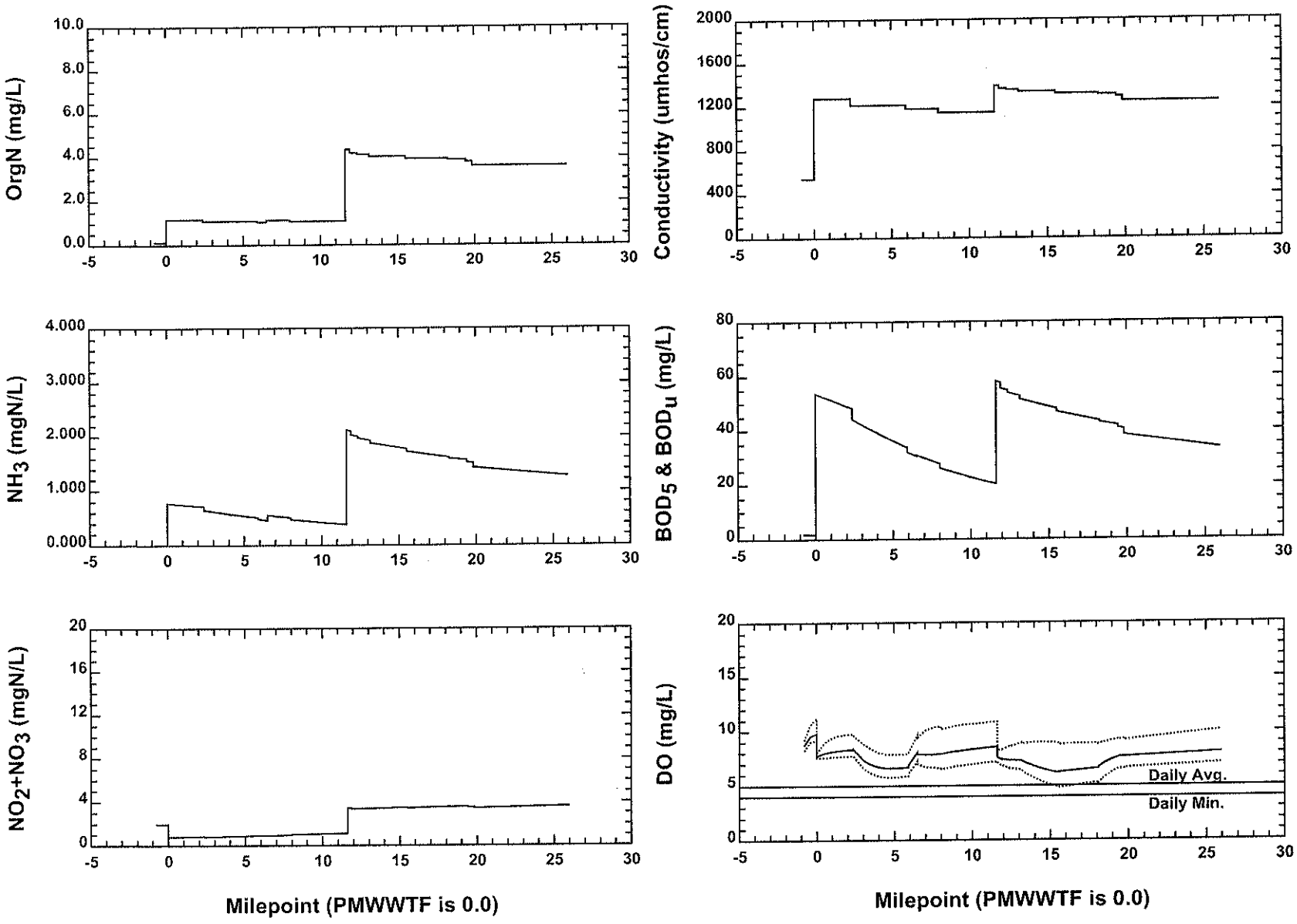


PMWWTF Water Quality Projections - 3 MGD, Winter Dry Creek Flow, Cloudy

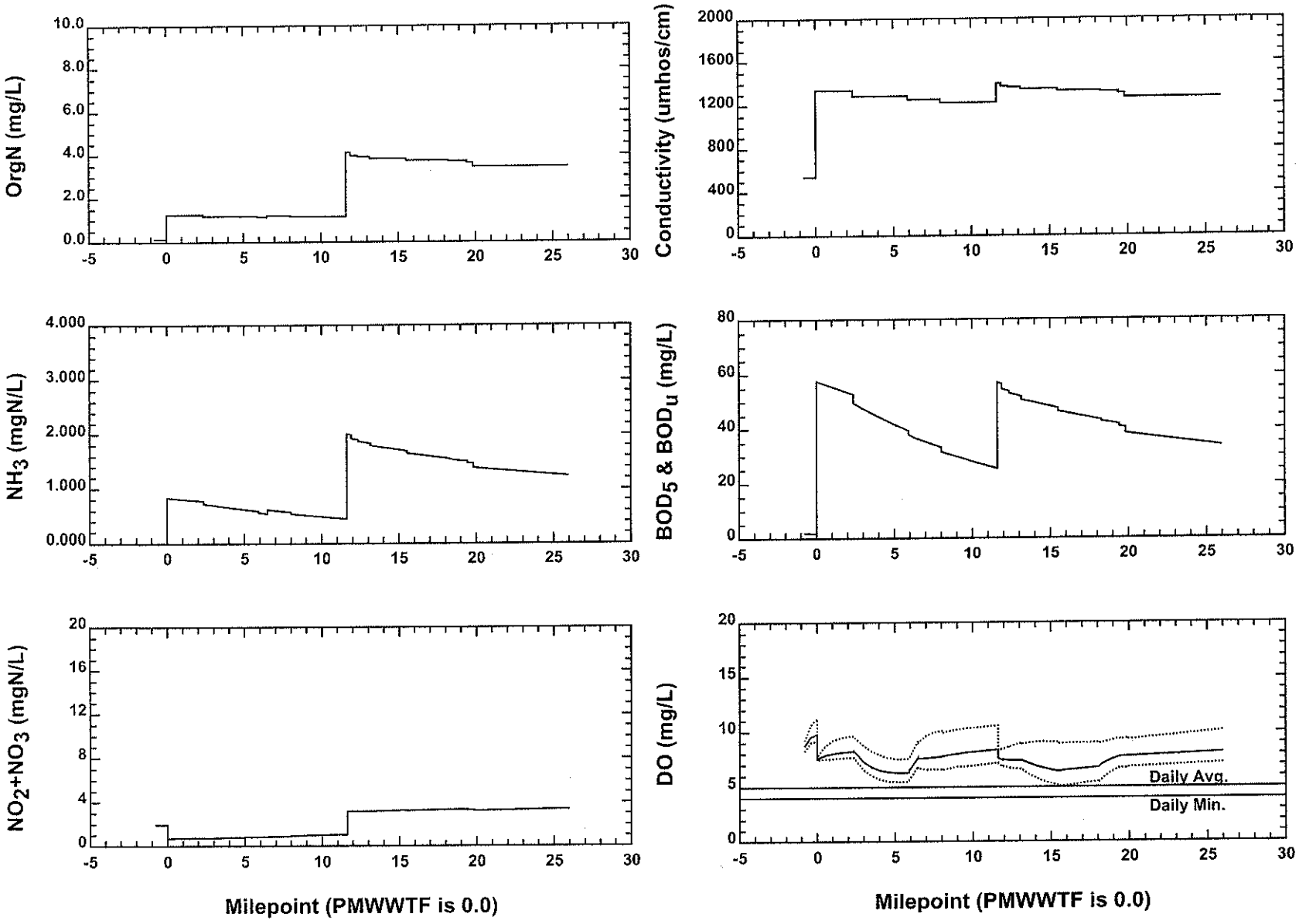
PMWWTF at Current Discharge (BOD5=23 mg/L, TN=26.9 mg/L, OrgN=6 mg/L, NH3=3 mg/L)

DATE: 9/13/2005 TIME: 11:28:17 /usersm/obag0060/HEIDI/MODEL/PROJECTION/WET_LOW_FLOW/CLOUDY/3mgd_cl_tw.gdp



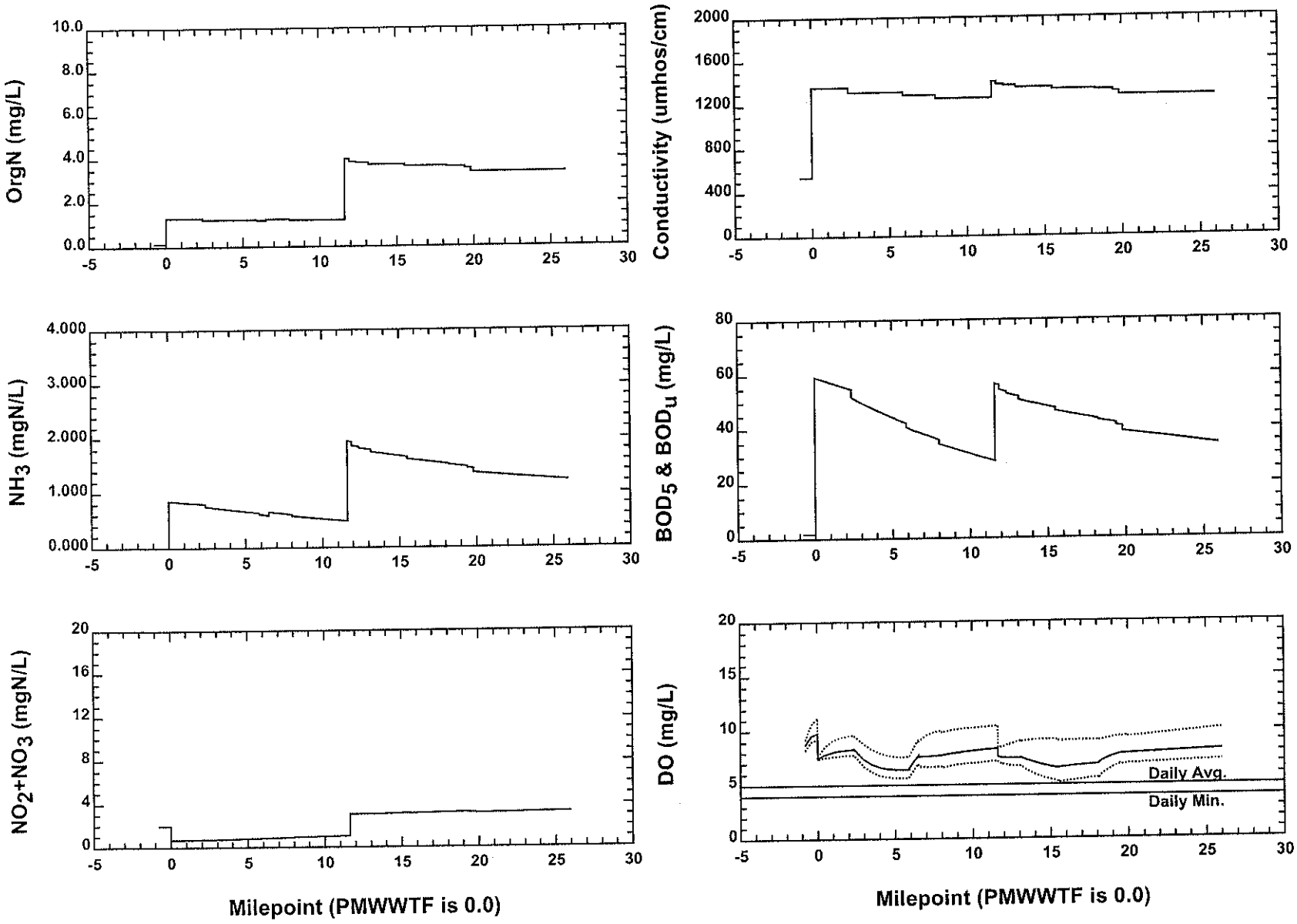
PMWWTF Water Quality Projections - 4.3 MGD, Winter Dry Creek Flow, Cloudy

DATE: 7/03/2005 TIME: 18:34:59 /usersm/obag0060/HEIDI/MODEL/PROJECTION/WET_LOW_FLOW/CLOUDY/43mgd_cl.gdp



PMWWTF Water Quality Projections - 6.3 MGD, Winter Dry Creek Flow, Cloudy

DATE: 7/03/2005 TIME: 18:35: 3 /usersm/obag0060/HEIDI/MODEL/PROJECTION/WET_LOW_FLOW/CLOUDY/63mgd_cl.gdp



PMWWTF Water Quality Projections - 7.6 MGD, Winter Dry Creek Flow, Cloudy

DATE: 7/03/2005 TIME: 18:35: 8 /usersm/obag0060/HEIDI/MODEL/PROJECTION/WET_LOW_FLOW/CLOUDY/76mgd_cl.gdp

ATTACHMENT 3
EFFLUENT DISCHARGE CONDITIONS

DRY WEATHER CONDITIONS (~~MAY~~ JUN-NOV)

	PMWWTF (current)	PMWWTF (ENR)	PMWWTF (ENR)	PMWWTF (ENR)	USE FOR INPUT * FCL (before 9/17/08)	FCL (after 9/17/08)	USE FOR INPUT OWRF (current)	* OWRF (ENR)
Flow (MGD)	2.0	3.0	4.0	5.0	0.15	0.15	8.4	16.0
TN (mg/L)	22.1	3.0	3.0	3.0	10.0	10.0	11.3	3.0
OrgN (mg/L)	3.8	1.5	1.5	1.5	4.6	4.6	4.6	1.5
NH3 (mg/L)	1.9	1.0	1.0	1.0	4.9	4.9	2.3	1.0
NO2+NO3 (mg/L)	16.4	0.5	0.5	0.5	0.5	0.5	4.4	0.5
TP (mg/L)	2.0	0.3	0.3	0.3	1.5	1.5	1.5	0.3
BOD5 (mg/L)	7.5	7.5	7.5	7.5	20.0	9.5	7.1	7.1
CBODu (mg/L)	38.6	38.6	38.6	38.6	60.0	28.5	33.9	33.9
DO (mg/L)	7.1	7.1	7.1	7.1	0.0	0.0	7.1	7.1
TN (lb/d)	369	75	100	125	13	13	792	400
OrgN (lb/d)	63	38	50	63	6	6	322	200
NH3 (lb/d)	32	25	33	42	6	6	161	133
NO2+NO3 (lb/d)	274	13	17	21	1	1	308	67
TP (lb/d)	33	8	10	13	2	2	105	40
BOD5 (lb/d)	125	188	250	313	25	12	497	947
CBODu (lb/d)	643	965	1286	1608	75	36	2373	4519
DO (lb/d)	118	178	237	296	0	0	497	947

CREEK CONDITIONS

7Q10 low flow (cfs) = 1.5 at the Berryville Gage (minus PMWWTF and FCL effluent flow)

Dry/Summer Temp (C) = 23.6

WET WEATHER CONDITIONS (DEC-~~APR~~ MAY)

	PMWWTF (current)	PMWWTF (ENR)	PMWWTF (ENR)	PMWWTF (ENR)	PMWWTF (ENR)	USE FOR INPUT * FCL (before 9/17/08)	FCL (after 9/17/08)	USE FOR INPUT OWRF (current)	* OWRF (ENR)
Flow (MGD)	2.0	3.0	4.3	6.3	7.6	0.15	0.15	16.0	16.0
TN (mg/L)	26.9	3.0	3.0	3.0	3.0	11.0	11.0	13.1	3.0
OrgN (mg/L)	7.0	1.5	1.5	1.5	1.5	5.6	5.6	5.8	1.5
NH3 (mg/L)	3.5	1.0	1.0	1.0	1.0	4.9	4.9	2.9	1.0
NO2+NO3 (mg/L)	16.4	0.5	0.5	0.5	0.5	0.5	0.5	4.4	0.5
TP (mg/L)	2.0	0.3	0.3	0.3	0.3	1.5	1.5	1.5	0.3
BOD5 (mg/L)	23.0	7.5	7.5	7.5	7.5	20.0	8.9	25.0	25.0
CBODu (mg/L)	69.0	38.6	38.6	38.6	38.6	60.0	26.7	75.0	75.0
DO (mg/L)	7.1	7.1	7.1	7.1	7.1	0.0	0.0	7.1	7.1
TN (lb/d)	449	75	108	158	190	14	14	1748	400
OrgN (lb/d)	117	38	54	79	95	7	7	774	200
NH3 (lb/d)	58	25	36	53	63	6	6	387	133
NO2+NO3 (lb/d)	274	13	18	26	32	1	1	587	67
TP (lb/d)	33	8	11	16	19	2	2	200	40
BOD5 (lb/d)	384	188	269	394	475	25	11	3336	3336
CBODu (lb/d)	1151	965	1382	2025	2443	75	33	10008	10008
DO (lb/d)	118	178	255	373	450	0	0	947	947

CREEK CONDITIONS

7Q10 low flow (cfs) = 4.1 at the Berryville Gage (minus PMWWTF and FCL effluent flow)

Wet/Winter Temp (C) = 15.7

Winter Notes

Sheet	Description
3mgd_cloudy_winter_tw	Winter wet, 3MGD, cloudy conditions, temp=15.7C (PMWWTF at current discharge conditions)

	PMWWTF (current)
Flow (MGD)	3.0
TN (mg/L)	26.9
OrgN (mg/L)	6.0
NH3 (mg/L)	3.0
NO2+NO3 (mg/L)	17.9
TP (mg/L)	2.0
BOD5 (mg/L)	23.0
CBODu (mg/L)	69.0
DO (mg/L)	7.1
TN (lb/d)	673
OrgN (lb/d)	150
NH3 (lb/d)	75
NO2+NO3 (lb/d)	448
TP (lb/d)	50
BOD5 (lb/d)	575
CBODu (lb/d)	1726
DO (lb/d)	178

CREEK CONDITIONS

7Q10 low flow (cfs) =	4.1	at the Berryville Gage (minus PMWWTF and FCL effluent flow)
Wet/Winter Temp (C) =	15.7	

ATTACHMENT 4
ADDITIONAL MODEL RUNS FOR OWRF WITH ANNUAL DISCHARGE FLOWS OF 10.4 MGD AND 12.6 MGD

DISCHARGE CONDITIONS ANALYZED FOR OWRF CASES

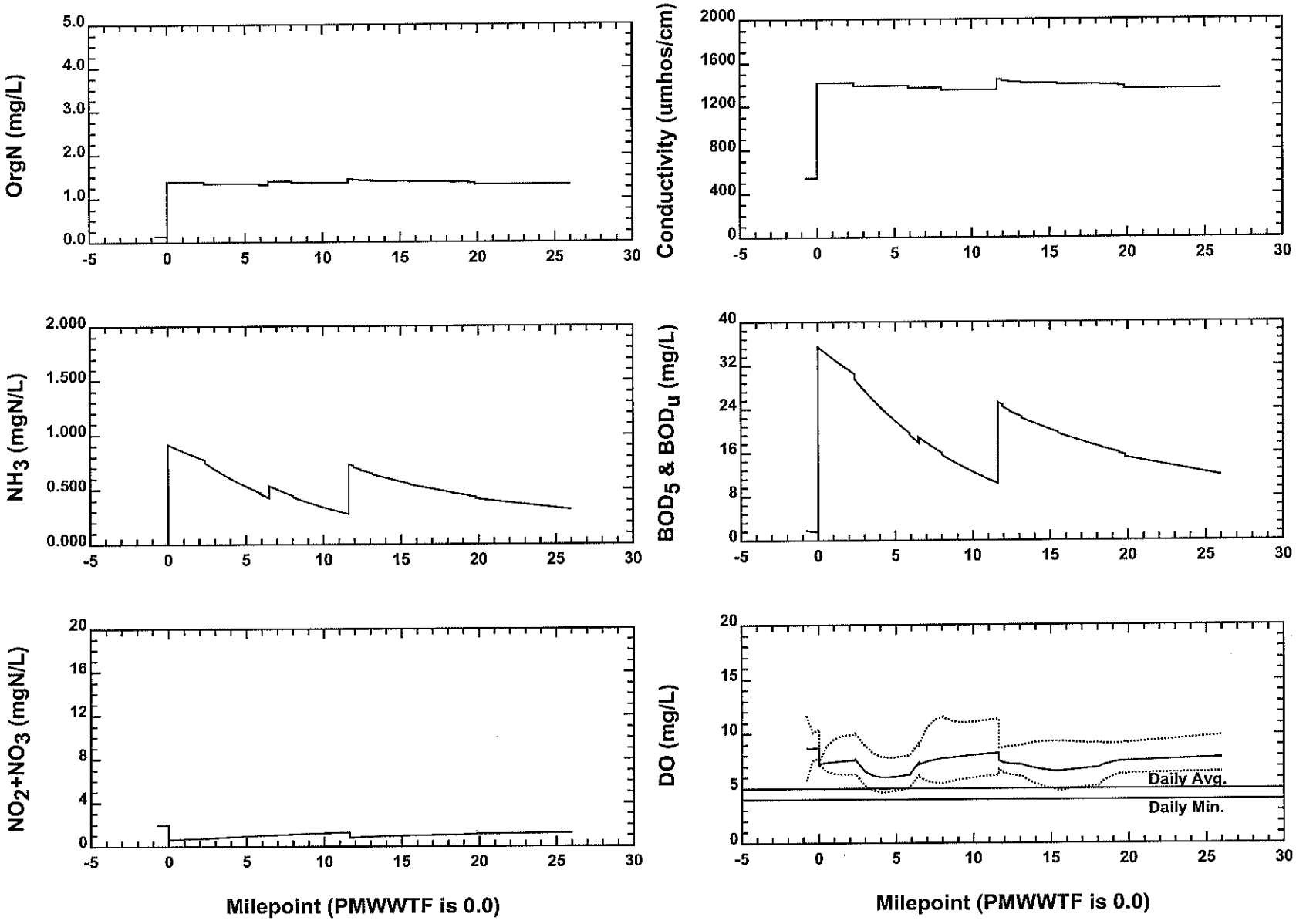
	Flow (MGD)	DO (mg/L)	OrgN (mg/L)	NH3 (mg/L)	NO2+NO3 (mg/L)	CBODu (mg/L)	TN (mg/L)	TP (mg/L)	CBOD5 (mg/L)
PMWWTF (at ENR)	5.00	7.10	1.50	1.00	0.50	38.55	3.00	0.30	7.50
FCL	0.15	0.00	4.60	4.90	0.50	60.00	10.00	1.50	20.00
OWRF (at ENR)	variable	7.10	1.50	1.00	0.50	33.87	3.00	0.30	7.10

	OWRF Dry Flow (MGD)
Case 1	10.4
Case 2	12.6

Note: Used PMWWTF flow of 5 MGD and ENR since this will be the PMWWTF discharge conditions for the OWRF cases analyzed

10.4 MGD Summer_Sunny

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)	NBODu (mg/L) - calc
Upstream	1	-0.8	0.1367	0.00421	1.97851	1.78405	5.67858	8.678511	11.67858	8.2953542	542.11	0.0192
	1	-0.4	0.1366	0.00361	1.97871	1.61237	7.52568	8.68761	10.08158	8.2953542	542.11	0.0165
	1	0	0.1365	0.00301	1.97891	1.45717	7.72438	8.69791	10.42758	8.2953542	542.11	0.0138
PMWWTF	2	0	1.3848	0.9153	0.611135	35.40307	7.16297	7.24057	7.37648	8.30261418	1418.48	4.1829
	2	0.5	1.3846	0.8832	0.643134	34.29206	6.56297	7.35758	8.89288	8.30261418	1418.48	4.0362
	2	1	1.3845	0.8523	0.674033	33.21596	6.36167	7.43269	9.54408	8.30261418	1418.48	3.8950
	2	1.5	1.3843	0.8224	0.703832	32.17366	6.30587	7.48949	9.80038	8.30261418	1418.48	3.7584
	2	2	1.3841	0.7936	0.732531	31.16396	6.30467	7.53789	9.89528	8.30261418	1418.48	3.6268
	2	2.37	1.384	0.7729	0.75313	30.43726	6.32077	7.57079	9.92928	8.30261418	1418.48	3.5322
Wrights Run	3	2.37	1.3447	0.7463	0.729429	29.46616	6.35997	7.61219	9.97338	8.31091388	1388.07	3.4106
	3	3	1.3443	0.688	0.787527	27.40135	5.24486	6.55538	8.88438	8.31091388	1388.07	3.1442
	3	3.5	1.344	0.6451	0.830425	25.86614	4.83786	6.18238	8.23608	8.31091388	1388.07	2.9481
	3	4	1.3437	0.6048	0.870524	24.41694	4.65766	6.03707	7.89028	8.31091388	1388.07	2.7639
	3	4.5	1.3433	0.567	0.908223	23.04894	4.67266	6.02267	7.79308	8.31091388	1388.07	2.5912
	3	5	1.343	0.5316	0.943521	21.75754	4.78796	6.08217	7.84808	8.31091388	1388.07	2.4294
	3	5.5	1.3427	0.4985	0.97662	20.53854	4.93986	6.18167	7.94378	8.31091388	1388.07	2.2781
	3	5.91	1.3424	0.47281	1.002119	19.59015	5.05586	6.27888	8.03458	8.31091388	1388.07	2.1607
falo Lick Run	4	5.91	1.3181	0.463	0.991519	19.21825	5.15226	6.35128	8.06328	8.3164137	1370.06	2.1159
	4	6.5	1.3177	0.42431	1.030217	17.77226	6.23787	7.37939	9.26178	8.3164137	1370.06	1.9391
FCL	5	6.5	1.3951	0.53431	1.020018	18.76176	6.04187	7.19689	9.07148	8.3199137	1370.23	2.4418
	5	7	1.3948	0.50261	1.051517	17.76395	5.65427	7.43821	10.58378	8.3199137	1370.23	2.2969
	5	7.5	1.3945	0.47291	1.081216	16.81925	5.50827	7.610311	11.29658	8.3199137	1370.23	2.1612
	5	8.01	1.3941	0.44431	1.109715	15.90725	5.43117	7.745911	11.54018	8.3199137	1370.23	2.0305
r Spring Run	6	8.01	1.3647	0.43291	1.124915	15.52835	5.44637	7.747911	11.48918	8.32721349	1349.9	1.9784
	6	8.5	1.3644	0.40701	1.150714	14.69395	5.62137	7.805811	11.23448	8.32721349	1349.9	1.8600
	6	9	1.3641	0.38221	1.175413	13.88865	5.76797	7.874811	11.03348	8.32721349	1349.9	1.7467
	6	9.5	1.3637	0.35891	1.198713	13.12755	5.86587	7.946811	11.05558	8.32721349	1349.9	1.6402
	6	10	1.3634	0.33701	1.220512	12.40815	5.98428	8.018311	11.11358	8.32721349	1349.9	1.5401
	6	10.5	1.3631	0.31641	1.240911	11.72816	6.07928	8.087611	11.18428	8.32721349	1349.9	1.4460
	6	11	1.3628	0.29711	1.260211	11.08546	6.14758	8.153811	11.25698	8.32721349	1349.9	1.3578
	6	11.62	1.3624	0.27481	1.28241	10.33716	6.22078	8.231511	11.33598	8.32721349	1349.9	1.2559
OWRF	7	11.62	1.4481	0.7309	0.790525	25.13526	6.75527	7.51938	8.67708	8.33271443	1443.79	3.3402
	7	11.91	1.448	0.7171	0.804224	24.71206	6.43827	7.33928	8.73178	8.33271443	1443.79	3.2771
brams Creek	8	11.91	1.4228	0.7035	0.826924	24.27376	6.48677	7.36468	8.72468	8.33361428	1428.47	3.2150
	8	12.38	1.4227	0.6824	0.848023	23.62236	6.23237	7.22758	8.82628	8.33361428	1428.47	3.1186
edbud Creek	9	12.38	1.4125	0.6773	0.855123	23.45856	6.24397	7.23268	8.82008	8.33511422	1422.52	3.0953
	9	13.16	1.4123	0.6458	0.886422	22.48186	6.06697	7.14388	8.95548	8.33511422	1422.52	2.9513
Marsh Creek	10	13.16	1.3946	0.6373	0.902722	22.20256	6.05677	7.13688	8.94168	8.33751411	1411.58	2.9125
	10	13.5	1.3945	0.6246	0.915321	21.80645	5.74426	6.98879	9.07938	8.33751411	1411.58	2.8544
	10	14	1.3943	0.6064	0.933521	21.23675	5.40086	6.81699	9.19028	8.33751411	1411.58	2.7712
	10	14.5	1.3941	0.5887	0.95112	20.68195	5.14456	6.69079	9.26948	8.33751411	1411.58	2.6904
	10	15	1.394	0.5715	0.96832	20.14164	4.95886	6.60189	9.30898	8.33751411	1411.58	2.6118
	10	15.51	1.3938	0.5545	0.985219	19.60504	4.77566	6.54259	9.32028	8.33751411	1411.58	2.5341
Lick Run	11	15.51	1.3773	0.5472	0.992919	19.36804	4.77856	6.56379	9.31498	8.34081399	1399.96	2.5007
	11	16	1.3771	0.53271	1.007418	18.90934	4.86526	6.63369	9.29058	8.34081399	1399.96	2.4345
	11	16.5	1.377	0.51841	1.021718	18.45244	4.96016	6.70159	9.23438	8.34081399	1399.96	2.3691
	11	17	1.3768	0.50441	1.035618	18.00665	5.06076	6.76649	9.17588	8.34081399	1399.96	2.3052
	11	17.5	1.3767	0.49081	1.049217	17.57165	5.15516	6.82859	9.14968	8.34081399	1399.96	2.2430
	11	18.07	1.3765	0.47571	1.064217	17.08845	5.24066	6.89649	9.17378	8.34081399	1399.96	2.1740
NWRF	12	18.07	1.3763	0.47561	1.064417	17.08505	5.20696	6.89669	9.17588	8.34291399	1399.79	2.1735
	12	18.26	1.3762	0.47111	1.068916	16.93985	5.50387	7.04299	9.13178	8.34291399	1399.79	2.1530
arbrook Run	13	18.26	1.369	0.46831	1.070716	16.84785	5.52607	7.04979	9.10878	8.34461394	1394.82	2.1402
	13	18.5	1.3689	0.46271	1.076316	16.66775	5.74617	7.16359	9.09758	8.34461394	1394.82	2.1146
	13	19	1.3688	0.45131	1.087716	16.29876	6.09917	7.34729	9.09138	8.34461394	1394.82	2.0625
	13	19.42	1.3687	0.44191	1.097015	15.99506	6.31677	7.46019	9.09838	8.34461394	1394.82	2.0195
Slate Run	14	19.42	1.3519	0.43581	1.106015	15.79506	6.33637	7.46559	9.08958	8.34641383	1383.69	1.9917
	14	19.83	1.3518	0.42761	1.114215	15.52916	6.32367	7.48549	9.21208	8.34641383	1383.69	1.9542
Turkey Run	15	19.83	1.3155	0.41471	1.135215	15.10256	6.37507	7.49509	9.16258	8.35171359	1359.58	1.8952
	15	26	1.314	0.31341	1.236111	11.75326	6.52217	7.81879	9.83928	8.35171359	1359.58	1.4323

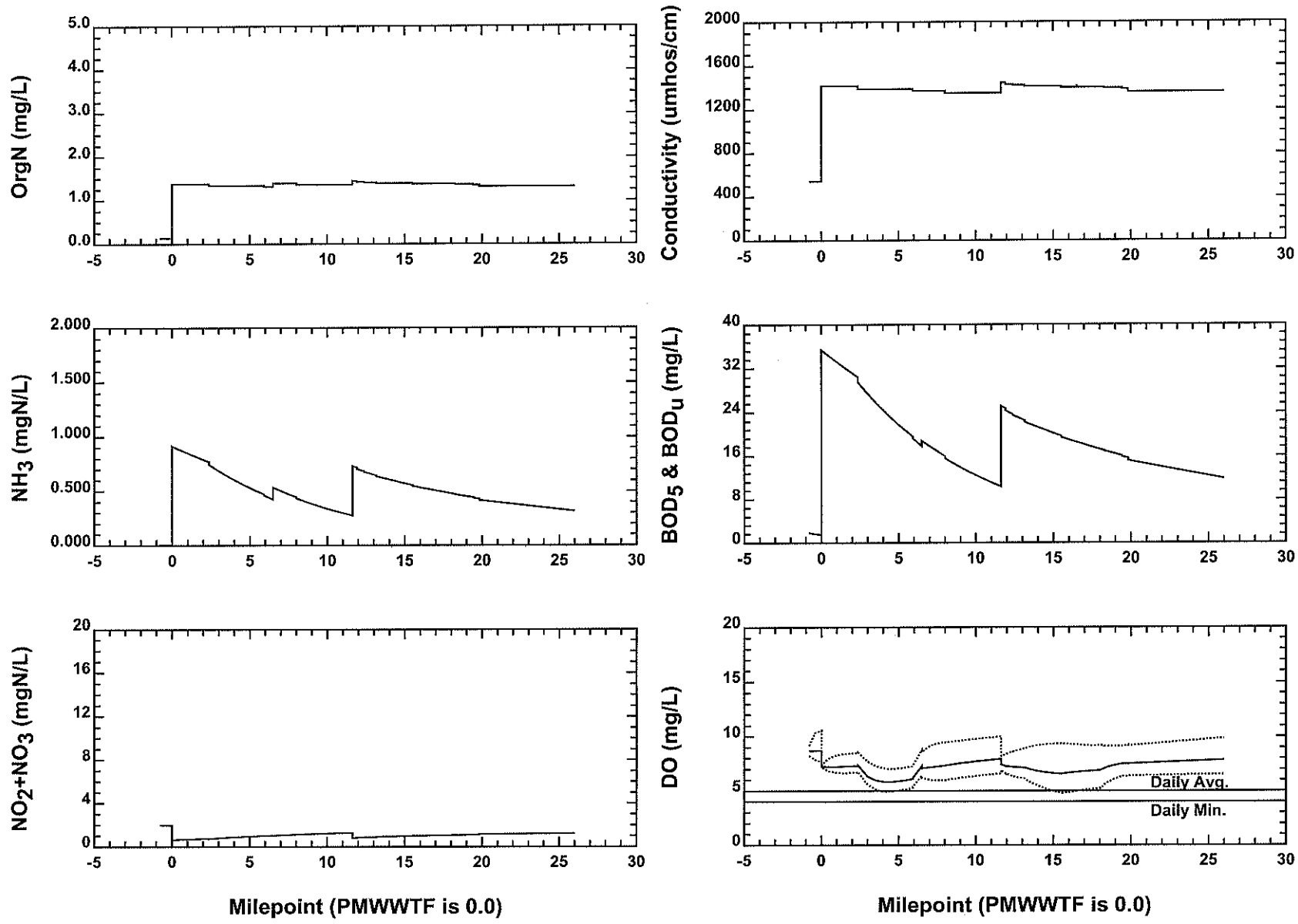


OWRF Water Quality Projections - 10.4 MGD, Summer Dry Creek Flow, Sunny

DATE: 11/09/2005 TIME: 11:44:56 /usersm/obag0060/HEIDI/MODEL/PROJECTION/OWRF/pmodel.gdp

10.4 MGD Summer_Cloudy

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)	NBODu (mg/L) - calc
Upstream	1	-0.8	0.1367	0.00421	1.97851	1.78408	8.20358	8.67859	9.15358	8.2953542	542.11	0.0192
	1	-0.4	0.1366	0.00361	1.97871	1.61237	7.82208	8.68761	10.33198	8.2953542	542.11	0.0165
	1	0	0.1365	0.00301	1.97891	1.45717	7.63958	8.69791	10.56128	8.2953542	542.11	0.0138
PMWWTF	2	0	1.3848	0.9153	0.611135	35.40307	7.15637	7.24057	7.38688	8.30261418	1418.48	4.1829
	2	0.5	1.3846	0.8832	0.643134	34.29206	6.77667	7.19307	7.98438	8.30261418	1418.48	4.0362
	2	1	1.3845	0.8523	0.674033	33.21596	6.65667	7.19998	8.26098	8.30261418	1418.48	3.8950
	2	1.5	1.3843	0.8224	0.703832	32.17366	6.63357	7.22848	8.38408	8.30261418	1418.48	3.7584
	2	2	1.3841	0.7936	0.732531	31.16396	6.64727	7.26518	8.44318	8.30261418	1418.48	3.6268
	2	2.37	1.384	0.7729	0.75313	30.43726	6.66847	7.29418	8.47288	8.30261418	1418.48	3.5322
Wrights Run	3	2.37	1.3447	0.7463	0.729429	29.46616	6.71847	7.34508	8.52518	8.31091388	1388.07	3.4106
	3	3	1.3443	0.688	0.787527	27.40135	5.54396	6.31357	7.67978	8.31091388	1388.07	3.1442
	3	3.5	1.344	0.6451	0.830425	25.86615	5.11415	5.95157	7.27828	8.31091388	1388.07	2.9481
	3	4	1.3437	0.6048	0.870524	24.41694	4.92885	5.81277	7.06748	8.31091388	1388.07	2.7639
	3	4.5	1.3433	0.567	0.908223	23.04894	4.91855	5.80237	7.00518	8.31091388	1388.07	2.5912
	3	5	1.343	0.5316	0.943521	21.75754	4.99795	5.86417	7.05398	8.31091388	1388.07	2.4294
	3	5.5	1.3427	0.4985	0.97662	20.53855	5.12545	5.96507	7.14688	8.31091388	1388.07	2.2781
	3	5.91	1.3424	0.47281	1.002119	19.59015	5.23756	6.06297	7.23848	8.31091388	1388.07	2.1607
falo Lick Run	4	5.91	1.3181	0.463	0.991519	19.21825	5.33126	6.13987	7.28618	8.3164137	1370.06	2.1159
	4	6.5	1.3177	0.42431	1.030217	17.77226	6.36277	7.24628	8.73798	8.3164137	1370.06	1.9391
FCL	5	6.5	1.3951	0.53431	1.020018	18.76176	6.17247	7.06768	8.55348	8.3199137	1370.23	2.4418
	5	7	1.3948	0.50261	1.051517	17.76395	5.99747	7.13569	9.11788	8.3199137	1370.23	2.2969
	5	7.5	1.3945	0.47291	1.081216	16.81925	5.96257	7.21679	9.35198	8.3199137	1370.23	2.1612
	5	8.01	1.3941	0.44431	1.109715	15.90725	5.95247	7.30389	9.46528	8.3199137	1370.23	2.0305
r Spring Run	6	8.01	1.3647	0.43291	1.124915	15.52835	5.97457	7.31769	9.43588	8.32721349	1349.9	1.9784
	6	8.5	1.3644	0.40701	1.150714	14.69396	6.06827	7.42749	9.53858	8.32721349	1349.9	1.8600
	6	9	1.3641	0.38221	1.175413	13.88866	6.17077	7.52369	9.59288	8.32721349	1349.9	1.7467
	6	9.5	1.3637	0.35891	1.198713	13.12756	6.24837	7.60949	9.69238	8.32721349	1349.9	1.6402
	6	10	1.3634	0.33701	1.220512	12.40816	6.34227	7.68789	9.76368	8.32721349	1349.9	1.5401
	6	10.5	1.3631	0.31641	1.240911	11.72816	6.41707	7.76069	9.83158	8.32721349	1349.9	1.4460
	6	11	1.3628	0.29711	1.260211	11.08546	6.48527	7.82879	9.90078	8.32721349	1349.9	1.3578
	6	11.62	1.3624	0.27481	1.28241	10.33716	6.56457	7.90759	9.97858	8.32721349	1349.9	1.2559
OWRF	7	11.62	1.4481	0.7309	0.790525	25.13526	6.88917	7.39938	8.17178	8.33271443	1443.79	3.3402
	7	11.91	1.448	0.7171	0.804224	24.71206	6.54567	7.24018	8.33238	8.33271443	1443.79	3.2771
brams Creek	8	11.91	1.4228	0.7035	0.826924	24.27376	6.59217	7.26758	8.33298	8.33361428	1428.47	3.2150
	8	12.38	1.4227	0.6824	0.848023	23.62236	6.29567	7.16138	8.59998	8.33361428	1428.47	3.1186
edbud Creek	9	12.38	1.4125	0.6773	0.855123	23.45856	6.30687	7.16688	8.59558	8.33511422	1422.52	3.0953
	9	13.16	1.4123	0.6458	0.886422	22.48186	6.09307	7.10808	8.88718	8.33511422	1422.52	2.9513
Marsh Creek	10	13.16	1.3946	0.6373	0.902722	22.20256	6.08257	7.10148	8.87428	8.33751411	1411.58	2.9125
	10	13.5	1.3945	0.6246	0.915321	21.80645	5.76436	6.95779	9.04188	8.33751411	1411.58	2.8544
	10	14	1.3943	0.6064	0.933521	21.23675	5.41736	6.79129	9.18348	8.33751411	1411.58	2.7712
	10	14.5	1.3941	0.5887	0.95112	20.68195	5.15556	6.66959	9.26508	8.33751411	1411.58	2.6904
	10	15	1.394	0.5715	0.96832	20.14164	4.96096	6.58449	9.31778	8.33751411	1411.58	2.6118
	10	15.51	1.3938	0.5545	0.985219	19.60504	4.76796	6.52819	9.33388	8.33751411	1411.58	2.5341
Lick Run	11	15.51	1.3773	0.5472	0.992919	19.36804	4.77096	6.54959	9.32838	8.34081399	1399.96	2.5007
	11	16	1.3771	0.53271	1.007418	18.90934	4.85186	6.62249	9.30298	8.34081399	1399.96	2.4345
	11	16.5	1.377	0.51841	1.021718	18.45244	4.94966	6.69279	9.24408	8.34081399	1399.96	2.3691
	11	17	1.3768	0.50441	1.035618	18.00665	5.04706	6.75949	9.18278	8.34081399	1399.96	2.3052
	11	17.5	1.3767	0.49081	1.049217	17.57165	5.13986	6.82309	9.15428	8.34081399	1399.96	2.2430
	11	18.07	1.3765	0.47571	1.064217	17.08845	5.22566	6.89239	9.17668	8.34081399	1399.96	2.1740
NWRF	12	18.07	1.3763	0.47561	1.064417	17.08505	5.18986	6.89259	9.17888	8.34291399	1399.79	2.1735
	12	18.26	1.3762	0.47111	1.068916	16.93985	5.48927	7.03949	9.13418	8.34291399	1399.79	2.1530
arbrook Run	13	18.26	1.369	0.46831	1.070716	16.84785	5.51167	7.04639	9.11108	8.34461394	1394.82	2.1402
	13	18.5	1.3689	0.46271	1.076316	16.66775	5.73397	7.16079	9.09938	8.34461394	1394.82	2.1146
	13	19	1.3688	0.45131	1.087716	16.29876	6.09107	7.34529	9.09238	8.34461394	1394.82	2.0625
	13	19.42	1.3687	0.44191	1.097015	15.99506	6.31107	7.45879	9.09898	8.34461394	1394.82	2.0195
Slate Run	14	19.42	1.3519	0.43581	1.106015	15.79506	6.33117	7.46429	9.08978	8.34641383	1383.69	1.9917
	14	19.83	1.3518	0.42761	1.114215	15.52916	6.31997	7.48439	9.21198	8.34641383	1383.69	1.9542
Turkey Run	15	19.83	1.3155	0.41471	1.135215	15.10256	6.37147	7.49409	9.16238	8.35171359	1359.58	1.8952
	15	26	1.314	0.31341	1.236111	11.75326	6.52217	7.81879	9.83908	8.35171359	1359.58	1.4323

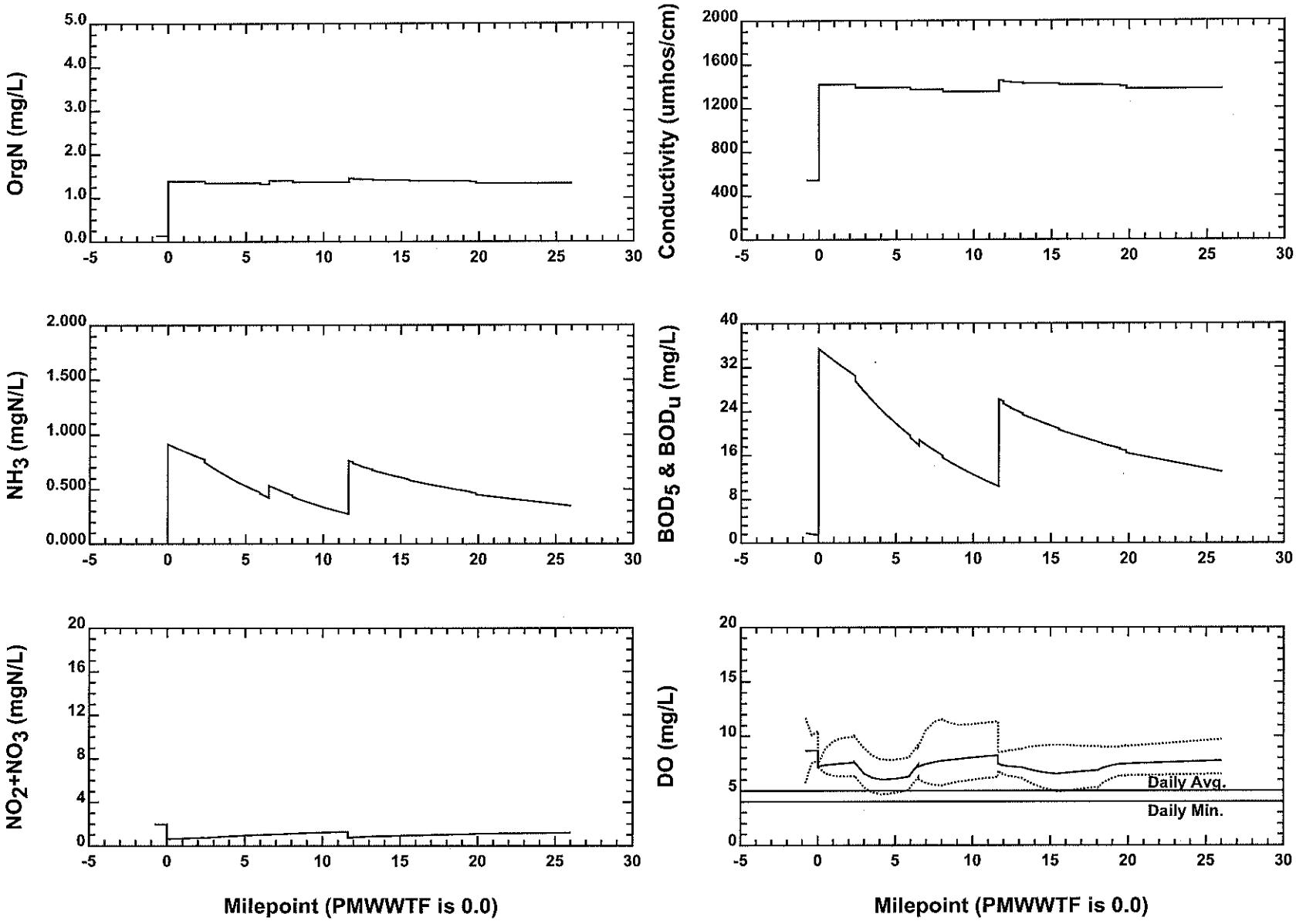


OWRF Water Quality Projections - 10.4 MGD, Summer Dry Creek Flow, Cloudy

DATE: 11/09/2005 TIME: 11:48:36 /usersm/obag0060/HEIDI/MODEL/PROJECTION/OWRF/pmodel.gdp

12.6 MGD Summer_Sunny

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)	NBODu (mg/L) - calc
Upstream	1	-0.8	0.1367	0.00421	1.97851	1.78405	5.67858	8.678511	11.67858	8.2953542	542.11	0.0192
	1	-0.4	0.1366	0.00361	1.97871	1.61237	7.52568	8.68761	10.08158	8.2953542	542.11	0.0165
	1	0	0.1365	0.00301	1.97891	1.45717	7.72438	8.69791	10.42758	8.2953542	542.11	0.0138
PMWWTF	2	0	1.3848	0.9153	0.611135	35.40307	7.16297	7.24057	7.37648	8.30261418	1418.48	4.1829
	2	0.5	1.3846	0.8832	0.643134	34.29206	6.56297	7.35758	8.89288	8.30261418	1418.48	4.0362
	2	1	1.3845	0.8523	0.674033	33.21596	6.36167	7.43269	9.54408	8.30261418	1418.48	3.8950
	2	1.5	1.3843	0.8224	0.703832	32.17366	6.30587	7.48949	9.80038	8.30261418	1418.48	3.7584
	2	2	1.3841	0.7936	0.732531	31.16396	6.30467	7.53789	9.89528	8.30261418	1418.48	3.6268
	2	2.37	1.384	0.7729	0.75313	30.43726	6.32077	7.57079	9.92928	8.30261418	1418.48	3.5322
Wrights Run	3	2.37	1.3447	0.7463	0.729429	29.46616	6.35997	7.61219	9.97338	8.31091388	1388.07	3.4106
	3	3	1.3443	0.688	0.787527	27.40135	5.24486	6.55538	8.88438	8.31091388	1388.07	3.1442
	3	3.5	1.344	0.6451	0.830425	25.86614	4.83786	6.18238	8.23608	8.31091388	1388.07	2.9481
	3	4	1.3437	0.6048	0.870524	24.41694	4.65766	6.03707	7.89028	8.31091388	1388.07	2.7639
	3	4.5	1.3433	0.567	0.908223	23.04894	4.67266	6.02267	7.79308	8.31091388	1388.07	2.5912
	3	5	1.343	0.5316	0.943521	21.75754	4.78796	6.08217	7.84808	8.31091388	1388.07	2.4294
	3	5.5	1.3427	0.4985	0.97662	20.53854	4.93986	6.18167	7.94378	8.31091388	1388.07	2.2781
	3	5.91	1.3424	0.47281	1.002119	19.59015	5.05586	6.27888	8.03458	8.31091388	1388.07	2.1607
falo Lick Run	4	5.91	1.3181	0.463	0.991519	19.21825	5.15226	6.35128	8.06328	8.3164137	1370.06	2.1159
	4	6.5	1.3177	0.42431	1.030217	17.77226	6.23787	7.37939	9.26178	8.3164137	1370.06	1.9391
FCL	5	6.5	1.3951	0.53431	1.020018	18.76176	6.04187	7.19689	9.07148	8.3199137	1370.23	2.4418
	5	7	1.3948	0.50261	1.051517	17.76395	5.65427	7.43821	10.58378	8.3199137	1370.23	2.2969
	5	7.5	1.3945	0.47291	1.081216	16.81925	5.50827	7.610311	11.29658	8.3199137	1370.23	2.1612
	5	8.01	1.3941	0.44431	1.109715	15.90725	5.43117	7.745911	11.54018	8.3199137	1370.23	2.0305
r Spring Run	6	8.01	1.3647	0.43291	1.124915	15.52835	5.44637	7.747911	11.48918	8.32721349	1349.9	1.9784
	6	8.5	1.3644	0.40701	1.150714	14.69395	5.62137	7.805811	11.23448	8.32721349	1349.9	1.8600
	6	9	1.3641	0.38221	1.175413	13.88865	5.76797	7.874811	11.03348	8.32721349	1349.9	1.7467
	6	9.5	1.3637	0.35891	1.198713	13.12755	5.86587	7.946811	11.05558	8.32721349	1349.9	1.6402
	6	10	1.3634	0.33701	1.220512	12.40815	5.98428	8.018311	11.11358	8.32721349	1349.9	1.5401
	6	10.5	1.3631	0.31641	1.240911	11.72816	6.07928	8.087611	11.18428	8.32721349	1349.9	1.4460
	6	11	1.3628	0.29711	1.260211	11.08546	6.14758	8.153811	11.25698	8.32721349	1349.9	1.3578
	6	11.62	1.3624	0.27481	1.28241	10.33716	6.22078	8.231511	11.33598	8.32721349	1349.9	1.2559
OWRF	7	11.62	1.4542	0.7625	0.756426	26.15936	6.79567	7.47018	8.49218	8.3327145	1450.38	3.4846
	7	11.91	1.4541	0.7491	0.769725	25.75046	6.49577	7.30478	8.55938	8.3327145	1450.38	3.4234
brams Creek	8	11.91	1.4317	0.7365	0.790425	25.34506	6.53877	7.32788	8.55498	8.33361436	1436.71	3.3658
	8	12.38	1.4316	0.716	0.810924	24.71246	6.29657	7.20768	8.68218	8.33361436	1436.71	3.2721
edbud Creek	9	12.38	1.4226	0.7112	0.817424	24.56016	6.30817	7.21228	8.67598	8.33511431	1431.4	3.2502
	9	13.16	1.4223	0.6805	0.848123	23.60816	6.13457	7.13608	8.84258	8.33511431	1431.4	3.1099
Marsh Creek	10	13.16	1.4065	0.6725	0.863023	23.34706	6.12687	7.12988	8.82958	8.33751421	1421.58	3.0733
	10	13.5	1.4064	0.66	0.875422	22.95925	5.82206	6.98238	8.96338	8.33751421	1421.58	3.0162
	10	14	1.4062	0.6421	0.893322	22.40065	5.49126	6.80989	9.08148	8.33751421	1421.58	2.9344
	10	14.5	1.4061	0.6246	0.910721	21.85565	5.23416	6.68179	9.13428	8.33751421	1421.58	2.8544
	10	15	1.4059	0.6077	0.927621	21.32385	5.05176	6.59009	9.18668	8.33751421	1421.58	2.7772
	10	15.51	1.4058	0.5908	0.94442	20.79484	4.88046	6.52699	9.20878	8.33751421	1421.58	2.7000
Lick Run	11	15.51	1.391	0.5839	0.95172	20.57014	4.86996	6.54609	9.20778	8.34081411	1411.15	2.6684
	11	16	1.3908	0.5695	0.96612	20.11614	4.94906	6.61269	9.20038	8.34081411	1411.15	2.6026
	11	16.5	1.3907	0.5552	0.980419	19.66305	5.04256	6.67709	9.15858	8.34081411	1411.15	2.5373
	11	17	1.3906	0.5412	0.994319	19.22025	5.13166	6.73819	9.10698	8.34081411	1411.15	2.4733
	11	17.5	1.3904	0.52761	1.007818	18.78745	5.21756	6.79669	9.07628	8.34081411	1411.15	2.4112
	11	18.07	1.3903	0.51251	1.022918	18.30585	5.28996	6.86049	9.08528	8.34081411	1411.15	2.3422
NWRF	12	18.07	1.39	0.51241	1.023018	18.30265	5.24596	6.86059	9.08788	8.3429141	1410.99	2.3417
	12	18.26	1.39	0.50791	1.027618	18.15765	5.53557	7.00879	9.04708	8.3429141	1410.99	2.3211
arbrook Run	13	18.26	1.3835	0.50521	1.029418	18.06925	5.55557	7.01509	9.02628	8.34461406	1406.52	2.3088
	13	18.5	1.3834	0.49961	1.035017	17.88925	5.76957	7.12969	9.01418	8.34461406	1406.52	2.2832
	13	19	1.3833	0.48811	1.046517	17.51996	6.12637	7.31409	9.00478	8.34461406	1406.52	2.2307
	13	19.42	1.3832	0.47861	1.056017	17.21566	6.33677	7.42709	9.00848	8.34461406	1406.52	2.1872
Slate Run	14	19.42	1.3681	0.47271	1.064517	17.02226	6.34637	7.43229	9.01248	8.34641396	1396.46	2.1603
	14	19.83	1.368	0.46441	1.072816	16.75486	6.33317	7.44899	9.12098	8.34641396	1396.46	2.1224
Turkey Run	15	19.83	1.3351	0.45181	1.092616	16.33986	6.37977	7.45859	9.07828	8.35171374	1374.57	2.0648
	15	26	1.3337	0.34781	1.196312	12.92676	6.52917	7.75249	9.70378	8.35171374	1374.57	1.5895

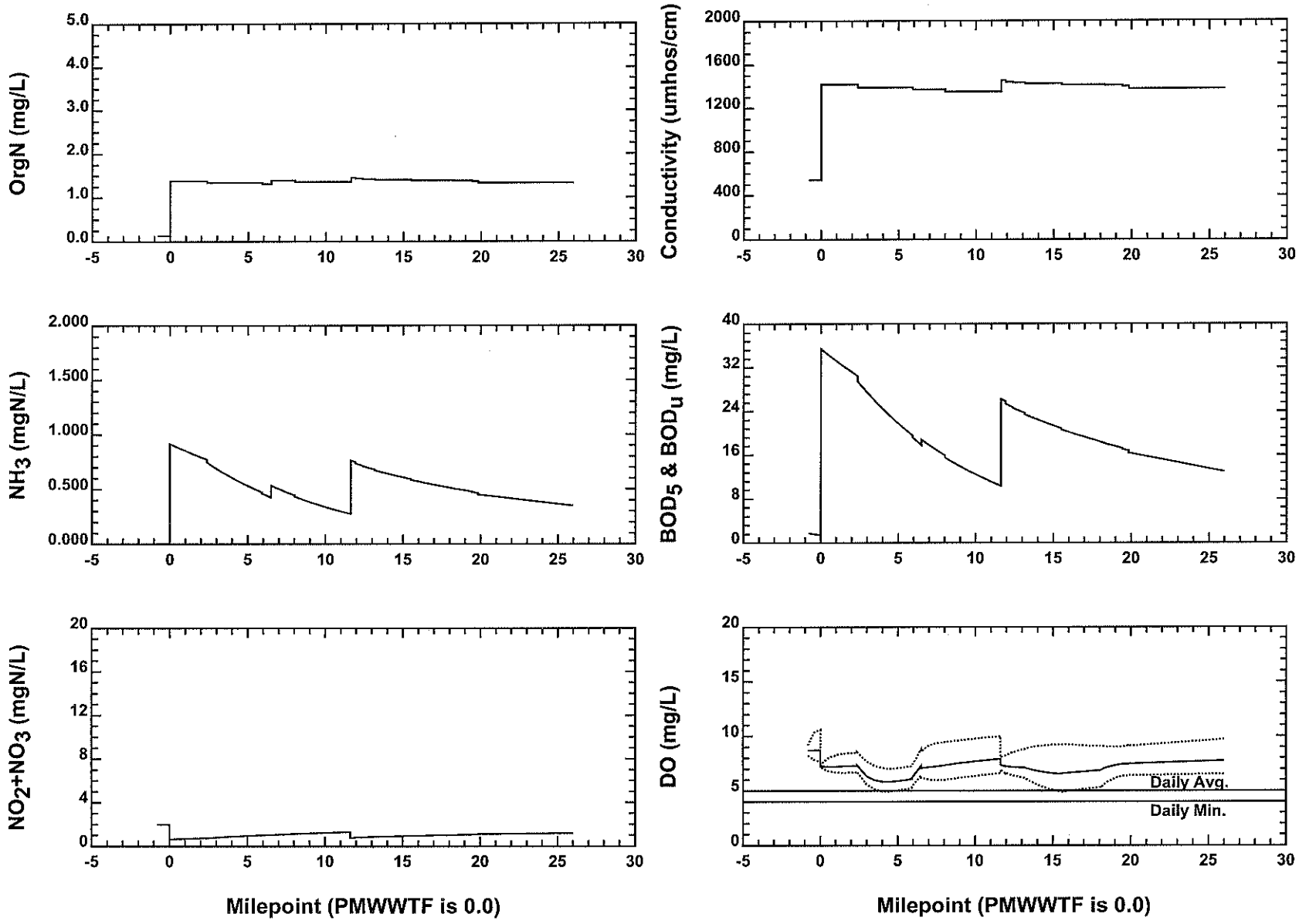


OWRF Water Quality Projections - 12.6 MGD, Summer Dry Creek Flow, Sunny

DATE: 11/09/2005 TIME: 11:45: 8 /usersm/obag0060/HEIDI/MODEL/PROJECTION/OWRF/pmodel.gdp

12.6 MGD Summer_Cloudy

	Model Reach	Output MP	OrgN (mg/L)	NH4 (mg/L)	NO2+NO3 (mg/L)	CBODu (mg/L)	Daily Minimum DO (mg/L)	Daily Average DO (mg/L)	Daily Maximum DO (mg/L)	DO Saturation (mg/L)	Conductivity (umhos/cm)	NBODu (mg/L) - calc
Upstream	1	-0.8	0.1367	0.00421	1.97851	1.78408	8.20358	8.67859	9.15358	8.2953542	542.11	0.0192
	1	-0.4	0.1366	0.00361	1.97871	1.61237	7.82208	8.68761	10.33198	8.2953542	542.11	0.0165
	1	0	0.1365	0.00301	1.97891	1.45717	7.63958	8.69791	10.56128	8.2953542	542.11	0.0138
PMWWTF	2	0	1.3848	0.9153	0.611135	35.40307	7.15637	7.24057	7.38688	8.30261418	1418.48	4.1829
	2	0.5	1.3846	0.8832	0.643134	34.29206	6.77667	7.19307	7.98438	8.30261418	1418.48	4.0362
	2	1	1.3845	0.8523	0.674033	33.21596	6.65667	7.19998	8.26098	8.30261418	1418.48	3.8950
	2	1.5	1.3843	0.8224	0.703832	32.17366	6.63357	7.22848	8.38408	8.30261418	1418.48	3.7584
	2	2	1.3841	0.7936	0.732531	31.16396	6.64727	7.26518	8.44318	8.30261418	1418.48	3.6268
	2	2.37	1.384	0.7729	0.75313	30.43726	6.66847	7.29418	8.47288	8.30261418	1418.48	3.5322
Wrights Run	3	2.37	1.3447	0.7463	0.729429	29.46616	6.71847	7.34508	8.52518	8.31091388	1388.07	3.4106
	3	3	1.3443	0.688	0.787527	27.40135	5.54396	6.31357	7.67978	8.31091388	1388.07	3.1442
	3	3.5	1.344	0.6451	0.830425	25.86615	5.11415	5.95157	7.27828	8.31091388	1388.07	2.9481
	3	4	1.3437	0.6048	0.870524	24.41694	4.92885	5.81277	7.06748	8.31091388	1388.07	2.7639
	3	4.5	1.3433	0.567	0.908223	23.04894	4.91855	5.80237	7.00518	8.31091388	1388.07	2.5912
	3	5	1.343	0.5316	0.943521	21.75754	4.99795	5.86417	7.05398	8.31091388	1388.07	2.4294
	3	5.5	1.3427	0.4985	0.97662	20.53855	5.12545	5.96507	7.14688	8.31091388	1388.07	2.2781
	3	5.91	1.3424	0.47281	1.002119	19.59015	5.23756	6.06297	7.23848	8.31091388	1388.07	2.1607
falo Lick Run	4	5.91	1.3181	0.463	0.991519	19.21825	5.33126	6.13987	7.28618	8.3164137	1370.06	2.1159
	4	6.5	1.3177	0.42431	1.030217	17.77226	6.36277	7.24628	8.73798	8.3164137	1370.06	1.9391
FCL	5	6.5	1.3951	0.53431	1.020018	18.76176	6.17247	7.06768	8.55348	8.3199137	1370.23	2.4418
	5	7	1.3948	0.50261	1.051517	17.76395	5.99747	7.13569	9.11788	8.3199137	1370.23	2.2969
	5	7.5	1.3945	0.47291	1.081216	16.81925	5.96257	7.21679	9.35198	8.3199137	1370.23	2.1612
	5	8.01	1.3941	0.44431	1.109715	15.90725	5.95247	7.30389	9.46528	8.3199137	1370.23	2.0305
r Spring Run	6	8.01	1.3647	0.43291	1.124915	15.52835	5.97457	7.31769	9.43588	8.32721349	1349.9	1.9784
	6	8.5	1.3644	0.40701	1.150714	14.69396	6.06827	7.42749	9.53858	8.32721349	1349.9	1.8600
	6	9	1.3641	0.38221	1.175413	13.88866	6.17077	7.52369	9.59288	8.32721349	1349.9	1.7467
	6	9.5	1.3637	0.35891	1.198713	13.12756	6.24837	7.60949	9.69238	8.32721349	1349.9	1.6402
	6	10	1.3634	0.33701	1.220512	12.40816	6.34227	7.68789	9.76368	8.32721349	1349.9	1.5401
	6	10.5	1.3631	0.31641	1.240911	11.72816	6.41707	7.76069	9.83158	8.32721349	1349.9	1.4460
	6	11	1.3628	0.29711	1.260211	11.08546	6.48527	7.82879	9.90078	8.32721349	1349.9	1.3578
	6	11.62	1.3624	0.27481	1.28241	10.33716	6.56457	7.90759	9.97858	8.32721349	1349.9	1.2559
OWRF	7	11.62	1.4542	0.7625	0.756426	26.15936	6.91387	7.36428	8.04608	8.3327145	1450.38	3.4846
	7	11.91	1.4541	0.7491	0.769725	25.75046	6.59097	7.21738	8.20518	8.3327145	1450.38	3.4234
brams Creek	8	11.91	1.4317	0.7365	0.790425	25.34506	6.63177	7.24198	8.20688	8.33361436	1436.71	3.3658
	8	12.38	1.4316	0.716	0.810924	24.71246	6.35367	7.14908	8.47678	8.33361436	1436.71	3.2721
edbud Creek	9	12.38	1.4226	0.7112	0.817424	24.56016	6.36487	7.15408	8.48578	8.33511431	1431.4	3.2502
	9	13.16	1.4223	0.6805	0.848123	23.60816	6.15867	7.10438	8.77448	8.33511431	1431.4	3.1099
Marsh Creek	10	13.16	1.4065	0.6725	0.863023	23.34706	6.15067	7.09858	8.76228	8.33751421	1421.58	3.0733
	10	13.5	1.4064	0.66	0.875422	22.95925	5.84086	6.95478	8.92228	8.33751421	1421.58	3.0162
	10	14	1.4062	0.6421	0.893322	22.40065	5.50636	6.78709	9.06838	8.33751421	1421.58	2.9344
	10	14.5	1.4061	0.6246	0.910721	21.85565	5.24496	6.66299	9.13158	8.33751421	1421.58	2.8544
	10	15	1.4059	0.6077	0.927621	21.32385	5.05836	6.57449	9.18958	8.33751421	1421.58	2.7772
	10	15.51	1.4058	0.5908	0.94442	20.79484	4.87776	6.51419	9.21818	8.33751421	1421.58	2.7000
Lick Run	11	15.51	1.391	0.5839	0.95172	20.57014	4.86726	6.53339	9.21708	8.34081411	1411.15	2.6684
	11	16	1.3908	0.5695	0.96612	20.11614	4.94186	6.60269	9.21048	8.34081411	1411.15	2.6026
	11	16.5	1.3907	0.5552	0.980419	19.66305	5.03726	6.66919	9.16728	8.34081411	1411.15	2.5373
	11	17	1.3906	0.5412	0.994319	19.22025	5.12346	6.73209	9.11368	8.34081411	1411.15	2.4733
	11	17.5	1.3904	0.52761	1.007818	18.78745	5.20746	6.79179	9.08098	8.34081411	1411.15	2.4112
	11	18.07	1.3903	0.51251	1.022918	18.30585	5.27656	6.85679	9.08838	8.34081411	1411.15	2.3422
NWRF	12	18.07	1.39	0.51241	1.023018	18.30265	5.23246	6.85689	9.09088	8.3429141	1410.99	2.3417
	12	18.26	1.39	0.50791	1.027618	18.15765	5.52377	7.00569	9.04948	8.3429141	1410.99	2.3211
arbrook Run	13	18.26	1.3835	0.50521	1.029418	18.06925	5.54387	7.01199	9.02868	8.34461406	1406.52	2.3088
	13	18.5	1.3834	0.49961	1.035017	17.88925	5.75937	7.12709	9.01608	8.34461406	1406.52	2.2832
	13	19	1.3833	0.48811	1.046517	17.51996	6.11907	7.31239	9.00588	8.34461406	1406.52	2.2307
	13	19.42	1.3832	0.47861	1.056017	17.21566	6.33167	7.42589	9.00918	8.34461406	1406.52	2.1872
Slate Run	14	19.42	1.3681	0.47271	1.064517	17.02226	6.34137	7.43109	9.01298	8.34641396	1396.46	2.1603
	14	19.83	1.368	0.46441	1.072816	16.75486	6.32917	7.44799	9.12118	8.34641396	1396.46	2.1224
Turkey Run	15	19.83	1.3351	0.45181	1.092616	16.33986	6.37597	7.45769	9.07848	8.35171374	1374.57	2.0648
	15	26	1.3337	0.34781	1.196312	12.92676	6.52927	7.75249	9.70358	8.35171374	1374.57	1.5895



OWRF Water Quality Projections - 12.6 MGD, Summer Dry Creek Flow, Cloudy

DATE: 11/09/2005 TIME: 11:48:46 /usersm/obag0060/HEIDI/MODEL/PROJECTION/OWRF/pmodel.gdp

APPENDIX D

TOXICS MANAGEMENT PROGRAM INFORMATION

Rationale for Toxics Management Program in Permit (VA0065552) – November 29, 2005

Outfall 001: This discharge qualifies as being subject to Toxics Management Program (TMP) monitoring, because it is a municipal sewage treatment plant with a design flow greater than 1 MGD and it has a pretreatment program (TMP Guidance 00-2012, Parts IV.2.A and IV.2.B, respectively).

The results from nine semi-annual monitoring tests were evaluated using the procedures outlined in the TMP Guidance. This involves expressing the results of the toxicity tests as Toxicity Units (TU) and entering them separately by species into the Agency's STAT.exe program. The acute and chronic Wasteload Allocations (WLAs) generated from the WETLimit10.xls spreadsheet are also needed to run STAT.exe. These calculations were completed at the current design flow (8.4 MGD) for the chronic test data (calculations on following page). Based on the evaluation of data, a chronic WET limit (TU_c) will be required. Although the results met the initial permit criteria, the WETLimit10.xls spreadsheet explains that if the mean of the data exceed a TU_c of 1.0, a limit may result during the statistical analysis using STAT.exe. This constraint is due to the high Instream Waste Concentration (IWC). The TU_c is considered a maximum and is how the results are to be reported on the DMR. The permittee will have until December 31, 2009 to meet the WET limit at the 8.4 MGD flow tier. Testing will be required on a quarterly basis. There was no need to perform the same calculations with STAT.exe for the acute data since all the NOAECs were 100% (i.e. the mean of the data does not exceed a TU_a of 1.0). No acute WET limit is required at this time, nor will acute monitoring be required. Since the future chronic test data can be assessed to some degree for the presence of acute toxicity, the permit can be modified to include acute monitoring or an acute WET limit if it is deemed necessary. Should further information clearly indicate the cause of toxicity for this discharge, a pollutant specific effluent limitation can be used in lieu of a WET limit.

The permittee has also requested that three higher flow tiers be included in the permit, in addition to the current flow tier. The issuance of a Certificate to Operate (CTO) for any higher flow tier will supersede the 2009 deadline, and the permittee will be required to complete their first quarterly test within the calendar quarter that is six months from the date of issuance of the CTO. The chronic WET limit for each flow tier is listed below, along with the recommended dilution series:

Flow Tier (MGD)	WET Limit (TUc)	NOEC	Recommended Dilution Series	Limits effective
8.4	1.61	≥ 62%	100, 78.7, **62**, 48.8, 38.4%	December 31, 2009
10.4	1.59	≥ 63%	100, 79.4, **63**, 50, 39.7%	Upon issuance of CTO
12.6	1.56	≥ 64%	100, 80, **64**, 51.2, 41%	Upon issuance of CTO

A most-sensitive species will not be selected. As per the TMP Guidance and the "published rule" (EPA Form 2A application requirements), testing will require both species (*Ceriodaphnia dubia* and *Pimephales promelas*) for the chronic tests.

STAT.exe Results:

Chemical = TUc - Minnow Chronic averaging period = 4 WLAa,c = 3.2217736 WLAc = 1.1154762 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 9 Expected Value = 1.19888 Variance = .517440 C.V. = 0.6 97th percentile daily values = 2.91739 97th percentile 4 day average = 1.99469 97th percentile 30 day average= 1.44592 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 1.63146736233152 Average Weekly Limit = 1.63146736233152 Average Monthly Limit = 1.63146736233152 The data are: 1 1 1 1 1.23 2.56 1 1 1	Chemical = TUc - Flea Chronic averaging period = 4 WLAa,c = 3.2217736 WLAc = 1.1154762 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 9 Expected Value = 1.06777 Variance = .410453 C.V. = 0.6 97th percentile daily values = 2.59834 97th percentile 4 day average = 1.77655 97th percentile 30 day average= 1.28779 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 1.63146736233152 Average Weekly Limit = 1.63146736233152 Average Monthly Limit = 1.63146736233152 The data are: 1 1.61 1 1 1 1 1 1 1

8.4 MGD Flow Tier:

Spreadsheet for determination of WET test endpoints or WET limits

Excel 97
Revision Date: 01/10/05
File: WETLIM10.xls
(MIX.EXE required also)

Acute Endpoint/Permit Limit — Use as LC_{50} in Special Condition, as TUa on DMR

ACUTE	100% =	NOAEC	LC_{50} = NA	% Use as	NA	TUa
ACUTE WLAa		0.3221774	Note: Inform the permittee that if the mean of the data exceeds this TUa: 1.0 a limit may result using WLA.EXE			

Chronic Endpoint/Permit Limit — Use as NOEC in Special Condition, as TUc on DMR

CHRONIC	1.63146724 TU_c	NOEC =	62 %	Use as	1.61	TU_c
BOTH*	3.22177365 TU_c	NOEC =	32 %	Use as	3.12	TU_c
AML	1.63146724 TU_c	NOEC =	62 %	Use as	1.61	TU_c

ACUTE WLAa,c	3.2217736
CHRONIC WLAc	1.1154762

* Both means acute expressed as chronic

Note: Inform the permittee that if the mean of the data exceeds this TUc: 1.0 a limit may result using WLA.EXE

Enter data in the cells with blue type:

Entry Date:	11/16/05
Facility Name:	
VPDES Number:	VA0065552
Outfall Number:	001

		% Flow to be used from MIX.EXE
Plant Flow:	8.4 MGD	
Acute 1Q10:	0.71 MGD	87.46 %
Chronic 7Q10:	0.97 MGD	100 %

Difuser /modeling study?
Enter Y/N N
Acute 1 :1
Chronic 1 :1

Are data available to calculate CV? (Y/N) N (Minimum of 10 data points, same species, needed) Go to Page 2
Are data available to calculate ACR? (Y/N) N (NOEC<LC50, do not use greater/less than data) Go to Page 3

IWC_a	93.11641348 %	Plant flow/plant flow + 1Q10
IWC_c	89.64781217 %	Plant flow/plant flow + 7Q10

NOTE: If the IWCa is >33%, specify the NOAEC = 100% test/endpoint for use

Dilution, acute	1.073924524	100/IWCa
Dilution, chronic	1.11547619	100/IWCc

WLA_a	0.322177357	Instream criterion (0.3 TUa) X's Dilution, acute
WLA_c	1.11547619	Instream criterion (1.0 TUc) X's Dilution, chronic
$WLA_{a,c}$	3.221773571	ACR X's WLA_a - converts acute WLA to chronic units

ACR -acute/chronic ratio	10	LC50/NOEC (Default is 10 - if data are available, use tables Page 3)
CV-Coefficient of variatio	0.6	Default of 0.6 - if data are available, use tables Page 2)
Constants eA	0.4109447	Default = 0.41
eB	0.6010373	Default = 0.60
eC	2.4334175	Default = 2.43
eD	2.4334175	Default = 2.43 (1 samp) No. of sample 1

"The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.

						Rounded NOEC's	%
$LTA_{a,c}$	1.323970774	WLAa,c X's eA					
LTA_c	0.670442798	WLAc X's eB					
MDL** with $LTA_{a,c}$	3.22177365	TU_c	NOEC =	31.038804	(Protects from acute/chronic toxicity)	NOEC =	32 %
MDL** with LTA_c	1.631467237	TU_c	NOEC =	61.294519	(Protects from chronic toxicity)	NOEC =	62 %
AML with lowest LTA	1.631467237	TU_c	NOEC =	61.294519	Lowest LTA X's eD	NOEC =	62

IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a

						Rounded LC50's	%
MDL with $LTA_{a,c}$	0.322177365	TU_a	LC50 =	310.388037 %	Use NOAEC=100%	LC50 = NA	%
MDL with LTA_c	0.163146724	TU_a	LC50 =	612.945193 %	Use NOAEC=100%	LC50 = NA	

DILUTION SERIES TO RECOMMEND

Table 4.

	Monitoring % Effluent	Monitoring TUc	Limit % Effluent	Limit TUc
Dilution series based on data mean	100	1.0		
Dilution series to use for limit			62	1.6129032
Dilution factor to recommend:	0.5		0.7874008	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	50.0	2.00	78.7	1.27
	25.0	4.00	62.0	1.61
	12.5	8.00	48.8	2.05
	6.25	16.00	38.4	2.60
Extra dilutions if needed	3.12	32.05	30.3	3.30
	1.56	64.10	23.8	4.20

10.4 MGD Flow Tier:

Spreadsheet for determination of WET test endpoints or WET limits

Excel 97
Revision Date: 01/10/05
File: WETLIM10.xls
(MIX.EXE required also)

Acute Endpoint/Permit Limit — Use as LC_{50} in Special Condition, as TUa on DMR

ACUTE	100% =	NOAEC	LC_{50} = NA	% Use as	NA	TUa
ACUTE WLAa	0.3186129	Note: Inform the permittee that if the mean of the data exceeds this TUa 1.0 a limit may result using WLA.EXE				

Chronic Endpoint/Permit Limit — Use as NOEC in Special Condition, as TUc on DMR

CHRONIC	1.5989879	TU_c	NOEC =	63 %	Use as 1.58	TU_c
BOTH*	3.18612931	TU_c	NOEC =	32 %	Use as 3.12	TU_c
AML	1.5989879	TU_c	NOEC =	63 %	Use as 1.58	TU_c

ACUTE WLAa,c	3.1861292	Note: Inform the permittee that if the mean of the data exceeds this TUc: 1.0 a limit may result using WLA.EXE
CHRONIC WLAc	1.0932692	

* Both means acute expressed as chronic

Enter data in the cells with blue type:

Entry Date:	11/16/05
Facility Name:	
VPDES Number:	VA0065552
Outfall Number:	001

		% Flow to be used from MIX.EXE	Difuser /modeling study?	
Plant Flow:	10.4 MGD		Enter Y/N	N
Acute 1Q10:	0.71 MGD	90.88 %	Acute	1 :1
Chronic 7Q10:	0.97 MGD	100 %	Chronic	1 :1

Are data available to calculate CV? (Y/N)	N	(Minimum of 10 data points, same species, needed)	Go to Page 2
Are data available to calculate ACR? (Y/N)	N	(NOEC<LC50, do not use greater/less than data)	Go to Page 3

IWC_a	94.15813932 %	Plant flow/plant flow + 1Q10
IWC_c	91.46877748 %	Plant flow/plant flow + 7Q10

NOTE: If the IWCa is >33%, specify the NOAEC = 100% test/endpoint for use

Dilution, acute	1.062043077	100/IWCa
Dilution, chronic	1.093269231	100/IWCc

WLA_a	0.318612923	Instream criterion (0.3 TUa) X's Dilution, acute
WLA_c	1.093269231	Instream criterion (1.0 TUc) X's Dilution, chronic
$WLA_{a,c}$	3.186129231	ACR X's WLA_a - converts acute WLA to chronic units

ACR -acute/chronic ratio	10	LC50/NOEC (Default is 10 - if data are available, use tables Page 3)
CV-Coefficient of variatior	0.6	Default of 0.6 - if data are available, use tables Page 2)
Constants eA	0.4109447	Default = 0.41
eB	0.6010373	Default = 0.60
eC	2.4334175	Default = 2.43
eD	2.4334175	Default = 2.43 (1 samp) No. of sample 1

**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.

						Rounded NOEC's	%
$LTA_{a,c}$	1.309322921	WLAa,c X's eA					
LTA_c	0.657095587	WLAc X's eB					
MDL** with $LTA_{a,c}$	3.186129309	TU_c	NOEC =	31.386046	(Protects from acute/chronic toxicity)	NOEC =	32 %
MDL** with LTA_c	1.5989879	TU_c	NOEC =	62.539560	(Protects from chronic toxicity)	NOEC =	63 %
AML with lowest LTA	1.5989879	TU_c	NOEC =	62.539560	Lowest LTA X's eD	NOEC =	63

IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a

						Rounded LC50's	%
MDL with $LTA_{a,c}$	0.318612931	TU_a	LC50 =	313.860457 %	Use NOAEC=100%	LC50 = NA	%
MDL with LTA_c	0.15989879	TU_a	LC50 =	625.395602 %	Use NOAEC=100%	LC50 = NA	

DILUTION SERIES TO RECOMMEND

Table 4.

	Monitoring % Effluent	Monitoring TUc	Limit % Effluent	Limit TUc
Dilution series based on data mean	100	1.0		
Dilution series to use for limit			63	1.5873016
Dilution factor to recommend:	0.5		0.7937254	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	50.0	2.00	79.4	1.26
	25.0	4.00	63.0	1.59
	12.5	8.00	50.0	2.00
	6.25	16.00	39.7	2.52
Extra dilutions if needed	3.12	32.05	31.5	3.17
	1.56	64.10	25.0	4.00

12.6 MGD Flow Tier:

Spreadsheet for determination of WET test endpoints or WET limits

Excel 97
Revision Date: 01/10/05
File: WETLIM10.xls
(MIX.EXE required also)

Acute Endpoint/Permit Limit — Use as LC_{50} in Special Condition, as TUa on DMR

ACUTE	100% =	NOAEC	LC_{50} = NA	% Use as	NA	TUa
ACUTE WLAa	0.3147967	Note: Inform the permittee that if the mean of the data exceeds this TUa:	1.0	a limit may result using WLA.EXE		

Chronic Endpoint/Permit Limit — Use as NOEC in Special Condition, as TUc on DMR

CHRONIC	1.57516972	TU_c	NOEC =	64 %	Use as 1.56	TU_c
BOTH*	3.14796746	TU_c	NOEC =	32 %	Use as 3.12	TU_c
AML	1.57516972	TU_c	NOEC =	64 %	Use as 1.56	TU_c

ACUTE WLAa.c	3.1479674
CHRONIC WLAc	1.0769841

* Both means acute expressed as chronic

Note: Inform the permittee that if the mean of the data exceeds this TUc: 1.0 a limit may result using WLA.EXE

Enter data in the cells with blue type:

Entry Date:	11/16/05
Facility Name:	
VPDES Number:	VA0065552
Outfall Number:	001

		% Flow to be used from MIX.EXE
Plant Flow:	12.6 MGD	
Acute 1Q10:	0.71 MGD	87.53 %
Chronic 7Q10:	0.97 MGD	100 %

Difuser /modeling study?
Enter Y/N N
Acute 1 :1
Chronic 1 :1

Are data available to calculate CV? (Y/N) N (Minimum of 10 data points, same species, needed) Go to Page 2
Are data available to calculate ACR? (Y/N) N (NOEC<LC50, do not use greater/less than data) Go to Page 3

IWC_a	95.29958977 %	Plant flow/plant flow + 1Q10
IWC_c	92.85187915 %	Plant flow/plant flow + 7Q10

NOTE: If the IWCa is >33%, specify the NOAEC = 100% test/endpoint for use

Dilution, acute	1.04932246	100/IWCa
Dilution, chronic	1.076984127	100/IWCc

WLA_a	0.314796738	Instream criterion (0.3 TUa) X's Dilution, acute
WLA_c	1.076984127	Instream criterion (1.0 TUc) X's Dilution, chronic
$WLA_{a,c}$	3.147967381	ACR X's WLA_a - converts acute WLA to chronic units

ACR -acute/chronic ratio	10	LC50/NOEC (Default is 10 - if data are available, use tables Page 3)
CV-Coefficient of variatior	0.6	Default of 0.6 - if data are available, use tables Page 2)
Constants eA	0.4109447	Default = 0.41
eB	0.6010373	Default = 0.60
eC	2.4334175	Default = 2.43
eD	2.4334175	Default = 2.43 (1 samp) No. of sample 1

"The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.

						Rounded NOEC's	%
$LTA_{a,c}$	1.293640511	WLAa,c X's eA					
LTA_c	0.647307632	WLAc X's eB					
MDL** with $LTA_{a,c}$	3.147967458	TU_c	NOEC =	31.766529	(Protects from acute/chronic toxicity)	NOEC =	32 %
MDL** with LTA_c	1.575169719	TU_c	NOEC =	63.485222	(Protects from chronic toxicity)	NOEC =	64 %
AML with lowest LTA	1.575169719	TU_c	NOEC =	63.485222	Lowest LTA X's eD	NOEC =	64

IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a

						Rounded LC50's	%
MDL with $LTA_{a,c}$	0.314796746	TU_a	LC50 =	317.665291 %	Use NOAEC=100%	LC50 = NA	%
MDL with LTA_c	0.157516972	TU_a	LC50 =	634.852224 %	Use NOAEC=100%	LC50 = NA	

DILUTION SERIES TO RECOMMEND

Table 4.

	Monitoring % Effluent	Monitoring TUc	Limit % Effluent	Limit TUc
Dilution series based on data mean	100	1.0		
Dilution series to use for limit			64	1.5625
Dilution factor to recommend:	0.5		0.8	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	50.0	2.00	80.0	1.25
	25.0	4.00	64.0	1.56
	12.5	8.00	51.2	1.95
	6.25	16.00	41.0	2.44
Extra dilutions if needed	3.12	32.05	32.8	3.05
	1.56	64.10	26.2	3.81

APPENDIX E

PERMIT CHANGES AND BASES FOR SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page

- Content and format as prescribed by the VPDES Permit Manual.
- The permit term is less than 5 years because the expiration date was set to the end of the last full month of the permit term.
- Facility Location revised to only include 911address.

Part I.A.1. **Interim Effluent Limitations and Monitoring Requirements:** Bases for effluent limits provided in previous pages of this fact sheet. Monitoring requirements as prescribed by the VPDES Permit Manual.

Updates Part I.A.1. of the previous permit with the following:

- Slight changes were made to the format and introductory language.
- TRC and NH_3-N limits were made less stringent per new information and the WQS_WLA / STAT evaluation at this reissuance.
- NH_3-N (Jun-Nov) monitoring frequency was reduced to 1/Week per the standard reduced monitoring evaluation.
- Limits for BOD, CBOD, TSS, and TRC were revised per new significant figures guidance.
- The monthly average BOD_5 loading limit was revised to 206.99 kg/day to match the approved WQMP allocation for this discharge
- Monitoring frequency for $CBOD_5$ was reduced to 1/Week (Dec-May) per the standard reduced monitoring evaluation.
- Fecal coliform limits replaced with E. coli limits.
- Chlorides limits removed.
- WET limit added w/ reference to Schedule of Compliance footnote.
- Monitoring for Orthophosphate, TKN, Nitrate, and Nitrite were added.
- Total Nitrogen and Total Phosphorous monitoring frequency and reporting requirements were adjusted per GM No. 05 – 2009 with reference to Schedule of Compliance footnote for meeting TN and TP WLAs added.
- Flow footnote was revised to include reference to Part I.G.1. ('95% Capacity Reopener')
- Footnote was added to indicate Federal Secondary Treatment requirement for CBOD and TSS removal.

Part I.A.2. **Final Effluent Limitations and Monitoring Requirements:** *New Requirement.* Includes effluent limits and monitoring requirements for a nutrient compliant facility with an annual discharge flow of 8.4 MGD. Bases for effluent limits provided in previous pages of this fact sheet. Monitoring frequency for $CBOD_5$ was reduced to 1/Week (Dec-May) per BPJ; all other monitoring requirements are as recommended by the VPDES Permit Manual.

Part I.A.3 **Final Effluent Limitations and Monitoring Requirements:** *New Requirement.* Includes effluent limits and monitoring requirements for an expanded discharge of 10.4 MGD. Bases for effluent limits provided in previous pages of this fact sheet. Monitoring frequency for $CBOD_5$ was reduced to 1/Week (Dec-May) per BPJ; all other monitoring requirements are as recommended by the VPDES Permit Manual.

Part I.A.4 **Final Effluent Limitations and Monitoring Requirements:** *New Requirement.* Includes effluent limits and monitoring requirements for an expanded discharge of 12.6 MGD. Bases for effluent limits provided in previous pages of this fact sheet. Monitoring frequency for $CBOD_5$ was reduced to 1/Week (Dec-May) per BPJ; all other monitoring requirements are as recommended by the VPDES Permit Manual.

Part I.B. **TRC Effluent Limitations and Monitoring Requirements:** *Updates Part I.B. of the previous permit.* Specifies both disinfection and effluent limits and monitoring requirements for the chlorine contact tank , as well as limitations and monitoring requirements should the permittee elect to switch to an alternative to chlorine disinfection. Required by Sewage Collection and Treatment (SCAT) Regulations and 9 VAC 25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

Part I.C. **Schedule of Compliance:** *New Requirement.* The Schedule of Compliance applies only to Total Nitrogen, Total Phosphorous, and Whole Effluent Toxicity limitations. 9 VAC 25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under them.

Part I.D. **Effluent Limitations and Monitoring Requirements – Additional Instructions:** *Updates Part I.C. of the previous permit.* Authorized by VPDES Permit Regulation, 9 VAC 25-31-190.J.4 and 220.I. This condition is necessary when a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

Part I.E. **Pretreatment Program Requirements:** *Updates Part I.E. of the previous permit.* VPDES Permit Regulation, 9 VAC 25-31-730 through 900, and 40 CFR part 403 require certain existing and new sources of pollution to meet specified regulations.

Part I.F. **Toxics Management Program Requirements:** *Updates Part I.F. of the previous permit.* VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.

Part I.G.1. **95% Capacity Reopener:** *Identical to Part I.G.1. of the previous permit.* Required by VPDES Permit Regulation, 9 VAC 25-31-200 B.4 for all STP permits.

Part I.G.2. **Indirect Dischargers:** *Identical to Part I.E.2. of the previous permit.* Required by VPDES Permit Regulation, 9 VAC 25-31-200.B.1 for all sewage treatment plants that receive waste from someone other than the owner of the treatment works.

Part I.G.3. **Materials Handling/Storage:** *New Requirement.* 9 VAC 25-31-280.B.2. requires that the types and quantities of "wastes, fluids, or pollutants which are … treated, stored, etc." be addressed for all permitted facilities.

Part I.G.4. **CTC/CTO Requirement:** *Updates Part I.G.3. of the previous permit.* Required by Code of Virginia §62.1-44.19, SCAT Regulations, 9 VAC 25-790.

Part I.G.5. **O&M Manual Requirement:** *Updates Part I.G.3. of the previous permit.* Required by Code of Virginia §62.1-44.19; SCAT Regulations, 9 VAC 25-790; and VPDES Permit Regulation, 9 VAC 25-31-190.E for all sewage treatment plants. Added requirement to describe procedures for handling, storage and disposal of materials that will prevent pollutants from reaching State waters.

Part I.G.6. **Sludge Reopener:** *Updates Part I.G.4. of the previous permit.* Required by the VPDES Permit Regulation, 9 VAC 25-31-220.C for all permits issued to sewage treatment plants.

Part I.G.7. **SMP Requirement:** *Updates Part I.G.5. of the previous permit.* VPDES Permit Regulation 9 VAC 25-31-100.J, 220.B.2, and 420 through 720, and 40 CFR Part 503 require all sewage treatment plants to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Department of Health's Biosolids Use Regulations, 12 VAC 5-585-10 et seq.

Part I.G.8. **Licensed Operator Requirement:** *Updates Part I.G.6. of the previous permit.* The VPDES Permit Regulation 9 VAC 25-31-200 C, the Code of Virginia 54.1-2300 et seq., and Rules and Regulations for Waterworks and Wastewater Works Operators 18 VAC 160-20-10 et seq., require licensure of operators. A class I license is indicated for this facility.

Part I.G.9. **Reliability Class:** *Identical to Part I.G.7. of the previous permit.* Required by SCAT Regulations, 9 VAC 25-790. Class II status was assigned to this facility on February 7, 1985.

Part I.G.10. **Water Quality Criteria Monitoring:** *Updates Part I.G.8. of the previous permit.* State Water Control Law at 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit.

Part I.G.11. Special condition added to allow for nutrient trading.

Part I.G.12 **Chesapeake Bay Nutrients Reopener:** *New requirement.* Policy for Nutrient Enriched Waters 9 VAC 25-40-10 et seq. allows reopening of permits for discharges into waters designated as nutrient enriched if total phosphorus and total nitrogen in a discharge potentially exceed specified concentrations. The policy anticipates that future total phosphorus and total nitrogen limits may be needed to control aquatic plants.

Part I.G.13 **General Permit Controls:** *New requirement.* The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:14 of the law requires the development of a watershed general permit that authorizes point source discharges of total nitrogen and total phosphorus and provides for the control of those nutrients in lieu of the individual VPDES permits, unless the individual permits contain more restrictive limits that are necessary to protect local water quality. That section of the law also sets forth various items to be contained within the general permit. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers which are captured by the requirements of the law.

Part I.G.14 and 15 **Basis of Design Report and Interim Optimization Plan for Nutrient Removal:** *New requirement.* Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2004 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that 83% of the mainstem Bay does not fully support this use support goal under Virginia's water quality assessment guidelines. Nutrient enrichment is cited as one of the primary causes for impairment. Guidance Memorandum 05-2009 implements DEQ's best professional judgment decision to limit nutrient loadings from facilities listed on the Chesapeake Bay Program Significant Discharger List. Guidance Memorandum 05-2009 provides the basis for this decision and specifies the procedure for determining annual effluent limitations for these parameters for each affected facility. The guidance memorandum also establishes that dischargers be required to: monitor and report effluent nutrient loads; submit a Basis of Design Report to construct and operate a range of nutrient removal technologies; and submit an Interim Optimization Plan for the removal of nutrients with the existing facility.

Part I.G.16.	**Treatment Works Closure Plan:** *New requirement.* Requirement for all sewage treatment facilities, per State Water Control Law at 62.1-44.19. This condition is used to notify the owner of the need for a closure plan where a treatment works is being replaced or is expected to close.
Part II	**Conditions Applicable to All VPDES Permits:** VPDES Permit Regulation 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.
Additional Notes	Previous permit Part I.D. was replaced with a new Schedule of Compliance, and previous permit Part I.G.9 was removed because the facility has been assigned a WLA for TSS per the approved Opequon Creek TMDL.