8.7 Appendices

There are three appendices with this report for each of the dominant tree species at the Barton Flats site. The appendices report hourly means by month for deposition, V_g, and ambient air concentration for each of the gaseous species.

Appendix A (Ponderosa Pine)

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	44.44489	1.646107	0.0863	0.52984	9.919311	0.367382	0.0858	0.11894	42.76309	1.583818	0.0857	0.51336	258.104	9.559408	1.3229	0.200725	2846.1	105.4111	0.0857	34.1667
200	44.18738	1.63657	0.0858	0.52984	9.861506	0.365241	0.0853	0.11894	42.4637	1.57273	0.0851	0.51336	254.6116	9.430061	1.305	0.200725	2793.087	103.4477	0.0851	33.7667
300	45.16589	1.672811	0.0877	0.52984	10.0696	0.372948	0.0871	0.11894	43.56147	1.613388	0.0873	0.51336	251.1583	9.302159	1.2873	0.200725	2885.09	106.8552	0.0873	34
400	45.4234	1.682348	0.0882	0.52984	10.13897	0.375517	0.0877	0.11894	43.86086	1.624476	0.0879	0.51336	259.4112	9.607823	1.3296	0.200725	2879.288	106.6403	0.0879	33.7
500	43.92988	1.627033	0.0853	0.52984	9.79214	0.362672	0.0847	0.11894	42.26411	1.565337	0.0847	0.51336	229.1114	8.485609	1.1743	0.200725	2768.976	102.5547	0.0847	33.6333
600	78.44267	2.905284	0.0842	0.95846	34.65851	1.283648	0.0838	0.4255	185.4806	6.869653	0.0836	2.28258	298.5359	11.05688	1.1276	0.27238	2695.1	99.8185	0.0836	33.1667
700	73.78455	2.732761	0.0792	0.95846	32.75601	1.213186	0.0792	0.4255	174.831	6.475223	0.0788	2.28258	559.212	20.71156	2.1122	0.27238	2540.357	94.08729	0.0788	33.1667
800	74.9025	2.774167	0.0804	0.95846	33.12824	1.226972	0.0801	0.4255	175.2748	6.491658	0.079	2.28258	983.1351	36.41241	3.7134	0.27238	2510.968	92.9988	0.079	32.7
900	79.56061	2.946689	0.0854	0.95846	34.82394	1.289776	0.0842	0.4255	186.1462	6.894305	0.0839	2.28258	1122.793	41.58491	4.2409	0.27238	2730.549	101.1314	0.0839	33.4828
1000	129.5888	4.799584	0.1391	0.95846	54.26248	2.009722	0.1312	0.4255	305.2887	11.30699	0.1376	2.28258	1116.491	41.35153	4.2171	0.27238	4962.476	183.7954	0.1376	37.1034
1100	80.30591	2.974293	0.0862	0.95846	35.03073	1.297435	0.0847	0.4255	187.2556	6.935391	0.0844	2.28258	1356.914	50.25607	5.1252	0.27238	3287.133	121.7456	0.0844	40.069
1200	81.14437	3.005347	0.0871	0.95846	35.32024	1.308157	0.0854	0.4255	189.2524	7.009347	0.0853	2.28258	1300.071	48.15079	4.9105	0.27238	3550.905	131.515	0.0853	42.8276
1300	83.75292	3.10196	0.0899	0.95846	36.47829	1.351048	0.0882	0.4255	196.1302	7.264083	0.0884	2.28258	1407.217	52.11915	5.3152	0.27238	3912.44	144.9052	0.0884	45.5333
1400	81.42386	3.015699	0.0874	0.95846	35.3616	1.309689	0.0855	0.4255	189.4742	7.017564	0.0854	2.28258	1384.342	51.27194	5.2288	0.27238	3951.219	146.3414	0.0854	47.6
1500	80.21275	2.970843	0.0861	0.95846	34.94802	1.294371	0.0845	0.4255	186.8118	6.918956	0.0842	2.28258	1183.209	43.82256	4.4691	0.27238	3952.988	146.407	0.0842	48.3
1600	77.69737	2.87768	0.0834	0.95846	34.07949	1.262203	0.0824	0.4255	180.8214	6.69709	0.0815	2.28258	1110.217	41.11914	4.1934	0.27238	3477.67	128.8026	0.0815	43.9
1700	81.14437	3.005347	0.0871	0.95846	35.94062	1.331134	0.0869	0.4255	191.9148	7.107954	0.0865	2.28258	986.3651	36.53204	3.7256	0.27238	2875.468	106.4988	0.0865	34.2
1800	48.71942	1.804423	0.0946	0.52984	10.89043	0.403349	0.0942	0.11894	47.55336	1.761235	0.0953	0.51336	212.2739	7.861997	1.088	0.200725	3337.822	123.623	0.0953	36.0333
1900	45.7839	1.6957	0.0889	0.52984	10.2199	0.378515	0.0884	0.11894	44.26005	1.639261	0.0887	0.51336	222.5559	8.242812	1.1407	0.200725	3115.283	115.3809	0.0887	36.1333
2000	46.2474	1.712867	0.0898	0.52984	10.32394	0.382368	0.0893	0.11894	44.75904	1.657742	0.0897	0.51336	250.5535	9.279758	1.2842	0.200725	3039.972	112.5915	0.0897	34.8667
2100	45.37189	1.680441	0.0881	0.52984	10.13897	0.375517	0.0877	0.11894	43.76107	1.62078	0.0877	0.51336	241.2079	8.933627	1.2363	0.200725	2946.618	109.134	0.0877	34.5667
2200	45.37189	1.680441	0.0881	0.52984	10.13897	0.375517	0.0877	0.11894	43.81096	1.622628	0.0878	0.51336	249.8121	9.252298	1.2804	0.200725	2941.443	108.9423	0.0878	34.4667
2300	45.5264	1.686163	0.0884	0.52984	10.18521	0.37723	0.0881	0.11894	43.91076	1.626324	0.088	0.51336	245.3246	9.086098	1.2574	0.200725	2922.97	108.2582	0.088	34.1724
2400	45.21739	1.674718	0.0878	0.52984	10.10429	0.374233	0.0874	0.11894	43.56147	1.613388	0.0873	0.51336	249.1097	9.226284	1.2768	0.200725	2896.792	107.2886	0.0873	34.1379
	1547.35	2.387886	0.088938	0.74415	558.5714	0.861993	0.087896	0.27222	2875.212	4.437055	0.088075	1.39797	15731.74	24.27737	2.640079	0.236553	75820.71	117.0073	0.088075	36.90388

NOVEMBER	1991
START	305
STOP	334
NUMDAYS	30

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	14.41709	0.533966	0.0833	0.17806	16.17403	0.599038	0.0831	0.20024	0.727402	0.026941	0.0826	0.00906	139.9596	5.18369	1.1462	0.125625	2525.699	93.5444	0.0826	31.4583
200	14.6767	0.543582	0.0848	0.17806	16.44651	0.60913	0.0845	0.20024	0.740612	0.02743	0.0841	0.00906	154.2584	5.713274	1.2633	0.125625	2595.41	96.1263	0.0841	31.75
300	14.62478	0.541659	0.0845	0.17806	16.38812	0.606967	0.0842	0.20024	0.73797	0.027332	0.0838	0.00906	141.1563	5.22801	1.156	0.125625	2603.119	96.4118	0.0838	31.9583
400	14.60747	0.541018	0.0844	0.17806	16.38812	0.606967	0.0842	0.20024	0.73797	0.027332	0.0838	0.00906	139.2026	5.15565	1.14	0.125625	2596.334	96.1605	0.0838	31.875
500	14.93631	0.553197	0.0863	0.17806	16.73846	0.619943	0.086	0.20024	0.755582	0.027985	0.0858	0.00906	133.2803	4.936309	1.0915	0.125625	2638.7	97.72963	0.0858	31.64
600	33.46288	1.239366	0.0867	0.39708	31.71303	1.174557	0.0863	0.37806	41.54194	1.53859	0.0864	0.49466	211.8217	7.845248	1.1635	0.1873	2631.396	97.4591	0.0864	31.3333
700	32.305	1.196481	0.0837	0.39708	30.64736	1.135087	0.0834	0.37806	40.05143	1.483386	0.0833	0.49466	229.1352	8.486488	1.2586	0.1873	2580.842	95.58675	0.0833	31.875
800	33.57867	1.243655	0.087	0.39708	31.86002	1.180001	0.0867	0.37806	41.49386	1.53681	0.0863	0.49466	703.1533	26.04272	3.8623	0.1873	2670.292	98.8997	0.0863	31.8333
900	34.00323	1.259379	0.0881	0.39708	32.2275	1.193611	0.0877	0.37806	41.97467	1.554617	0.0873	0.49466	607.6106	22.5041	3.3375	0.1873	2718.773	100.6953	0.0873	32.04
1000	35.04533	1.297975	0.0908	0.39708	33.07269	1.224914	0.09	0.37806	43.36902	1.60626	0.0902	0.49466	742.3499	27.49444	4.0776	0.1873	2917.804	108.0668	0.0902	33.28
1100	34.15762	1.265097	0.0885	0.39708	32.30099	1.196333	0.0879	0.37806	41.97467	1.554617	0.0873	0.49466	779.7623	28.88009	4.2831	0.1873	3156.628	116.9122	0.0873	37.2
1200	34.50498	1.277962	0.0894	0.39708	32.55822	1.20586	0.0886	0.37806	42.4074	1.570644	0.0882	0.49466	861.8694	31.92109	4.7341	0.1873	3357.202	124.3408	0.0882	39.16
1300	34.3506	1.272244	0.089	0.39708	32.44798	1.201777	0.0883	0.37806	42.21508	1.563521	0.0878	0.49466	753.073	27.89159	4.1365	0.1873	3424.332	126.8271	0.0878	40.125
1400	33.23131	1.230789	0.0861	0.39708	31.4558	1.16503	0.0856	0.37806	40.67649	1.506536	0.0846	0.49466	797.531	29.53818	4.3807	0.1873	3346.456	123.9428	0.0846	40.6957
1500	32.99973	1.222212	0.0855	0.39708	31.19857	1.155503	0.0849	0.37806	40.388	1.495852	0.084	0.49466	779.6349	28.87537	4.2824	0.1873	3216.931	119.1456	0.084	39.4
1600	34.65937	1.28368	0.0898	0.39708	32.88895	1.218109	0.0895	0.37806	42.84013	1.586671	0.0891	0.49466	699.3666	25.90247	3.8415	0.1873	2916.863	108.032	0.0891	33.68
1700	34.04183	1.260808	0.0882	0.39708	32.30099	1.196333	0.0879	0.37806	42.16699	1.561741	0.0877	0.49466	582.6143	21.57831	3.2002	0.1873	2414.121	89.4119	0.0877	28.32
1800	14.88439	0.551274	0.086	0.17806	16.66061	0.61706	0.0856	0.20024	0.753821	0.027919	0.0856	0.00906	147.2372	5.453231	1.2058	0.125625	2524.901	93.51485	0.0856	30.3462
1900	14.33055	0.530761	0.0828	0.17806	16.05725	0.594713	0.0825	0.20024	0.722999	0.026778	0.0821	0.00906	138.6897	5.136655	1.1358	0.125625	2538.293	94.01084	0.0821	31.8077
2000	14.39978	0.533325	0.0832	0.17806	16.15456	0.598317	0.083	0.20024	0.727402	0.026941	0.0826	0.00906	139.6421	5.171931	1.1436	0.125625	2584.63	95.72702	0.0826	32.1923
2100	14.33055	0.530761	0.0828	0.17806	16.05725	0.594713	0.0825	0.20024	0.721238	0.026713	0.0819	0.00906	135.2218	5.008217	1.1074	0.125625	2518.759	93.28738	0.0819	31.64
2200	14.05363	0.520505	0.0812	0.17806	15.7653	0.5839	0.081	0.20024	0.708909	0.026256	0.0805	0.00906	128.6036	4.763097	1.0532	0.125625	2456.924	90.9972	0.0805	31.4
2300	14.33055	0.530761	0.0828	0.17806	16.05725	0.594713	0.0825	0.20024	0.72388	0.02681	0.0822	0.00906	130.0323	4.81601	1.0649	0.125625	2575.924	95.40461	0.0822	32.24
2400	14.88439	0.551274	0.086	0.17806	16.66061	0.61706	0.0856	0.20024	0.755582	0.027985	0.0858	0.00906	132.8896	4.921837	1.0883	0.125625	2695.41	99.83002	0.0858	32.32
	580.8168	0.896322	0.085871	0.28757	580.2202	0.895402	0.085479	0.28915	509.913	0.786903	0.085125	0.25186	9408.096	14.51867	2.33975	0.156463	66205.74	102.1694	0.085125	33.31542

DECEMBER	1991
START	335
STOP	361
NUMDAYS	27

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	11.38008	0.367099	0.0848	0.12025	29.34207	0.946518	0.0845	0.31115	24.66949	0.79579	0.0842	0.262533	92.56931	2.986107	1.2748	0.065067	3616.224	116.6524	0.0842	38.4839
200	11.74241	0.378787	0.0875	0.12025	30.31435	0.977882	0.0873	0.31115	25.51915	0.823198	0.0871	0.262533	100.7893	3.251268	1.388	0.065067	3715.685	119.8608	0.0871	38.2258
300	11.76925	0.379653	0.0877	0.12025	30.3838	0.980123	0.0875	0.31115	25.60705	0.826034	0.0874	0.262533	103.3163	3.332784	1.4228	0.065067	3662.411	118.1423	0.0874	37.5484
400	11.86319	0.382684	0.0884	0.12025	30.66159	0.989084	0.0883	0.31115	25.78284	0.831705	0.088	0.262533	104.8412	3.381974	1.4438	0.065067	3693.888	119.1577	0.088	37.6129
500	11.46059	0.369697	0.0854	0.12025	29.58514	0.954359	0.0852	0.31115	24.81598	0.800516	0.0847	0.262533	97.48533	3.144688	1.3425	0.065067	3530.97	113.9023	0.0847	37.3548
600	21.18661	0.683439	0.0854	0.2223	38.12361	1.229794	0.0852	0.40095	32.03453	1.033372	0.0846	0.3393	158.3462	5.107941	1.2601	0.1126	3420.208	110.32[illegible]	0.0846	36.2258
700	21.18661	0.683439	0.0854	0.2223	38.07886	1.22835	0.0851	0.40095	32.03453	1.033372	0.0846	0.3393	168.0975	5.422501	1.3377	0.1126	3444.576	111.1154	0.0846	36.4839
800	21.26104	0.68584	0.0857	0.2223	38.30259	1.235568	0.0856	0.40095	32.0724	1.034594	0.0847	0.3393	524.8508	16.93067	4.1767	0.1126	3466.939	111.8367	0.0847	36.6774
900	21.60836	0.697044	0.0871	0.2223	38.88429	1.254332	0.0869	0.40095	32.67825	1.054137	0.0863	0.3393	493.6867	15.92538	3.9287	0.1126	3498.259	112.8471	0.0863	36.3226
1000	23.39459	0.754664	0.0943	0.2223	41.88227	1.351041	0.0936	0.40095	35.59393	1.148191	0.094	0.3393	543.2854	17.52533	4.3234	0.1126	3794.031	122.3881	0.094	36.1667
1100	23.29535	0.751463	0.0939	0.2223	41.92702	1.352485	0.0937	0.40095	35.44246	1.143305	0.0936	0.3393	594.6433	19.18204	4.7321	0.1126	4000.726	129.0557	0.0936	38.3
1200	23.66748	0.763467	0.0954	0.2223	42.28499	1.364032	0.0945	0.40095	36.01045	1.161627	0.0951	0.3393	660.226	21.29761	5.254	0.1126	4204.18	135.6187	0.0951	39.6129
1300	23.69229	0.764267	0.0955	0.2223	42.28499	1.364032	0.0945	0.40095	36.04832	1.162849	0.0952	0.3393	598.3754	19.30243	4.7618	0.1126	4304.56	138.8568	0.0952	40.5161
1400	23.66748	0.763467	0.0954	0.2223	42.24024	1.362588	0.0944	0.40095	36.01045	1.161627	0.0951	0.3393	596.5156	19.24244	4.747	0.1126	4371.943	141.0304	0.0951	41.1936
1500	23.4442	0.756265	0.0945	0.2223	41.97177	1.353928	0.0938	0.40095	35.70752	1.151856	0.0943	0.3393	538.46	17.36968	4.285	0.1126	4365.716	140.8295	0.0943	41.4839
1600	23.17131	0.747462	0.0934	0.2223	41.6138	1.342381	0.093	0.40095	35.25313	1.137198	0.0931	0.3393	464.8348	14.99467	3.6991	0.1126	4139.225	133.5234	0.0931	39.8387
1700	22.20377	0.716251	0.0895	0.2223	39.9582	1.288974	0.0893	0.40095	33.66277	1.085896	0.0889	0.3393	477.7905	15.4126	3.8022	0.1126	3645.252	117.5888	0.0889	36.7419
1800	11.42033	0.368398	0.0851	0.12025	29.44624	0.949879	0.0848	0.31115	24.72809	0.79768	0.0844	0.262533	85.83066	2.768731	1.182	0.065067	3491.12	112.6168	0.0844	37.0645
1900	11.36666	0.366666	0.0847	0.12025	29.34207	0.946518	0.0845	0.31115	24.61089	0.7939	0.084	0.262533	89.62841	2.891239	1.2343	0.065067	3577.393	115.3998	0.084	38.1613
2000	11.36666	0.366666	0.0847	0.12025	29.34207	0.946518	0.0845	0.31115	24.58159	0.792955	0.0839	0.262533	93.69484	3.022414	1.2903	0.065067	3615.418	116.6264	0.0839	38.6129
2100	11.33982	0.365801	0.0845	0.12025	29.23789	0.943158	0.0842	0.31115	24.5523	0.79201	0.0838	0.262533	91.78507	2.960809	1.264	0.065067	3671.449	118.4338	0.0838	39.2581
2200	11.46059	0.369697	0.0854	0.12025	29.61986	0.955479	0.0853	0.31115	24.84528	0.801461	0.0848	0.262533	92.00292	2.967836	1.267	0.065067	3706.1	119.5516	0.0848	39.1613
2300	11.47401	0.37013	0.0855	0.12025	29.58514	0.954359	0.0852	0.31115	24.84528	0.801461	0.0848	0.262533	96.59943	3.116111	1.3303	0.065067	3709.157	119.6502	0.0848	39.1936
2400	11.43375	0.368831	0.0852	0.12025	29.51569	0.952119	0.085	0.31115	24.75739	0.798625	0.0845	0.262533	94.01435	3.032721	1.2947	0.065067	3686.906	118.9325	0.0845	39.0968
	409.8564	0.550882	0.088517	0.171275	843.9285	1.134313	0.088163	0.35605	711.8641	0.956807	0.087963	0.300917	6961.669	9.357082	2.585096	0.088834	90332.34	121.4144	0.087963	38.30574

JANUARY	1992
START	1
STOP	31
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	14.77446	0.509464	0.0876	0.16155	2.58841	0.089256	0.0873	0.0284	4.778077	0.164761	0.0873	0.052425	114.6408	3.95313	1.2629	0.08695	3350.223	115.5249	0.0873	36.7586
200	15.58402	0.53738	0.0924	0.16155	2.733693	0.094265	0.0922	0.0284	5.073629	0.174953	0.0927	0.052425	120.3142	4.148767	1.3254	0.08695	3594.161	123.9366	0.0927	37.1379
300	15.63462	0.539125	0.0927	0.16155	2.742588	0.094572	0.0925	0.0284	5.090048	0.175519	0.093	0.052425	117.0372	4.035767	1.2893	0.08695	3622.532	124.9149	0.093	37.3103
400	15.2467	0.525748	0.0904	0.16155	2.668464	0.092016	0.09	0.0284	4.947746	0.170612	0.0904	0.052425	109.3213	3.7697	1.2043	0.08695	3537.537	121.984	0.0904	37.4828
500	15.17924	0.523422	0.09	0.16155	2.659569	0.091709	0.0897	0.0284	4.931326	0.170046	0.0901	0.052425	109.3395	3.770326	1.2045	0.08695	3538.769	122.0265	0.0901	37.6207
600	30.55614	1.05366	0.0906	0.32305	5.379393	0.185496	0.0902	0.057125	67.30425	2.320836	0.0905	0.71235	290.8737	10.03013	1.2986	0.21455	3574.027	123.2423	0.0905	37.8276
700	29.27453	1.009467	0.0868	0.32305	5.164694	0.178093	0.0866	0.057125	64.55259	2.225951	0.0868	0.71235	516.0286	17.79409	2.3038	0.21455	3456.026	119.1733	0.0868	38.1379
800	31.50048	1.086223	0.0934	0.32305	5.552344	0.19146	0.0931	0.057125	69.38659	2.392641	0.0933	0.71235	829.0101	28.58656	3.7011	0.21455	3694.677	127.4026	0.0933	37.931
900	34.67076	1.195543	0.1028	0.32305	6.106982	0.210586	0.1024	0.057125	77.26974	2.664474	0.1039	0.71235	883.2382	30.45649	3.9432	0.21455	4189.249	144.4569	0.1039	38.6207
1000	38.24576	1.318819	0.1134	0.32305	6.721259	0.231768	0.1127	0.057125	85.89659	2.961951	0.1155	0.71235	1030.937	35.54956	4.6026	0.21455	4889.805	168.614	0.1155	40.5517
1100	36.28963	1.251366	0.1076	0.32305	6.387283	0.220251	0.1071	0.057125	81.13695	2.797826	0.1091	0.71235	1075.108	37.0727	4.7998	0.21455	4800.685	165.5409	0.1091	42.1481
1200	35.51392	1.224618	0.1053	0.32305	6.250115	0.215521	0.1048	0.057125	79.12898	2.728585	0.1064	0.71235	1078.065	37.17465	4.813	0.21455	4788.406	165.1174	0.1064	43.1071
1300	34.09741	1.175773	0.1011	0.32305	5.993669	0.206678	0.1005	0.057125	75.63362	2.608056	0.1017	0.71235	1150.906	39.68643	5.1382	0.21455	4705.816	162.2695	0.1017	44.3214
1400	33.28798	1.147861	0.0987	0.32305	5.850537	0.201743	0.0981	0.057125	73.55128	2.536251	0.0989	0.71235	1133.032	39.07007	5.0584	0.21455	4720.075	162.7612	0.0989	45.7143
1500	32.34364	1.115298	0.0959	0.32305	5.677585	0.195779	0.0952	0.057125	71.24583	2.456753	0.0958	0.71235	1096.678	37.8165	4.8961	0.21455	4629.274	159.6301	0.0958	46.2857
1600	33.01817	1.138557	0.0979	0.32305	5.802826	0.200097	0.0973	0.057125	72.88195	2.513171	0.098	0.71235	1178.121	40.62487	5.2597	0.21455	4837.895	166.8239	0.098	47.2857
1700	31.60166	1.089712	0.0937	0.32305	5.564272	0.191871	0.0933	0.057125	69.53533	2.39777	0.0935	0.71235	911.3489	31.42583	4.0687	0.21455	4340.338	149.6668	0.0935	44.4643
1800	15.61775	0.538543	0.0926	0.16155	2.736658	0.094368	0.0923	0.0284	5.079102	0.175141	0.0928	0.052425	189.322	6.528345	2.0856	0.08695	3657.341	126.1152	0.0928	37.75
1900	15.3479	0.529238	0.091	0.16155	2.692184	0.092834	0.0908	0.0284	4.986058	0.171933	0.0911	0.052425	101.7415	3.508328	1.1208	0.08695	3515.615	121.2281	0.0911	36.9643
2000	15.38163	0.530401	0.0912	0.16155	2.692184	0.092834	0.0908	0.0284	4.997004	0.17231	0.0913	0.052425	103.3755	3.564672	1.1388	0.08695	3482.481	120.0855	0.0913	36.5357
2100	15.43223	0.532146	0.0915	0.16155	2.704044	0.093243	0.0912	0.0284	5.018897	0.173065	0.0917	0.052425	106.3711	3.667968	1.1718	0.08695	3463.551	119.4328	0.0917	36.1786
2200	15.02745	0.518188	0.0891	0.16155	2.635849	0.090891	0.0889	0.0284	4.876594	0.168158	0.0891	0.052425	106.716	3.679863	1.1756	0.08695	3418.5	117.8793	0.0891	36.75
2300	15.07804	0.519933	0.0894	0.16155	2.644744	0.091198	0.0892	0.0284	4.887541	0.168536	0.0893	0.052425	114.0326	3.932157	1.2562	0.08695	3446.152	118.8328	0.0893	36.9643
2400	14.77446	0.509464	0.0876	0.16155	2.58841	0.089256	0.0873	0.0284	4.772604	0.164573	0.0872	0.052425	117.482	4.051105	1.2942	0.08695	3293.584	113.5719	0.0872	36.1786
	583.4785	0.838331	0.094696	0.2423	102.5378	0.147324	0.094313	0.042763	946.9623	1.360578	0.094975	0.382388	12583.04	18.07908	2.725525	0.15075	94546.72	135.843	0.094975	39.58447

FEBRUARY	1992
START	32
STOP	60
NUMDAYS	29

PONDEROSA FINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	48.03505	1.54955	0.0962	0.447433	28.79019	0.928716	0.0956	0.26985	99.66016	3.214844	0.0971	0.919683	188.0229	6.065254	0.9495	0.17744	3767.445	121.5305	0.0971	34.7667
200	46.93751	1.514113	0.094	0.447433	28.57938	0.921916	0.0949	0.26985	98.83907	3.188357	0.0963	0.919683	192.3794	6.205787	0.9715	0.17744	3844.682	124.022	0.0963	35.7742
300	46.28838	1.493173	0.0927	0.447433	27.79638	0.896658	0.0923	0.26985	95.65733	3.08572	0.0932	0.919683	200.0033	6.451718	1.01	0.17744	3741.044	120.6788	0.0932	35.9677
400	45.48944	1.467401	0.0911	0.447433	27.31454	0.881114	0.0907	0.26985	93.91251	3.029436	0.0915	0.919683	189.8249	6.123383	0.9586	0.17744	3695.873	119.2217	0.0915	36.1936
500	44.9901	1.451294	0.0901	0.447433	27.01339	0.8714	0.0897	0.26985	92.78351	2.993016	0.0904	0.919683	192.5378	6.210897	0.9723	0.17744	3661.198	118.1032	0.0904	36.2903
600	94.47438	3.047561	0.0898	0.9427	71.59524	2.309524	0.0897	0.7152	147.4727	4.757185	0.09	1.468267	307.3854	9.915659	1.0861	0.2536	3557.525	114.7589	0.09	35.4194
700	96.15766	3.10186	0.0914	0.9427	72.71267	2.34557	0.0911	0.7152	149.7668	4.831186	0.0914	1.468267	743.742	23.99168	2.6279	0.2536	3556.926	114.7395	0.0914	34.871
800	114.0426	3.678792	0.1084	0.9427	86.36126	2.785847	0.1082	0.7152	180.736	5.830195	0.1103	1.468267	1102.297	35.55797	3.8948	0.2536	4550.532	146.7913	0.1103	36.9677
900	129.8234	4.18785	0.1234	0.9427	98.17407	3.166906	0.123	0.7152	207.9366	6.707631	0.1269	1.468267	1141.948	36.83702	4.0349	0.2536	5628.264	181.5569	0.1269	39.7419
1000	181.374	5.850773	0.1724	0.9427	132.2556	4.266311	0.1657	0.7152	287.8996	9.287082	0.1757	1.468267	1167.533	37.66234	4.1253	0.2536	8102.585	261.3737	0.1757	41.3226
1100	118.356	3.817935	0.1125	0.9427	89.55391	2.888836	0.1122	0.7152	187.782	6.057482	0.1146	1.468267	1260.051	40.64681	4.4522	0.2536	5404.541	174.34	0.1146	42.2581
1200	116.4623	3.756848	0.1107	0.9427	88.0374	2.839916	0.1103	0.7152	184.3409	5.946481	0.1125	1.468267	1321.098	42.61606	4.6679	0.2536	5382.454	173.6276	0.1125	42.871
1300	119.3028	3.848478	0.1134	0.9427	90.19244	2.909434	0.113	0.7152	189.5844	6.115626	0.1157	1.468267	1421.286	45.84794	5.0219	0.2536	5806.283	187.2995	0.1157	44.9677
1400	121.7226	3.926534	0.1157	0.9427	91.9484	2.966077	0.1152	0.7152	193.517	6.242484	0.1181	1.468267	1379.032	44.48489	4.8726	0.2536	6181.823	199.4136	0.1181	46.9032
1500	119.1976	3.845085	0.1133	0.9427	90.11263	2.906859	0.1129	0.7152	189.0928	6.099768	0.1154	1.468267	1383.843	44.64009	4.8896	0.2536	6177.587	199.277	0.1154	47.9677
1600	121.6173	3.92314	0.1156	0.9427	92.02822	2.968652	0.1153	0.7152	193.517	6.242484	0.1181	1.468267	1474.069	47.55061	5.2084	0.2536	6394.403	206.2711	0.1181	48.5161
1700	120.9861	3.902778	0.115	0.9427	91.62914	2.955779	0.1148	0.7152	192.5339	6.210769	0.1175	1.468267	1288.353	41.55977	4.5522	0.2536	6345	204.6774	0.1175	48.3871
1800	53.9282	1.73962	0.108	0.447433	32.40402	1.045291	0.1076	0.26985	112.4897	3.628701	0.1096	0.919683	803.5577	25.92122	4.0579	0.17744	5326.562	171.8246	0.1096	43.5484
1900	50.03339	1.61398	0.1002	0.447433	29.96468	0.966603	0.0995	0.26985	104.1762	3.360522	0.1015	0.919683	201.2904	6.493239	1.0165	0.17744	4077.864	131.544	0.1015	36
2000	49.93352	1.610759	0.1	0.447433	29.96468	0.966603	0.0995	0.26985	104.0735	3.357211	0.1014	0.919683	191.7853	6.186623	0.9685	0.17744	3997.19	128.9416	0.1014	35.3226
2100	50.23312	1.620423	0.1006	0.447433	30.17549	0.973403	0.1002	0.26985	104.9973	3.387009	0.1023	0.919683	179.6663	5.795687	0.9073	0.17744	4110.005	132.5808	0.1023	36
2200	51.831	1.671968	0.1038	0.447433	31.04883	1.001575	0.1031	0.26985	108.3843	3.496267	0.1056	0.919683	180.201	5.812934	0.91	0.17744	4124.736	133.056	0.1056	35
2300	52.4302	1.691297	0.105	0.447433	31.44033	1.014204	0.1044	0.26985	109.7185	3.539308	0.1069	0.919683	188.0229	6.065254	0.9495	0.17744	4102.395	132.3353	0.1069	34.3871
2400	50.03339	1.61398	0.1002	0.447433	30.02491	0.968546	0.0997	0.26985	104.4841	3.370454	0.1018	0.919683	184.7357	5.959216	0.9329	0.17744	4045.939	130.5142	0.1018	35.6129
	2043.681	2.746883	0.106813	0.695067	1449.118	1.947739	0.106192	0.492525	3533.356	4.749134	0.108492	1.193975	16882.66	22.69175	2.668263	0.21552	115582.9	155.3533	0.108492	39.37738

MARCH	1992
START	61
STOP	91
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	126.5866	4.219553	0.0854	1.37248	15.8019	0.52673	0.0848	0.17254	87.00906	2.900302	0.0797	1.01084	226.0001	7.533336	0.8945	0.23394	3764.388	125.4796	0.0797	43.7333
200	121.1021	4.036738	0.0817	1.37248	15.13107	0.504369	0.0812	0.17254	84.06145	2.802048	0.077	1.01084	223.1451	7.438169	0.8832	0.23394	3562.017	118.7339	0.077	42.8333
300	117.6929	3.923097	0.0794	1.37248	14.72111	0.490704	0.079	0.17254	82.53306	2.751102	0.0756	1.01084	246.0104	8.200346	0.9737	0.23394	3407.44	113.5813	0.0756	41.7333
400	116.9518	3.898392	0.0789	1.37248	14.64658	0.488219	0.0786	0.17254	81.87804	2.729268	0.075	1.01084	224.282	7.476067	0.8877	0.23394	3285.903	109.5301	0.075	40.5667
500	111.7638	3.72546	0.0754	1.37248	13.99437	0.466479	0.0751	0.17254	79.25794	2.641931	0.0726	1.01084	225.7474	7.524914	0.8935	0.23394	3136.32	104.544	0.0726	40
600	183.6629	6.122097	0.0775	2.1943	45.56891	1.518964	0.0773	0.54584	118.2591	3.941969	0.0736	1.48776	1466.147	48.87157	1.5229	0.89142	3221.911	107.397	0.0736	40.5333
700	195.9861	6.53287	0.0827	2.1943	48.10379	1.60346	0.0816	0.54584	126.293	4.209766	0.0786	1.48776	1958.682	65.28938	2.0345	0.89142	3559.634	118.6545	0.0786	41.9333
800	225.6091	7.520305	0.0952	2.1943	54.29361	1.809787	0.0921	0.54584	145.8957	4.86319	0.0908	1.48776	3192.713	106.4238	3.3163	0.89142	4403.074	146.7691	0.0908	44.9
900	355.0026	11.83342	0.1498	2.1943	82.53101	2.751034	0.14	0.54584	233.7866	7.792887	0.1455	1.48776	3491.353	116.3784	3.6265	0.89142	7767.949	258.9316	0.1455	49.4333
1000	236.2734	7.875782	0.0997	2.1943	56.82849	1.894283	0.0964	0.54584	153.1262	5.104207	0.0953	1.48776	4291.192	143.0397	4.4573	0.89142	5352.048	178.4016	0.0953	52
1100	242.1981	8.073269	0.1022	2.1943	58.06646	1.935549	0.0985	0.54584	156.6611	5.222038	0.0975	1.48776	4670.413	155.6804	4.8512	0.89142	5668.046	188.9349	0.0975	53.8276
1200	243.383	8.112766	0.1027	2.1943	58.36121	1.945374	0.099	0.54584	157.9466	5.264885	0.0983	1.48776	5321.991	177.3997	5.528	0.89142	6355.688	211.8563	0.0983	59.8667
1300	244.5679	8.152263	0.1032	2.1943	58.59702	1.953234	0.0994	0.54584	158.5893	5.286309	0.0987	1.48776	5472.563	182.4188	5.6844	0.89142	7035.336	234.5112	0.0987	66
1400	244.3309	8.144364	0.1031	2.1943	58.53806	1.951269	0.0993	0.54584	158.2679	5.275597	0.0985	1.48776	5581.063	186.0354	5.7971	0.89142	7641.626	254.7209	0.0985	71.8333
1500	241.9611	8.065369	0.1021	2.1943	58.00751	1.933584	0.0984	0.54584	156.6611	5.222038	0.0975	1.48776	5375.616	179.1872	5.5837	0.89142	8202.87	273.429	0.0975	77.9
1600	237.6954	7.923178	0.1003	2.1943	57.12325	1.904108	0.0969	0.54584	153.9296	5.130987	0.0958	1.48776	4877.016	162.5672	5.0658	0.89142	8666.838	288.8946	0.0958	83.7667
1700	228.453	7.615099	0.0964	2.1943	55.11892	1.837297	0.0935	0.54584	147.6632	4.922105	0.0919	1.48776	4248.736	141.6245	4.4132	0.89142	8780.497	292.6832	0.0919	88.4667
1800	131.9228	4.397426	0.089	1.37248	16.3423	0.544743	0.0877	0.17254	92.24926	3.074975	0.0845	1.01084	1168.025	38.93417	4.623	0.23394	8100.849	270.0283	0.0845	88.7667
1900	120.9539	4.031797	0.0816	1.37248	15.16834	0.505611	0.0814	0.17254	84.71648	2.823883	0.0776	1.01084	548.9945	18.29982	2.1729	0.23394	5433.549	181.1183	0.0776	64.8333
2000	121.3433	4.061443	0.0822	1.37248	15.16834	0.505611	0.0814	0.17254	84.60731	2.820244	0.0775	1.01084	211.0429	7.034763	0.8353	0.23394	4369.14	145.638	0.0775	52.2
2100	130.737	4.357898	0.0882	1.37248	16.2864	0.54288	0.0874	0.17254	89.62916	2.987639	0.0821	1.01084	221.1996	7.373321	0.8755	0.23394	4273.798	142.4599	0.0821	48.2
2200	125.2525	4.175084	0.0845	1.37248	15.65283	0.521761	0.084	0.17254	86.57238	2.885746	0.0793	1.01084	206.7478	6.891592	0.8183	0.23394	3913.931	130.4644	0.0793	45.7
2300	121.2504	4.041679	0.0818	1.37248	15.16834	0.505611	0.0814	0.17254	84.17063	2.805688	0.0771	1.01084	208.4911	6.949702	0.8252	0.23394	3760.941	125.3647	0.0771	45.1667
2400	126.883	4.229434	0.0856	1.37248	15.83917	0.527972	0.085	0.17254	87.11823	2.903941	0.0798	1.01084	233.5292	7.784307	0.9243	0.23394	3886.898	129.5633	0.0798	45.1
	4352.064	6.044533	0.092025	1.78339	875.059	1.21536	0.089975	0.35919	2890.882	4.015114	0.087492	1.2493	53890.7	74.8482	2.812	0.56268	127550.7	177.1537	0.087492	55.38726

APRIL	1992
START	92
STOP	121
NUMDAYS	30

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	167.1456	5.391793	0.0845	1.77245	37.91738	1.223141	0.0835	0.4069	200.5781	6.470261	0.0797	2.255075	430.4425	13.88524	1.0705	0.3603	3969.918	128.0619	0.0797	44.6333
200	164.7719	5.315223	0.0833	1.77245	37.37246	1.205563	0.0823	0.4069	198.3131	6.397197	0.0788	2.255075	406.5983	13.11607	1.0112	0.3603	3886.983	125.3866	0.0788	44.2
300	166.3544	5.36627	0.0841	1.77245	37.78115	1.218747	0.0832	0.4069	199.5714	6.437788	0.0793	2.255075	426.8236	13.7685	1.0615	0.3603	3823.148	123.3274	0.0793	43.2
400	165.3653	5.334366	0.0836	1.77245	37.59951	1.212888	0.0828	0.4069	198.8164	6.413433	0.079	2.255075	430.2414	13.87876	1.07	0.3603	3788.116	122.1973	0.079	42.9667
500	162.9917	5.257796	0.0824	1.77245	37.23623	1.201169	0.082	0.4069	196.5514	6.340369	0.0781	2.255075	461.9667	14.90215	1.1489	0.3603	3727.528	120.2429	0.0781	42.7667
600	349.8285	11.28479	0.0832	3.767625	61.59344	1.986885	0.0826	0.668175	213.9014	6.900046	0.0787	2.435425	2674.5	86.27419	2.0269	1.18235	3858.82	124.4781	0.0787	43.9355
700	401.5459	12.95309	0.0955	3.767625	69.19941	2.232239	0.0928	0.668175	245.7013	7.925847	0.0904	2.435425	3522.94	113.6432	2.6699	1.18235	4718.881	152.222	0.0904	46.7742
800	443.5926	14.30944	0.1055	3.767625	75.76142	2.443917	0.1016	0.668175	272.337	8.785065	0.1002	2.435425	4705.082	151.7769	3.5658	1.18235	5890.555	190.0179	0.1002	52.6774
900	400.705	12.92597	0.0953	3.767625	68.90114	2.222617	0.0924	0.668175	247.0602	7.969685	0.0909	2.435425	5332.638	172.0206	4.0414	1.18235	5618.711	181.2487	0.0909	55.3871
1000	438.9675	14.16024	0.1044	3.767625	74.79203	2.412646	0.1003	0.668175	271.2498	8.749995	0.0998	2.435425	6303.528	203.3396	4.7772	1.18235	6294.582	203.051	0.0998	56.5161
1100	432.24	13.94323	0.1028	3.767625	73.30067	2.364538	0.0983	0.668175	270.4345	8.723692	0.0995	2.435425	7659.581	247.0832	5.8049	1.18235	6718.041	216.711	0.0995	60.5
1200	432.24	13.94323	0.1028	3.767625	73.44981	2.369349	0.0985	0.668175	270.7063	8.73246	0.0996	2.435425	7780.975	250.9992	5.8969	1.18235	7328.468	236.4022	0.0996	65.931
1300	431.8196	13.92966	0.1027	3.767625	73.37524	2.366943	0.0984	0.668175	270.4345	8.723692	0.0995	2.435425	7610.891	245.5126	5.768	1.18235	8224.77	265.3152	0.0995	74.069
1400	430.9786	13.90254	0.1025	3.767625	73.15153	2.359727	0.0981	0.668175	269.6191	8.69739	0.0992	2.435425	7826.894	252.4804	5.9317	1.18235	9085.629	293.0848	0.0992	82.069
1500	428.0354	13.80759	0.1018	3.767625	72.77869	2.3477	0.0976	0.668175	267.4447	8.62725	0.0984	2.435425	8010.568	258.4054	6.0709	1.18235	9985.533	322.114	0.0984	90.931
1600	431.8196	13.92966	0.1027	3.767625	73.74808	2.37897	0.0989	0.668175	267.1729	8.618482	0.0983	2.435425	7290.12	235.1652	5.5249	1.18235	10720.61	345.826	0.0983	97.7241
1700	443.1722	14.29588	0.1054	3.767625	76.20883	2.458349	0.1022	0.668175	268.5319	8.66232	0.0988	2.435425	6186.884	199.5769	4.6888	1.18235	11490.75	370.6694	0.0988	104.2143
1800	196.223	6.329773	0.0992	1.77245	44.09315	1.42236	0.0971	0.4069	232.7914	7.5094	0.0925	2.255075	1632.585	52.66404	4.0602	0.3603	10547.9	340.2547	0.0925	102.1786
1900	200.1791	6.45739	0.1012	1.77245	45.72791	1.475094	0.1007	0.4069	231.5331	7.468808	0.092	2.255075	1314.086	42.38987	3.2681	0.3603	9265.265	298.8795	0.092	90.2414
2000	215.4101	6.948713	0.1089	1.77245	48.81579	1.574703	0.1075	0.4069	245.123	7.907195	0.0974	2.255075	344.0725	11.09911	0.8557	0.3603	6677.701	215.4097	0.0974	61.4333
2100	209.8716	6.77005	0.1061	1.77245	47.63513	1.536617	0.1049	0.4069	240.3414	7.752948	0.0955	2.255075	406.6787	13.11867	1.0114	0.3603	5545.605	178.8905	0.0955	52.0333
2200	194.2449	6.265965	0.0982	1.77245	44.00233	1.41943	0.0969	0.4069	225.7447	7.282088	0.0897	2.255075	396.8676	12.80218	0.987	0.3603	4845.092	156.2933	0.0897	48.4
2300	182.97	5.902259	0.0925	1.77245	41.55019	1.340329	0.0915	0.4069	215.4264	6.949239	0.0856	2.255075	413.2328	13.33009	1.0277	0.3603	4448.498	143.4999	0.0856	46.5667
2400	177.8271	5.736357	0.0899	1.77245	40.32412	1.300778	0.0888	0.4069	210.6448	6.794992	0.0837	2.255075	419.0632	13.51817	1.0422	0.3603	4405.804	142.1227	0.0837	47.1667
	7268.299	9.76922	0.096604	2.770038	1366.316	1.836446	0.094288	0.537538	5730.029	7.701652	0.091025	2.34525	81987.26	110.1979	3.099238	0.771325	154866.9	208.1544	0.091025	62.35481

MAY	1992
START	122
STOP	152
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	232.926	7.7642	0.081	2.66262	44.71997	1.490666	0.0799	0.51824	362.6156	12.08719	0.0772	4.34916	8853.445	295.1148	0.9657	0.28296	4555.106	151.8369	0.0772	54.6333
200	242.7031	8.090105	0.0844	2.66262	46.56697	1.552232	0.0832	0.51824	374.3583	12.47861	0.0797	4.34916	8979.045	299.3015	0.9794	0.28296	4360.197	145.3399	0.0797	50.6552
300	240.9778	8.032592	0.0838	2.66262	46.23115	1.541038	0.0826	0.51824	372.4795	12.41598	0.0793	4.34916	8371.213	279.0404	0.9131	0.28296	4229.041	140.968	0.0793	49.3793
400	242.128	8.070934	0.0842	2.66262	46.511	1.550367	0.0831	0.51824	374.3583	12.47861	0.0797	4.34916	8681.088	289.3696	0.9469	0.28296	4196.205	139.8735	0.0797	48.75
500	240.1151	8.003836	0.0835	2.66262	46.56697	1.552232	0.0832	0.51824	370.6006	12.35335	0.0789	4.34916	10488.08	349.6027	1.144	0.28296	4148.001	138.2667	0.0789	48.6786
600	399.0964	13.30321	0.0834	4.43086	68.57682	2.285894	0.0827	0.7678	298.8719	9.962396	0.0793	3.4897	177216.8	5907.227	2.6215	2.08646	4285.155	142.8385	0.0793	50.0345
700	461.3057	15.37686	0.0964	4.43086	77.3666	2.578887	0.0933	0.7678	347.4904	11.58301	0.0922	3.4897	195435.4	6514.512	2.891	2.08646	5380.539	179.3513	0.0922	54.0345
800	492.4103	16.41368	0.1029	4.43086	81.51272	2.717091	0.0983	0.7678	375.7569	12.52523	0.0997	3.4897	227160.7	7572.022	3.3603	2.08646	6263.771	208.7924	0.0997	58.1724
900	464.6554	15.48851	0.0971	4.43086	77.44952	2.581651	0.0934	0.7678	353.5206	11.78402	0.0938	3.4897	257405.5	8580.183	3.8077	2.08646	5994.401	199.8134	0.0938	59.1724
1000	490.9747	16.36582	0.1026	4.43086	81.51272	2.717091	0.0983	0.7678	373.8725	12.46242	0.0992	3.4897	327278.2	10909.27	4.8413	2.08646	6524.218	217.4739	0.0992	60.8966
1100	498.6313	16.62104	0.1042	4.43086	82.50779	2.75026	0.0995	0.7678	380.2796	12.67599	0.1009	3.4897	375025	12500.83	5.5476	2.08646	7203.42	240.114	0.1009	66.1034
1200	501.0239	16.7008	0.1047	4.43086	82.83948	2.761316	0.0999	0.7678	381.4103	12.71368	0.1012	3.4897	387490.7	12916.36	5.732	2.08646	8216.043	273.8681	0.1012	75.1724
1300	502.9381	16.7646	0.1051	4.43086	83.25409	2.775136	0.1004	0.7678	383.6716	12.78905	0.1018	3.4897	413747	13791.57	6.1204	2.08646	9466.552	315.5517	0.1018	86.1034
1400	505.8093	16.86031	0.1057	4.43086	83.58578	2.786193	0.1008	0.7678	384.8022	12.82674	0.1021	3.4897	435758	14525.27	6.446	2.08646	10467.85	348.9284	0.1021	94.931
1500	501.0239	16.7008	0.1047	4.43086	83.00532	2.766844	0.1001	0.7678	382.164	12.7388	0.1014	3.4897	433040.4	14434.68	6.4058	2.08646	11389.25	379.6416	0.1014	104
1600	490.4962	16.34987	0.1025	4.43086	81.4298	2.714327	0.0982	0.7678	374.2494	12.47498	0.0993	3.4897	396562.8	13218.76	5.8662	2.08646	11966.95	398.8983	0.0993	111.5862
1700	475.1831	15.83944	0.0993	4.43086	79.10797	2.636932	0.0954	0.7678	361.4352	12.04784	0.0959	3.4897	366791.2	12226.37	5.4258	2.08646	11971.49	399.0498	0.0959	115.5862
1800	267.4336	8.914452	0.093	2.66262	50.37293	1.679098	0.09	0.51824	420.8595	14.02865	0.0896	4.34916	41038.29	1367.943	4.4763	0.28296	11205.73	373.5245	0.0896	115.8
1900	260.8196	8.693987	0.0907	2.66262	50.31696	1.677232	0.0899	0.51824	400.1923	13.33974	0.0852	4.34916	47178.03	1572.601	5.146	0.28296	9762.898	325.4299	0.0852	106.1
2000	283.8246	9.460821	0.0987	2.66262	54.29082	1.809694	0.097	0.51824	424.1475	14.13825	0.0903	4.34916	7776.216	259.2072	0.8482	0.28296	8016.473	267.2158	0.0903	82.2
2100	281.8117	9.393723	0.098	2.66262	53.955	1.7985	0.0964	0.51824	420.8595	14.02865	0.0896	4.34916	7210.556	240.3519	0.7865	0.28296	6696.346	223.2115	0.0896	69.2
2200	276.6356	9.221186	0.0962	2.66262	53.11545	1.770515	0.0949	0.51824	415.223	13.84077	0.0884	4.34916	8249.28	274.976	0.8998	0.28296	5931.99	197.733	0.0884	62.1333
2300	257.6564	8.588547	0.0896	2.66262	49.47741	1.649247	0.0884	0.51824	392.677	13.08923	0.0836	4.34916	8502.314	283.4105	0.9274	0.28296	5236.704	174.5568	0.0836	58
2400	249.8922	8.32974	0.0869	2.66262	48.07816	1.602605	0.0859	0.51824	383.2828	12.77609	0.0816	4.34916	8921.287	297.3762	0.9731	0.28296	4967.485	165.5828	0.0816	56.3667
	8860.472	12.30621	0.094942	3.54674	1552.351	2.156044	0.092283	0.64302	9109.178	12.65164	0.090413	3.91943	4167160	5787.723	3.253	1.18471	172435.8	239.4942	0.090413	72.40373

JUNE	1992
START	153
STOP	182
NUMDAYS	30

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	189.3041	6.106585	0.0964	1.75962	43.67195	1.408773	0.0944	0.41454	326.9742	10.54756	0.0884	3.31434	372.389	12.01255	0.6656	0.501325	3834.795	123.7031	0.0884	38.871
200	193.428	6.239613	0.0985	1.75962	44.68973	1.441604	0.0966	0.41454	332.8923	10.73846	0.09	3.31434	372.6128	12.01977	0.666	0.501325	3784.318	122.0748	0.09	37.6774
300	197.5518	6.37264	0.1006	1.75962	45.61499	1.471451	0.0986	0.41454	339.1803	10.9413	0.0917	3.31434	417.4271	13.46539	0.7461	0.501325	3674.233	118.5236	0.0917	35.9032
400	197.9446	6.385309	0.1008	1.75962	45.80004	1.477421	0.099	0.41454	340.2899	10.97709	0.092	3.31434	439.1348	14.16564	0.7849	0.501325	3557.092	114.7449	0.092	34.6452
500	194.999	6.29029	0.0993	1.75962	45.15236	1.456528	0.0976	0.41454	336.2212	10.84585	0.0909	3.31434	459.8915	14.83521	0.822	0.501325	3386.934	109.2559	0.0909	33.3871
600	498.7152	16.08759	0.1016	4.3984	64.14339	2.069142	0.1008	0.5702	284.3261	9.171811	0.0919	2.77228	4292.844	138.4788	1.7627	2.18224	3516.827	113.446	0.0919	34.2903
700	570.381	18.39939	0.1162	4.3984	72.22495	2.329837	0.1135	0.5702	326.4027	10.52912	0.1055	2.77228	5122.334	165.2366	2.1033	2.18224	4249.965	137.0956	0.1055	36.0968
800	581.6708	18.76357	0.1185	4.3984	72.60676	2.342154	0.1141	0.5702	341.5626	11.01815	0.1104	2.77228	6943.268	223.9764	2.851	2.18224	4896.456	157.9502	0.1104	39.7419
900	543.3836	17.5285	0.1107	4.3984	68.27963	2.202569	0.1073	0.5702	318.9774	10.28959	0.1031	2.77228	8803.898	283.9967	3.615	2.18224	4858.484	156.7253	0.1031	42.2258
1000	563.9998	18.19354	0.1149	4.3984	70.18865	2.26415	0.1103	0.5702	335.9937	10.83851	0.1086	2.77228	10381.78	334.8962	4.2629	2.18224	5406.976	174.4186	0.1086	44.6129
1100	578.2348	18.65273	0.1178	4.3984	71.77951	2.315468	0.1128	0.5702	344.0377	11.09799	0.1112	2.77228	12686.38	409.2381	5.2092	2.18224	6040.826	194.8654	0.1112	48.6774
1200	579.7074	18.70024	0.1181	4.3984	72.03405	2.323679	0.1132	0.5702	345.2753	11.13791	0.1116	2.77228	12752.87	411.3828	5.2365	2.18224	7219.622	232.891	0.1116	57.9677
1300	580.6891	18.73191	0.1183	4.3984	72.09768	2.325732	0.1133	0.5702	345.894	11.15787	0.1118	2.77228	13564.34	437.5592	5.5697	2.18224	8283.039	267.1948	0.1118	66.3871
1400	545.3471	17.59184	0.1111	4.3984	67.45238	2.175883	0.106	0.5702	330.4247	10.65886	0.1068	2.77228	13483.24	434.9431	5.5364	2.18224	9000.673	290.3443	0.1068	75.5161
1500	573.3262	18.49439	0.1168	4.3984	71.27044	2.299046	0.112	0.5702	341.5626	11.01815	0.1104	2.77228	13180.28	425.1702	5.412	2.18224	10420.87	336.1571	0.1104	84.5806
1600	566.945	18.28855	0.1155	4.3984	70.44319	2.272361	0.1107	0.5702	337.2312	10.87843	0.109	2.77228	12440.89	401.3192	5.1084	2.18224	11646.43	375.6912	0.109	95.7419
1700	552.2191	17.81352	0.1125	4.3984	68.85233	2.221043	0.1082	0.5702	327.9496	10.57902	0.106	2.77228	12326.68	397.6347	5.0615	2.18224	12241.73	394.8946	0.106	103.4839
1800	200.6938	6.473994	0.1022	1.75962	45.70751	1.474436	0.0988	0.41454	358.4141	11.56174	0.0969	3.31434	2272.211	73.29712	4.0613	0.501325	12195.45	393.4015	0.0969	112.7742
1900	173.987	5.612484	0.0886	1.75962	40.47983	1.305801	0.0875	0.41454	309.5898	9.986769	0.0837	3.31434	2039.971	65.80552	3.6462	0.501325	9702.507	312.9841	0.0837	103.871
2000	172.8088	5.574476	0.088	1.75962	39.78589	1.283416	0.086	0.41454	307.0007	9.903248	0.083	3.31434	427.7774	13.79927	0.7646	0.501325	6549.698	211.2806	0.083	70.7097
2100	169.8632	5.479457	0.0865	1.75962	38.99943	1.258046	0.0843	0.41454	302.5621	9.760068	0.0818	3.31434	388.9496	12.54676	0.6952	0.501325	5159.287	166.4286	0.0818	56.5161
2200	171.2378	5.523799	0.0872	1.75962	39.36953	1.269985	0.0851	0.41454	304.0416	9.807795	0.0822	3.31434	412.7834	13.31559	0.7378	0.501325	4563.083	147.1962	0.0822	49.7419
2300	175.1652	5.650492	0.0892	1.75962	40.34104	1.301324	0.0872	0.41454	308.8501	9.962906	0.0835	3.31434	384.8654	12.41501	0.6879	0.501325	4250.484	137.1124	0.0835	45.6129
2400	185.1803	5.973558	0.0943	1.75962	42.7467	1.378926	0.0924	0.41454	322.1658	10.39244	0.0871	3.31434	396.2228	12.78138	0.7082	0.501325	4044.924	130.4814	0.0871	41.6129
	8956.783	12.03869	0.104317	3.07901	1353.732	1.819532	0.101238	0.49237	7867.82	10.57503	0.097396	3.04331	134363	180.5955	2.779767	1.341783	152484.7	204.9526	0.097396	57.94354

JULY	1992
START	183
STOP	213
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	128.7836	4.154311	0.0894	1.2908	105.7573	3.411526	0.0872	1.08675	393.2645	12.68595	0.0842	4.185125	339.6949	10.9579	0.8686	0.350433	4104.243	132.3949	0.0842	43.6774
200	119.8964	3.870851	0.0833	1.2908	98.6017	3.1807	0.0813	1.08675	372.2468	12.00796	0.0797	4.185125	328.549	10.59836	0.8401	0.350433	3718.479	119.9509	0.0797	41.8064
300	121.4369	3.91732	0.0843	1.2908	99.69323	3.215911	0.0822	1.08675	375.9833	12.12849	0.0805	4.185125	345.2483	11.13704	0.8828	0.350433	3576.127	115.3589	0.0805	39.8064
400	121.725	3.926614	0.0845	1.2908	99.81451	3.219823	0.0823	1.08675	376.9174	12.15863	0.0807	4.185125	354.9862	11.45117	0.9077	0.350433	3506.578	113.1154	0.0807	38.9355
500	121.725	3.926614	0.0845	1.2908	99.81451	3.219823	0.0823	1.08675	376.9174	12.15863	0.0807	4.185125	357.0981	11.51929	0.9131	0.350433	3451.379	111.3348	0.0807	38.3226
600	205.1937	6.61915	0.0673	2.732025	78.09526	2.519202	0.0676	1.035175	229.6515	7.408112	0.0643	3.200325	3220.891	103.8997	1.6509	1.7482	2710.631	87.43972	0.0643	37.7742
700	265.5627	8.566538	0.0871	2.732025	97.2725	3.137822	0.0842	1.035175	301.0827	9.712346	0.0843	3.200325	2569.065	82.87307	1.3168	1.7482	3641.762	117.4762	0.0843	38.7097
800	310.687	10.02216	0.1019	2.732025	112.2908	3.622284	0.0972	1.035175	352.8704	11.38292	0.0988	3.200325	4669.112	150.6165	2.3932	1.7482	4801.681	154.8929	0.0988	43.5484
900	161.2889	5.202868	0.0529	2.732025	65.04087	2.098093	0.0563	1.035175	177.1495	5.7145	0.0496	3.200325	6542.844	211.0595	3.3536	1.7482	2751.611	88.76164	0.0496	49.7097
1000	325.6268	10.50409	0.1068	2.732025	117.4895	3.789983	0.1017	1.035175	369.6567	11.92441	0.1035	3.200325	8936.905	288.2873	4.5807	1.7482	6065.925	195.675	0.1035	52.5161
1100	350.0183	11.29091	0.1148	2.732025	126.7315	4.088113	0.1097	1.035175	391.4433	12.6272	0.1096	3.200325	9766.077	315.0347	5.0057	1.7482	7077.884	228.3189	0.1096	57.8667
1200	353.9819	11.41877	0.1161	2.732025	128.1178	4.132833	0.1109	1.035175	395.7291	12.76546	0.1108	3.200325	11176.84	360.5432	5.7288	1.7482	8058.75	259.9597	0.1108	65.1724
1300	351.8477	11.34992	0.1154	2.732025	127.3091	4.106746	0.1102	1.035175	392.5147	12.66177	0.1099	3.200325	11246.49	362.79	5.7645	1.7482	8453.983	272.7091	0.1099	68.9286
1400	372.5805	12.01872	0.1222	2.732025	135.2804	4.363884	0.1171	1.035175	410.0154	13.2263	0.1148	3.200325	11290.97	364.2249	5.7873	1.7482	9366.248	302.137	0.1148	73.1071
1500	365.8728	11.80235	0.12	2.732025	132.7388	4.281898	0.1149	1.035175	402.8723	12.99588	0.1128	3.200325	10411.27	335.8474	5.3364	1.7482	10402.28	335.5573	0.1128	82.6333
1600	347.5791	11.21223	0.114	2.732025	125.9228	4.062027	0.109	1.035175	387.8717	12.51199	0.1086	3.200325	10206.42	329.2392	5.2314	1.7482	11008.78	355.1219	0.1086	90.8333
1700	324.7121	10.47458	0.1065	2.732025	117.605	3.793709	0.1018	1.035175	365.0137	11.77464	0.1022	3.200325	8500.078	274.1961	4.3568	1.7482	11614.62	374.6651	0.1022	101.8333
1800	136.7066	4.409889	0.0949	1.2908	110.9724	3.579755	0.0915	1.08675	427.8269	13.80087	0.0916	4.185125	1443.723	46.5717	3.6916	0.350433	10852.4	350.0775	0.0916	106.1613
1900	119.4202	3.852264	0.0829	1.2908	100.0571	3.227648	0.0825	1.08675	368.9774	11.9025	0.079	4.185125	1295.737	41.79797	3.3132	0.350433	8167.971	263.4829	0.079	92.6452
2000	125.7585	4.056726	0.0873	1.2908	102.8465	3.31763	0.0848	1.08675	387.1927	12.49009	0.0829	4.185125	294.251	9.491968	0.7524	0.350433	6186.664	199.5698	0.0829	66.871
2100	125.0382	4.033492	0.0868	1.2908	102.604	3.309806	0.0846	1.08675	385.3245	12.42982	0.0825	4.185125	304.0672	9.80862	0.7775	0.350433	5393.516	173.9844	0.0825	58.5806
2200	127.7753	4.121783	0.0887	1.2908	105.0296	3.388052	0.0866	1.08675	391.3962	12.62569	0.0838	4.185125	292.0218	9.42006	0.7467	0.350433	5016.942	161.8368	0.0838	53.6452
2300	120.7166	3.894085	0.0838	1.2908	98.96554	3.192437	0.0816	1.08675	374.115	12.06823	0.0801	4.185125	311.5369	10.04958	0.7966	0.350433	4547.44	146.6916	0.0801	50.871
2400	123.8858	3.996317	0.086	1.2908	101.9976	3.290244	0.0841	1.08675	381.588	12.30929	0.0817	4.185125	304.0672	9.80862	0.7775	0.350433	4391.212	141.652	0.0817	48.1613
.	5227.92	7.026774	0.094225	2.011413	2590.048	3.481248	0.091317	1.060963	8787.621	11.81132	0.089858	3.692725	104507.9	140.4677	2.740579	1.049317	148867.1	200.0902	0.089858	60.0882

AUGUST	1992
START	214
STOP	244
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	153.4267	5.114222	0.0841	1.6892	59.1692	1.972307	0.0822	0.6665	355.5877	11.85292	0.0801	4.11046	261.6947	8.723158	0.7962	0.304333	4394.606	146.4869	0.0801	50.8
200	152.8794	5.095979	0.0838	1.6892	58.95326	1.965109	0.0819	0.6665	353.812	11.79373	0.0797	4.11046	241.7767	8.059225	0.7356	0.304333	4097.218	136.5739	0.0797	47.6
300	154.1564	5.138546	0.0845	1.6892	59.52911	1.984304	0.0827	0.6665	355.5877	11.85292	0.0801	4.11046	263.1081	8.770268	0.8005	0.304333	3872.678	129.0893	0.0801	44.7667
400	156.3456	5.21152	0.0857	1.6892	60.17695	2.005898	0.0836	0.6665	360.4709	12.0157	0.0812	4.11046	298.9013	9.963375	0.9094	0.304333	3803.086	126.7695	0.0812	43.3667
500	156.528	5.217601	0.0858	1.6892	60.32092	2.010697	0.0838	0.6665	360.4709	12.0157	0.0812	4.11046	297.3565	9.911882	0.9047	0.304333	3686.152	122.8717	0.0812	42.0333
600	296.5257	9.884189	0.0762	3.60316	100.2332	3.341107	0.0761	1.21956	256.5059	8.550198	0.0723	3.285	2126.292	70.87639	0.9392	2.09624	3248.294	108.2765	0.0723	41.6
700	317.1501	10.57167	0.0815	3.60316	105.2383	3.507942	0.0799	1.21956	275.6641	9.188802	0.0777	3.285	2884.485	96.1495	1.2741	2.09624	3490.906	116.3635	0.0777	41.6
800	380.5802	12.68601	0.0978	3.60316	123.4146	4.11382	0.0937	1.21956	335.9767	11.19922	0.0947	3.285	5235.586	174.5195	2.3126	2.09624	4414.917	147.1639	0.0947	43.1667
900	439.7296	14.65765	0.113	3.60316	140.6689	4.688964	0.1068	1.21956	389.1937	12.97312	0.1097	3.285	6993.082	233.1027	3.0889	2.09624	5548.622	184.9541	0.1097	46.8333
1000	408.2092	13.60697	0.1049	3.60316	131.5808	4.386026	0.0999	1.21956	359.3921	11.97974	0.1013	3.285	10072.27	335.7422	4.449	2.09624	5492.081	183.0694	0.1013	50.2
1100	425.3314	14.17771	0.1093	3.60316	136.981	4.566033	0.104	1.21956	376.0668	12.53556	0.106	3.285	12453.93	415.131	5.501	2.09624	6273.504	209.1168	0.106	54.8
1200	431.1685	14.37228	0.1108	3.60316	138.6932	4.623108	0.1053	1.21956	381.3885	12.71295	0.1075	3.285	13075.38	435.846	5.7755	2.09624	7376.216	245.8739	0.1075	63.5333
1300	434.2817	14.47606	0.1116	3.60316	139.6152	4.653841	0.106	1.21956	384.2267	12.80756	0.1083	3.285	14235.65	474.5217	6.288	2.09624	8366.821	278.894	0.1083	71.5333
1400	429.2228	14.30743	0.1103	3.60316	138.1664	4.605546	0.1049	1.21956	379.6146	12.65382	0.107	3.285	13218.91	440.6305	5.8389	2.09624	9267.912	308.9304	0.107	80.2
1500	426.4988	14.21663	0.1096	3.60316	137.3761	4.579204	0.1043	1.21956	377.1311	12.57104	0.1063	3.285	13239.06	441.3021	5.8478	2.09624	10068.31	335.6104	0.1063	87.7
1600	412.8789	13.76263	0.1061	3.60316	133.293	4.443101	0.1012	1.21956	364.7138	12.15713	0.1028	3.285	12036.91	401.2304	5.3168	2.09624	10458.46	348.6154	0.1028	94.2
1700	389.5304	12.98435	0.1001	3.60316	126.444	4.214799	0.096	1.21956	343.427	11.44757	0.0968	3.285	9608.611	320.287	4.2442	2.09624	10607.73	353.5912	0.0968	101.4667
1800	155.0686	5.168952	0.085	1.6892	60.10497	2.003499	0.0835	0.6665	362.6905	12.08968	0.0817	4.11046	1491.581	49.71937	4.5381	0.304333	9132.426	304.4142	0.0817	103.5
1900	147.5888	4.919626	0.0809	1.6892	57.00974	1.900325	0.0792	0.6665	346.7091	11.55697	0.0781	4.11046	300.6104	10.02035	0.9146	0.304333	6849.058	228.3019	0.0781	81.2
2000	145.7644	4.858815	0.0799	1.6892	55.93001	1.864334	0.0777	0.6665	343.1576	11.43859	0.0773	4.11046	257.6191	8.587303	0.7838	0.304333	6136.074	204.5358	0.0773	73.5
2100	150.1429	5.004762	0.0823	1.6892	57.80155	1.926718	0.0803	0.6665	350.7044	11.69015	0.079	4.11046	262.7794	8.759312	0.7995	0.304333	5414.979	180.4993	0.079	63.4667
2200	156.3456	5.21152	0.0857	1.6892	60.17695	2.005898	0.0836	0.6665	361.3588	12.04529	0.0814	4.11046	272.7712	9.092374	0.8299	0.304333	5060.804	168.6935	0.0814	57.5667
2300	155.251	5.175033	0.0851	1.6892	59.67308	1.989103	0.0829	0.6665	358.6952	11.95651	0.0808	4.11046	273.6258	9.12086	0.8325	0.304333	4831.52	161.0507	0.0808	55.3667
2400	153.6091	5.120303	0.0842	1.6892	59.1692	1.972307	0.0822	0.6665	355.5877	11.85292	0.0801	4.11046	273.9873	9.132912	0.8336	0.304333	4570.503	152.3501	0.0801	52.8333
	6628.214	9.205852	0.093258	2.64618	2259.72	3.1385	0.090071	0.94303	8488.134	11.78907	0.089629	3.69773	119676	166.2166	2.689767	1.200287	146462.9	203.4207	0.089629	62.20139

SEPTEMBER	1992
START	245
STOP	274
NUMDAYS	30

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	82.19695	2.651515	0.0968	0.76088	41.55689	1.340545	0.0955	0.38992	195.4703	6.305492	0.0889	1.97022	247.0669	7.969899	0.9355	0.23665	4147.713	133.7972	0.0889	41.8064
200	81.09307	2.615905	0.0955	0.76088	41.03471	1.3237	0.0943	0.38992	192.8317	6.220379	0.0877	1.97022	258.0007	8.322602	0.9769	0.23665	4047.527	130.5654	0.0877	41.3548
300	80.92324	2.610427	0.0953	0.76088	40.94768	1.320893	0.0941	0.38992	192.392	6.206193	0.0875	1.97022	256.1784	8.263818	0.97	0.23665	3994.197	128.8451	0.0875	40.9032
400	81.34781	2.624123	0.0958	0.76088	41.20877	1.329315	0.0947	0.38992	193.2715	6.234564	0.0879	1.97022	270.1757	8.715346	1.023	0.23665	3987.148	128.6177	0.0879	40.6452
500	79.05513	2.550165	0.0931	0.76088	40.03387	1.291415	0.092	0.38992	189.0938	6.099801	0.086	1.97022	267.7724	8.63782	1.0139	0.23665	3894.764	125.6375	0.086	40.5806
600	230.5986	7.438663	0.0955	2.16366	77.12014	2.487747	0.0945	0.73126	485.0178	15.64574	0.0875	4.9669	1286.717	41.50699	1.0229	1.12716	3830.399	123.5613	0.0875	39.2258
700	243.8791	7.867068	0.101	2.16366	82.01666	2.645699	0.1005	0.73126	506.6357	16.34309	0.0914	4.9669	2273.925	73.35242	1.8077	1.12716	3938.608	127.0519	0.0914	38.6129
800	247.984	7.999484	0.1027	2.16366	82.01666	2.645699	0.1005	0.73126	524.9278	16.93316	0.0947	4.9669	2960.618	95.50382	2.3536	1.12716	4135.356	133.3986	0.0947	39.129
900	294.1037	9.487216	0.1218	2.16366	96.6246	3.116923	0.1184	0.73126	616.3883	19.88349	0.1112	4.9669	4077.643	131.5369	3.2416	1.12716	5228.175	168.6508	0.1112	42.129
1000	277.6841	8.957552	0.115	2.16366	91.48326	2.951073	0.1121	0.73126	584.2386	18.84641	0.1054	4.9669	4799.055	154.8082	3.8151	1.12716	5418.401	174.7871	0.1054	46.0645
1100	273.3378	8.817347	0.1132	2.16366	89.36143	2.882627	0.1095	0.73126	585.3472	18.88217	0.1056	4.9669	6045.267	195.0086	4.8058	1.12716	5915.284	190.8156	0.1056	50.1935
1200	267.7841	8.638196	0.1109	2.16366	87.32122	2.816814	0.107	0.73126	578.6955	18.6676	0.1044	4.9669	6197.096	199.9063	4.9265	1.12716	6494.511	209.5004	0.1044	55.7419
1300	268.0255	8.645985	0.111	2.16366	87.40283	2.819446	0.1071	0.73126	579.2498	18.68548	0.1045	4.9669	6694.223	215.9427	5.3217	1.12716	7196.709	232.1[illegible]9	0.1045	61.7097
1400	283.4793	9.144493	0.1174	2.16366	92.87061	2.995826	0.1138	0.73126	601.9764	19.41859	0.1086	4.9669	6351.19	204.8771	5.049	1.12716	8108.507	261.5648	0.1086	66.9032
1500	270.9231	8.739455	0.1122	2.16366	88.62696	2.858934	0.1086	0.73126	579.2498	18.68548	0.1045	4.9669	5808.905	187.384	4.6179	1.12716	8400.551	270.9855	0.1045	72.0323
1600	264.1621	8.521359	0.1094	2.16366	86.74996	2.798386	0.1063	0.73126	563.1749	18.16693	0.1016	4.9669	5305.867	171.157	4.218	1.12716	8708.74	280.9271	0.1016	76.8064
1700	235.1864	7.586657	0.0974	2.16366	78.01784	2.516704	0.0956	0.73126	504.4185	16.27156	0.091	4.9669	5323.226	171.717	4.2318	1.12716	7744.468	249.8215	0.091	76.2581
1800	83.0461	2.678906	0.0978	0.76088	42.34017	1.365812	0.0973	0.38992	196.3498	6.333863	0.0893	1.97022	545.2902	17.59001	2.0647	0.23665	5613.043	181.0659	0.0893	56.3226
1900	82.02712	2.646036	0.0966	0.76088	41.42635	1.336334	0.0952	0.38992	194.8106	6.284214	0.0886	1.97022	227.2328	7.330092	0.8604	0.23665	5211.809	168.1229	0.0886	52.7097
2000	88.14095	2.843256	0.1038	0.76088	44.55943	1.437401	0.1024	0.38992	205.8045	6.638853	0.0936	1.97022	227.6818	7.344575	0.8621	0.23665	5064.512	163.3713	0.0936	48.4839
2100	88.39569	2.851474	0.1041	0.76088	44.64646	1.440209	0.1026	0.38992	206.9038	6.674317	0.0941	1.97022	251.002	8.096838	0.9504	0.23665	4796.84	154.7368	0.0941	45.6774
2200	88.31078	2.848735	0.104	0.76088	44.64646	1.440209	0.1026	0.38992	206.684	6.667224	0.094	1.97022	244.2938	7.880445	0.925	0.23665	4724.068	152.3893	0.094	45.0323
2300	88.65043	2.859691	0.1044	0.76088	44.77701	1.44442	0.1029	0.38992	207.5635	6.695596	0.0944	1.97022	261.1171	8.423131	0.9887	0.23665	4591.234	148.1043	0.0944	43.5806
2400	86.18792	2.780256	0.1015	0.76088	43.64562	1.407923	0.1003	0.38992	202.5063	6.532461	0.0921	1.97022	259.9286	8.384793	0.9842	0.23665	4363.328	140.7525	0.0921	42.4516
	4166.523	5.600165	0.104008	1.46227	1550.436	2.083919	0.101992	0.56059	9093.002	12.22178	0.095604	3.46856	60439.47	81.23585	2.415267	0.681905	129555.9	174.1343	0.095604	50.18144

OCTOBER	1992
START	275
STOP	305
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	16.48636	0.549545	0.0756	0.20192	19.08674	0.636225	0.0753	0.2347	13.00758	0.433586	0.0737	0.16342	232.2357	7.741192	1.236	0.173975	3112.204	103.7401	0.0737	39.1
200	16.37733	0.545911	0.0751	0.20192	18.98535	0.632845	0.0749	0.2347	12.91933	0.430644	0.0732	0.16342	214.8556	7.161855	1.1435	0.173975	3098.995	103.2998	0.0732	39.2
300	16.24648	0.541549	0.0745	0.20192	18.83327	0.627776	0.0743	0.2347	12.79579	0.426526	0.0725	0.16342	201.1207	6.704022	1.0704	0.173975	3053.7	101.79	0.0725	39
400	16.24648	0.541549	0.0745	0.20192	18.80792	0.626931	0.0742	0.2347	12.79579	0.426526	0.0725	0.16342	195.916	6.530534	1.0427	0.173975	3006.72	100.224	0.0725	38.4
500	16.35552	0.545184	0.075	0.20192	18.93466	0.631155	0.0747	0.2347	12.90168	0.430056	0.0731	0.16342	211.9621	7.065403	1.1281	0.173975	3018.443	100.6148	0.0731	38.2333
600	53.15252	1.771751	0.0749	0.65708	40.74012	1.358004	0.0745	0.50634	160.1629	5.338764	0.0729	2.03428	618.7164	20.62388	1.0543	0.54338	3039.055	101.3018	0.0729	38.6
700	44.99158	1.499719	0.0634	0.65708	34.94354	1.164785	0.0639	0.50634	135.1169	4.503896	0.0615	2.03428	1160.555	38.68518	1.9776	0.54338	2577.096	85.9032	0.0615	38.8
800	54.71374	1.823791	0.0771	0.65708	42.10723	1.403574	0.077	0.50634	164.7767	5.492556	0.075	2.03428	1954.036	65.13453	3.3297	0.54338	3072.411	102.4137	0.075	37.931
900	56.13303	1.871101	0.0791	0.65708	42.92751	1.430917	0.0785	0.50634	169.1707	5.639024	0.077	2.03428	1941.066	64.70221	3.3076	0.54338	3160.08	105.336	0.077	38
1000	63.22949	2.10765	0.0891	0.65708	47.46634	1.582211	0.0868	0.50634	191.1409	6.371365	0.087	2.03428	1948.637	64.95456	3.3205	0.54338	3930.121	131.004	0.087	41.8276
1100	57.90715	1.930238	0.0816	0.65708	44.0212	1.467373	0.0805	0.50634	174.2239	5.807463	0.0793	2.03428	2383.317	79.44389	4.0612	0.54338	3759.48	125.316	0.0793	43.8966
1200	58.4039	1.946797	0.0823	0.65708	44.40399	1.480133	0.0812	0.50634	175.9815	5.86605	0.0801	2.03428	2616.942	87.2314	4.4593	0.54338	3958.485	131.9495	0.0801	45.7586
1300	58.54583	1.951528	0.0825	0.65708	44.45868	1.481956	0.0813	0.50634	176.6406	5.88802	0.0804	2.03428	2796.46	93.21532	4.7652	0.54338	4027.207	134.2402	0.0804	46.3793
1400	58.26197	1.942066	0.0821	0.65708	44.29462	1.476487	0.081	0.50634	175.5421	5.851403	0.0799	2.03428	2722.575	90.7525	4.6393	0.54338	4192.6	139.7533	0.0799	48.5862
1500	57.62329	1.920776	0.0812	0.65708	43.91183	1.463728	0.0803	0.50634	173.5648	5.785492	0.079	2.03428	2455.793	81.85976	4.1847	0.54338	4157.14	138.5713	0.079	48.7241
1600	56.55882	1.885294	0.0797	0.65708	43.25561	1.441854	0.0791	0.50634	170.4889	5.682965	0.0776	2.03428	2164.246	72.14152	3.6879	0.54338	3913.834	130.4611	0.0776	46.7
1700	55.63628	1.854543	0.0784	0.65708	42.76345	1.425448	0.0782	0.50634	167.1934	5.573113	0.0761	2.03428	3005.32	100.1773	5.1211	0.54338	3084.787	102.8262	0.0761	37.5333
1800	16.55179	0.551726	0.0759	0.20192	19.16279	0.63876	0.0756	0.2347	13.09583	0.436528	0.0742	0.16342	197.6259	6.587529	1.0518	0.173975	3010.445	100.3482	0.0742	37.5667
1900	16.44275	0.548092	0.0754	0.20192	19.0614	0.63538	0.0752	0.2347	12.95463	0.431821	0.0734	0.16342	229.9998	7.666661	1.2241	0.173975	3118.029	103.9343	0.0734	39.3333
2000	16.44275	0.548092	0.0754	0.20192	19.03605	0.634535	0.0751	0.2347	12.97228	0.432409	0.0735	0.16342	237.3089	7.910295	1.263	0.173975	3143.448	104.7816	0.0735	39.6
2100	16.48636	0.549545	0.0756	0.20192	19.08674	0.636225	0.0753	0.2347	12.98993	0.432998	0.0736	0.16342	259.3675	8.645583	1.3804	0.173975	3150.372	105.0124	0.0736	39.6333
2200	16.39913	0.546638	0.0752	0.20192	18.98535	0.632845	0.0749	0.2347	12.91933	0.430644	0.0732	0.16342	233.3067	7.776891	1.2417	0.173975	3193.862	106.4621	0.0732	40.4
2300	16.50817	0.550272	0.0757	0.20192	19.08674	0.636225	0.0753	0.2347	13.00758	0.433586	0.0737	0.16342	235.7118	7.857059	1.2545	0.173975	3244.866	108.1622	0.0737	40.7667
2400	16.33371	0.544457	0.0749	0.20192	18.93466	0.631155	0.0747	0.2347	12.86638	0.428879	0.0729	0.16342	217.5425	7.251417	1.1578	0.173975	3175.521	105.8507	0.0729	40.3333
	872.0344	1.211159	0.077258	0.4295	743.2958	1.032355	0.076742	0.37052	2189.229	3.040596	0.075221	1.09885	28434.62	39.49252	2.420933	0.358678	80198.9	111.3874	0.075221	41.01264

NOVEMBER	1992
START	306
STOP	335
NUMDAYS	30

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	22.9649	0.740803	0.0791	0.26015	32.52876	1.049315	0.0789	0.369425	67.84056	2.188405	0.0778	0.78135	45.7593	1.476107	1.2048	0.034033	3454.906	111.4486	0.0778	39.7917
200	23.92298	0.771709	0.0824	0.26015	33.84805	1.091873	0.0821	0.369425	70.89251	2.286855	0.0813	0.78135	46.49613	1.499875	1.2242	0.034033	3557.4	114.7549	0.0813	39.2083
300	23.95201	0.772646	0.0825	0.26015	33.88928	1.093202	0.0822	0.369425	71.06691	2.292481	0.0815	0.78135	44.43377	1.433347	1.1699	0.034033	3607.845	116.3821	0.0815	39.6667
400	24.03911	0.775455	0.0828	0.26015	34.09542	1.099852	0.0827	0.369425	71.3285	2.300919	0.0818	0.78135	47.43426	1.530137	1.2489	0.034033	3621.125	116.8105	0.0818	39.6667
500	24.01008	0.774519	0.0827	0.26015	33.97173	1.095862	0.0824	0.369425	71.24131	2.298107	0.0817	0.78135	48.28503	1.557582	1.2713	0.034033	3631.889	117.1577	0.0817	39.8333
600	41.93685	1.352802	0.0831	0.4522	32.88495	1.060805	0.0829	0.35545	148.2172	4.7812	0.0821	1.617675	178.5975	5.761209	1.2611	0.1269	3687.85	118.9629	0.0821	40.25
700	41.68452	1.344662	0.0826	0.4522	32.64695	1.053127	0.0823	0.35545	147.3145	4.752082	0.0816	1.617675	164.832	5.317161	1.1639	0.1269	3669.188	118.3609	0.0816	40.2917
800	41.53312	1.339778	0.0823	0.4522	32.56761	1.050568	0.0821	0.35545	146.0508	4.711317	0.0809	1.617675	602.7081	19.4422	4.2558	0.1269	3615.141	116.6174	0.0809	40.0417
900	45.06571	1.453733	0.0893	0.4522	35.30472	1.138862	0.089	0.35545	160.1324	5.16556	0.0887	1.617675	488.0522	15.74362	3.4462	0.1269	3963.696	127.8612	0.0887	40.0417
1000	48.09364	1.551408	0.0953	0.4522	37.60547	1.21308	0.0948	0.35545	171.867	5.544096	0.0952	1.617675	438.9241	14.15884	3.0993	0.1269	4302.85	138.8016	0.0952	40.5
1100	48.95155	1.579082	0.097	0.4522	38.35917	1.237393	0.0967	0.35545	175.8387	5.672216	0.0974	1.617675	482.0475	15.54992	3.4038	0.1269	4640.954	149.7082	0.0974	42.6957
1200	47.08433	1.518849	0.0933	0.4522	36.81211	1.187487	0.0928	0.35545	167.8953	5.415976	0.093	1.617675	576.1968	18.58699	4.0686	0.1269	4382.687	141.377	0.093	42.2273
1300	48.4469	1.562803	0.096	0.4522	37.88315	1.222037	0.0955	0.35545	173.3112	5.590685	0.096	1.617675	605.1723	19.52169	4.2732	0.1269	4536.974	146.354	0.096	42.3478
1400	46.02455	1.484663	0.0912	0.4522	36.01874	1.161895	0.0908	0.35545	163.9235	5.287856	0.0908	1.617675	581.8899	18.77064	4.1088	0.1269	4268.644	137.6982	0.0908	42.125
1500	47.1348	1.520477	0.0934	0.4522	36.89144	1.190047	0.093	0.35545	167.8953	5.415976	0.093	1.617675	593.5453	19.14662	4.1911	0.1269	4419.636	142.5689	0.093	42.5833
1600	44.56105	1.437453	0.0883	0.4522	34.9477	1.127345	0.0881	0.35545	158.1465	5.1015	0.0876	1.617675	518.6706	16.73131	3.6624	0.1269	3808.626	122.8589	0.0876	38.9583
1700	44.30873	1.429314	0.0878	0.4522	34.63036	1.117108	0.0873	0.35545	156.8828	5.060734	0.0869	1.617675	665.9133	21.48107	4.7021	0.1269	3543.829	114.3171	0.0869	36.5417
1800	23.57458	0.76047	0.0812	0.26015	33.31209	1.074583	0.0808	0.369425	69.75893	2.250288	0.08	0.78135	38.97972	1.25741	1.0263	0.034033	3292.2	106.2	0.08	36.875
1900	22.93586	0.739867	0.079	0.26015	32.40507	1.045325	0.0786	0.369425	67.57896	2.179967	0.0775	0.78135	43.68175	1.409089	1.1501	0.034033	3214.548	103.6951	0.0775	37.1667
2000	23.54555	0.759534	0.0811	0.26015	33.31209	1.074583	0.0808	0.369425	69.75893	2.250288	0.08	0.78135	41.34593	1.33374	1.0886	0.034033	3463.323	111.7201	0.08	38.7917
2100	22.18101	0.715517	0.0764	0.26015	31.37438	1.012077	0.0761	0.369425	65.1374	2.101206	0.0747	0.78135	44.20968	1.426119	1.164	0.034033	3272.084	105.5511	0.0747	39.25
2200	22.35521	0.721136	0.077	0.26015	31.62175	1.020056	0.0767	0.369425	65.66059	2.118084	0.0753	0.78135	46.62147	1.503918	1.2275	0.034033	3301.87	106.5119	0.0753	39.2917
2300	22.26811	0.718326	0.0767	0.26015	31.49806	1.016067	0.0764	0.369425	65.48619	2.112458	0.0751	0.78135	42.88795	1.383482	1.1292	0.034033	3247.7	104.7645	0.0751	38.75
2400	22.50037	0.725819	0.0775	0.26015	31.91034	1.029366	0.0774	0.369425	66.27098	2.137774	0.076	0.78135	47.77229	1.541041	1.2578	0.034033	3491.595	112.6321	0.076	41.1667
	823.0755	1.106284	0.084917	0.356175	820.3194	1.10258	0.0846	0.362438	2759.497	3.709001	0.083996	1.199513	6434.457	8.648463	2.324954	0.080467	89996.56	120.9631	0.083996	39.91928

DECEMBER	1992
START	336
STOP	361
NUMDAYS	26

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	9.771874	0.315222	0.0918	0.095383	5.672433	0.182982	0.0915	0.05555	36.8656	1.189213	0.0922	0.358283	67.57523	2.179846	1.3192	0.0459	3846.151	124.0694	0.0922	37.3793
200	9.761229	0.314878	0.0917	0.095383	5.660034	0.182582	0.0913	0.05555	36.78563	1.186633	0.092	0.358283	61.1312	1.971974	1.1934	0.0459	3841.35	123.9145	0.092	37.4138
300	9.409953	0.303547	0.0884	0.095383	5.455454	0.175982	0.088	0.05555	35.30621	1.13891	0.0883	0.358283	55.60409	1.79368	1.0855	0.0459	3669.872	118.383	0.0883	37.2414
400	9.473821	0.305607	0.089	0.095383	5.49885	0.177382	0.0887	0.05555	35.54612	1.146649	0.0889	0.358283	58.67243	1.892659	1.1454	0.0459	3710.544	119.695	0.0889	37.4
500	9.431242	0.304234	0.0886	0.095383	5.474053	0.176582	0.0883	0.05555	35.42616	1.142779	0.0886	0.358283	59.56373	1.921411	1.1628	0.0459	3731.828	120.3816	0.0886	37.7419
600	24.11658	0.777954	0.0912	0.23695	4.899765	0.158057	0.0909	0.0483	52.62996	1.697741	0.0913	0.516533	160.825	5.187902	1.2906	0.11166	3832.408	123.6251	0.0913	37.6129
700	24.22236	0.781366	0.0916	0.23695	4.915935	0.158579	0.0912	0.0483	52.97583	1.708898	0.0919	0.516533	171.0557	5.517925	1.3727	0.11166	3864.209	124.6519	0.0919	37.6774
800	24.4339	0.78819	0.0924	0.23695	4.969838	0.160317	0.0922	0.0483	53.49464	1.725633	0.0928	0.516533	377.2147	12.16822	3.0271	0.11166	3898.718	125.7651	0.0928	37.6452
900	27.1576	0.876052	0.1027	0.23695	5.514256	0.177879	0.1023	0.0483	59.89324	1.93204	0.1039	0.516533	521.2793	16.81546	4.1832	0.11166	4338.869	139.9635	0.1039	37.4194
1000	28.08312	0.905907	0.1062	0.23695	5.692136	0.183617	0.1056	0.0483	62.02611	2.000842	0.1076	0.516533	481.3659	15.52793	3.8629	0.11166	4508.872	145.4475	0.1076	37.5484
1100	30.09284	0.970737	0.1138	0.23695	6.117968	0.197354	0.1135	0.0483	66.98359	2.160761	0.1162	0.516533	548.4697	17.69257	4.4014	0.11166	5079.106	163.8421	0.1162	39.1667
1200	29.74907	0.959648	0.1125	0.23695	6.020943	0.194224	0.1117	0.0483	66.00362	2.129149	0.1145	0.516533	517.9147	16.70693	4.1562	0.11166	5226.284	168.5898	0.1145	40.9
1300	28.29467	0.912731	0.107	0.23695	5.719087	0.184487	0.1061	0.0483	62.48727	2.015718	0.1084	0.516533	508.1576	16.39218	4.0779	0.11166	4996.243	161.1691	0.1084	41.3
1400	28.05668	0.905054	0.1061	0.23695	5.692136	0.183617	0.1056	0.0483	61.85317	1.995264	0.1073	0.516533	628.471	20.27326	5.0434	0.11166	4963.301	160.1065	0.1073	41.4483
1500	27.28982	0.880317	0.1032	0.23695	5.535818	0.178575	0.1027	0.0483	59.95089	1.9339	0.104	0.516533	606.1903	19.55452	4.8646	0.11166	4782.638	154.2786	0.104	41.2069
1600	27.23693	0.878611	0.103	0.23695	5.535818	0.178575	0.1027	0.0483	59.95089	1.9339	0.104	0.516533	624.8697	20.15709	5.0145	0.11166	4659.146	150.295	0.104	40.1429
1700	25.54454	0.824017	0.0966	0.23695	5.19084	0.167446	0.0963	0.0483	55.7428	1.798155	0.0967	0.516533	629.418	20.30381	5.051	0.11166	3996.66	128.9245	0.0967	37.0345
1800	9.71865	0.313505	0.0913	0.095383	5.641436	0.181982	0.091	0.05555	36.58571	1.180184	0.0915	0.358283	72.92818	2.352522	1.4237	0.0459	3679.627	118.6976	0.0915	36.0345
1900	9.654782	0.311445	0.0907	0.095383	5.610439	0.180982	0.0905	0.05555	36.26584	1.169866	0.0907	0.358283	69.64469	2.246603	1.3596	0.0459	3828.327	123.4944	0.0907	37.8214
2000	9.835742	0.317282	0.0924	0.095383	5.715828	0.184382	0.0922	0.05555	37.10551	1.196952	0.0928	0.358283	65.16256	2.102018	1.2721	0.0459	3935.462	126.9504	0.0928	38
2100	9.73994	0.314192	0.0915	0.095383	5.653835	0.182382	0.0912	0.05555	36.70566	1.184054	0.0918	0.358283	61.28999	1.977097	1.1965	0.0459	3849.145	124.166	0.0918	37.5714
2200	9.835742	0.317282	0.0924	0.095383	5.70343	0.183982	0.092	0.05555	37.06552	1.195662	0.0927	0.358283	69.47053	2.240985	1.3562	0.0459	3952.626	127.5041	0.0927	38.2069
2300	9.580269	0.309041	0.09	0.095383	5.560844	0.179382	0.0897	0.05555	35.98594	1.160837	0.09	0.358283	66.83247	2.155886	1.3047	0.0459	3799.404	122.5614	0.09	37.8276
2400	9.601558	0.309728	0.0902	0.095383	5.573243	0.179782	0.0899	0.05555	36.06591	1.163417	0.0902	0.358283	70.70504	2.280808	1.3803	0.0459	3828.674	123.5056	0.0902	38.0345
	440.0929	0.591523	0.096429	0.166167	133.0244	0.178796	0.096046	0.051925	1149.702	1.545298	0.097013	0.437408	6553.812	8.808886	2.564371	0.07878	99819.46	134.1659	0.097013	38.32397

JANUARY	1993
START	1
STOP	31
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	15.58965	0.556773	0.0812	0.190467	16.73079	0.597528	0.0809	0.205167	141.2895	5.046055	0.0802	1.747733	132.745	4.740893	1.0063	0.130867	2949.223	105.3294	0.0802	36.4815
200	15.62805	0.558144	0.0814	0.190467	16.77216	0.599006	0.0811	0.205167	141.6419	5.058638	0.0804	1.747733	133.9058	4.782351	1.0151	0.130867	2983.589	106.5568	0.0804	36.8148
300	15.60885	0.557459	0.0813	0.190467	16.75148	0.598267	0.081	0.205167	141.6419	5.058638	0.0804	1.747733	134.7369	4.812032	1.0214	0.130867	3031.615	108.272	0.0804	37.4074
400	15.99283	0.571172	0.0833	0.190467	17.16509	0.613039	0.083	0.205167	145.5176	5.197059	0.0826	1.747733	145.5275	5.197409	1.1032	0.130867	3120.74	111.455	0.0826	37.4815
500	15.74324	0.562259	0.082	0.190467	16.89624	0.603437	0.0817	0.205167	142.6989	5.096389	0.081	1.747733	156.3312	5.583257	1.1851	0.130867	3129.837	111.7799	0.081	38.3333
600	35.81863	1.279237	0.0841	0.422525	22.51559	0.804128	0.0838	0.26655	123.9108	4.425387	0.0834	1.47395	310.042	11.07293	1.2238	0.251333	3263.052	116.5376	0.0834	38.8148
700	34.75386	1.241209	0.0816	0.422525	21.81701	0.779179	0.0812	0.26655	120.0479	4.287426	0.0808	1.47395	282.6809	10.09575	1.1158	0.251333	3131.158	111.8271	0.0808	38.4444
800	38.84255	1.387234	0.0912	0.422525	24.4501	0.873218	0.091	0.26655	135.3511	4.833966	0.0911	1.47395	944.1105	33.71823	3.7266	0.251333	3577.926	127.7831	0.0911	38.963
900	40.97208	1.463289	0.0962	0.422525	25.79351	0.921197	0.096	0.26655	143.6712	5.131115	0.0967	1.47395	1158.921	41.39002	4.5745	0.251333	3852.01	137.5718	0.0967	39.5185
1000	45.18854	1.613876	0.1061	0.422525	28.4266	1.015236	0.1058	0.26655	159.5686	5.69888	0.1074	1.47395	1342.949	47.96248	5.3009	0.251333	4446.649	158.8089	0.1074	41.0741
1100	44.20896	1.578891	0.1038	0.422525	27.8355	0.994125	0.1036	0.26655	155.5571	5.555612	0.1047	1.47395	1385.106	49.46806	5.4673	0.251333	4542.022	162.2151	0.1047	43.037
1200	46.42367	1.657988	0.109	0.422525	29.23265	1.044023	0.1088	0.26655	164.323	5.868679	0.1106	1.47395	1338.643	47.80866	5.2839	0.251333	4836.723	172.7401	0.1106	43.3846
1300	44.29414	1.581934	0.104	0.422525	27.88923	0.996044	0.1038	0.26655	155.7057	5.560919	0.1048	1.47395	1508.763	53.88439	5.9554	0.251333	4558.107	162.7895	0.1048	43.1482
1400	42.07943	1.502837	0.0988	0.422525	26.49208	0.946146	0.0986	0.26655	147.0884	5.253158	0.099	1.47395	1594.925	56.96161	6.2955	0.251333	4419.359	157.8342	0.099	44.2857
1500	41.86648	1.495231	0.0983	0.422525	26.35774	0.941348	0.0981	0.26655	146.3455	5.226627	0.0985	1.47395	1357.365	48.47731	5.3578	0.251333	4460.871	159.3168	0.0985	44.9286
1600	41.86648	1.495231	0.0983	0.422525	26.38461	0.942308	0.0982	0.26655	146.4941	5.231933	0.0986	1.47395	1363.926	48.71165	5.3837	0.251333	4429.898	158.2106	0.0986	44.5714
1700	42.71829	1.525653	0.1003	0.422525	26.89511	0.96054	0.1001	0.26655	149.9113	5.353976	0.1009	1.47395	1385.714	49.48978	5.4697	0.251333	4286.236	153.0799	0.1009	42.1429
1800	17.39436	0.621227	0.0906	0.190467	18.69547	0.667695	0.0904	0.205167	159.4352	5.694114	0.0905	1.747733	379.8594	13.56641	2.8796	0.130867	3495.831	124.8511	0.0905	38.3214
1900	16.5496	0.591057	0.0862	0.190467	17.76484	0.634458	0.0859	0.205167	151.1551	5.398398	0.0858	1.747733	155.3023	5.54651	1.1773	0.130867	3187.18	113.8278	0.0858	36.8518
2000	15.97363	0.570487	0.0832	0.190467	17.14441	0.6123	0.0829	0.205167	145.3415	5.190767	0.0825	1.747733	152.8223	5.457939	1.1585	0.130867	3089.244	110.3302	0.0825	37.1482
2100	15.78164	0.56363	0.0822	0.190467	16.9376	0.604914	0.0819	0.205167	143.4036	5.121557	0.0814	1.747733	131.5842	4.699434	0.9975	0.130867	2950.807	105.386	0.0814	35.963
2200	15.60885	0.557459	0.0813	0.190467	16.75148	0.598267	0.081	0.205167	141.9942	5.071222	0.0806	1.747733	121.44	4.337142	0.9206	0.130867	2930.833	104.6726	0.0806	36.0741
2300	15.30166	0.546488	0.0797	0.190467	16.44126	0.587188	0.0795	0.205167	138.4708	4.945385	0.0786	1.747733	133.8795	4.781409	1.0149	0.130867	2828.761	101.0272	0.0786	35.7037
2400	15.62805	0.558144	0.0814	0.190467	16.79284	0.599744	0.0812	0.205167	141.6419	5.058638	0.0804	1.747733	140.9237	5.032988	1.0683	0.130867	2908.551	103.8768	0.0804	35.8889
	689.8335	1.026538	0.090229	0.306496	518.9334	0.772222	0.089979	0.235859	3482.207	5.181856	0.090038	1.610842	15892.2	23.64911	2.904279	0.1911	86410.22	128.5866	0.090038	39.36595

FEBRUARY	1993
START	32
STOP	59
NUMDAYS	28

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE N02 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	46.12339	1.487851	0.0775	0.53328	15.46486	0.498866	0.0772	0.1795	117.7585	3.798662	0.076	1.3884	122.6293	3.955784	1.0081	0.109	3502.078	112.9703	0.076	41.2903
200	47.78978	1.541606	0.0803	0.53328	16.00573	0.516314	0.0799	0.1795	122.4069	3.94861	0.079	1.3884	130.7186	4.21673	1.0746	0.109	3580.596	115.5031	0.079	40.6129
300	47.78978	1.541606	0.0803	0.53328	16.00573	0.516314	0.0799	0.1795	122.8717	3.963604	0.0793	1.3884	121.6318	3.923608	0.9999	0.109	3554.227	114.6525	0.0793	40.1613
400	45.3497	1.462894	0.0762	0.53328	15.18441	0.48982	0.0758	0.1795	115.2794	3.718691	0.0744	1.3884	132.0446	4.259502	1.0855	0.109	3361.394	108.4321	0.0744	40.4839
500	45.40922	1.464814	0.0763	0.53328	15.22447	0.491112	0.076	0.1795	115.4344	3.723689	0.0745	1.3884	124.7703	4.024847	1.0257	0.109	3336.405	107.626	0.0745	40.129
600	102.2169	3.297318	0.076	1.20516	33.99523	1.09662	0.0757	0.4024	145.8857	4.70599	0.0743	1.75938	675.3283	21.78479	1.0656	0.56788	3268.609	105.439	0.0743	39.4194
700	103.8308	3.349381	0.0772	1.20516	34.62394	1.116901	0.0771	0.4024	148.6345	4.794662	0.0757	1.75938	2098.677	67.69925	3.3115	0.56788	3379.248	109.008	0.0757	40
800	113.649	3.666097	0.0845	1.20516	37.85731	1.221204	0.0843	0.4024	163.9496	5.288696	0.0835	1.75938	2046.012	66.00038	3.2284	0.56788	3868.719	124.7974	0.0835	41.5161
900	126.4261	4.078261	0.094	1.20516	41.85411	1.350132	0.0932	0.4024	184.1733	5.941074	0.0938	1.75938	2311.555	74.56628	3.6474	0.56788	4501.274	145.2024	0.0938	43
1000	126.4261	4.078261	0.094	1.20516	41.89901	1.351581	0.0933	0.4024	184.1733	5.941074	0.0938	1.75938	2656.76	85.70195	4.1921	0.56788	4720.769	152.2829	0.0938	45.0968
1100	129.116	4.165033	0.096	1.20516	42.52772	1.371862	0.0947	0.4024	187.7075	6.055082	0.0956	1.75938	3067.623	98.95559	4.8404	0.56788	5086.683	164.0865	0.0956	47.6774
1200	124.4087	4.013183	0.0925	1.20516	40.86613	1.318262	0.091	0.4024	179.6573	5.795398	0.0915	1.75938	3437.926	110.9008	5.4247	0.56788	5098.889	164.4803	0.0915	49.9333
1300	124.9467	4.030537	0.0929	1.20516	41.00086	1.322608	0.0913	0.4024	180.4427	5.820733	0.0919	1.75938	3397.302	109.5904	5.3606	0.56788	5285.276	170.4928	0.0919	51.5333
1400	121.5843	3.922073	0.0904	1.20516	39.87816	1.286392	0.0888	0.4024	174.5523	5.63072	0.0889	1.75938	3346.602	107.9549	5.2806	0.56788	5443.457	175.5954	0.0889	54.8667
1500	121.4498	3.917734	0.0903	1.20516	39.87816	1.286392	0.0888	0.4024	174.7487	5.637054	0.089	1.75938	3196.402	103.1097	5.0436	0.56788	5856.809	188.9293	0.089	58.9667
1600	120.3738	3.883026	0.0895	1.20516	39.60871	1.2777	0.0882	0.4024	173.3742	5.592717	0.0883	1.75938	3103.937	100.127	4.8977	0.56788	6074.691	195.9578	0.0883	61.6452
1700	117.8184	3.800593	0.0876	1.20516	39.02491	1.258868	0.0869	0.4024	169.6436	5.472376	0.0864	1.75938	2688.512	86.72618	4.2422	0.56788	5990.627	193.246	0.0864	62.129
1800	50.94403	1.643356	0.0856	0.53328	17.12753	0.552501	0.0855	0.1795	130.619	4.213516	0.0843	1.3884	598.6345	19.31079	4.9212	0.109	5071.148	163.5854	0.0843	53.9032
1900	48.92055	1.578082	0.0822	0.53328	16.40637	0.529238	0.0819	0.1795	126.2805	4.073566	0.0815	1.3884	124.8432	4.027201	1.0263	0.109	3887.547	125.4047	0.0815	42.7419
2000	46.83756	1.510889	0.0787	0.53328	15.72528	0.507267	0.0785	0.1795	119.9278	3.868638	0.0774	1.3884	124.2107	4.006796	1.0211	0.109	3613.96	116.5794	0.0774	41.8387
2100	48.26589	1.556964	0.0811	0.53328	16.18602	0.52213	0.0808	0.1795	124.1113	4.00359	0.0801	1.3884	120.5005	3.887114	0.9906	0.109	3696.772	119.2507	0.0801	41.3548
2200	45.23068	1.459054	0.076	0.53328	15.18441	0.48982	0.0758	0.1795	115.2794	3.718691	0.0744	1.3884	131.1322	4.230072	1.078	0.109	3348.002	108.0001	0.0744	40.3226
2300	44.15942	1.424498	0.0742	0.53328	14.82383	0.478188	0.074	0.1795	112.0256	3.613728	0.0723	1.3884	135.0613	4.356817	1.1103	0.109	3308.159	106.7148	0.0723	41
2400	46.65901	1.505129	0.0784	0.53328	15.66518	0.505328	0.0782	0.1795	119.308	3.848645	0.077	1.3884	132.0446	4.259502	1.0855	0.109	3548.158	114.4567	0.077	41.2903
	1995.725	2.682427	0.083821	0.86922	662.0181	0.889809	0.0832	0.29095	3508.245	4.715384	0.082621	1.57389	34024.86	45.73234	2.790067	0.33844	102383.5	137.6122	0.082621	45.87137

MARCH	1993
START	60
STOP	90
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	57.43862	1.914621	0.0823	0.64622	22.24981	0.74166	0.082	0.25124	144.9968	4.833226	0.0777	1.72788	99.50529	3.316843	0.9939	0.0927	3723.076	124.1025	0.0777	44.3667
200	57.36883	1.912294	0.0822	0.64622	22.19555	0.739852	0.0818	0.25124	144.9968	4.833226	0.0777	1.72788	96.44174	3.214725	0.9633	0.0927	3697.901	123.2634	0.0777	44.0667
300	54.92612	1.830871	0.0787	0.64622	21.27299	0.7091	0.0784	0.25124	140.1449	4.671496	0.0751	1.72788	95.43057	3.181019	0.9532	0.0927	3590.384	119.6795	0.0751	44.2667
400	55.48445	1.849482	0.0795	0.64622	21.49006	0.716335	0.0792	0.25124	141.2646	4.708819	0.0757	1.72788	101.3975	3.379916	1.0128	0.0927	3545.488	118.1829	0.0757	43.3667
500	55.27507	1.842502	0.0792	0.64622	21.4358	0.714527	0.079	0.25124	140.8913	4.696378	0.0755	1.72788	93.91882	3.130627	0.9381	0.0927	3405.657	113.5219	0.0755	41.7667
600	93.69389	3.12313	0.0777	1.11652	36.94432	1.231477	0.0774	0.44196	144.0176	4.800585	0.0739	1.80446	1134.065	37.80216	1.4326	0.732975	3213.766	107.1255	0.0739	40.2667
700	99.96427	3.332142	0.0829	1.11652	39.23544	1.307848	0.0822	0.44196	153.3719	5.112396	0.0787	1.80446	1771.313	59.04377	2.2376	0.732975	3493.336	116.4445	0.0787	41.1
800	104.6671	3.488902	0.0868	1.11652	40.47646	1.349215	0.0848	0.44196	162.7262	5.424207	0.0835	1.80446	2175.748	72.52494	2.7485	0.732975	4274.532	142.4844	0.0835	47.4
900	158.0858	5.269528	0.1311	1.11652	59.09182	1.969727	0.1238	0.44196	249.4486	8.314952	0.128	1.80446	2983.669	99.45562	3.7691	0.732975	7036.416	234.5472	0.128	50.9
1000	110.8168	3.693895	0.0919	1.11652	42.62439	1.420813	0.0893	0.44196	172.6652	5.755506	0.0886	1.80446	3873.679	129.1226	4.8934	0.732975	4963.021	165.434	0.0886	51.8667
1100	114.1932	3.80644	0.0947	1.11652	43.72222	1.457407	0.0916	0.44196	178.1219	5.937395	0.0914	1.80446	4376.353	145.8784	5.5284	0.732975	5244.894	174.8298	0.0914	53.1333
1200	115.399	3.846635	0.0957	1.11652	44.05634	1.468545	0.0923	0.44196	180.0707	6.002356	0.0924	1.80446	4871.27	162.3757	6.1536	0.732975	5641.571	188.0524	0.0924	56.5333
1300	116.3637	3.87879	0.0965	1.11652	44.43819	1.481273	0.0931	0.44196	181.6297	6.054324	0.0932	1.80446	5080.889	169.363	6.4184	0.732975	6025.943	200.8648	0.0932	59.8667
1400	116.1225	3.870752	0.0963	1.11652	44.295	1.4765	0.0928	0.44196	181.0451	6.034836	0.0929	1.80446	4919.954	163.9985	6.2151	0.732975	6558.372	218.6124	0.0929	65.3667
1500	115.2785	3.842615	0.0956	1.11652	44.10407	1.470136	0.0924	0.44196	179.8758	5.99586	0.0923	1.80446	4986.054	166.2018	6.2986	0.732975	7340.062	244.6687	0.0923	73.6333
1600	118.5342	3.951141	0.0983	1.11652	45.39283	1.513094	0.0951	0.44196	182.6041	6.086804	0.0937	1.80446	4472.376	149.0792	5.6497	0.732975	8119.289	270.643	0.0937	80.2333
1700	114.1932	3.80644	0.0947	1.11652	44.05634	1.468545	0.0923	0.44196	175.9782	5.865939	0.0903	1.80446	3798.634	126.6211	4.7986	0.732975	8312.292	277.0764	0.0903	85.2333
1800	62.25425	2.075142	0.0892	0.64622	23.82358	0.794119	0.0878	0.25124	157.8729	5.262431	0.0846	1.72788	434.6836	14.48945	4.3418	0.0927	7784.554	259.4851	0.0846	85.2
1900	65.95321	2.19844	0.0945	0.64622	25.58729	0.85291	0.0943	0.25124	162.7248	5.424161	0.0872	1.72788	334.0871	11.13624	3.337	0.0927	6714.749	223.825	0.0872	71.3
2000	68.95426	2.298475	0.0988	0.64622	26.61838	0.887279	0.0981	0.25124	167.2035	5.57345	0.0896	1.72788	96.35164	3.211721	0.9624	0.0927	5077.098	169.2366	0.0896	52.4667
2100	66.58134	2.219378	0.0954	0.64622	25.72296	0.857432	0.0948	0.25124	162.7248	5.424161	0.0872	1.72788	99.63544	3.321181	0.9952	0.0927	4806.112	160.2037	0.0872	51.0333
2200	62.25425	2.075142	0.0892	0.64622	24.01352	0.800451	0.0885	0.25124	154.3273	5.144244	0.0827	1.72788	97.07247	3.235749	0.9696	0.0927	4421.142	147.3714	0.0827	49.5
2300	59.46258	1.982086	0.0852	0.64622	22.9553	0.765177	0.0846	0.25124	148.9156	4.963854	0.0798	1.72788	93.95887	3.131962	0.9385	0.0927	4076.503	135.8834	0.0798	47.3
2400	56.95008	1.898336	0.0816	0.64622	22.05988	0.735329	0.0813	0.25124	143.6905	4.789683	0.077	1.72788	89.83409	2.99447	0.8973	0.0927	3805.959	126.8653	0.077	45.7667
	2100.215	2.916966	0.09075	0.88137	807.8625	1.122031	0.089038	0.3466	3951.309	5.487929	0.086196	1.76617	46176.32	64.13378	3.060279	0.412838	124872.1	173.4335	0.086196	55.24723

APRIL	1993
START	91
STOP	120
NUMDAYS	30

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	73.95352	2.38592	0.0863	0.767967	35.66598	1.150515	0.0856	0.37335	242.8785	7.834791	0.0803	2.71025	211.2768	6.81538	0.8916	0.212333	3917.036	126.356	0.0803	43.7097
200	69.42114	2.239392	0.081	0.767967	33.49935	1.080624	0.0804	0.37335	231.9898	7.483542	0.0767	2.71025	194.1917	6.264248	0.8195	0.212333	3630.982	117.1284	0.0767	42.4194
300	69.67826	2.247686	0.0813	0.767967	33.54102	1.081968	0.0805	0.37335	232.5947	7.503056	0.0769	2.71025	204.0731	6.583002	0.8612	0.212333	3582.307	115.5583	0.0769	41.7419
400	67.10711	2.164745	0.0783	0.767967	32.37437	1.044335	0.0777	0.37335	226.5455	7.307918	0.0749	2.71025	218.9781	7.063809	0.9241	0.212333	3464.873	111.7701	0.0749	41.4516
500	68.99262	2.225568	0.0805	0.767967	33.33269	1.075248	0.08	0.37335	230.175	7.425001	0.0761	2.71025	194.2154	6.265013	0.8196	0.212333	3465.59	111.7932	0.0761	40.8064
600	157.4069	5.077641	0.0793	1.778633	63.25238	2.040399	0.0791	0.716533	251.0522	8.098459	0.0754	2.983517	2952.32	95.23613	2.8806	0.918367	3523.294	113.6546	0.0754	41.871
700	181.2263	5.846011	0.0913	1.778633	71.08896	2.293192	0.0889	0.716533	290.3416	9.365857	0.0872	2.983517	3096.728	99.89445	3.0215	0.918367	4328.96	139.6439	0.0872	44.4839
800	191.7466	6.185374	0.0966	1.778633	74.2076	2.393793	0.0928	0.716533	310.9851	10.03178	0.0934	2.983517	3651.403	117.7872	3.5627	0.918367	5067.136	163.456	0.0934	48.6129
900	177.2564	5.717949	0.0893	1.778633	69.56962	2.244181	0.087	0.716533	286.679	9.247709	0.0861	2.983517	4638.994	149.645	4.5263	0.918367	4853.971	156.5797	0.0861	50.5161
1000	196.5105	6.339048	0.099	1.778633	76.04679	2.453122	0.0951	0.716533	318.6432	10.27881	0.0957	2.983517	5236.304	168.913	5.1091	0.918367	5560.551	179.3726	0.0957	52.0645
1100	199.0909	6.422288	0.1003	1.778633	77.00637	2.484077	0.0963	0.716533	322.6387	10.4077	0.0969	2.983517	5571.958	179.7406	5.4366	0.918367	5895.393	190.174	0.0969	54.5161
1200	200.0834	6.454303	0.1008	1.778633	77.24627	2.491815	0.0966	0.716533	324.9694	10.48289	0.0976	2.983517	5748.446	185.4337	5.6088	0.918367	6524.752	210.4759	0.0976	59.9032
1300	207.6262	6.69762	0.1046	1.778633	80.28494	2.589837	0.1004	0.716533	333.2935	10.7514	0.1001	2.983517	6138.522	198.0168	5.9894	0.918367	7437.825	239.9299	0.1001	66.5806
1400	199.8849	6.4479	0.1007	1.778633	77.4062	2.496974	0.0968	0.716533	324.3035	10.4614	0.0974	2.983517	6152.563	198.4698	6.0031	0.918367	8040.171	259.3603	0.0974	73.9677
1500	198.4954	6.403079	0.1	1.778633	76.76648	2.476338	0.096	0.716533	321.6398	10.37548	0.0966	2.983517	6207.702	200.2485	6.0569	0.918367	8652.273	279.1056	0.0966	80.2581
1600	195.518	6.307033	0.0985	1.778633	75.567	2.437645	0.0945	0.716533	316.6454	10.21437	0.0951	2.983517	5818.651	187.6984	5.6773	0.918367	8997.221	290.233	0.0951	84.7742
1700	188.7692	6.089328	0.0951	1.778633	73.40795	2.367998	0.0918	0.716533	305.3248	9.849186	0.0917	2.983517	5465.369	176.3022	5.3326	0.918367	9084.903	293.0614	0.0917	88.7742
1800	74.90627	2.416331	0.0874	0.767967	35.54098	1.146483	0.0853	0.37335	254.3721	8.205553	0.0841	2.71025	1038.232	33.49137	4.3814	0.212333	8328.924	268.675	0.0841	88.7419
1900	73.02076	2.355508	0.0852	0.767967	35.41598	1.142451	0.085	0.37335	244.6933	7.893332	0.0809	2.71025	1163.563	37.53427	4.9103	0.212333	6919.866	223.2215	0.0809	76.6452
2000	87.93345	2.836563	0.1026	0.767967	42.24918	1.362877	0.1014	0.37335	280.989	9.06416	0.0929	2.71025	210.3526	6.785568	0.8877	0.212333	5785.807	186.6389	0.0929	55.8064
2100	74.56345	2.405273	0.087	0.767967	35.95764	1.159924	0.0863	0.37335	245.6007	7.922603	0.0812	2.71025	201.1821	6.489746	0.849	0.212333	4498.808	145.1228	0.0812	49.6452
2200	68.39268	2.206216	0.0798	0.767967	32.9577	1.063151	0.0791	0.37335	229.2676	7.39573	0.0758	2.71025	199.3338	6.430123	0.8412	0.212333	3970.405	128.0776	0.0758	46.9355
2300	71.90659	2.319568	0.0839	0.767967	34.666	1.118258	0.0832	0.37335	238.9465	7.707951	0.079	2.71025	220.4473	7.111202	0.9303	0.212333	3958.846	127.7047	0.079	44.9032
2400	73.44929	2.369332	0.0857	0.767967	35.45765	1.143795	0.0851	0.37335	241.9711	7.80552	0.08	2.71025	198.9784	6.418657	0.8397	0.212333	3968.639	128.0206	0.08	44.4516
	3166.95	4.256653	0.090604	1.2733	1312.509	1.764125	0.088538	0.544942	6606.54	8.879758	0.086333	2.846884	64933.78	87.27659	3.215021	0.56535	133458.5	179.3797	0.086333	56.81585

MAY	1993
START	121
STOP	151
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	80.55958	2.685319	0.0908	0.8215	49.9712	1.665707	0.0891	0.5193	208.7899	6.959664	0.085	2.2744	866.8046	28.89349	1.1081	0.7243	4235.037	141.1679	0.085	46.1333
200	79.31747	2.643916	0.0894	0.8215	49.29819	1.643273	0.0879	0.5193	205.5967	6.853222	0.0837	2.2744	764.0959	25.46986	0.9768	0.7243	3971.395	132.3798	0.0837	43.9333
300	79.14002	2.638001	0.0892	0.8215	49.07385	1.635795	0.0875	0.5193	206.0879	6.869598	0.0839	2.2744	810.6395	27.02132	1.0363	0.7243	3823.826	127.4609	0.0839	42.2
400	80.11597	2.670532	0.0903	0.8215	49.80295	1.660098	0.0888	0.5193	208.053	6.9351	0.0847	2.2744	890.2719	29.67573	1.1381	0.7243	3768.811	125.627	0.0847	41.2
500	76.30092	2.543364	0.086	0.8215	48.00825	1.600275	0.0856	0.5193	197.4907	6.583023	0.0804	2.2744	825.111	27.5037	1.0548	0.7243	3479.271	115.9757	0.0804	40.069
600	200.5736	6.685787	0.089	2.0867	82.90485	2.763495	0.0875	0.8773	219.608	7.320268	0.0837	2.4294	8188.989	272.9663	3.0482	2.4875	3740.523	124.6841	0.0837	41.3793
700	241.5898	8.052993	0.1072	2.0867	98.06459	3.26882	0.1035	0.8773	263.9495	8.798315	0.1006	2.4294	8512.175	283.7392	3.1685	2.4875	4825.471	160.849	0.1006	44.4138
800	252.1819	8.406062	0.1119	2.0867	101.4755	3.382518	0.1071	0.8773	279.692	9.323065	0.1066	2.4294	9954.826	331.8275	3.7055	2.4875	5565.84	185.528	0.1066	48.3448
900	230.3216	7.677387	0.1022	2.0867	93.23243	3.107748	0.0984	0.8773	256.8653	8.562177	0.0979	2.4294	11075.36	369.1788	4.1226	2.4875	5476.188	182.5396	0.0979	51.7931
1000	242.942	8.098065	0.1078	2.0867	97.8751	3.262503	0.1033	0.8773	271.0336	9.034453	0.1033	2.4294	13400.8	446.6933	4.9882	2.4875	5989.838	199.6613	0.1033	53.6897
1100	255.7877	8.526256	0.1135	2.0867	103.181	3.439367	0.1089	0.8773	283.1028	9.436761	0.1079	2.4294	14847.75	494.9249	5.5268	2.4875	6694.565	223.1522	0.1079	57.4483
1200	258.0413	8.601377	0.1145	2.0867	103.939	3.464633	0.1097	0.8773	285.989	9.532966	0.109	2.4294	16183.74	539.4582	6.0241	2.4875	7420.421	247.3474	0.109	63.0345
1300	250.6043	8.353477	0.1112	2.0867	100.8123	3.36041	0.1064	0.8773	280.2167	9.340557	0.1068	2.4294	17667.77	588.9256	6.5765	2.4875	8247.096	274.9032	0.1068	71.5
1400	250.379	8.345965	0.1111	2.0867	100.6228	3.354093	0.1062	0.8773	279.9543	9.331811	0.1067	2.4294	17386.22	579.5407	6.4717	2.4875	9556.902	318.5634	0.1067	82.9333
1500	249.2521	8.308405	0.1106	2.0867	100.1491	3.338302	0.1057	0.8773	278.1177	9.27059	0.106	2.4294	17186.88	572.8961	6.3975	2.4875	10875.6	362.52	0.106	95
1600	245.1956	8.173187	0.1088	2.0867	98.72783	3.290928	0.1042	0.8773	273.6573	9.121911	0.1043	2.4294	16544	551.4668	6.1582	2.4875	11609.85	386.9948	0.1043	103.0667
1700	237.984	7.932799	0.1056	2.0867	96.07488	3.202496	0.1014	0.8773	265.5237	8.85079	0.1012	2.4294	14860.11	495.3369	5.5314	2.4875	12007.99	400.2664	0.1012	109.8667
1800	87.56861	2.918954	0.0987	0.8215	53.5606	1.785353	0.0955	0.5193	231.634	7.721133	0.0943	2.2744	3146.968	104.8989	4.023	0.7243	12024.38	400.8128	0.0943	118.0667
1900	76.47836	2.549279	0.0862	0.8215	47.67174	1.589058	0.085	0.5193	201.4209	6.714029	0.082	2.2744	2737.776	91.25919	3.4999	0.7243	9405.072	313.5024	0.082	106.2
2000	83.4874	2.782913	0.0941	0.8215	51.70982	1.723661	0.0922	0.5193	214.6852	7.156172	0.0874	2.2744	672.8863	22.42954	0.8602	0.7243	6742.732	224.7577	0.0874	71.4333
2100	83.13251	2.771084	0.0937	0.8215	51.54156	1.718052	0.0919	0.5193	213.457	7.115233	0.0869	2.2744	662.0913	22.06971	0.8464	0.7243	5427.771	180.9257	0.0869	57.8333
2200	82.86635	2.762212	0.0934	0.8215	51.42939	1.714313	0.0917	0.5193	212.7201	7.090669	0.0866	2.2744	698.935	23.29783	0.8935	0.7243	5165.86	172.1953	0.0866	55.2333
2300	81.4468	2.714893	0.0918	0.8215	50.53204	1.684401	0.0901	0.5193	210.2637	7.008791	0.0856	2.2744	740.7068	24.69023	0.9469	0.7243	4905.91	163.5303	0.0856	53.0667
2400	76.65581	2.555194	0.0864	0.8215	47.61566	1.587189	0.0849	0.5193	200.9296	6.697653	0.0818	2.2744	830.7431	27.69144	1.062	0.7243	4470.206	149.0069	0.0818	50.6
	3881.923	5.391559	0.099308	1.4541	1777.275	2.468437	0.096354	0.6983	5748.839	7.984498	0.094013	2.3519	179455.7	249.244	3.29855	1.6059	159430.6	221.4313	0.094013	64.5183

JUNE	1993
START	152
STOP	181
NUMDAYS	30

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	141.0894	4.551271	0.0843	1.499694	31.51117	1.016489	0.0826	0.341838	182.9651	5.902099	0.0796	2.059638	357.2444	11.52401	0.6308	0.507469	4186.639	135.0529	0.0796	47.129
200	134.7295	4.346113	0.0805	1.499694	30.02336	0.968495	0.0787	0.341838	176.9888	5.709317	0.077	2.059638	409.2906	13.20292	0.7227	0.507469	3911.29	126.1706	0.077	45.5161
300	133.8927	4.319119	0.08	1.499694	29.87076	0.963573	0.0783	0.341838	176.5291	5.694487	0.0768	2.059638	440.3258	14.20406	0.7775	0.507469	3832.015	123.6134	0.0768	44.7097
400	136.5705	4.405501	0.0816	1.499694	30.48115	0.983263	0.0799	0.341838	179.7471	5.798293	0.0782	2.059638	509.4187	16.43286	0.8995	0.507469	3820.227	123.2331	0.0782	43.7742
500	132.3864	4.270529	0.0791	1.499694	29.87076	0.963573	0.0783	0.341838	173.7708	5.605511	0.0756	2.059638	479.5162	15.46826	0.8467	0.507469	3578.908	115.4486	0.0756	42.4194
600	316.2471	10.20152	0.0786	3.605287	53.46124	1.724556	0.0778	0.615737	183.1632	5.908491	0.0752	2.18251	5199.072	167.712	1.1406	4.0844	3562.674	114.925	0.0752	42.4516
700	375.7949	12.12242	0.0934	3.605287	61.50104	1.983905	0.0895	0.615737	220.1856	7.102761	0.0904	2.18251	6714.67	216.6023	1.4731	4.0844	4686.335	151.1721	0.0904	46.4516
800	423.6746	13.66692	0.1053	3.605287	68.71625	2.216653	0.1	0.615737	248.9266	8.029891	0.1022	2.18251	10368.52	334.4682	2.2747	4.0844	5559.267	179.3312	0.1022	48.7419
900	392.6936	12.66754	0.0976	3.605287	64.52456	2.081437	0.0939	0.615737	229.9283	7.417042	0.0944	2.18251	13026.4	420.2063	2.8578	4.0844	5403.454	174.305	0.0944	51.2903
1000	431.3192	13.91352	0.1072	3.605287	70.02186	2.25877	0.1019	0.615737	252.5801	8.147746	0.1037	2.18251	17644.76	569.1856	3.871	4.0844	6156.053	198.5823	0.1037	53.1936
1100	438.5615	14.14715	0.109	3.605287	71.19003	2.296453	0.1036	0.615737	257.4515	8.304887	0.1057	2.18251	20808.59	671.245	4.5651	4.0844	6974.928	224.9977	0.1057	59.129
1200	442.1827	14.26396	0.1099	3.605287	71.73976	2.314186	0.1044	0.615737	259.4	8.367743	0.1065	2.18251	23136.46	746.3375	5.0758	4.0844	8381.121	270.3587	0.1065	70.5161
1300	442.9874	14.28992	0.1101	3.605287	71.8772	2.318619	0.1046	0.615737	259.8872	8.383457	0.1067	2.18251	24219.49	781.2738	5.3134	4.0844	10021.69	323.2804	0.1067	84.1613
1400	443.7921	14.31587	0.1103	3.605287	72.01463	2.323053	0.1048	0.615737	260.6179	8.407029	0.107	2.18251	26038.21	839.9422	5.7124	4.0844	11555.11	372.7453	0.107	96.7667
1500	439.7686	14.18608	0.1093	3.605287	71.4649	2.305319	0.104	0.615737	258.1822	8.328458	0.106	2.18251	25946.13	836.972	5.6922	4.0844	12707.29	409.9124	0.106	107.4194
1600	432.5263	13.95246	0.1075	3.605287	70.36544	2.269853	0.1024	0.615737	254.0415	8.194889	0.1043	2.18251	23371.21	753.91	5.1273	4.0844	13316.02	429.5491	0.1043	114.4
1700	418.8464	13.51117	0.1041	3.605287	68.37267	2.20557	0.0995	0.615737	245.2731	7.912035	0.1007	2.18251	19472.59	628.148	4.272	4.0844	13159.84	424.5109	0.1007	117.1
1800	161.0059	5.19374	0.0962	1.499694	35.28794	1.138321	0.0925	0.341838	213.9956	6.903083	0.0931	2.059638	1486.914	47.96495	2.6255	0.507469	12526.83	404.0914	0.0931	120.5667
1900	143.7673	4.637654	0.0859	1.499694	32.31231	1.042332	0.0847	0.341838	187.5622	6.050393	0.0816	2.059638	1600.577	51.63152	2.8262	0.507469	9701.519	312.9522	0.0816	106.5333
2000	159.667	5.150549	0.0954	1.499694	35.63128	1.149396	0.0934	0.341838	202.7326	6.539763	0.0882	2.059638	405.0431	13.06591	0.7152	0.507469	7113.298	229.4612	0.0882	72.2667
2100	150.4619	4.85361	0.0899	1.499694	33.57123	1.082943	0.088	0.341838	193.3086	6.23576	0.0841	2.059638	353.7897	11.41257	0.6247	0.507469	5407.293	174.4288	0.0841	57.6129
2200	142.9304	4.610659	0.0854	1.499694	31.89266	1.028796	0.0836	0.341838	184.3442	5.946587	0.0802	2.059638	308.936	9.965676	0.5455	0.507469	4694.586	151.4383	0.0802	52.4516
2300	138.0768	4.454091	0.0825	1.499694	30.74819	0.991877	0.0806	0.341838	180.2068	5.813122	0.0784	2.059638	348.9759	11.25729	0.6162	0.507469	4428.345	142.8498	0.0784	50.6129
2400	137.5747	4.437894	0.0822	1.499694	30.63374	0.988185	0.0803	0.341838	179.7471	5.798293	0.0782	2.059638	369.7604	11.92775	0.6529	0.507469	4290.366	138.3989	0.0782	49.1613
	6710.547	9.019553	0.094388	2.552491	1197.084	1.608984	0.091138	0.478788	5161.535	6.937547	0.090575	2.121074	223015.9	299.7525	2.494117	2.295934	168975.1	227.1171	0.090575	67.6823

JULY	1993
START	182
STOP	212
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	166.1887	5.360925	0.0826	1.80284	31.37262	1.01202	0.0806	0.34878	214.4325	6.917177	0.079	2.4322	274.5641	8.856907	0.7982	0.308225	4200.591	135.5029	0.079	47.6452
200	159.5492	5.146748	0.0793	1.80284	30.08813	0.970585	0.0773	0.34878	207.6466	6.698279	0.0765	2.4322	253.3062	8.171168	0.7364	0.308225	3938.217	127.0393	0.0765	46.129
300	158.5432	5.114297	0.0788	1.80284	29.93244	0.965563	0.0769	0.34878	206.8323	6.672011	0.0762	2.4322	256.1268	8.262156	0.7446	0.308225	3788.36	122.2052	0.0762	44.5484
400	160.5552	5.179199	0.0798	1.80284	30.3606	0.979374	0.078	0.34878	209.0038	6.742058	0.077	2.4322	283.4044	9.142077	0.8239	0.308225	3670.13	118.3913	0.077	42.7097
500	167.3959	5.399866	0.0832	1.80284	31.64509	1.020809	0.0813	0.34878	215.7896	6.960956	0.0795	2.4322	296.7164	9.571496	0.8626	0.308225	3734.912	120.481	0.0795	42.0968
600	481.8718	15.54425	0.0746	5.788	84.75926	2.73417	0.074	1.02634	323.6353	10.43985	0.0716	4.05022	3400.226	109.6847	1.1718	2.6001	3296.753	106.3469	0.0716	41.2581
700	575.5333	18.56559	0.0891	5.788	98.50401	3.177549	0.086	1.02634	389.6279	12.56864	0.0862	4.05022	4407.12	142.1651	1.5188	2.6001	4027.957	129.9341	0.0862	41.871
800	664.6731	21.44107	0.1029	5.788	112.3633	3.624622	0.0981	1.02634	450.6485	14.53705	0.0997	4.05022	7950.69	256.4739	2.74	2.6001	4999.757	161.2825	0.0997	44.9355
900	602.6628	19.44073	0.0933	5.788	103.6583	3.343816	0.0905	1.02634	406.8041	13.12271	0.09	4.05022	9073.942	292.7078	3.1271	2.6001	4966.919	160.2232	0.09	49.4516
1000	689.2188	22.23287	0.1067	5.788	116.3722	3.753941	0.1016	1.02634	467.3727	15.07654	0.1034	4.05022	11973.62	386.2459	4.1264	2.6001	6030.292	194.5256	0.1034	52.2581
1100	710.5349	22.92048	0.11	5.788	119.6938	3.861091	0.1045	1.02634	482.2889	15.55771	0.1067	4.05022	16139.9	520.6419	5.5622	2.6001	7079.33	228.3655	0.1067	59.4516
1200	705.3674	22.75379	0.1092	5.788	119.0066	3.838922	0.1039	1.02634	479.1248	15.45564	0.106	4.05022	16672.65	537.8276	5.7458	2.6001	8446.334	272.4624	0.106	71.4
1300	699.5539	22.56625	0.1083	5.788	118.2048	3.813058	0.1032	1.02634	474.1528	15.29525	0.1049	4.05022	19652.42	633.9491	6.7727	2.6001	9208.038	297.0335	0.1049	78.6552
1400	708.5971	22.85797	0.1097	5.788	119.3502	3.850007	0.1042	1.02634	480.4808	15.49938	0.1063	4.05022	18219.27	587.7183	6.2788	2.6001	10791.45	348.1114	0.1063	90.9667
1500	729.9131	23.54558	0.113	5.788	123.2445	3.975631	0.1076	1.02634	490.8769	15.83474	0.1086	4.05022	18890.14	609.3594	6.51	2.6001	12305.59	396.9546	0.1086	101.5333
1600	698.9079	22.54542	0.1082	5.788	117.8612	3.801974	0.1029	1.02634	473.7008	15.28067	0.1048	4.05022	17661.27	569.7183	6.0865	2.6001	12783.38	412.367	0.1048	109.3
1700	671.1325	21.64944	0.1039	5.788	113.7378	3.66896	0.0993	1.02634	454.7166	14.66828	0.1006	4.05022	14379.43	463.8526	4.9555	2.6001	13517.26	436.0406	0.1006	120.4
1800	188.5215	6.08134	0.0937	1.80284	35.22608	1.136325	0.0905	0.34878	245.6473	7.924108	0.0905	2.4322	1278.158	41.23089	3.7158	0.308225	12579.14	405.7787	0.0905	124.5484
1900	159.1468	5.133767	0.0791	1.80284	30.67199	0.989419	0.0788	0.34878	206.018	6.645743	0.0759	2.4322	824.0019	26.58071	2.3955	0.308225	8456.777	272.7993	0.0759	99.8387
2000	166.7923	5.380396	0.0829	1.80284	31.41155	1.013276	0.0807	0.34878	214.9753	6.934689	0.0792	2.4322	270.0924	8.712658	0.7852	0.308225	6107.273	197.0088	0.0792	69.0968
2100	165.1827	5.328474	0.0821	1.80284	31.178	1.005742	0.0801	0.34878	213.3467	6.882153	0.0786	2.4322	251.8959	8.125674	0.7323	0.308225	5562.998	179.4515	0.0786	63.4194
2200	164.9815	5.321984	0.082	1.80284	31.13908	1.004486	0.08	0.34878	212.8039	6.864641	0.0784	2.4322	247.3898	7.980315	0.7192	0.308225	5026.693	162.1514	0.0784	57.4516
2300	159.348	5.140257	0.0792	1.80284	30.01029	0.968074	0.0771	0.34878	207.3752	6.689523	0.0764	2.4322	247.3554	7.979206	0.7191	0.308225	4527.161	146.0374	0.0764	53.0968
2400	158.342	5.107806	0.0787	1.80284	29.85459	0.963051	0.0767	0.34878	206.018	6.645743	0.0759	2.4322	246.0826	7.93815	0.7154	0.308225	4155.979	134.0638	0.0759	49.0645
	9912.513	13.32327	0.092096	3.79542	1719.646	2.311353	0.088908	0.68756	7933.32	10.66306	0.088829	3.24121	163149.8	219.2873	2.847658	1.454163	163201.3	219.3566	0.088829	66.7136

AUGUST	1993
START	213
STOP	243
NUMDAYS	31

PONDEROSA PINE

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	62.81506	2.093835	0.0794	0.73252	36.26644	1.208881	0.0778	0.43162	188.9519	6.298398	0.0765	2.287	278.8833	9.296109	0.9282	0.2782	3644.129	121.471	0.0765	44.1071
200	62.65683	2.088561	0.0792	0.73252	36.21982	1.207327	0.0777	0.43162	188.9519	6.298398	0.0765	2.287	281.7977	9.393256	0.9379	0.2782	3605.776	120.1925	0.0765	43.6429
300	62.97328	2.099109	0.0796	0.73252	36.35967	1.211989	0.078	0.43162	189.6929	6.323098	0.0768	2.287	280.9564	9.365214	0.9351	0.2782	3569.553	118.9851	0.0768	43.0357
400	63.28973	2.109658	0.08	0.73252	36.59274	1.219758	0.0785	0.43162	190.1869	6.339564	0.077	2.287	313.4958	10.44986	1.0434	0.2782	3498.658	116.6219	0.077	42.0714
500	63.52706	2.117569	0.0803	0.73252	36.68597	1.222866	0.0787	0.43162	190.6809	6.35603	0.0772	2.287	314.4572	10.48191	1.0466	0.2782	3480.948	116.0316	0.0772	41.75
600	234.459	7.8153	0.0721	3.01098	44.92168	1.497389	0.0719	0.5785	258.5641	8.618805	0.0692	3.4597	2540.678	84.68925	1.101	2.136675	3098.876	103.2959	0.0692	41.4643
700	261.7746	8.72582	0.0805	3.01098	49.54505	1.651502	0.0793	0.5785	289.2032	9.640108	0.0774	3.4597	4967.359	165.5786	2.1526	2.136675	3469.068	115.6356	0.0774	41.5
800	320.9584	10.69861	0.0987	3.01098	59.10419	1.97014	0.0946	0.5785	356.8335	11.89445	0.0955	3.4597	6159.47	205.3157	2.6692	2.136675	4545.524	151.5175	0.0955	44.0714
900	364.5333	12.15111	0.1121	3.01098	66.35164	2.211721	0.1062	0.5785	406.9022	13.56341	0.1089	3.4597	8349.852	278.3284	3.6184	2.136675	5594.967	186.4989	0.1089	47.5714
1000	334.9414	11.16471	0.103	3.01098	61.47835	2.049278	0.0984	0.5785	372.153	12.4051	0.0996	3.4597	10810.69	360.3562	4.6848	2.136675	5366.879	178.896	0.0996	49.8929
1100	348.9244	11.63081	0.1073	3.01098	63.79004	2.126335	0.1021	0.5785	387.8462	12.92821	0.1038	3.4597	13601.51	453.3836	5.8942	2.136675	6005.568	200.1856	0.1038	53.5714
1200	353.8022	11.79341	0.1088	3.01098	64.66473	2.155491	0.1035	0.5785	393.8246	13.12749	0.1054	3.4597	14409.63	480.3211	6.2444	2.136675	6770.898	225.6966	0.1054	59.4815
1300	354.7778	11.82593	0.1091	3.01098	64.91464	2.163821	0.1039	0.5785	394.9455	13.16485	0.1057	3.4597	15441.83	514.7276	6.6917	2.136675	7492.013	249.7338	0.1057	65.6296
1400	354.4526	11.81509	0.109	3.01098	64.72721	2.157574	0.1036	0.5785	394.1982	13.13994	0.1055	3.4597	15468.36	515.6122	6.7032	2.136675	8266.985	275.5662	0.1055	72.5556
1500	352.1763	11.73921	0.1083	3.01098	64.41482	2.147161	0.1031	0.5785	391.9563	13.06521	0.1049	3.4597	15563.9	518.7967	6.7446	2.136675	9348.686	311.6229	0.1049	82.5185
1600	342.7459	11.42486	0.1054	3.01098	62.97782	2.099261	0.1008	0.5785	381.4942	12.71647	0.1021	3.4597	14143.34	471.4445	6.129	2.136675	10336.6	344.5533	0.1021	93.7407
1700	321.2836	10.70945	0.0988	3.01098	59.3541	1.97847	0.095	0.5785	356.8335	11.89445	0.0955	3.4597	10627.46	354.2487	4.6054	2.136675	9614.938	320.4979	0.0955	93.2222
1800	289.4154	9.64718	0.089	3.01098	54.79321	1.82644	0.0877	0.5785	315.3586	10.51195	0.0844	3.4597	10356.55	345.2183	4.488	2.136675	7778.301	259.2767	0.0844	85.3333
1900	64.87197	2.162399	0.082	0.73252	37.43181	1.247727	0.0803	0.43162	193.6449	6.454829	0.0784	2.287	247.4255	8.247517	0.8235	0.2782	5563.264	185.4421	0.0784	65.7037
2000	65.82132	2.194044	0.0832	0.73252	37.94458	1.264819	0.0814	0.43162	195.8678	6.528928	0.0793	2.287	246.6143	8.220476	0.8208	0.2782	5172.29	172.4097	0.0793	60.3929
2100	63.68529	2.122843	0.0805	0.73252	36.73259	1.22442	0.0788	0.43162	191.4219	6.38073	0.0775	2.287	286.3045	9.543484	0.9529	0.2782	4492.899	149.7633	0.0775	53.6786
2200	63.21062	2.107021	0.0799	0.73252	36.4529	1.215097	0.0782	0.43162	190.4339	6.347797	0.0771	2.287	277.7415	9.258051	0.9244	0.2782	4103.922	136.7974	0.0771	49.2857
2300	63.28973	2.109658	0.08	0.73252	36.59274	1.219758	0.0785	0.43162	190.1869	6.339564	0.077	2.287	302.8897	10.09632	1.0081	0.2782	3855.056	128.5019	0.077	46.3571
2400	62.97328	2.099109	0.0796	0.73252	36.35967	1.211989	0.078	0.43162	189.4459	6.314864	0.0767	2.287	290.8114	9.693712	0.9679	0.2782	3733.534	124.4511	0.0767	45.0714
	4933.359	6.851887	0.091075	1.966686	1184.676	1.645384	0.088167	0.51118	6799.579	9.44386	0.087829	2.922213	145562	202.1695	3.004804	1.284874	132409.3	183.9018	0.087829	56.90205

SEPTEMBER	1993
START	244
STOP	272
NUMDAYS	29

PONDEROSA PINE

Appendix B (White Fir)

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	68.09504	2.269835	0.119	0.52984	15.01641	0.500547	0.1169	0.11894	51.89454	1.729818	0.0936	0.51336	286.8256	9.560853	1.3231	0.200725	3453.843	115.1281	0.0936	34.1667
200	67.06503	2.235501	0.1172	0.52984	14.78519	0.49284	0.1151	0.11894	51.45099	1.715033	0.0928	0.51336	282.9668	9.432228	1.3053	0.200725	3384.234	112.8078	0.0928	33.7667
300	69.5256	2.31752	0.1215	0.52984	15.32471	0.510824	0.1193	0.11894	52.33808	1.744603	0.0944	0.51336	279.1298	9.304326	1.2876	0.200725	3466.368	115.5456	0.0944	34
400	70.49839	2.349946	0.1232	0.52984	15.55592	0.518531	0.1211	0.11894	52.55985	1.751995	0.0948	0.51336	288.278	9.609268	1.3298	0.200725	3450.341	115.0114	0.0948	33.7
500	66.4928	2.216427	0.1162	0.52984	14.65674	0.488558	0.1141	0.11894	50.84112	1.694704	0.0917	0.51336	254.59	8.486332	1.1744	0.200725	3330.907	111.0302	0.0917	33.6333
600	116.8669	3.895565	0.1129	0.95846	50.91703	1.697234	0.1108	0.4255	223.3459	7.444863	0.0906	2.28258	331.7654	11.05885	1.1278	0.27238	3245.295	108.1765	0.0906	33.1667
700	116.6599	3.888664	0.1127	0.95846	51.51443	1.717148	0.1121	0.4255	213.7317	7.124389	0.0867	2.28258	621.7291	20.7243	2.1135	0.27238	3105.597	103.5199	0.0867	33.1667
800	109.2069	3.640231	0.1055	0.95846	47.51644	1.583881	0.1034	0.4255	221.8668	7.395559	0.09	2.28258	1093.814	36.46046	3.7183	0.27238	3178.44	105.948	0.09	32.7
900	125.5621	4.185403	0.1213	0.95846	53.85809	1.79527	0.1172	0.4255	257.3655	8.578849	0.1044	2.28258	1248.93	41.631	4.2456	0.27238	3775.253	125.8418	0.1044	33.4828
1000	196.676	6.555866	0.19	0.95846	81.75217	2.725072	0.1779	0.4255	427.2168	14.24056	0.1733	2.28258	1241.399	41.37997	4.22	0.27238	6944.421	231.4807	0.1733	37.1034
1100	124.3199	4.143998	0.1201	0.95846	52.98496	1.766165	0.1153	0.4255	266.4866	8.882888	0.1081	2.28258	1509.094	50.30314	5.13	0.27238	4677.976	155.9325	0.1081	40.069
1200	125.5621	4.185403	0.1213	0.95846	53.49046	1.783015	0.1164	0.4255	270.4309	9.014365	0.1097	2.28258	1445.936	48.19786	4.9153	0.27238	5074.043	169.1348	0.1097	42.8276
1300	134.6713	4.489043	0.1301	0.95846	57.48845	1.916282	0.1251	0.4255	278.5661	9.285535	0.113	2.28258	1564.869	52.1623	5.3196	0.27238	5556.884	185.2295	0.113	45.5333
1400	125.8726	4.195754	0.1216	0.95846	53.58236	1.786079	0.1166	0.4255	270.1844	9.006148	0.1096	2.28258	1539.453	51.31508	5.2332	0.27238	5634.317	187.8106	0.1096	47.6
1500	122.9743	4.099142	0.1188	0.95846	52.47947	1.749316	0.1142	0.4255	264.0215	8.800715	0.1071	2.28258	1315.589	43.85296	4.4722	0.27238	5586.764	186.2255	0.1071	48.3
1600	116.0388	3.867961	0.1121	0.95846	49.86009	1.662003	0.1085	0.4255	247.9978	8.266592	0.1006	2.28258	1234.692	41.1564	4.1972	0.27238	4769.647	158.9882	0.1006	43.9
1700	120.1794	4.005979	0.1161	0.95846	53.12282	1.770761	0.1156	0.4255	221.6203	7.387342	0.0899	2.28258	1097.844	36.5948	3.732	0.27238	3320.546	110.6849	0.0899	34.2
1800	80.56959	2.685653	0.1408	0.52984	17.79105	0.593035	0.1385	0.11894	56.05275	1.868425	0.1011	0.51336	235.9033	7.863442	1.0882	0.200725	3934.404	131.1408	0.1011	36.0333
1900	70.95617	2.365206	0.124	0.52984	15.64584	0.521528	0.1218	0.11894	53.00339	1.76678	0.0956	0.51336	247.306	8.243535	1.1408	0.200725	3730.691	124.3564	0.0956	36.1333
2000	72.55841	2.418614	0.1268	0.52984	16.01836	0.533945	0.1247	0.11894	53.61326	1.787109	0.0967	0.51336	278.4578	9.281925	1.2845	0.200725	3641.339	121.378	0.0967	34.8667
2100	70.15505	2.338502	0.1226	0.52984	15.50454	0.516818	0.1207	0.11894	52.72618	1.757539	0.0951	0.51336	268.0739	8.935795	1.2366	0.200725	3550.277	118.3426	0.0951	34.5667
2200	70.15505	2.338502	0.1226	0.52984	15.4917	0.51639	0.1206	0.11894	52.67074	1.755691	0.095	0.51336	277.6123	9.253744	1.2806	0.200725	3536.283	117.8761	0.095	34.4667
2300	70.38395	2.346132	0.123	0.52984	15.55592	0.518531	0.1211	0.11894	52.67074	1.755691	0.095	0.51336	272.6263	9.087543	1.2576	0.200725	3506.088	116.8696	0.095	34.1724
2400	69.5256	2.31752	0.1215	0.52984	15.33755	0.511252	0.1194	0.11894	52.39352	1.746451	0.0945	0.51336	276.8536	9.228452	1.2771	0.200725	3484.114	116.1371	0.0945	34.1379
	2380.571	3.306349	0.123371	0.74415	845.2507	1.173959	0.120267	0.27222	3795.049	5.270902	0.100971	1.39797	17493.74	24.29686	2.642096	0.236553	97338.07	135.1918	0.100971	36.90388

NOVEMBER	1991
START	305
STOP	334
NUMDAYS	30

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	18.91702	0.70063	0.1093	0.17806	21.03986	0.779254	0.1081	0.20024	0.76703	0.028409	0.0871	0.00906	140.0085	5.185499	1.1466	0.125625	2663.297	98.64065	0.0871	31.4583
200	19.43625	0.719861	0.1123	0.17806	21.64322	0.801601	0.1112	0.20024	0.781121	0.02893	0.0887	0.00906	154.2828	5.714179	1.2635	0.125625	2737.371	101.3841	0.0887	31.75
300	19.36702	0.717297	0.1119	0.17806	21.56537	0.798717	0.1108	0.20024	0.776717	0.028767	0.0882	0.00906	141.1807	5.228915	1.1562	0.125625	2739.798	101.474	0.0882	31.9583
400	19.38432	0.717938	0.112	0.17806	21.60429	0.800159	0.111	0.20024	0.775837	0.028735	0.0881	0.00906	139.2148	5.156102	1.1401	0.125625	2729.558	101.0948	0.0881	31.875
500	20.35354	0.753835	0.1176	0.17806	22.7137	0.841248	0.1167	0.20024	0.789927	0.029257	0.0897	0.00906	133.3048	4.937213	1.0917	0.125625	2758.641	102.1719	0.0897	31.64
600	45.54349	1.686796	0.118	0.39708	42.921	1.589667	0.1168	0.37806	43.4171	1.608041	0.0903	0.49466	211.8399	7.845922	1.1636	0.1873	2750.174	101.8583	0.0903	31.3333
700	44.77156	1.658206	0.116	0.39708	42.36979	1.569251	0.1153	0.37806	42.84013	1.586671	0.0891	0.49466	229.1898	8.488511	1.2589	0.1873	2760.541	102.2423	0.0891	31.875
800	45.69787	1.692514	0.1184	0.39708	43.21498	1.600555	0.1176	0.37806	43.4171	1.608041	0.0903	0.49466	703.9908	26.07373	3.8669	0.1873	2794.06	103.4837	0.0903	31.8333
900	48.4382	1.794007	0.1255	0.39708	45.38308	1.680855	0.1235	0.37806	46.63852	1.727353	0.097	0.49466	608.0293	22.5196	3.3398	0.1873	3020.859	111.8837	0.097	32.04
1000	52.4522	1.942674	0.1359	0.39708	48.69035	1.803346	0.1325	0.37806	51.20621	1.896526	0.1065	0.49466	743.1145	27.52276	4.0818	0.1873	3445.079	127.5955	0.1065	33.28
1100	48.82416	1.808302	0.1265	0.39708	45.41983	1.682216	0.1236	0.37806	49.13873	1.819953	0.1022	0.49466	780.4177	28.90436	4.2867	0.1873	3695.388	136.8662	0.1022	37.2
1200	49.90486	1.848328	0.1293	0.39708	46.30176	1.71488	0.126	0.37806	50.82157	1.88228	0.1057	0.49466	862.5794	31.94739	4.738	0.1873	4023.314	149.0116	0.1057	39.16
1300	49.67328	1.839751	0.1287	0.39708	46.00778	1.703992	0.1252	0.37806	50.53308	1.871596	0.1051	0.49466	753.4735	27.90643	4.1387	0.1873	4099.058	151.817	0.1051	40.125
1400	46.31541	1.715386	0.12	0.39708	42.88425	1.588306	0.1167	0.37806	49.04257	1.816392	0.102	0.49466	798.1864	29.56246	4.3843	0.1873	4034.734	149.4346	0.102	40.6957
1500	45.4277	1.682507	0.1177	0.39708	42.07581	1.558363	0.1145	0.37806	48.08095	1.780776	0.1	0.49466	780.3813	28.90301	4.2865	0.1873	3829.68	141.84	0.1	39.4
1600	49.40311	1.829745	0.128	0.39708	46.11803	1.708075	0.1255	0.37806	47.79247	1.770091	0.0994	0.49466	699.9492	25.92404	3.8447	0.1873	3254.054	120.5205	0.0994	33.68
1700	46.31541	1.715386	0.12	0.39708	43.83969	1.623692	0.1193	0.37806	43.75367	1.620506	0.091	0.49466	583.3061	21.60393	3.204	0.1873	2504.961	92.77632	0.091	28.32
1800	20.21508	0.748707	0.1168	0.17806	22.46068	0.831877	0.1154	0.20024	0.79433	0.02942	0.0902	0.00906	147.2739	5.454587	1.2061	0.125625	2660.585	98.54018	0.0902	30.3462
1900	18.79587	0.696143	0.1086	0.17806	20.90361	0.774208	0.1074	0.20024	0.76703	0.028409	0.0871	0.00906	138.7141	5.13756	1.136	0.125625	2692.878	99.73622	0.0871	31.8077
2000	18.89972	0.699989	0.1092	0.17806	21.03986	0.779254	0.1081	0.20024	0.769672	0.028506	0.0874	0.00906	139.6666	5.172835	1.1438	0.125625	2734.826	101.2899	0.0874	32.1923
2100	18.67472	0.691656	0.1079	0.17806	20.72844	0.76772	0.1065	0.20024	0.764389	0.028311	0.0868	0.00906	135.2463	5.009121	1.1076	0.125625	2669.454	98.86867	0.0868	31.64
2200	18.08627	0.669862	0.1045	0.17806	20.06669	0.743211	0.1031	0.20024	0.751179	0.027821	0.0853	0.00906	128.6403	4.764454	1.0535	0.125625	2603.424	96.42312	0.0853	31.4
2300	18.83049	0.697425	0.1088	0.17806	20.94254	0.77565	0.1076	0.20024	0.765269	0.028343	0.0869	0.00906	130.0445	4.816463	1.065	0.125625	2723.21	100.8596	0.0869	32.24
2400	20.42277	0.756399	0.118	0.17806	22.73317	0.841969	0.1168	0.20024	0.79433	0.02942	0.0902	0.00906	132.914	4.922741	1.0885	0.125625	2833.637	104.9495	0.0902	32.32
	804.1503	1.240973	0.117538	0.28757	792.6678	1.223253	0.1158	0.28915	575.9789	0.888856	0.093096	0.25186	9414.949	14.52924	2.341354	0.156463	72758.58	112.2818	0.093096	33.31542

DECEMBER	1991
START	335
STOP	361
NUMDAYS	27

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	14.85583	0.47922	0.1107	0.12025	38.02315	1.226553	0.1095	0.31115	25.95863	0.837375	0.0886	0.262533	92.57657	2.986341	1.2749	0.065067	3805.196	122.7482	0.0886	38.4839
200	15.87574	0.512121	0.1183	0.12025	40.62748	1.310564	0.117	0.31115	26.80829	0.864784	0.0915	0.262533	100.8038	3.251736	1.3882	0.065067	3903.389	125.9158	0.0915	38.2258
300	15.916	0.513419	0.1186	0.12025	40.73165	1.313924	0.1173	0.31115	26.83759	0.865729	0.0916	0.262533	103.3453	3.333721	1.4232	0.065067	3838.408	123.8196	0.0916	37.5484
400	16.14414	0.520779	0.1203	0.12025	41.35669	1.334087	0.1191	0.31115	27.10128	0.874235	0.0925	0.262533	104.863	3.382677	1.4441	0.065067	3882.78	125.251	0.0925	37.6129
500	15.05713	0.485714	0.1122	0.12025	38.50929	1.242235	0.1109	0.31115	26.19302	0.844936	0.0894	0.262533	97.49985	3.145157	1.3427	0.065067	3726.903	120.2227	0.0894	37.3548
600	27.76091	0.895513	0.1119	0.2223	49.4891	1.596423	0.1106	0.40095	33.77636	1.08956	0.0892	0.3393	158.3839	5.109157	1.2604	0.1126	3606.177	116.3283	0.0892	36.2258
700	27.61206	0.890712	0.1113	0.2223	49.39961	1.593536	0.1104	0.40095	33.5113	1.08101	0.0885	0.3393	168.1478	5.424122	1.3381	0.1126	3603.369	116.2377	0.0885	36.4839
800	27.90977	0.900315	0.1125	0.2223	50.02605	1.613744	0.1118	0.40095	33.7385	1.088339	0.0891	0.3393	525.3158	16.94567	4.1804	0.1126	3647.039	117.6464	0.0891	36.6774
900	30.63872	0.988346	0.1235	0.2223	54.27692	1.750868	0.1213	0.40095	36.80564	1.187279	0.0972	0.3393	493.9255	15.93308	3.9306	0.1126	3940.101	127.1	0.0972	36.3226
1000	36.5928	1.180413	0.1475	0.2223	64.34478	2.075638	0.1438	0.40095	42.29619	1.364393	0.1117	0.3393	543.5367	17.53344	4.3254	0.1126	4508.44	145.4335	0.1117	36.1667
1100	35.87335	1.157205	0.1446	0.2223	63.36036	2.043883	0.1416	0.40095	41.08448	1.325306	0.1085	0.3393	594.9951	19.19339	4.7349	0.1126	4637.594	149.5998	0.1085	38.3
1200	37.51072	1.210023	0.1512	0.2223	65.86614	2.124714	0.1472	0.40095	43.62149	1.407145	0.1152	0.3393	660.6659	21.3118	5.2575	0.1126	5092.761	164.2826	0.1152	39.6129
1300	37.56034	1.211624	0.1514	0.2223	65.8214	2.123271	0.1471	0.40095	43.81082	1.413252	0.1157	0.3393	598.7273	19.31378	4.7646	0.1126	5231.487	168.7577	0.1157	40.5161
1400	37.33706	1.204421	0.1505	0.2223	65.50817	2.113167	0.1464	0.40095	43.54576	1.404702	0.115	0.3393	596.8549	19.25338	4.7497	0.1126	5286.787	170.5415	0.115	41.1936
1500	36.74166	1.185215	0.1481	0.2223	64.56851	2.082855	0.1443	0.40095	42.59912	1.374165	0.1125	0.3393	538.7364	17.37859	4.2872	0.1126	5208.304	168.0098	0.1125	41.4839
1600	35.30275	1.138798	0.1423	0.2223	62.24171	2.007797	0.1391	0.40095	40.81942	1.316755	0.1078	0.3393	465.0736	15.00237	3.701	0.1126	4792.787	154.606	0.1078	39.8387
1700	30.36582	0.979543	0.1224	0.2223	54.05319	1.743651	0.1208	0.40095	35.93472	1.159185	0.0949	0.3393	478.2178	15.42638	3.8056	0.1126	3891.276	125.525	0.0949	36.7419
1800	15.05713	0.485714	0.1122	0.12025	38.61347	1.245596	0.1112	0.31115	25.92933	0.83643	0.0885	0.262533	85.85244	2.769434	1.1823	0.065067	3660.712	118.0875	0.0885	37.0645
1900	14.96319	0.482684	0.1115	0.12025	38.12733	1.229914	0.1098	0.31115	26.16372	0.843991	0.0893	0.262533	89.64294	2.891708	1.2345	0.065067	3803.109	122.6809	0.0893	38.1613
2000	14.89609	0.480519	0.111	0.12025	37.9537	1.224313	0.1093	0.31115	26.13443	0.843046	0.0892	0.262533	93.70936	3.022883	1.2905	0.065067	3843.806	123.9937	0.0892	38.6129
2100	14.84241	0.478787	0.1106	0.12025	37.91898	1.223193	0.1092	0.31115	26.01723	0.839265	0.0888	0.262533	91.80686	2.961511	1.2643	0.065067	3890.509	125.5003	0.0888	39.2581
2200	15.15107	0.488744	0.1129	0.12025	38.71764	1.248956	0.1115	0.31115	26.28092	0.847772	0.0897	0.262533	92.01744	2.968304	1.2672	0.065067	3920.25	126.4597	0.0897	39.1613
2300	15.13765	0.488311	0.1128	0.12025	38.71764	1.248956	0.1115	0.31115	26.25162	0.846826	0.0896	0.262533	96.62122	3.116813	1.3306	0.065067	3919.109	126.4229	0.0896	39.1936
2400	15.11081	0.487445	0.1126	0.12025	38.68291	1.247836	0.1114	0.31115	26.16372	0.843991	0.0893	0.262533	94.02887	3.033189	1.2949	0.065067	3896.34	125.6884	0.0893	39.0968
	584.2131	0.785233	0.124204	0.171275	1176.936	1.581903	0.122171	0.35605	787.3836	1.058311	0.096804	0.300917	6965.348	9.362027	2.586367	0.088834	99536.63	133.7858	0.096804	38.30574

JANUARY	1992
START	1
STOP	31
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	20.27272	0.699059	0.1202	0.16155	3.525337	0.121563	0.1189	0.0284	5.013424	0.172877	0.0916	0.052425	114.6589	3.953756	1.2631	0.08695	3515.24	121.2152	0.0916	36.7586
200	22.5496	0.777572	0.1337	0.16155	3.913747	0.134957	0.132	0.0284	5.298029	0.182691	0.0968	0.052425	120.3324	4.149393	1.3256	0.08695	3753.126	129.4182	0.0968	37.1379
300	22.61706	0.779899	0.1341	0.16155	3.931537	0.13557	0.1326	0.0284	5.298029	0.182691	0.0968	0.052425	117.0554	4.036393	1.2895	0.08695	3770.549	130.0189	0.0968	37.3103
400	21.45332	0.73977	0.1272	0.16155	3.732885	0.12872	0.1259	0.0284	5.155726	0.177784	0.0942	0.052425	109.3304	3.770013	1.2044	0.08695	3686.238	127.1117	0.0942	37.4828
500	21.41959	0.738607	0.127	0.16155	3.726955	0.128516	0.1257	0.0284	5.14478	0.177406	0.094	0.052425	109.3576	3.770952	1.2047	0.08695	3691.945	127.3084	0.094	37.6207
600	42.86628	1.478148	0.1271	0.32305	7.502523	0.258708	0.1258	0.057125	70.20466	2.42085	0.0944	0.71235	290.9185	10.03167	1.2988	0.21455	3728.046	128.5533	0.0944	37.8276
700	41.82076	1.442095	0.124	0.32305	7.347463	0.253361	0.1232	0.057125	67.82484	2.338788	0.0912	0.71235	516.4318	17.80799	2.3056	0.21455	3631.216	125.2144	0.0912	38.1379
800	45.8342	1.58049	0.1359	0.32305	8.021378	0.276599	0.1345	0.057125	73.70002	2.54138	0.0991	0.71235	829.4581	28.602	3.7031	0.21455	3924.356	135.3226	0.0991	37.931
900	56.86274	1.960784	0.1686	0.32305	9.905955	0.341585	0.1661	0.057125	84.85542	2.926049	0.1141	0.71235	883.5965	30.46885	3.9448	0.21455	4600.513	158.6384	0.1141	38.6207
1000	67.62147	2.331775	0.2005	0.32305	11.76071	0.405542	0.1972	0.057125	95.78771	3.303024	0.1288	0.71235	1031.296	35.56192	4.6042	0.21455	5452.874	188.0301	0.1288	40.5517
1100	62.52878	2.156165	0.1854	0.32305	10.8721	0.3749	0.1823	0.057125	91.10244	3.141464	0.1225	0.71235	1075.467	37.08505	4.8014	0.21455	5390.321	185.8731	0.1225	42.1481
1200	60.67383	2.092201	0.1799	0.32305	10.51427	0.362561	0.1763	0.057125	91.02807	3.138899	0.1224	0.71235	1078.602	37.19319	4.8154	0.21455	5508.467	189.9471	0.1224	43.1071
1300	56.45803	1.946829	0.1674	0.32305	9.780714	0.337266	0.164	0.057125	87.97893	3.033756	0.1183	0.71235	1151.489	39.70651	5.1408	0.21455	5473.923	188.756	0.1183	44.3214
1400	53.96227	1.860768	0.16	0.32305	9.339389	0.322048	0.1566	0.057125	85.97096	2.964516	0.1156	0.71235	1133.502	39.08629	5.0605	0.21455	5517.094	190.2446	0.1156	45.7143
1500	50.52218	1.742144	0.1498	0.32305	8.743004	0.301483	0.1466	0.057125	83.36803	2.87476	0.1121	0.71235	1097.261	37.83658	4.8987	0.21455	5416.927	186.7906	0.1121	46.2857
1600	52.51204	1.81076	0.1557	0.32305	9.112763	0.314233	0.1528	0.057125	83.59114	2.882453	0.1124	0.71235	1178.816	40.64881	5.2628	0.21455	5548.769	191.3369	0.1124	47.2857
1700	47.11581	1.624683	0.1397	0.32305	8.206258	0.282974	0.1376	0.057125	76.82353	2.649087	0.1033	0.71235	911.7297	31.43896	4.0704	0.21455	4795.261	165.3538	0.1033	44.4643
1800	22.21228	0.765941	0.1317	0.16155	3.881133	0.133832	0.1309	0.0284	5.237824	0.180615	0.0957	0.052425	189.4219	6.531788	2.0867	0.08695	3771.633	130.0563	0.0957	37.75
1900	21.74004	0.749657	0.1289	0.16155	3.774394	0.130152	0.1273	0.0284	5.215931	0.17986	0.0953	0.052425	101.7687	3.509267	1.1211	0.08695	3677.696	126.8171	0.0953	36.9643
2000	21.65571	0.746749	0.1284	0.16155	3.759569	0.12964	0.1268	0.0284	5.215931	0.17986	0.0953	0.052425	103.3936	3.565298	1.139	0.08695	3635.054	125.3467	0.0953	36.5357
2100	21.94243	0.756636	0.1301	0.16155	3.812939	0.131481	0.1286	0.0284	5.254243	0.181181	0.096	0.052425	106.3892	3.668594	1.172	0.08695	3625.964	125.0332	0.096	36.1786
2200	20.86302	0.719414	0.1237	0.16155	3.623181	0.124937	0.1222	0.0284	5.122887	0.176651	0.0936	0.052425	106.7251	3.680176	1.1757	0.08695	3591.151	123.8328	0.0936	36.75
2300	20.98108	0.723486	0.1244	0.16155	3.649866	0.125857	0.1231	0.0284	5.12836	0.17684	0.0937	0.052425	114.0507	3.932783	1.2564	0.08695	3615.951	124.688	0.0937	36.9643
2400	20.28958	0.699641	0.1203	0.16155	3.525337	0.121563	0.1189	0.0284	5.013424	0.172877	0.0916	0.052425	117.5002	4.051731	1.2944	0.08695	3459.774	119.3026	0.0916	36.1786
	896.7748	1.28847	0.142654	0.2423	155.9634	0.224085	0.140663	0.042763	1054.334	1.514848	0.102867	0.382388	12588.55	18.087	2.726629	0.15075	102782.1	147.6754	0.102867	39.58447

FEBRUARY	1992
START	32
STOP	60
NUMDAYS	29

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	70.606	2.277613	0.1414	0.447433	47.22073	1.523249	0.1568	0.26985	103.663	3.343967	0.101	0.919683	188.0427	6.065893	0.9496	0.17744	3918.763	126.4117	0.101	34.7667
200	68.10933	2.197075	0.1364	0.447433	46.94969	1.514506	0.1559	0.26985	102.8419	3.317481	0.1002	0.919683	192.419	6.207064	0.9717	0.17744	4000.386	129.0447	0.1002	35.7742
300	66.16192	2.134255	0.1325	0.447433	44.02851	1.420275	0.1462	0.26985	100.0707	3.228087	0.0975	0.919683	200.0231	6.452357	1.0101	0.17744	3913.645	126.2466	0.0975	35.9677
400	63.86498	2.060161	0.1279	0.447433	42.28183	1.36393	0.1404	0.26985	98.32588	3.171803	0.0958	0.919683	189.8843	6.1253	0.9589	0.17744	3869.559	124.8245	0.0958	36.1936
500	63.16591	2.03761	0.1265	0.447433	42.10113	1.358101	0.1398	0.26985	97.29952	3.138694	0.0948	0.919683	192.5774	6.212174	0.9725	0.17744	3839.398	123.8515	0.0948	36.2903
600	133.4003	4.303237	0.1268	0.9427	112.3814	3.625206	0.1408	0.7152	155.5018	5.016187	0.0949	1.468267	307.4137	9.916572	1.0862	0.2536	3751.212	121.0068	0.0949	35.4194
700	137.7138	4.442379	0.1309	0.9427	117.4098	3.787413	0.1471	0.7152	157.9597	5.095474	0.0964	1.468267	744.308	24.00994	2.6299	0.2536	3751.506	121.0163	0.0964	34.871
800	194.1038	6.261413	0.1845	0.9427	174.7977	5.638637	0.219	0.7152	193.517	6.242484	0.1181	1.468267	1102.495	35.56436	3.8955	0.2536	4872.328	157.1719	0.1181	36.9677
900	242.2879	7.815737	0.2303	0.9427	220.9316	7.126825	0.2768	0.7152	226.9442	7.320779	0.1385	1.468267	1142.174	36.84433	4.0357	0.2536	6142.747	198.1531	0.1385	39.7419
1000	312.8806	10.09292	0.2974	0.9427	268.981	8.676806	0.337	0.7152	349.5104	11.27453	0.2133	1.468267	1167.9	37.67421	4.1266	0.2536	9836.547	317.308	0.2133	41.3226
1100	210.2002	6.780653	0.1998	0.9427	189.4041	6.109811	0.2373	0.7152	218.0958	7.035348	0.1331	1.468267	1260.589	40.66415	4.4541	0.2536	6277.001	202.4839	0.1331	42.2581
1200	205.466	6.627935	0.1953	0.9427	185.0142	5.968201	0.2318	0.7152	216.9488	6.998348	0.1324	1.468267	1321.749	42.63706	4.6702	0.2536	6334.55	204.3403	0.1324	42.871
1300	213.4616	6.885858	0.2029	0.9427	193.0757	6.228248	0.2419	0.7152	219.5705	7.08292	0.134	1.468267	1421.937	45.86894	5.0242	0.2536	6724.65	216.9242	0.134	44.9677
1400	219.3531	7.075906	0.2085	0.9427	198.9023	6.416202	0.2492	0.7152	220.226	7.104063	0.1344	1.468267	1379.626	44.50406	4.8747	0.2536	7035.03	226.9364	0.1344	46.9032
1500	210.095	6.777259	0.1997	0.9427	190.0427	6.130408	0.2381	0.7152	212.3607	6.850347	0.1296	1.468267	1384.437	44.65926	4.8917	0.2536	6937.741	223.7981	0.1296	47.9677
1600	216.9334	6.997851	0.2062	0.9427	197.0665	6.356984	0.2469	0.7152	213.6716	6.892633	0.1304	1.468267	1474.578	47.56704	5.2102	0.2536	7060.373	227.754	0.1304	48.5161
1700	213.146	6.875677	0.2026	0.9427	193.2353	6.233397	0.2421	0.7152	207.9366	6.707631	0.1269	1.468267	1288.806	41.57437	4.5538	0.2536	6852.6	221.0516	0.1269	48.3871
1800	87.08406	2.809163	0.1744	0.447433	60.86294	1.963321	0.2021	0.26985	117.5189	3.790933	0.1145	0.919683	804.0329	25.93655	4.0603	0.17744	5564.702	179.5065	0.1145	43.5484
1900	76.89763	2.480569	0.154	0.447433	52.28009	1.686455	0.1736	0.26985	107.6658	3.473091	0.1049	0.919683	201.2904	6.493239	1.0165	0.17744	4214.462	135.9504	0.1049	36
2000	76.69789	2.474126	0.1536	0.447433	52.0994	1.680626	0.173	0.26985	107.2553	3.459847	0.1045	0.919683	191.8051	6.187262	0.9686	0.17744	4119.392	132.8836	0.1045	35.3226
2100	77.44689	2.498287	0.1551	0.447433	52.4909	1.693255	0.1743	0.26985	108.2816	3.492956	0.1055	0.919683	179.6861	5.796326	0.9074	0.17744	4238.568	136.728	0.1055	36
2200	80.89231	2.609429	0.162	0.447433	54.74954	1.766114	0.1818	0.26985	111.3607	3.592282	0.1085	0.919683	180.2208	5.813573	0.9101	0.17744	4238.01	136.71	0.1085	35
2300	82.68991	2.667417	0.1656	0.447433	56.16496	1.811773	0.1865	0.26985	112.695	3.635323	0.1098	0.919683	188.0427	6.065893	0.9496	0.17744	4213.685	135.9253	0.1098	34.3871
2400	76.54809	2.469293	0.1533	0.447433	51.67779	1.667025	0.1716	0.26985	107.9737	3.483023	0.1052	0.919683	184.7753	5.960494	0.9331	0.17744	4181.068	134.8732	0.1052	35.6129
	3399.207	4.568826	0.17365	0.695067	2844.15	3.822782	0.200417	0.492525	3867.195	5.197843	0.117675	1.193975	16888.81	22.70002	2.669217	0.21552	125887.9	169.2042	0.117675	39.37738

MARCH	1992
START	61
STOP	91
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	166.9045	5.563485	0.1126	1.37248	20.57229	0.685743	0.1104	0.17254	96.28858	3.209619	0.0882	1.01084	225.0592	7.501972	0.8946	0.23294	4165.859	138.862	0.0882	43.7333
200	154.4534	5.148447	0.1042	1.37248	19.02564	0.634188	0.1021	0.17254	93.23179	3.107726	0.0854	1.01084	222.2164	7.407212	0.8833	0.23294	3950.601	131.6867	0.0854	42.8333
300	144.9668	4.832228	0.0978	1.37248	17.87031	0.595677	0.0959	0.17254	91.92175	3.064058	0.0842	1.01084	244.9588	8.165292	0.9737	0.23294	3795.059	126.502	0.0842	41.7333
400	144.0775	4.802582	0.0972	1.37248	17.73987	0.591329	0.0952	0.17254	91.48506	3.049502	0.0838	1.01084	223.3233	7.44411	0.8877	0.23294	3671.449	122.3816	0.0838	40.5667
500	131.4781	4.382603	0.0887	1.37248	16.19322	0.539774	0.0869	0.17254	88.97414	2.965805	0.0815	1.01084	224.8076	7.493587	0.8936	0.23294	3520.8	117.36	0.0815	40
600	224.6612	7.488707	0.0948	2.1943	55.11892	1.837297	0.0935	0.54584	130.792	4.359732	0.0814	1.48776	1466.628	48.88761	1.5234	0.89142	3563.363	118.7788	0.0814	40.5333
700	268.2663	8.942211	0.1132	2.1943	64.31524	2.143841	0.1091	0.54584	157.9466	5.264885	0.0983	1.48776	1959.548	65.31827	2.0354	0.89142	4451.807	148.3936	0.0983	41.9333
800	329.8823	10.99608	0.1392	2.1943	77.8739	2.595797	0.1321	0.54584	197.7947	6.593157	0.1231	1.48776	3193.965	106.4655	3.3176	0.89142	5969.365	198.9788	0.1231	44.9
900	468.2812	15.60937	0.1976	2.1943	108.0567	3.601889	0.1833	0.54584	291.9521	9.731736	0.1817	1.48776	3492.605	116.4202	3.6278	0.89142	9700.593	323.3531	0.1817	49.4333
1000	348.3671	11.61224	0.147	2.1943	82.00045	2.733348	0.1391	0.54584	210.0063	7.000208	0.1307	1.48776	4293.022	143.1007	4.4592	0.89142	7340.112	244.6704	0.1307	52
1100	357.1355	11.90452	0.1507	2.1943	83.94583	2.798194	0.1424	0.54584	216.112	7.203734	0.1345	1.48776	4672.339	155.7446	4.8532	0.89142	7818.997	260.6332	0.1345	53.8276
1200	361.4012	12.04671	0.1525	2.1943	84.83009	2.82767	0.1439	0.54584	218.3615	7.278717	0.1359	1.48776	5324.783	177.4928	5.5309	0.89142	8786.755	292.8918	0.1359	59.8667
1300	363.0601	12.102	0.1532	2.1943	85.18379	2.83946	0.1445	0.54584	219.3256	7.310853	0.1365	1.48776	5475.355	182.5118	5.6873	0.89142	9729.72	324.324	0.1365	66
1400	362.3491	12.0783	0.1529	2.1943	85.06589	2.83553	0.1443	0.54584	218.5222	7.284073	0.136	1.48776	5583.855	186.1285	5.8	0.89142	10550.88	351.6958	0.136	71.8333
1500	357.3725	11.91242	0.1508	2.1943	83.94583	2.798194	0.1424	0.54584	215.63	7.187666	0.1342	1.48776	5378.408	179.2803	5.5866	0.89142	11290.51	376.3505	0.1342	77.9
1600	348.841	11.62803	0.1472	2.1943	82.11835	2.737278	0.1393	0.54584	210.4883	7.016276	0.131	1.48776	4879.519	162.6506	5.0684	0.89142	11851.31	395.0438	0.131	83.7667
1700	330.8302	11.02767	0.1396	2.1943	78.34551	2.611517	0.1329	0.54584	197.7947	6.593157	0.1231	1.48776	4250.469	141.6823	4.415	0.89142	11761.47	392.049	0.1231	88.4667
1800	180.838	6.027932	0.122	1.37248	21.95123	0.731708	0.1178	0.17254	115.1751	3.83917	0.1055	1.01084	1163.661	38.7887	4.6255	0.23294	10114.08	337.1359	0.1055	88.7667
1900	143.3363	4.777877	0.0967	1.37248	17.94485	0.598162	0.0963	0.17254	89.95667	2.998556	0.0824	1.01084	546.8993	18.22998	2.1739	0.23294	5769.645	192.3215	0.0824	64.8333
2000	156.6768	5.222561	0.1057	1.37248	19.23062	0.641021	0.1032	0.17254	94.65101	3.155034	0.0867	1.01084	210.1408	7.004692	0.8353	0.23294	4887.799	162.9266	0.0867	52.2
2100	175.0571	5.835236	0.1181	1.37248	21.54127	0.718042	0.1156	0.17254	99.12701	3.304234	0.0908	1.01084	220.3044	7.34348	0.8757	0.23294	4726.685	157.5562	0.0908	48.2
2200	163.1989	5.439962	0.1101	1.37248	20.10643	0.670214	0.1079	0.17254	96.07023	3.202341	0.088	1.01084	205.864	6.862133	0.8183	0.23294	4343.328	144.7776	0.088	45.7
2300	154.7499	5.158329	0.1044	1.37248	19.04428	0.634809	0.1022	0.17254	93.66848	3.122283	0.0858	1.01084	207.625	6.920834	0.8253	0.23294	4185.327	139.5109	0.0858	45.1667
2400	168.3868	5.612894	0.1136	1.37248	20.74	0.691333	0.1113	0.17254	96.39775	3.213258	0.0883	1.01084	232.531	7.751032	0.9243	0.23294	4300.916	143.3639	0.0883	45.1
	6004.572	8.339683	0.125408	1.78339	1202.76	1.670501	0.120483	0.35919	3631.673	5.043991	0.108208	1.2493	53897.89	74.85817	2.813167	0.56218	160246.4	222.5645	0.108208	55.38726

APRIL	1992
START	92
STOP	121
NUMDAYS	30

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	217.1904	7.00614	0.1098	1.77245	48.63415	1.568844	0.1071	0.4069	228.2614	7.363271	0.0907	2.255075	430.4425	13.88524	1.0705	0.3603	4517.836	145.7367	0.0907	44.6333
200	211.6518	6.827477	0.107	1.77245	47.45349	1.530758	0.1045	0.4069	224.9897	7.257733	0.0894	2.255075	406.6385	13.11737	1.0113	0.3603	4409.852	142.2533	0.0894	44.2
300	215.8057	6.961475	0.1091	1.77245	48.36169	1.560055	0.1065	0.4069	227.2547	7.330798	0.0903	2.255075	426.8638	13.7698	1.0616	0.3603	4353.471	140.4346	0.0903	43.2
400	214.0255	6.904047	0.1082	1.77245	47.90759	1.545406	0.1055	0.4069	226.2481	7.298325	0.0899	2.255075	430.2816	13.88005	1.0701	0.3603	4310.78	139.0574	0.0899	42.9667
500	200.7725	6.476532	0.1015	1.77245	45.45545	1.466305	0.1001	0.4069	215.1747	6.941121	0.0855	2.255075	462.0069	14.90345	1.149	0.3603	4080.713	131.6359	0.0855	42.7667
600	456.6271	14.72991	0.1086	3.767625	78.66959	2.537729	0.1055	0.668175	250.3217	8.074895	0.0921	2.435425	2675.819	86.31675	2.0279	1.18235	4515.849	145.6725	0.0921	43.9355
700	591.1765	19.07021	0.1406	3.767625	100.1453	3.230492	0.1343	0.668175	323.706	10.44213	0.1191	2.435425	3524.128	113.6815	2.6708	1.18235	6217.021	200.5491	0.1191	46.7742
800	655.0875	21.13186	0.1558	3.767625	109.9883	3.548009	0.1475	0.668175	362.3006	11.68712	0.1333	2.435425	4707.062	151.8407	3.5673	1.18235	7836.438	252.7883	0.1333	52.6774
900	590.7561	19.05665	0.1405	3.767625	99.54872	3.211249	0.1335	0.668175	338.3828	10.91557	0.1245	2.435425	5334.881	172.0929	4.0431	1.18235	7695.594	248.245	0.1245	55.3871
1000	640.7916	20.6707	0.1524	3.767625	107.0056	3.451792	0.1435	0.668175	370.998	11.96768	0.1365	2.435425	6306.299	203.429	4.7793	1.18235	8609.324	277.7201	0.1365	56.5161
1100	616.825	19.89758	0.1467	3.767625	102.5315	3.307466	0.1375	0.668175	375.0749	12.09919	0.138	2.435425	7663.671	247.2152	5.808	1.18235	9317.484	300.564	0.138	60.5
1200	617.6659	19.92471	0.1469	3.767625	102.6806	3.312277	0.1377	0.668175	375.8903	12.12549	0.1383	2.435425	7785.197	251.1354	5.9001	1.18235	10175.98	328.2573	0.1383	65.931
1300	617.6659	19.92471	0.1469	3.767625	102.6806	3.312277	0.1377	0.668175	375.6185	12.11673	0.1382	2.435425	7614.981	245.6446	5.7711	1.18235	11423.75	368.5081	0.1382	74.069
1400	616.825	19.89758	0.1467	3.767625	102.5315	3.307466	0.1375	0.668175	375.3467	12.10796	0.1381	2.435425	7831.116	252.6166	5.9349	1.18235	12648.44	408.0142	0.1381	82.069
1500	613.0408	19.77551	0.1458	3.767625	101.9349	3.288223	0.1367	0.668175	372.6288	12.02028	0.1371	2.435425	8015.319	258.5587	6.0745	1.18235	13912.77	448.799	0.1371	90.931
1600	629.439	20.30448	0.1497	3.767625	105.5142	3.403683	0.1415	0.668175	363.3878	11.72219	0.1337	2.435425	7293.815	235.2843	5.5277	1.18235	14581.33	470.3656	0.1337	97.7241
1700	673.5881	21.72865	0.1602	3.767625	114.1641	3.682713	0.1531	0.668175	351.9725	11.35395	0.1295	2.435425	6189.523	199.662	4.6908	1.18235	15061.26	485.8471	0.1295	104.2143
1800	293.741	9.475518	0.1485	1.77245	65.02718	2.097651	0.1432	0.4069	293.9463	9.482139	0.1168	2.255075	1633.108	52.6809	4.0615	0.3603	13318.86	429.6406	0.1168	102.1786
1900	285.8288	9.220285	0.1445	1.77245	64.70931	2.087397	0.1425	0.4069	248.6464	8.020851	0.0988	2.255075	1314.367	42.39895	3.2688	0.3603	9950.089	320.9706	0.0988	90.2414
2000	323.4119	10.43264	0.1635	1.77245	72.79229	2.348139	0.1603	0.4069	265.508	8.564775	0.1055	2.255075	344.0725	11.09911	0.8557	0.3603	7233.034	233.3237	0.1055	61.4333
2100	310.5545	10.01789	0.157	1.77245	69.79523	2.251459	0.1537	0.4069	262.2364	8.459237	0.1042	2.255075	406.7189	13.11996	1.0115	0.3603	6050.807	195.1873	0.1042	52.0333
2200	276.532	8.920386	0.1398	1.77245	62.12093	2.003901	0.1368	0.4069	250.1564	8.06956	0.0994	2.255075	396.9078	12.80348	0.9871	0.3603	5369.031	173.1946	0.0994	48.4
2300	251.8063	8.122784	0.1273	1.77245	56.49009	1.822261	0.1244	0.4069	241.5997	7.793539	0.096	2.255075	413.273	13.33139	1.0278	0.3603	4988.97	160.9345	0.096	46.5667
2400	241.3226	7.7846	0.122	1.77245	54.12877	1.746089	0.1192	0.4069	236.8181	7.639292	0.0941	2.255075	419.0632	13.51817	1.0422	0.3603	4953.239	159.7819	0.0941	47.1667
	10362.13	13.9276	0.136625	2.770038	1910.271	2.567568	0.131242	0.537538	7156.469	9.61891	0.113292	2.34525	82025.55	110.2494	3.100525	0.771325	195531.9	262.8117	0.113292	62.35481

MAY	1992
START	122
STOP	152
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	289.2883	9.642945	0.1006	2.66262	54.85052	1.828351	0.098	0.51824	413.3442	13.77814	0.088	4.34916	295.1454	9.83818	0.9658	0.28296	5192.349	173.0783	0.088	54.6333
200	311.4307	10.38102	0.1083	2.66262	58.9923	1.96641	0.1054	0.51824	424.6172	14.15391	0.0904	4.34916	299.3321	9.977736	0.9795	0.28296	4945.568	164.8523	0.0904	50.6552
300	306.5421	10.21807	0.1066	2.66262	58.15275	1.938425	0.1039	0.51824	420.8595	14.02865	0.0896	4.34916	279.0404	9.301348	0.9131	0.28296	4778.336	159.2779	0.0896	49.3793
400	308.5551	10.28517	0.1073	2.66262	58.54454	1.951485	0.1046	0.51824	423.2081	14.10694	0.0901	4.34916	289.4002	9.646672	0.947	0.28296	4743.765	158.1255	0.0901	48.75
500	292.7391	9.75797	0.1018	2.66262	56.69753	1.889918	0.1013	0.51824	391.2678	13.04226	0.0833	4.34916	349.6333	11.65444	1.1441	0.28296	4379.322	145.9774	0.0833	48.6786
600	525.4291	17.5143	0.1098	4.43086	88.39528	2.946509	0.1066	0.7678	356.1588	11.87196	0.0945	3.4897	5910.607	197.0202	2.623	2.08646	5106.521	170.2174	0.0945	50.0345
700	662.2895	22.07632	0.1384	4.43086	109.043	3.634765	0.1315	0.7678	460.9335	15.36445	0.1223	3.4897	6516.54	217.218	2.8919	2.08646	7137.093	237.9031	0.1223	54.0345
800	679.9952	22.66651	0.1421	4.43086	110.6185	3.687283	0.1334	0.7678	504.2756	16.80919	0.1338	3.4897	7574.501	252.4834	3.3614	2.08646	8406.144	280.2048	0.1338	58.1724
900	654.633	21.8211	0.1368	4.43086	106.9699	3.565663	0.129	0.7678	483.9237	16.13079	0.1284	3.4897	8583.112	286.1037	3.809	2.08646	8205.555	273.5185	0.1284	59.1724
1000	690.5229	23.01743	0.1443	4.43086	112.2769	3.742564	0.1354	0.7678	511.0596	17.03532	0.1356	3.4897	10914.23	363.8077	4.8435	2.08646	8918.185	297.2728	0.1356	60.8966
1100	702.0077	23.40026	0.1467	4.43086	114.0183	3.80061	0.1375	0.7678	520.1049	17.33683	0.138	3.4897	12507.14	416.9048	5.5504	2.08646	9852.051	328.4017	0.138	66.1034
1200	705.3575	23.51192	0.1474	4.43086	114.5988	3.819959	0.1382	0.7678	522.7431	17.42477	0.1387	3.4897	12923.12	430.7705	5.735	2.08646	11260.52	375.3508	0.1387	75.1724
1300	710.6213	23.68738	0.1485	4.43086	115.3451	3.844835	0.1391	0.7678	526.8889	17.56296	0.1398	3.4897	13799.45	459.9818	6.1239	2.08646	13000.24	433.3412	0.1398	86.1034
1400	712.5355	23.75118	0.1489	4.43086	115.5938	3.853128	0.1394	0.7678	528.0195	17.60065	0.1401	3.4897	14533.83	484.461	6.4498	2.08646	14363.82	478.794	0.1401	94.931
1500	706.3145	23.54382	0.1476	4.43086	114.6817	3.822723	0.1383	0.7678	523.12	17.43733	0.1388	3.4897	14442.79	481.4264	6.4094	2.08646	15590.02	519.6672	0.1388	104
1600	691.48	23.04933	0.1445	4.43086	112.4428	3.748092	0.1356	0.7678	511.0596	17.03532	0.1356	3.4897	13225.74	440.8581	5.8693	2.08646	16341.58	544.7192	0.1356	111.5862
1700	666.5963	22.21988	0.1393	4.43086	108.6283	3.620945	0.131	0.7678	491.8383	16.39461	0.1305	3.4897	12232.91	407.7636	5.4287	2.08646	16290.72	543.024	0.1305	115.5862
1800	366.3552	12.21184	0.1274	2.66262	67.61166	2.253722	0.1208	0.51824	558.0146	18.60049	0.1188	4.34916	1368.554	45.61847	4.4783	0.28296	14857.6	495.2534	0.1188	115.8
1900	360.0288	12.00096	0.1252	2.66262	68.33927	2.277976	0.1221	0.51824	472.0578	15.73526	0.1005	4.34916	1573.457	52.44856	5.1488	0.28296	11516.09	383.8698	0.1005	106.1
2000	396.8369	13.2279	0.138	2.66262	75.50342	2.516781	0.1349	0.51824	464.0728	15.46909	0.0988	4.34916	259.2072	8.64024	0.8482	0.28296	8771.069	292.369	0.0988	82.2
2100	400.0001	13.33334	0.1391	2.66262	76.06312	2.535437	0.1359	0.51824	463.6031	15.45344	0.0987	4.34916	240.3824	8.012748	0.7866	0.28296	7376.443	245.8814	0.0987	69.2
2200	390.2229	13.00743	0.1357	2.66262	74.27208	2.475736	0.1327	0.51824	459.8454	15.32818	0.0979	4.34916	275.0066	9.166885	0.8999	0.28296	6569.478	218.9826	0.0979	62.1333
2300	344.788	11.49293	0.1199	2.66262	65.42884	2.180961	0.1169	0.51824	439.6479	14.65493	0.0936	4.34916	283.441	9.448034	0.9275	0.28296	5863.104	195.4368	0.0936	58
2400	328.6845	10.95615	0.1143	2.66262	62.46243	2.082081	0.1116	0.51824	431.1931	14.3731	0.0918	4.34916	297.4374	9.914579	0.9733	0.28296	5588.42	186.2807	0.0918	56.3667
	12203.25	16.94896	0.129938	3.54674	2099.531	2.916015	0.124296	0.64302	11301.86	15.69702	0.113233	3.91943	138974	193.0195	3.254475	1.18471	219054	304.2417	0.113233	72.40373

JUNE	1992
START	153
STOP	182
NUMDAYS	30

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	261.9624	8.450399	0.1334	1.75962	60.28025	1.944524	0.1303	0.41454	356.5647	11.50209	0.0964	3.31434	372.445	12.01435	0.6657	0.501325	4181.835	134.8979	0.0964	38.871
200	270.9956	8.741792	0.138	1.75962	62.36207	2.01168	0.1348	0.41454	361.743	11.66913	0.0978	3.31434	372.6128	12.01977	0.666	0.501325	4112.292	132.6546	0.0978	37.6774
300	278.4578	8.982508	0.1418	1.75962	64.16631	2.069881	0.1387	0.41454	368.7707	11.89583	0.0997	3.31434	417.4271	13.46539	0.7461	0.501325	3994.777	128.8638	0.0997	35.9032
400	278.6541	8.988843	0.1419	1.75962	64.16631	2.069881	0.1387	0.41454	371.3599	11.97935	0.1004	3.31434	439.1348	14.16564	0.7849	0.501325	3881.87	125.2216	0.1004	34.6452
500	267.8536	8.640438	0.1364	1.75962	61.85318	1.995264	0.1337	0.41454	362.8526	11.70492	0.0981	3.31434	459.8915	14.83521	0.822	0.501325	3655.206	117.9099	0.0981	33.3871
600	742.6734	23.95721	0.1513	4.3984	94.43333	3.046236	0.1484	0.5702	312.4803	10.08001	0.101	2.77228	4294.062	138.5181	1.7632	2.18224	3865.065	124.6795	0.101	34.2903
700	905.6394	29.21417	0.1845	4.3984	113.7145	3.668211	0.1787	0.5702	389.8269	12.57506	0.126	2.77228	5123.309	165.268	2.1037	2.18224	5075.788	163.7351	0.126	36.0968
800	867.843	27.99494	0.1768	4.3984	107.3511	3.462939	0.1687	0.5702	421.075	13.58306	0.1361	2.77228	6944.973	224.0314	2.8517	2.18224	6036.302	194.7194	0.1361	39.7419
900	827.1015	26.68069	0.1685	4.3984	102.6422	3.311037	0.1613	0.5702	405.2962	13.07407	0.131	2.77228	8806.09	284.0674	3.6159	2.18224	6173.243	199.1369	0.131	42.2258
1000	817.2843	26.36401	0.1665	4.3984	100.6059	3.24535	0.1581	0.5702	425.7158	13.73277	0.1376	2.77228	10385.92	335.0297	4.2646	2.18224	6850.828	220.9945	0.1376	44.6129
1100	840.8456	27.12405	0.1713	4.3984	103.5967	3.341828	0.1628	0.5702	434.688	14.02219	0.1405	2.77228	12692.23	409.4266	5.2116	2.18224	7632.519	246.2103	0.1405	48.6774
1200	837.9005	27.02905	0.1707	4.3984	103.024	3.323354	0.1619	0.5702	434.9973	14.03217	0.1406	2.77228	12758.95	411.5792	5.239	2.18224	9095.689	293.4093	0.1406	57.9677
1300	835.4462	26.94988	0.1702	4.3984	102.7058	3.31309	0.1614	0.5702	434.3786	14.01221	0.1404	2.77228	13571.15	437.7792	5.5725	2.18224	10401.96	335.547	0.1404	66.3871
1400	748.5637	24.14722	0.1525	4.3984	91.44252	2.949759	0.1437	0.5702	422.6219	13.63296	0.1366	2.77228	13490.06	435.1631	5.5392	2.18224	11512.1	371.358	0.1366	75.5161
1500	821.2112	26.49068	0.1673	4.3984	101.2422	3.265878	0.1591	0.5702	428.1908	13.81261	0.1384	2.77228	13186.85	425.3823	5.4147	2.18224	13063.85	421.4144	0.1384	84.5806
1600	811.394	26.174	0.1653	4.3984	99.96952	3.224823	0.1571	0.5702	423.2407	13.65292	0.1368	2.77228	12446.5	401.4999	5.1107	2.18224	14616.8	471.5097	0.1368	95.7419
1700	796.1773	25.68314	0.1622	4.3984	98.31502	3.171452	0.1545	0.5702	411.1746	13.2637	0.1329	2.77228	12332.28	397.8154	5.0638	2.18224	15348.36	495.1084	0.1329	103.4839
1800	279.636	9.020516	0.1424	1.75962	62.96349	2.03108	0.1361	0.41454	446.8155	14.4134	0.1208	3.31434	2273.162	73.32781	4.063	0.501325	15203.41	490.4324	0.1208	112.7742
1900	225.2405	7.265823	0.1147	1.75962	51.6754	1.666948	0.1117	0.41454	359.5237	11.59754	0.0972	3.31434	2040.755	65.83079	3.6476	0.501325	11267.43	363.4654	0.0972	103.871
2000	218.3674	7.044111	0.1112	1.75962	50.0562	1.614716	0.1082	0.41454	339.1803	10.9413	0.0917	3.31434	427.8334	13.80108	0.7647	0.501325	7236.233	233.4269	0.0917	70.7097
2100	213.8508	6.898414	0.1089	1.75962	48.85337	1.575915	0.1056	0.41454	338.0706	10.9055	0.0914	3.31434	389.0055	12.54857	0.6953	0.501325	5764.778	185.9606	0.0914	56.5161
2200	218.3674	7.044111	0.1112	1.75962	49.91741	1.610239	0.1079	0.41454	340.2899	10.97709	0.092	3.31434	412.7834	13.31559	0.7378	0.501325	5107.1	164.7452	0.092	49.7419
2300	230.5426	7.436858	0.1174	1.75962	52.87822	1.705749	0.1143	0.41454	342.8791	11.06062	0.0927	3.31434	384.9213	12.41682	0.688	0.501325	4718.8	152.2194	0.0927	45.6129
2400	252.3401	8.140002	0.1285	1.75962	58.05964	1.872892	0.1255	0.41454	353.2357	11.3947	0.0955	3.31434	396.2228	12.78138	0.7082	0.501325	4435.02	143.0652	0.0955	41.6129
	12848.35	17.26929	0.147204	3.07901	1906.275	2.562197	0.141717	0.49237	9284.972	12.4798	0.115483	3.04331	134418.6	180.6701	2.780829	1.341783	183231.2	246.2785	0.115483	57.94354

JULY	1992
START	183
STOP	213
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	165.5172	5.339265	0.1149	1.2908	135.4712	4.370039	0.1117	1.08675	438.5693	14.1474	0.0939	4.185125	339.6949	10.9579	0.8686	0.350433	4577.06	147.6471	0.0939	43.6774
200	146.7903	4.735171	0.1019	1.2908	119.8259	3.865352	0.0988	1.08675	421.7551	13.605	0.0903	4.185125	328.549	10.59836	0.8401	0.350433	4213.032	135.9042	0.0903	41.8064
300	149.8154	4.832755	0.104	1.2908	122.3728	3.947511	0.1009	1.08675	426.4257	13.75567	0.0913	4.185125	345.2483	11.13704	0.8828	0.350433	4055.906	130.8357	0.0913	39.8064
400	150.2476	4.846696	0.1043	1.2908	122.6154	3.955335	0.1011	1.08675	427.8269	13.80087	0.0916	4.185125	354.9862	11.45117	0.9077	0.350433	3980.205	128.3937	0.0916	38.9355
500	149.5273	4.823461	0.1038	1.2908	121.8877	3.931862	0.1005	1.08675	427.8269	13.80087	0.0916	4.185125	357.1372	11.52055	0.9132	0.350433	3917.551	126.3726	0.0916	38.3226
600	250.9278	8.094444	0.0823	2.732025	94.15331	3.037203	0.0815	1.035175	266.7957	8.606314	0.0747	3.200325	3223.428	103.9815	1.6522	1.7482	3149.054	101.5824	0.0747	37.7742
700	349.4085	11.27124	0.1146	2.732025	125.9228	4.062027	0.109	1.035175	383.943	12.38526	0.1075	3.200325	2569.651	82.89195	1.3171	1.7482	4644.003	149.8065	0.1075	38.7097
800	414.3509	13.36616	0.1359	2.732025	147.5261	4.758907	0.1277	1.035175	457.16	14.7471	0.128	3.200325	4670.478	150.6606	2.3939	1.7482	6220.802	200.671	0.128	43.5484
900	292.6982	9.441878	0.096	2.732025	109.0561	3.517939	0.0944	1.035175	311.7974	10.05798	0.0873	3.200325	6544.99	211.1287	3.3547	1.7482	4843.057	156.2276	0.0873	49.7097
1000	431.1201	13.9071	0.1414	2.732025	153.5334	4.952691	0.1329	1.035175	473.9464	15.28859	0.1327	3.200325	8940.807	288.4131	4.5827	1.7482	7777.277	250.8799	0.1327	52.5161
1100	480.5129	15.50042	0.1576	2.732025	172.2486	5.556405	0.1491	1.035175	490.0184	15.80705	0.1372	3.200325	9770.759	315.1858	5.0081	1.7482	8860.271	285.8152	0.1372	57.8667
1200	488.1353	15.7463	0.1601	2.732025	175.0212	5.645844	0.1515	1.035175	492.8757	15.89921	0.138	3.200325	11182.89	360.7383	5.7319	1.7482	10037.07	323.7765	0.138	65.1724
1300	484.4766	15.62828	0.1589	2.732025	173.7504	5.604852	0.1504	1.035175	488.9469	15.77248	0.1369	3.200325	11252.34	362.9788	5.7675	1.7482	10530.94	339.7077	0.1369	68.9286
1400	535.6987	17.2806	0.1757	2.732025	193.6208	6.245832	0.1676	1.035175	498.233	16.07203	0.1395	3.200325	11297.41	364.4326	5.7906	1.7482	11381.46	367.1439	0.1395	73.1071
1500	516.7953	16.67082	0.1695	2.732025	186.5737	6.018507	0.1615	1.035175	489.3041	15.784	0.137	3.200325	10416.54	336.0173	5.3391	1.7482	12633.97	407.5474	0.137	82.6333
1600	478.9885	15.45124	0.1571	2.732025	171.902	5.545225	0.1488	1.035175	480.7323	15.50749	0.1346	3.200325	10211.49	329.4028	5.234	1.7482	13644.4	440.1418	0.1346	90.8333
1700	433.2544	13.97595	0.1421	2.732025	155.3818	5.012317	0.1345	1.035175	455.0171	14.67797	0.1274	3.200325	8503.785	274.3157	4.3587	1.7482	14478.5	467.0482	0.1274	101.8333
1800	176.4653	5.692428	0.1225	1.2908	141.414	4.561742	0.1166	1.08675	531.9813	17.16069	0.1139	4.185125	1444.231	46.5881	3.6929	0.350433	13494.42	435.3038	0.1139	106.1613
1900	141.7484	4.57253	0.0984	1.2908	117.5216	3.791019	0.0969	1.08675	405.408	13.07768	0.0868	4.185125	1296.245	41.81437	3.3145	0.350433	8974.429	289.4977	0.0868	92.6452
2000	157.1621	5.069746	0.1091	1.2908	128.0731	4.131389	0.1056	1.08675	431.5634	13.9214	0.0924	4.185125	294.2901	9.49323	0.7525	0.350433	6895.631	222.4397	0.0924	66.871
2100	155.8656	5.027924	0.1082	1.2908	127.3454	4.107915	0.105	1.08675	432.9646	13.9666	0.0927	4.185125	304.0672	9.80862	0.7775	0.350433	6060.351	195.4952	0.0927	58.5806
2200	163.5005	5.274209	0.1135	1.2908	133.7733	4.315267	0.1103	1.08675	434.3658	14.0118	0.093	4.185125	292.061	9.421321	0.7468	0.350433	5567.728	179.6041	0.093	53.6452
2300	147.2225	4.749111	0.1022	1.2908	120.1898	3.877089	0.0991	1.08675	421.7551	13.605	0.0903	4.185125	311.5369	10.04958	0.7966	0.350433	5126.515	165.3714	0.0903	50.871
2400	155.8656	5.027924	0.1082	1.2908	127.4666	4.111827	0.1051	1.08675	427.8269	13.80087	0.0916	4.185125	304.0672	9.80862	0.7775	0.350433	4923.318	158.8167	0.0916	48.1613
	7016.095	9.430235	0.124258	2.011413	3376.647	4.538504	0.119188	1.060963	10517.04	14.13581	0.108342	3.692725	104556.7	140.5332	2.741717	1.049317	179986.9	241.9179	0.108342	60.0882

AUGUST	1992
START	214
STOP	244
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	191.9201	6.397338	0.1052	1.6892	73.5656	2.452187	0.1022	0.6665	403.5321	13.45107	0.0909	4.11046	261.6947	8.723158	0.7962	0.304333	4987.138	166.2379	0.0909	50.8
200	192.4674	6.415582	0.1055	1.6892	73.78155	2.459385	0.1025	0.6665	400.8685	13.36228	0.0903	4.11046	241.7767	8.059225	0.7356	0.304333	4642.142	154.7381	0.0903	47.6
300	195.7513	6.525042	0.1073	1.6892	75.14921	2.504974	0.1044	0.6665	403.5321	13.45107	0.0909	4.11046	263.1081	8.770268	0.8005	0.304333	4394.836	146.4945	0.0909	44.7667
400	198.3053	6.610177	0.1087	1.6892	76.01299	2.533766	0.1056	0.6665	409.3032	13.64344	0.0922	4.11046	298.967	9.965567	0.9096	0.304333	4318.283	143.9428	0.0922	43.3667
500	199.0351	6.634502	0.1091	1.6892	76.22894	2.540965	0.1059	0.6665	409.7471	13.65824	0.0923	4.11046	297.3565	9.911882	0.9047	0.304333	4190.047	139.6682	0.0923	42.0333
600	358.7883	11.95961	0.0922	3.60316	120.9121	4.030402	0.0918	1.21956	281.6953	9.389844	0.0794	3.285	2126.292	70.87639	0.9392	2.09624	3567.283	118.9094	0.0794	41.6
700	410.1549	13.67183	0.1054	3.60316	134.3467	4.478224	0.102	1.21956	331.0097	11.03366	0.0933	3.285	2885.164	96.17214	1.2744	2.09624	4191.782	139.7261	0.0933	41.6
800	521.4493	17.38164	0.134	3.60316	166.2211	5.540705	0.1262	1.21956	447.3776	14.91259	0.1261	3.285	5236.944	174.5648	2.3132	2.09624	5878.787	195.9596	0.1261	43.1667
900	583.7119	19.45706	0.15	3.60316	184.2658	6.142192	0.1399	1.21956	502.7233	16.75744	0.1417	3.285	6995.346	233.1782	3.0899	2.09624	7167.181	238.906	0.1417	46.8333
1000	558.0286	18.60095	0.1434	3.60316	177.285	5.9095	0.1346	1.21956	478.2434	15.94145	0.1348	3.285	10077.02	335.9007	4.4511	2.09624	7308.317	243.6106	0.1348	50.2
1100	576.7074	19.22358	0.1482	3.60316	182.6852	6.089507	0.1387	1.21956	494.5633	16.48544	0.1394	3.285	12460.04	415.3347	5.5037	2.09624	8250.25	275.0083	0.1394	54.8
1200	580.5988	19.35329	0.1492	3.60316	184.0023	6.133411	0.1397	1.21956	498.8207	16.62736	0.1406	3.285	13082.4	436.08	5.7786	2.09624	9647.405	321.5802	0.1406	63.5333
1300	583.3228	19.44409	0.1499	3.60316	184.7926	6.159754	0.1403	1.21956	500.9494	16.69831	0.1412	3.285	14243.57	474.7858	6.2915	2.09624	10908.54	363.6181	0.1412	71.5333
1400	575.54	19.18467	0.1479	3.60316	182.5535	6.085117	0.1386	1.21956	493.8538	16.46179	0.1392	3.285	13225.71	440.8569	5.8419	2.09624	12056.95	401.8982	0.1392	80.2
1500	571.2594	19.04198	0.1468	3.60316	181.1047	6.036822	0.1375	1.21956	489.9512	16.33171	0.1381	3.285	13246.08	441.5361	5.8509	2.09624	13080.28	436.0093	0.1381	87.7
1600	551.0241	18.36747	0.1416	3.60316	175.441	5.848034	0.1332	1.21956	471.8574	15.72858	0.133	3.285	12042.57	401.4191	5.3193	2.09624	13530.89	451.0296	0.133	94.2
1700	517.1688	17.23896	0.1329	3.60316	165.2992	5.509972	0.1255	1.21956	440.9915	14.69972	0.1243	3.285	9612.459	320.4153	4.2459	2.09624	13621.3	454.0432	0.1243	101.4667
1800	195.9337	6.531123	0.1074	1.6892	74.71732	2.490577	0.1038	0.6665	438.1586	14.60529	0.0987	4.11046	1492.238	49.74128	4.5401	0.304333	11032.69	367.7562	0.0987	103.5
1900	172.2173	5.740577	0.0944	1.6892	66.15146	2.205049	0.0919	0.6665	386.2188	12.87396	0.087	4.11046	300.6433	10.02144	0.9147	0.304333	7629.552	254.3184	0.087	81.2
2000	174.4065	5.813551	0.0956	1.6892	66.51137	2.217046	0.0924	0.6665	393.3217	13.11072	0.0886	4.11046	257.652	8.588399	0.7839	0.304333	7033.068	234.4356	0.0886	73.5
2100	183.3458	6.111526	0.1005	1.6892	70.03849	2.334616	0.0973	0.6665	399.5367	13.31789	0.09	4.11046	262.8122	8.760408	0.7996	0.304333	6168.963	205.6321	0.09	63.4667
2200	196.481	6.549366	0.1077	1.6892	75.07723	2.502574	0.1043	0.6665	409.3032	13.64344	0.0922	4.11046	272.8041	9.09347	0.83	0.304333	5732.262	191.0754	0.0922	57.5667
2300	194.1094	6.470312	0.1064	1.6892	74.21344	2.473781	0.1031	0.6665	405.7517	13.52506	0.0914	4.11046	273.6258	9.12086	0.8325	0.304333	5465.358	182.1786	0.0914	55.3667
2400	191.5553	6.385176	0.105	1.6892	73.27768	2.442589	0.1018	0.6665	403.976	13.46587	0.091	4.11046	274.0202	9.134007	0.8337	0.304333	5192.457	173.0819	0.091	52.8333
	8673.282	12.04623	0.120596	2.64618	2913.634	4.046715	0.115133	0.94303	10295.29	14.29901	0.109442	3.69773	119730.3	166.2921	2.690863	1.200287	179995.7	249.9941	0.109442	62.20139

SEPTEMBER	1992
START	245
STOP	274
NUMDAYS	30

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	114.3794	3.689659	0.1347	0.76088	57.30935	1.848689	0.1317	0.38992	215.9188	6.965122	0.0982	1.97022	247.0933	7.970751	0.9356	0.23665	4581.614	147.794	0.0982	41.8064
200	113.5303	3.662268	0.1337	0.76088	56.96123	1.837459	0.1309	0.38992	213.72	6.894194	0.0972	1.97022	258.0535	8.324306	0.9771	0.23665	4485.97	144.7087	0.0972	41.3548
300	113.1906	3.651311	0.1333	0.76088	56.78717	1.831844	0.1305	0.38992	213.5001	6.887101	0.0971	1.97022	256.2048	8.26467	0.9701	0.23665	4432.418	142.9812	0.0971	40.9032
400	115.0588	3.711573	0.1355	0.76088	57.65747	1.859918	0.1325	0.38992	214.3796	6.915472	0.0975	1.97022	270.2021	8.716198	1.0231	0.23665	4422.604	142.6647	0.0975	40.6452
500	109.3695	3.528048	0.1288	0.76088	54.91602	1.771485	0.1262	0.38992	210.4219	6.787802	0.0957	1.97022	267.7988	8.638672	1.014	0.23665	4334.057	139.8083	0.0957	40.5806
600	324.5282	10.46865	0.1344	2.16366	107.5602	3.469682	0.1318	0.73126	535.4596	17.27289	0.0966	4.9669	1286.717	41.50699	1.0229	1.12716	4228.761	136.4116	0.0966	39.2258
700	364.6113	11.76166	0.151	2.16366	121.352	3.914581	0.1487	0.73126	550.4259	17.75567	0.0993	4.9669	2274.177	73.36053	1.8079	1.12716	4279.035	138.0334	0.0993	38.6129
800	377.8919	12.19006	0.1565	2.16366	123.3922	3.980394	0.1512	0.73126	648.5381	20.92058	0.117	4.9669	2961.373	95.52816	2.3542	1.12716	5109.152	164.8113	0.117	39.129
900	471.0972	15.19668	0.1951	2.16366	153.261	4.943903	0.1878	0.73126	761.6165	24.56827	0.1374	4.9669	4078.649	131.5693	3.2424	1.12716	6459.993	208.3869	0.1374	42.129
1000	443.0873	14.29314	0.1835	2.16366	144.2024	4.651691	0.1767	0.73126	736.1184	23.74576	0.1328	4.9669	4800.816	154.865	3.8165	1.12716	6826.98	220.2252	0.1328	46.0645
1100	419.4238	13.5298	0.1737	2.16366	135.4703	4.37001	0.166	0.73126	753.3019	24.30006	0.1359	4.9669	6047.782	195.0898	4.8078	1.12716	7612.567	245.5667	0.1359	50.1935
1200	403.97	13.03129	0.1673	2.16366	130.0025	4.19363	0.1593	0.73126	757.7364	24.44311	0.1367	4.9669	6199.864	199.9956	4.9287	1.12716	8503.828	274.317	0.1367	55.7419
1300	402.0383	12.96898	0.1665	2.16366	129.1864	4.167304	0.1583	0.73126	757.1821	24.42523	0.1366	4.9669	6697.493	216.0482	5.3243	1.12716	9407.372	303.463[illegible]	0.1366	61.7097
1400	443.3287	14.30093	0.1836	2.16366	143.7944	4.638528	0.1762	0.73126	763.8337	24.6398	0.1378	4.9669	6353.706	204.9583	5.051	1.12716	10288.7	331.8934	0.1378	66.9032
1500	414.5945	13.37402	0.1717	2.16366	134.1646	4.327889	0.1644	0.73126	740.5529	23.8888	0.1336	4.9669	5811.169	187.4571	4.6197	1.12716	10739.84	346.4466	0.1336	72.0323
1600	401.0725	12.93782	0.1661	2.16366	130.2474	4.201527	0.1596	0.73126	707.8488	22.83383	0.1277	4.9669	5307.754	171.2179	4.2195	1.12716	10945.93	353.0944	0.1277	76.8064
1700	335.3941	10.81917	0.1389	2.16366	109.9268	3.546026	0.1347	0.73126	606.4108	19.56164	0.1094	4.9669	5325.364	171.7859	4.2335	1.12716	9310.382	300.3349	0.1094	76.2581
1800	115.3984	3.722529	0.1359	0.76088	58.6148	1.8908	0.1347	0.38992	206.4641	6.660132	0.0939	1.97022	545.475	17.59597	2.0654	0.23665	5902.18	190.3929	0.0939	56.3226
1900	114.9738	3.708833	0.1354	0.76088	57.57044	1.857111	0.1323	0.38992	214.3796	6.915472	0.0975	1.97022	227.2593	7.330944	0.8605	0.23665	5735.342	185.011	0.0975	52.7097
2000	129.9187	4.190927	0.153	0.76088	65.22909	2.104164	0.1499	0.38992	224.0542	7.227555	0.1019	1.97022	227.6818	7.344575	0.8621	0.23665	5513.609	177.8583	0.1019	48.4839
2100	129.4093	4.174492	0.1524	0.76088	64.92449	2.094338	0.1492	0.38992	226.0331	7.29139	0.1028	1.97022	251.0284	8.09769	0.9505	0.23665	5240.331	169.0429	0.1028	45.6774
2200	128.645	4.14984	0.1515	0.76088	64.53285	2.081705	0.1483	0.38992	224.9337	7.255926	0.1023	1.97022	244.2938	7.880445	0.925	0.23665	5141.194	165.845	0.1023	45.0323
2300	129.664	4.18271	0.1527	0.76088	65.05503	2.098549	0.1495	0.38992	226.253	7.298483	0.1029	1.97022	261.1171	8.423131	0.9887	0.23665	5004.639	161.44	0.1029	43.5806
2400	124.9937	4.032055	0.1472	0.76088	62.70522	2.022749	0.1441	0.38992	222.2952	7.170813	0.1011	1.97022	259.9286	8.384793	0.9842	0.23665	4789.712	154.5068	0.1011	42.4516
	6239.569	8.386518	0.153433	1.46227	2284.823	3.070999	0.148938	0.56059	10931.38	14.69271	0.112038	3.46856	60461	81.26479	2.416029	0.681905	153296.2	206.0433	0.112038	50.18144

OCTOBER	1992
START	275
STOP	305
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	18.84156	0.628052	0.0864	0.20192	21.57081	0.719027	0.0851	0.2347	14.22538	0.474179	0.0806	0.16342	232.2733	7.742444	1.2362	0.173975	3403.577	113.4526	0.0806	39.1
200	18.71071	0.62369	0.0858	0.20192	21.39337	0.713112	0.0844	0.2347	14.11949	0.47065	0.08	0.16342	214.912	7.163734	1.1438	0.173975	3386.88	112.896	0.08	39.2
300	18.47083	0.615694	0.0847	0.20192	21.16525	0.705508	0.0835	0.2347	13.96064	0.465355	0.0791	0.16342	201.177	6.705901	1.0707	0.173975	3331.692	111.0564	0.0791	39
400	18.44903	0.614968	0.0846	0.20192	21.11455	0.703818	0.0833	0.2347	13.92535	0.464178	0.0789	0.16342	195.9536	6.531787	1.0429	0.173975	3272.141	109.0714	0.0789	38.4
500	18.62349	0.620783	0.0854	0.20192	21.29198	0.709733	0.084	0.2347	14.03124	0.467708	0.0795	0.16342	211.9997	7.066656	1.1283	0.173975	3282.711	109.4237	0.0795	38.2333
600	60.53284	2.017761	0.0853	0.65708	45.93516	1.531172	0.084	0.50634	175.1027	5.836756	0.0797	2.03428	618.8337	20.62779	1.0545	0.54338	3322.534	110.7511	0.0797	38.6
700	54.14602	1.804867	0.0763	0.65708	41.8885	1.396283	0.0766	0.50634	154.6704	5.155679	0.0704	2.03428	1161.26	38.70865	1.9788	0.54338	2950.042	98.33472	0.0704	38.8
800	63.93914	2.131305	0.0901	0.65708	48.45066	1.615022	0.0886	0.50634	184.7696	6.158986	0.0841	2.03428	1955.444	65.18147	3.3321	0.54338	3445.197	114.8399	0.0841	37.931
900	72.95165	2.431722	0.1028	0.65708	54.19256	1.806419	0.0991	0.50634	212.0127	7.067089	0.0965	2.03428	1942.299	64.74329	3.3097	0.54338	3960.36	132.012	0.0965	38
1000	84.66082	2.822027	0.1193	0.65708	62.01247	2.067082	0.1134	0.50634	248.2635	8.275451	0.113	2.03428	1949.634	64.98781	3.3222	0.54338	5104.64	170.1547	0.113	41.8276
1100	77.49339	2.583113	0.1092	0.65708	57.36427	1.912142	0.1049	0.50634	225.8539	7.528463	0.1028	2.03428	2385.019	79.50062	4.0641	0.54338	4873.576	162.4525	0.1028	43.8966
1200	79.12557	2.637519	0.1115	0.65708	58.40328	1.946776	0.1068	0.50634	230.9071	7.696902	0.1051	2.03428	2618.703	87.29008	4.4623	0.54338	5193.967	173.1322	0.1051	45.7586
1300	79.33847	2.644616	0.1118	0.65708	58.51265	1.950422	0.107	0.50634	231.1268	7.704225	0.1052	2.03428	2798.748	93.29161	4.7691	0.54338	5269.431	175.6477	0.1052	46.3793
1400	78.55786	2.618595	0.1107	0.65708	58.07517	1.935839	0.1062	0.50634	228.71	7.623668	0.1041	2.03428	2724.746	90.82488	4.643	0.54338	5462.449	182.0816	0.1041	48.5862
1500	76.42892	2.547631	0.1077	0.65708	56.544	1.8848	0.1034	0.50634	222.119	7.403965	0.1011	2.03428	2457.553	81.91845	4.1877	0.54338	5320.087	177.3362	0.1011	48.7241
1600	71.81622	2.393874	0.1012	0.65708	53.48166	1.782722	0.0978	0.50634	208.2777	6.942591	0.0948	2.03428	2165.947	72.19825	3.6908	0.54338	4781.333	159.3778	0.0948	46.7
1700	61.88117	2.062706	0.0872	0.65708	47.46634	1.582211	0.0868	0.50634	177.7391	5.924637	0.0809	2.03428	3009.604	100.3201	5.1284	0.54338	3279.359	109.312	0.0809	37.5333
1800	19.38674	0.646225	0.0889	0.20192	22.17915	0.739305	0.0875	0.2347	14.22538	0.474179	0.0806	0.16342	197.6634	6.588781	1.052	0.173975	3270.106	109.0035	0.0806	37.5667
1900	18.75433	0.625144	0.086	0.20192	21.49476	0.716492	0.0848	0.2347	14.13714	0.471238	0.0801	0.16342	230.075	7.669166	1.2245	0.173975	3402.645	113.4215	0.0801	39.3333
2000	18.79794	0.626598	0.0862	0.20192	21.49476	0.716492	0.0848	0.2347	14.19009	0.473003	0.0804	0.16342	237.384	7.912801	1.2634	0.173975	3438.547	114.6182	0.0804	39.6
2100	18.9506	0.631687	0.0869	0.20192	21.6722	0.722407	0.0855	0.2347	14.33128	0.477709	0.0812	0.16342	259.4427	8.648088	1.3808	0.173975	3475.682	115.8561	0.0812	39.6333
2200	18.75433	0.625144	0.086	0.20192	21.46942	0.715647	0.0847	0.2347	14.19009	0.473003	0.0804	0.16342	233.3631	7.77877	1.242	0.173975	3508.013	116.9338	0.0804	40.4
2300	18.88517	0.629506	0.0866	0.20192	21.57081	0.719027	0.0851	0.2347	14.26068	0.475356	0.0808	0.16342	235.7306	7.857685	1.2546	0.173975	3557.465	118.5822	0.0808	40.7667
2400	18.64529	0.62151	0.0855	0.20192	21.34268	0.711423	0.0842	0.2347	14.10184	0.470061	0.0799	0.16342	217.5989	7.253296	1.1581	0.173975	3480.441	116.0147	0.0799	40.3333
	1086.142	1.508531	0.093588	0.4295	900.0865	1.25012	0.091313	0.37052	2669.251	3.707293	0.087467	1.09885	28455.36	39.52134	2.4225	0.358678	93772.88	130.2401	0.087467	41.01264

NOVEMBER	1992
START	306
STOP	335
NUMDAYS	30

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	27.6682	0.892523	0.0953	0.26015	39.08398	1.260774	0.0948	0.369425	71.06691	2.292481	0.0815	0.78135	170.6526	5.504922	1.205	0.1269	3619.214	116.7488	0.0815	39.7917
200	30.04889	0.969319	0.1035	0.26015	42.38221	1.367168	0.1028	0.369425	74.11886	2.390931	0.085	0.78135	173.4	5.593549	1.2244	0.1269	3719.299	119.9774	0.085	39.2083
300	30.16502	0.973065	0.1039	0.26015	42.54712	1.372488	0.1032	0.369425	74.29326	2.396557	0.0852	0.78135	165.71	5.345485	1.1701	0.1269	3771.637	121.6657	0.0852	39.6667
400	30.45534	0.98243	0.1049	0.26015	42.9594	1.385787	0.1042	0.369425	74.64205	2.407808	0.0856	0.78135	176.9122	5.706845	1.2492	0.1269	3789.344	122.2369	0.0856	39.6667
500	30.33921	0.978684	0.1045	0.26015	42.83572	1.381797	0.1039	0.369425	74.55485	2.404995	0.0855	0.78135	180.0845	5.809177	1.2716	0.1269	3800.814	122.6069	0.0855	39.8333
600	52.8374	1.704432	0.1047	0.4522	41.25495	1.330805	0.104	0.35545	154.8969	4.996675	0.0858	1.617675	178.64	5.76258	1.2614	0.1269	3854.05	124.3242	0.0858	40.25
700	52.93833	1.707688	0.1049	0.4522	41.37395	1.334644	0.1043	0.35545	154.3553	4.979204	0.0855	1.617675	164.8461	5.317618	1.164	0.1269	3844.553	124.0179	0.0855	40.2917
800	51.82809	1.671874	0.1027	0.4522	40.58059	1.309051	0.1023	0.35545	153.0916	4.938438	0.0848	1.617675	603.2604	19.46001	4.2597	0.1269	3789.418	122.2393	0.0848	40.0417
900	62.98097	2.031644	0.1248	0.4522	48.95058	1.579051	0.1234	0.35545	172.7696	5.573214	0.0957	1.617675	488.2788	15.75093	3.4478	0.1269	4276.502	137.9517	0.0957	40.0417
1000	73.27594	2.36374	0.1452	0.4522	56.52721	1.823459	0.1425	0.35545	192.9893	6.22546	0.1069	1.617675	439.1082	14.16478	3.1006	0.1269	4831.666	155.8602	0.1069	40.5
1100	75.54688	2.436996	0.1497	0.4522	58.51062	1.88744	0.1475	0.35545	193.8919	6.254579	0.1074	1.617675	482.2741	15.55723	3.4054	0.1269	5117.438	165.0787	0.1074	42.6957
1200	70.04614	2.259553	0.1388	0.4522	54.10745	1.745402	0.1364	0.35545	189.1981	6.103164	0.1048	1.617675	576.5225	18.5975	4.0709	0.1269	4938.77	159.3152	0.1048	42.2273
1300	74.08338	2.389787	0.1468	0.4522	57.20157	1.845212	0.1442	0.35545	195.3362	6.301168	0.1082	1.617675	605.5122	19.53265	4.2756	0.1269	5113.548	164.9532	0.1082	42.3478
1400	66.66495	2.150482	0.1321	0.4522	51.37034	1.657108	0.1295	0.35545	185.768	5.992515	0.1029	1.617675	582.2864	18.78343	4.1116	0.1269	4837.483	156.0479	0.1029	42.125
1500	69.94521	2.256297	0.1386	0.4522	54.06778	1.744122	0.1363	0.35545	187.2122	6.039104	0.1037	1.617675	593.9276	19.15896	4.1938	0.1269	4928.131	158.972	0.1037	42.5833
1600	60.86142	1.963272	0.1206	0.4522	47.20518	1.522748	0.119	0.35545	172.0475	5.549919	0.0953	1.617675	519.0104	16.74227	3.6648	0.1269	4143.402	133.6581	0.0953	38.9583
1700	57.58116	1.857457	0.1141	0.4522	44.94409	1.449809	0.1133	0.35545	163.2014	5.264562	0.0904	1.617675	666.9754	21.51534	4.7096	0.1269	3686.561	118.9213	0.0904	36.5417
1800	29.06177	0.937477	0.1001	0.26015	40.85678	1.317961	0.0991	0.369425	73.07248	2.357177	0.0838	0.78135	38.98732	1.257655	1.0265	0.034033	3448.58	111.2445	0.0838	36.875
1900	27.11658	0.874728	0.0934	0.26015	38.2182	1.232845	0.0927	0.369425	71.06691	2.292481	0.0815	0.78135	43.68935	1.409334	1.1503	0.034033	3380.46	109.0471	0.0815	37.1667
2000	29.32307	0.945905	0.101	0.26015	41.31029	1.33259	0.1002	0.369425	73.07248	2.357177	0.0838	0.78135	41.36112	1.33423	1.089	0.034033	3627.831	117.0268	0.0838	38.7917
2100	25.49075	0.822282	0.0878	0.26015	35.90944	1.158369	0.0871	0.369425	68.79974	2.219347	0.0789	0.78135	44.22108	1.426486	1.1643	0.034033	3456.057	111.4857	0.0789	39.25
2200	25.92624	0.83633	0.0893	0.26015	36.65154	1.182308	0.0889	0.369425	69.14854	2.230598	0.0793	0.78135	46.63286	1.504286	1.2278	0.034033	3477.268	112.1699	0.0793	39.2917
2300	25.92624	0.83633	0.0893	0.26015	36.61031	1.180978	0.0888	0.369425	68.88694	2.222159	0.079	0.78135	42.89555	1.383727	1.1294	0.034033	3416.355	110.205	0.079	38.75
2400	26.41979	0.852251	0.091	0.26015	37.31119	1.203587	0.0905	0.369425	69.67173	2.247475	0.0799	0.78135	47.78368	1.541409	1.2581	0.034033	3670.769	118.4119	0.0799	41.1667
	1106.531	1.487273	0.111958	0.356175	1072.771	1.441896	0.110788	0.362438	2977.153	4.001549	0.090017	1.199513	7072.973	9.506684	2.326288	0.099814	96539.15	129.7569	0.090017	39.91928

DECEMBER	1992
START	336
STOP	361
NUMDAYS	26

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	14.26396	0.460128	0.134	0.095383	8.226577	0.265373	0.1327	0.05555	38.42499	1.239516	0.0961	0.358283	67.58547	2.180177	1.3194	0.0459	4008.84	129.3174	0.0961	37.3793
200	14.20009	0.458067	0.1334	0.095383	8.189381	0.264174	0.1321	0.05555	38.22507	1.233067	0.0956	0.358283	61.13632	1.972139	1.1935	0.0459	3991.663	128.7633	0.0956	37.4138
300	13.16755	0.42476	0.1237	0.095383	7.594241	0.244976	0.1225	0.05555	36.78563	1.186633	0.092	0.358283	55.61433	1.794011	1.0857	0.0459	3823.649	123.3435	0.092	37.2414
400	13.2527	0.427507	0.1245	0.095383	7.650035	0.246775	0.1234	0.05555	37.06552	1.195662	0.0927	0.358283	58.68267	1.892989	1.1456	0.0459	3869.15	124.8113	0.0927	37.4
500	13.23142	0.42682	0.1243	0.095383	7.637636	0.246375	0.1232	0.05555	36.82562	1.187923	0.0921	0.358283	59.56885	1.921576	1.1629	0.0459	3879.248	125.137	0.0921	37.7419
600	34.74692	1.120868	0.1314	0.23695	7.012754	0.226218	0.1301	0.0483	54.76283	1.766543	0.095	0.516533	160.8499	5.188706	1.2908	0.11166	3987.72	128.6551	0.095	37.6129
700	35.14357	1.133664	0.1329	0.23695	7.098999	0.229	0.1317	0.0483	55.05105	1.77584	0.0955	0.516533	171.093	5.51913	1.373	0.11166	4015.582	129.5349	0.0955	37.6774
800	36.86241	1.18911	0.1394	0.23695	7.470928	0.240998	0.1386	0.0483	55.56986	1.792576	0.0964	0.516533	377.3268	12.17183	3.028	0.11166	4049.961	130.6439	0.0964	37.6452
900	44.5575	1.437339	0.1685	0.23695	8.985597	0.289858	0.1667	0.0483	63.75546	2.056628	0.1106	0.516533	521.4413	16.82069	4.1845	0.11166	4618.662	148.9891	0.1106	37.4194
1000	47.73073	1.539701	0.1805	0.23695	9.594698	0.309506	0.178	0.0483	67.96355	2.192373	0.1179	0.516533	481.4905	15.53195	3.8639	0.11166	4940.483	159.3704	0.1179	37.5484
1100	53.41611	1.7231	0.202	0.23695	10.75361	0.346891	0.1995	0.0483	71.82577	2.31696	0.1246	0.516533	548.6068	17.69699	4.4025	0.11166	5446.271	175.6861	0.1246	39.1667
1200	52.19971	1.683861	0.1974	0.23695	10.48409	0.338197	0.1945	0.0483	72.114	2.326258	0.1251	0.516533	518.0767	16.71215	4.1575	0.11166	5710.114	184.1972	0.1251	40.9
1300	47.6514	1.537142	0.1802	0.23695	9.556966	0.308289	0.1773	0.0483	69.05881	2.227704	0.1198	0.516533	508.3694	16.39901	4.0796	0.11166	5521.678	178.1186	0.1198	41.3
1400	47.0432	1.517523	0.1779	0.23695	9.454551	0.304986	0.1754	0.0483	68.13649	2.197951	0.1182	0.516533	628.7327	20.2817	5.0455	0.11166	5467.495	176.3708	0.1182	41.4483
1500	44.63683	1.439898	0.1688	0.23695	8.985597	0.289858	0.1667	0.0483	65.71539	2.119851	0.114	0.516533	606.3896	19.56096	4.8662	0.11166	5242.507	169.1131	0.114	41.2069
1600	44.37239	1.431368	0.1678	0.23695	8.947865	0.288641	0.166	0.0483	64.79307	2.090099	0.1124	0.516533	625.0815	20.16392	5.0162	0.11166	5035.461	162.4342	0.1124	40.1429
1700	38.07881	1.228349	0.144	0.23695	7.69193	0.248127	0.1427	0.0483	58.79798	1.896709	0.102	0.516533	629.8791	20.31868	5.0547	0.11166	4215.711	135.9907	0.102	37.0345
1800	13.92332	0.449139	0.1308	0.095383	8.052995	0.259774	0.1299	0.05555	37.78524	1.218879	0.0945	0.358283	72.94355	2.353018	1.424	0.0459	3800.27	122.5894	0.0945	36.0345
1900	13.91268	0.448796	0.1307	0.095383	8.028197	0.258974	0.1295	0.05555	37.94518	1.224038	0.0949	0.358283	69.64982	2.246768	1.3597	0.0459	4005.604	129.213	0.0949	37.8214
2000	14.46621	0.466652	0.1359	0.095383	8.350565	0.269373	0.1347	0.05555	38.70488	1.248545	0.0968	0.358283	65.1728	2.102349	1.2723	0.0459	4105.094	132.4224	0.0968	38
2100	14.30653	0.461501	0.1344	0.095383	8.257574	0.266373	0.1332	0.05555	38.18509	1.231777	0.0955	0.358283	61.28999	1.977097	1.1965	0.0459	4004.285	129.1705	0.0955	37.5714
2200	14.48749	0.467339	0.1361	0.095383	8.375362	0.270173	0.1351	0.05555	38.46498	1.240806	0.0962	0.358283	69.47565	2.24115	1.3563	0.0459	4101.862	132.3181	0.0962	38.2069
2300	13.66785	0.440898	0.1284	0.095383	7.89801	0.254775	0.1274	0.05555	37.54534	1.21114	0.0939	0.358283	66.84272	2.156217	1.3049	0.0459	3964.045	127.8724	0.0939	37.8276
2400	13.72107	0.442615	0.1289	0.095383	7.916608	0.255374	0.1277	0.05555	37.66529	1.215009	0.0942	0.358283	70.71528	2.281138	1.3805	0.0459	3998.46	128.9826	0.0942	38.0345
	693.0405	0.931506	0.148163	0.166167	202.2148	0.271794	0.146608	0.051925	1221.167	1.641354	0.10275	0.437408	6556.015	8.811848	2.565154	0.07878	105803.8	142.2094	0.10275	38.32397

JANUARY	1993
START	1
STOP	31
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	19.83264	0.708309	0.1033	0.190467	21.21854	0.757805	0.1026	0.205167	147.6317	5.272561	0.0838	1.747733	132.7582	4.741364	1.0064	0.130867	3081.607	110.0574	0.0838	36.4815
200	19.92864	0.711737	0.1038	0.190467	21.32194	0.761498	0.1031	0.205167	147.984	5.285145	0.084	1.747733	133.9322	4.783294	1.0153	0.130867	3117.183	111.328	0.084	36.8148
300	19.89024	0.710366	0.1036	0.190467	21.30126	0.760759	0.103	0.205167	147.984	5.285145	0.084	1.747733	134.7501	4.812503	1.0215	0.130867	3167.359	113.12	0.084	37.4074
400	21.02299	0.750821	0.1095	0.190467	22.50075	0.803598	0.1088	0.205167	151.8598	5.423565	0.0862	1.747733	145.5538	5.198351	1.1034	0.130867	3256.753	116.3126	0.0862	37.4815
500	20.21662	0.722022	0.1053	0.190467	21.63215	0.772577	0.1046	0.205167	149.5696	5.341771	0.0849	1.747733	156.3576	5.5842	1.1853	0.130867	3280.533	117.1619	0.0849	38.3333
600	47.27548	1.68841	0.111	0.422525	29.66254	1.059376	0.1104	0.26655	129.1109	4.611105	0.0869	1.47395	310.0926	11.07474	1.224	0.251333	3399.99	121.4282	0.0869	38.8148
700	46.89216	1.67472	0.1101	0.422525	29.39385	1.049781	0.1094	0.26655	127.9224	4.568655	0.0861	1.47395	282.7315	10.09755	1.116	0.251333	3336.543	119.1623	0.0861	38.4444
800	55.87876	1.99567	0.1312	0.422525	35.11679	1.254171	0.1307	0.26655	139.9569	4.998459	0.0942	1.47395	944.6172	33.73633	3.7286	0.251333	3699.677	132.1313	0.0942	38.963
900	62.77843	2.242087	0.1474	0.422525	39.3351	1.404825	0.1464	0.26655	150.9513	5.39112	0.1016	1.47395	1159.351	41.4054	4.5762	0.251333	4047.2	144.5429	0.1016	39.5185
1000	75.59817	2.699935	0.1775	0.422525	47.15376	1.684063	0.1755	0.26655	171.9003	6.139297	0.1157	1.47395	1343.456	47.98058	5.3029	0.251333	4790.292	171.0818	0.1157	41.0741
1100	72.40388	2.585853	0.17	0.422525	45.21925	1.614973	0.1683	0.26655	167.5917	5.985416	0.1128	1.47395	1385.511	49.48254	5.4689	0.251333	4893.41	174.7646	0.1128	43.037
1200	79.85723	2.852044	0.1875	0.422525	49.78685	1.778102	0.1853	0.26655	178.289	6.367464	0.12	1.47395	1339.048	47.82314	5.2855	0.251333	5247.801	187.4215	0.12	43.3846
1300	73.17051	2.613233	0.1718	0.422525	45.5954	1.628407	0.1697	0.26655	170.8603	6.102153	0.115	1.47395	1509.27	53.90248	5.9574	0.251333	5001.739	178.6335	0.115	43.1482
1400	66.10049	2.360732	0.1552	0.422525	41.18901	1.471036	0.1533	0.26655	161.9458	5.78378	0.109	1.47395	1595.66	56.98785	6.2984	0.251333	4865.758	173.7771	0.109	44.2857
1500	65.20609	2.328789	0.1531	0.422525	40.65165	1.451845	0.1513	0.26655	160.3115	5.725411	0.1079	1.47395	1358.049	48.50174	5.3605	0.251333	4886.578	174.5207	0.1079	44.9286
1600	65.03572	2.322704	0.1527	0.422525	40.59791	1.449925	0.1511	0.26655	158.2315	5.651124	0.1065	1.47395	1364.357	48.72703	5.3854	0.251333	4784.829	170.8867	0.1065	44.5714
1700	66.56898	2.377464	0.1563	0.422525	41.72638	1.490228	0.1553	0.26655	156.5972	5.592756	0.1054	1.47395	1386.271	49.50969	5.4719	0.251333	4477.397	159.907	0.1054	42.1429
1800	24.26763	0.866701	0.1264	0.190467	26.01649	0.92916	0.1258	0.205167	165.0727	5.895453	0.0937	1.747733	380.1892	13.57818	2.8821	0.130867	3619.441	129.2657	0.0937	38.3214
1900	22.48212	0.802933	0.1171	0.190467	24.07249	0.859732	0.1164	0.205167	156.9688	5.606028	0.0891	1.747733	155.3287	5.547452	1.1775	0.130867	3309.763	118.2058	0.0891	36.8518
2000	21.23418	0.758363	0.1106	0.190467	22.74892	0.812461	0.11	0.205167	151.1551	5.398398	0.0858	1.747733	152.8355	5.45841	1.1586	0.130867	3212.814	114.7434	0.0858	37.1482
2100	20.42781	0.729565	0.1064	0.190467	21.88032	0.78144	0.1058	0.205167	149.3934	5.335479	0.0848	1.747733	131.5973	4.699905	0.9976	0.130867	3074.06	109.7878	0.0848	35.963
2200	20.08223	0.717223	0.1046	0.190467	21.50807	0.768145	0.104	0.205167	147.6317	5.272561	0.0838	1.747733	121.4664	4.338084	0.9208	0.130867	3047.194	108.8283	0.0838	36.0741
2300	19.02628	0.67951	0.0991	0.190467	20.37062	0.727522	0.0985	0.205167	144.813	5.171891	0.0822	1.747733	133.8926	4.78188	1.015	0.130867	2958.323	105.6544	0.0822	35.7037
2400	19.79424	0.706937	0.1031	0.190467	21.19785	0.757066	0.1025	0.205167	148.1602	5.291436	0.0841	1.747733	140.9368	5.033459	1.0684	0.130867	3042.403	108.6572	0.0841	35.8889
	1024.972	1.525255	0.129858	0.306496	751.1979	1.117854	0.128825	0.235859	3681.893	5.479007	0.095313	1.610842	15898.01	23.65776	2.905317	0.1911	91598.65	136.3075	0.095313	39.36595

FEBRUARY	1993
START	32
STOP	59
NUMDAYS	28

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	55.34806	1.785421	0.093	0.53328	18.32946	0.591273	0.0915	0.1795	126.2805	4.073566	0.0815	1.3884	122.6536	3.956569	1.0083	0.109	3755.518	121.1457	0.0815	41.2903
200	59.7521	1.927487	0.1004	0.53328	19.81185	0.639092	0.0989	0.1795	131.2388	4.233509	0.0847	1.3884	130.743	4.217515	1.0748	0.109	3838.942	123.8369	0.0847	40.6129
300	60.28773	1.944766	0.1013	0.53328	19.9721	0.644261	0.0997	0.1795	130.9289	4.223513	0.0845	1.3884	121.644	3.924	1	0.109	3787.291	122.1707	0.0845	40.1613
400	52.72945	1.70095	0.0886	0.53328	17.46808	0.563486	0.0872	0.1795	124.2662	4.008588	0.0802	1.3884	132.0689	4.260287	1.0857	0.109	3623.439	116.8851	0.0802	40.4839
500	52.84847	1.70479	0.0888	0.53328	17.50814	0.564779	0.0874	0.1795	124.2662	4.008588	0.0802	1.3884	124.7946	4.025632	1.0259	0.109	3591.674	115.8604	0.0802	40.129
600	118.3564	3.817947	0.088	1.20516	38.9351	1.255971	0.0867	0.4024	156.4884	5.048013	0.0797	1.75938	675.4551	21.78887	1.0658	0.56788	3506.166	113.1021	0.0797	39.4194
700	123.0637	3.969797	0.0915	1.20516	41.18049	1.328403	0.0917	0.4024	152.1688	4.90867	0.0775	1.75938	2101.402	67.78715	3.3158	0.56788	3459.6	111.6	0.0775	40
800	157.6291	5.084811	0.1172	1.20516	51.41948	1.658693	0.1145	0.4024	188.6893	6.086751	0.0961	1.75938	2047.152	66.03718	3.2302	0.56788	4452.502	143.6291	0.0961	41.5161
900	200.8023	6.477494	0.1493	1.20516	65.07146	2.099079	0.1449	0.4024	225.7988	7.283833	0.115	1.75938	2312.632	74.60103	3.6491	0.56788	5518.62	178.02	0.115	43
1000	200.5333	6.468817	0.1491	1.20516	65.16128	2.101977	0.1451	0.4024	223.2463	7.201494	0.1137	1.75938	2658.281	85.75102	4.1945	0.56788	5722.297	184.5902	0.1137	45.0968
1100	206.4511	6.659714	0.1535	1.20516	66.68814	2.15123	0.1485	0.4024	234.4381	7.562519	0.1194	1.75938	3069.651	99.02101	4.8436	0.56788	6353.033	204.9365	0.1194	47.6774
1200	192.5981	6.212841	0.1432	1.20516	61.883	1.996226	0.1378	0.4024	230.9038	7.448511	0.1176	1.75938	3440.651	110.9887	5.429	0.56788	6553.326	211.3976	0.1176	49.9333
1300	193.8085	6.251888	0.1441	1.20516	62.37699	2.012161	0.1389	0.4024	232.4746	7.499181	0.1184	1.75938	3399.774	109.6701	5.3645	0.56788	6809.322	219.6555	0.1184	51.5333
1400	183.7213	5.926495	0.1366	1.20516	58.96399	1.902064	0.1313	0.4024	227.566	7.340837	0.1159	1.75938	3349.2	108.0387	5.2847	0.56788	7096.7	228.9258	0.1159	54.8667
1500	183.8558	5.930833	0.1367	1.20516	59.09872	1.90641	0.1316	0.4024	226.3879	7.302835	0.1153	1.75938	3198.684	103.1833	5.0472	0.56788	7587.528	244.759	0.1153	58.9667
1600	181.7039	5.861416	0.1351	1.20516	58.47001	1.886129	0.1302	0.4024	223.2463	7.201494	0.1137	1.75938	3106.029	100.1945	4.901	0.56788	7822.11	252.3261	0.1137	61.6452
1700	172.8272	5.57507	0.1285	1.20516	55.86535	1.802108	0.1244	0.4024	211.2692	6.815134	0.1076	1.75938	2690.223	86.78138	4.2449	0.56788	7460.55	240.6629	0.1076	62.129
1800	66.59622	2.148265	0.1119	0.53328	21.99536	0.709528	0.1098	0.1795	144.874	4.673354	0.0935	1.3884	599.1575	19.32766	4.9255	0.109	5624.583	181.4382	0.0935	53.9032
1900	63.08489	2.034996	0.106	0.53328	20.93365	0.675279	0.1045	0.1795	134.0278	4.323478	0.0865	1.3884	124.8676	4.027986	1.0265	0.109	4126.047	133.0983	0.0865	42.7419
2000	57.49057	1.854535	0.0966	0.53328	19.01056	0.613244	0.0949	0.1795	129.5344	4.178529	0.0836	1.3884	124.2229	4.007189	1.0212	0.109	3903.45	125.9178	0.0836	41.8387
2100	61.47801	1.983162	0.1033	0.53328	20.37275	0.657185	0.1017	0.1795	133.0981	4.293488	0.0859	1.3884	120.5127	3.887507	0.9907	0.109	3964.453	127.8856	0.0859	41.3548
2200	53.3841	1.722068	0.0897	0.53328	17.64837	0.569302	0.0881	0.1795	125.3509	4.043576	0.0809	1.3884	131.1444	4.230464	1.0781	0.109	3640.502	117.4355	0.0809	40.3226
2300	50.17034	1.618398	0.0843	0.53328	16.64676	0.536992	0.0831	0.1795	121.9421	3.933615	0.0787	1.3884	135.0857	4.357602	1.1105	0.109	3600.997	116.1612	0.0787	41
2400	57.01446	1.839176	0.0958	0.53328	18.93043	0.610659	0.0945	0.1795	127.9849	4.128546	0.0826	1.3884	132.0567	4.259894	1.0856	0.109	3806.206	122.7808	0.0826	41.2903
	2805.535	3.770881	0.113854	0.86922	913.7415	1.228147	0.111121	0.29095	4086.47	5.492568	0.095529	1.57389	34048.09	45.76356	2.791796	0.33844	119604.9	160.7592	0.095529	45.87137

MARCH	1993
START	60
STOP	90
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	72.0251	2.400837	0.1032	0.64622	27.56806	0.918935	0.1016	0.25124	159.5524	5.318415	0.0855	1.72788	99.52532	3.317511	0.9941	0.0927	4096.821	136.5607	0.0855	44.3667
200	71.9553	2.39851	0.1031	0.64622	27.51379	0.917126	0.1014	0.25124	159.1792	5.305974	0.0853	1.72788	96.45175	3.215058	0.9634	0.0927	4059.601	135.32	0.0853	44.0667
300	65.88342	2.196114	0.0944	0.64622	25.20741	0.840247	0.0929	0.25124	154.1407	5.138024	0.0826	1.72788	95.43057	3.181019	0.9532	0.0927	3948.944	131.6315	0.0826	44.2667
400	67.27926	2.242642	0.0964	0.64622	25.69582	0.856527	0.0947	0.25124	155.6336	5.187787	0.0834	1.72788	101.4075	3.38025	1.0129	0.0927	3906.125	130.2042	0.0834	43.3667
500	66.72092	2.224031	0.0956	0.64622	25.56015	0.852005	0.0942	0.25124	154.5139	5.150465	0.0828	1.72788	93.91882	3.130627	0.9381	0.0927	3734.945	124.4982	0.0828	41.7667
600	110.8168	3.693895	0.0919	1.11652	43.62676	1.454225	0.0914	0.44196	153.9565	5.131884	0.079	1.80446	1134.381	37.81271	1.433	0.732975	3435.555	114.5185	0.079	40.2667
700	132.0397	4.401322	0.1095	1.11652	50.83424	1.694475	0.1065	0.44196	183.1888	6.106293	0.094	1.80446	1771.788	59.05961	2.2382	0.732975	4172.472	139.0824	0.094	41.1
800	146.9921	4.899736	0.1219	1.11652	55.36875	1.845625	0.116	0.44196	221.5805	7.386016	0.1137	1.80446	2176.382	72.54605	2.7493	0.732975	5820.53	194.0177	0.1137	47.4
900	219.8249	7.327497	0.1823	1.11652	80.85747	2.695249	0.1694	0.44196	339.0941	11.30314	0.174	1.80446	2984.777	99.49256	3.7705	0.732975	9565.128	318.8376	0.174	50.9
1000	160.8593	5.361976	0.1334	1.11652	60.18965	2.006322	0.1261	0.44196	242.8226	8.094086	0.1246	1.80446	3875.579	129.186	4.8958	0.732975	6979.598	232.6533	0.1246	51.8667
1100	166.2856	5.542852	0.1379	1.11652	62.00345	2.066782	0.1299	0.44196	251.5922	8.386408	0.1291	1.80446	4378.57	145.9523	5.5312	0.732975	7408.27	246.9423	0.1291	53.1333
1200	168.8178	5.627261	0.14	1.11652	63.00582	2.100194	0.132	0.44196	256.0745	8.535818	0.1314	1.80446	4874.12	162.4707	6.1572	0.732975	8022.754	267.4251	0.1314	56.5333
1300	170.1442	5.671475	0.1411	1.11652	63.29221	2.10974	0.1326	0.44196	257.4387	8.58129	0.1321	1.80446	5083.976	169.4659	6.4223	0.732975	8541.062	284.7021	0.1321	59.8667
1400	169.059	5.6353	0.1402	1.11652	62.95809	2.098603	0.1319	0.44196	255.8796	8.529322	0.1313	1.80446	4922.804	164.0935	6.2187	0.732975	9269.26	308.9753	0.1313	65.3667
1500	167.4914	5.583047	0.1389	1.11652	62.48077	2.082692	0.1309	0.44196	253.5411	8.451369	0.1301	1.80446	4988.903	166.2968	6.3022	0.732975	10346.07	344.8689	0.1301	73.6333
1600	176.5352	5.884507	0.1464	1.11652	66.2993	2.209977	0.1389	0.44196	252.3718	8.412393	0.1295	1.80446	4474.434	149.1478	5.6523	0.732975	11221.43	374.0476	0.1295	80.2333
1700	168.0943	5.603144	0.1394	1.11652	63.33994	2.111331	0.1327	0.44196	239.3147	7.977157	0.1228	1.80446	3800.138	126.6713	4.8005	0.732975	11303.98	376.7994	0.1228	85.2333
1800	87.16991	2.905664	0.1249	0.64622	32.64211	1.08807	0.1203	0.25124	201.5399	6.717997	0.108	1.72788	434.8338	14.49446	4.3433	0.0927	9937.728	331.2576	0.108	85.2
1900	88.56574	2.952191	0.1269	0.64622	34.16161	1.13872	0.1259	0.25124	171.8688	5.728959	0.0921	1.72788	334.2172	11.14057	3.3383	0.0927	7092.068	236.4023	0.0921	71.3
2000	99.03451	3.30115	0.1419	0.64622	37.85182	1.261727	0.1395	0.25124	180.2663	6.008875	0.0966	1.72788	96.36165	3.212055	0.9625	0.0927	5473.746	182.4582	0.0966	52.4667
2100	93.66054	3.122018	0.1342	0.64622	35.81677	1.193892	0.132	0.25124	175.4144	5.847146	0.094	1.72788	99.64545	3.321515	0.9953	0.0927	5180.901	172.6967	0.094	51.0333
2200	83.19178	2.773059	0.1192	0.64622	31.77382	1.059127	0.1171	0.25124	167.9499	5.598331	0.09	1.72788	97.08249	3.236083	0.9697	0.0927	4811.4	160.38	0.09	49.5
2300	76.42198	2.547399	0.1095	0.64622	29.22323	0.974108	0.1077	0.25124	162.7248	5.424161	0.0872	1.72788	93.96888	3.132296	0.9386	0.0927	4454.525	148.4842	0.0872	47.3
2400	71.1178	2.370593	0.1019	0.64622	27.21532	0.907177	0.1003	0.25124	158.2462	5.274872	0.0848	1.72788	89.8441	2.994803	0.8974	0.0927	4191.497	139.7166	0.0848	45.7667
	2899.987	4.027759	0.123921	0.88137	1094.486	1.52012	0.119413	0.3466	4907.885	6.816507	0.106829	1.76617	46198.54	64.16464	3.061583	0.412838	156974.4	218.02	0.106829	55.24723

APRIL	1993
START	91
STOP	120
NUMDAYS	30

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	97.70383	3.151737	0.114	0.767967	46.45743	1.498627	0.1115	0.37335	270.7052	8.732426	0.0895	2.71025	211.3005	6.816144	0.8917	0.212333	4365.812	140.8327	0.0895	43.7097
200	87.93345	2.836563	0.1026	0.767967	41.83252	1.349436	0.1004	0.37335	259.8165	8.381177	0.0859	2.71025	194.2154	6.265013	0.8196	0.212333	4066.51	131.1778	0.0859	42.4194
300	88.27627	2.847622	0.103	0.767967	41.87419	1.35078	0.1005	0.37335	261.6313	8.439719	0.0865	2.71025	204.0731	6.583002	0.8612	0.212333	4029.513	129.9843	0.0865	41.7419
400	81.93409	2.643035	0.0956	0.767967	38.87425	1.254008	0.0933	0.37335	256.4894	8.273851	0.0848	2.71025	219.0018	7.064574	0.9242	0.212333	3922.847	126.5434	0.0848	41.4516
500	83.7339	2.701094	0.0977	0.767967	40.29089	1.299706	0.0967	0.37335	246.5081	7.951874	0.0815	2.71025	194.2391	6.265777	0.8197	0.212333	3711.505	119.726	0.0815	40.8064
600	201.0759	6.486319	0.1013	1.778633	79.2454	2.556303	0.0991	0.716533	288.6768	9.312153	0.0867	2.983517	2954.882	95.31878	2.8831	0.918367	4051.321	130.6878	0.0867	41.871
700	260.426	8.400839	0.1312	1.778633	99.87639	3.221819	0.1249	0.716533	389.2308	12.55583	0.1169	2.983517	3098.06	99.93743	3.0228	0.918367	5803.387	187.206	0.1169	44.4839
800	272.7327	8.79783	0.1374	1.778633	103.2349	3.330159	0.1291	0.716533	429.519	13.85545	0.129	2.983517	3652.837	117.8335	3.5641	0.918367	6998.508	225.7583	0.129	48.6129
900	255.4636	8.240762	0.1287	1.778633	97.5574	3.147013	0.122	0.716533	400.2185	12.91027	0.1202	2.983517	4641.351	149.721	4.5286	0.918367	6776.391	218.5933	0.1202	50.5161
1000	283.0545	9.13079	0.1426	1.778633	107.2332	3.459135	0.1341	0.716533	446.1671	14.39249	0.134	2.983517	5239.174	169.0056	5.1119	0.918367	7785.934	251.1591	0.134	52.0645
1100	287.0244	9.258852	0.1446	1.778633	108.5126	3.500407	0.1357	0.716533	452.4933	14.59656	0.1359	2.983517	5575.033	179.8398	5.4396	0.918367	8268.152	266.7146	0.1359	54.5161
1200	289.4064	9.335689	0.1458	1.778633	109.2323	3.523623	0.1366	0.716533	456.1559	14.71471	0.137	2.983517	5751.418	185.5296	5.6117	0.918367	9158.72	295.4426	0.137	59.9032
1300	306.6755	9.892757	0.1545	1.778633	116.3492	3.7532	0.1455	0.716533	461.4832	14.88656	0.1386	2.983517	6142.314	198.1391	5.9931	0.918367	10298.53	332.2106	0.1386	66.5806
1400	289.0094	9.322883	0.1456	1.778633	109.2323	3.523623	0.1366	0.716533	455.8229	14.70397	0.1369	2.983517	6156.047	198.5822	6.0065	0.918367	11300.81	364.5424	0.1369	73.9677
1500	286.6274	9.246046	0.1444	1.778633	108.3527	3.495248	0.1355	0.716533	451.4944	14.56434	0.1356	2.983517	6211.289	200.3642	6.0604	0.918367	12145.43	391.7879	0.1356	80.2581
1600	281.0695	9.06676	0.1416	1.778633	106.3536	3.43076	0.133	0.716533	441.8386	14.25286	0.1327	2.983517	5821.726	187.7976	5.6803	0.918367	12554.48	404.9833	0.1327	84.7742
1700	268.5643	8.663366	0.1353	1.778633	102.1154	3.294046	0.1277	0.716533	421.528	13.59768	0.1266	2.983517	5468.136	176.3915	5.3353	0.918367	12542.52	404.5973	0.1266	88.7742
1800	102.3319	3.301029	0.1194	0.767967	47.45741	1.530884	0.1139	0.37335	334.5251	10.79113	0.1106	2.71025	1038.73	33.50742	4.3835	0.212333	10953.38	353.3347	0.1106	88.7419
1900	88.36198	2.850386	0.1031	0.767967	42.54084	1.372285	0.1021	0.37335	264.3534	8.527531	0.0874	2.71025	1164.558	37.56638	4.9145	0.212333	7475.85	241.1565	0.0874	76.6452
2000	128.5577	4.147022	0.15	0.767967	61.12382	1.971736	0.1467	0.37335	306.6984	9.893497	0.1014	2.71025	210.3526	6.785568	0.8877	0.212333	6315.186	203.7157	0.1014	55.8064
2100	99.33223	3.204266	0.1159	0.767967	47.20742	1.52282	0.1133	0.37335	274.0323	8.839751	0.0906	2.71025	201.1821	6.489746	0.849	0.212333	5019.606	161.9228	0.0906	49.6452
2200	85.10518	2.745328	0.0993	0.767967	40.33255	1.30105	0.0968	0.37335	258.6066	8.34215	0.0855	2.71025	199.3338	6.430123	0.8412	0.212333	4478.492	144.4675	0.0855	46.9355
2300	92.133	2.972032	0.1075	0.767967	43.74915	1.411263	0.105	0.37335	267.6806	8.634857	0.0885	2.71025	220.471	7.111966	0.9304	0.212333	4434.909	143.0616	0.0885	44.9032
2400	97.01819	3.129619	0.1132	0.767967	46.12411	1.487874	0.1107	0.37335	269.4953	8.693398	0.0891	2.71025	199.0021	6.419421	0.8398	0.212333	4420.072	142.583	0.0891	44.4516
	4413.551	5.932193	0.123929	1.2733	1785.16	2.399409	0.118779	0.544942	8365.171	11.24351	0.108808	2.846884	64968.73	87.32356	3.216663	0.56535	170877.9	229.6745	0.108808	56.81585

MAY	1993
START	121
STOP	151
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	106.8213	3.56071	0.1204	0.8215	65.787	2.1929	0.1173	0.5193	233.5991	7.786636	0.0951	2.2744	866.8828	28.89609	1.1082	0.7243	4738.259	157.942	0.0951	46.1333
200	104.5145	3.483817	0.1178	0.8215	64.44098	2.148033	0.1149	0.5193	230.4058	7.680194	0.0938	2.2744	764.1742	25.47247	0.9769	0.7243	4450.619	148.354	0.0938	43.9333
300	102.7401	3.424669	0.1158	0.8215	63.20712	2.106904	0.1127	0.5193	230.4058	7.680194	0.0938	2.2744	810.6395	27.02132	1.0363	0.7243	4275.029	142.501	0.0938	42.2
400	104.6032	3.486775	0.1179	0.8215	64.44098	2.148033	0.1149	0.5193	233.8447	7.794824	0.0952	2.2744	890.3501	29.67834	1.1382	0.7243	4236.019	141.2006	0.0952	41.2
500	95.9972	3.199907	0.1082	0.8215	60.34681	2.01156	0.1076	0.5193	208.7899	6.959664	0.085	2.2744	825.1892	27.50631	1.0549	0.7243	3678.334	122.6111	0.085	40.069
600	272.4646	9.082153	0.1209	2.0867	111.3294	3.710979	0.1175	0.8773	260.0138	8.667127	0.0991	2.4294	8192.75	273.0917	3.0496	2.4875	4428.744	147.6248	0.0991	41.3793
700	359.9057	11.99686	0.1597	2.0867	144.4913	4.816377	0.1525	0.8773	338.7264	11.29088	0.1291	2.4294	8514.593	283.8198	3.1694	2.4875	6192.527	206.4176	0.1291	44.4138
800	359.9057	11.99686	0.1597	2.0867	143.1648	4.772161	0.1511	0.8773	359.7164	11.99055	0.1371	2.4294	9958.587	331.9529	3.7069	2.4875	7158.318	238.6106	0.1371	48.3448
900	328.5801	10.95267	0.1458	2.0867	130.7528	4.358426	0.138	0.8773	340.563	11.3521	0.1298	2.4294	11079.66	369.3221	4.1242	2.4875	7260.564	242.0188	0.1298	51.7931
1000	342.3273	11.41091	0.1519	2.0867	135.8692	4.528974	0.1434	0.8773	356.3055	11.87685	0.1358	2.4294	13406.98	446.8993	4.9905	2.4875	7874.346	262.4782	0.1358	53.6897
1100	370.2724	12.34241	0.1643	2.0867	147.239	4.907967	0.1554	0.8773	367.0629	12.23543	0.1399	2.4294	14854.46	495.1488	5.5293	2.4875	8679.979	289.3326	0.1399	57.4483
1200	372.9768	12.43256	0.1655	2.0867	148.376	4.945866	0.1566	0.8773	369.6867	12.32289	0.1409	2.4294	16192.34	539.7447	6.0273	2.4875	9592.086	319.7362	0.1409	63.0345
1300	351.5672	11.71891	0.156	2.0867	139.2801	4.642672	0.147	0.8773	365.4887	12.18296	0.1393	2.4294	17677.71	589.2569	6.5802	2.4875	10756.75	358.5582	0.1393	71.5
1400	351.1165	11.70388	0.1558	2.0867	139.0907	4.636355	0.1468	0.8773	365.2263	12.17421	0.1392	2.4294	17396.7	579.89	6.4756	2.4875	12467.86	415.5954	0.1392	82.9333
1500	349.3136	11.64379	0.155	2.0867	138.5222	4.617405	0.1462	0.8773	362.8649	12.0955	0.1383	2.4294	17196.56	573.2185	6.4011	2.4875	14189.58	472.986	0.1383	95
1600	343.4541	11.44847	0.1524	2.0867	136.3429	4.544765	0.1439	0.8773	355.7808	11.85936	0.1356	2.4294	16552.87	551.7623	6.1615	2.4875	15093.91	503.1304	0.1356	103.0667
1700	331.9606	11.06535	0.1473	2.0867	132.3635	4.412117	0.1397	0.8773	342.1373	11.40458	0.1304	2.4294	14867.09	495.5697	5.534	2.4875	15472.75	515.7582	0.1304	109.8667
1800	119.686	3.989533	0.1349	0.8215	72.12454	2.404151	0.1286	0.5193	291.0777	9.70259	0.1185	2.2744	3148.297	104.9432	4.0247	0.7243	15110.18	503.6725	0.1185	118.0667
1900	97.41676	3.247225	0.1098	0.8215	59.95422	1.998474	0.1069	0.5193	234.336	7.811199	0.0954	2.2744	2738.871	91.2957	3.5013	0.7243	10942	364.7333	0.0954	106.2
2000	111.9672	3.732239	0.1262	0.8215	68.98381	2.29946	0.123	0.5193	236.3011	7.876702	0.0962	2.2744	672.8863	22.42954	0.8602	0.7243	7421.634	247.3878	0.0962	71.4333
2100	112.6769	3.755898	0.127	0.8215	69.43249	2.314416	0.1238	0.5193	236.0554	7.868514	0.0961	2.2744	662.0913	22.06971	0.8464	0.7243	6002.403	200.0801	0.0961	57.8333
2200	112.0559	3.735196	0.1263	0.8215	69.09598	2.303199	0.1232	0.5193	235.5642	7.852139	0.0959	2.2744	699.0132	23.30044	0.8936	0.7243	5720.623	190.6874	0.0959	55.2333
2300	108.5957	3.619858	0.1224	0.8215	66.96477	2.232159	0.1194	0.5193	234.336	7.811199	0.0954	2.2744	740.7851	24.69284	0.947	0.7243	5467.568	182.2523	0.0954	53.0667
2400	97.50548	3.250183	0.1099	0.8215	59.89814	1.996605	0.1068	0.5193	226.7213	7.557376	0.0923	2.2744	830.7431	27.69144	1.062	0.7243	5044.01	168.1337	0.0923	50.6
	5408.425	7.511701	0.136288	1.4541	2431.499	3.377082	0.130717	0.6983	7015.01	9.743069	0.114467	2.3519	179540.2	249.3614	3.299971	1.6059	196254.1	272.5751	0.114467	64.5183

JUNE	1993
START	152
STOP	181
NUMDAYS	30

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	38.54868	1.243506	0.0772	0.447433	23.18875	0.748024	0.077	0.26985	98.32588	3.171803	0.0958	0.919683	141.2894	4.557724	0.7135	0.17744	3717.005	119.9034	0.0958	34.7667
200	38.19914	1.23223	0.0765	0.447433	23.06829	0.744138	0.0766	0.26985	97.60743	3.148627	0.0951	0.919683	143.7647	4.637572	0.726	0.17744	3796.773	122.4766	0.0951	35.7742
300	37.69954	1.222566	0.0759	0.447433	22.79725	0.735395	0.0757	0.26985	94.42569	3.04599	0.092	0.919683	144.636	4.665678	0.7304	0.17744	3692.876	119.125	0.092	35.9677
400	37.69981	1.216123	0.0755	0.447433	22.67679	0.731509	0.0753	0.26985	92.4756	2.983084	0.0901	0.919683	137.4874	4.435077	0.6943	0.17744	3639.324	117.3976	0.0901	36.1936
500	37.50008	1.20968	0.0751	0.447433	22.52621	0.726652	0.0748	0.26985	91.34659	2.946664	0.089	0.919683	146.3588	4.721253	0.7391	0.17744	3604.498	116.2741	0.089	36.2903
600	78.58837	2.535109	0.0747	0.9427	59.38334	1.915592	0.0744	0.7152	144.1956	4.65147	0.088	1.468267	225.7065	7.280856	0.7975	0.2536	3478.468	112.2087	0.088	35.4194
700	79.64043	2.569046	0.0757	0.9427	60.34114	1.946488	0.0756	0.7152	146.8173	4.736042	0.0896	1.468267	377.3757	12.17341	1.3334	0.2536	3486.877	112.4799	0.0896	34.871
800	87.11	2.81	0.0828	0.9427	65.92828	2.126719	0.0826	0.7152	178.7697	5.766765	0.1091	1.468267	868.1282	28.00414	3.0674	0.2536	4501.024	145.1943	0.1091	36.9677
900	93.0015	3.000048	0.0884	0.9427	70.47781	2.273478	0.0883	0.7152	206.4618	6.660059	0.126	1.468267	897.3073	28.9454	3.1705	0.2536	5588.347	180.2693	0.126	39.7419
1000	90.26616	2.911812	0.0858	0.9427	68.32277	2.20396	0.0856	0.7152	199.2521	6.427486	0.1216	1.468267	826.0718	26.64748	2.9188	0.2536	5607.708	180.8938	0.1216	41.3226
1100	89.63493	2.891449	0.0852	0.9427	67.84387	2.188512	0.085	0.7152	185.4879	5.983482	0.1132	1.468267	779.9116	25.15844	2.7557	0.2536	5338.516	172.2102	0.1132	42.2581
1200	89.10891	2.874481	0.0847	0.9427	67.44479	2.175638	0.0845	0.7152	181.883	5.867195	0.111	1.468267	788.8833	25.44785	2.7874	0.2536	5310.688	171.3125	0.111	42.871
1300	90.05575	2.905024	0.0856	0.9427	68.16314	2.198811	0.0854	0.7152	186.9627	6.031054	0.1141	1.468267	887.0904	28.61582	3.1344	0.2536	5725.989	184.7093	0.1141	44.9677
1400	90.79219	2.92878	0.0863	0.9427	68.80167	2.219409	0.0862	0.7152	191.223	6.168483	0.1167	1.468267	872.6282	28.1493	3.0833	0.2536	6108.541	197.0497	0.1167	46.9032
1500	89.95055	2.901631	0.0855	0.9427	68.24295	2.201386	0.0855	0.7152	186.6349	6.020482	0.1139	1.468267	878.6281	28.34284	3.1045	0.2536	6097.289	196.6868	0.1139	47.9677
1600	90.79219	2.92878	0.0863	0.9427	68.72185	2.216834	0.0861	0.7152	191.223	6.168483	0.1167	1.468267	1026.929	33.12675	3.6285	0.2536	6318.601	203.8258	0.1167	48.5161
1700	90.47658	2.918599	0.086	0.9427	68.56222	2.211684	0.0859	0.7152	190.5675	6.14734	0.1163	1.468267	881.1187	28.42318	3.1133	0.2536	6280.2	202.5871	0.1163	48.3871
1800	41.59462	1.341762	0.0833	0.447433	24.99567	0.806312	0.083	0.26985	111.3607	3.592282	0.1085	0.919683	447.7499	14.44355	2.2611	0.17744	5273.102	170.1001	0.1085	43.5484
1900	39.19782	1.264446	0.0785	0.447433	23.4899	0.757739	0.078	0.26985	103.1498	3.327413	0.1005	0.919683	167.5869	5.406029	0.8463	0.17744	4037.688	130.248	0.1005	36
2000	39.04801	1.259613	0.0782	0.447433	23.4899	0.757739	0.078	0.26985	103.0472	3.324102	0.1004	0.919683	157.8046	5.09047	0.7969	0.17744	3957.77	127.67	0.1004	35.3226
2100	39.09795	1.261224	0.0783	0.447433	23.4899	0.757739	0.078	0.26985	103.9709	3.3539	0.1013	0.919683	146.24	4.71742	0.7385	0.17744	4069.829	131.2848	0.1013	36
2200	39.69715	1.280553	0.0795	0.447433	23.79106	0.767453	0.079	0.26985	107.5632	3.46978	0.1048	0.919683	143.8241	4.639488	0.7263	0.17744	4093.488	132.048	0.1048	35
2300	39.94682	1.288607	0.08	0.447433	24.03198	0.775225	0.0798	0.26985	108.7948	3.50951	0.106	0.919683	149.6856	4.828568	0.7559	0.17744	4067.856	131.2212	0.106	34.3871
2400	39.09795	1.261224	0.0783	0.447433	23.45979	0.756767	0.0779	0.26985	103.4577	3.337346	0.1008	0.919683	145.3093	4.687397	0.7338	0.17744	4006.195	129.2321	0.1008	35.6129
	1526.945	2.052346	0.080971	0.695067	1083.239	1.455967	0.080758	0.492525	3405.004	4.576618	0.105021	1.193975	11381.52	15.29774	1.806533	0.21552	111798.7	150.267	0.105021	39.37738

MARCH	1992
START	61
STOP	91
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	180.9225	5.836209	0.1081	1.499694	40.09473	1.293378	0.1051	0.341838	205.7208	6.636154	0.0895	2.059638	357.2444	11.52401	0.6308	0.507469	4707.339	151.8496	0.0895	47.129
200	166.8638	5.382702	0.0997	1.499694	36.92835	1.191237	0.0968	0.341838	202.2729	6.524933	0.088	2.059638	409.3472	13.20475	0.7228	0.507469	4470.045	144.195	0.088	45.5161
300	162.6796	5.247729	0.0972	1.499694	36.01277	1.161702	0.0944	0.341838	202.0431	6.517518	0.0879	2.059638	440.3258	14.20406	0.7775	0.507469	4385.861	141.4794	0.0879	44.7097
400	167.8679	5.415095	0.1003	1.499694	37.08095	1.19616	0.0972	0.341838	206.1805	6.650983	0.0897	2.059638	509.532	16.43651	0.8997	0.507469	4382.025	141.3556	0.0897	43.7742
500	155.8176	5.026374	0.0931	1.499694	34.98274	1.128476	0.0917	0.341838	189.1712	6.102295	0.0823	2.059638	479.5728	15.47009	0.8468	0.507469	3896.086	125.6802	0.0823	42.4194
600	396.3148	12.78435	0.0985	3.605287	65.76145	2.121337	0.0957	0.615737	214.3399	6.914192	0.088	2.18251	5199.984	167.7414	1.1408	4.0844	4169.087	134.4867	0.088	42.4516
700	508.9728	16.41848	0.1265	3.605287	82.0472	2.646684	0.1194	0.615737	290.5768	9.373444	0.1193	2.18251	6715.126	216.617	1.4732	4.0844	6184.51	199.5003	0.1193	46.4516
800	568.9229	18.35235	0.1414	3.605287	90.98031	2.934849	0.1324	0.615737	325.1634	10.48914	0.1335	2.18251	10370.79	334.5418	2.2752	4.0844	7261.861	234.2536	0.1335	48.7419
900	546.3913	17.62553	0.1358	3.605287	87.88808	2.835099	0.1279	0.615737	310.3058	10.00986	0.1274	2.18251	13030.04	420.324	2.8586	4.0844	7292.373	235.2378	0.1274	51.2903
1000	588.6381	18.98833	0.1463	3.605287	94.14126	3.036815	0.137	0.615737	335.3933	10.81914	0.1377	2.18251	17651.59	569.4062	3.8725	4.0844	8174.431	263.6913	0.1377	53.1936
1100	599.9039	19.35174	0.1491	3.605287	95.85917	3.092231	0.1395	0.615737	342.2132	11.03914	0.1405	2.18251	20818.17	671.5538	4.5672	4.0844	9271.309	299.0745	0.1405	59.129
1200	605.1344	19.52047	0.1504	3.605287	96.54633	3.114398	0.1405	0.615737	345.3796	11.14128	0.1418	2.18251	23146.95	746.6757	5.0781	4.0844	11159.09	359.9706	0.1418	70.5161
1300	606.7438	19.57238	0.1508	3.605287	96.88991	3.125481	0.141	0.615737	346.5974	11.18056	0.1423	2.18251	24231.8	781.6708	5.3161	4.0844	13365.39	431.1415	0.1423	84.1613
1400	607.5485	19.59834	0.151	3.605287	97.02734	3.129914	0.1412	0.615737	346.3539	11.17271	0.1422	2.18251	26051.88	840.3833	5.7154	4.0844	15356.41	495.3681	0.1422	96.7667
1500	603.1227	19.45557	0.1499	3.605287	96.4089	3.109964	0.1403	0.615737	344.1617	11.10199	0.1413	2.18251	25959.81	837.4131	5.6952	4.0844	16939.05	546.421	0.1413	107.4194
1600	592.2592	19.10514	0.1472	3.605287	94.75971	3.056765	0.1379	0.615737	337.3418	10.88199	0.1385	2.18251	23382.15	754.2629	5.1297	4.0844	17682.35	570.3984	0.1385	114.4
1700	570.9347	18.41725	0.1419	3.605287	91.66748	2.957015	0.1334	0.615737	324.9199	10.48129	0.1334	2.18251	19481.25	628.4274	4.2739	4.0844	17433.19	562.361	0.1334	117.1
1800	215.5672	6.953781	0.1288	1.499694	46.42748	1.497661	0.1217	0.341838	276.976	8.93471	0.1205	2.059638	1487.367	47.97957	2.6263	0.507469	16213.57	523.0183	0.1205	120.5667
1900	188.4539	6.07916	0.1126	1.499694	41.73514	1.346295	0.1094	0.341838	223.6495	7.2145	0.0973	2.059638	1600.917	51.64248	2.8268	0.507469	11568.11	373.1648	0.0973	106.5333
2000	217.2409	7.00777	0.1298	1.499694	48.25864	1.55673	0.1265	0.341838	222.5002	7.177427	0.0968	2.059638	405.0431	13.06591	0.7152	0.507469	7806.885	251.835	0.0968	72.2667
2100	197.157	6.359902	0.1178	1.499694	43.79519	1.412748	0.1148	0.341838	214.2254	6.910497	0.0932	2.059638	353.7897	11.41257	0.6247	0.507469	5992.387	193.3028	0.0932	57.6129
2200	185.274	5.976581	0.1107	1.499694	41.1629	1.327836	0.1079	0.341838	204.5715	6.59908	0.089	2.059638	308.936	9.965676	0.5455	0.507469	5209.703	168.0549	0.089	52.4516
2300	171.8847	5.544669	0.1027	1.499694	38.07282	1.228156	0.0998	0.341838	203.1924	6.554592	0.0884	2.059638	348.9759	11.25729	0.6162	0.507469	4993.185	161.0705	0.0884	50.6129
2400	170.8805	5.512275	0.1021	1.499694	37.84393	1.220772	0.0992	0.341838	203.4222	6.562007	0.0885	2.059638	369.7604	11.92775	0.6529	0.507469	4855.465	156.6279	0.0885	49.1613
	8975.497	12.06384	0.124654	2.552491	1572.373	2.113404	0.118779	0.478788	6416.672	8.62456	0.112375	2.121074	223110.3	299.8795	2.495046	2.295934	212769.7	285.9808	0.112375	67.6823

JULY	1993
START	182
STOP	212
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	205.0197	6.613538	0.1019	1.80284	38.49569	1.241796	0.0989	0.34878	243.4759	7.85406	0.0897	2.4322	274.5641	8.856907	0.7982	0.308225	4769.532	153.8559	0.0897	47.6452
200	189.7287	6.120281	0.0943	1.80284	35.53747	1.14637	0.0913	0.34878	237.2329	7.652674	0.0874	2.4322	253.3062	8.171168	0.7364	0.308225	4499.349	145.1403	0.0874	46.129
300	189.1251	6.100811	0.094	1.80284	35.45963	1.143859	0.0911	0.34878	236.69	7.635162	0.0872	2.4322	256.1268	8.262156	0.7446	0.308225	4335.236	139.8463	0.0872	44.5484
400	192.1431	6.198164	0.0955	1.80284	35.96564	1.160182	0.0924	0.34878	239.9472	7.740233	0.0884	2.4322	283.4388	9.143186	0.824	0.308225	4213.5	135.9193	0.0884	42.7097
500	207.6352	6.697911	0.1032	1.80284	38.96277	1.256864	0.1001	0.34878	245.6473	7.924108	0.0905	2.4322	296.7508	9.572605	0.8627	0.308225	4251.693	137.1514	0.0905	42.0968
600	571.0117	18.41973	0.0884	5.788	98.96217	3.192328	0.0864	1.02634	365.2197	11.78128	0.0808	4.05022	3400.516	109.6941	1.1719	2.6001	3720.358	120.0116	0.0808	41.2581
700	765.4398	24.69161	0.1185	5.788	128.857	4.156677	0.1125	1.02634	502.6291	16.21384	0.1112	4.05022	4407.99	142.1932	1.5191	2.6001	5196.158	167.618	0.1112	41.871
800	894.628	28.85897	0.1385	5.788	148.9014	4.803271	0.13	1.02634	589.4139	19.01335	0.1304	4.05022	7952.721	256.5394	2.7407	2.6001	6539.302	210.9452	0.1304	44.9355
900	828.742	26.73361	0.1283	5.788	139.6237	4.50399	0.1219	1.02634	542.4055	17.49695	0.12	4.05022	9076.844	292.8014	3.1281	2.6001	6622.558	213.6309	0.12	49.4516
1000	924.3413	29.81746	0.1431	5.788	153.8266	4.962149	0.1343	1.02634	607.9461	19.61117	0.1345	4.05022	11978.56	386.405	4.1281	2.6001	7844.045	253.0337	0.1345	52.2581
1100	946.9492	30.54675	0.1466	5.788	157.3773	5.076688	0.1374	1.02634	623.7663	20.12149	0.138	4.05022	16148.03	520.904	5.565	2.6001	9156.022	295.3555	0.138	59.4516
1200	940.4898	30.33838	0.1456	5.788	156.461	5.04713	0.1366	1.02634	618.3422	19.94652	0.1368	4.05022	16682.52	538.1458	5.7492	2.6001	10900.55	351.6307	0.1368	71.4
1300	932.0926	30.0675	0.1443	5.788	155.2011	5.006487	0.1355	1.02634	612.0142	19.74239	0.1354	4.05022	19666.06	634.389	6.7774	2.6001	11885.3	383.3969	0.1354	78.6552
1400	945.6573	30.50508	0.1464	5.788	157.0337	5.065604	0.1371	1.02634	621.9583	20.06317	0.1376	4.05022	18230.58	588.0833	6.2827	2.6001	13968.99	450.6126	0.1376	90.9667
1500	994.7488	32.08867	0.154	5.788	166.0823	5.357495	0.145	1.02634	627.3823	20.23814	0.1388	4.05022	18901.75	609.7339	6.514	2.6001	15727.59	507.3416	0.1388	101.5333
1600	930.1548	30.00499	0.144	5.788	154.8575	4.995402	0.1352	1.02634	611.5622	19.72781	0.1353	4.05022	17671.42	570.0459	6.09	2.6001	16503.73	532.3784	0.1353	109.3
1700	895.9199	28.90064	0.1387	5.788	149.7032	4.829135	0.1307	1.02634	588.0579	18.96961	0.1301	4.05022	14386.4	464.0773	4.9579	2.6001	17481.07	563.9054	0.1301	120.4
1800	247.271	7.976485	0.1229	1.80284	45.5409	1.469061	0.117	0.34878	310.7914	10.02553	0.1145	2.4322	1278.674	41.24753	3.7173	0.308225	15915.04	513.3885	0.1145	124.5484
1900	182.4856	5.886633	0.0907	1.80284	34.87577	1.125025	0.0896	0.34878	224.2041	7.23239	0.0826	2.4322	824.3115	26.59069	2.3964	0.308225	9203.291	296.8804	0.0826	99.8387
2000	205.2209	6.620028	0.102	1.80284	38.49569	1.241796	0.0989	0.34878	244.5616	7.889084	0.0901	2.4322	270.0924	8.712658	0.7852	0.308225	6947.794	224.1224	0.0901	69.0968
2100	204.4161	6.594068	0.1016	1.80284	38.33999	1.236774	0.0985	0.34878	242.1187	7.810281	0.0892	2.4322	251.9303	8.126784	0.7324	0.308225	6313.224	203.6524	0.0892	63.4194
2200	202.8065	6.542146	0.1008	1.80284	38.06752	1.227985	0.0978	0.34878	241.5758	7.792769	0.089	2.4322	247.3898	7.980315	0.7192	0.308225	5706.323	184.0749	0.089	57.4516
2300	189.7287	6.120281	0.0943	1.80284	35.53747	1.14637	0.0913	0.34878	237.2329	7.652674	0.0874	2.4322	247.3554	7.979206	0.7191	0.308225	5178.977	167.0638	0.0874	53.0968
2400	188.5215	6.08134	0.0937	1.80284	35.30393	1.138836	0.0907	0.34878	235.6043	7.600139	0.0868	2.4322	246.0826	7.93815	0.7154	0.308225	4752.819	153.3167	0.0868	49.0645
	12974.28	17.43855	0.117971	3.79542	2217.469	2.98047	0.112508	0.68756	9849.78	13.23895	0.108821	3.24121	163233.4	219.3997	2.848958	1.454163	201632.5	271.0114	0.108821	66.7136

AUGUST	1993
START	213
STOP	243
NUMDAYS	31

WHITE FIR

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	75.23566	2.507855	0.0951	0.73252	57.54224	1.918075	0.0921	0.5785	217.1095	7.236983	0.0879	2.287	278.9133	9.29711	0.9283	0.2782	4187.175	139.5725	0.0879	44.1071
200	74.99833	2.499944	0.0948	0.73252	57.47976	1.915992	0.092	0.5785	216.3685	7.212283	0.0876	2.287	281.8277	9.394258	0.938	0.2782	4128.967	137.6322	0.0876	43.6429
300	75.39389	2.51313	0.0953	0.73252	57.72967	1.924322	0.0924	0.5785	217.6035	7.253449	0.0881	2.287	280.9865	9.366215	0.9352	0.2782	4094.761	136.492	0.0881	43.0357
400	75.94767	2.531589	0.096	0.73252	58.16702	1.938901	0.0931	0.5785	219.3324	7.311082	0.0888	2.287	313.5258	10.45086	1.0435	0.2782	4034.816	134.4939	0.0888	42.0714
500	76.50146	2.550049	0.0967	0.73252	58.47941	1.949314	0.0936	0.5785	220.3204	7.344014	0.0892	2.287	314.4572	10.48191	1.0466	0.2782	4022.028	134.0676	0.0892	41.75
600	277.7087	9.256957	0.0854	3.01098	39.76256	1.325419	0.0853	0.43162	291.4451	9.714838	0.078	3.4597	2540.908	84.69694	1.1011	2.136675	3492.953	116.4318	0.078	41.4643
700	332.9903	11.09968	0.1024	3.01098	46.05558	1.535186	0.0988	0.43162	353.4706	11.78235	0.0946	3.4597	4969.205	165.6402	2.1534	2.136675	4239.972	141.3324	0.0946	41.5
800	444.529	14.81763	0.1367	3.01098	59.85361	1.99512	0.1284	0.43162	479.7635	15.99212	0.1284	3.4597	6160.624	205.3541	2.6697	2.136675	6111.469	203.7156	0.1284	44.0714
900	485.1773	16.17258	0.1492	3.01098	64.98125	2.166042	0.1394	0.43162	526.4695	17.54898	0.1409	3.4597	8352.852	278.4284	3.6197	2.136675	7239.035	241.3012	0.1409	47.5714
1000	455.2602	15.17534	0.14	3.01098	61.34529	2.044843	0.1316	0.43162	490.5993	16.35331	0.1313	3.4597	10815.99	360.5331	4.6871	2.136675	7075.013	235.8338	0.1313	49.8929
1100	470.8691	15.69564	0.1448	3.01098	63.30312	2.110104	0.1358	0.43162	508.1607	16.93869	0.136	3.4597	13609.12	453.6375	5.8975	2.136675	7868.567	262.2856	0.136	53.5714
1200	476.3973	15.87991	0.1465	3.01098	64.00234	2.133411	0.1373	0.43162	514.8864	17.16288	0.1378	3.4597	14418.17	480.6057	6.2481	2.136675	8852.275	295.0758	0.1378	59.4815
1300	476.0721	15.86907	0.1464	3.01098	64.00234	2.133411	0.1373	0.43162	514.8864	17.16288	0.1378	3.4597	15451.29	515.0429	6.6958	2.136675	9767.26	325.5753	0.1378	65.6296
1400	473.1454	15.77151	0.1455	3.01098	63.67604	2.122535	0.1366	0.43162	510.7763	17.02588	0.1367	3.4597	15478.06	515.9352	6.7074	2.136675	10711.82	357.0606	0.1367	72.5556
1500	469.8935	15.66312	0.1445	3.01098	63.2565	2.10855	0.1357	0.43162	507.4134	16.91378	0.1358	3.4597	15573.82	519.1274	6.7489	2.136675	12102.49	403.4164	0.1358	82.5185
1600	457.5365	15.25122	0.1407	3.01098	61.71821	2.057274	0.1324	0.43162	493.2148	16.44049	0.132	3.4597	14151.41	471.7137	6.1325	2.136675	13363.67	445.4558	0.132	93.7407
1700	424.6927	14.15642	0.1306	3.01098	57.66271	1.92209	0.1237	0.43162	455.8501	15.195	0.122	3.4597	10632.54	354.418	4.6076	2.136675	12282.96	409.4319	0.122	93.2222
1800	373.6385	12.45462	0.1149	3.01098	52.0223	1.734077	0.1116	0.43162	368.4165	12.28055	0.0986	3.4597	10361.4	345.3798	4.4901	2.136675	9086.972	302.8991	0.0986	85.3333
1900	78.55837	2.618612	0.0993	0.73252	60.41623	2.013874	0.0967	0.5785	216.1215	7.20405	0.0875	2.287	247.4556	8.248519	0.8236	0.2782	6209	206.9667	0.0875	65.7037
2000	82.11842	2.737281	0.1038	0.73252	62.97782	2.099261	0.1008	0.5785	223.5314	7.451046	0.0905	2.287	246.6443	8.221478	0.8209	0.2782	5902.802	196.7601	0.0905	60.3929
2100	76.26412	2.542137	0.0964	0.73252	58.35445	1.945148	0.0934	0.5785	219.5794	7.319315	0.0889	2.287	286.3045	9.543484	0.9529	0.2782	5153.79	171.793	0.0889	53.6786
2200	75.473	2.515767	0.0954	0.73252	57.72967	1.924322	0.0924	0.5785	217.6035	7.253449	0.0881	2.287	277.7415	9.258051	0.9244	0.2782	4689.436	156.3145	0.0881	49.2857
2300	75.86856	2.528952	0.0959	0.73252	58.04206	1.934735	0.0929	0.5785	218.8385	7.294615	0.0886	2.287	302.9197	10.09732	1.0082	0.2782	4435.818	147.8606	0.0886	46.3571
2400	75.473	2.515767	0.0954	0.73252	57.72967	1.924322	0.0924	0.5785	217.6035	7.253449	0.0881	2.287	290.8715	9.695715	0.9681	0.2782	4288.454	142.9485	0.0881	45.0714
	6459.743	8.971865	0.116321	1.966686	1406.29	1.95318	0.111071	0.49894	8419.365	11.69356	0.107633	2.922213	145637	202.2737	3.006192	1.284874	163341.5	226.8632	0.107633	56.90205

SEPTEMBER	1993
START	244
STOP	272
NUMDAYS	29

WHITE FIR

Appendix C (Black Oak)

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	42.68815	1.422938	0.0746	0.52984	9.569912	0.318997	0.0745	0.11894	46.40569	1.546856	0.0837	0.51336	196.2753	6.542511	0.9054	0.200725	3088.533	102.9511	0.0837	34.1667
200	42.5737	1.419123	0.0744	0.52984	9.531376	0.317713	0.0742	0.11894	46.12848	1.537616	0.0832	0.51336	189.36	6.311998	0.8735	0.200725	3034.141	101.138	0.0832	33.7667
300	42.91704	1.430568	0.075	0.52984	9.608449	0.320282	0.0748	0.11894	47.29278	1.576426	0.0853	0.51336	186.9537	6.231789	0.8624	0.200725	3132.216	104.4072	0.0853	34
400	43.08871	1.43629	0.0753	0.52984	9.646986	0.321566	0.0751	0.11894	47.68088	1.589363	0.086	0.51336	195.8418	6.528059	0.9034	0.200725	3130.056	104.3352	0.086	33.7
500	42.28759	1.409586	0.0739	0.52984	9.454303	0.315143	0.0736	0.11894	45.85126	1.528375	0.0827	0.51336	178.846	5.961533	0.825	0.200725	3003.992	100.1331	0.0827	33.6333
600	75.97904	2.532635	0.0734	0.95846	33.68428	1.122809	0.0733	0.4255	201.4057	6.713524	0.0817	2.28258	218.4215	7.280717	0.7425	0.27238	2926.497	97.5499	0.0817	33.1667
700	70.69984	2.356661	0.0683	0.95846	31.20277	1.040092	0.0679	0.4255	190.8054	6.360181	0.0774	2.28258	324.9995	10.83332	1.1048	0.27238	2772.471	92.41569	0.0774	33.1667
800	75.46147	2.515382	0.0729	0.95846	33.3626	1.112087	0.0726	0.4255	189.8194	6.327312	0.077	2.28258	355.2108	11.84036	1.2075	0.27238	2719.332	90.6444	0.077	32.7
900	77.84229	2.594743	0.0752	0.95846	34.4655	1.14885	0.075	0.4255	196.2288	6.540961	0.0796	2.28258	450.4337	15.01446	1.5312	0.27238	2878.449	95.94831	0.0796	33.4828
1000	75.77201	2.525734	0.0732	0.95846	33.54642	1.118214	0.073	0.4255	191.2985	6.376615	0.0776	2.28258	467.7309	15.59103	1.59	0.27238	3109.562	103.6521	0.0776	37.1034
1100	78.6704	2.622347	0.076	0.95846	34.87909	1.162636	0.0759	0.4255	192.7776	6.425919	0.0782	2.28258	489.8231	16.32744	1.6651	0.27238	3384.067	112.8022	0.0782	40.069
1200	78.6704	2.622347	0.076	0.95846	34.87909	1.162636	0.0759	0.4255	192.5311	6.417702	0.0781	2.28258	441.9616	14.73205	1.5024	0.27238	3612.422	120.4141	0.0781	42.8276
1300	79.70553	2.656851	0.077	0.95846	35.29267	1.176422	0.0768	0.4255	200.4197	6.680655	0.0813	2.28258	555.2466	18.50822	1.8875	0.27238	3998.006	133.2669	0.0813	45.5333
1400	78.87742	2.629247	0.0762	0.95846	34.97099	1.1657	0.0761	0.4255	193.2706	6.442354	0.0784	2.28258	498.5012	16.61671	1.6946	0.27238	4030.387	134.3462	0.0784	47.6
1500	78.56688	2.618896	0.0759	0.95846	34.83313	1.161104	0.0758	0.4255	192.5311	6.417702	0.0781	2.28258	478.3799	15.946	1.6262	0.27238	4074.008	135.8003	0.0781	48.3
1600	78.04931	2.601644	0.0754	0.95846	34.60336	1.153445	0.0753	0.4255	191.0519	6.368398	0.0775	2.28258	409.2793	13.64264	1.3913	0.27238	3674.43	122.481	0.0775	43.9
1700	78.15283	2.605094	0.0755	0.95846	34.55741	1.151914	0.0752	0.4255	209.0478	6.96826	0.0848	2.28258	321.9989	10.7333	1.0946	0.27238	3132.173	104.4058	0.0848	34.2
1800	44.11872	1.470624	0.0771	0.52984	9.852514	0.328417	0.0767	0.11894	52.06086	1.735362	0.0939	0.51336	173.253	5.775099	0.7992	0.200725	3654.209	121.807	0.0939	36.0333
1900	43.26038	1.442013	0.0756	0.52984	9.659831	0.321994	0.0752	0.11894	48.17986	1.605995	0.0869	0.51336	168.2886	5.609621	0.7763	0.200725	3391.182	113.0394	0.0869	36.1333
2000	43.48927	1.449642	0.076	0.52984	9.724059	0.324135	0.0757	0.11894	48.73429	1.624476	0.0879	0.51336	185.6963	6.189877	0.8566	0.200725	3309.966	110.3322	0.0879	34.8667
2100	43.08871	1.43629	0.0753	0.52984	9.659831	0.321994	0.0752	0.11894	47.56999	1.585666	0.0858	0.51336	183.7886	6.126288	0.8478	0.200725	3203.089	106.7696	0.0858	34.5667
2200	43.20315	1.440105	0.0755	0.52984	9.672677	0.322423	0.0753	0.11894	47.68088	1.589363	0.086	0.51336	187.4956	6.249854	0.8649	0.200725	3201.267	106.7089	0.086	34.4667
2300	43.3176	1.44392	0.0757	0.52984	9.672677	0.322423	0.0753	0.11894	47.79176	1.593059	0.0862	0.51336	188.1893	6.272977	0.8681	0.200725	3181.314	106.0438	0.0862	34.1724
2400	43.08871	1.43629	0.0753	0.52984	9.63414	0.321138	0.075	0.11894	47.40366	1.580122	0.0855	0.51336	185.9565	6.198549	0.8578	0.200725	3152.294	105.0765	0.0855	34.1379
	1443.569	2.004957	0.074946	0.74415	525.9641	0.730506	0.074725	0.27222	2913.968	4.047178	0.082617	1.39797	7231.932	10.04435	1.136588	0.236553	78794.06	109.4362	0.082617	36.90388

NOVEMBER	1991
START	305
STOP	334
NUMDAYS	30

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	12.63443	0.467942	0.073	0.17806	14.18877	0.52551	0.0729	0.20024	0.713312	0.026419	0.081	0.00906	95.89102	3.551519	0.7853	0.125625	2476.775	91.7324	0.081	31.4583
200	12.79019	0.473711	0.0739	0.17806	14.36394	0.531998	0.0738	0.20024	0.72476	0.026843	0.0823	0.00906	104.4263	3.867642	0.8552	0.125625	2539.86	94.0689	0.0823	31.75
300	12.75558	0.472429	0.0737	0.17806	14.30555	0.529835	0.0735	0.20024	0.72388	0.02681	0.0822	0.00906	98.4797	3.647396	0.8065	0.125625	2553.417	94.571	0.0822	31.9583
400	12.75558	0.472429	0.0737	0.17806	14.28608	0.529114	0.0734	0.20024	0.72388	0.02681	0.0822	0.00906	97.62495	3.615739	0.7995	0.125625	2546.762	94.3245	0.0822	31.875
500	12.82481	0.474993	0.0741	0.17806	14.34447	0.531277	0.0737	0.20024	0.744134	0.027561	0.0845	0.00906	96.8923	3.588604	0.7935	0.125625	2598.72	96.24888	0.0845	31.64
600	28.71555	1.063539	0.0744	0.39708	27.26659	1.009874	0.0742	0.37806	40.77265	1.510098	0.0848	0.49466	147.0099	5.444811	0.8075	0.1873	2582.666	95.6543	0.0848	31.3333
700	26.86294	0.994924	0.0696	0.39708	25.50272	0.944545	0.0694	0.37806	38.32052	1.419278	0.0797	0.49466	150.0684	5.55809	0.8243	0.1873	2469.305	91.45575	0.0797	31.875
800	29.06292	1.076404	0.0753	0.39708	27.56057	1.020762	0.075	0.37806	40.67649	1.506536	0.0846	0.49466	267.8402	9.920007	1.4712	0.1873	2617.69	96.9515	0.0846	31.8333
900	29.44888	1.090699	0.0763	0.39708	27.92805	1.034372	0.076	0.37806	41.20538	1.526125	0.0857	0.49466	290.8702	10.77297	1.5977	0.1873	2668.945	98.84981	0.0857	32.04
1000	29.79625	1.103565	0.0772	0.39708	28.36902	1.050704	0.0772	0.37806	41.73427	1.545714	0.0868	0.49466	311.3333	11.53086	1.7101	0.1873	2807.82	103.9933	0.0868	33.28
1100	29.95063	1.109283	0.0776	0.39708	28.44251	1.053426	0.0774	0.37806	40.82073	1.511879	0.0849	0.49466	337.2762	12.49171	1.8526	0.1873	3069.848	113.6981	0.0849	37.2
1200	30.02782	1.112142	0.0778	0.39708	28.55275	1.057509	0.0777	0.37806	40.86881	1.51366	0.085	0.49466	330.0668	12.2247	1.813	0.1873	3235.399	119.8296	0.085	39.16
1300	29.98923	1.110712	0.0777	0.39708	28.47926	1.054787	0.0775	0.37806	40.77265	1.510098	0.0848	0.49466	318.4152	11.79316	1.749	0.1873	3307.327	122.4936	0.0848	40.125
1400	29.60327	1.096417	0.0767	0.39708	28.14853	1.042538	0.0766	0.37806	39.18598	1.451332	0.0815	0.49466	291.3436	10.7905	1.6003	0.1873	3223.832	119.4012	0.0815	40.6957
1500	29.52607	1.093558	0.0765	0.39708	28.11179	1.041177	0.0765	0.37806	39.08981	1.447771	0.0813	0.49466	267.3669	9.902476	1.4686	0.1873	3113.53	115.3159	0.0813	39.4
1600	30.02782	1.112142	0.0778	0.39708	28.51601	1.056148	0.0776	0.37806	41.92659	1.552837	0.0872	0.49466	283.9703	10.51742	1.5598	0.1873	2854.663	105.7283	0.0872	33.68
1700	29.21731	1.082122	0.0757	0.39708	27.74431	1.027567	0.0755	0.37806	41.3977	1.533248	0.0861	0.49466	231.5383	8.575493	1.2718	0.1873	2370.078	87.78067	0.0861	28.32
1800	12.8075	0.474352	0.074	0.17806	14.36394	0.531998	0.0738	0.20024	0.740612	0.02743	0.0841	0.00906	98.46749	3.646944	0.8064	0.125625	2480.656	91.87616	0.0841	30.3462
1900	12.5825	0.466019	0.0727	0.17806	14.09145	0.521906	0.0724	0.20024	0.708909	0.026256	0.0805	0.00906	90.99451	3.370167	0.7452	0.125625	2488.825	92.17871	0.0805	31.8077
2000	12.63443	0.467942	0.073	0.17806	14.18877	0.52551	0.0729	0.20024	0.712431	0.026386	0.0809	0.00906	92.50864	3.426246	0.7576	0.125625	2531.435	93.75685	0.0809	32.1923
2100	12.5825	0.466019	0.0727	0.17806	14.11091	0.522626	0.0725	0.20024	0.707147	0.026191	0.0803	0.00906	91.29978	3.381473	0.7477	0.125625	2469.553	91.46491	0.0803	31.64
2200	12.42674	0.460249	0.0718	0.17806	13.93574	0.516139	0.0716	0.20024	0.693938	0.025701	0.0788	0.00906	86.12242	3.189719	0.7053	0.125625	2405.039	89.07552	0.0788	31.4
2300	12.5825	0.466019	0.0727	0.17806	14.11091	0.522626	0.0725	0.20024	0.708909	0.026256	0.0805	0.00906	92.53306	3.427151	0.7578	0.125625	2522.651	93.43152	0.0805	32.24
2400	12.77288	0.47307	0.0738	0.17806	14.30555	0.529835	0.0735	0.20024	0.741492	0.027463	0.0842	0.00906	98.29654	3.640613	0.805	0.125625	2645.146	97.96838	0.0842	32.32
	504.3783	0.778362	0.074654	0.28757	505.2182	0.779658	0.074463	0.28915	495.415	0.764529	0.083079	0.25186	4370.636	6.744809	1.128788	0.156463	64579.94	99.66041	0.083079	33.31542

DECEMBER	1991
START	335
STOP	361
NUMDAYS	27

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	9.970986	0.321645	0.0743	0.12025	25.73074	0.830024	0.0741	0.31115	24.14211	0.778778	0.0824	0.262533	59.92897	1.933193	0.8253	0.065067	3538.918	114.1586	0.0824	38.4839
200	10.1186	0.326407	0.0754	0.12025	26.1127	0.842345	0.0752	0.31115	25.05037	0.808077	0.0855	0.262533	64.55453	2.082404	0.889	0.065067	3647.429	117.659	0.0855	38.2258
300	10.14544	0.327272	0.0756	0.12025	26.18215	0.844586	0.0754	0.31115	25.10897	0.809967	0.0857	0.262533	64.83047	2.091305	0.8928	0.065067	3591.174	115.8443	0.0857	37.5484
400	10.19912	0.329004	0.076	0.12025	26.32105	0.849066	0.0758	0.31115	25.31406	0.816583	0.0864	0.262533	66.63131	2.149397	0.9176	0.065067	3626.726	116.9912	0.0864	37.6129
500	10.02467	0.323376	0.0747	0.12025	25.90436	0.835624	0.0746	0.31115	24.31791	0.784449	0.083	0.262533	61.80969	1.993861	0.8512	0.065067	3460.1	111.6161	0.083	37.3548
600	18.55689	0.598609	0.0748	0.2223	33.33578	1.075348	0.0745	0.40095	31.42868	1.013828	0.083	0.3393	103.0048	3.322736	0.8197	0.1126	3355.523	108.2427	0.083	36.2258
700	18.13515	0.585005	0.0731	0.2223	32.66459	1.053697	0.073	0.40095	30.78496	0.993063	0.0813	0.3393	109.5518	3.533928	0.8718	0.1126	3310.213	106.7811	0.0813	36.4839
800	18.73055	0.604211	0.0755	0.2223	33.64901	1.085452	0.0752	0.40095	31.39081	1.012607	0.0829	0.3393	233.3787	7.528346	1.8572	0.1126	3393.261	109.46	0.0829	36.6774
900	18.87941	0.609013	0.0761	0.2223	34.00698	1.096999	0.076	0.40095	31.9588	1.030929	0.0844	0.3393	285.3398	9.20451	2.2707	0.1126	3421.24	110.3626	0.0844	36.3226
1000	19.64847	0.633822	0.0792	0.2223	35.34936	1.140302	0.079	0.40095	34.60941	1.116433	0.0914	0.3393	298.572	9.631354	2.376	0.1126	3689.09	119.0029	0.0914	36.1667
1100	19.74771	0.637023	0.0796	0.2223	35.57309	1.147519	0.0795	0.40095	34.76088	1.121319	0.0918	0.3393	281.4569	9.079253	2.2398	0.1126	3923.789	126.5738	0.0918	38.3
1200	19.74771	0.637023	0.0796	0.2223	35.61783	1.148962	0.0796	0.40095	34.79874	1.12254	0.0919	0.3393	310.3213	10.01037	2.4695	0.1126	4062.715	131.0553	0.0919	39.6129
1300	19.74771	0.637023	0.0796	0.2223	35.52834	1.146075	0.0794	0.40095	34.72301	1.120097	0.0917	0.3393	273.8292	8.8332	2.1791	0.1126	4146.304	133.7517	0.0917	40.5161
1400	19.74771	0.637023	0.0796	0.2223	35.57309	1.147519	0.0795	0.40095	34.72301	1.120097	0.0917	0.3393	282.1731	9.102359	2.2455	0.1126	4215.638	135.9883	0.0917	41.1936
1500	19.69809	0.635422	0.0794	0.2223	35.3941	1.141745	0.0791	0.40095	34.64728	1.117654	0.0915	0.3393	267.5964	8.632141	2.1295	0.1126	4236.087	136.[illegible]8	0.0915	41.4839
1600	19.59886	0.632221	0.079	0.2223	35.25986	1.137415	0.0788	0.40095	34.45795	1.111547	0.091	0.3393	228.4402	7.369039	1.8179	0.1126	4045.859	130.5116	0.091	39.8387
1700	19.12749	0.617016	0.0771	0.2223	34.45444	1.111433	0.077	0.40095	33.01905	1.065131	0.0872	0.3393	165.3832	5.334943	1.3161	0.1126	3575.545	115.3402	0.0872	36.7419
1800	9.944146	0.320779	0.0741	0.12025	25.73074	0.830024	0.0741	0.31115	24.23001	0.781613	0.0827	0.262533	57.87397	1.866902	0.797	0.065067	3420.801	110.3484	0.0827	37.0645
1900	9.970986	0.321645	0.0743	0.12025	25.69601	0.828904	0.074	0.31115	24.11282	0.777833	0.0823	0.262533	57.27853	1.847695	0.7888	0.065067	3504.993	113.0643	0.0823	38.1613
2000	9.970986	0.321645	0.0743	0.12025	25.76546	0.831144	0.0742	0.31115	24.11282	0.777833	0.0823	0.262533	58.46215	1.885876	0.8051	0.065067	3546.471	114.4023	0.0823	38.6129
2100	9.944146	0.320779	0.0741	0.12025	25.66129	0.827783	0.0739	0.31115	24.05422	0.775943	0.0821	0.262533	57.9829	1.870416	0.7985	0.065067	3596.968	116.0312	0.0821	39.2581
2200	10.02467	0.323376	0.0747	0.12025	25.90436	0.835624	0.0746	0.31115	24.34721	0.785394	0.0831	0.262533	60.16134	1.940688	0.8285	0.065067	3631.803	117.1549	0.0831	39.1613
2300	10.02467	0.323376	0.0747	0.12025	25.86963	0.834504	0.0745	0.31115	24.31791	0.784449	0.083	0.262533	62.14372	2.004636	0.8558	0.065067	3630.425	117.1105	0.083	39.1936
2400	9.997826	0.322511	0.0745	0.12025	25.80018	0.832264	0.0743	0.31115	24.28861	0.783503	0.0829	0.262533	60.48811	1.951229	0.833	0.065067	3617.095	116.6805	0.0829	39.0968
	351.702	0.472718	0.076221	0.171275	727.0851	0.977265	0.076054	0.35605	694.6996	0.933736	0.085883	0.300917	3571.193	4.799991	1.361475	0.088834	88188.17	118.5325	0.085883	38.30574

JANUARY	1992
START	1
STOP	31
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	12.66623	0.436767	0.0751	0.16155	2.21779	0.076476	0.0748	0.0284	4.701453	0.162119	0.0859	0.052425	79.4379	2.739238	0.8751	0.08695	3296.497	113.6723	0.0859	36.7586
200	12.93608	0.446072	0.0767	0.16155	2.268194	0.078214	0.0765	0.0284	4.997004	0.17231	0.0913	0.052425	85.19309	2.937693	0.9385	0.08695	3539.881	122.0648	0.0913	37.1379
300	12.95295	0.446653	0.0768	0.16155	2.271159	0.078316	0.0766	0.0284	5.013424	0.172877	0.0916	0.052425	85.48357	2.947709	0.9417	0.08695	3567.999	123.0344	0.0916	37.3103
400	12.81802	0.442001	0.076	0.16155	2.244475	0.077396	0.0757	0.0284	4.865648	0.167781	0.0889	0.052425	78.80247	2.717327	0.8681	0.08695	3478.839	119.96	0.0889	37.4828
500	12.76743	0.440256	0.0757	0.16155	2.238545	0.077191	0.0755	0.0284	4.849229	0.167215	0.0886	0.052425	78.31228	2.700424	0.8627	0.08695	3479.855	119.995	0.0886	37.6207
600	25.73326	0.887354	0.0763	0.32305	4.532526	0.156294	0.076	0.057125	66.26308	2.284934	0.0891	0.71235	197.2682	6.802351	0.8807	0.21455	3518.738	121.3358	0.0891	37.8276
700	23.94576	0.825716	0.071	0.32305	4.22837	0.145806	0.0709	0.057125	62.24714	2.146453	0.0837	0.71235	226.1181	7.797176	1.0095	0.21455	3332.596	114.9171	0.0837	38.1379
800	26.34033	0.908287	0.0781	0.32305	4.651803	0.160407	0.078	0.057125	68.19668	2.35161	0.0917	0.71235	426.6565	14.71229	1.9048	0.21455	3631.317	125.2178	0.0917	37.931
900	27.55449	0.950155	0.0817	0.32305	4.866502	0.16781	0.0816	0.057125	76.07983	2.623443	0.1023	0.71235	534.8214	18.44212	2.3877	0.21455	4124.737	142.2323	0.1023	38.6207
1000	28.63373	0.98737	0.0849	0.32305	5.057345	0.174391	0.0848	0.057125	83.73988	2.887582	0.1126	0.71235	658.4416	22.70488	2.9396	0.21455	4767.031	164.3804	0.1126	40.5517
1100	28.22901	0.973414	0.0837	0.32305	4.985779	0.171923	0.0836	0.057125	79.7983	2.751666	0.1073	0.71235	678.6679	23.40234	3.0299	0.21455	4721.481	162.8097	0.1073	42.1481
1200	27.92548	0.962947	0.0828	0.32305	4.932104	0.170073	0.0827	0.057125	77.41848	2.669603	0.1041	0.71235	599.7114	20.6797	2.6774	0.21455	4684.897	161.5482	0.1041	43.1071
1300	27.52076	0.948992	0.0816	0.32305	4.854574	0.167399	0.0814	0.057125	73.70002	2.54138	0.0991	0.71235	644.2182	22.21442	2.8761	0.21455	4585.51	158.121	0.0991	44.3214
1400	27.21722	0.938525	0.0807	0.32305	4.812827	0.16596	0.0807	0.057125	71.54331	2.467011	0.0962	0.71235	659.4271	22.73887	2.944	0.21455	4591.215	158.3178	0.0962	45.7143
1500	26.91368	0.928058	0.0798	0.32305	4.759152	0.164109	0.0798	0.057125	69.01475	2.379819	0.0928	0.71235	551.5983	19.02063	2.4626	0.21455	4484.307	154.6313	0.0928	46.2857
1600	27.11604	0.935036	0.0804	0.32305	4.788972	0.165137	0.0803	0.057125	71.09709	2.451624	0.0956	0.71235	642.4039	22.15186	2.868	0.21455	4719.415	162.7385	0.0956	47.2857
1700	26.64387	0.918754	0.079	0.32305	4.699514	0.162052	0.0788	0.057125	68.19668	2.35161	0.0917	0.71235	517.4398	17.84275	2.3101	0.21455	4256.781	146.7855	0.0917	44.4643
1800	12.98668	0.447817	0.077	0.16155	2.277089	0.07852	0.0768	0.0284	4.997004	0.17231	0.0913	0.052425	96.20419	3.317386	1.0598	0.08695	3598.224	124.0767	0.0913	37.75
1900	12.81802	0.442001	0.076	0.16155	2.24744	0.077498	0.0758	0.0284	4.914907	0.16948	0.0898	0.052425	71.62211	2.469728	0.789	0.08695	3465.447	119.4982	0.0898	36.9643
2000	12.86862	0.443746	0.0763	0.16155	2.25337	0.077702	0.076	0.0284	4.914907	0.16948	0.0898	0.052425	72.29385	2.492891	0.7964	0.08695	3425.266	118.1126	0.0898	36.5357
2100	12.86862	0.443746	0.0763	0.16155	2.256335	0.077805	0.0761	0.0284	4.942273	0.170423	0.0903	0.052425	75.77056	2.612778	0.8347	0.08695	3410.672	117.6094	0.0903	36.1786
2200	12.73369	0.439093	0.0755	0.16155	2.22965	0.076884	0.0752	0.0284	4.794497	0.165327	0.0876	0.052425	72.74773	2.508542	0.8014	0.08695	3360.949	115.8948	0.0876	36.75
2300	12.76743	0.440256	0.0757	0.16155	2.23558	0.077089	0.0754	0.0284	4.810916	0.165894	0.0879	0.052425	76.01565	2.621229	0.8374	0.08695	3392.125	116.9698	0.0879	36.9643
2400	12.6325	0.435603	0.0749	0.16155	2.21186	0.076271	0.0746	0.0284	4.690507	0.161742	0.0857	0.052425	78.51199	2.70731	0.8649	0.08695	3236.928	111.6182	0.0857	36.1786
	477.5899	0.686192	0.078	0.2423	84.12095	0.120863	0.077817	0.042763	925.787	1.330154	0.093121	0.382388	7287.168	10.47007	1.615004	0.15075	92670.71	133.1476	0.093121	39.58447

FEBRUARY	1992
START	32
STOP	60
NUMDAYS	29

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^^h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	165.1675	5.327985	0.0835	1.77245	37.73574	1.217282	0.0831	0.4069	198.0614	6.389078	0.0787	2.255075	430.4425	13.88524	1.0705	0.3603	3920.107	126.4551	0.0787	44.6333
200	162.7939	5.251415	0.0823	1.77245	37.19082	1.199704	0.0819	0.4069	195.7964	6.316014	0.0778	2.255075	406.5983	13.11607	1.0112	0.3603	3837.656	123.7954	0.0778	44.2
300	164.7719	5.315223	0.0833	1.77245	37.59951	1.212888	0.0828	0.4069	197.3064	6.364724	0.0784	2.255075	426.8236	13.7685	1.0615	0.3603	3779.758	121.9277	0.0784	43.2
400	163.5851	5.276938	0.0827	1.77245	37.41787	1.207028	0.0824	0.4069	196.5514	6.340369	0.0781	2.255075	430.2414	13.87876	1.07	0.3603	3744.96	120.8052	0.0781	42.9667
500	162.3982	5.238653	0.0821	1.77245	37.14541	1.198239	0.0818	0.4069	195.7964	6.316014	0.0778	2.255075	461.9667	14.90215	1.1489	0.3603	3713.21	119.781	0.0778	42.7667
600	351.0899	11.32548	0.0835	3.767625	61.81715	1.994101	0.0829	0.668175	214.7168	6.926349	0.079	2.435425	2674.5	86.27419	2.0269	1.18235	3873.529	124.9526	0.079	43.9355
700	419.2055	13.52276	0.0997	3.767625	72.10758	2.326051	0.0967	0.668175	257.1166	8.294083	0.0946	2.435425	3522.94	113.6432	2.6699	1.18235	4938.121	159.2942	0.0946	46.7742
800	506.6627	16.34396	0.1205	3.767625	85.38074	2.754217	0.1145	0.668175	313.106	10.10019	0.1152	2.435425	4705.082	151.7769	3.5658	1.18235	6772.375	218.4637	0.1152	52.6774
900	449.4792	14.49933	0.1069	3.767625	76.43254	2.465566	0.1025	0.668175	278.5883	8.986718	0.1025	2.435425	5332.638	172.0206	4.0414	1.18235	6335.73	204.3784	0.1025	55.3871
1000	515.072	16.61523	0.1225	3.767625	86.35013	2.785488	0.1158	0.668175	320.988	10.35445	0.1181	2.435425	6303.528	203.3396	4.7772	1.18235	7448.799	240.2839	0.1181	56.5161
1100	515.9129	16.64235	0.1227	3.767625	86.12642	2.778272	0.1155	0.668175	324.5214	10.46843	0.1194	2.435425	7659.581	247.0832	5.8049	1.18235	8061.649	260.0532	0.1194	60.5
1200	516.7539	16.66948	0.1229	3.767625	86.20099	2.780677	0.1156	0.668175	324.5214	10.46843	0.1194	2.435425	7780.975	250.9992	5.8969	1.18235	8785.332	283.3978	0.1194	65.931
1300	515.4925	16.62879	0.1226	3.767625	86.05185	2.775866	0.1154	0.668175	323.9778	10.4509	0.1192	2.435425	7610.891	245.5126	5.768	1.18235	9853.192	317.8449	0.1192	74.069
1400	512.1287	16.52028	0.1218	3.767625	85.52987	2.759028	0.1147	0.668175	322.0752	10.38952	0.1185	2.435425	7826.894	252.4804	5.9317	1.18235	10853.3	350.1064	0.1185	82.069
1500	504.5603	16.27614	0.12	3.767625	84.48592	2.725352	0.1133	0.668175	316.6393	10.21417	0.1165	2.435425	8010.568	258.4054	6.0709	1.18235	11822.3	381.3646	0.1165	90.931
1600	495.3101	15.97774	0.1178	3.767625	83.44196	2.691676	0.1119	0.668175	308.4855	9.951147	0.1135	2.435425	7290.12	235.1652	5.5249	1.18235	12378.32	399.3007	0.1135	97.7241
1700	486.4803	15.69291	0.1157	3.767625	82.91998	2.674838	0.1112	0.668175	296.7984	9.574143	0.1092	2.435425	6186.884	199.5769	4.6888	1.18235	12700.3	409.6873	0.1092	104.2143
1800	207.1023	6.680719	0.1047	1.77245	46.22742	1.491207	0.1018	0.4069	246.633	7.955905	0.098	2.255075	1632.585	52.66404	4.0602	0.3603	11175.07	360.4861	0.098	102.1786
1900	200.7725	6.476532	0.1015	1.77245	45.86414	1.479488	0.101	0.4069	232.5397	7.501281	0.0924	2.255075	1314.086	42.38987	3.2681	0.3603	9305.549	300.179	0.0924	90.2414
2000	213.2342	6.878524	0.1078	1.77245	48.63415	1.568844	0.1071	0.4069	242.6064	7.826012	0.0964	2.255075	344.0725	11.09911	0.8557	0.3603	6609.142	213.1981	0.0964	61.4333
2100	207.8935	6.706242	0.1051	1.77245	47.45349	1.530758	0.1045	0.4069	237.8247	7.671765	0.0945	2.255075	406.6787	13.11867	1.0114	0.3603	5487.536	177.0173	0.0945	52.0333
2200	191.8713	6.189395	0.097	1.77245	43.77528	1.412106	0.0964	0.4069	222.9764	7.192787	0.0886	2.255075	396.8676	12.80218	0.987	0.3603	4785.676	154.3766	0.0886	48.4
2300	180.7942	5.832069	0.0914	1.77245	41.32314	1.333004	0.091	0.4069	212.6581	6.859938	0.0845	2.255075	413.2328	13.33009	1.0277	0.3603	4391.333	141.6559	0.0845	46.5667
2400	175.4534	5.659787	0.0887	1.77245	40.09707	1.293454	0.0883	0.4069	207.6248	6.697573	0.0825	2.255075	419.0632	13.51817	1.0422	0.3603	4342.638	140.0851	0.0825	47.1667
	7983.986	10.73116	0.103613	2.770038	1477.309	1.985631	0.100504	0.537538	6187.91	8.317083	0.098033	2.34525	81987.26	110.1979	3.099238	0.771325	168915.6	227.0371	0.098033	62.35481

MAY	1992
START	122
STOP	152
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	230.0504	7.668346	0.08	2.66262	44.32818	1.477606	0.0792	0.51824	287.1884	9.572945	0.0762	3.4897	295.1148	9.837161	0.9657	0.28296	4496.102	149.8701	0.0762	54.6333
200	239.5399	7.984665	0.0833	2.66262	46.23115	1.541038	0.0826	0.51824	296.6105	9.887018	0.0787	3.4897	299.3015	9.976717	0.9794	0.28296	4305.489	143.5163	0.0787	50.6552
300	238.1021	7.936738	0.0828	2.66262	45.89533	1.529844	0.082	0.51824	294.7261	9.824203	0.0782	3.4897	279.0404	9.301348	0.9131	0.28296	4170.378	139.0126	0.0782	49.3793
400	238.9648	7.965494	0.0831	2.66262	46.17518	1.539173	0.0825	0.51824	296.2337	9.874455	0.0786	3.4897	289.3696	9.645654	0.9469	0.28296	4138.29	137.943	0.0786	48.75
500	240.1151	8.003836	0.0835	2.66262	46.56697	1.552232	0.0832	0.51824	297.3643	9.912144	0.0789	3.4897	349.6027	11.65342	1.144	0.28296	4148.001	138.2667	0.0789	48.6786
600	409.1456	13.63819	0.0855	4.43086	69.90358	2.330119	0.0843	0.7678	382.3434	12.74478	0.0814	4.34916	5907.227	196.9076	2.6215	2.08646	4398.633	146.6211	0.0814	50.0345
700	510.1161	17.00387	0.1066	4.43086	84.66377	2.822126	0.1021	0.7678	480.5126	16.01709	0.1023	4.34916	6514.512	217.1504	2.891	2.08646	5969.948	198.9983	0.1023	54.0345
800	592.9022	19.76341	0.1239	4.43086	96.43875	3.214625	0.1163	0.7678	566.9391	18.89797	0.1207	4.34916	7572.022	252.4007	3.3603	2.08646	7583.121	252.[illegible]707	0.1207	58.1724
900	542.6563	18.08854	0.1134	4.43086	89.05866	2.968622	0.1074	0.7678	517.6196	17.25399	0.1102	4.34916	8580.183	286.0061	3.8077	2.08646	7042.462	234.7487	0.1102	59.1724
1000	590.9881	19.6996	0.1235	4.43086	96.27291	3.209097	0.1161	0.7678	564.5906	18.81969	0.1202	4.34916	10909.27	363.6424	4.8413	2.08646	7905.353	263.5118	0.1202	60.8966
1100	609.1724	20.30575	0.1273	4.43086	99.00935	3.300312	0.1194	0.7678	581.5001	19.38334	0.1238	4.34916	12500.83	416.6944	5.5476	2.08646	8838.289	294.6096	0.1238	66.1034
1200	611.0865	20.36955	0.1277	4.43086	99.34104	3.311368	0.1198	0.7678	584.3183	19.47728	0.1244	4.34916	12916.36	430.5452	5.732	2.08646	10099.56	336.6521	0.1244	75.1724
1300	615.3933	20.51311	0.1286	4.43086	99.92149	3.330716	0.1205	0.7678	587.6063	19.58688	0.1251	4.34916	13791.57	459.7189	6.1204	2.08646	11633.26	387.7753	0.1251	86.1034
1400	619.7001	20.65667	0.1295	4.43086	100.5019	3.350065	0.1212	0.7678	591.8337	19.72779	0.126	4.34916	14525.27	484.1756	6.446	2.08646	12918.21	430.607	0.126	94.931
1500	611.565	20.3855	0.1278	4.43086	99.42396	3.314132	0.1199	0.7678	583.8486	19.46162	0.1243	4.34916	14434.68	481.156	6.4058	2.08646	13961.38	465.3792	0.1243	104
1600	590.031	19.6677	0.1233	4.43086	96.18998	3.206333	0.116	0.7678	563.1814	18.77271	0.1199	4.34916	13218.76	440.6253	5.8662	2.08646	14449.52	481.6507	0.1199	111.5862
1700	557.4908	18.58303	0.1165	4.43086	91.38048	3.046016	0.1102	0.7678	531.2412	17.70804	0.1131	4.34916	12226.37	407.5457	5.4258	2.08646	14118.62	470.6208	0.1131	115.5862
1800	299.9282	9.997606	0.1043	2.66262	55.91395	1.863798	0.0999	0.51824	381.4103	12.71368	0.1012	3.4897	1367.943	45.5981	4.4763	0.28296	12656.48	421.8826	0.1012	115.8
1900	270.5967	9.019892	0.0941	2.66262	51.71621	1.723874	0.0924	0.51824	333.1686	11.10562	0.0884	3.4897	1572.601	52.42004	5.146	0.28296	10129.58	337.6526	0.0884	106.1
2000	279.2236	9.307454	0.0971	2.66262	53.84306	1.794769	0.0962	0.51824	334.6762	11.15587	0.0888	3.4897	259.2072	8.64024	0.8482	0.28296	7883.309	262.777	0.0888	82.2
2100	278.3609	9.278698	0.0968	2.66262	53.61918	1.787306	0.0958	0.51824	332.4149	11.0805	0.0882	3.4897	240.3519	8.011729	0.7865	0.28296	6591.715	219.7238	0.0882	69.2
2200	273.1848	9.10616	0.095	2.66262	52.66769	1.75559	0.0941	0.51824	328.2691	10.9423	0.0871	3.4897	274.976	9.165867	0.8998	0.28296	5844.755	194.8252	0.0871	62.1333
2300	254.4932	8.483107	0.0885	2.66262	49.14159	1.638053	0.0878	0.51824	310.9323	10.36441	0.0825	3.4897	283.4105	9.447016	0.9274	0.28296	5167.8	172.26	0.0825	58
2400	247.3041	8.243472	0.086	2.66262	47.74234	1.591411	0.0853	0.51824	304.1483	10.13828	0.0807	3.4897	297.3762	9.912542	0.9731	0.28296	4912.696	163.7565	0.0807	56.3667
	9950.111	13.8196	0.104504	3.54674	1715.947	2.383259	0.100592	0.64302	10332.68	14.35094	0.099954	3.91943	138905.3	192.9241	3.253	1.18471	193362.9	268.5597	0.099954	72.40373

JUNE	1992
START	153
STOP	182
NUMDAYS	30

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	186.7513	6.024235	0.0951	1.75962	43.34812	1.398326	0.0937	0.41454	323.2754	10.42824	0.0874	3.31434	372.389	12.01255	0.6656	0.501325	3791.415	122.3037	0.0874	38.871
200	191.2679	6.169932	0.0974	1.75962	44.36589	1.431158	0.0959	0.41454	328.8236	10.60721	0.0889	3.31434	372.6128	12.01977	0.666	0.501325	3738.065	120.5828	0.0889	37.6774
300	195.1954	6.296624	0.0994	1.75962	45.33741	1.462497	0.098	0.41454	334.7417	10.79812	0.0905	3.31434	417.4271	13.46539	0.7461	0.501325	3626.151	116.9726	0.0905	35.9032
400	195.7845	6.315628	0.0997	1.75962	45.42994	1.465482	0.0982	0.41454	336.2212	10.84585	0.0909	3.31434	439.1348	14.16564	0.7849	0.501325	3514.562	113.373	0.0909	34.6452
500	193.428	6.239613	0.0985	1.75962	44.96731	1.450558	0.0972	0.41454	334.002	10.77426	0.0903	3.31434	459.8915	14.83521	0.822	0.501325	3364.578	108.5348	0.0903	33.3871
600	510.9868	16.48344	0.1041	4.3984	65.35245	2.108143	0.1027	0.5702	292.0608	9.421316	0.0944	2.77228	4292.844	138.4788	1.7627	2.18224	3612.497	116.5322	0.0944	34.2903
700	623.8849	20.12532	0.1271	4.3984	78.14294	2.52074	0.1228	0.5702	359.8164	11.60698	0.1163	2.77228	5122.334	165.2366	2.1033	2.18224	4685.033	151.1301	0.1163	36.0968
800	693.0964	22.35795	0.1412	4.3984	84.95182	2.740381	0.1335	0.5702	412.4121	13.30362	0.1333	2.77228	6943.268	223.9764	2.851	2.18224	5912.116	190.7134	0.1333	39.7419
900	627.3209	20.23616	0.1278	4.3984	77.63387	2.504318	0.122	0.5702	372.5013	12.01617	0.1204	2.77228	8803.898	283.9967	3.615	2.18224	5673.729	183.0235	0.1204	42.2258
1000	688.5786	22.21544	0.1403	4.3984	83.9973	2.70959	0.132	0.5702	414.5778	13.37348	0.134	2.77228	10381.78	334.8962	4.2629	2.18224	6671.592	215.2126	0.134	44.6129
1100	712.7308	22.99132	0.1452	4.3984	86.79721	2.79991	0.1364	0.5702	428.8096	13.83257	0.1386	2.77228	12686.38	409.2381	5.2092	2.18224	7529.303	242.8808	0.1386	48.6774
1200	718.5211	23.18133	0.1464	4.3984	87.36992	2.818385	0.1373	0.5702	432.5223	13.95233	0.1398	2.77228	12752.87	411.3828	5.2365	2.18224	9043.935	291.7398	0.1398	57.9677
1300	719.6029	23.213	0.1466	4.3984	87.49719	2.82249	0.1375	0.5702	433.4504	13.98227	0.1401	2.77228	13564.34	437.5592	5.5697	2.18224	10379.73	334.83	0.1401	66.3871
1400	684.7517	22.08876	0.1395	4.3984	82.97915	2.676747	0.1304	0.5702	418.2905	13.49324	0.1352	2.77228	13483.24	434.9431	5.5364	2.18224	11394.11	367.552	0.1352	75.5161
1500	704.877	22.73797	0.1436	4.3984	85.8427	2.769119	0.1349	0.5702	424.7876	13.70283	0.1373	2.77228	13180.28	425.1702	5.412	2.18224	12960.01	418.065	0.1373	84.5806
1600	692.1146	22.32628	0.141	4.3984	84.50638	2.726012	0.1328	0.5702	416.7435	13.44334	0.1347	2.77228	12440.89	401.3192	5.1084	2.18224	14392.42	464.2716	0.1347	95.7419
1700	661.1904	21.32872	0.1347	4.3984	80.94286	2.61106	0.1272	0.5702	396.9428	12.80461	0.1283	2.77228	12326.68	397.6347	5.0615	2.18224	14817.11	477.9714	0.1283	103.4839
1800	232.5063	7.500204	0.1184	1.75962	52.09176	1.680379	0.1126	0.41454	417.9648	13.48274	0.113	3.31434	2272.211	73.29712	4.0613	0.501325	14221.73	458.7654	0.113	112.7742
1900	184.1984	5.941885	0.0938	1.75962	42.42286	1.368479	0.0917	0.41454	329.5634	10.63108	0.0891	3.31434	2039.971	65.80552	3.6462	0.501325	10328.48	333.1766	0.0891	103.871
2000	170.845	5.51113	0.087	1.75962	39.41579	1.271477	0.0852	0.41454	303.6718	9.795863	0.0821	3.31434	427.7774	13.79927	0.7646	0.501325	6478.677	208.9896	0.0821	70.7097
2100	166.9176	5.384437	0.085	1.75962	38.5368	1.243123	0.0833	0.41454	297.3838	9.593026	0.0804	3.31434	388.9496	12.54676	0.6952	0.501325	5070.986	163.5802	0.0804	56.5161
2200	168.2922	5.42878	0.0857	1.75962	38.86064	1.253569	0.084	0.41454	298.8633	9.640752	0.0808	3.31434	412.7834	13.31559	0.7378	0.501325	4485.366	144.6892	0.0808	49.7419
2300	172.416	5.561807	0.0878	1.75962	39.92468	1.287893	0.0863	0.41454	303.6718	9.795863	0.0821	3.31434	384.8654	12.41501	0.6879	0.501325	4179.218	134.8135	0.0821	45.6129
2400	182.8238	5.897542	0.0931	1.75962	42.3766	1.366987	0.0916	0.41454	317.7272	10.24927	0.0859	3.31434	396.2228	12.78138	0.7082	0.501325	3989.196	128.6837	0.0859	41.6129
	10278.28	13.8149	0.115767	3.07901	1503.092	2.020284	0.111133	0.49237	8728.825	11.73229	0.108908	3.04331	134363	180.5955	2.779767	1.341783	173860	233.6828	0.108908	57.94354

JULY	1992
START	183
STOP	213
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	126.9109	4.093901	0.0881	1.2908	104.787	3.380227	0.0864	1.08675	386.7256	12.47502	0.0828	4.185125	339.6949	10.9579	0.8686	0.350433	4036.001	130.1936	0.0828	43.6774
200	118.2677	3.815088	0.0821	1.2908	97.63145	3.149402	0.0805	1.08675	366.6421	11.82716	0.0785	4.185125	328.549	10.59836	0.8401	0.350433	3662.491	118.1449	0.0785	41.8064
300	119.8523	3.866204	0.0832	1.2908	98.84426	3.188525	0.0815	1.08675	370.8456	11.96276	0.0794	4.185125	345.2483	11.13704	0.8828	0.350433	3527.261	113.7826	0.0794	39.8064
400	119.9964	3.870851	0.0833	1.2908	98.96554	3.192437	0.0816	1.08675	371.3127	11.97783	0.0795	4.185125	354.9862	11.45117	0.9077	0.350433	3454.435	111.4334	0.0795	38.9355
500	119.7083	3.861557	0.0831	1.2908	98.96554	3.192437	0.0816	1.08675	371.3127	11.97783	0.0795	4.185125	357.0981	11.51929	0.9131	0.350433	3400.058	109.6793	0.0795	38.3226
600	243.6103	7.858397	0.0799	2.732025	90.22544	2.910498	0.0781	1.035175	274.6532	8.85978	0.0769	3.200325	3220.891	103.8997	1.6509	1.7482	3241.797	104.5741	0.0769	37.7742
700	299.7108	9.66809	0.0983	2.732025	108.3629	3.495579	0.0938	1.035175	341.0842	11.00272	0.0955	3.200325	2569.065	82.87307	1.3168	1.7482	4125.602	133.0839	0.0955	38.7097
800	384.4713	12.4023	0.1261	2.732025	136.0891	4.38997	0.1178	1.035175	439.6594	14.18256	0.1231	3.200325	4669.112	150.6165	2.3932	1.7482	5982.662	192.9891	0.1231	43.5484
900	468.0123	15.09717	0.1535	2.732025	165.086	5.325354	0.1429	1.035175	536.4487	17.3048	0.1502	3.200325	6542.844	211.0595	3.3536	1.7482	8332.499	268.7903	0.1502	49.7097
1000	412.5216	13.30715	0.1353	2.732025	145.6777	4.69928	0.1261	1.035175	471.4463	15.20794	0.132	3.200325	8936.905	288.2873	4.5807	1.7482	7736.252	249.5565	0.132	52.5161
1100	440.5718	14.21199	0.1445	2.732025	156.075	5.034677	0.1351	1.035175	497.8758	16.06051	0.1394	3.200325	9766.077	315.0347	5.0057	1.7482	9002.346	290.3982	0.1394	57.8667
1200	446.6697	14.4087	0.1465	2.732025	158.0389	5.09803	0.1368	1.035175	503.9475	16.25637	0.1411	3.200325	11176.84	360.5432	5.7288	1.7482	10262.54	331.0497	0.1411	65.1724
1300	442.0963	14.26117	0.145	2.732025	156.5371	5.049584	0.1355	1.035175	499.3045	16.1066	0.1398	3.200325	11246.49	362.79	5.7645	1.7482	10754.02	346.9039	0.1398	68.9286
1400	460.6948	14.86112	0.1511	2.732025	163.8152	5.284361	0.1418	1.035175	512.5192	16.53288	0.1435	3.200325	11290.97	364.2249	5.7873	1.7482	11707.81	377.6713	0.1435	73.1071
1500	451.8529	14.5759	0.1482	2.732025	160.696	5.183742	0.1391	1.035175	503.9475	16.25637	0.1411	3.200325	10411.27	335.8474	5.3364	1.7482	13012.07	419.7441	0.1411	82.6333
1600	433.2544	13.97595	0.1421	2.732025	153.5334	4.952691	0.1329	1.035175	487.8755	15.73792	0.1366	3.200325	10206.42	329.2392	5.2314	1.7482	13847.14	446.6818	0.1366	90.8333
1700	399.4111	12.88423	0.131	2.732025	141.9809	4.580028	0.1229	1.035175	452.8742	14.60884	0.1268	3.200325	8500.078	274.1961	4.3568	1.7482	14410.31	464.8486	0.1268	101.8333
1800	160.9075	5.190565	0.1117	1.2908	128.3156	4.139213	0.1058	1.08675	506.293	16.33203	0.1084	4.185125	1443.723	46.5717	3.6916	0.350433	12842.8	414.2839	0.1084	106.1613
1900	122.0131	3.935907	0.0847	1.2908	101.3912	3.270683	0.0836	1.08675	377.8515	12.18876	0.0809	4.185125	1295.737	41.79797	3.3132	0.350433	8364.416	269.8199	0.0809	92.6452
2000	124.318	4.010257	0.0863	1.2908	101.9976	3.290244	0.0841	1.08675	382.5221	12.33942	0.0819	4.185125	294.251	9.491968	0.7524	0.350433	6112.036	197.1625	0.0819	66.871
2100	123.1656	3.973082	0.0855	1.2908	101.2699	3.266771	0.0835	1.08675	379.2527	12.23396	0.0812	4.185125	304.0672	9.80862	0.7775	0.350433	5308.527	171.2428	0.0812	58.5806
2200	126.3347	4.075314	0.0877	1.2908	104.1806	3.360666	0.0859	1.08675	385.7915	12.44489	0.0826	4.185125	292.0218	9.42006	0.7467	0.350433	4945.1	159.5194	0.0826	53.6452
2300	118.988	3.838323	0.0826	1.2908	97.87401	3.157226	0.0807	1.08675	368.9774	11.9025	0.079	4.185125	311.5369	10.04958	0.7966	0.350433	4484.991	144.6771	0.079	50.871
2400	122.4453	3.949848	0.085	1.2908	100.906	3.255034	0.0832	1.08675	376.4503	12.14356	0.0806	4.185125	304.0672	9.80862	0.7775	0.350433	4332.09	139.7448	0.0806	48.1613
	6385.785	8.583045	0.1102	2.011413	2971.246	3.993611	0.10505	1.060963	10165.61	13.66346	0.105846	3.692725	104507.9	140.4677	2.740579	1.049317	176885.2	237.749	0.105846	60.0882

AUGUST	1992
START	214
STOP	244
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	149.2307	4.974356	0.0818	1.6892	58.16146	1.938715	0.0808	0.6665	345.3773	11.51258	0.0778	4.11046	261.6947	8.723158	0.7962	0.304333	4268.419	142.2806	0.0778	50.8
200	148.8658	4.962194	0.0816	1.6892	57.87353	1.929118	0.0804	0.6665	343.6016	11.45339	0.0774	4.11046	241.7767	8.059225	0.7356	0.304333	3978.979	132.6326	0.0774	47.6
300	150.1429	5.004762	0.0823	1.6892	58.44938	1.948313	0.0812	0.6665	345.3773	11.51258	0.0778	4.11046	263.1081	8.770268	0.8005	0.304333	3761.477	125.3826	0.0778	44.7667
400	151.9672	5.065573	0.0833	1.6892	59.1692	1.972307	0.0822	0.6665	349.8166	11.66055	0.0788	4.11046	298.9013	9.963375	0.9094	0.304333	3690.68	123.0227	0.0788	43.3667
500	152.3321	5.077735	0.0835	1.6892	59.24119	1.974706	0.0823	0.6665	350.2605	11.67535	0.0789	4.11046	297.3565	9.911882	0.9047	0.304333	3581.742	119.3914	0.0789	42.0333
600	302.3628	10.07876	0.0777	3.60316	101.9455	3.398182	0.0774	1.21956	261.8276	8.727588	0.0738	3.285	2126.292	70.87639	0.9392	2.09624	3315.686	110.5229	0.0738	41.6
700	331.9375	11.06458	0.0853	3.60316	109.4531	3.648436	0.0831	1.21956	289.8553	9.661842	0.0817	3.285	2884.485	96.1495	1.2741	2.09624	3670.618	122.3539	0.0817	41.6
800	455.2953	15.17651	0.117	3.60316	145.0154	4.833848	0.1101	1.21956	403.7396	13.45799	0.1138	3.285	5235.586	174.5195	2.3126	2.09624	5305.36	176.8453	0.1138	43.1667
900	598.4993	19.94998	0.1538	3.60316	186.6366	6.221219	0.1417	1.21956	534.2987	17.80996	0.1506	3.285	6993.082	233.1027	3.0889	2.09624	7617.343	253.9114	0.1506	46.8333
1000	512.1099	17.07033	0.1316	3.60316	161.7429	5.391431	0.1228	1.21956	455.1827	15.17276	0.1283	3.285	10072.27	335.7422	4.449	2.09624	6955.913	231.8638	0.1283	50.2
1100	549.0783	18.30261	0.1411	3.60316	172.6751	5.755835	0.1311	1.21956	488.8868	16.29623	0.1378	3.285	12453.93	415.131	5.501	2.09624	8155.555	271.8518	0.1378	54.8
1200	561.92	18.73067	0.1444	3.60316	176.363	5.878767	0.1339	1.21956	500.2398	16.67466	0.141	3.285	13075.38	435.846	5.7755	2.09624	9674.851	322.495	0.141	63.5333
1300	568.5354	18.95118	0.1461	3.60316	178.4704	5.949014	0.1355	1.21956	506.2711	16.8757	0.1427	3.285	14235.65	474.5217	6.288	2.09624	11024.43	367.4809	0.1427	71.5333
1400	557.6395	18.58798	0.1433	3.60316	175.3093	5.843644	0.1331	1.21956	496.3372	16.54457	0.1399	3.285	13218.91	440.6305	5.8389	2.09624	12117.58	403.9193	0.1399	80.2
1500	551.4132	18.38044	0.1417	3.60316	173.4653	5.782178	0.1317	1.21956	491.0155	16.36718	0.1384	3.285	13239.06	441.3021	5.8478	2.09624	13108.69	436.9565	0.1384	87.7
1600	523.395	17.4465	0.1345	3.60316	165.1674	5.505582	0.1254	1.21956	465.1166	15.50389	0.1311	3.285	12036.91	401.2304	5.3168	2.09624	13337.59	444.5863	0.1311	94.2
1700	475.1415	15.83805	0.1221	3.60316	151.2059	5.040198	0.1148	1.21956	421.1239	14.03746	0.1187	3.285	9608.611	320.287	4.2442	2.09624	13007.63	433.5875	0.1187	101.4667
1800	168.9335	5.631117	0.0926	1.6892	64.42389	2.147463	0.0895	0.6665	395.9853	13.19951	0.0892	4.11046	1491.581	49.71937	4.5381	0.304333	9970.776	332.3592	0.0892	103.5
1900	146.1293	4.870977	0.0801	1.6892	56.50587	1.883529	0.0785	0.6665	342.7137	11.42379	0.0772	4.11046	300.6104	10.02035	0.9146	0.304333	6770.131	225.671	0.0772	81.2
2000	141.7509	4.72503	0.0777	1.6892	54.92227	1.830742	0.0763	0.6665	332.5033	11.08344	0.0749	4.11046	257.6191	8.587303	0.7838	0.304333	5945.562	198.1854	0.0749	73.5
2100	146.3117	4.877058	0.0802	1.6892	56.72182	1.890727	0.0788	0.6665	340.4941	11.3498	0.0767	4.11046	262.7794	8.759312	0.7995	0.304333	5257.328	175.2443	0.0767	63.4667
2200	152.5145	5.083816	0.0836	1.6892	59.09722	1.969907	0.0821	0.6665	352.4802	11.74934	0.0794	4.11046	272.7712	9.092374	0.8299	0.304333	4936.46	164.5487	0.0794	57.5667
2300	151.2375	5.041248	0.0829	1.6892	58.59335	1.953112	0.0814	0.6665	349.3727	11.64576	0.0787	4.11046	273.6258	9.12086	0.8325	0.304333	4705.948	156.8649	0.0787	55.3667
2400	149.778	4.9926	0.0821	1.6892	58.08947	1.936316	0.0807	0.6665	346.2652	11.54217	0.078	4.11046	273.9873	9.132912	0.8336	0.304333	4450.677	148.3559	0.078	52.8333
	7796.522	10.8285	0.105429	2.64618	2598.699	3.609304	0.100617	0.94303	9508.142	13.20575	0.101775	3.69773	119676	166.2166	2.689767	1.200287	168609.4	234.1797	0.101775	62.20139

SEPTEMBER	1992
START	245
STOP	274
NUMDAYS	30

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	81.09307	2.615905	0.0955	0.76088	41.20877	1.329315	0.0947	0.38992	192.6119	6.213286	0.0876	1.97022	247.0669	7.969899	0.9355	0.23665	4087.061	131.8407	0.0876	41.8064
200	80.0741	2.583035	0.0943	0.76088	40.68659	1.312471	0.0935	0.38992	190.1932	6.135265	0.0865	1.97022	258.0007	8.322602	0.9769	0.23665	3992.144	128.7788	0.0865	41.3548
300	79.90427	2.577557	0.0941	0.76088	40.68659	1.312471	0.0935	0.38992	189.7535	6.121079	0.0863	1.97022	256.1784	8.263818	0.97	0.23665	3939.42	127.0781	0.0863	40.9032
400	80.41375	2.593992	0.0947	0.76088	40.9912	1.322297	0.0942	0.38992	190.8528	6.156543	0.0868	1.97022	270.1757	8.715346	1.023	0.23665	3937.252	127.0081	0.0868	40.6452
500	78.2909	2.525513	0.0922	0.76088	39.85981	1.2858	0.0916	0.38992	187.1149	6.035966	0.0851	1.97022	267.7724	8.63782	1.0139	0.23665	3854.005	124.3227	0.0851	40.5806
600	228.6668	7.37635	0.0947	2.16366	76.87532	2.479849	0.0942	0.73126	481.1376	15.52057	0.0868	4.9669	1286.717	41.50699	1.0229	1.12716	3799.756	122.5728	0.0868	39.2258
700	245.5694	7.921592	0.1017	2.16366	82.4247	2.658861	0.101	0.73126	509.9616	16.45037	0.092	4.9669	2273.925	73.35242	1.8077	1.12716	3964.464	127.8859	0.092	38.6129
800	257.6426	8.311051	0.1067	2.16366	84.87296	2.737837	0.104	0.73126	547.6544	17.66627	0.0988	4.9669	2960.618	95.50382	2.3536	1.12716	4314.395	139.174	0.0988	39.129
900	329.8404	10.64001	0.1366	2.16366	106.9073	3.448622	0.131	0.73126	698.9799	22.54774	0.1261	4.9669	4077.643	131.5369	3.2416	1.12716	5928.713	191.2488	0.1261	42.129
1000	309.7989	9.993513	0.1283	2.16366	100.6234	3.245917	0.1233	0.73126	656.8527	21.1888	0.1185	4.9669	4799.055	154.8082	3.8151	1.12716	6091.846	196.5112	0.1185	46.0645
1100	314.8697	10.15709	0.1304	2.16366	101.4395	3.272242	0.1243	0.73126	679.5792	21.92191	0.1226	4.9669	6045.267	195.0086	4.8058	1.12716	6867.555	221.534	0.1226	50.1935
1200	310.7648	10.02467	0.1287	2.16366	99.72573	3.216959	0.1222	0.73126	676.2534	21.81462	0.122	4.9669	6197.096	199.9063	4.9265	1.12716	7589.371	244.8184	0.122	55.7419
1300	311.0062	10.03246	0.1288	2.16366	99.97055	3.224857	0.1225	0.73126	678.4706	21.88615	0.1224	4.9669	6694.223	215.9427	5.3217	1.12716	8429.446	271.9176	0.1224	61.7097
1400	324.2868	10.46086	0.1343	2.16366	104.7855	3.380176	0.1284	0.73126	695.6541	22.44045	0.1255	4.9669	6351.19	204.8771	5.049	1.12716	9370.328	302.2687	0.1255	66.9032
1500	307.8672	9.931199	0.1275	2.16366	99.39929	3.206429	0.1218	0.73126	664.0586	21.42125	0.1198	4.9669	5808.905	187.384	4.6179	1.12716	9630.488	310.6609	0.1198	72.0323
1600	295.5525	9.533951	0.1224	2.16366	95.89012	3.09323	0.1175	0.73126	635.789	20.50932	0.1147	4.9669	5305.867	171.157	4.218	1.12716	9831.619	317.149	0.1147	76.8064
1700	251.606	8.116321	0.1042	2.16366	82.66953	2.666759	0.1013	0.73126	542.1113	17.48746	0.0978	4.9669	5323.226	171.717	4.2318	1.12716	8323.175	268.4895	0.0978	76.2581
1800	82.96118	2.676167	0.0977	0.76088	42.34017	1.365812	0.0973	0.38992	196.3498	6.333863	0.0893	1.97022	545.2902	17.59001	2.0647	0.23665	5613.043	181.0659	0.0893	56.3226
1900	81.00815	2.613166	0.0954	0.76088	41.12174	1.326508	0.0945	0.38992	191.9522	6.192007	0.0873	1.97022	227.2328	7.330092	0.8604	0.23665	5135.337	165.656	0.0873	52.7097
2000	87.03706	2.807647	0.1025	0.76088	44.21131	1.426171	0.1016	0.38992	202.9461	6.546647	0.0923	1.97022	227.6818	7.344575	0.8621	0.23665	4994.171	161.1023	0.0923	48.4839
2100	87.29181	2.815865	0.1028	0.76088	44.38537	1.431786	0.102	0.38992	204.0454	6.582111	0.0928	1.97022	251.002	8.096838	0.9504	0.23665	4730.571	152.5991	0.0928	45.6774
2200	87.29181	2.815865	0.1028	0.76088	44.38537	1.431786	0.102	0.38992	204.0454	6.582111	0.0928	1.97022	244.2938	7.880445	0.925	0.23665	4663.761	150.4439	0.0928	45.0323
2300	87.71638	2.829561	0.1033	0.76088	44.51592	1.435997	0.1023	0.38992	204.9249	6.610482	0.0932	1.97022	261.1171	8.423131	0.9887	0.23665	4532.871	146.2216	0.0932	43.5806
2400	85.33878	2.752864	0.1005	0.76088	43.38453	1.399501	0.0997	0.38992	200.5274	6.468626	0.0912	1.97022	259.9286	8.384793	0.9842	0.23665	4320.69	139.3771	0.0912	42.4516
	4485.892	6.029425	0.109171	1.46227	1643.361	2.208819	0.1066	0.56059	9821.82	13.20137	0.100758	3.46856	60439.47	81.23585	2.415267	0.681905	137941.5	185.4052	0.100758	50.18144

OCTOBER	1992
START	275
STOP	305
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	15.59226	0.519742	0.0715	0.20192	18.07284	0.602428	0.0713	0.2347	12.61929	0.420643	0.0715	0.16342	141.8968	4.729893	0.7552	0.173975	3019.302	100.6434	0.0715	39.1
200	15.50503	0.516834	0.0711	0.20192	17.9968	0.599893	0.071	0.2347	12.54869	0.41829	0.0711	0.16342	135.0387	4.50129	0.7187	0.173975	3010.09	100.3363	0.0711	39.2
300	15.396	0.5132	0.0706	0.20192	17.79402	0.593134	0.0702	0.2347	12.46045	0.415348	0.0706	0.16342	128.3497	4.278324	0.6831	0.173975	2973.672	99.1224	0.0706	39
400	15.35238	0.511746	0.0704	0.20192	17.79402	0.593134	0.0702	0.2347	12.42515	0.414172	0.0704	0.16342	126.4708	4.215693	0.6731	0.173975	2919.629	97.32096	0.0704	38.4
500	15.43961	0.514654	0.0708	0.20192	17.92075	0.597358	0.0707	0.2347	12.49575	0.416525	0.0708	0.16342	133.047	4.434901	0.7081	0.173975	2923.471	97.44904	0.0708	38.2333
600	50.24297	1.674766	0.0708	0.65708	38.60741	1.286914	0.0706	0.50634	155.5492	5.184973	0.0708	2.03428	402.8141	13.42714	0.6864	0.54338	2951.51	98.38368	0.0708	38.6
700	44.84965	1.494988	0.0632	0.65708	34.50606	1.150202	0.0631	0.50634	138.8518	4.628394	0.0632	2.03428	483.33	16.111	0.8236	0.54338	2648.333	88.27776	0.0632	38.8
800	51.73322	1.724441	0.0729	0.65708	39.75579	1.325193	0.0727	0.50634	160.1629	5.338764	0.0729	2.03428	646.6505	21.55502	1.1019	0.54338	2986.383	99.54612	0.0729	37.931
900	52.44287	1.748096	0.0739	0.65708	40.30264	1.343421	0.0737	0.50634	162.36	5.411999	0.0739	2.03428	686.7323	22.89108	1.1702	0.54338	3032.856	101.0952	0.0739	38
1000	50.31393	1.677131	0.0709	0.65708	38.71678	1.290559	0.0708	0.50634	155.7689	5.192296	0.0709	2.03428	734.2085	24.47362	1.2511	0.54338	3202.823	106.7608	0.0709	41.8276
1100	53.22348	1.774116	0.075	0.65708	40.95886	1.365295	0.0749	0.50634	164.7767	5.492556	0.075	2.03428	790.7222	26.35741	1.3474	0.54338	3555.625	118.5208	0.075	43.8966
1200	53.36541	1.778847	0.0752	0.65708	41.06822	1.368941	0.0751	0.50634	165.2161	5.507203	0.0752	2.03428	821.4145	27.38048	1.3997	0.54338	3716.33	123.8777	0.0752	45.7586
1300	53.36541	1.778847	0.0752	0.65708	41.12291	1.370764	0.0752	0.50634	165.2161	5.507203	0.0752	2.03428	832.7994	27.75998	1.4191	0.54338	3766.741	125.558	0.0752	46.3793
1400	53.29444	1.776481	0.0751	0.65708	41.01354	1.367118	0.075	0.50634	164.9964	5.499879	0.0751	2.03428	819.3018	27.31006	1.3961	0.54338	3940.73	131.3577	0.0751	48.5862
1500	53.29444	1.776481	0.0751	0.65708	40.95886	1.365295	0.0749	0.50634	164.9964	5.499879	0.0751	2.03428	790.6635	26.35545	1.3473	0.54338	3951.914	131.7305	0.0751	48.7241
1600	53.01059	1.76702	0.0747	0.65708	40.74012	1.358004	0.0745	0.50634	164.1176	5.470586	0.0747	2.03428	734.502	24.4834	1.2516	0.54338	3767.569	125.5856	0.0747	46.7
1700	52.51383	1.750461	0.074	0.65708	40.41201	1.347067	0.0739	0.50634	162.5797	5.419322	0.074	2.03428	743.6568	24.78856	1.2672	0.54338	2999.661	99.98871	0.074	37.5333
1800	15.4178	0.513927	0.0707	0.20192	17.89541	0.596514	0.0706	0.2347	12.74284	0.424761	0.0722	0.16342	125.8883	4.196277	0.67	0.173975	2929.301	97.64337	0.0722	37.5667
1900	15.54865	0.518288	0.0713	0.20192	18.04749	0.601583	0.0712	0.2347	12.58399	0.419466	0.0713	0.16342	139.7736	4.65912	0.7439	0.173975	3028.821	100.9607	0.0713	39.3333
2000	15.57046	0.519015	0.0714	0.20192	18.02214	0.600738	0.0711	0.2347	12.60164	0.420055	0.0714	0.16342	141.8592	4.728641	0.755	0.173975	3053.635	101.7878	0.0714	39.6
2100	15.59226	0.519742	0.0715	0.20192	18.07284	0.602428	0.0713	0.2347	12.61929	0.420643	0.0715	0.16342	148.2288	4.94096	0.7889	0.173975	3060.483	102.0161	0.0715	39.6333
2200	15.48323	0.516108	0.071	0.20192	17.9461	0.598203	0.0708	0.2347	12.53105	0.417702	0.071	0.16342	138.2329	4.607763	0.7357	0.173975	3097.872	103.2624	0.071	40.4
2300	15.59226	0.519742	0.0715	0.20192	18.04749	0.601583	0.0712	0.2347	12.61929	0.420643	0.0715	0.16342	141.8592	4.728641	0.755	0.173975	3148.005	104.9335	0.0715	40.7667
2400	15.46142	0.515381	0.0709	0.20192	17.89541	0.596514	0.0706	0.2347	12.5134	0.417113	0.0709	0.16342	134.3059	4.476864	0.7148	0.173975	3088.401	102.9467	0.0709	40.3333
	807.6016	1.121669	0.072029	0.4295	693.6685	0.963428	0.071858	0.37052	2075.352	2.882434	0.072092	1.09885	10121.75	14.05798	0.965129	0.358678	76773.16	106.6294	0.072092	41.01264

NOVEMBER	1992
START	306
STOP	335
NUMDAYS	30

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	20.90357	0.674309	0.072	0.26015	29.60158	0.95489	0.0718	0.369425	66.27098	2.137774	0.076	0.78135	108.8673	3.511847	0.77	0.12669	3374.973	108.8701	0.076	39.7917
200	21.281	0.686484	0.0733	0.26015	30.17877	0.973509	0.0732	0.369425	69.32293	2.236224	0.0795	0.78135	110.069	3.550614	0.7785	0.12669	3478.639	112.2142	0.0795	39.2083
300	21.33906	0.688357	0.0735	0.26015	30.17877	0.973509	0.0732	0.369425	69.58453	2.244662	0.0798	0.78135	109.0086	3.516408	0.771	0.12669	3532.589	113.9545	0.0798	39.6667
400	21.42516	0.691167	0.0738	0.26015	30.30246	0.977499	0.0735	0.369425	69.84613	2.253101	0.0801	0.78135	114.3813	3.68972	0.809	0.12669	3545.87	114.3829	0.0801	39.6667
500	21.39713	0.69023	0.0737	0.26015	30.30246	0.977499	0.0735	0.369425	69.75893	2.250288	0.08	0.78135	117.5625	3.792338	0.8315	0.12669	3556.317	114.7199	0.08	39.8333
600	37.34448	1.204661	0.074	0.4522	29.31481	0.945639	0.0739	0.35545	144.9676	4.676375	0.0803	1.617675	31.01135	1.000366	0.8165	0.034033	3606.996	116.3547	0.0803	40.25
700	36.33517	1.172102	0.072	0.4522	28.44211	0.917488	0.0717	0.35545	141.5375	4.565726	0.0784	1.617675	30.20995	0.974515	0.7954	0.034033	3525.298	113.7193	0.0784	40.2917
800	37.24355	1.201405	0.0738	0.4522	29.19581	0.9418	0.0736	0.35545	142.0791	4.583197	0.0787	1.617675	53.38205	1.722002	1.4055	0.034033	3516.83	113.4461	0.0787	40.0417
900	38.95938	1.256754	0.0772	0.4522	30.54453	0.985307	0.077	0.35545	156.8828	5.060734	0.0869	1.617675	68.89342	2.222369	1.8139	0.034033	3883.26	125.2665	0.0869	40.0417
1000	39.76683	1.282801	0.0788	0.4522	31.17922	1.005781	0.0786	0.35545	167.7147	5.410152	0.0929	1.617675	60.2262	1.942781	1.5857	0.034033	4198.894	135.4482	0.0929	40.5
1100	40.27148	1.29908	0.0798	0.4522	31.65524	1.021137	0.0798	0.35545	172.9502	5.579038	0.0958	1.617675	66.7627	2.153635	1.7578	0.034033	4564.717	147.2489	0.0958	42.6957
1200	39.86776	1.286057	0.079	0.4522	31.25856	1.008341	0.0788	0.35545	163.9235	5.287856	0.0908	1.617675	74.17276	2.39267	1.9529	0.034033	4279.011	138.0326	0.0908	42.2273
1300	40.32195	1.300708	0.0799	0.4522	31.65524	1.021137	0.0798	0.35545	169.52	5.468389	0.0939	1.617675	75.6844	2.441432	1.9927	0.034033	4437.728	143.1525	0.0939	42.3478
1400	39.46404	1.273033	0.0782	0.4522	30.94121	0.998104	0.078	0.35545	160.3129	5.171383	0.0888	1.617675	60.76173	1.960056	1.5998	0.034033	4174.621	134.6652	0.0888	42.125
1500	39.91823	1.287685	0.0791	0.4522	31.25856	1.008341	0.0788	0.35545	164.6457	5.311151	0.0912	1.617675	74.81463	2.413375	1.9698	0.034033	4334.094	139.8095	0.0912	42.5833
1600	38.95938	1.256754	0.0772	0.4522	30.54453	0.985307	0.077	0.35545	154.8969	4.996675	0.0858	1.617675	61.16433	1.973043	1.6104	0.034033	3730.366	120.3344	0.0858	38.9583
1700	38.40426	1.238847	0.0761	0.4522	30.14785	0.972511	0.076	0.35545	153.9942	4.967556	0.0853	1.617675	43.10824	1.390588	1.135	0.034033	3478.58	112.2123	0.0853	36.5417
1800	21.1068	0.680865	0.0727	0.26015	29.89018	0.964199	0.0725	0.369425	68.18935	2.199657	0.0782	0.78135	97.93051	3.159049	0.6915	0.1269	3218.126	103.8105	0.0782	36.875
1900	20.99067	0.677118	0.0723	0.26015	29.68404	0.95755	0.072	0.369425	65.92219	2.126522	0.0756	0.78135	103.6945	3.344982	0.7322	0.1269	3135.74	101.1529	0.0756	37.1667
2000	21.07777	0.679928	0.0726	0.26015	29.84895	0.962869	0.0724	0.369425	68.27655	2.202469	0.0783	0.78135	105.0257	3.387925	0.7416	0.1269	3389.727	109.346	0.0783	38.7917
2100	20.61325	0.664943	0.071	0.26015	29.23053	0.94292	0.0709	0.369425	63.48062	2.047762	0.0728	0.78135	99.89903	3.222549	0.7054	0.1269	3188.858	102.8664	0.0728	39.25
2200	20.72938	0.66869	0.0714	0.26015	29.27176	0.94425	0.071	0.369425	64.00382	2.064639	0.0734	0.78135	103.1563	3.327623	0.7284	0.1269	3218.556	103.8244	0.0734	39.2917
2300	20.61325	0.664943	0.071	0.26015	29.14808	0.940261	0.0707	0.369425	63.82942	2.059014	0.0732	0.78135	99.78573	3.218895	0.7046	0.1269	3165.534	102.114	0.0732	38.75
2400	20.81647	0.671499	0.0717	0.26015	29.51913	0.95223	0.0716	0.369425	64.52701	2.081516	0.074	0.78135	109.3593	3.527718	0.7722	0.1269	3399.711	109.6681	0.074	41.1667
	719.151	0.966601	0.074754	0.356175	723.2944	0.97217	0.074554	0.362438	2696.438	3.624244	0.082071	1.199513	1978.931	2.659854	1.144638	0.080423	87935.03	118.1923	0.082071	39.91928

DECEMBER	1992
START	336
STOP	361
NUMDAYS	26

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	7.909044	0.25513	0.0743	0.095383	4.091223	0.131975	0.0759	0.0483	36.26584	1.169866	0.0907	0.358283	52.54087	1.694867	1.0257	0.0459	3783.578	122.0509	0.0907	37.3793
200	8.026136	0.258908	0.0754	0.095383	4.080442	0.131627	0.0757	0.0483	36.22585	1.168576	0.0906	0.358283	48.67342	1.57011	0.9502	0.0459	3782.894	122.0289	0.0906	37.4138
300	8.047426	0.259594	0.0756	0.095383	3.999588	0.129019	0.0742	0.0483	34.70644	1.119563	0.0868	0.358283	40.68242	1.312336	0.7942	0.0459	3607.53	116.3719	0.0868	37.2414
400	8.090005	0.260968	0.076	0.095383	4.03732	0.130236	0.0749	0.0483	34.94635	1.127302	0.0874	0.358283	44.09909	1.422551	0.8609	0.0459	3647.936	117.6754	0.0874	37.4
500	7.951623	0.256504	0.0747	0.095383	4.010368	0.129367	0.0744	0.0483	34.86638	1.124722	0.0872	0.358283	44.63182	1.439736	0.8713	0.0459	3672.861	118.4794	0.0872	37.7419
600	19.77983	0.638059	0.0748	0.23695	4.692931	0.151385	0.0757	0.05555	51.88057	1.673567	0.09	0.516533	118.6685	3.828017	0.9523	0.11166	3777.84	121.8658	0.09	37.6129
700	19.33029	0.623558	0.0731	0.23695	4.692931	0.151385	0.0757	0.05555	52.11115	1.681005	0.0904	0.516533	123.3291	3.978356	0.9897	0.11166	3801.137	122.6173	0.0904	37.6774
800	19.96493	0.64403	0.0755	0.23695	4.655734	0.150185	0.0751	0.05555	52.45703	1.692162	0.091	0.516533	275.4561	8.885679	2.2105	0.11166	3823.096	123.3257	0.091	37.6452
900	20.12359	0.649148	0.0761	0.23695	4.990501	0.160984	0.0805	0.05555	59.14385	1.907866	0.1026	0.516533	388.2678	12.52477	3.1158	0.11166	4284.581	138.2123	0.1026	37.4194
1000	20.94335	0.675592	0.0792	0.23695	5.083492	0.163984	0.082	0.05555	61.10379	1.97109	0.106	0.516533	348.6659	11.24729	2.798	0.11166	4441.826	143.2847	0.106	37.5484
1100	21.04912	0.679004	0.0796	0.23695	5.275672	0.170183	0.0851	0.05555	66.29185	2.138447	0.115	0.516533	397.7882	12.83188	3.1922	0.11166	5026.654	162.1501	0.115	39.1667
1200	21.04912	0.679004	0.0796	0.23695	5.244675	0.169183	0.0846	0.05555	64.90836	2.093818	0.1126	0.516533	353.476	11.40245	2.8366	0.11166	5139.559	165.7922	0.1126	40.9
1300	21.04912	0.679004	0.0796	0.23695	5.139286	0.165783	0.0829	0.05555	61.21908	1.974809	0.1062	0.516533	297.2508	9.588736	2.3854	0.11166	4894.843	157.8982	0.1062	41.3
1400	21.04912	0.679004	0.0796	0.23695	5.139286	0.165783	0.0829	0.05555	60.64263	1.956214	0.1052	0.516533	393.2025	12.68395	3.1554	0.11166	4866.163	156.973	0.1052	41.4483
1500	20.99623	0.677298	0.0794	0.23695	5.077292	0.163784	0.0819	0.05555	58.79798	1.896709	0.102	0.516533	403.5578	13.01799	3.2385	0.11166	4690.664	151.3117	0.102	41.2069
1600	20.89046	0.673886	0.079	0.23695	5.077292	0.163784	0.0819	0.05555	58.97092	1.902288	0.1023	0.516533	429.3277	13.84928	3.4453	0.11166	4582.986	147.8383	0.1023	40.1429
1700	20.38803	0.657678	0.0771	0.23695	4.934706	0.159184	0.0796	0.05555	54.87812	1.770262	0.0952	0.516533	311.4566	10.04699	2.4994	0.11166	3934.664	126.9246	0.0952	37.0345
1800	7.887754	0.254444	0.0741	0.095383	4.085832	0.131801	0.0758	0.0483	36.02593	1.162127	0.0901	0.358283	52.49477	1.69338	1.0248	0.0459	3623.327	116.8815	0.0901	36.0345
1900	7.909044	0.25513	0.0743	0.095383	4.085832	0.131801	0.0758	0.0483	35.70605	1.151808	0.0893	0.358283	53.37582	1.721801	1.042	0.0459	3769.235	121.5882	0.0893	37.8214
2000	7.909044	0.25513	0.0743	0.095383	4.107393	0.132497	0.0762	0.0483	36.54573	1.178894	0.0914	0.358283	51.51126	1.661653	1.0056	0.0459	3876.091	125.0352	0.0914	38
2100	7.887754	0.254444	0.0741	0.095383	4.058881	0.130932	0.0753	0.0483	36.14588	1.165996	0.0904	0.358283	49.97452	1.612081	0.9756	0.0459	3790.443	122.2724	0.0904	37.5714
2200	7.951623	0.256504	0.0747	0.095383	4.096613	0.132149	0.076	0.0483	36.50574	1.177605	0.0913	0.358283	55.79874	1.799959	1.0893	0.0459	3892.932	125.5784	0.0913	38.2069
2300	7.951623	0.256504	0.0747	0.095383	4.064271	0.131106	0.0754	0.0483	35.38618	1.14149	0.0885	0.358283	51.58809	1.664132	1.0071	0.0459	3736.081	120.5187	0.0885	37.8276
2400	7.930333	0.255817	0.0745	0.095383	4.069661	0.131279	0.0755	0.0483	35.46615	1.144069	0.0887	0.358283	53.50901	1.726097	1.0446	0.0459	3765.005	121.4518	0.0887	38.0345
	342.0646	0.459764	0.076221	0.166167	108.7912	0.146225	0.078042	0.051925	1131.198	1.520427	0.095454	0.437408	4439.327	5.966837	1.771267	0.07878	98211.93	132.0053	0.095454	38.32397

JANUARY	1993
START	1
STOP	31
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	13.90013	0.496433	0.0724	0.190467	14.91088	0.532531	0.0721	0.205167	138.2946	4.939093	0.0785	1.747733	100.8614	3.602193	0.7646	0.130867	2886.708	103.0967	0.0785	36.4815
200	13.91933	0.497119	0.0725	0.190467	14.93156	0.53327	0.0722	0.205167	138.647	4.951677	0.0787	1.747733	100.7295	3.597481	0.7636	0.130867	2920.503	104.3037	0.0787	36.8148
300	13.90013	0.496433	0.0724	0.190467	14.91088	0.532531	0.0721	0.205167	138.647	4.951677	0.0787	1.747733	101.3495	3.619624	0.7683	0.130867	2967.514	105.9826	0.0787	37.4074
400	14.01532	0.500547	0.073	0.190467	15.03497	0.536963	0.0727	0.205167	142.6989	5.096389	0.081	1.747733	106.0192	3.786401	0.8037	0.130867	3060.29	109.2961	0.081	37.4815
500	13.99612	0.499862	0.0729	0.190467	15.01429	0.536224	0.0726	0.205167	139.8802	4.99572	0.0794	1.747733	111.9026	3.996521	0.8483	0.130867	3068.013	109.5719	0.0794	38.3333
600	31.30403	1.118001	0.0735	0.422525	19.69442	0.703372	0.0733	0.26655	121.3604	4.334299	0.0817	1.47365	224.1838	8.006565	0.8849	0.251333	3196.539	114.1621	0.0817	38.8148
700	29.643	1.058679	0.0696	0.422525	18.64656	0.665949	0.0694	0.26655	115.5672	4.127399	0.0778	1.47365	208.9072	7.460971	0.8246	0.251333	3014.902	107.6751	0.0778	38.4444
800	32.58175	1.163634	0.0765	0.422525	20.50047	0.73216	0.0763	0.26655	132.9468	4.7481	0.0895	1.47365	553.5306	19.76895	2.1849	0.251333	3515.086	125.5388	0.0895	38.963
900	33.64651	1.201661	0.079	0.422525	21.19904	0.757109	0.0789	0.26655	141.2653	5.045188	0.0951	1.47365	815.4626	29.12366	3.2188	0.251333	3788.275	135.2955	0.0951	39.5185
1000	34.92423	1.247294	0.082	0.422525	22.00509	0.785896	0.0819	0.26655	155.674	5.559787	0.1048	1.47365	916.2427	32.72295	3.6166	0.251333	4339.002	154.9644	0.1048	41.0741
1100	35.13718	1.254899	0.0825	0.422525	22.1663	0.791654	0.0825	0.26655	153.4459	5.48021	0.1033	1.47365	969.3435	34.61941	3.8262	0.251333	4481.288	160.046	0.1033	43.037
1200	35.86122	1.280758	0.0842	0.422525	22.59619	0.807007	0.0841	0.26655	162.3585	5.798518	0.1093	1.47365	929.5939	33.19978	3.6693	0.251333	4779.872	170.7097	0.1093	43.3846
1300	35.26495	1.259463	0.0828	0.422525	22.19317	0.792613	0.0826	0.26655	153.4459	5.48021	0.1033	1.47365	999.3141	35.68979	3.9445	0.251333	4492.867	160.4595	0.1033	43.1482
1400	34.54091	1.233604	0.0811	0.422525	21.76327	0.77726	0.081	0.26655	144.3847	5.156596	0.0972	1.47365	952.9522	34.03401	3.7615	0.251333	4339.007	154.9645	0.0972	44.2857
1500	34.49832	1.232083	0.081	0.422525	21.70954	0.775341	0.0808	0.26655	143.7905	5.135376	0.0968	1.47365	764.0845	27.28873	3.016	0.251333	4383.881	156.5672	0.0968	44.9286
1600	34.49832	1.232083	0.081	0.422525	21.73641	0.7763	0.0809	0.26655	144.2361	5.151291	0.0971	1.47365	888.3496	31.72677	3.5065	0.251333	4362.506	155.8038	0.0971	44.5714
1700	34.54091	1.233604	0.0811	0.422525	21.76327	0.77726	0.081	0.26655	147.5041	5.268004	0.0993	1.47365	908.1357	32.43342	3.5846	0.251333	4218.268	150.6524	0.0993	42.1429
1800	14.74489	0.526603	0.0768	0.190467	15.82084	0.56503	0.0765	0.205167	156.6165	5.593445	0.0889	1.747733	156.2615	5.580767	1.1843	0.130897	3434.027	122.6438	0.0889	38.3214
1900	14.22651	0.50809	0.0741	0.190467	15.28314	0.545826	0.0739	0.205167	148.3364	5.297728	0.0842	1.747733	116.4539	4.159069	0.8826	0.130897	3127.745	111.7052	0.0842	36.8518
2000	13.91933	0.497119	0.0725	0.190467	14.95224	0.534009	0.0723	0.205167	142.5227	5.090098	0.0809	1.747733	114.422	4.0865	0.8672	0.130897	3029.332	108.1904	0.0809	37.1482
2100	13.90013	0.496433	0.0724	0.190467	14.8902	0.531793	0.072	0.205167	140.761	5.027179	0.0799	1.747733	98.20605	3.507359	0.7443	0.130897	2896.431	103.444	0.0799	35.963
2200	13.76574	0.491633	0.0717	0.190467	14.76612	0.527361	0.0714	0.205167	139.3516	4.976844	0.0791	1.747733	94.23453	3.365519	0.7142	0.130897	2876.289	102.7246	0.0791	36.0741
2300	13.76574	0.491633	0.0717	0.190467	14.74543	0.526623	0.0713	0.205167	135.8282	4.851008	0.0771	1.747733	98.87897	3.531392	0.7494	0.130897	2774.777	99.09919	0.0771	35.7037
2400	13.95773	0.49849	0.0727	0.190467	14.9936	0.535486	0.0725	0.205167	138.647	4.951677	0.0787	1.747733	101.7817	3.635062	0.7714	0.130897	2847.052	101.6804	0.0787	35.8889
	574.4524	0.85484	0.076225	0.306496	436.2279	0.649149	0.076013	0.235859	3416.21	5.083646	0.088346	1.610692	10431.2	15.52262	1.912513	0.191109	84800.17	126.1907	0.088346	39.36595

FEBRUARY	1993
START	32
STOP	59
NUMDAYS	28

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	42.31449	1.364983	0.0711	0.53328	14.20283	0.458156	0.0709	0.1795	114.8146	3.703696	0.0741	1.3884	80.34586	2.591802	0.6605	0.109	3414.526	110.146	0.0741	41.2903
200	43.02866	1.388021	0.0723	0.53328	14.42318	0.465264	0.072	0.1795	119.6179	3.858641	0.0772	1.3884	89.51782	2.887672	0.7359	0.109	3499.013	112.8714	0.0772	40.6129
300	42.96914	1.386101	0.0722	0.53328	14.42318	0.465264	0.072	0.1795	119.9278	3.868638	0.0774	1.3884	85.13864	2.746408	0.6999	0.109	3469.069	111.9054	0.0774	40.1613
400	42.25497	1.363064	0.071	0.53328	14.16277	0.456863	0.0707	0.1795	112.3354	3.623724	0.0725	1.3884	83.49644	2.693434	0.6864	0.109	3275.552	105.663	0.0725	40.4839
500	42.31449	1.364983	0.0711	0.53328	14.20283	0.458156	0.0709	0.1795	112.4904	3.628722	0.0726	1.3884	81.46499	2.627903	0.6697	0.109	3251.316	104.8812	0.0726	40.129
600	94.81958	3.058696	0.0705	1.20516	31.61512	1.019843	0.0704	0.4024	141.3697	4.560313	0.072	1.75938	431.9668	13.93441	0.6816	0.56788	3167.428	102.1751	0.072	39.4194
700	93.87811	3.028326	0.0698	1.20516	31.25586	1.008253	0.0696	0.4024	144.3149	4.655319	0.0735	1.75938	638.7607	20.60519	1.0079	0.56788	3281.04	105.84	0.0735	40
800	101.4099	3.271286	0.0754	1.20516	33.7707	1.089377	0.0752	0.4024	160.0226	5.162021	0.0815	1.75938	936.7519	30.2178	1.4781	0.56788	3776.055	121.8082	0.0815	41.5161
900	105.8482	3.414459	0.0787	1.20516	35.29756	1.138631	0.0786	0.4024	177.8902	5.738394	0.0906	1.75938	1181.634	38.11724	1.8645	0.56788	4347.713	140.2488	0.0906	43
1000	103.8308	3.349381	0.0772	1.20516	34.62394	1.116901	0.0771	0.4024	175.3377	5.656055	0.0893	1.75938	1219.533	39.33977	1.9243	0.56788	4494.293	144.9772	0.0893	45.0968
1100	106.9242	3.449168	0.0795	1.20516	35.65682	1.15022	0.0794	0.4024	179.2646	5.78273	0.0913	1.75938	1244.376	40.14117	1.9635	0.56788	4857.888	156.7061	0.0913	47.6774
1200	105.3103	3.397105	0.0783	1.20516	35.16284	1.134285	0.0783	0.4024	169.4473	5.466042	0.0863	1.75938	1211.738	39.08832	1.912	0.56788	4809.116	155.1328	0.0863	49.9333
1300	105.3103	3.397105	0.0783	1.20516	35.16284	1.134285	0.0783	0.4024	169.6436	5.472376	0.0864	1.75938	1259.459	40.62773	1.9873	0.56788	4968.964	160.2892	0.0864	51.5333
1400	104.5033	3.371074	0.0777	1.20516	34.80358	1.122696	0.0775	0.4024	164.1459	5.29503	0.0836	1.75938	1143.482	36.88653	1.8043	0.56788	5118.931	165.1268	0.0836	54.8667
1500	104.3688	3.366735	0.0776	1.20516	34.80358	1.122696	0.0775	0.4024	164.5386	5.307698	0.0838	1.75938	1176.691	37.95778	1.8567	0.56788	5514.613	177.8007	0.0838	58.9667
1600	104.2343	3.362396	0.0775	1.20516	34.80358	1.122696	0.0775	0.4024	164.3423	5.301364	0.0837	1.75938	1165.284	37.58979	1.8387	0.56788	5758.229	185.7493	0.0837	61.6452
1700	103.9653	3.353719	0.0773	1.20516	34.66885	1.11835	0.0772	0.4024	163.7532	5.282363	0.0834	1.75938	1049.624	33.85882	1.6562	0.56788	5782.619	186.5361	0.0834	62.129
1800	45.7663	1.476332	0.0769	0.53328	15.3647	0.495635	0.0767	0.1795	127.5201	4.113552	0.0823	1.3884	197.7202	6.37807	1.6254	0.109	4950.836	159.7044	0.0823	53.9032
1900	43.2072	1.393781	0.0726	0.53328	14.48328	0.467203	0.0723	0.1795	123.8014	3.993594	0.0799	1.3884	81.45282	2.62751	0.6696	0.109	3811.227	122.9428	0.0799	42.7419
2000	42.55254	1.372663	0.0715	0.53328	14.28296	0.460741	0.0713	0.1795	117.1388	3.778669	0.0756	1.3884	80.04175	2.581992	0.658	0.109	3529.914	113.8682	0.0756	41.8387
2100	43.08817	1.389941	0.0724	0.53328	14.44322	0.46591	0.0721	0.1795	121.4772	3.91862	0.0784	1.3884	82.36515	2.65694	0.6771	0.109	3618.313	116.7198	0.0784	41.3548
2200	42.19546	1.361144	0.0709	0.53328	14.16277	0.456863	0.0707	0.1795	112.3354	3.623724	0.0725	1.3884	83.05852	2.679307	0.6828	0.109	3262.502	105.242	0.0725	40.3226
2300	41.9574	1.353465	0.0705	0.53328	14.0626	0.453632	0.0702	0.1795	109.2365	3.523759	0.0705	1.3884	83.89787	2.706383	0.6897	0.109	3225.798	104.058	0.0705	41
2400	42.67157	1.376502	0.0717	0.53328	14.32302	0.462033	0.0715	0.1795	116.519	3.758676	0.0752	1.3884	86.97546	2.80566	0.715	0.109	3465.214	111.7811	0.0752	41.2903
	1748.723	2.350435	0.07425	0.86922	584.1626	0.785165	0.074079	0.29095	3381.285	4.544738	0.079733	1.57389	13774.78	18.51448	1.214379	0.33844	98650.17	132.5943	0.079733	45.87137

MARCH	1993
START	60
STOP	90
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	57.36883	1.912294	0.0822	0.64622	22.22268	0.740756	0.0819	0.25124	144.8102	4.827006	0.0776	1.72788	99.50529	3.316843	0.9939	0.0927	3718.284	123.9428	0.0776	44.3667
200	57.29903	1.909968	0.0821	0.64622	22.19555	0.739852	0.0818	0.25124	144.8102	4.827006	0.0776	1.72788	96.44174	3.214725	0.9633	0.0927	3693.142	123.1047	0.0776	44.0667
300	54.92612	1.830871	0.0787	0.64622	21.27299	0.7091	0.0784	0.25124	139.9583	4.665276	0.075	1.72788	95.43057	3.181019	0.9532	0.0927	3585.603	119.5201	0.075	44.2667
400	55.48445	1.849482	0.0795	0.64622	21.49006	0.716335	0.0792	0.25124	141.2646	4.708819	0.0757	1.72788	101.3975	3.379916	1.0128	0.0927	3545.488	118.1829	0.0757	43.3667
500	55.27507	1.842502	0.0792	0.64622	21.4358	0.714527	0.079	0.25124	140.7047	4.690157	0.0754	1.72788	93.91882	3.130627	0.9381	0.0927	3401.146	113.3715	0.0754	41.7667
600	93.69389	3.12313	0.0777	1.11652	36.99205	1.233068	0.0775	0.44196	144.0176	4.800585	0.0739	1.80446	1134.065	37.80216	1.4326	0.732975	3213.766	107.1255	0.0739	40.2667
700	99.60252	3.320084	0.0826	1.11652	39.18771	1.306257	0.0821	0.44196	152.7872	5.092908	0.0784	1.80446	1771.313	59.04377	2.2376	0.732975	3480.019	116.0006	0.0784	41.1
800	106.4758	3.549194	0.0883	1.11652	41.33563	1.377854	0.0866	0.44196	166.0392	5.53464	0.0852	1.80446	2175.748	72.52494	2.7485	0.732975	4361.558	145.3853	0.0852	47.4
900	194.9846	6.499486	0.1617	1.11652	72.1703	2.405677	0.1512	0.44196	308.8875	10.29625	0.1585	1.80446	2983.669	99.45562	3.7691	0.732975	8713.062	290.4354	0.1585	50.9
1000	116.4843	3.88281	0.0966	1.11652	44.58139	1.486046	0.0934	0.44196	181.8246	6.06082	0.0933	1.80446	3873.679	129.1226	4.8934	0.732975	5226.296	174.2099	0.0933	51.8667
1100	121.1871	4.039569	0.1005	1.11652	46.252	1.541733	0.0969	0.44196	189.425	6.314166	0.0972	1.80446	4376.353	145.8784	5.5284	0.732975	5577.721	185.924	0.0972	53.1333
1200	123.237	4.1079	0.1022	1.11652	46.87251	1.562417	0.0982	0.44196	192.738	6.424599	0.0989	1.80446	4871.27	162.3757	6.1536	0.732975	6038.435	201.2812	0.0989	56.5333
1300	125.8899	4.196329	0.1044	1.11652	47.73168	1.591056	0.1	0.44196	196.8305	6.561017	0.101	1.80446	5080.889	169.363	6.4184	0.732975	6530.26	217.6753	0.101	59.8667
1400	125.2869	4.176231	0.1039	1.11652	47.63622	1.587874	0.0998	0.44196	195.8561	6.528536	0.1005	1.80446	4919.954	163.9985	6.2151	0.732975	7094.902	236.4967	0.1005	65.3667
1500	123.7193	4.123978	0.1026	1.11652	47.06344	1.568781	0.0986	0.44196	193.1277	6.437591	0.0991	1.80446	4986.054	166.2018	6.2986	0.732975	7880.825	262.6942	0.0991	73.6333
1600	125.7693	4.192309	0.1043	1.11652	47.97034	1.599011	0.1005	0.44196	194.4919	6.483064	0.0998	1.80446	4472.376	149.0792	5.6497	0.732975	8647.866	288.2622	0.0998	80.2333
1700	119.0166	3.967219	0.0987	1.11652	45.77468	1.525823	0.0959	0.44196	183.5785	6.119285	0.0942	1.80446	3798.634	126.6211	4.7986	0.732975	8671.295	289.0432	0.0942	85.2333
1800	64.06884	2.135628	0.0918	0.64622	24.4748	0.815827	0.0902	0.25124	162.7248	5.424161	0.0872	1.72788	434.6836	14.48945	4.3418	0.0927	8023.795	267.4598	0.0872	85.2
1900	65.95321	2.19844	0.0945	0.64622	25.58729	0.85291	0.0943	0.25124	162.7248	5.424161	0.0872	1.72788	334.0871	11.13624	3.337	0.0927	6714.749	223.825	0.0872	71.3
2000	68.74488	2.291496	0.0985	0.64622	26.59124	0.886375	0.098	0.25124	166.6437	5.554789	0.0893	1.72788	96.35164	3.211721	0.9624	0.0927	5060.098	168.6699	0.0893	52.4667
2100	66.44176	2.214725	0.0952	0.64622	25.69582	0.856527	0.0947	0.25124	162.3516	5.41172	0.087	1.72788	99.63544	3.321181	0.9952	0.0927	4795.089	159.8363	0.087	51.0333
2200	62.04487	2.068162	0.0889	0.64622	24.01352	0.800451	0.0885	0.25124	153.7675	5.125583	0.0824	1.72788	97.07247	3.235749	0.9696	0.0927	4405.104	146.8368	0.0824	49.5
2300	59.323	1.977433	0.085	0.64622	22.9553	0.765177	0.0846	0.25124	148.5424	4.951413	0.0796	1.72788	93.95887	3.131962	0.9385	0.0927	4066.286	135.5429	0.0796	47.3
2400	56.88028	1.896009	0.0815	0.64622	22.05988	0.735329	0.0813	0.25124	143.6905	4.789683	0.077	1.72788	89.83409	2.99447	0.8973	0.0927	3805.959	126.8653	0.077	45.7667
	2199.158	3.054385	0.094192	0.88137	843.5629	1.171615	0.092192	0.3466	4111.597	5.710551	0.089625	1.76617	46176.32	64.13378	3.060279	0.412838	130250.7	180.9038	0.089625	55.24723

APRIL	1993
START	91
STOP	120
NUMDAYS	30

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	73.6207	2.374861	0.0859	0.767967	35.62431	1.149171	0.0855	0.37335	241.9711	7.80552	0.08	2.71025	211.2768	6.81538	0.8916	0.212333	3902.402	125.8839	0.08	43.7097
200	69.07832	2.228333	0.0806	0.767967	33.41602	1.077936	0.0802	0.37335	230.78	7.444515	0.0763	2.71025	194.1917	6.264248	0.8195	0.212333	3612.046	116.5176	0.0763	42.4194
300	69.33544	2.236627	0.0809	0.767967	33.49935	1.080624	0.0804	0.37335	231.3849	7.464029	0.0765	2.71025	204.0731	6.583002	0.8612	0.212333	3563.673	114.9572	0.0765	41.7419
400	66.84999	2.156451	0.078	0.767967	32.37437	1.044335	0.0777	0.37335	225.3356	7.268891	0.0745	2.71025	218.9781	7.063809	0.9241	0.212333	3446.369	111.1732	0.0745	41.4516
500	68.99262	2.225568	0.0805	0.767967	33.33269	1.075248	0.08	0.37335	229.8726	7.415244	0.076	2.71025	194.2154	6.265013	0.8196	0.212333	3461.036	111.6463	0.076	40.8064
600	157.4069	5.077641	0.0793	1.778633	63.25238	2.040399	0.0791	0.716533	251.0522	8.098459	0.0754	2.983517	2952.32	95.23613	2.8806	0.918367	3523.294	113.6546	0.0754	41.871
700	186.3872	6.012491	0.0939	1.778633	73.08809	2.35768	0.0914	0.716533	298.6656	9.634373	0.0897	2.983517	3096.728	99.89445	3.0215	0.918367	4453.07	143.6474	0.0897	44.4839
800	213.5811	6.889713	0.1076	1.778633	81.96421	2.644007	0.1025	0.716533	347.2778	11.20251	0.1043	2.983517	3651.403	117.7872	3.5627	0.918367	5658.483	182.5317	0.1043	48.6129
900	192.5406	6.210986	0.097	1.778633	74.84732	2.41443	0.0936	0.716533	312.6499	10.08548	0.0939	2.983517	4638.994	149.645	4.5263	0.918367	5293.703	170.7646	0.0939	50.5161
1000	225.8878	7.286704	0.1138	1.778633	86.20236	2.780721	0.1078	0.716533	367.9213	11.86843	0.1105	2.983517	5236.304	168.913	5.1091	0.918367	6420.49	207.1126	0.1105	52.0645
1100	228.8652	7.38275	0.1153	1.778633	87.24191	2.814255	0.1091	0.716533	372.9158	12.02954	0.112	2.983517	5571.958	179.7406	5.4366	0.918367	6814.076	219.8089	0.112	54.5161
1200	230.6517	7.440378	0.1162	1.778633	87.88163	2.834891	0.1099	0.716533	375.2465	12.10473	0.1127	2.983517	5748.446	185.4337	5.6088	0.918367	7534.217	243.0393	0.1127	59.9032
1300	238.79	7.702904	0.1203	1.778633	91.16019	2.940651	0.114	0.716533	385.5683	12.43769	0.1158	2.983517	6138.522	198.0168	5.9894	0.918367	8604.397	277.5612	0.1158	66.5806
1400	230.2547	7.427571	0.116	1.778633	87.88163	2.834891	0.1099	0.716533	375.2465	12.10473	0.1127	2.983517	6152.563	198.4698	6.0031	0.918367	9303.154	300.1018	0.1127	73.9677
1500	226.6818	7.312316	0.1142	1.778633	86.44225	2.78846	0.1081	0.716533	368.5873	11.88991	0.1107	2.983517	6207.702	200.2485	6.0569	0.918367	9915.182	319.8446	0.1107	80.2581
1600	220.3299	7.107417	0.111	1.778633	84.44313	2.723972	0.1056	0.716533	358.5985	11.56769	0.1077	2.983517	5818.651	187.6984	5.6773	0.918367	10189.28	328.6865	0.1077	84.7742
1700	206.4353	6.659202	0.104	1.778633	79.56526	2.566621	0.0995	0.716533	335.6242	10.82659	0.1008	2.983517	5465.369	176.3022	5.3326	0.918367	9986.458	322.1438	0.1008	88.7742
1800	78.33448	2.526919	0.0914	0.767967	37.12428	1.197557	0.0891	0.37335	266.7732	8.605586	0.0882	2.71025	1038.232	33.49137	4.3814	0.212333	8734.972	281.7733	0.0882	88.7419
1900	72.93505	2.352744	0.0851	0.767967	35.37432	1.141107	0.0849	0.37335	244.3908	7.883575	0.0808	2.71025	1163.563	37.53427	4.9103	0.212333	6911.312	222.9456	0.0808	76.6452
2000	87.24781	2.814445	0.1018	0.767967	42.12418	1.358845	0.1011	0.37335	278.2668	8.976348	0.092	2.71025	210.3526	6.785568	0.8877	0.212333	5729.755	184.8308	0.092	55.8064
2100	74.22063	2.394214	0.0866	0.767967	35.91597	1.15858	0.0862	0.37335	244.3908	7.883575	0.0808	2.71025	201.1821	6.489746	0.849	0.212333	4476.647	144.408	0.0808	49.6452
2200	68.04986	2.195157	0.0794	0.767967	32.91603	1.061807	0.079	0.37335	228.3602	7.36646	0.0755	2.71025	199.3338	6.430123	0.8412	0.212333	3954.691	127.5707	0.0755	46.9355
2300	71.47807	2.305744	0.0834	0.767967	34.62433	1.116914	0.0831	0.37335	237.4342	7.659167	0.0785	2.71025	220.4473	7.111202	0.9303	0.212333	3933.79	126.8964	0.0785	44.9032
2400	73.19217	2.361038	0.0854	0.767967	35.41598	1.142451	0.085	0.37335	241.0637	7.776249	0.0797	2.71025	198.9784	6.418657	0.8397	0.212333	3953.756	127.5405	0.0797	44.4516
	3431.147	4.611757	0.09615	1.2733	1405.712	1.889398	0.093446	0.544942	7049.378	9.47497	0.091875	2.846884	64933.78	87.27659	3.215021	0.56535	143376.3	192.71	0.091875	56.81585

MAY	1993
START	121
STOP	151
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	79.40619	2.646873	0.0895	0.8215	49.57861	1.65262	0.0884	0.5193	206.0879	6.869598	0.0839	2.2744	866.8046	28.89349	1.1081	0.7243	4180.231	139.341	0.0839	46.1333
200	78.43025	2.614342	0.0884	0.8215	48.84951	1.628317	0.0871	0.5193	203.3859	6.779532	0.0828	2.2744	764.0959	25.46986	0.9768	0.7243	3928.691	130.9564	0.0828	43.9333
300	77.98664	2.599555	0.0879	0.8215	48.68126	1.622709	0.0868	0.5193	203.1403	6.771344	0.0827	2.2744	810.6395	27.02132	1.0363	0.7243	3769.135	125.6378	0.0827	42.2
400	79.22875	2.640958	0.0893	0.8215	49.46644	1.648881	0.0882	0.5193	205.8423	6.86141	0.0838	2.2744	890.2719	29.67573	1.1381	0.7243	3728.765	124.2922	0.0838	41.2
500	76.56709	2.552236	0.0863	0.8215	48.1765	1.605883	0.0859	0.5193	198.2276	6.607587	0.0807	2.2744	825.111	27.5037	1.0548	0.7243	3492.254	116.4085	0.0807	40.069
600	209.3628	6.978759	0.0929	2.0867	86.22104	2.874035	0.091	0.8773	230.3654	7.678848	0.0878	2.4294	8188.989	272.9663	3.0482	2.4875	3923.751	130.7917	0.0878	41.3793
700	275.845	9.194835	0.1224	2.0867	110.5714	3.685713	0.1167	0.8773	304.0929	10.13643	0.1159	2.4294	8512.175	283.7392	3.1685	2.4875	5559.364	185.3121	0.1159	44.4138
800	307.396	10.24653	0.1364	2.0867	121.3727	4.045757	0.1281	0.8773	343.7115	11.45705	0.131	2.4294	9954.826	331.8275	3.7055	2.4875	6839.822	227.9941	0.131	48.3448
900	271.3378	9.044592	0.1204	2.0867	108.0132	3.600439	0.114	0.8773	304.3552	10.14517	0.116	2.4294	11075.36	369.1788	4.1226	2.4875	6488.64	216.288	0.116	51.7931
1000	295.677	9.855901	0.1312	2.0867	116.8248	3.894159	0.1233	0.8773	332.9541	11.09847	0.1269	2.4294	13400.8	446.6933	4.9882	2.4875	7358.281	245.276	0.1269	53.6897
1100	311.6779	10.38926	0.1383	2.0867	123.3624	4.112081	0.1302	0.8773	348.6966	11.62322	0.1329	2.4294	14847.75	494.9249	5.5268	2.4875	8245.669	274.8556	0.1329	57.4483
1200	316.6359	10.55453	0.1405	2.0867	125.0679	4.16893	0.132	0.8773	354.2065	11.80688	0.135	2.4294	16183.74	539.4582	6.0241	2.4875	9190.43	306.3477	0.135	63.0345
1300	310.3257	10.34419	0.1377	2.0867	122.2254	4.074181	0.129	0.8773	349.4838	11.64946	0.1332	2.4294	17667.77	588.9256	6.5765	2.4875	10285.7	342.8568	0.1332	71.5
1400	310.1003	10.33668	0.1376	2.0867	122.1307	4.071023	0.1289	0.8773	349.2214	11.64071	0.1331	2.4294	17386.22	579.5407	6.4717	2.4875	11921.5	397.3832	0.1331	82.9333
1500	307.396	10.24653	0.1364	2.0867	121.1832	4.03944	0.1279	0.8773	346.0729	11.53576	0.1319	2.4294	17186.88	572.8961	6.3975	2.4875	13532.94	451.098	0.1319	95
1600	299.0575	9.968583	0.1327	2.0867	118.3408	3.944692	0.1249	0.8773	336.365	11.21217	0.1282	2.4294	16544	551.4668	6.1582	2.4875	14270.2	475.6734	0.1282	103.0667
1700	284.8596	9.49532	0.1264	2.0867	112.9401	3.76467	0.1192	0.8773	319.573	10.65243	0.1218	2.4294	14860.11	495.3369	5.5314	2.4875	14452.31	481.7435	0.1218	109.8667
1800	101.0544	3.368479	0.1139	0.8215	60.85157	2.028386	0.1085	0.5193	268.9705	8.965685	0.1095	2.2744	3146.968	104.8989	4.023	0.7243	13962.57	465.4189	0.1095	118.0667
1900	81.18063	2.706021	0.0915	0.8215	50.02728	1.667576	0.0892	0.5193	214.4395	7.147984	0.0873	2.2744	2737.776	91.25919	3.4999	0.7243	10012.96	333.7654	0.0873	106.2
2000	82.60018	2.753339	0.0931	0.8215	51.31723	1.710574	0.0915	0.5193	212.4744	7.082482	0.0865	2.2744	672.8863	22.42954	0.8602	0.7243	6673.299	222.4433	0.0865	71.4333
2100	82.06785	2.735595	0.0925	0.8215	51.09289	1.703096	0.0911	0.5193	210.2637	7.008791	0.0856	2.2744	662.0913	22.06971	0.8464	0.7243	5346.573	178.2191	0.0856	57.8333
2200	81.80168	2.726723	0.0922	0.8215	50.98072	1.699357	0.0909	0.5193	210.0181	7.000603	0.0855	2.2744	698.935	23.29783	0.8935	0.7243	5100.243	170.0081	0.0855	55.2333
2300	80.47085	2.682362	0.0907	0.8215	50.13945	1.671315	0.0894	0.5193	207.5617	6.918725	0.0845	2.2744	740.7068	24.69023	0.9469	0.7243	4842.867	161.4289	0.0845	53.0667
2400	75.85731	2.528577	0.0855	0.8215	47.22306	1.574102	0.0842	0.5193	198.7189	6.623963	0.0809	2.2744	830.7431	27.69144	1.062	0.7243	4421.023	147.3674	0.0809	50.6
	4476.323	6.217115	0.110571	1.4541	1994.638	2.770331	0.1061	0.6983	6458.229	8.969763	0.105308	2.3519	179455.7	249.244	3.29855	1.6059	181527.2	252.1211	0.105308	64.5183

JUNE	1993
START	152
STOP	181
NUMDAYS	30

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	138.4116	4.464889	0.0827	1.499694	31.12968	1.004183	0.0816	0.341838	179.2874	5.783464	0.078	2.059638	357.2444	11.52401	0.6308	0.507469	4102.485	132.3382	0.078	47.129
200	131.7169	4.248933	0.0787	1.499694	29.71817	0.95865	0.0779	0.341838	173.3111	5.590681	0.0754	2.059638	409.2906	13.20292	0.7227	0.507469	3830.016	123.5489	0.0754	45.5161
300	130.8801	4.221939	0.0782	1.499694	29.41297	0.948806	0.0771	0.341838	172.3917	5.561023	0.075	2.059638	440.3258	14.20406	0.7775	0.507469	3742.202	120.7162	0.075	44.7097
400	133.5579	4.308321	0.0798	1.499694	30.06151	0.969726	0.0788	0.341838	175.6097	5.664828	0.0764	2.059638	509.4187	16.43286	0.8995	0.507469	3732.293	120.3966	0.0764	43.7742
500	131.3822	4.238135	0.0785	1.499694	29.71817	0.95865	0.0779	0.341838	172.3917	5.561023	0.075	2.059638	479.5162	15.46826	0.8467	0.507469	3550.504	114.5324	0.075	42.4194
600	327.9153	10.57791	0.0815	3.605287	54.90428	1.771106	0.0799	0.615737	189.9831	6.128488	0.078	2.18251	5199.072	167.712	1.1406	4.0844	3695.327	119.2041	0.078	42.4516
700	437.7568	14.12119	0.1088	3.605287	70.57159	2.276503	0.1027	0.615737	257.9386	8.320601	0.1059	2.18251	6714.67	216.6023	1.4731	4.0844	5489.854	177.0921	0.1059	46.4516
800	537.5396	17.33999	0.1336	3.605287	85.34558	2.753083	0.1242	0.615737	318.1	10.26129	0.1306	2.18251	10368.52	334.4682	2.2747	4.0844	7104.112	229.1649	0.1306	48.7419
900	474.773	15.31526	0.118	3.605287	76.34375	2.462702	0.1111	0.615737	279.6162	9.019877	0.1148	2.18251	13026.4	420.2063	2.8578	4.0844	6571.149	211.9726	0.1148	51.2903
1000	549.2078	17.71638	0.1365	3.605287	87.26964	2.81515	0.127	0.615737	324.4327	10.46557	0.1332	2.18251	17644.76	569.1856	3.871	4.0844	7907.292	255.074	0.1332	53.1936
1100	563.6924	18.18363	0.1401	3.605287	89.46856	2.886082	0.1302	0.615737	333.2012	10.74843	0.1368	2.18251	20808.59	671.245	4.5651	4.0844	9027.153	291.1985	0.1368	59.129
1200	570.13	18.39129	0.1417	3.605287	90.4993	2.919332	0.1317	0.615737	337.5854	10.88985	0.1386	2.18251	23136.46	746.3375	5.0758	4.0844	10907.26	351.8471	0.1386	70.5161
1300	571.7394	18.44321	0.1421	3.605287	90.70545	2.925982	0.132	0.615737	338.0725	10.90557	0.1388	2.18251	24219.49	781.2738	5.3134	4.0844	13036.65	420.5372	0.1388	84.1613
1400	572.9464	18.48214	0.1424	3.605287	90.9116	2.932632	0.1323	0.615737	339.0468	10.93699	0.1392	2.18251	26038.21	839.9422	5.7124	4.0844	15032.44	484.9173	0.1392	96.7667
1500	564.8994	18.22256	0.1404	3.605287	89.74342	2.894949	0.1306	0.615737	334.419	10.78771	0.1373	2.18251	25946.13	836.972	5.6922	4.0844	16459.53	530.9526	0.1373	107.4194
1600	549.6101	17.72936	0.1366	3.605287	87.47579	2.8218	0.1273	0.615737	324.6763	10.47343	0.1333	2.18251	23371.21	753.91	5.1273	4.0844	17018.46	548.9827	0.1333	114.4
1700	520.2386	16.78189	0.1293	3.605287	83.07795	2.679934	0.1209	0.615737	307.1394	9.907722	0.1261	2.18251	19472.59	628.148	4.272	4.0844	16479.2	531.5872	0.1261	117.1
1800	191.1318	6.165542	0.1142	1.499694	41.12475	1.326605	0.1078	0.341838	254.68	8.215484	0.1108	2.059638	1486.914	47.96495	2.6255	0.507469	14908.41	480.9165	0.1108	120.5667
1900	153.3071	4.945391	0.0916	1.499694	33.95272	1.095249	0.089	0.341838	200.8938	6.480445	0.0874	2.059638	1600.577	51.63152	2.8262	0.507469	10391.09	335.1964	0.0874	106.5333
2000	157.1565	5.069566	0.0939	1.499694	35.24979	1.13709	0.0924	0.341838	199.2848	6.428542	0.0867	2.059638	405.0431	13.06591	0.7152	0.507469	6992.324	225.5588	0.0867	72.2667
2100	147.784	4.767227	0.0883	1.499694	33.15159	1.069406	0.0869	0.341838	189.1712	6.102295	0.0823	2.059638	353.7897	11.41257	0.6247	0.507469	5291.561	170.6955	0.0823	57.6129
2200	139.9179	4.513479	0.0836	1.499694	31.47302	1.015259	0.0825	0.341838	180.4366	5.820537	0.0785	2.059638	308.936	9.965676	0.5455	0.507469	4595.075	148.2282	0.0785	52.4516
2300	135.0642	4.356911	0.0807	1.499694	30.3667	0.979571	0.0796	0.341838	176.2992	5.687072	0.0767	2.059638	348.9759	11.25729	0.6162	0.507469	4332.323	139.7523	0.0767	50.6129
2400	134.5621	4.340714	0.0804	1.499694	30.25225	0.975879	0.0793	0.341838	175.8395	5.672243	0.0765	2.059638	369.7604	11.92775	0.6529	0.507469	4197.097	135.3902	0.0765	49.1613
	7965.321	10.70608	0.107567	2.552491	1381.928	1.85743	0.102529	0.478788	5933.808	7.975549	0.103804	2.121074	223015.9	299.7525	2.494117	2.295934	198393.8	266.6583	0.103804	67.6823

JULY	1993
START	182
STOP	212
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	162.9695	5.257081	0.081	1.80284	30.98338	0.999464	0.0796	0.34878	210.361	6.785838	0.0775	2.4322	274.5641	8.856907	0.7982	0.308225	4120.833	132.9301	0.0775	47.6452
200	156.5312	5.049394	0.0778	1.80284	29.6989	0.958029	0.0763	0.34878	203.5751	6.56694	0.075	2.4322	253.3062	8.171168	0.7364	0.308225	3860.997	124.5483	0.075	46.129
300	155.5252	5.016943	0.0773	1.80284	29.5432	0.953006	0.0759	0.34878	202.4894	6.531916	0.0746	2.4322	256.1268	8.262156	0.7446	0.308225	3708.815	119.6392	0.0746	44.5484
400	157.5372	5.081845	0.0783	1.80284	29.89352	0.964307	0.0768	0.34878	204.9323	6.61072	0.0755	2.4322	283.4044	9.142077	0.8239	0.308225	3598.634	116.085	0.0755	42.7097
500	164.5791	5.309003	0.0818	1.80284	31.25585	1.008253	0.0803	0.34878	211.7181	6.829618	0.078	2.4322	296.7164	9.571496	0.8626	0.308225	3664.442	118.2078	0.078	42.0968
600	470.8908	15.19003	0.0729	5.788	82.81209	2.671358	0.0723	1.02634	316.4032	10.20655	0.07	4.05022	3400.226	109.6847	1.1718	2.6001	3223.083	103.9704	0.07	41.2581
700	654.984	21.12852	0.1014	5.788	110.3016	3.558116	0.0963	1.02634	445.2245	14.36208	0.0985	4.05022	4407.12	142.1651	1.5188	2.6001	4602.712	148.4746	0.0985	41.871
800	824.8664	26.60859	0.1277	5.788	136.7602	4.41162	0.1194	1.02634	563.1977	18.16767	0.1246	4.05022	7950.69	256.4739	2.74	2.6001	6248.443	201.5627	0.1246	44.9355
900	1177.55	37.98549	0.1823	5.788	192.6555	6.214694	0.1682	1.02634	809.5402	26.1142	0.1791	4.05022	9073.942	292.7078	3.1271	2.6001	9884.168	318.8441	0.1791	49.4516
1000	873.312	28.17135	0.1352	5.788	144.2053	4.651783	0.1259	1.02634	596.194	19.23206	0.1319	4.05022	11973.62	386.2459	4.1264	2.6001	7692.413	248.1424	0.1319	52.2581
1100	915.2981	29.52575	0.1417	5.788	150.6195	4.858694	0.1315	1.02634	625.1223	20.16524	0.1383	4.05022	16139.9	520.6419	5.5622	2.6001	9175.926	295.9976	0.1383	59.4516
1200	906.2549	29.23403	0.1403	5.788	149.4741	4.821745	0.1305	1.02634	619.6982	19.99027	0.1371	4.05022	16672.65	537.8276	5.7458	2.6001	10924.46	352.4018	0.1371	71.4
1300	893.9821	28.83813	0.1384	5.788	147.5269	4.758933	0.1288	1.02634	610.2061	19.68407	0.135	4.05022	19652.42	633.9491	6.7727	2.6001	11850.19	382.2643	0.135	78.6552
1400	912.0584	29.42156	0.1412	5.788	150.2759	4.847609	0.1312	1.02634	623.3143	20.10691	0.1379	4.05022	18219.27	587.7183	6.2788	2.6001	13999.45	451.5951	0.1379	90.9667
1500	929.5088	29.98416	0.1439	5.788	153.8266	4.962149	0.1343	1.02634	631.4504	20.36937	0.1397	4.05022	18890.14	609.3594	6.51	2.6001	15829.57	510.6313	0.1397	101.5333
1600	890.7524	28.73395	0.1379	5.788	147.0688	4.744154	0.1284	1.02634	608.3981	19.62575	0.1346	4.05022	17661.27	569.7183	6.0865	2.6001	16418.35	529.6241	0.1346	109.3
1700	835.2015	26.94198	0.1293	5.788	138.4783	4.467042	0.1209	1.02634	569.0737	18.35722	0.1259	4.05022	14379.43	463.8526	4.9555	2.6001	16916.73	545.701	0.1259	120.4
1800	220.3107	7.106795	0.1095	1.80284	40.44188	1.304577	0.1039	0.34878	287.991	9.290031	0.1061	2.4322	1278.158	41.23089	3.7158	0.308225	14747.48	475.7251	0.1061	124.5484
1900	161.1588	5.198669	0.0801	1.80284	30.90554	0.996953	0.0794	0.34878	208.7324	6.733302	0.0769	2.4322	824.0019	26.58071	2.3955	0.308225	8568.197	276.3935	0.0769	99.8387
2000	163.1707	5.263572	0.0811	1.80284	30.90554	0.996953	0.0794	0.34878	210.361	6.785838	0.0775	2.4322	270.0924	8.712658	0.7852	0.308225	5976.182	192.7801	0.0775	69.0968
2100	161.9635	5.22463	0.0805	1.80284	30.82769	0.994442	0.0792	0.34878	208.4609	6.724547	0.0768	2.4322	251.8959	8.125674	0.7323	0.308225	5435.601	175.342	0.0768	63.4194
2200	161.7623	5.21814	0.0804	1.80284	30.67199	0.989419	0.0788	0.34878	208.1895	6.715791	0.0767	2.4322	247.3898	7.980315	0.7192	0.308225	4917.696	158.6354	0.0767	57.4516
2300	155.7264	5.023433	0.0774	1.80284	29.50428	0.951751	0.0758	0.34878	202.218	6.52316	0.0745	2.4322	247.3554	7.979206	0.7191	0.308225	4414.574	142.4056	0.0745	53.0968
2400	154.9216	4.997472	0.077	1.80284	29.38751	0.947984	0.0755	0.34878	201.6751	6.505649	0.0743	2.4322	246.0826	7.93815	0.7154	0.308225	4068.369	131.2377	0.0743	49.0645
	12260.83	16.4796	0.107267	3.79542	2078.024	2.793043	0.102025	0.68756	9578.527	12.87436	0.104	3.24121	163149.8	219.2873	2.847658	1.454163	193847.3	260.5475	0.104	66.7136

AUGUST	1993
START	213
STOP	243
NUMDAYS	31

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTRT ppb
100	62.02393	2.067464	0.0784	0.73252	35.98675	1.199558	0.0772	0.43162	186.482	6.216066	0.0755	2.287	278.8833	9.296109	0.9282	0.2782	3596.493	119.8831	0.0755	44.1071
200	62.02393	2.067464	0.0784	0.73252	36.03336	1.201112	0.0773	0.43162	186.976	6.232532	0.0757	2.287	281.7977	9.393256	0.9379	0.2782	3568.069	118.9356	0.0757	43.6429
300	62.34038	2.078013	0.0788	0.73252	36.12659	1.20422	0.0775	0.43162	187.223	6.240766	0.0758	2.287	280.9564	9.365214	0.9351	0.2782	3523.075	117.4358	0.0758	43.0357
400	62.34038	2.078013	0.0788	0.73252	36.17321	1.205774	0.0776	0.43162	187.717	6.257232	0.076	2.287	313.4958	10.44986	1.0434	0.2782	3453.221	115.1074	0.076	42.0714
500	62.65583	2.088561	0.0792	0.73252	36.31305	1.210435	0.0779	0.43162	187.964	6.265465	0.0761	2.287	314.4572	10.48191	1.0466	0.2782	3431.349	114.3783	0.0761	41.75
600	243.8894	8.129646	0.075	3.01098	46.67107	1.555702	0.0747	0.5785	269.0263	8.967542	0.072	3.4597	2540.678	84.68925	1.101	2.136675	3224.264	107.4755	0.072	41.4643
700	274.782	9.159401	0.0845	3.01098	51.66931	1.72231	0.0827	0.5785	304.5228	10.15076	0.0815	3.4597	4967.359	165.5786	2.1526	2.136675	3652.83	121.761	0.0815	41.5
800	377.8659	12.59553	0.1162	3.01098	68.47589	2.28253	0.1096	0.5785	422.2218	14.07406	0.113	3.4597	6159.47	205.3157	2.6692	2.136675	5378.474	179.2825	0.113	44.0714
900	484.5269	16.1509	0.149	3.01098	86.15716	2.871905	0.1379	0.5785	544.7782	18.15927	0.1458	3.4597	8349.852	278.3284	3.6184	2.136675	7490.783	249.6928	0.1458	47.5714
1000	411.0349	13.70116	0.1264	3.01098	74.03643	2.467881	0.1185	0.5785	460.3338	15.34446	0.1232	3.4597	10810.69	360.3562	4.6848	2.136675	6638.55	221.285	0.1232	49.8929
1100	437.7001	14.59	0.1346	3.01098	78.53485	2.617828	0.1257	0.5785	491.3466	16.37822	0.1315	3.4597	13601.51	453.3836	5.8942	2.136675	7608.21	253.607	0.1315	53.5714
1200	448.1061	14.93687	0.1378	3.01098	80.22175	2.674058	0.1284	0.5785	502.1824	16.73941	0.1344	3.4597	14409.63	480.3211	6.2444	2.136675	8633.859	287.7953	0.1344	59.4815
1300	449.732	14.99107	0.1383	3.01098	80.53414	2.684471	0.1289	0.5785	504.0506	16.80169	0.1349	3.4597	15441.83	514.7276	6.6917	2.136675	9561.708	318.7236	0.1349	65.6296
1400	449.0816	14.96939	0.1381	3.01098	80.53414	2.684471	0.1289	0.5785	504.0506	16.80169	0.1349	3.4597	15468.36	515.6122	6.7032	2.136675	10570.77	352.359	0.1349	72.5556
1500	443.8787	14.79596	0.1365	3.01098	79.59697	2.653232	0.1274	0.5785	497.6986	16.58995	0.1332	3.4597	15563.9	518.7967	6.7446	2.136675	11870.78	395.6927	0.1332	82.5185
1600	427.2942	14.24314	0.1314	3.01098	76.84794	2.561598	0.123	0.5785	478.2689	15.9423	0.128	3.4597	14143.34	471.4445	6.129	2.136675	12958.71	431.9571	0.128	93.7407
1700	385.02	12.834	0.1184	3.01098	69.78793	2.326264	0.1117	0.5785	429.6947	14.32316	0.115	3.4597	10627.46	354.2487	4.6054	2.136675	11578.2	385.9399	0.115	93.2222
1800	74.91922	2.497307	0.0947	0.73252	43.02561	1.434187	0.0923	0.43162	222.5434	7.418113	0.0901	2.287	1348.447	44.94822	4.488	0.2782	8303.613	276.7871	0.0901	85.3333
1900	64.08085	2.136028	0.081	0.73252	37.24535	1.241512	0.0799	0.43162	191.1749	6.372497	0.0774	2.287	247.4255	8.247517	0.8235	0.2782	5492.304	183.0768	0.0774	65.7037
2000	64.87197	2.162399	0.082	0.73252	37.66489	1.255496	0.0808	0.43162	193.1509	6.438362	0.0782	2.287	246.6143	8.220476	0.8208	0.2782	5100.543	170.0181	0.0782	60.3929
2100	62.89417	2.096472	0.0795	0.73252	36.40628	1.213543	0.0781	0.43162	189.1989	6.306631	0.0766	2.287	286.3045	9.543484	0.9529	0.2782	4440.723	148.0241	0.0766	53.6786
2200	62.49861	2.083287	0.079	0.73252	36.21982	1.207327	0.0777	0.43162	187.964	6.265465	0.0761	2.287	277.7415	9.258051	0.9244	0.2782	4050.693	135.0231	0.0761	49.2857
2300	62.57772	2.085924	0.0791	0.73252	36.31305	1.210435	0.0779	0.43162	188.211	6.273698	0.0762	2.287	302.8897	10.09632	1.0081	0.2782	3815.004	127.1668	0.0762	46.3571
2400	62.10305	2.070102	0.0785	0.73252	36.07998	1.202666	0.0774	0.43162	187.223	6.240766	0.0758	2.287	290.8114	9.693712	0.9679	0.2782	3689.725	122.9908	0.0758	45.0714
	5598.243	7.775337	0.102233	1.87175	1316.656	1.828688	0.097875	0.50506	7704.003	10.7	0.099038	2.87335	136553.9	189.6582	3.004804	1.207438	151632	210.5999	0.099038	56.90205

SEPTEMBER	1993
START	244
STOP	272
NUMDAYS	29

BLACK OAK

HOUR	TOTAL NH3 DPSTN ug/m^2h	AVRGE NH3 DPSTN ug/m^2h	AVRGE NH3 VD cm/s	AVRGE NH3 CNCTRT ug/m^3	TOTAL SO2 DPSTN ug/m^2h	AVRGE SO2 DPSTN ug/m^2h	AVRGE SO2 VD cm/s	AVRGE SO2 CNCTRT ug/m^3	TOTAL NO2 DPSTN ug/m^2h	AVRGE NO2 DPSTN ug/m^2h	AVRGE NO2 VD cm/s	AVRGE NO2 CNCTRT ug/m^3	TOTAL HNO3 DPSTN ug/m^2h	AVRGE HNO3 DPSTN ug/m^2h	AVRGE HNO3 VD cm/s	AVRGE HNO3 CNCTRT ug/m^3	TOTAL O3 DPSTN ug/m^2h	AVRGE O3 DPSTN ug/m^2h	AVRGE O3 VD cm/s	AVRGE O3 CNCTR ppb
100	126.1419	4.20473	0.0851	1.37248	15.78327	0.526109	0.0847	0.17254	86.79072	2.893024	0.0795	1.01084	226.0001	7.533336	0.8945	0.23394	3754.941	125.1647	0.0795	43.7333
200	120.6575	4.021915	0.0814	1.37248	15.11243	0.503748	0.0811	0.17254	83.84311	2.79477	0.0768	1.01084	223.1451	7.438169	0.8832	0.23394	3552.765	118.4255	0.0768	42.8333
300	117.2482	3.908274	0.0791	1.37248	14.70248	0.490083	0.0789	0.17254	82.20555	2.740185	0.0753	1.01084	246.0104	8.200346	0.9737	0.23394	3393.919	113.1306	0.0753	41.7333
400	116.6553	3.88851	0.0787	1.37248	14.62794	0.487598	0.0785	0.17254	81.55053	2.718351	0.0747	1.01084	224.282	7.476067	0.8877	0.23394	3272.759	109.092	0.0747	40.5667
500	111.3191	3.710637	0.0751	1.37248	13.97574	0.465858	0.075	0.17254	79.0396	2.634653	0.0724	1.01084	225.7474	7.524914	0.8935	0.23394	3127.68	104.256	0.0724	40
600	184.1369	6.137896	0.0777	2.1943	45.68681	1.522894	0.0775	0.54584	118.5804	3.952681	0.0738	1.48776	1466.147	48.87157	1.5229	0.89142	3230.666	107.6889	0.0738	40.5333
700	195.9861	6.53287	0.0827	2.1943	48.22169	1.60739	0.0818	0.54584	126.4536	4.215122	0.0787	1.48776	1958.682	65.28938	2.0345	0.89142	3564.163	118.8054	0.0787	41.9333
800	236.2734	7.875782	0.0997	2.1943	56.82849	1.894283	0.0964	0.54584	153.2869	5.109563	0.0954	1.48776	3192.713	106.4238	3.3163	0.89142	4626.137	154.2046	0.0954	44.9
900	86.49931	2.88331	0.0365	2.1943	28.709	0.956967	0.0487	0.54584	50.45292	1.681764	0.0314	1.48776	3491.353	116.3784	3.6265	0.89142	1676.382	55.8794	0.0314	49.4333
1000	264.4746	8.81582	0.1116	2.1943	62.90042	2.096681	0.1067	0.54584	172.2469	5.741563	0.1072	1.48776	4291.192	143.0397	4.4573	0.89142	6020.352	200.6784	0.1072	52
1100	273.48	9.116	0.1154	2.1943	64.72789	2.157596	0.1098	0.54584	178.192	5.939733	0.1109	1.48776	4670.413	155.6804	4.8512	0.89142	6447.039	214.9013	0.1109	53.8276
1200	275.1389	9.171296	0.1161	2.1943	65.25845	2.175282	0.1107	0.54584	179.6381	5.987936	0.1118	1.48776	5321.991	177.3997	5.528	0.89142	7228.545	240.9515	0.1118	59.8667
1300	277.2717	9.242392	0.117	2.1943	65.6711	2.189037	0.1114	0.54584	180.7628	6.025428	0.1125	1.48776	5472.563	182.4188	5.6844	0.89142	8019	267.3	0.1125	66
1400	277.0348	9.234492	0.1169	2.1943	65.5532	2.185107	0.1112	0.54584	180.4415	6.014716	0.1123	1.48776	5581.063	186.0354	5.7971	0.89142	8712.23	290.4077	0.1123	71.8333
1500	273.243	9.1081	0.1153	2.1943	64.72789	2.157596	0.1098	0.54584	178.0313	5.934377	0.1108	1.48776	5375.616	179.1872	5.5837	0.89142	9321.826	310.7275	0.1108	77.9
1600	264.0006	8.800021	0.1114	2.1943	62.78252	2.092751	0.1065	0.54584	171.9255	5.730852	0.107	1.48776	4877.016	162.5672	5.0658	0.89142	9680.08	322.6693	0.107	83.7667
1700	246.7008	8.223359	0.1041	2.1943	59.12757	1.970919	0.1003	0.54584	160.0354	5.334512	0.0996	1.48776	4248.736	141.6245	4.4132	0.89142	9516.186	317.2062	0.0996	88.4667
1800	136.8143	4.560477	0.0923	1.37248	16.86406	0.562135	0.0905	0.17254	95.85189	3.195063	0.0878	1.01084	1168.025	38.93417	4.623	0.23394	8417.214	280.5738	0.0878	88.7667
1900	120.9539	4.031797	0.0816	1.37248	15.16834	0.505611	0.0814	0.17254	84.71648	2.823883	0.0776	1.01084	548.9945	18.29982	2.1729	0.23394	5433.549	181.1183	0.0776	64.8333
2000	120.8057	4.026856	0.0815	1.37248	15.11243	0.503748	0.0811	0.17254	83.84311	2.79477	0.0768	1.01084	211.0429	7.034763	0.8353	0.23394	4329.677	144.3226	0.0768	52.2
2100	129.8476	4.328253	0.0876	1.37248	16.23049	0.541016	0.0871	0.17254	88.86497	2.962166	0.0814	1.01084	221.1996	7.373321	0.8755	0.23394	4237.358	141.2453	0.0814	48.2
2200	124.5114	4.15038	0.084	1.37248	15.61556	0.520519	0.0838	0.17254	85.91736	2.863912	0.0787	1.01084	206.7478	6.891592	0.8183	0.23394	3884.317	129.4772	0.0787	45.7
2300	120.8057	4.026856	0.0815	1.37248	15.1497	0.50499	0.0813	0.17254	83.84311	2.79477	0.0768	1.01084	208.4911	6.949702	0.8252	0.23394	3746.307	124.8769	0.0768	45.1667
2400	126.4383	4.214612	0.0853	1.37248	15.82054	0.527351	0.0849	0.17254	86.89989	2.896663	0.0796	1.01084	233.5292	7.784307	0.9243	0.23394	3877.157	129.2386	0.0796	45.1
	4326.439	6.008943	0.091567	1.78339	874.358	1.214386	0.089963	0.35919	2873.414	3.990852	0.087033	1.2493	53890.7	74.8482	2.812	0.56268	129070.2	179.2642	0.087033	55.38726

APRIL	1992
START	92
STOP	121
NUMDAYS	30

BLACK OAK

9.0 BASELINE SOIL MORPHOLOGY AND CHEMISTRY AT BARTON FLATS

Mark Poth and Robert Glaubig

9.1 Introduction

Acidic deposition has the potential to change soils (Johnson and Taylor, 1989). However, it must be placed in perspective. Soils are the product of a complex web of interacting factors of which acid deposition is a part. The conceptual framework of soil forming factors as reviewed by Jenny (1980) groups factors into main categories that include site geology, topography, climate and vegetation. Under this framework, acid deposition would be considered part of the climate. A key part of the concept of soil forming factors is the element of time and the implicit nature of soils to change through time by the actions of the soil forming factors. Soil development is a slow process that is typically measured over a geologic time scale of thousands of years. This means that soils are relatively stable unless there is a dramatic change in one of the soil forming factors like the removal of vegetation.

Deposition of materials is a part of a particular site or area climate. Rainfall is naturally acidic since water in equilibrium with atmospheric carbon dioxide produces dissolved carbonic acid. Hence, rainfall in equilibrium with atmospheric carbon dioxide will have an acidic pH of 5.5. Even under pristine conditions acid nitrogen compounds formed by lightning would be deposited with rain (Dise and Wright, 1995). The amounts of material generated and deposited anthropogenically to forests in California are much higher than pristine conditions (Binkley *et al.*, 1989). Hence, there has been a dramatic change in one of the soil forming factors.

The ability of forest soils to buffer pH changes depends on the particular soil chemistry involved. Ulrich (1991) has described a sequence of predominant reactions and their corresponding pH range of importance. The reaction of carbonate minerals with acidity is important at soil pHs between 8.0 and 6.2. However these reactions are limited to soils with limestone or dolomite parent materials. Between pH 6.2 and 5.0 soil silicate mineral weathering is important. In this process Ca and Mg containing minerals react with acidic compounds to release these minerals and form more weathered alumino silicates. These reactions are very complex. The rate of reaction is typically limited which leads to situations where capacity is exceeded and cation exchange reactions begin to dominate. Cation exchange reactions buffer soil pH between 5.0 and 4.2, and when mineral weathering is rate limited. Cation exchange buffering works when base cations (Ca, Mg, Na and K), which are ionically bonded to the surfaces of soils, are replaced by protons. Below pH 4.2 reactions of aluminum and iron predominate.

The effects of these responses to acid deposition are both direct (typically short term chemical effects) and indirect (typically long term biological or cumulative chemical effects). The direct effects include changes in the availability and solubility of nutrients. For example; phosphate, and important nutrient, is less soluble, and aluminum, a toxic cation, is more soluble at low pH. Though indirect effects have been hypothesized few have had evidence presented in their support. One potential effect would be a reduction in mycorrhizae, the fungal association with tree roots (Menge *et al.*, 1977). This symbiosis gives trees better access to nutrients and confers some drought resistance. An effect on mycorrhizae is difficult to measure since

methods are poor and natural variation can be high. There is evidence for an indirect effect of acid deposition in changes in litter decomposition with increasing air pollution (Fenn, 1991). This may be symptomatic of a change in the homeostatic nature of forest soils. A change such as this might be reflected in soil characteristics that are produced over long time scales like soil C:N ratios and mineralizable soil N (Powers, 1980).

There will certainly be effects from the addition of air pollutants to the forest climate. The question is whether these changes will pose a threat to ecosystem stability and resource outputs. Clues to the potential change in ecosystem stability and resource outputs can be found in the current nature and status of forest soils. This report summarizes data on the current nature and status of the forest soils at Barton Flats in the San Bernardino Mountains of southern California.

9.2 Methods

9.2.1 Soil Taxonomic Characterization at Barton Flats

To characterize the soils at Barton Flats a series of five soil pits were dug near each of the three vegetation plots. Pits were kept outside the plot to avoid direct disturbance to the plot. Soil Survey Staff (Staff, 1975) taxonomic procedures were followed.

At each pit the average depth of visible soil horizons was measured. These typically included surface litter (the O1 horizon), decomposing organic materials (O2) and the mineral horizons (A and B). For the mineral horizons bulk density and percent stones greater than 2 mm of sub-samples were measured. Particle size distribution on the >2 mm fraction was determined by the hydrometer method (Day, 1965). Texture was determined by feel. Soil pH was determined with a 1:1 mixture of soil with 0.01 M $CaCl_2$. The Munsell system was used to define soil color. Details of the procedures for measuring extractable bases and cation exchange capacity (CEC) are listed in the laboratory SOP (V1.15). To summarize soils were extracted with $SrCl_2$. Extracts were analyzed for Ca, Mg, K and Na with atomic adsorption spectroscopy. After extraction, soils were extracted again with 1 M KCl, washed with ethanol to remove excess KCl and extracted with NH_4Cl to remove K. The measured removed K is the CEC. Base saturation is calculated as the sum of the extractable bases divided by the CEC times 100%. Total C and N were determined for each horizon by coupled combustion and gas chromatographic analysis using a Carlo Erba 1500 system.

9.2.2 Interrelationships of Soil Nutrient Concentrations

Composite soil samples were collected from near each pine tree in all three plots at Barton Flats. Samples were taken in 1991 from under mid-canopy on the north, south, east and west sides of each tree and composited by soil horizon. Soil A horizon materials were analyzed for extractable bases, CEC, total C and total N as described previously and detailed in the laboratory SOPs (V1.15). The O1 and O2 horizons were analyzed for total C and N.

9.2.3 Soil Solution Chemistry

Soil solution was collected with vacuum extraction using miniature porous Teflon extraction tubes (Grulke *et al,* 1987, SOP V1.18). Given the sandy nature of these soils this proved problematic. Soil solution was analyzed for pH using a combination electrode, Ca, Mg, Na and K by atomic adsorption spectroscopy using a Perkin-Elmer 5000 instrument, ammonium colorimetrically using a Technicon TRAACS instrument, and Cl^-, NO_3^-, PO_4^{-2} and SO_4^{-2} by ion chromatography using a Dionex 4000i instrument.

9.3 Results

9.3.1 Soil Taxonomic Characterization at Barton Flats Results

The data from the soil pits near each plot is summarized in Table 9-1. The data for each individual soil pit are in Tables 9-2 through 16. In general these soils are well drained with coarse texture. This is to be expected since the soils are in a mountain range that is actively uplifting and producing the alluvial deposits that are the basis for soil formation at Barton Flats. As soils age and weathering proceeds clays are formed and transported down into the soil profile. These soils are relatively young as evidenced by the absence of clay movement. The lack of clay translocation means that these soils do not have an argillic horizon and hence could not meet the definition of an alfisol. Mineralogy appears mixed with some evidence of 2:1 layer clay formation (Baily and Jahns, 1954). This is direct evidence of the active weathering of primary minerals in the parent material at this site.

Soil base saturations are high in the mineral soil where they are always near 100%. This again reflects the young nature of the these soils and the active weathering of primary soil parent materials to release base cations. The high base saturation of the mineral soil exchange complex is offset by the relatively low CEC of the soils which is a result of low organic matter (low total C) and clay contents. These soils are coarse, mixed Typic Xerochrepts. They meet this definition by being coarse textured and having a mixed mineralogy. The moisture regime is xeric with precipitation falling in the winter and a pronounced summer dry season. The epipedon, or surface soil horizon does not meet the definition of a mollic epipedon because it is not thick enough and is not an umbric epipedon because the base saturation is greater than 50%.

The soils at Barton Flats exhibit a considerable amount of spatial heterogeneity. This can be clearly seen by comparing the data tables for the soil pits. The variability is a result of the heterogeneous nature of the vegetation distribution and the small scale differences in topography and deposited alluvial parent materials. The variability observed is a key property of the forest soils in the area studied and is typical of many forested areas in the mountains of California.

9.3.2 Interrelationships of Soil Nutrient Concentrations Results

The pattern of relationships between all soil A horizons, 6 directly measured and 2 derived (CEC and Base Saturation) chemical parameters measured is shown in Figure 9-1. Data visualization methods, like Figure 9-1, that allow the display of a great deal of information at once, are valuable in determining where and how variables are related. For example, note the good relationships between soil total N and C and between these and CEC. Exchangeable Ca appears well correlated with CEC as would be expected since Ca dominates the exchange complex. Table 9-17 holds descriptive statistics for all broadly measured soil chemical

characteristics.

The relationship between soil A horizon C, N and CEC is examined in more detail in Figure 9-2 and demonstrates how important a contribution organic matter makes to soil CEC. The strong relationship between C and N in the surface mineral horizon is a consequence of C mineralization to CO_2, resulting in C removal from the upper horizons soil. The relationship between soil total C and N for the three surface soil horizons is shown in Figure 9-3. Note how the mineralization of soil organic matter, using soil horizon as a surrogate for organic matter age, progressively reduces the variance in the relationship between soil C and N. In the surface Oi or L horizon the sample consists of newly fallen litter that can be recognized as such. The C concentrations in litter are high and fall into a narrow range as we would expect of leaf material. Note that the variance of N concentrations in this material is very high. In the Oe or F horizon with the C in the litter material being mineralized a good relationship is beginning to develop between the N content and C content. Within soil A horizon, the surface mineral soil, the relationship is very strong between soil C and N as a result of the continued mineralization of C and N and formation of more stable organic compounds in the soil.

Soil nutrients are not normally distributed (Figures 9-4, 5, 6) with the exception of extractable K which produces a relatively straight line on a normal probability plot (Figure 9-7). The normal distributions are rare for soils in which log normal distributions are common (Parkin *et al.*, 1988). The normal distribution of soil exchangeable K may be a reflection of its ready movement from litter mineralization into soil solution for plant uptake and onto soil cation exchange sites. This mobility and continuing redistribution in soil may be one explanation for the normal distribution of soil exchangeable K. The log normal distribution of Mg is shown by the good linear relationship produced in a probability plot when concentrations are log transformed (Figure 9-5).

9.3.3 Soil Solution Chemistry Results

Soil solution chemistry is highly variable both spatially and temporally. Our primary goal in acquiring soil solution samples was to provide initial conditions for subsequent model simulation and to check for any outlier or unusual conditions; hence these results are presented but not discussed further in this report. Soil solution pH ranged from 6.61 to 7.33. Occasionally nitrate concentrations were higher than 8 mg l^{-1} when sampled in mid May. Average concentration was less than 1 by June 7. Because of the precipitation of insoluble calcium phosphates at this pH there was no detectable PO_4^{-3} in solution. Soil solution concentrations of K were relatively high averaging 4.23 mg l^{-1}.

9.4 Discussion

Soils develop through time under the influences of the soil forming factors. Soils at the Barton Flats are relatively young since the parent materials they have developed upon have been deposited recently in terms of a geologic time scale (Richter and Markewitz, 1995). This is reflected in the relatively low clay content and the absence of significant clay movement (no argillic horizon) and the high base saturation of the exchange complex. Previous classification of the soils in this area included the finding of clay translocation and hence the presence of an argillic horizon which we failed to detect. Given the active geologic and geomorphic forces at work in the area it is not surprising that some sites in this area have an argillic horizon and others

do not. Based on our measured soil characteristics these soils are insensitive to pH related short term phenomena (Al and Mn toxicity) associated with acid deposition (Reuss and Johnson, 1986). This is a result of the high base saturation and abundance of weatherable minerals in these soils. Hence, acute effects of acid deposition like aluminum toxicity should not be a problem here as they have been in some forests (Shortle and Smith, 1988).

Forests have evolved under conditions that are typically nitrogen limited (Aber, 1989). This is evidenced by the response of most forests to nitrogenous fertilizers. There is not an unlimited response to nitrogen additions. Hence, chronic deposition of N can produce nitrogen saturation. Given the relatively young nature of these soils (relatively coarse texture, low clay content and low CEC) the total capacity of the soil to immobilize continued nitrogen deposition will have limits (Schulze *et al.*, 1989). One good indicator of the change in N loading within these soils will be C:N ratio. The thorough measurement of C:N ratio in all soil horizons shows that there has been some N enrichment in these soils assuming that the original ratios were similar to remote sites in the Sierra Nevada (Figure 9-3). Of all the parameters measured this may be the best integrator of change over the next 10 to 50 years.

We can relate the CEC we have measured to the amount of acid deposition it can neutralize by using the lime potential (KL) equation (Johnson and Reuss, 1984).

$$KL = pH - 0.5p(Ca + Mg)$$

This relationship suggests that as acid is added to the soil (lower pH of the soil solution) Ca and Mg are released from exchange sites and (lowers pCa) and KL remains constant. With this relationship we can calculate how many years of N deposition at a given rate is required to exhaust the buffering capacity of the soil CEC (Figure 9-8). Based on this approximation then, at preindustrial deposition rates of 3 kg-N/ha/yr, it would take over 300 years to exhaust the soil CEC buffering capacity. Weathering processes almost certainly could balance this loss as evidenced by our observed base saturations of 100%. At the current elevated deposition rate at Barton Flats CEC buffering might last only 150 years and at the rate seen at Crestline less than 40 years. The figure emphasizes the sensitivity of soil to changes in input. Note the large differences in years to soil exchangeable Ca depletion that are produced by small changes in the deposition rate.

The distribution of many soil chemical parameters were not normal. The lack of normality will have consequences for subsequent sampling, measurements and statistical interpretations of soil chemical characteristics. Lognormal distributions are common in soils (Parkin *et al.*, 1988). Sufficient numbers of samples must be made to allow an assessment of soil conditions since lognormally distributed data are characterized by small numbers of very high values. As a result the arithmetic mean (dominated by the high values) may be much higher that the median. For example the mean and median soil exchangeable Mg are 1.80 and 1.56 meq/100g respectively, a difference of 15%. This could lead to erroneous interpretations of acceptable nutrient status where the mean is relied upon.

9.5 Summary

The soil at Barton Flats in the San Bernardino Mountains of southern California are geologically young.

They have little evidence of overall development including organic matter incorporation and clay translocation to lower portion of the soil profile. These soils are coarse, mixed Typic Xerochrepts. Based on current overall characteristics, these soils are insensitive to pH related short term acute event phenomena (Al and Mn toxicity) associated with acid deposition. The current capacity for N adsorption is considered typical of many mixed conifer forest soils in California and has not yet been exceeded.

9.6 References

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Table 9-1. Summary soil horizon characteristics. Values presented are the averages of the determinations from 15 soil pits at Barton Flats in the San Bernardino Mountains.

Horizon	L	F	A	B
Bulk Density (g/cc)	N/A	N/A	1.24	1.40
Greater than 2 mm (%)	N/A	N/A	28.0	25.2
Sand (%)	N/A	N/A	67.8	67.5
Silt (%)	N/A	N/A	22.7	24.1
Clay (%)	N/A	N/A	8.3	8.45
pH	N/A	N/A	5.41	5.40
C.E.C. (meq/100g)	N/A	N/A	13.3	7.45
Extractable Ca (meq/100g)	N/A	N/A	12.3	6.12
Extractable Mg (meq/100g)	N/A	N/A	1.65	1.27
Extractable K (meq/100g)	N/A	N/A	0.50	.43
Extractable Na (meq/100g)	N/A	N/A	0.02	.03
Base Saturation (%)	N/A	N/A	109	105
Total C (%)	47.8	33.6	2.79	0.77
Total N (%)	1.13	1.30	0.19	0.03

Table 9-2. Results for soil pit A excavated at Plot 1 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

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Plot 1 Pit A - Location 50 m above, 50 m east of top of plot center line stake on perpendicular; pine canopy; visual estimate 5-10% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 3	3 - 5	5 - 20	20 - 42+
Bulk Density (g/cc)	N/A	N/A	1.36	1.30
Greater than 2 mm (%)	N/A	N/A	19.2	21.0
Sand (% of < 2 mm fraction)	N/A	N/A	68.5	75.1
Silt (% of < 2 mm fraction)	N/A	N/A	24.0	19.9
Clay (% of < 2 mm fraction)	N/A	N/A	7.5	5.0
Texture	N/A	N/A	S.LOAM	L.SAND
pH	N/A	N/A	5.58	5.35
C.E.C (meq/100g)	N/A	N/A	10.68	5.02
Extractable Ca (meq/100g)	N/A	N/A	9.51	3.96
Extractable Mg (meq/100g)	N/A	N/A	1.27	0.67
Extractable K (meq/100g)	N/A	N/A	0.44	0.28
Extractable Na (meq/100g)	N/A	N/A	0.019	0.025
Base Saturation (%)	N/A	N/A	105.2	98.3
Color	N/A	N/A	10YR 4/3	10YR 5/4
Total C (%)	50.1	26.4	1.82	0.323
Total N (%)	0.996	0.928	0.077	0.020
C:N ratio	50.3	28.5	23.6	16.1

Table 9-3. Results for soil pit B excavated at Plot 1 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 1 Pit B - Location 12 m west of Tree 68 on perpendicular; pine canopy; visual estimate 50% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 2	2 - 4	4 - 21	21 - 45+
Bulk Density (g/cc)	N/A	N/A	0.80	(1)
Greater than 2 mm (%)	N/A	N/A	17.8	(1)
Sand (% of < 2 mm fraction)	N/A	N/A	75.1	72.5
Silt (% of < 2 mm fraction)	N/A	N/A	19.9	20.0
Clay (% of < 2 mm fraction)	N/A	N/A	5.0	7.5
Texture	N/A	N/A	L.SAND	S.LOAM(2)
pH	N/A	N/A	5.06	5.14
C.E.C (meq/100g)	N/A	N/A	7.36	5.50
Extractable Ca (meq/100g)	N/A	N/A	5.43	3.74
Extractable Mg (meq/100g)	N/A	N/A	1.03	1.07
Extractable K (meq/100g)	N/A	N/A	0.42	0.27
Extractable Na (meq/100g)	N/A	N/A	0.024	0.031
Base Saturation (%)	N/A	N/A	93.8	92.9
Color	N/A	N/A	10YR 5/3	10YR 5/4
Total C (%)	50.0	29.4	1.91	0.426
Total N (%)	0.935	1.17	0.083	0.023
C:N ratio	53.5	25.1	23.0	18.5

(1) Soil was too rocky for bulk density and > 2 mm fraction in this horizon

(2) Particle size determination on soil pit sample, not bulk density sample

Table 9-4. Results for soil pit C excavated at Plot 1 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 1 Pit C - Location 7.5 m east of Tree 170, 6.0 m above perpendicular; pine canopy; visual estimate 25% stones

Horizon	O1	O2	O3	A1	B1
Depth (cm)	0 - 2	2 - 5	5 - 9	9 - 17	17 - 55+
Bulk Density (g/cc)	N/A	N/A	N/A	1.28	1.46
Greater than 2 mm (%)	N/A	N/A	N/A	25.3	18.2
Sand (% of < 2 mm fraction)	N/A	N/A	N/A	75.1	77.7
Silt (% of < 2 mm fraction)	N/A	N/A	N/A	21.1	18.6
Clay (% of < 2 mm fraction)	N/A	N/A	N/A	3.8	3.7
Texture	N/A	N/A	N/A	L.SAND	L.SAND
pH	N/A	N/A	N/A	5.60	5.02
C.E.C (meq/100g)	N/A	N/A	N/A	22.77	4.62
Extractable Ca (meq/100g)	N/A	N/A	N/A	22.04	3.50
Extractable Mg (meq/100g)	N/A	N/A	N/A	2.56	1.12
Extractable K (meq/100g)	N/A	N/A	N/A	0.55	0.18
Extractable Na (meq/100g)	N/A	N/A	N/A	0.057	0.054
Base Saturation (%)	N/A	N/A	N/A	110.7	105.1
Color	N/A	N/A	N/A	10YR 4/2	10YR 5/3
Total C (%)	49.5	46.9	38.6	4.37	0.421
Total N (%)	0.879	1.37	1.28	0.144	0.016
C:N ratio	56.3	34.2	31.0	30.3	26.3

Table 9-5. Results for soil pit D excavated at Plot 1 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 1 Pit D - Location 14.0 m east of Tree 98, 2.0 m above perpendicular; pine canopy; visual estimate 5% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 2	2 - 6	6 - 12	12 - 56+
Bulk Density (g/cc)	N/A	N/A	0.98	1.13
Greater than 2 mm (%)	N/A	N/A	24.2	23.6
Sand (% of < 2 mm fraction)	N/A	N/A	72.5	72.5
Silt (% of < 2 mm fraction)	N/A	N/A	20.0	21.3
Clay (% of < 2 mm fraction)	N/A	N/A	7.5	6.2
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	6.24	5.97
C.E.C (meq/100g)	N/A	N/A	15.82	5.65
Extractable Ca (meq/100g)	N/A	N/A	17.51	5.48
Extractable Mg (meq/100g)	N/A	N/A	1.50	1.08
Extractable K (meq/100g)	N/A	N/A	0.95	0.46
Extractable Na (meq/100g)	N/A	N/A	0.021	0.027
Base Saturation (%)	N/A	N/A	126.3	124.7
Color	N/A	N/A	10YR 3/3	10YR 5/3
Total C (%)	40.4	42.8	3.10	0.596
Total N (%)	1.25	1.72	0.143	0.027
C:N ratio	32.3	24.9	21.6	22.1

Table 9-6. Results for soil pit E excavated at Plot 1 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 1 Pit E - Location 7.7 m west of Tree 27 on perpendicular; pine/oak canopy; visual estimate less than 5% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 2	2 - 5	5 - 16	16 - 70+
Bulk Density (g/cc)	N/A	N/A	0.78	1.39
Greater than 2 mm (%)	N/A	N/A	25.5	27.0
Sand (% of < 2 mm fraction)	N/A	N/A	75.0	71.3
Silt (% of < 2 mm fraction)	N/A	N/A	19.1	21.2
Clay (% of < 2 mm fraction)	N/A	N/A	5.9	7.5
Texture	N/A	N/A	L.SAND	S.LOAM
pH	N/A	N/A	5.60	5.42
C.E.C (meq/100g)	N/A	N/A	8.67	6.05
Extractable Ca (meq/100g)	N/A	N/A	7.95	4.11
Extractable Mg (meq/100g)	N/A	N/A	0.96	0.94
Extractable K (meq/100g)	N/A	N/A	0.51	0.30
Extractable Na (meq/100g)	N/A	N/A	0.013	0.019
Base Saturation (%)	N/A	N/A	108.8	88.7
Color	N/A	N/A	10YR 3/3	10YR 5/3
Total C (%)	45.4	36.0	1.90	0.491
Total N (%)	1.25	0.624	0.068	0.024
C:N ratio	36.3	57.7	27.9	20.5

Table 9-7. Results for soil pit A excavated at Plot 2 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

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Plot 2 Pit A - Location 17.8 m below, 29.7 m north of top of plot center line stake on perpendicular; pine canopy; visual estimate < 5% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 2	2 - 3	3 - 15	15 - 40+
Bulk Density (g/cc)	N/A	N/A	1.39	1.00
Greater than 2 mm (%)	N/A	N/A	25.6	25.8
Sand (% of < 2 mm fraction)	N/A	N/A	59.8	58.6
Silt (% of < 2 mm fraction)	N/A	N/A	29.3	28.9
Clay (% of < 2 mm fraction)	N/A	N/A	10.9	12.5
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	5.25	4.99
C.E.C (meq/100g)	N/A	N/A	9.51	7.49
Extractable Ca (meq/100g)	N/A	N/A	7.06	5.65
Extractable Mg (meq/100g)	N/A	N/A	1.22	1.07
Extractable K (meq/100g)	N/A	N/A	0.76	0.39
Extractable Na (meq/100g)	N/A	N/A	0.026	0.057
Base Saturation (%)	N/A	N/A	95.3	95.7
Color	N/A	N/A	10YR 4/3	10YR 4/3
Total C (%)	47.2	33.6	1.64	0.687
Total N (%)	0.981	1.36	0.061	0.033
C:N ratio	48.1	24.7	26.9	20.8

Table 9-8. Results for soil pit C excavated at Plot 2 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 2 Pit C - Location 10.0 m outside of Tree 375; 1.0 m below perpendicular; pine canopy; visual estimate 5 - 10% stones

Horizon	O1	A1	B1	B2
Depth (cm)	0 - 1	1 - 17	17 - 43	43+
Bulk Density (g/cc)	N/A	1.51	1.56	1.53
Greater than 2 mm (%)	N/A	23.4	27.9	23.1
Sand (% of < 2 mm fraction)	N/A	60.8	64.7	58.4
Silt (% of < 2 mm fraction)	N/A	27.0	24.4	23.2
Clay (% of < 2 mm fraction)	N/A	12.2	10.9	18.4
Texture	N/A	S.LOAM	S.LOAM	S.LOAM
pH	N/A	5.33	4.89	4.79
C.E.C (meq/100g)	N/A	12.70	10.16	13.15
Extractable Ca (meq/100g)	N/A	10.24	7.71	10.26
Extractable Mg (meq/100g)	N/A	2.61	2.24	3.14
Extractable K (meq/100g)	N/A	0.78	0.51	0.55
Extractable Na (meq/100g)	N/A	0.018	0.029	0.033
Base Saturation (%)	N/A	107.5	103.2	106.3
Color	N/A	10YR 5/3	10YR 5/3	10YR 6/4
Total C (%)	40.5	1.85	0.260	0.015
Total N (%)	0.903	0.088	0.022	0.013
C:N ratio	44.8	21.0	11.8	1.15

Table 9-9. Results for soil pit D excavated at Plot 2 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 2 Pit D - Location 4.6 m outside of Tree 287, on perpendicular; pine canopy; visual estimate 0-5% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 2	2 - 3	3 - 15	15 - 51+
Bulk Density (g/cc)	N/A	N/A	1.42	1.46
Greater than 2 mm (%)	N/A	N/A	13.5	27.4
Sand (% of < 2 mm fraction)	N/A	N/A	80.2	66.1
Silt (% of < 2 mm fraction)	N/A	N/A	13.2	25.1
Clay (% of < 2 mm fraction)	N/A	N/A	6.6	8.8
Texture	N/A	N/A	L.SAND	S.LOAM
pH	N/A	N/A	5.88	5.49
C.E.C (meq/100g)	N/A	N/A	7.62	11.71
Extractable Ca (meq/100g)	N/A	N/A	6.79	9.70
Extractable Mg (meq/100g)	N/A	N/A	1.27	1.97
Extractable K (meq/100g)	N/A	N/A	0.60	0.63
Extractable Na (meq/100g)	N/A	N/A	0.006	0.025
Base Saturation (%)	N/A	N/A	113.7	105.2
Color	N/A	N/A	10YR 5/3	10YR 3/3
Total C (%)	45.0	44.5	0.865	1.70
Total N (%)	1.45	1.56	0.042	0.065
C:N ratio	31.0	28.5	20.6	26.2

Table 9-10. Results for soil pit E excavated at Plot 2 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 2 Pit E - Location 11.0 m outside of Tree 369, 2.0 m above perpendicular; pine canopy; visual estimate 50 - 75% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 2	2 - 10	10 - 16	16 - 41+
Bulk Density (g/cc)	N/A	N/A	1.40	1.68
Greater than 2 mm (%)	N/A	N/A	28.4	40.5
Sand (% of < 2 mm fraction)	N/A	N/A	59.8	64.9
Silt (% of < 2 mm fraction)	N/A	N/A	29.7	26.8
Clay (% of < 2 mm fraction)	N/A	N/A	10.5	8.3
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	6.18	5.07
C.E.C (meq/100g)	N/A	N/A	18.80	5.58
Extractable Ca (meq/100g)	N/A	N/A	17.11	3.29
Extractable Mg (meq/100g)	N/A	N/A	2.08	1.42
Extractable K (meq/100g)	N/A	N/A	1.09	0.47
Extractable Na (meq/100g)	N/A	N/A	0.017	0.023
Base Saturation (%)	N/A	N/A	107.9	93.2
Color	N/A	N/A	10YR 4/3	10YR 5/4
Total C (%)	46.5	37.1	3.77	0.826
Total N (%)	1.43	1.56	0.147	0.031
C:N ratio	32.5	23.8	25.6	26.6

Table 9-11. Results for soil pit F excavated at Plot 2 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 2 Pit F - Location on line with center line; 7.0 m above top of plot stake surrounded by pines but in open; visual estimate 15 - 20% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 2	2 - 5	5 - 10	10 - 45+
Bulk Density (g/cc)	N/A	N/A	1.12	1.34
Greater than 2 mm (%)	N/A	N/A	28.6	30.9
Sand (% of < 2 mm fraction)	N/A	N/A	57.1	63.6
Silt (% of < 2 mm fraction)	N/A	N/A	30.8	26.8
Clay (% of < 2 mm fraction)	N/A	N/A	12.1	9.6
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	5.84	5.83
C.E.C (meq/100g)	N/A	N/A	22.56	7.57
Extractable Ca (meq/100g)	N/A	N/A	20.91	6.51
Extractable Mg (meq/100g)	N/A	N/A	2.59	1.03
Extractable K (meq/100g)	N/A	N/A	1.14	0.71
Extractable Na (meq/100g)	N/A	N/A	0.017	0.016
Base Saturation (%)	N/A	N/A	109.3	109.2
Color	N/A	N/A	10YR 4/3	10YR 4/3
Total C (%)	47.3	26.2	6.16	0.909
Total N (%)	1.32	1.04	0.250	0.037
C:N ratio	35.8	25.2	24.6	24.6

Table 9-12. Results for soil pit A excavated at Plot 3 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

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Plot 3 Pit A - Location 4.5 m outside of Tree 526, 2.0 m above perpendicular, pine canopy; visual estimate 50 - 75% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 3	3 - 5	5 - 17	17 - 43+
Bulk Density (g/cc)	N/A	N/A	1.29	1.71
Greater than 2 mm (%)	N/A	N/A	24.8	31.1
Sand (% of < 2 mm fraction)	N/A	N/A	64.9	64.9
Silt (% of < 2 mm fraction)	N/A	N/A	27.6	27.6
Clay (% of < 2 mm fraction)	N/A	N/A	7.5	7.5
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	5.50	5.35
C.E.C (meq/100g)	N/A	N/A	9.53	4.97
Extractable Ca (meq/100g)	N/A	N/A	8.55	4.70
Extractable Mg (meq/100g)	N/A	N/A	1.61	1.27
Extractable K (meq/100g)	N/A	N/A	0.68	0.40
Extractable Na (meq/100g)	N/A	N/A	0.021	0.017
Base Saturation (%)	N/A	N/A	114.0	128.5
Color	N/A	N/A	10YR 4/3	10YR 5/4
Total C (%)	52.4	38.6	2.06	0.717
Total N (%)	1.15	1.63	0.090	0.037
C:N ratio	45.6	23.7	22.9	19.4

Table 9-13. Results for soil pit B excavated at Plot 3 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 3 Pit B - Location 5.8 m outside of Tree 605, 1.8 m above perpendicular; tall pine canopy, visual estimate 5% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 3	3 - 6	6 - 17	17 - 41+
Bulk Density (g/cc)	N/A	N/A	1.04	1.40
Greater than 2 mm (%)	N/A	N/A	18.6	18.9
Sand (% of < 2 mm fraction)	N/A	N/A	64.9	67.5
Silt (% of < 2 mm fraction)	N/A	N/A	25.9	24.2
Clay (% of < 2 mm fraction)	N/A	N/A	9.2	8.3
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	5.73	5.52
C.E.C (meq/100g)	N/A	N/A	14.06	8.83
Extractable Ca (meq/100g)	N/A	N/A	13.21	7.49
Extractable Mg (meq/100g)	N/A	N/A	1.82	1.27
Extractable K (meq/100g)	N/A	N/A	0.61	0.44
Extractable Na (meq/100g)	N/A	N/A	0.017	0.020
Base Saturation (%)	N/A	N/A	111.3	104.4
Color	N/A	N/A	10YR 5/4	10YR 5/3
Total C (%)	50.8	39.2	2.54	1.23
Total N (%)	0.971	1.34	0.109	0.049
C:N ratio	52.3	29.2	23.3	25.1

Table 9-14. Results for soil pit C excavated at Plot 3 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 3 Pit C - Location 26.6 m west of top of plot stake, 2.4 m below on perpendicular, tall pine canopy, visual estimate 5% stones

Horizon	O1	O2	A1	A2	B1
Depth (cm)	0 - 2	2 - 4	4 - 9	9 - 15	15 - 43+
Bulk Density (g/cc)	N/A	N/A	1.55	1.30	1.39
Greater than 2 mm (%)	N/A	N/A	49.7	22.8	17.8
Sand (% of < 2 mm fraction)	N/A	N/A	93.8	67.3	66.0
Silt (% of < 2 mm fraction)	N/A	N/A	3.3	23.9	26.5
Clay (% of < 2 mm fraction)	N/A	N/A	2.9	8.8	7.5
Texture	N/A	N/A	SAND	S.LOAM	S.LOAM
pH	N/A	N/A	5.15	5.43	5.27
C.E.C (meq/100g)	N/A	N/A	6.53	12.20	7.41
Extractable Ca (meq/100g)	N/A	N/A	6.43	12.48	6.41
Extractable Mg (meq/100g)	N/A	N/A	1.00	1.50	0.96
Extractable K (meq/100g)	N/A	N/A	0.37	0.40	0.41
Extractable Na (meq/100g)	N/A	N/A	0.009	0.013	0.015
Base Saturation (%)	N/A	N/A	119.6	117.9	105.2
Color	N/A	N/A	10YR 4/3	10YR 4/3	10YR 4/6
Total C (%)	50.1	41.2	2.19	3.99	1.13
Total N (%)	1.04	1.03	0.094	0.141	0.050
C:N ratio	48.2	40.0	23.3	28.3	22.6

Table 9-15. Results for soil pit D excavated at Plot 3 near Barton Flats in the San Bernardino Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 3 Pit D - Location 34.O m east of center line, 6.0 m below 120 m stake perpendicular; pine canopy; visual estimate 10 - 20% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 1	1 - 2	2 - 8	8 - 49+
Bulk Density (g/cc)	N/A	N/A	1.20	1.31
Greater than 2 mm (%)	N/A	N/A	23.7	23.0
Sand (% of < 2 mm fraction)	N/A	N/A	64.8	68.5
Silt (% of < 2 mm fraction)	N/A	N/A	25.2	23.9
Clay (% of < 2 mm fraction)	N/A	N/A	10.0	7.5
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	5.93	6.15
C.E.C (meq/100g)	N/A	N/A	15.39	9.58
Extractable Ca (meq/100g)	N/A	N/A	14.16	9.05
Extractable Mg (meq/100g)	N/A	N/A	1.25	0.68
Extractable K (meq/100g)	N/A	N/A	0.66	0.50
Extractable Na (meq/100g)	N/A	N/A	0.014	0.013
Base Saturation (%)	N/A	N/A	104.5	106.9
Color	N/A	N/A	10YR 4/3	10YR 4/3
Total C (%)	52.1	29.0	3.03	1.02
Total N (%)	0.935	1.16	0.119	0.046
C:N ratio	55.7	25.0	25.5	22.2

Table 9-16. Results for soil pit E excavated at Plot 3 near Barton Flats in the San Bernardinol Mountains. Included in each table header is the date of excavation and the exact location relative to the plot centerline. See the site description for the location of each plot.

Plot 3 Pit E - Location 14.3 m outside of Tree 558, 2.0 m below perpendicular; pine canopy, visual estimate 5% stones

Horizon	O1	O2	A1	B1
Depth (cm)	0 - 3	3 - 6	6 - 10	10 - 58+
Bulk Density (g/cc)	N/A	N/A	1.47	1.48
Greater than 2 mm (%)	N/A	N/A	23.7	24.3
Sand (% of < 2 mm fraction)	N/A	N/A	64.6	64.6
Silt (% of < 2 mm fraction)	N/A	N/A	26.8	27.0
Clay (% of < 2 mm fraction)	N/A	N/A	8.6	8.4
Texture	N/A	N/A	S.LOAM	S.LOAM
pH	N/A	N/A	6.09	5.57
C.E.C (meq/100g)	N/A	N/A	19.39	8.64
Extractable Ca (meq/100g)	N/A	N/A	19.59	7.78
Extractable Mg (meq/100g)	N/A	N/A	2.40	1.29
Extractable K (meq/100g)	N/A	N/A	0.81	0.51
Extractable Na (meq/100g)	N/A	N/A	0.012	0.021
Base Saturation (%)	N/A	N/A	117.6	111.1
Color	N/A	N/A	10YR 4/3	10YR 4/3
Total C (%)	50.4	37.5	4.45	0.993
Total N (%)	1.46	1.78	0.253	0.049
C:N ratio	34.5	21.1	17.6	20.3

Table 9-17. Descriptive statistics for soil A horizon chemical parameters measured at Barton Flats in the San Bernardino Mountains. (SD = Standard Deviation, n = number of samples)

Soil Property	Mean	SD	n
Total N (%)	0.155	0.086	151
Total C (%)	3.85	2.42	151
C:N Ratio	24.4	3.57	151
Ca (meq/100g)	14.8	8.42	151
Mg (meq/100g)	1.81	0.88	151
Na (meq/100g)	0.027	0.025	151
K (meq/100g)	0.59	0.19	151
CEC (meq/100g)	16.5	7.3	151
Base Saturation (%)	105	22	151

Figure 9-1. Data visualization scatter plots for soil A horizon parameters including: total C and N; exchangeable Ca, Mg, Na and K ; Cation Exchange Capacity (CEC) and Base Saturation (BS). Please see Table 9-17 for descriptive statistics concerning these measurements.

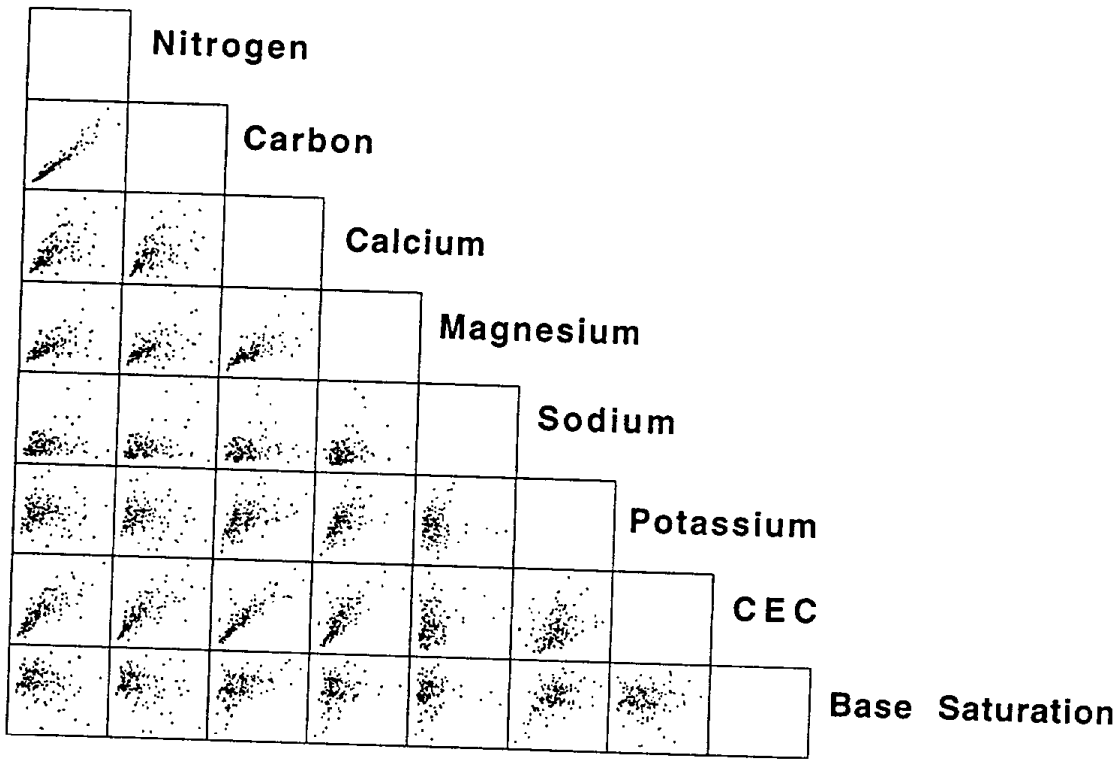


Figure 9-2. Relationships between soil total N, total C and Cation Exchange Capacity (CEC) for surface mineral horizon soils at Barton Flats in the San Bernardino Mountains.

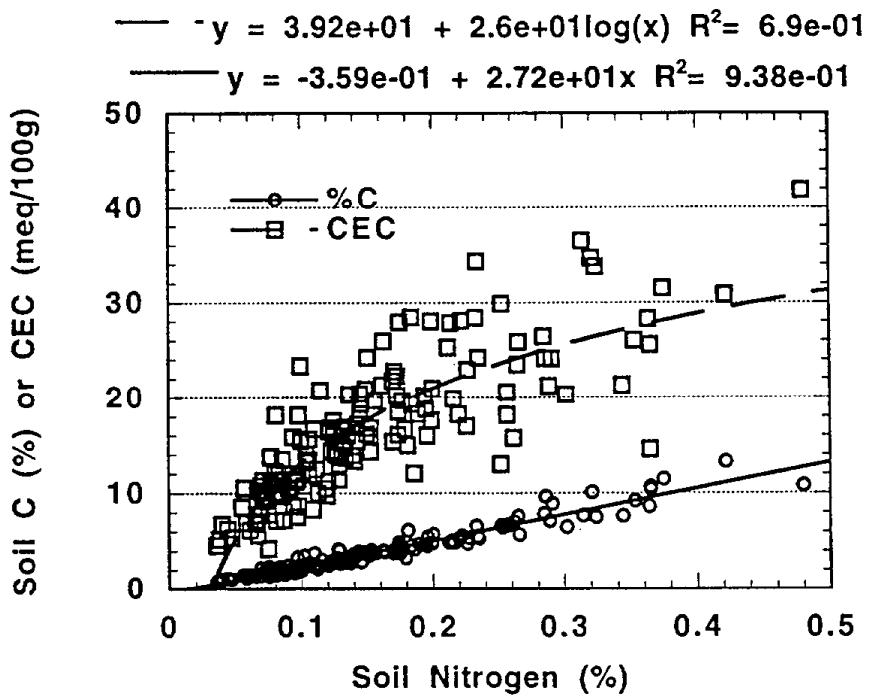


Figure 9-3. Changes in the relationship of soil total C to total N by horizon for soils at Barton Flats in the San Bernardino Mountains.

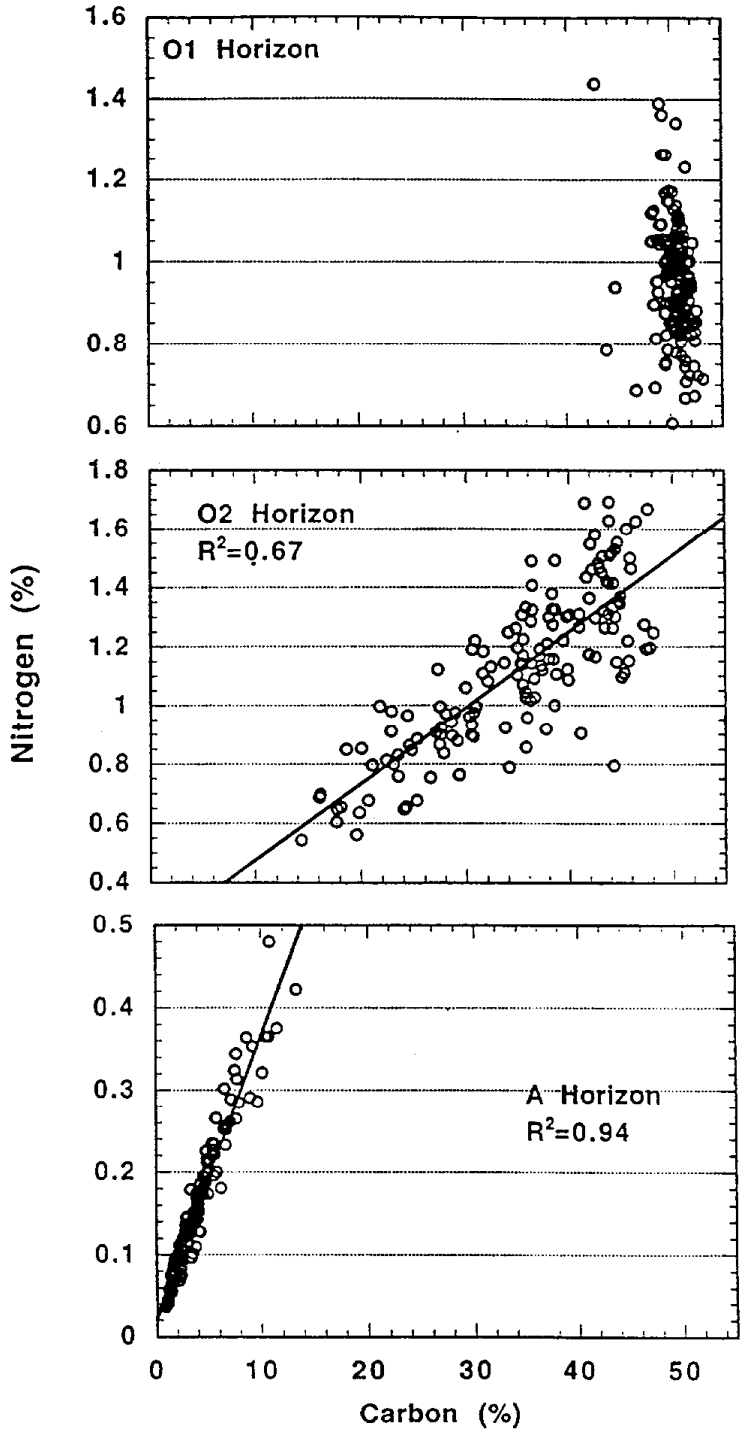


Figure 9-4. Normal probability plots for soil A horizon exchangeable Ca at Barton Flats in the San Bernardino Mountains. Normally distributed concentrations would lay along a straight line.

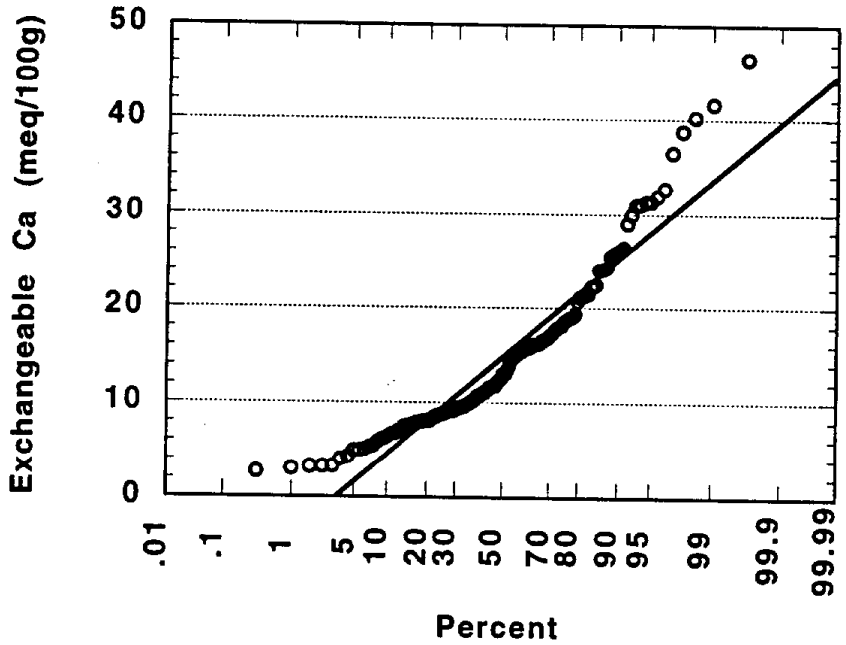
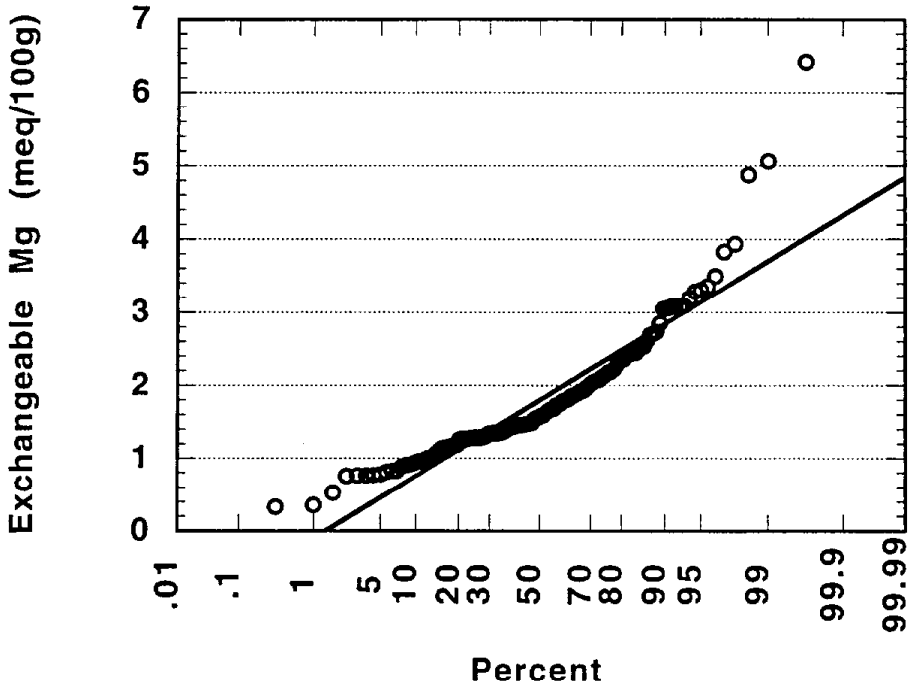


Figure 9-5. Normal probability plot (upper figure) for soil A horizon exchangeable Mg at Barton Flats in the San Bernardino Mountains. Lognormal probability plot (lower figure) for soil A horizon exchangeable Mg at Barton Flats in the San Bernardino Mountains. Normally distributed concentrations would lay along a straight line.



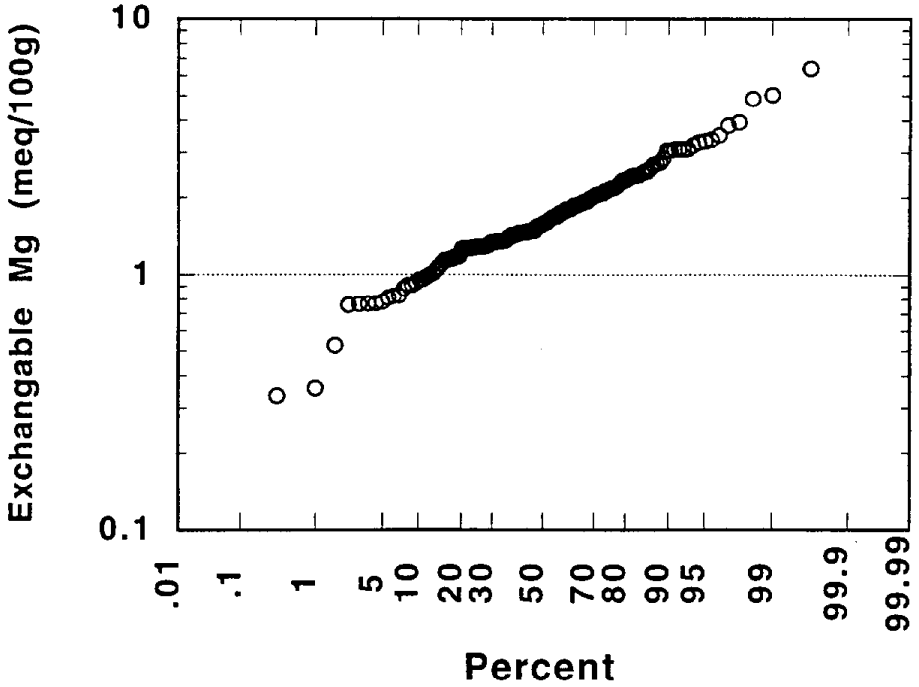


Figure 9-6. Normal probability plot for soil A horizon exchangeable Na at Barton Flats in the San Bernardino Mountains. Normally distributed concentrations would lay along a straight line.

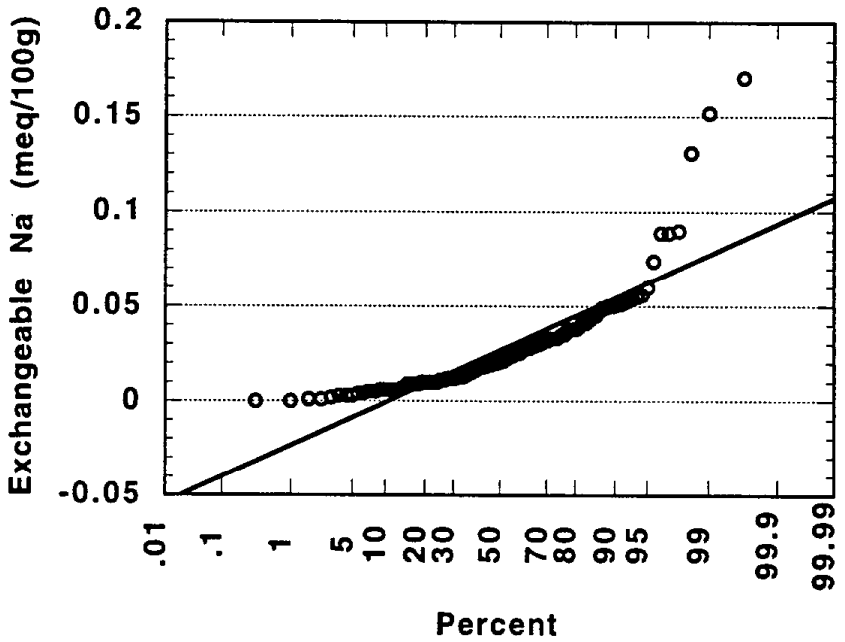


Figure 9-7. Normal probability plot for soil A horizon exchangeable K at Barton Flats in the San Bernardino Mountains. Normally distributed concentrations would lay along a straight line..

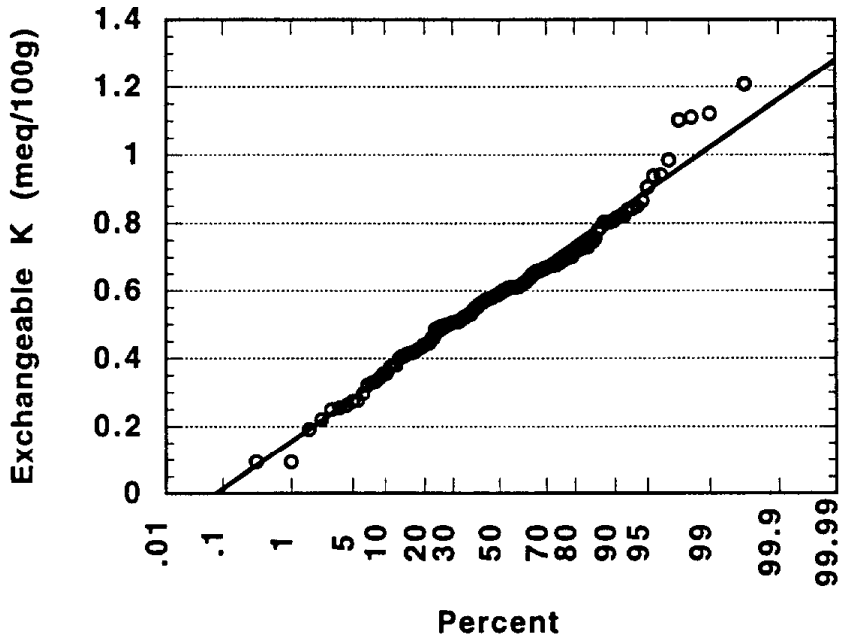
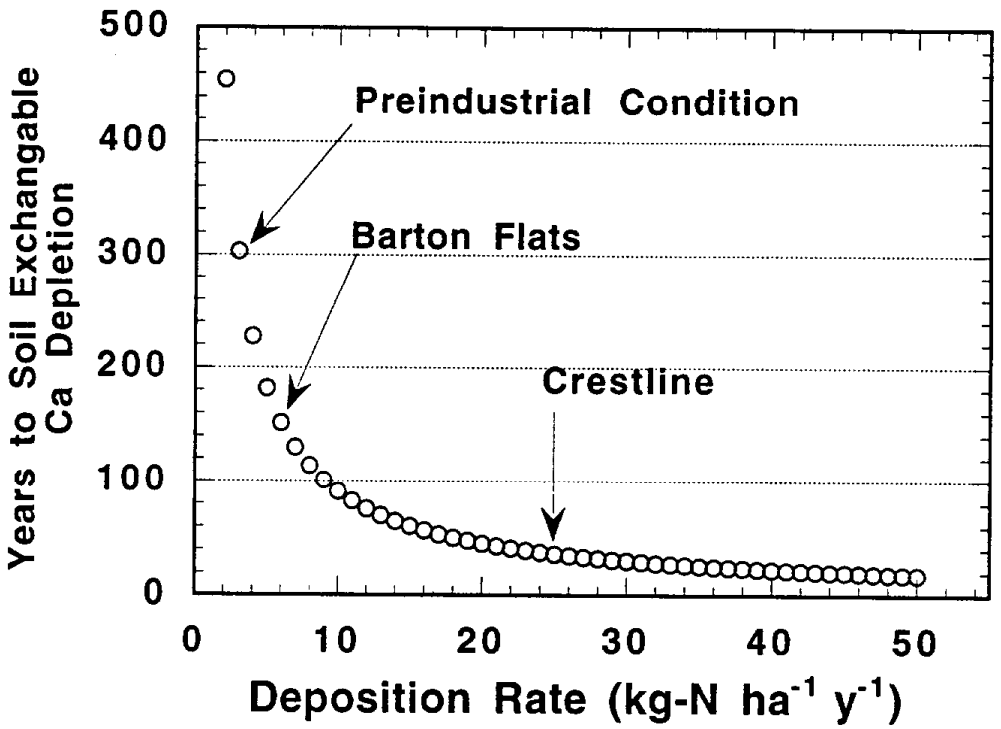


Figure 9-8. The relationship between the nitrogen deposition rate and the depletion of soil exchangable Ca has been calculated using the lime potential equation (Johnson and Reuss, 1984). Years to depletion are shown for estimates of preindustrial conditions, Barton Flats in the San Bernardino Mountains and the high deposition site at Crestline, also in the San Bernardino Mountains. See discussion in the text for assumptions.



10.0 PLANT NUTRIENT CONCENTRATIONS, PATTERNS AND PARTITIONING

Mark Poth and Robert Glaubig

10.1 Introduction

The information available on ponderosa pine nutrition is limited and fragmentary. What there is restricted to studies of N fertilization or the responses of seedlings or unique site situations, some of which are thought to define the limits of range. Rarely is any nutrient other than N or P examined. This is a reflection of the pattern of use for the ponderosa pine resource. Historically ponderosa pine has been harvested primarily from old growth stands. Second growth from natural regeneration can take 80 to 100 years for trees to reach marketable size. Though silviculturalists have successfully worked on ponderosa pine regeneration specific knowledge of nutrient use and requirements remains poor. This is particularly true when we compare the body of information for more intensively managed and shorter rotation species like Douglas fir. A search of the National Agricultural Library database yields 1086 references with ponderosa pine in the title or as a key word and 2344 for Douglas fir. Further examination of the ponderosa pine citations reveals the paucity of nutritional data. Data are typically limited to just a few nutrients and tissues making them incomplete. Commonly, nutritional data for this species is for seedlings and container grown nursery stock. This is to be expected given the difficulties inherent in studies of mature trees. Our goal was to fill this information gap by compiling a complete data set of nutrient content and allocation for mature ponderosa pine which is supplemented by complete information for the codominant tree species, white fir and black oak, in the mixed conifer forest at our site.

10.2 Methods

10.2.1 Baseline Nutrient Concentrations in Ponderosa Pine, Black Oak and White Fir Tissues

Ponderosa pine (*Pinus ponderosa* Laws.), black oak (*Quercus kelloggii)* and white fir *(Abies concolor)* are the dominant tree species at Barton Flats. We sampled each of these to characterize the nutrient concentrations in tissues. Five trees of each species were selected for sampling in both plots one and two. Leaves/needles were collected and composited from three branches. For the conifers these were segregated into five age classes (1, 2, 3, 4 and 5+ years). Branch wood was also collected for each species in the same manner. Roots in the soils could not be identified by species. We collected 5 samples of bulk coarse roots at both plots 1 and 2 for analysis. Samples were collected in September 1993.

All tissues were analyzed according to the laboratory SOPs (V1.20-23). To summarize; tissues were dried to constant weight at 70 C and ground to pass a 40 mesh screen using a Wiley mill. Coupled combustion - gas chromatographic analysis was used to measure total N, C and S. Perchloric - nitric acid digests of tissues were analyzed for Ca, Mg and K using atomic adsorption spectroscopy and color metrically for P (Glaubig and Poth, 1993).

10.2.2 Needle Nutrient Concentration Relationships with Indicators of Air Pollution Damage

Needles were collected from pines in all three plots. This was done in late summer early fall in coordination with visible injury assessments. Nearly every pine in each of the three plots at Barton Flats was sampled. Needles were divided into age classes, oven dried at 70C and ground to pass through a 40 mesh screen. Current year needles from each tree were analyzed for Ca, Mg, K, Mn, and Zn by atomic adsorption spectroscopy after perchloric - nitric acid digestion. P was determined from the same digest. Coupled

combustion - gas chromatographic analysis was used to measure total N and C. Older age classes of needles were only analyzed for total C and N.

10.2.3 Pine Litter Nutrient Concentrations and Relationships

Pine litter was collected during the fall from litter traps in plot 2 at Barton flats as described in detail in the attached SOPs. After collection combined (all fall collection dates) samples were oven dried at 70 C and ground to pass through a 40 mesh screen. Pine litter samples were analyzed for Ca, Mg, K, Mn, and Zn by atomic adsorption spectroscopy after perchloric -nitric acid digestion. P was determined from the same digest. Coupled combustion - gas chromatographic analyses was used to measure total N and C. For mobile nutrients, nutrient use efficiency of reabsorption was calculated. This is calculated as 100% x ((concentration in the youngest age class of needles -concentration in litter) ÷ (concentration in the youngest age class of mature needles)).

10.3 Results

10.3.1 Baseline Nutrient Concentrations in Ponderosa Pine, Black Oak and White Fir Tissue.

There are three apparent patterns of nutrient concentration with age in ponderosa pine (*Pinus ponderosa*) needles; decreasing, increasing or unchanging with needle age. Concentrations of N, P and K are highest in younger needles and decrease with needle age (Table 10-1). Concentrations of Ca, Mg and C increase with needle age and there is no trend in the concentrations of S with needle age (Table 10-1). The relationships between nutrient concentrations within needles can change with needle age (Figure 10-1). For example N and P appear to be present in constant proportion across needle age with the exception of current year needles. This is also true of the relationships between P and S and S and K.

For white fir (*Abies concolor*) P and K needle concentrations decrease with age and Mg, Ca and C concentrations decrease. There is no clear pattern for N and S. Note that as with ponderosa pine, white fir needle concentrations of P are highest in current year needles (Figure 10-2) and are out of proportion in comparison with older needles when measured relative to N.

California black oak (*Quercus kellogii*) leaf nutrient concentrations demonstrate no apparent deficiencies (Table 10-3). As would be expected with this deciduous species concentrations of N, P and K are higher than ponderosa pine or white fir.

The branch wood of ponderosa pine tends to be lower in nutrient content for many nutrients than the wood of white fir and black oak (Table 10-3). This is reflected in the slightly greater C content of pine branch wood when compared to the other species. Bulk roots (fine and coarse roots of the three species combined) had the lowest total C content of any tissue measured (Table 10-3).

10.3.2 Needle Nutrient Concentration Relationships with Indicators of Air Pollution Damage

Data visualization methods were used to examine the relationships between needle tissue concentrations of Ca, Mg, K, Mn, Zn, P and N and indicators of air pollution damage. No strong relationships were found. This was true of the broad indicator - EII (Ozone Injury Index) vs.P for example, Figure 10-3) and total needle percent chloritic mottle (vs N for example, Figure 10-4) and current year needle chlorotic mottle (vs.N for example, Figure 10-5) which are progressively more specific indicators.

10.3.3 Pine Litter Nutrient Concentrations and Relationships

The results of ponderosa pine litter analyses are summarized in Table 10-1 for easy comparison with the living needle nutrients. By comparing these values it is evident that P, K and N are translocated out of needles before they are abscised giving lower concentrations of these elements in litter than needles. Calculated nutrient use efficiencies of readsorption (using litter and 1992 age class needle concentrations) were P - 60%, K - 80% and N - 42%.

10.4 Discussion

Our data provide a baseline of data on the nutritional status of ponderosa pine (*Pinus ponderosa* Laws.), black oak (*Quercus kelloggii)* and white fir *(Abies concolor)* and capture the current situation at Barton Flats in detail. The predominant acid compounds deposited of these forests are N compounds. A key part of our investigation centers on evaluating the fate and effect of this deposited N as reflected in the N nutritional status for the trees at Barton Flats.

The upper limit for needle N content can be defined by growing trees in defined nutrient rich conditions. Results from such a study with seedlings (Bytnerowicz *et al.*, 1990) yield needle N concentrations of 12.8 g kg^{-1}. The lowest needle N concentrations that can support growth are those in ponderosa pine stands that have developed on extremely poor soils. Such isolated stands growing on nutrient depleted soils formed on hydrothermally altered parent materials in the Sierra Nevada of California had needle N concentrations of 8.1 g kg^{-1} (Schlesinger *et al.*, 1989). Mature needles on the trees at the Barton flats sites had N concentrations ranging form 9.92 to 6.25 g kg^{-1} depending on the needle age. This comparison seems to demonstrate little difference between the Barton Flats site which is exposed to some of the worst air quality in the nation and more remote sites in California, Nevada and Arizona (Klemmedson *et al.*, 1990; Schlesinger *et al.*, 1989; Powers, 1981) . This is very misleading. Plants have a tendency to control nutrients within ranges that are optimum for the plant. In addition the effects of water stress can dramatically reduce needle growth and lead to nutrient concentration. For example during the drought of the late 1980s needle N concentrations were between 10 and 12 g kg^{-1}(Fenn, 1991). Hence it is more informative to examine the overall pattern of nutrient use than particular concentrations.

The fractional readsorption of nutrients before litter fall is an index of the physiological value of a particular nutrient to a tree and its availability. Energy is expended in translocating the nutrient. Presumably this is less energy costly to the tree than uptake or there would be no advantage to translocation. Some nutrients are difficult to translocate since they are used as part of the structure of the plant. These include Mg and Ca (and of course C). Hence the concentrations of these elements increase with needle age. N, P and K are generally available for translocation. The degree to which they are readsorbed can inform us about their availability to these trees.

With initial N deposition we would expect greater N availability to trees (Aber, 1989; Schulze *et al.*, 1989; van Dijk and Roelofs, 1988). This would parallel the situation at more fertile sites or sites that are fertilized. N would not be scarce and hence readily available for uptake. As a result trees could conserve energy by translocating less N before needles are abscised. At sites with very poor soil fertility 60% of needle N is typically translocated before needles are abscised (Schlesinger *et al.*, 1989). High fertility volcanically derived soils with associated greater N availability result in less N be translocated (48%) and readsorbed before needle abscission (Klemmedson, Neier, and Campbell, 1990). At Barton Flats only 45% of N is readsorbed

before needle abscission. This is the lowest reported in the literature for ponderosa pine.

Results presented elsewhere in this report document a deposition rate of about 7 kg ha^{-1} a^{-1} at Barton Flats. This represents a three fold increase of deposition compared to more remote sites in the Sierra Nevada. This rate of deposition over the last 40 years has increased N availability at the Barton Flats site to the extent that needle N readsorption has been depressed. We conclude that current levels of N deposition (acid and otherwise) are having a pronounced effect on N use by ponderosa pine at Barton Flats. There are other indications of related influences on other nutrients.

Phosphorus and K translocation and readsorption at Barton Flats by ponderosa pine are 60% and 70% effective respectively. This level of P readsorption matches that seen for ponderosa pine growing on very infertile soils (Schlesinger *et al.*, 1989). At a site with very fertile volcanic soils in Arizona (Klemmedson *et al.*, 1990) the readsorption of P was 43%. Under conditions of significant N deposition soil conditions change allowing the leaching and removal of the most mobile forms of nutrients. In addition the acidifying nature of the subsequent soil changes accelerates the weathering of some minerals further accelerating the removal of some elements. K would be expected to be the most mobile cation (aside from Na). The high readsorption rate for K is consistent with overall soil and leaching conditions that make this nutrient less available. The same is true for P. Both of these results are consistent with the hypothesis that N deposition in the San Bernardino Mountains is high enough to have detectable effects on forest nutrition. Please see the results of the simulation model evaluation of the long term consequences of this level of N deposition.

The poor correlation of needle nutrient content with indicators of air pollution damage may be the result of the plants ability to compensate physiologically for some air pollution damage and the variability of response between genotypes (Wellburn, 1994) The principal air pollutant causing visible injury and thought to be responsible for growth changes is ozone (Peterson *et al.*, 1991; Temple and Miller, 1994). The influence of ozone on nutrition is certainly indirect and chronic whereas the response of a needle may be integrated over the much shorter time span (the lifetime of the needle). Consequently the possibility of developing a simple diagnostic needle nutrient analysis to assess air pollution influences seems remote.

10.5 Summary

We have produced a complete nutrient baseline data set of the dominant tree species of the mixed conifer forest at Barton Flats in the San Bernardino Mountains of California: ponderosa pine (*Pinus ponderosa* Laws.), black oak (*Quercus kelloggii)* and white fir *(Abies concolor)*. This includes needle analysis by age class for the conifers, analysis of wood for each species and a combined root analysis.

Based on analysis of nutrient use by ponderosa pine; we conclude that current levels of N deposition (acid and otherwise) are having a measurable effect on N use by ponderosa pine. Current tree use indicates that N limitations on growth are lessening. P and K are the most highly conserved nutrients by ponderosa pine. This also supports the hypothesis that N deposition is making these nutrients less available for uptake and forcing their conservation.

Needle nutrient contents are poorly correlated with visual indicators of air pollution damage. This may be due to the distant relationship between visual injury (typically produced by ozone) tree nutrient physiology and changing site fertility (as a consequence of acid deposition).

10.6 References

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Table 10-1. Needle nutrient concentrations for Ponderosa pine samples taken at Barton Flats in the San Bernardino Mountains of southern California. Samples were taken in September of 1992 after the current year needles had completely expanded. Note that the 1988- age class includes all needles from that and previous years on the branches. Pine litter was collected in traps during the fall of 1992 (SD = standard deviation and n = sample size).

Nutrient	*Pinus ponderosa Needle Year*					
(g/kg)	*1992*	*1991*	*1990*	*1989*	*1988-*	*Litter*
Phosphorus						
Mean	1.48	1.01	0.89	0.75	0.72	0.59
SD (n)	0.18(10)	0.05(10)	0.04(9)	0.16(5)	0.08(3)	0.14(61)
Calcium						
Mean	1.2	2.57	3.61	3.27	4.94	4.35
SD (n)	0.35(10)	0.83(10)	1.25(9)	1.01(5)	1.31(3)	0.93(61)
Magnesium						
Mean	0.94	1.24	1.32	1.32	1.47	1.43
SD (n)	0.10(10)	0.15(10)	0.15(9)	0.18(5)	0.15(3)	0.29(61)
Potassium						
Mean	8.15	6.34	5.63	4.43	4.42	2.45
SD (n)	0.93(10)	1.21(10)	1.73(9)	2.23(5)	2.01(3)	0.84(61)
Nitrogen						
Mean	8.33	9.92	8.93	7.81	6.25	4.41
SD (n)	0.093(10)	1.29(10)	1.08(9)	2.14(5)	1.84(4)	1.06(61)
Carbon						
Mean	492	513	502	499	510	513
SD (n)	4.83(10)	24.2(10)	9.95(9)	7.07(5)	6.24(4)	10.2(61)
Sulfur						
Mean	0.62	0.78	0.73	0.64	0.6	ND
SD (n)	0.08(10)	0.14(10)	0.14(9)	0.17(5)	0.25(4)	

Table 10-2. Needle nutrient concentrations for white fir samples taken at Barton Flats in the San Bernardino Mountains of southern California. Samples were taken in September of 1992 after the current year needles had completely expanded. (SD = standard deviation and n = sample size).

Nutrient	*Abies concolor Needle Year*				
(g/kg)	*1992*	*1991*	*1990*	*1989*	*1988-*
Phosphorus					
Mean	0.89	0.76	0.69	0.67	0.6
SD (n)	0.23(10)	0.16(10)	0.11(9)	0.09(10)	0.09(10)
Calcium					
Mean	12.5	17	20	22.4	27.1
SD (n)	8.64(10)	9.56(10)	8.05(10)	8.21(10)	7.84(10)
Magnesium					
Mean	2.35	2.75	2.82	2.95	3.1
SD (n)	0.86(10)	0.86(10)	0.67(10)	0.88(10)	0.80(10)
Potassium					
Mean	7.64	6.68	5.63	5.11	4.47
SD (n)	2.44(10)	1.81(10)	1.47(10)	1.58(10)	1.35(10)
Nitrogen					
Mean	7.34	7.97	8.01	7.67	7.09
SD (n)	0.58(10)	0.59(10)	0.67(10)	0.44(10)	0.65(10)
Carbon					
Mean	495	493	494	489	488
SD (n)	12.2(10)	14.3(10)	13.6(10)	15.8(10)	14.5(10)
Sulfur					
Mean	0.68	0.75	0.74	0.82	0.86
SD (n)	0.15(10)	0.15(10)	0.10(10)	0.12(10)	0.18(10)

Table 10-3. Nutrient concentrations of *Quercus kelloggii* leaf tissue, bulk roots and branch wood from Q. *kelloggii*, *Pinus ponderosa* and *Abies concolor* for samples taken at Barton Flats in the San Bernardino Mountains of southern California. Samples were taken in September of 1992. (SD = standard deviation and n = sample size).

Nutrient	*Tree Tissue Type*				
(g/kg)	**Oak Leaves**	**Oak Wood**	**Pine Wood**	**Fir Wood**	**Bulk Roots**
	1992				
Phosphorus					
Mean	2.53	0.73	0.48	0.67	0.84
SD (n)	0.47(10)	0.19(10)	0.14(9)	0.22(10)	0.21(10)
Calcium					
Mean	9.51	13.5	5.15	17.7	11.5
SD (n)	3.06(10)	3.70(10)	1.19(10)	4.46(10)	3.65(10)
Magnesium					
Mean	2.27	1.3	0.87	1.94	2.23
SD (n)	0.30(10)	0.34(10)	0.23(10)	0.38(10)	0.40(10)
Potassium					
Mean	9.87	2.91	2.93	4.41	4.42
SD (n)	1.81(10)	0.87(10)	0.98(10)	1.08(10)	0.76(10)
Nitrogen					
Mean	19.6	4.36	3.37	4.28	5.05
SD (n)	2.13(10)	0.62(10)	0.71(10)	0.93(10)	0.53(10)
Carbon					
Mean	476	472	517	497	453
SD (n)	6.67(10)	5.09(10)	5.42(10)	6.95(10)	22.3(10)
Sulfur					
Mean	1.22	0.3	0.25	0.34	0.54
SD (n)	0.08(10)	0.09(10)	0.10(10)	0.19(10)	0.11(10)

Figure 10-1. Relationship between needle N and P for ponderosa pine at Barton Flats in the San Bernardino Mountains. Note the apparent good relationship between N and P for older needles.

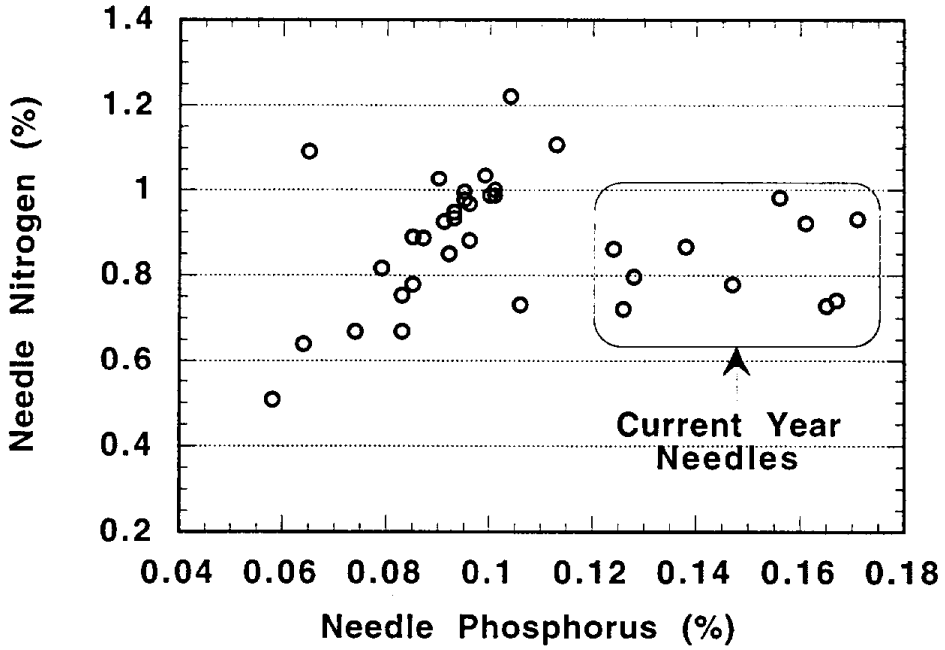


Figure 10-2. Relationship between needle N and P for white fir at Barton Flats in the San Bernardino Mountains. Note the apparent good relationship between N and P for older needles.

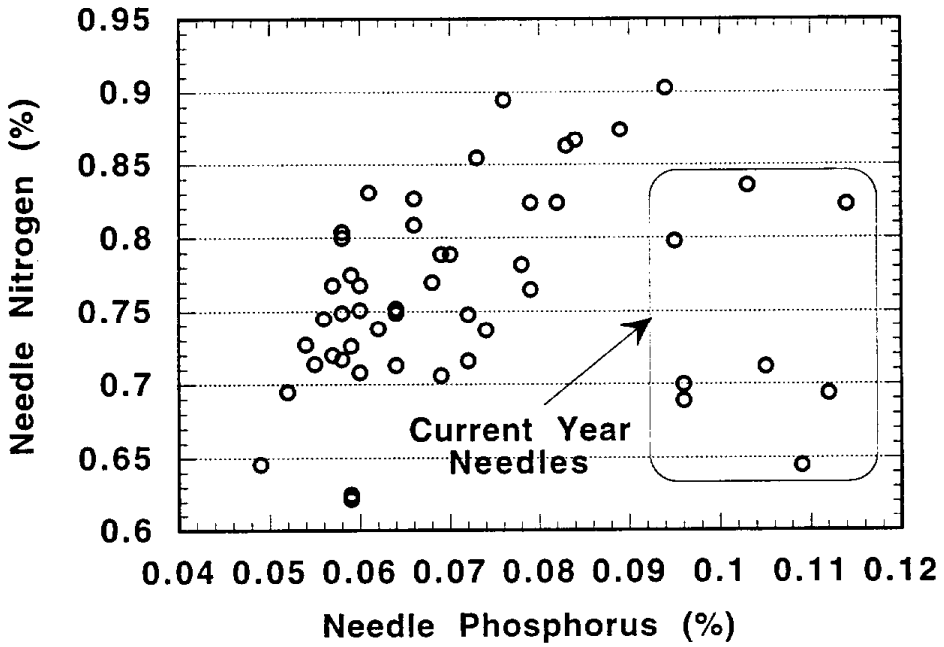


Figure 10-3. Needle P relationship to an integrated index of air pollution (Ozone Injury Index [OII]) exposure for ponderosa pine at Barton Flats in the San Bernardino Mountains.

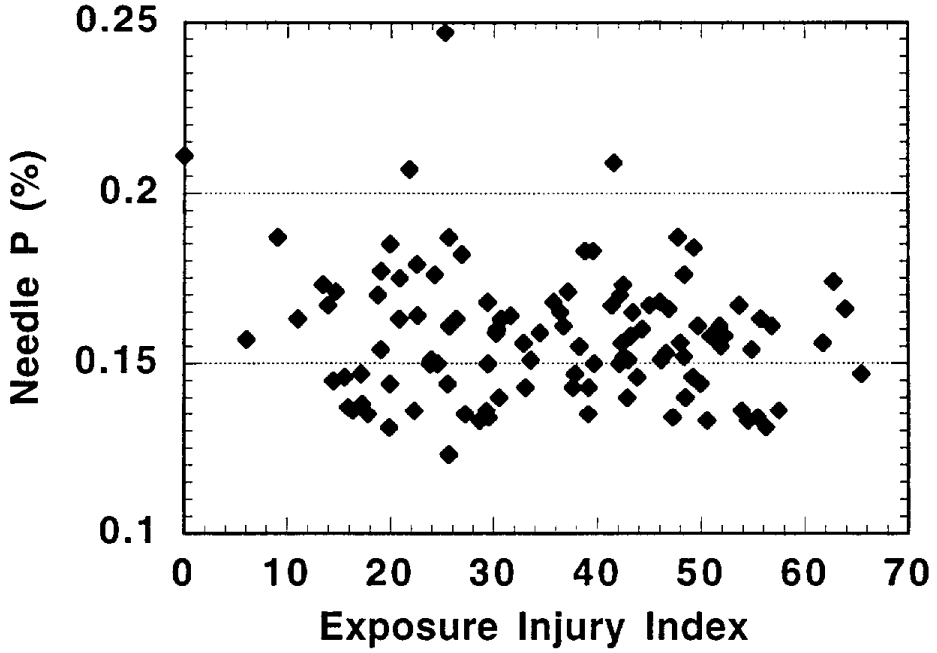


Figure 10-4. Needle N relationship to the index of chlorotic mottle for all age classes of needles of ponderosa pine at Barton Flats in the San Bernardino Mountains.

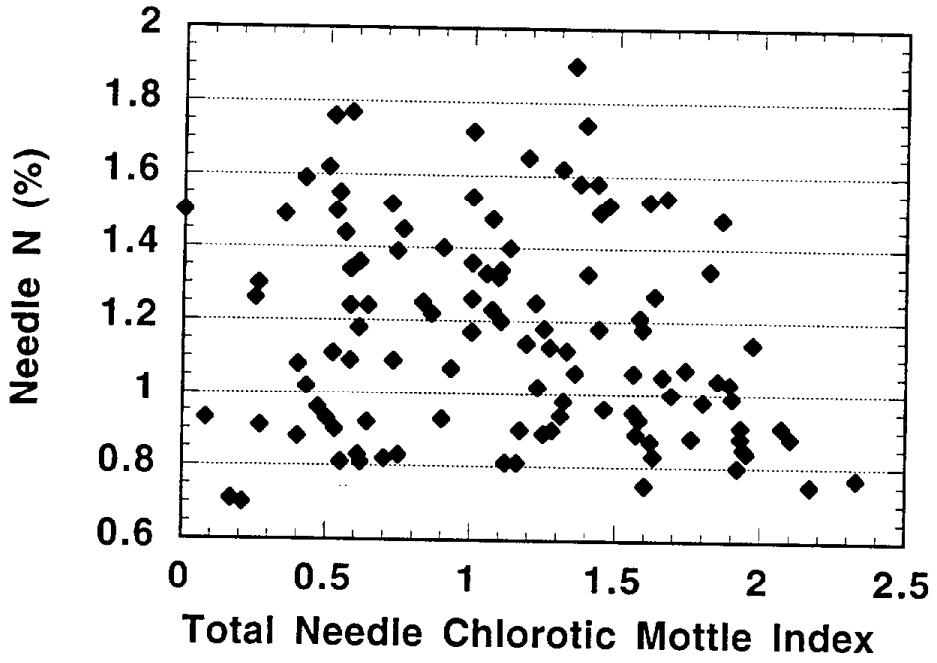
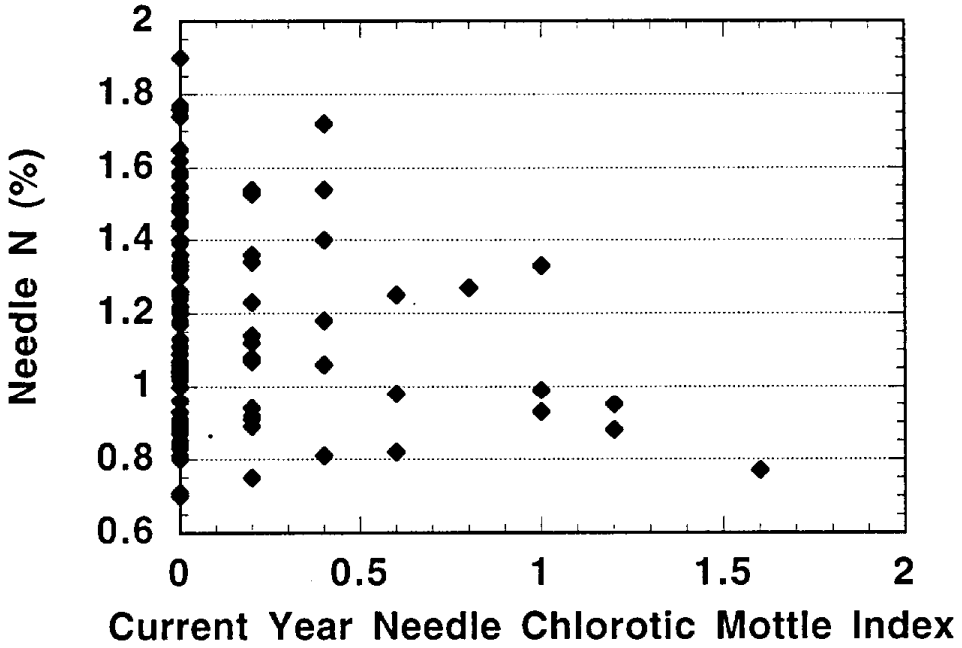


Figure 10-5. Needle N relationship to the index of chlorotic mottle for current year needles of ponderosa pine at Barton Flats in the San Bernardino Mountains.



11.0 FOREST COMMUNITY COMPOSITION AT BARTON FLATS PLOTS INCLUDING CHANGES BETWEEN 1991 AND 1994

P.R. Miller, S. Schilling, D. Jones, A. Gomez

11.1 Introduction

11.1.1 General Description of the Forest Stands at Barton Flats

The forest stands in which plot locations were selected are typical of the California mixed conifer type. They are generally uneven-aged stands with an overstory of ponderosa or Jeffrey pines, white fir, and California black oak. Mature pines often occur in clusters and so do smaller trees, particularly white fir, in the understory. The landform on which plots were located is gently to moderately sloping towards the north, northwest. A shrub layer is sometimes present and consists mostly of skunk bush (*Amorpha californica*) and manzanita (*Arctostaphylos sp.*). The forest floor is mostly barren near and under trees because of the thick layer of accumulated leaf litter. In sunlit openings grasses and a few herbs are present in spring and early summer. Eagle fern (*Pteridium aquilinum*) persists the whole summer in isolated patches.

Some older pines have fire scars at the base of the bole serving as an indication of the frequent fires that were typical of the area prior to the beginning of fire protection in the early 1900's. Decaying stumps of larger pines were evidence of two or three cycles of sanitation salvage logging that were prescribed for the area starting in the 1960's. Many ozone sensitive pines were in a declining state of health and bark beetle infestations were a serious problem. It is highly probable that the overstory pines remaining today represent a residual population of individuals that have less sensitivity to ozone, and the really sensitive trees are gone. Nevertheless, as described in Section 12 the remaining population of ponderosa and Jeffrey pines in the plots have various levels of ozone damage.

Occasional groups of pines are infected with dwarf mistletoe (*Arceuthobium sp.*), a higher plant parasite that causes brooming of smaller branches and cankers on larger branches and the bole of pines. True mistletoe (*Phorodendron sp.*) is present on both white fir and black oak. An occasional pine was lost to bark beetles between 1991 and 1994. In general, the bark beetle problem was at a low ebb during this period because soil moisture was not as limiting as in previous drought years. The root disease caused by the fungus *Heterobasidium annosum* is widely distributed in the Barton Flats area but not on the plots used in this study. Finally, the leaf and twig disease caused by the fungus *Elytroderma deformans* is also easy to find in the area on ponderosa and Jeffrey pines.

11.2 Methods

The criteria used to select sample plots were largely those prescribed by Miller et al. (1996) for the Forest Ozone REsponse Study (FOREST) in the Sierra Nevada. Because the Barton Flats area is currently very heavily used by forest visitors one of the first objectives was to locate plots where there was a minimum of disturbance in the recent past, the present, and for the near future. This was important because critical measurements of soil and litter nutrients could be seriously compromised by discarded refuse or human waste. The lack of man-caused disturbance in the near future was important because one of the objectives of this study was to establish monitoring locations that could be revisited in future years. We also needed to locate plots within 500 ft elevation and a radius of no more than two miles from the complete air monitoring station described in Section 2. The assumption that air chemistry measurements from a single monitoring location could be extrapolated to plots was examined in Section 3. The soil, slope, aspect, and vegetation cover needed to be similar among plot sites. In this connection all sites avoided flat meadow-like areas that tend to accumulate and retain water during moist years. Finally, the species and age composition of stands needed to be similar, and there needed to be at least 40 dominant, codominant or intermediate ponderosa and Jeffrey

pines available within or contiguous to the boundary of a 40 m wide by 120-130 m long plot. Furthermore, these trees had to have lower branches reachable by a pole pruner. Specific details for plot establishment and tree measurements are included in Volume 1, Section 24 of the Project "Standard Operating Procedures Manual."

11.3 Results

11.3.1 Spatial Distribution of Trees in Each Plot

The exact position of each stem of all species in diameter at breast-height (dbh) classes including 10 cm and more was measured in reference to a plot center line, therefore, the positions of all trees are displayed in Figures 11-1a, 11-2a and 11-3a, where the size of circles represents the relative diameters of trees. Figures 11-1b, 11-2b, and 11-3b identify the species of each tree. This data set could be used to examine questions about interspecific competition at present and the future composition of the stands given that certain size classes, or species were to be removed. Another insight gained from these figures is the nature of the canopy present as a target for atmospheric deposition. Most models which attempt to predict deposition have been developed for deciduous forests with a continuous closed canopy. In contrast, the forest canopy in our study areas is more discontinuous, and mixed with respect to species composition. This difference had to be reconciled in order to test the Big Leaf model (Section 8).

11.3.2 Species and Size Composition of Trees in Each Plot

Both the basal area and the numbers of each species are shown in Table 11.1. Basal area is computed from the stem diameter of each tree by species and then summed by size class. The usefulness of these data is to examine the potential successional development in each stand.

Ponderosa and Jeffrey pines together represent 51, 49, and 69 percent of the basal area for all diameter classes at plots 1, 2 and 3 respectively. Also, they represent 26, 37, and 38 percent of the total stems of all species. Therefore, these stands are mostly characterized by ponderosa and Jeffrey pines in larger diameter classes. The relative numbers of ponderosa and Jeffrey pines change from the lowest elevation plot (#1) to the highest elevation plot (#3). Even though the elevation difference among plots is less than 500 ft it is still sufficient to shift the population to a greater proportion of Jeffrey pines at #2 and #3 compared to #1. In the diameter class < 29.9 cm ponderosa and Jeffrey pines were always less abundant than white fir and black oak. At plot #2 in particular there were only 4 pines in this size class. The composition of these stands in the future may include fewer ponderosa and Jeffrey pines and more white fir and black oak, particularly because the pines are the most sensitive to ozone injury and are usually being stressed by chronic ozone exposure.

11.3.3 Crown Position Classification by Species in Each Plot

Crown position class is another way of describing the vertical structure of the stand. The categories called dominant and co-dominant represent the tallest trees in the stand. Those called intermediate and suppressed represent the shorter trees receiving less light and competing more for space, water and nutrients. Table 11.2 shows the distribution of all species into different crown position categories. The largest number of stems of all species were present in plot #2. The numbers of intermediate ponderosa pines were the largest in plot #2 as well. Long-term monitoring at other mixed conifer forest sites in the San Bernardino Mountains has shown that the highest rate of mortality in the intermediate crown position category. This suggests a synergy between the higher tree density, increased inter-tree competition and chronic ozone effects leading to higher risk of death in this crown class. White fir in the intermediate crown position class are also most numerous in plot # 2 thus leading to additional inter-tree competition at this plot. In the future higher mortality rates may be expected in the intermediate and suppressed trees at plots with higher numbers in these classes. One

of the major aspects of competition is for light. Dominant and co-dominant trees are least influenced by light availability because of their height, therefore, they will mainly benefit as smaller trees die and more soil moisture is available.

11.3.4 Basal Area Changes, Including Mortality, Between 1991 and 1994

Figure 11.4 shows the basal area change for pines, white fir, and black oak between 1991 and 1994. The percent increase of basal area for pines of all diameter classes at all plots was less than 2 percent, while white fir increased 6 to 11 percent. The increase of black oak was intermediate at about 2.5 to nearly 6 percent. White fir and black oak grew the most at plot 1 while ponderosa/Jeffrey pines at plot #1 grew the least compared to the other two plots. Clearly, white fir increased the most in basal area at all plots. Part of the explanation is that more white firs are in the smaller diameter classes which grow more vigorously than older large diameter trees. Although many ponderosa/Jeffrey pines are in the largest diameter class their poor performance cannot be explained by this alone. As described in Section 12, the ozone injury index of pines increased at all three plots from 1991 to 1994. Chronic ozone injury increase coupled with energy cost for recovery from the drought of the 3-4 years preceding 1991 must interact to influence stem growth. For example, new carbon resources may be devoted more to repair of the leafy canopy than to stem growth.

11.4 Discussion

The stand composition and relative stem growth of these species from 1991 to 1994 must be considered in the context of what is occurring in the mixed conifer forest type throughout southern California and the Sierra Nevada since European settlement. Logging practices and fire exclusion are the most notable features. The first recorded timber harvests in the San Bernardino mountains began in 1852 when settlers from the nearby San Bernardino valley built a crude road to access the western portion of the mountains. At that time the climax forest consisted primarily of large overstory pines. This forest structure was considered fire determined succession because it was perpetuated by frequent wildfires, which tended to thin out competing species occupying the understory and those mature individuals of species that did not have thick bark to protect them from fire damage. Fire exclusion started shortly after 1910, and continued through the present. Sanitation salvage logging was practiced extensively at Barton Flats during the 1960 to 1980 period resulting in the selective removal of large ponderosa and Jeffrey pines. As a result, today's stands are second or third growth, and contain larger numbers of fire-sensitive (and ozone-tolerant) species than the ancient forest.

The growth of intermediate, codominant, and dominant white firs and black oaks exceeds that of companion ponderosa and Jeffrey pines mainly due to the greater ozone sensitivity of the pines. Thus ozone air pollution and fire exclusion influences result in a diminished competitive capacity of ponderosa and Jeffrey pines in the Barton Flats area. Seedbed conditions (the absence of areas with exposed mineral soil) presently favors white fir and black oak establishment, whose seedlings can penetrate deep litter layers. This condition is due to fire exclusion.

A group of 18 plots established for the multidisciplinary study in 1978 (Miller and Elderman, 1977; Taylor, 1980) were remeasured at 4-5 year intervals since 1978. In areas with low ozone concentrations ponderosa pine and Jeffrey pine increased basal area, even in dryer years. At sites with high concentrations total basal area was equal or declined. However, they were less than the growth of competing species over the period of the study.

11.5 Summary

The critical issue to be examined by this study regarding forest growth and stand succession was whether acidic pollutants may have a role in the short or long-term health of these forests. It has not been possible to identify a causal role of acidic pollutants, either as wet or dry deposition in the short-term (four years)

response of the forest plots in this study. On the other hand, ozone exposure was sufficient to cause an increase in the chronic injury level (ozone injury index) during this period. The interactive role of acidic pollutants with ozone in affecting tree health is suspected to be mediated through the alteration of soil nutrient pools. This question is addressed by additional work to be reported in a separate final report to the Air Resources Board by the authors.

11.6 References

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Miller, P.R.; Elderman, M.H. 1977. Photochemical Oxidant Air Pollution Effects on a Mixed Conifer Forest Ecosystem. U.S. EPA Report No. 600/3-77-104, 339 p.

Taylor, O.C. 1980. Photochemical Oxidant Air Pollution Effects on a Mixed Conifer Forest Ecosystem. Final Report, Ecol. Res. Ser., EPA 600/3-80-002. U.S. EPA, Corvallis, OR 196 p.

Table 11-1 Number and basal area (cm^2) in three diameter classes of each tree species in three Barton Flats vegetation plots in 1991.

Species	Diameter Class							
	10-29.9 cm		30-60 cm		>60 cm		All	
	N	Basal Area	N	Basal Area	N	Basal Area	N	Basal Area
Plot #1								
Pond. Pine	25	7168	9	18375	12	48505	46	74048
Jeffrey Pine	5	1286	2	2787	0	0	7	4074
White Fir	50	13113	16	22934	3	11392	69	47439
Sugar Pine	2	391	0	0	0	0	2	391
Black Oak	60	16829	6	7098	0	0	66	23928
Chrysolepis Oak	7	1868	0	0	0	0	7	1868
All	149	40655	33	51195	15	59897	197	151747
Plot #2								
Pond. Pine	52	12683	5	6594	3	13165	60	32443
Jeffrey Pine	13	4915	15	26033	6	21574	34	52522
White Fir	74	18999	20	25413	0	0	94	44412
Sugar Pine	2	455	0	0	0	0	2	455
Black Oak	41	16478	12	15128	1	9533	54	41139
All	182	53530	52	73168	10	44273	244	170971
Plot #3								
Pond. Pine	2	561	17	31309	17	84496	36	116367
Jeffrey Pine	2	1258	10	15603	6	24377	18	41238
White Fir	47	10807	4	4427	4	22443	55	37677
Incense Cedar	3	1149	0	0	0	0	3	1149
Black Oak	11	4326	18	25442	0	0	29	29769
All	65	18102	49	76782	27	131316	141	226199

Table 11-2 Crown position classes of all tree species with a dbh $\geq$ 10 cm at three plots.

Species	Crown Position Class			
	Dominant/ Co-dominant	Intermediate	Suppressed	All
Plot #1				
Ponderosa Pine	36	7	3	46
Jeffrey Pine	6	1	0	7
White Fir	40	19	11	70
Sugar Pine	1	1	0	2
Black Oak	55	8	3	66
Chrysolepis Oak	6	1	0	7
All	144	37	17	198
Plot #2				
Ponderosa Pine	19	36	3	58
Jeffrey Pine	27	5	2	34
White Fir	44	48	3	95
Sugar Pine	0	1	1	2
Black Oak	43	10	1	54
All	133	100	10	243
Plot #3				
Ponderosa Pine	34	0	2	36
Jeffrey Pine	17	1	0	18
White Fir	10	36	9	55
Black Oak	25	4	0	29
Incense Cedar	0	3	0	3
All	86	44	11	141

Figure 11-1 (a) Position and relative size of tree stems ≥ 10 cm DBH (circle size approximates diameter), and (b) Position and species identification of tree stems ≥ 10 cm DBH at Plot 1. (P=ponderosa, J=Jeffrey, A=white fir and Q=black oak). The circle size approximates relative stem diameter.

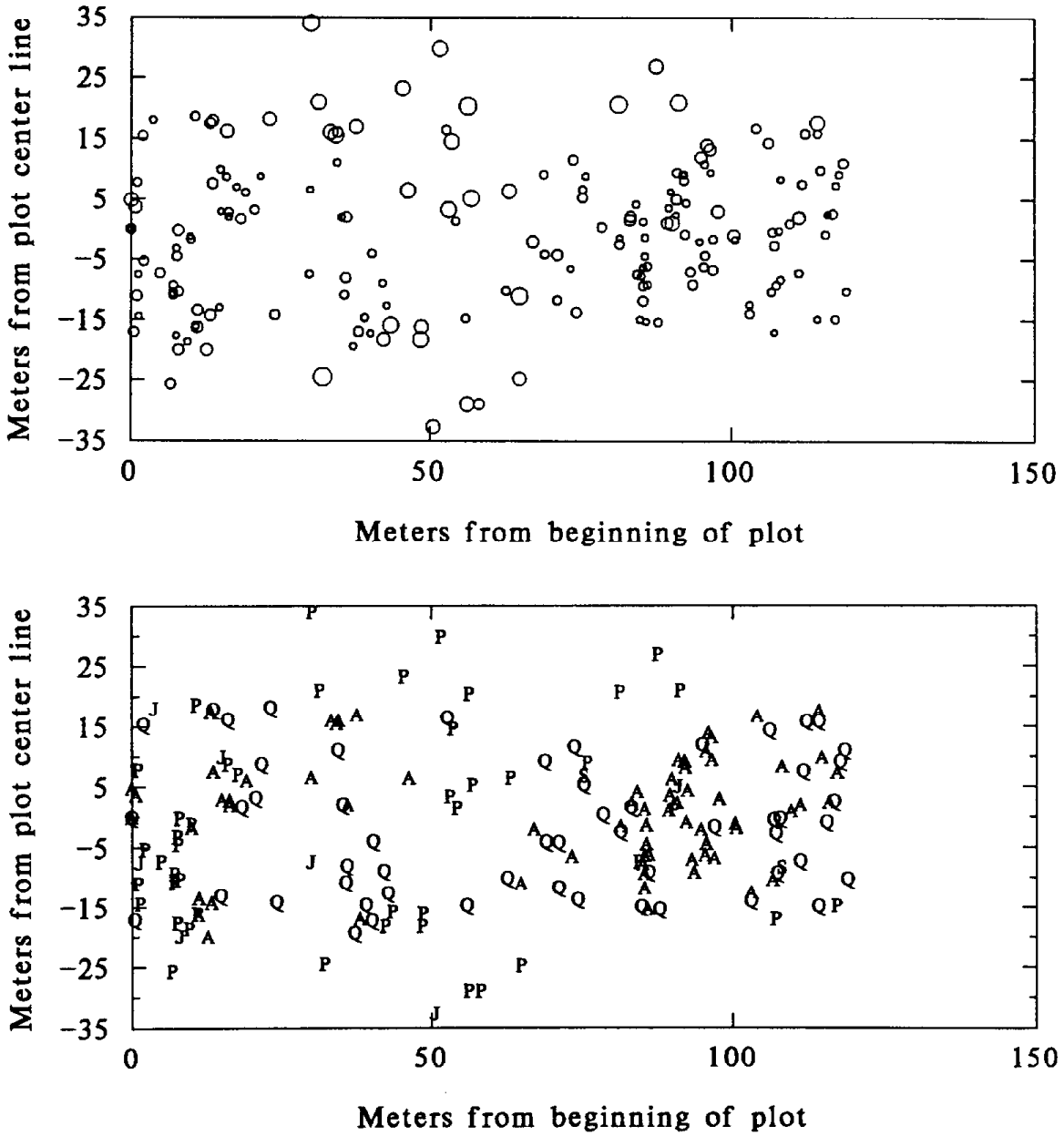
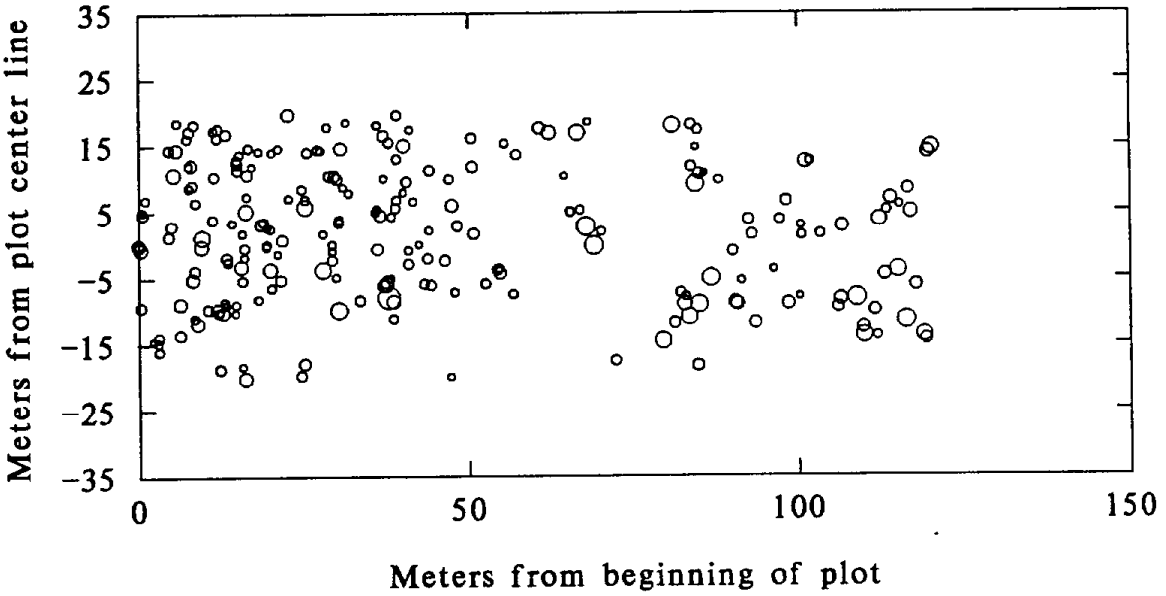


Figure 11-2 (a) Position and relative size of tree stems ≥ 10 cm DBH (circle size approximates diameter), and (b) Position and species identification of tree stems ≥ 10 cm DBH at Plot 2. (P=ponderosa, J=Jeffrey, A=white fir and Q=black oak). Circle size approximates tree diameter.



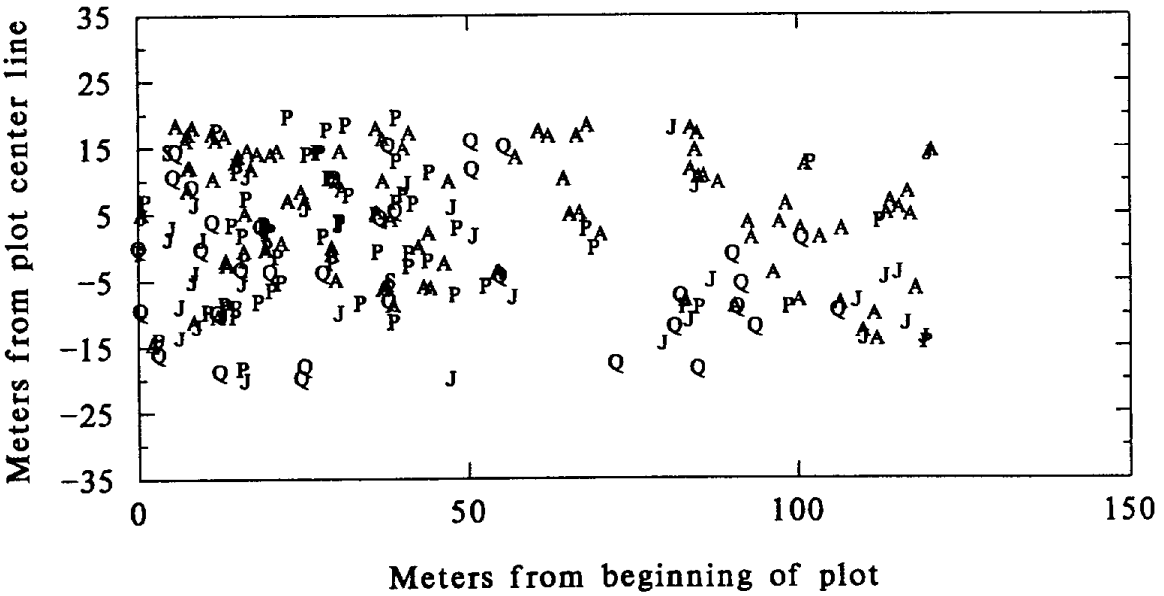
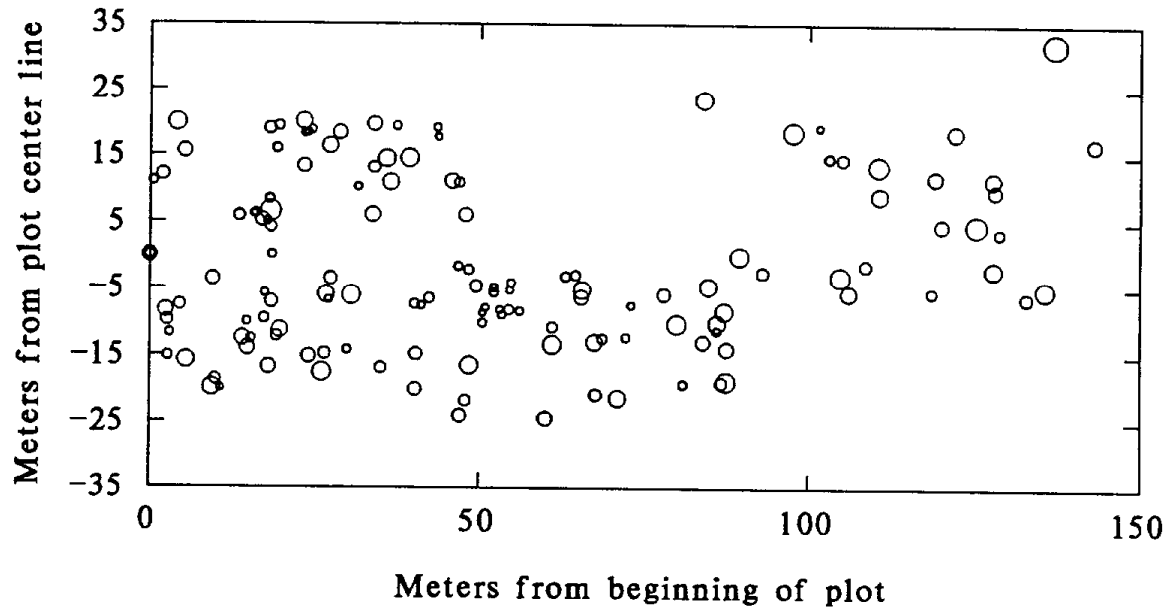


Figure 11-3 (a) Position and relative size of tree stems ≥ 10 cm DBH (circle size approximates diameter), and (b) Position and species identification of tree stems ≥ 10 cm DBH at Plot 3. (P=ponderosa, J=Jeffrey, A=white fir and Q=black oak). Circle size approximates tree diameter.



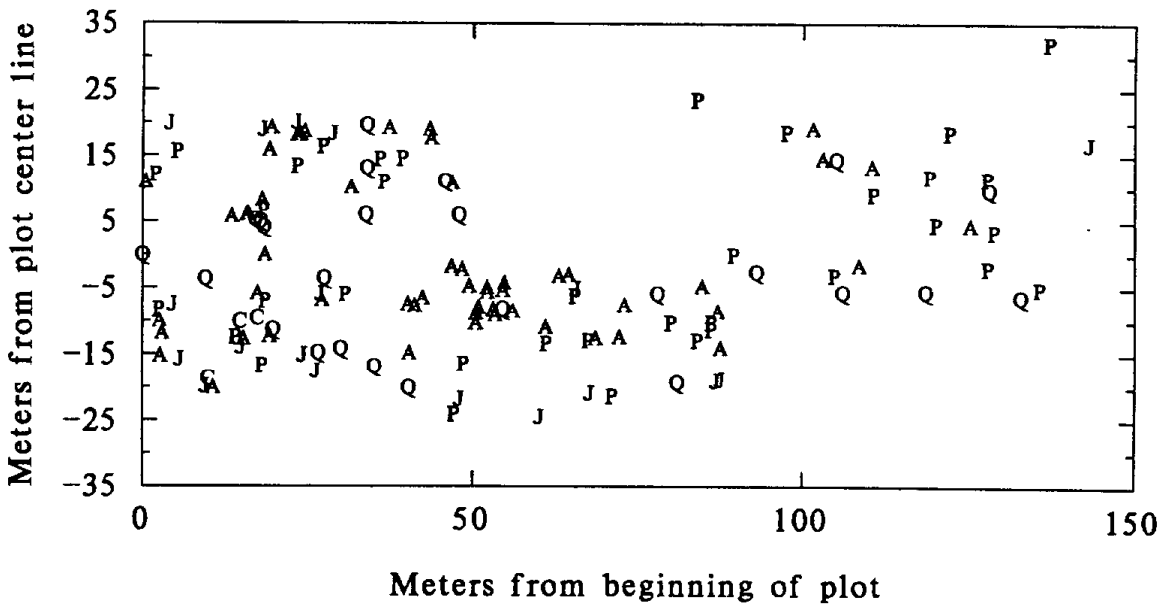
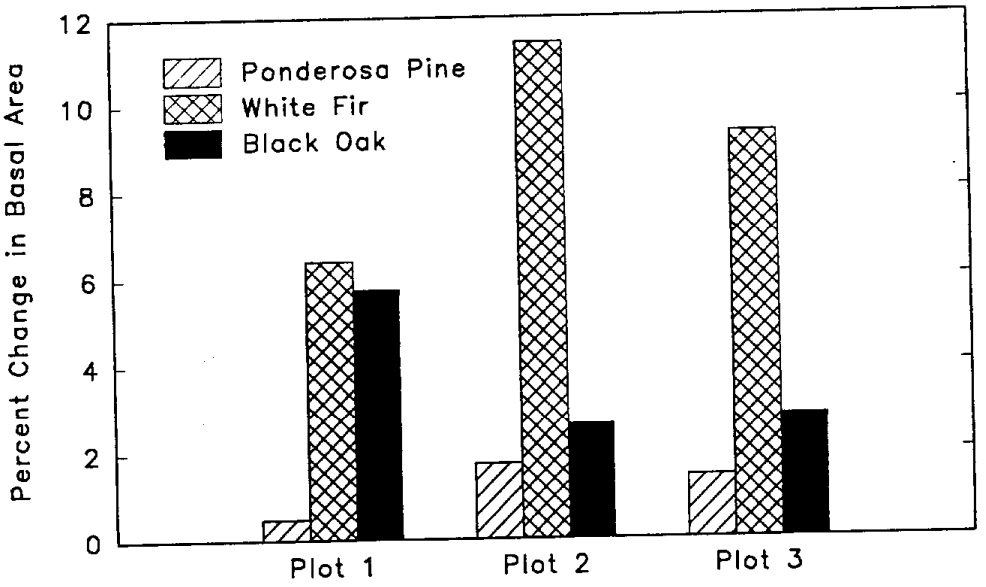


Figure 11-4 Percent basal area changes of all ponderosa/Jeffrey pines, white firs and black oaks at Plots 1, 2, and 3 between 1991 and 1994.



12.0 ANNUAL CHANGES IN CROWN CONDITION OF PONDEROSA AND JEFFREY PINES BETWEEN 1991 AND 1994 AT BARTON FLATS PLOTS

P. Miller, S. Schilling, D. Jones, D. Guthrey

12.1 Introduction

Chronic ozone injury to ponderosa pine and Jeffrey pine is manifested by the number of annual needle whorls retained on primary and secondary branchlets, the length of needles in the remaining whorls, the intensity of chlorotic mottle symptoms on needles of each whorl and the percent live crown (the length of the stem with living branches in relation to total tree height). These variables were measured each September and combined into an index of chronic injury. It was important to determine if any modification of needle appearance could be related to either wet or dry acidic deposition so all needle symptoms were described.

The foliage condition of both ponderosa and Jeffrey pines in the three vegetation plots at Barton Flats was inspected and recorded in an effort to catalog the occurrence of different symptoms caused by both biotic and abiotic agents. Data from earlier studies confirmed that a moderate amount of chronic ozone injury was expected in the region where the plots were established. The first task was to make an annual determination of the amount of chronic ozone injury to ponderosa and Jeffrey pines. Any additional foliar symptoms were identified and recorded. If possible the causes of visible injury symptoms were determined. This procedure was intended to recognize the possible effects of acidic deposition if they were present, or to determine if ozone injury symptoms might be modified in some way because of the presence of acidic deposition.

12.2 Methods

The foliage and crown symptoms caused by ozone were evaluated according to the techniques employed by the Forest Ozone REsponse STudy (FOREST), a multiagency study concerned primarily with Sierra Nevada forests (Guthrey et al., 1993). The operational details of this method are contained in Volume 1 of the protocol manual which accompanies this report. The result is the expression of chronic ozone injury by the ozone injury index (OII) ranging from 0 to 100, where higher values represent more injury.

12.3 Results

12.3.1 Crown Condition of Ponderosa and Jeffrey Pines at Plots Along a 12-Mile Gradient of Decreasing Ozone with Barton Flats as the Midpoint

The observations of ponderosa or Jeffrey pine crown condition in 1993 and 1994 at locations six miles west and six miles east of Barton Flats provide an estimate of the relative amount of chronic tree injury on the gradient of air pollution exposure in the Santa Ana River Drainage. Table 12-1 shows higher amounts of crown injury at Camp Angelus according to the ozone injury index (OII) and the lowest crown injury at Heart Bar. These observations reinforce earlier reports at these and other plots located on this gradient (Miller et al., 1989). Crown injury symptoms were consistent with those caused by ozone and there was no clear evidence implicating other pollutants, except that upper surface winter fleck was present at all plots. The

possible role of this symptom is discussed in Section 12.3.8.

12.3.2 Crown Condition Changes (Ozone Injury Index) During Each Year from 1991 to 1994 at Three Barton Flats Plots

Figure 12-1 shows the year to year changes of the average ozone injury index from 1991 to 1994. There was an increase of chronic injury to trees in all plots. One of the heavily weighted (40%) variables used to compute the OII is the number of annual needle whorls retained on the five branches sampled from each tree. The raw data for number of annual whorls retained and the percent of needle fascicles present in each whorl is used to compute a variable called "Fwhorl." Fwhorl = [maximum number of whorls on any of the five sample branches - 2] + average fascicle retention of the oldest 2 whorls. This portion of the OII is shown separately in Table 12-2 in an effort to identify any major changes in needle abscission that may have occurred between consecutive years and between 1991 and 1994. These data suggest that Fwhorl at plots 2 and 3 decreased the most between 1991 and 1992, while the Fwhorl at plot 1 decreased between 1992 and 1993. The implication is that ozone injury to needles in older whorls was suppressed prior to 1991 during the peak of the drought. With the return of more favorable soil moisture availability in 1991 the older needle whorls were injured by ozone and needles abscised.

12.3.3 Weight of Needle Whorls and Length of Needles in Whorls During 1983 to 1993.

In 1991 the branches cut from trees at plots 1, 2, and 3 to determine visible ozone injury were taken to the laboratory where needle whorls were removed from 5 branches, bulked by age and tree, oven dried and weighed. In Figure 12-2 (top) the average bulked needle weights for the 1983 to 1991 period are shown. This data shows three major points that describe the dynamics of needle growth and retention as influenced by climate and air pollution. It is remarkable because it demonstrates the great plasticity of ponderosa and Jeffrey pine response to the environment. The number of samples going into each average is represented by a number above the bar. For example, in 1991 back to 1988 there were 131 samples (or trees with that age class of needles). From 1988 to 1990 the weight of needles decreased by about half as a prolonged drought continued and needles became shorter each year. With a sudden release from the drought in 1991 the mass of needles was 2.5 times greater than in 1990. There was a heavy snow in March 1991 and in the summer of 1992 there were about 3-5 significant rain events during July and August (See Section 7, Figure 7-9). This much summer precipitation is unusual. From 1988 backwards to 1983 the number of trees retaining whorls of each year decreased from 131 to 4. The corresponding change in weight is a measure of the natural and ozone-injury-accelerated process of needle abscission for a sample of 131 trees from three plots.

In Figure 12-2 (lower) the needle lengths in whorls from 1984 to 1994 are shown. The first point to note is the similarity between the decline of needle length to a low point in 1990 and the decline of needle weight (Figure 12-2, top). Two drought cycles (1984 to 1990 and 1991 to 1994) can be detected, the last not nearly as severe as the first. The winter of 1994-95 was unusually wet so needle length can be expected to be longer in 1995. The multiple bars for a single year in Figure 12-2 (lower) represent the (yearly) successive measurements of the same age class of needles. Even though the needles were from different branches in successive years, the variance in the measurements is generally not excessive until the needles available to measure has decreased considerably, as in the case of repeated measures of the 1990 needles. In this case, it

appears that the shorter needles abscised more rapidly, causing the average to get higher each year. As in Figure 12-2 (top) the numbers above the bars are the total number of trees that had whorls of that age class with needles to measure in a given year. The maximum number of trees in this sample is 130 as opposed to 131 for needle weights due to the death of one tree.

These data show that drought and ozone work together to reduce the photosynthetic surface area available to the tree. Drought acts primarily by decreasing needle length while ozone acts by reducing numbers of whorls. Since drought stress lowers stomatal conductance and reduces ozone uptake then needles are protected from ozone during dry years (Temple et al., 1992). Older needles and also the new needles produced in moister years after drought episodes are more injured by ozone because of higher stomatal conductance and higher ozone uptake. The result is that trees do not have periods of respite from either drought or ozone during which to recover.

12.3.4 Relationship Between Crown Position and Ozone Injury Index, and Change of Foliated Length of Sample Branches in Each Year

Table 12-3 shows the annual changes in OII between 1991 to 1994 when trees at three plots are grouped and then separated into their respective crown position classes, namely, open-grown, dominant, codominant, intermediate and suppressed. The largest numbers of trees were in the codominant and intermediate classes. Intermediate trees were generally more injured than codominants. The sample size for open grown, dominant and suppressed trees was smaller and relative amounts of injury could not be estimated with confidence.

Another branch variable was measured routinely but was not included as a part of the OII because it is correlated with tree size/age. This variable is foliated length or the length of the branch with green foliage measured from the base of the bud back to the point of insertion of the oldest green needles. Foliated length is a measure of tree vigor because it is one indicator of the photosynthetic surface area available. Table 12-4 shows a fairly consistent decline of foliated length of dominant and codominant trees at all three plots from 1991 to 1994. Change in foliated length resulted from a combination of needle whorl loss and reduced length of the new shoot internodes. The general reduction in magnitude of this variable may reflect the accumulated effects of drought (shortened needles) during 1987 to 1990, and ozone (loss of needle whorls) during 1991 to 1994. The elucidation of this sequential drought/ozone interaction is one of the most important tasks for the future understanding of forest health changes.

12.3.5 Interannual Changes in Chlorotic Mottle Intensity and Fascicle Retention in Relation to Different Ozone Exposure Indices

The first objective was to compare several ozone exposure indices on a month by month basis at Barton Flats. Second, to examine the relationship between amount of chlorotic mottle and the numbers of annual needle whorls retained on trees in three plots. The third objective was to test the relationship between chlorotic mottle amount and each of several ozone exposure indices that varied according to time of season and ways of weighting higher concentrations.

<u>Monthly Ozone for 1992-1994:</u>

Three averaging times were compared for monthly ozone data including the 12 hour average (Figure 12-3), the Sum 60 (sum of all hourly concentration $\geq$ 60 ppb) by month (Figure 12-4), and the number of hours each month exceeding 80 ppb (Figure 12-5). The 12 hour average shows that monthly levels were not very different between years except in the summer of 1992 when July-August rains and cloudy weather limited ozone build-up and transport. The most important months for tree exposure were April through August. The September and October ozone exposure was ignored because tree injury evaluations are done in the first two weeks of September, thus exposure only through August could contribute to injury seen in September. In addition, companion studies of seasonal trends of stomatal conductance showed that stomatal conductance and ozone flux to foliage was much greater in early summer (Patrick Temple, Personal Communication). The Sum 60 and number of hours greater than 80 ppb showed more year to year difference (Figures 12-3 and 12-4). The use of these indices supports the hypothesis that plants are more injured by higher concentrations, however, in exposure response regressions reported here the sums of 7hr, 12hr and 24hr concentrations are used as a comparison with concentration weighted indices (Sum 60 and Hrs $\geq$ 80 ppb).

Whorl Retention and Associated Chlorotic Mottle:

As the ozone exposure of needles increases over time the chlorotic mottle symptom level is evaluated according to visual ranges, e.g. 0=0, 1=1-6 percent, 2=7-25 percent, 3=26-50 percent, 4=51-75 percent, 5=76-100 percent. The relationship between whorl retention and chlorotic mottle intensity (Figure 12-6) is shown for the trees of the three plots combined. The purpose is to show the percent of trees that retain needle whorls of eight ages (1= current year and 8= 8 years-old on the x-axis of the figure) and the percent of those remaining whorls that fall into each of the 0 through 5 levels of chlorotic mottle.. At the Barton Flats plots the whorl retention starts to decline by 10 percent for whorls that are three years old. For five year-old whorls about 75 percent have been abscised. Also, as the retention of four year old whorls is reduced to 57 percent, approximately 84 percent of the remaining whorls have chlorotic mottle equal to or greater than 1 percent; or, 58 percent have chlorotic mottle equal to or greater than 7 percent; and 12 percent have mottle equal to or greater than 50 percent. Thus, appreciable amounts of needle loss have taken place when a majority of the remaining needles of an age class show amounts of mottle less than 25 percent.

Regressions Between Accumulated Ozone Exposure and Chlorotic Mottle:

Five exposure indices summed over the April 1 to June 15, June 16 to August 31, and April 1 to August 31 periods of three years (1992-1994) were calculated in order to determine the relationship between exposure and development of chlorotic mottle on the same age of whorl. The rationale was to see if concentration weighted exposure indices might be the best choice, and to consider exposure occurring during the early summer when ozone flux to foliage has been shown to be higher (Patrick Temple, Personal Communication), separately from that occurring in late summer and over the entire summer season. Figure 12-7 shows an example of one regression where exposure was accumulated as the number of hours greater than 80 ppb for the April 1 to June 15 period of each year along with the corresponding amount of percent chlorotic mottle as measured in September of each year. Thus a total of six data points are available: the 1992 whorl recorded in 1992, 1993, and 1994; the 1993 whorl in 1993 and 1994; and, the 1994 whorl in 1994. Regression coefficients and p values for this and for other combinations are shown in Table 12-5.

Correlation coefficients appear highest for the 4/1 to 6/15 period and lowest for the 6/16 to 8/31 period. The best combination is HR > 80 for the 4/1 to 6/15 period. At present this combination may be the best for trees at Barton Flats but each of the other Sierra Nevada sites must be tested in the same way. Additional exposure indices and exposure times must also be included using chlorotic mottle as the response variable.

Several approaches have been investigated for determining the most appropriate ozone exposure index and seasonal period for accumulating the index. Percent chlorotic mottle and retention of annual needle whorls have been used as response variables. So far the regression between chlorotic mottle and a concentration-weighted ozone exposure index (hrs $\geq$ 80 ppb) accumulated during the April 1 to June 15 period has slightly more promise than the others tested. This result is intuitively satisfying because ozone fluxes to foliage are greater in early summer, however, regression coefficients are equally high for other index/time interval combinations so this result is really not conclusive. At present a more in-depth study of foliage response to different ozone exposure indices and time intervals is in progress using data from Project FOREST in the Sierra Nevada (Guthrey et al., 1993).

Studies of *P. Jeffreyi* by Patterson and Rundel (1995) in Sequoia National Park showed that the mean rate of photosynthesis was 3.5 μmol m^{-2} s^{-1} for asymptomatic needles which decreased linearly to a mean of 1.0 μmol m^{-2} s^{-1} for needles with 60 percent or more mottle (N=230). Mottle reached an average of 12 percent on the 1992 needles (Figure 12-7) in this study. This amount of mottle symptom development could reduce photosynthesis by only about 0.5 μmol m^{-2} s^{-1}. Averages provide one expression of photosynthesis decrease, however, it is necessary to indicate that there is a large amount of variability of injury response in the population. Some very ozone sensitive individuals may have a sharper decline in photosynthetic rate. A pine population like that at Barton Flats may have many individuals that show less decline of photosynthetic rate because of nearly 20 years of repeated sanitation salvage logging which removed symptomatic trees. Studies are currently underway at Barton Flats by Dr. Nancy Grulke to characterize seasonal photosynthetic rates of ponderosa and Jeffrey pines located in the vicinity of the Barton Flats study plots (Personal Communication). Results will be available in the near future as part of the E.P.A., Corvallis Environmental Research Laboratory's assessment of ozone effects on forests.

12.3.6 Litterfall Dynamics Under Pines at 3 Plots

Figures 12-8a, 12-8b and 12-8c show the rates of accumulation of leaf litter under selected ponderosa or Jeffrey pines during June through November 1992, 1993 and 1994. Litter does not start to accumulate until mid-September and the most rapid rate of accumulation extends to late-November. The highest amount of litterfall was in 1992 at all plots. Slightly smaller amounts were measured in 1993 and 1994. Also in 1994 the curve for litter accumulation became asymptotic by late October. These yearly changes in litter input may also be influenced by the gradual decline of foliated length from 1991 to 1994 (Table 12-4). Plot 3 had higher litter accumulation than 1 and 2. The explanation may be that trees are taller at plot 3, that is, they had a taller column of foliage above the collectors.

Figures 12-9a, 12-9b and 12-9c shows the relationship of total litter amount for each season as a function of the OII of the tree under which the litter traps were placed. There was no correlation between OII and the amount of litterfall of ponderosa or Jeffrey pines. The explanation may be simply that litter fall is most

abundant during periods of high winds and the trajectory of falling needles has a large horizontal component. Therefore, litter traps are catching litter from nearby trees as well as the ones under which they are placed.

12.3.7 Litterfall Dynamics Under Pines, White Firs and Black Oak at 2 Plots

At plots 1 and 2 in 1993 and 1994 litter traps were placed under white firs and black oaks as well as pines (Figure 12-10 and 12-11). There were two purposes for this sampling configuration. First, to compare the litterfall from companion species that were known to differ in sensitivity to ozone. Second, to use annual litterfall as one method for computing Leaf Area Index (LAI). In both years at both plots white fir had twice the amount of litter accumulation compared to either pine or black oak. Also, white fir litterfall was deposited in collectors at a low level during the early and mid-summer, particularly at plot 1. The weights of litter from pine and black oak were similar in 1993 at plot 1 and 1994 at plot 2, and different in 1993 at plot 2 and 1994 at plot 1. The relationship of amount of litter from pine and oak was not consistent with respect to each other.

The higher level of litter accumulation from white fir, which has a lower sensitivity to ozone than pine or black oak could be interpreted rather simply. It could be simply due to the larger stature of white firs with litter collectors. Taller trees produce and accumulate more litter per unit ground surface area. Because white fir shows very little evidence of ozone injury to foliage, it routinely maintains 8 to 20 annual whorls of needles compared to 3 to 8 for pines. Therefore, white fir has a larger mass of green needles from which abscission can occur. Litter input from black oak is a special case because of the difference in leaf morphology compared to conifers, and because black oak is deciduous. The temporal pattern of black oak litter accumulation conforms with the deciduous habit of the species.

The litter input data is for the summer period only. A study in Sierra Nevada pine-fir forests showed that an equal amount of needle litter was collected during the winter period (Stohlgren, 1988).

12.3.8 Frequencies of the Presence of Abiotic Symptoms, and Biotic Pest Symptoms on Ponderosa and Jeffrey Pines for 1991 Through 1994

The occurrence of symptoms on leaves due to abiotic or biotic causes was evaluated annually on each needle whorl present on five branches sampled from each ponderosa or Jeffrey pine. The abiotic symptoms described were winter fleck, found only on the upper leaf surfaces, necrotic bands which might envelop the entire circumference of the needle at any position along its length, and loss of one-half to one-third of the tip portion of the needle because of the mechanical failure of a band of needle tissue. The two most abundant injuries caused by biotic agents were a serrated appearance of needles caused by the chewing of the pine needle weevil, and uniform yellow or blotches of yellow tissue due to the presence of pine needle scale insects. The occurrence of both abiotic and biotic symptoms on different ages of needles of pines in three plots in 1992, 1993, and 1994 will be described in Tables 12-6 through 12-10.

Table 12-6 shows the total number of needle whorls of each age and the proportion of those whorls with winter fleck that occupied more than 25 percent of the upper needle surface in different years and plots. The cause of winter fleck is really unknown. The effect on needle tissue is characterized by a block of dead mesophyll cells extending from the upper surface (epidermis) to the endodermis (an internal layer of cells that

separates the mesophyll from the vascular tissues or xylem and phloem) (Miller and Evans, 1974). It is distinct from ozone injury which occurs on all needle surfaces and causes injury to mesophyll cells in a random pattern. Winter fleck does not appear until a needle whorl has passed through its first winter and the frequency of needle whorls with more than 25 percent incidence increases each year to a maximum in the third year. During the fourth year needle abscission, due presumably to increased chlorotic mottle, tends to reduce the number of needles with winter fleck on this and older whorls. The occurrence of fleck seems to be less associated with plot location and more associated with year to year differences.

The FOREST project in the Sierra Nevada presented data in a preliminary report indicating that winter fleck was more abundant where air pollution levels were higher (Guthrey et al., 1994). This data provided only circumstantial evidence that ozone or acidic deposition could in some way predispose needle tissue to damage by winter conditions (low temperature, snow or ice buildup). This phenomenon has not been examined with an adequate experimental design including all the combinations of variables involved. These conditions or variables may include low winter temperature or frost, focus of intense sunlight by ice crystals, erosion of the waxy cuticle by ozone or acidic deposition, and direct effects of ultraviolet-B radiation. Some relationships of fleck occurrence with environmental conditions are presented in Table 12-11 which will be discussed later.

Table 12-7 presents the data for the incidence of whorls with necrotic bands. Bands develop on current year tissue before it is exposed to winter conditions. During 1992, the year with the highest frequency of this symptom, it appeared to be most prevalent on the youngest needle whorls. The symptom diminishes in frequency as needle whorls age, probably because of ozone-caused abscission in many cases. The cause of necrotic banding is unknown but its incidence is far less important than winter fleck.

Table 12-8 shows that breakage of needle tips was more frequently seen on the youngest needle whorl. It was not detected in 1992. It appears that the failure of a narrow band of needle tissue, resulting in the loss of the needle tip, takes place at some critical phase in the elongation of the new needles. Perhaps the mechanical stress of wind on almost completely elongated needles before cell walls have undergone sufficient thickening could be the cause of this phenomenon.

Weevil damage (Table 12-9) was present at all plots and tended to increase in prevalence up to the third annual whorl after which it declined. Weevil damage was most prevalent in 1992 (as were necrotic bands) and seemed to be present at all plots. Scale insects were not very important in any year or at any plot (Table 12-10).

12.3.9 Examination for Possible Extremes of Temperature, and Accumulated Dry and Wet Acidic Pollutant Deposition, in Relation to Upper Needle Surface Necrotic Flecking at Barton Flats and Associated Plots

In 1994 the amount of winter fleck on 2-year-old needles appeared to be less than for the same needle age in previous years. In Table 12-11 the percent of needle whorls with two levels of winter fleck on the needles that have passed through their first winter (2-year-old needle whorls) are compared with a number of variables monitored at the Barton Flats monitoring station. These variables include temperature extremes, dry deposition of O_3, N as NH_4^+, NO_2, and HNO_3, and S as SO_2 (summed from the appendix of monthly

deposition amounts in Section 8); and, wet deposition of NO_3^-, NH_4^+, and SO_4^{2+}. After an initial screening of these variables by inspection, there appears to be no suggestion of a relationship between the physical and chemical conditions monitored in these three years and winter fleck incidence on needles after their first winter and full summer of exposure.

12.4 Discussion

The year to year dynamics of change in health of foliage of ponderosa and Jeffrey pines has been the focus of this section. Most of the indicators of health of foliage and crown condition have indicated a gradual decline of health despite the return of more favorable soil moisture conditions in 1991 through 1994. Needle length and weight measurements from 1983 to 1994 illustrate how closely needle growth is tied to available moisture. The year to year accumulation of chlorotic mottle symptoms shows a good linear fit with ozone exposure indices that emphasize higher ozone concentration, especially during the early summer months. It was not possible to show that litter fall had any correlation with the condition of the tree under which litter collectors were placed. The explanation may be that much litter falls during times of high winds and collectors receive needle litter from nearby trees as well. Among the species in the plots the litter fall rate was higher longer in the summer-fall period for white fir compared to pines or black oak. White fir is much less sensitive to ozone and may simply have a larger "reservoir" of foliage to discard.

Various other symptoms caused by either abiotic or biotic agent were evaluated on pines. The causal agents of three abiotic symptoms, winter fleck, necrotic banding, and breakage of needle tips could not be determined. Damage from chewing insects (weevils) was common and the incidence of scale insects was uncommon. Of all symptoms that may be related to acidic deposition the upper surface "winter fleck" condition was the most likely candidate. Incidence on the whorls to undergo their first exposure to winter conditions was variable from year to year, being relatively high in 1992 and 1993 and low in 1994. An array of physical and chemical conditions were compared for each year but there was no suggestion of a relationship.

12.5 Summary

The purpose of this work was to study possible short-term responses of pine foliage that may implicate acidic deposition as a cause. The results do not implicate acidic deposition in the short run but do provide abundant evidence for the interaction of drought and ozone as sequential stressors that together prevent the full recovery of trees from the effects of either one.

12.6 **References**

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Table 12-1. Ozone injury index (OII), tree numbers, average height and average diameter of ponderosa and Jeffrey pines at plots located on a 12-mile long west-to-east gradient of decreasing ozone exposure in the Santa Ana river drainage.

Plot Name (mile)	1993 avg OII se (n)	1994 avg OII se (n)	Height (m) se (n)	Diameter (cm) se (n)
Camp Angelus (0)	54.5 1.6 (56)	52.9 1.4 (56)	28.4 1.4(56)	57.9 3.0 (56)
Barton Flats (6)	47.5 1.1 (130)	49.2 .814 (130)	19.95 .779 (128)	45.7 2.0 (130)
Heart Bar (12)	22.6 4.6 (18)	30.8 * 1.9 (56)	18.3 .914 (56)	41.0 2.5 (56)

* only 18 trees evaluated in 1993, the 1994 OII of those 18 trees = 30.8

Table 12-2. Changes in the Fwhorl variable from year to year at three Barton Flats plots.

Plot Number	Year			
	1991	1992	1993	1994
1	4.4	4.2	3.4	3.3
2	4.0	3.0	3.2	3.4
3	4.2	3.6	3.6	3.2
Mean	4.2	3.6	3.4	3.3

Table 12-3. OII changes in relation to year, plot number and crown position class at three Barton Flats Plots.

avg std error (n)	1991	1992	1993	1994
All	38.3 1.4 (128)	47.5 1.4 (130)	47.5 1.1 (130)	49.2 .814 (130)
Plot 1	33.5 2.7 (42)	42.9 2.6 (42)	48.5 2.1 (42)	49.2 1.4 (42)
Plot 2	42.8 2.0 (47)	52.7 2.1 (48)	50.1 1.3 (48)	47.8 1.4 (48)
Plot 3	37.9 2.6 (39)	46.0 2.4 (40)	43.3 2.4 (40)	50.8 1.4 (40)
Dominant	32.6 4.8 (6)	29.6 5.7 (6)	31.1 6.0 (6)	41.3 5.6 (6)
Codominant	37.1 1.7 (89)	47.0 1.6 (89)	47.6 1.3 (89)	49.0 1.0 (89)
Intermediate	44.3 3.1 (28)	53.2 3.1 (28)	50.9 2.6 (28)	52.0 1.5 (28)
Suppressed	34.6 .6 (2)	43.3 3.6 (2)	51.6 2.1 (2)	47.8 1.2 (2)
Open Grown	56.5 (1)	50.6 (1)	47.9 (1)	50.1 (1)

Table 12-4. Foliated length average for five branches per tree on dominant and codominant trees at three plots.

	Year			
Plot Number	1991	1992	1993	1994
1	9.9	8.3	6.8	6.6
2	7.0	5.8	6.5	6.2
3	7.1	6.1	6.8	5.8
Mean	8.0	6.7	6.7	6.2

Table 12-5. Regressions of different time-exposure index combinations and chlorotic mottle development on individual needle whorls from 1992 to 1994, (See Figure 12-7).

Exposure Index	Exposure Period					
	4/1 - 8/31		4/1 - 6/15		6/16 - 8/31	
	r	p	r	p	r	p
Sum 60	.951	.0036	.958	.0026	.927	.0078
Hr > 80	.954	.0031	.971	.0013	.919	.0096
Sum 7 HR	.952	.0035	.962	.0021	.939	.0054
Sum 12 HR	.957	.0028	.962	.0022	.940	.0053
Sum 24 HR	.951	.0036	.961	.0023	.939	.0055

Table 12-6. Proportion of sampled branches whose individual needle whorls had $\geq$ 25 percent of surface area with winter fleck in four consecutive years of observation.

Winter Fleck			Needle Age (Years)							
Year	Plot	#br	1	2	3	4	5	6	7	8
1991	1	wf	0	112	158	171	103	44	12	4
		tot	210	210	200	188	112	48	14	6
	2	wf	93	65	205	175	94	27	8	2
		tot	240	240	233	186	95	28	8	2
	3	wf	4	77	181	150	82	28	8	1
		tot	195	195	195	154	85	29	9	1
1992	1	wf	0	136	139	122	109	66	23	4
		tot	210	210	166	134	116	70	24	4
	2	wf	1	185	94	90	44	13	4	1
		tot	240	238	168	102	47	13	4	1
	3	wf	0	95	44	103	69	18	3	2
		tot	200	200	173	129	71	20	5	2
1993	1	wf	1	195	179	71	39	27	4	0
		tot	210	210	189	83	49	27	4	0
	2	wf	0	229	214	41	23	11	3	0
		tot	240	240	233	64	27	12	3	0
	3	wf	0	193	184	67	65	27	5	0
		tot	200	200	191	101	70	30	6	0
1994	1	wf	0	59	156	97	11	0	0	0
		tot	210	210	195	122	12	0	0	0
	2	wf	0	43	202	144	2	2	0	0
		tot	240	240	235	156	4	2	0	0
	3	wf	0	51	178	92	5	1	1	0
		tot	200	200	190	97	6	2	1	0

Table 12-7. Proportion of sampled branches whose individual needle whorls had detectable amounts of necrotic bands for each year of observation.

Bands			Needle Age							
Year	Plot	#br	1	2	3	4	5	6	7	8
1991	1	bnd	4	1	0	1	0	0	0	0
		tot	210	210	200	188	112	48	14	6
	2	bnd	76	8	4	1	0	0	0	0
		tot	240	240	233	186	95	28	8	2
	3	bnd	48	9	5	1	0	1	0	0
		tot	195	195	195	154	85	29	9	1
1992	1	bnd	1	8	0	0	3	0	0	0
		tot	210	210	166	134	116	70	24	4
	2	bnd	33	42	9	3	2	1	0	0
		tot	240	238	168	102	47	13	4	1
	3	bnd	100	72	23	20	5	0	1	0
		tot	200	200	173	129	71	20	5	2
1993	1	bnd	0	2	2	1	0	0	0	0
		tot	210	210	189	83	49	27	4	0
	2	bnd	0	0	0	0	0	0	0	0
		tot	240	240	233	64	27	12	3	0
	3	bnd	0	0	2	5	3	1	0	0
		tot	200	200	191	101	70	30	6	0
1994	1	bnd	1	3	7	5	2	0	0	0
		tot	210	210	195	122	12	0	0	0
	2	bnd	1	0	0	1	0	0	0	0
		tot	240	240	235	156	4	2	0	0
	3	bnd	0	1	7	4	2	0	1	0
		tot	200	200	190	97	6	2	1	0

Table 12-8. Proportion of sampled branches whose individual needle whorls had detectable amounts of needle tip breakage for each observation year. "Tip" was recorded as bands in 1991 and 1992.

Tip			Needle Age							
Year	Plot	#br	1	2	3	4	5	6	7	8
1991		Not recorded in 1991								
1992		Not recorded in 1992								
1993	1	bt	55	30	17	9	3	1	0	0
		tot	210	210	189	83	49	27	4	0
	2	bt	86	27	29	4	1	0	0	0
		tot	240	240	233	64	27	12	3	0
	3	bt	51	52	34	2	4	0	0	0
		tot	200	200	191	101	70	30	6	0
1994	1	bt	29	8	13	8	1	0	0	0
		tot	210	210	195	122	12	0	0	0
	2	bt	58	46	31	25	1	0	0	0
		tot	240	240	235	156	4	2	0	0
	3	bt	42	22	30	7	1	0	0	0
		tot	200	200	190	97	6	2	1	0

Table 12-9. Proportion of sampled branches whose individual needle whorls had detectable amounts of weevil (chewing insect) damage for each sample year.

Weevils			Needle Age							
Year	Plot	#br	1	2	3	4	5	6	7	8
1991		Not recorded in 1991								
1992	1	wv	60	48	57	40	37	22	9	1
		tot	210	210	166	134	116	70	24	4
	2	wv	38	93	34	23	13	3	1	0
		tot	240	238	168	102	47	13	4	1
	3	wv	12	69	47	59	21	7	0	1
		tot	200	200	173	129	71	20	5	2
1993	1	wv	13	33	54	16	7	2	3	0
		tot	210	210	189	83	49	27	4	0
	2	wv	8	27	48	8	3	4	1	0
		tot	240	240	233	64	27	12	3	0
	3	wv	3	58	80	31	27	9	2	0
		tot	200	200	191	101	70	30	6	0
1994	1	wv	4	15	16	12	1	0	0	0
		tot	210	210	195	122	12	0	0	0
	2	wv	6	28	28	30	0	0	0	0
		tot	240	240	235	156	4	2	0	0
	3	wv	1	20	42	34	0	0	0	0
		tot	200	200	190	97	6	2	1	0

Table 12-10. Proportion of sampled branches whose whorls had detectable numbers of resident pine needle scale insects, or distinct chlorotic islands with a central necrotic fleck in each sample year.

Scale			Needle Age							
Year	Plot	#br	1	2	3	4	5	6	7	8
1991	1	sc	0	1	1	1	0	0	0	0
		tot	210	210	200	188	112	48	14	6
	2	sc	0	2	2	1	0	0	0	0
		tot	240	240	233	186	95	28	8	2
	3	sc	1	6	5	4	3	1	0	0
		tot	195	195	195	154	85	29	9	1
1992	1	sc	1	15	17	11	8	11	3	0
		tot	210	210	166	134	116	70	24	4
	2	sc	0	0	1	2	2	0	0	0
		tot	240	238	168	102	47	13	4	1
	3	sc	0	1	0	0	0	0	0	0
		tot	200	200	173	129	71	20	5	2
1993	1	sc	1	4	4	1	0	0	0	0
		tot	210	210	189	83	49	27	4	0
	2	sc	0	0	3	1	0	0	0	0
		tot	240	240	233	64	27	12	3	0
	3	sc	0	1	1	1	1	1	0	0
		tot	200	200	191	101	70	30	6	0
1994	1	sc	1	7	6	3	0	0	0	0
		tot	210	210	195	122	12	0	0	0
	2	sc	0	4	2	0	0	0	0	0
		tot	240	240	235	156	4	2	0	0
	3	sc	0	0	0	0	0	0	0	0
		tot	200	200	190	97	6	2	1	0

Table 12-11. Winter fleck incidence on 2-year old needles (evaluated in September) in relation to preceding temperature extremes and accumulated dry and wet deposition of N and S compounds. Dry deposition amounts are summed from Section 8, and wet deposition from Section 2 of this report.

	Year		
	1992	1993	1994
Percent of Sampled Branches with:			
Winter Fleck "1" ($\leq$ 24.9 percent)	62.3	72.0	22.8
Winter Fleck "2" ($\geq$ 25 percent)	1.9	22.9	.8
Precipitation, inches			
Sept-Dec Precip. (fall, prev. year)	6.5	16.7	7.7
Jan-April Precip. (winter, current year)	36.1	77.4	28.5
Temperature, Centigrade °, fall, prev. year			
Sept-Dec Min. Temp.	-7.3	-8.1	-5.2
Sept-Dec Max. Temp.	19.8	25.5	27.7
Temperature, Centigrade °, winter			
Jan-April Min. Temp.	-5.9	-10.1	-7.7
Jan-April Max. Temp.	21.5	20.4	20.7
Jan-Sept Sum: Est. Dry Dep. to Pine Foliage ($\mu g/m^2/h$)			
N as NH_3	36404	No Model	No Model
N as NO_2 and HNO_3	227090	Prediction	Prediction
S as SO_2	6196		
Oct-Dec Sum: Est. Dry Dep. to Pine Foliage ($\mu g/m^2/h$)			
N as NH_3	4824	No Model	No Model
N as NO_2 and HNO_3	25427	Prediction	Prediction
S as SO_2	1557		
Jan-Sept Sum: Est. Dry Dep. to Pine Foliage ($\mu g/m^2/h$)			
N as NH_3	No Model	27843	No Model
N as NO_2 and HNO_3	Prediction	208565	Prediction
S as SO_2		4656	
Sept-Dec (prev. year), Wet Dep. Sum (Kg/Ha):			
NO_3	.3107	.7664	.7961
NH_4	.0994	.2698	.1620
SO_4	.2004	.4424	.3492
Jan-April(current year), Wet Dep. Sum (Kg/Ha):			
NO_3	1.0625	2.5556	.6148
NH_4	.2959	.5543	.1448
SO_4	.5229	1.1428	.2441

Figure 12-1. Changes in OII (ozone injury index) of ponderosa and Jeffrey pines at three Barton Flats plots from 1991 to 1994.

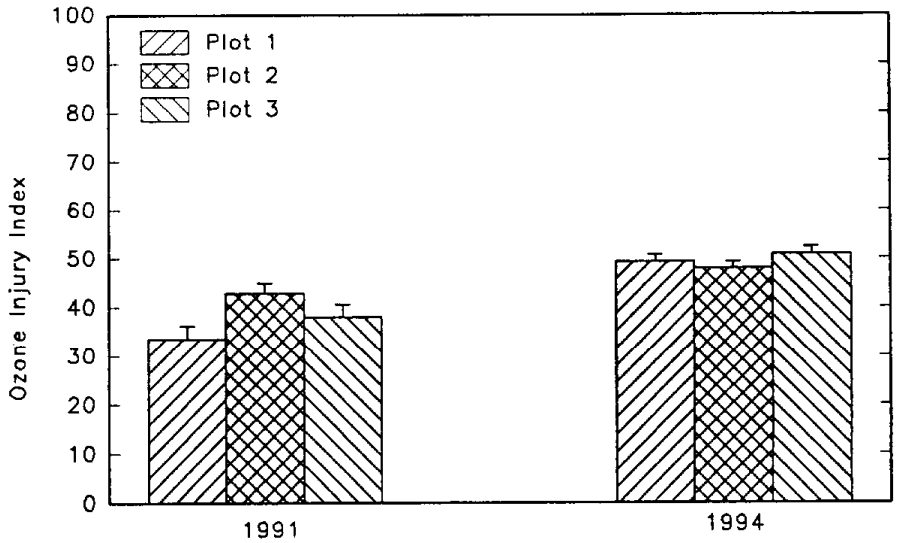


Figure 12-2. Weight of needle whorls (top) and length of needles in whorls (bottom) from 1983 to 1994.

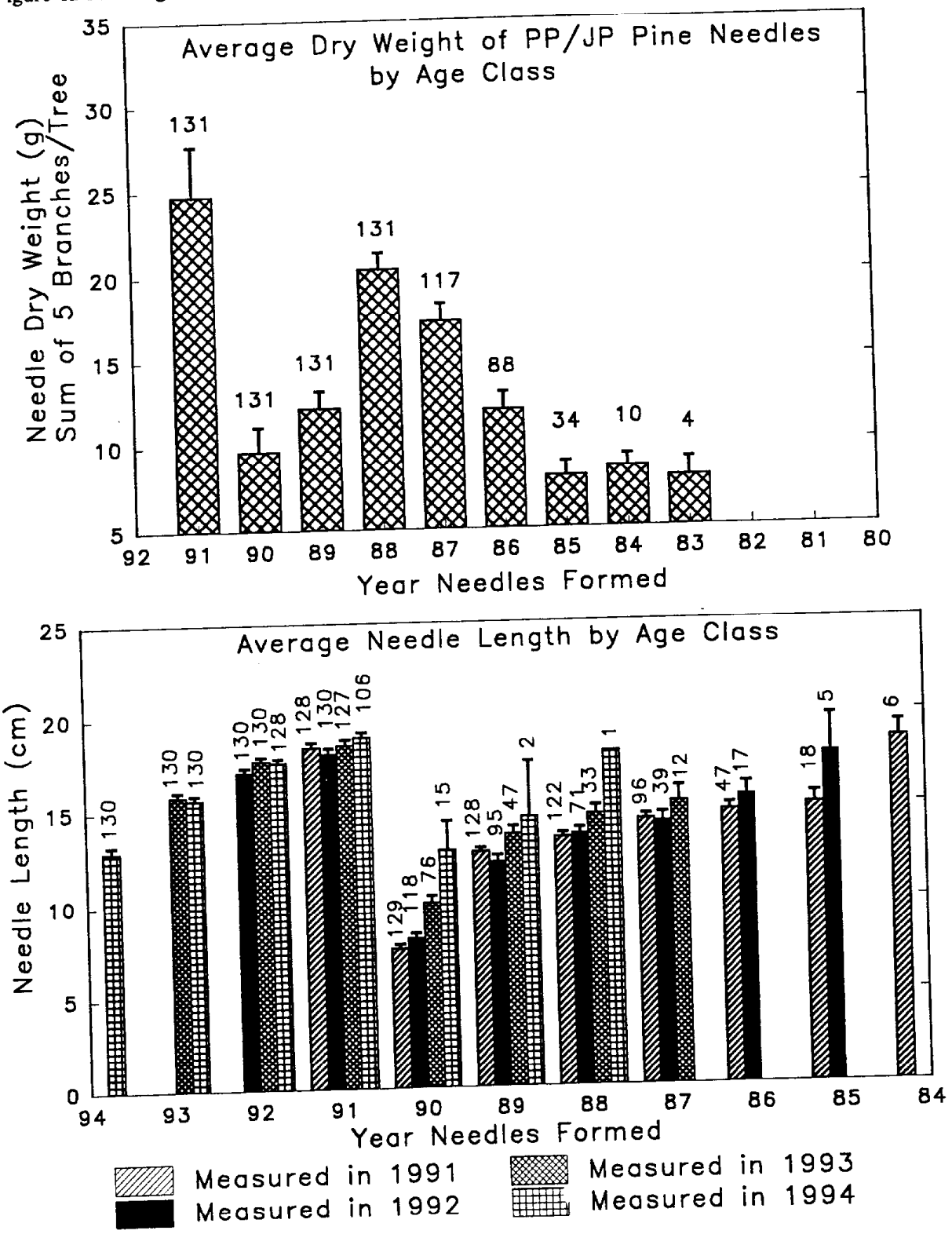


Figure 12-3. Monthly 12 hour (daylight) ozone average for 1992 to 1994 at Barton Flats. The lower values for July and August were associated with cloudy weather and frequent rain showers during that summer.

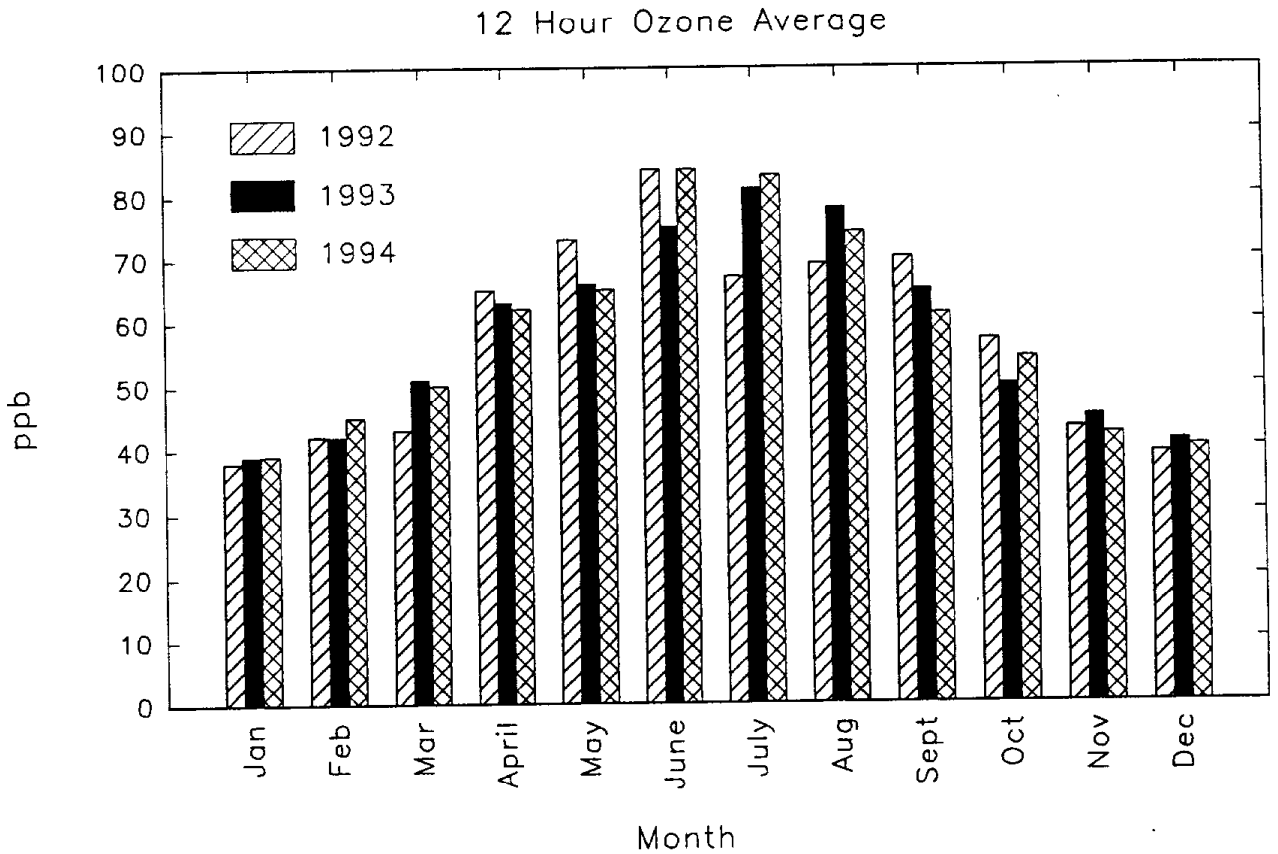


Figure 12-4. Monthly sum of ozone concentrations equal to or exceeding 60 ppb for 1992 to 1994 at Barton Flats.

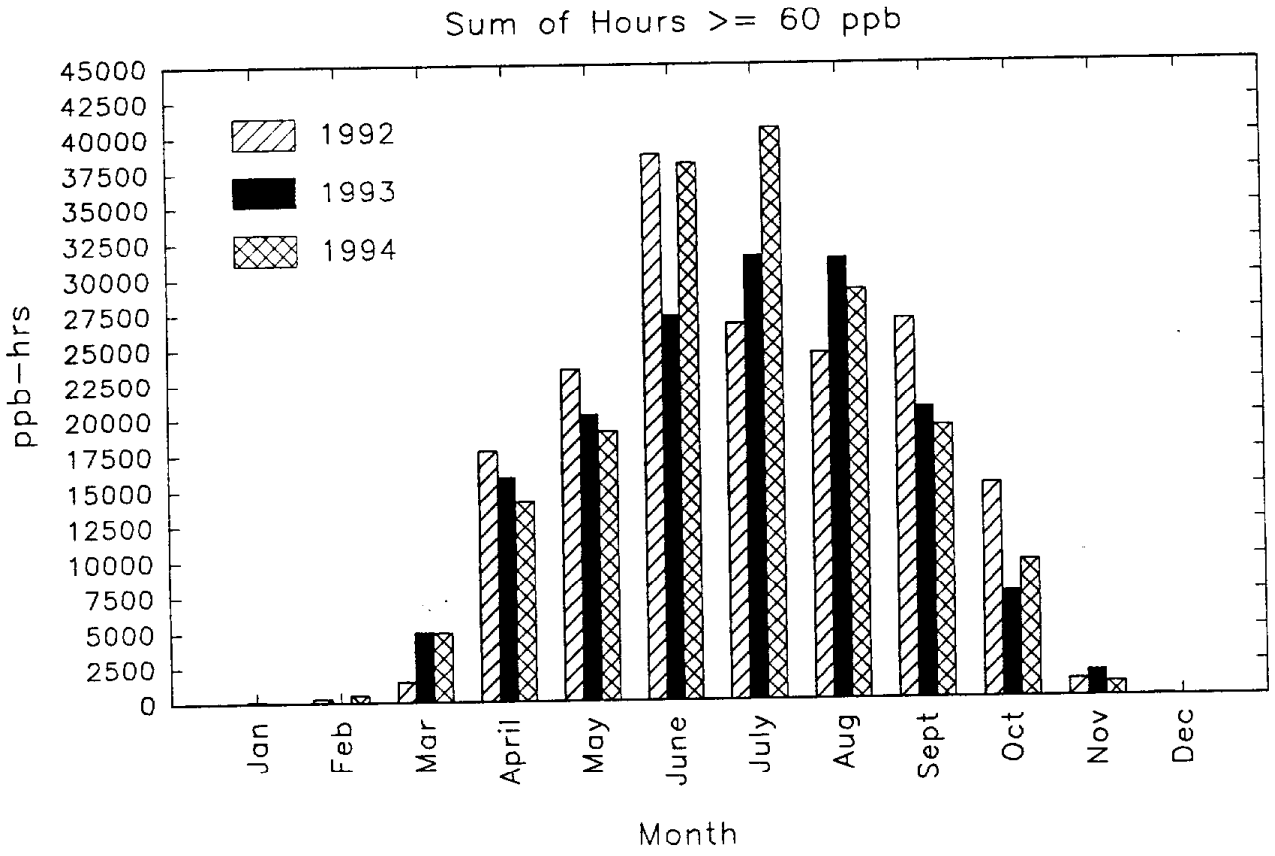


Figure 12-5. Monthly count of hours when ozone concentration was equal to or exceeded 80 ppb for 1992 to 1994 at Barton Flats.

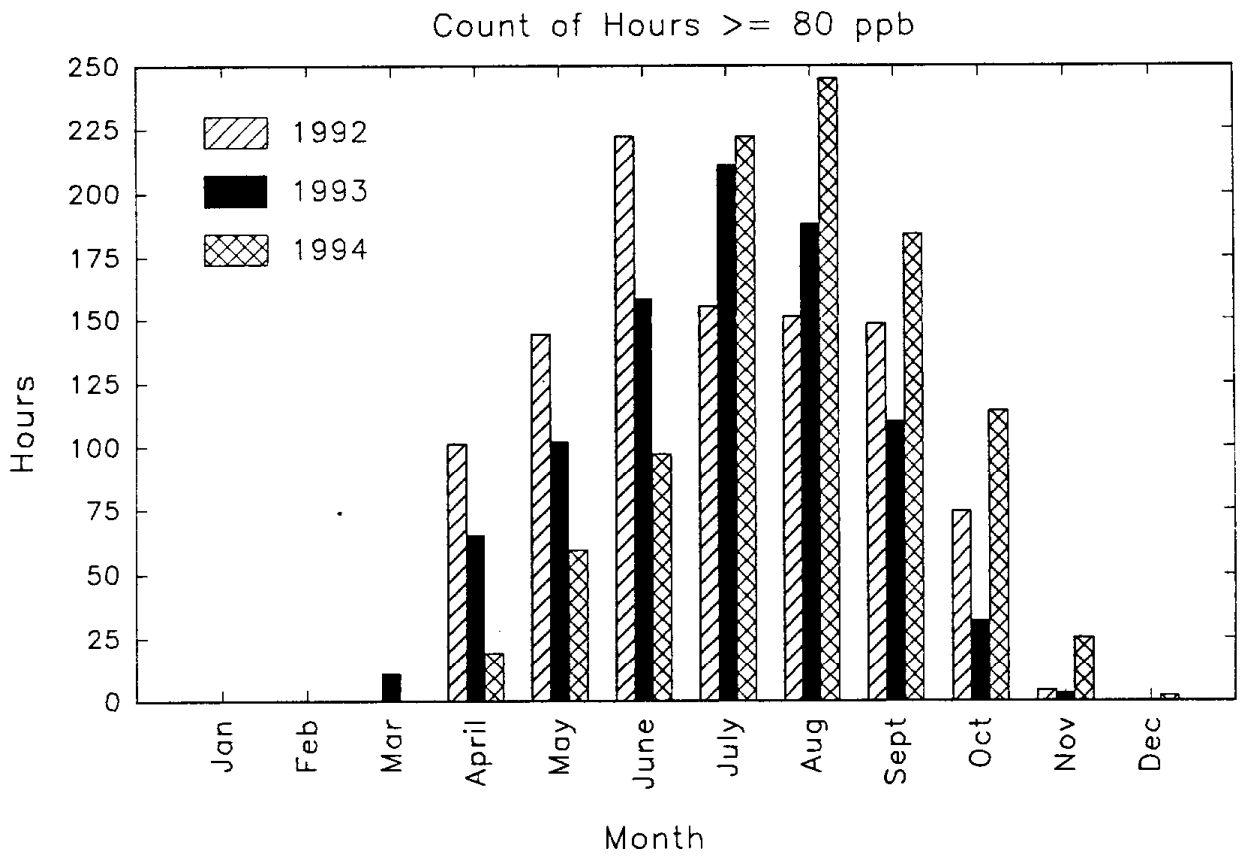


Figure 12-6. Percent of all trees at Barton Flats plots that retain different ages of needle whorls (1-8 years) compared with the percent of whorls of each age (1-8 years) that show chlorotic mottle amounts equal to or greater than 1, 7, 26, 51, and 76 percent.

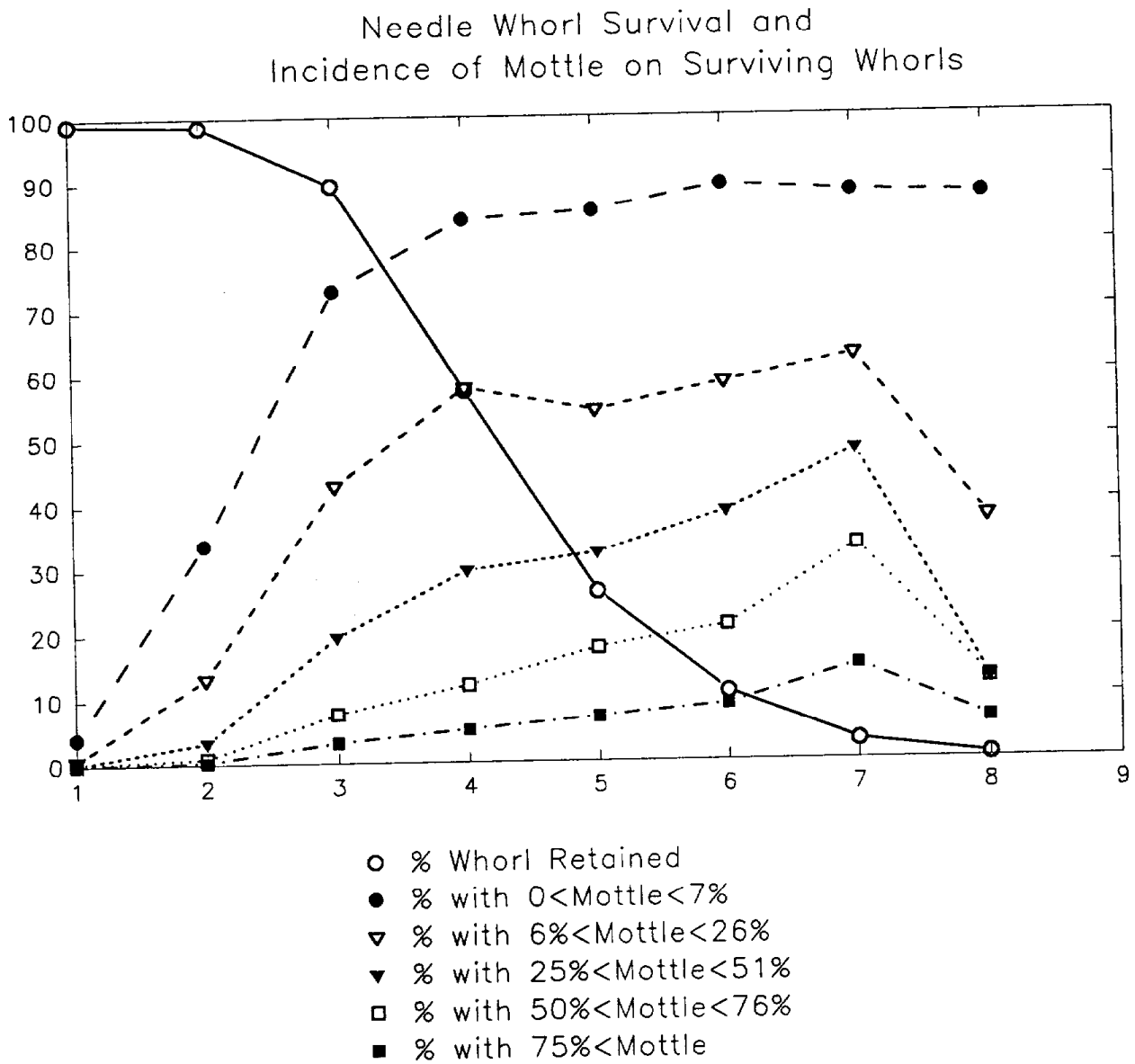


Figure 12-7. Percent chlorotic mottle as a function of accumulated ozone exposure, namely, the number of hours equal to or greater than 80 ppb during the April 1 to June 15 period of each year (r=0.971, p=0.0013, from Table 12- 2). The total exposure is accumulated from 1992 to 1994. Thus needles formed in 1992 provide three data points, those formed in 1993 provide two data points, and those formed in 1994 only one data point.

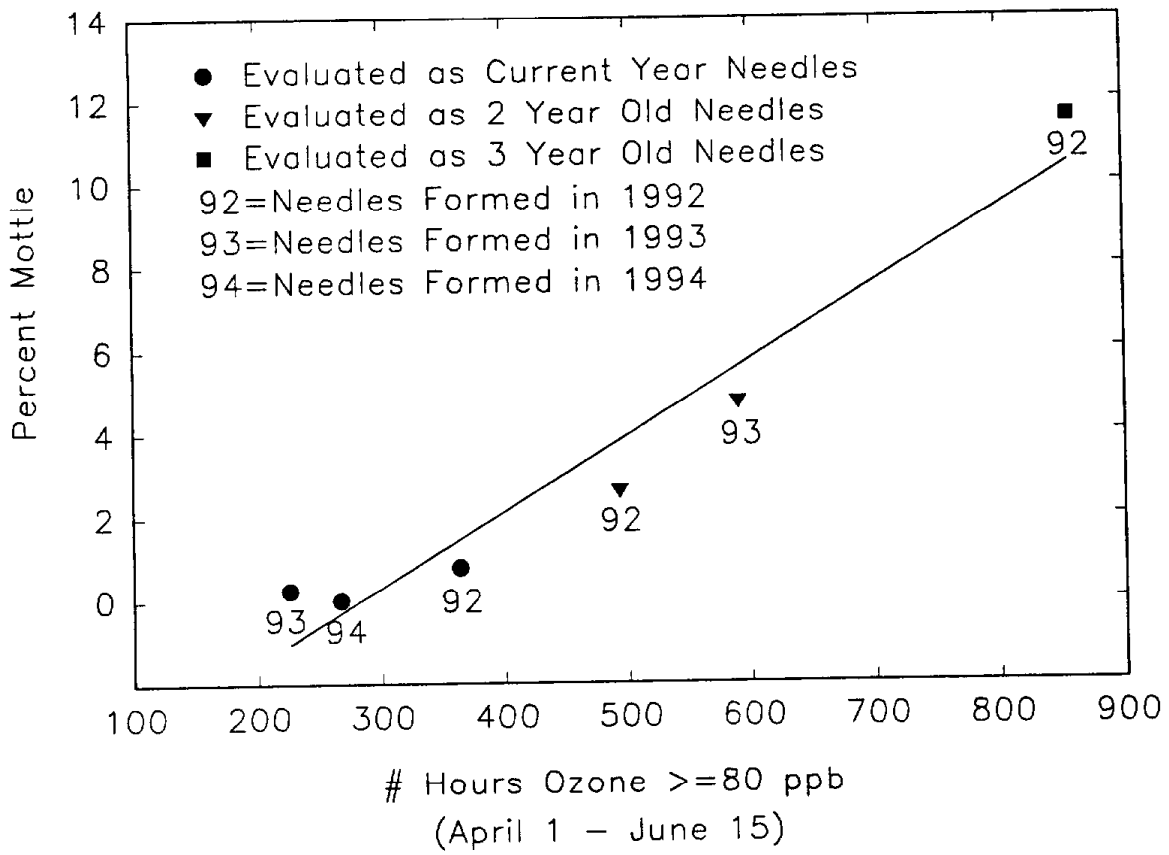


Figure 12-8. Pine litter accumulation at plots 1,2 and 3 in: a) 1992, b) 1993, and c) 1994.

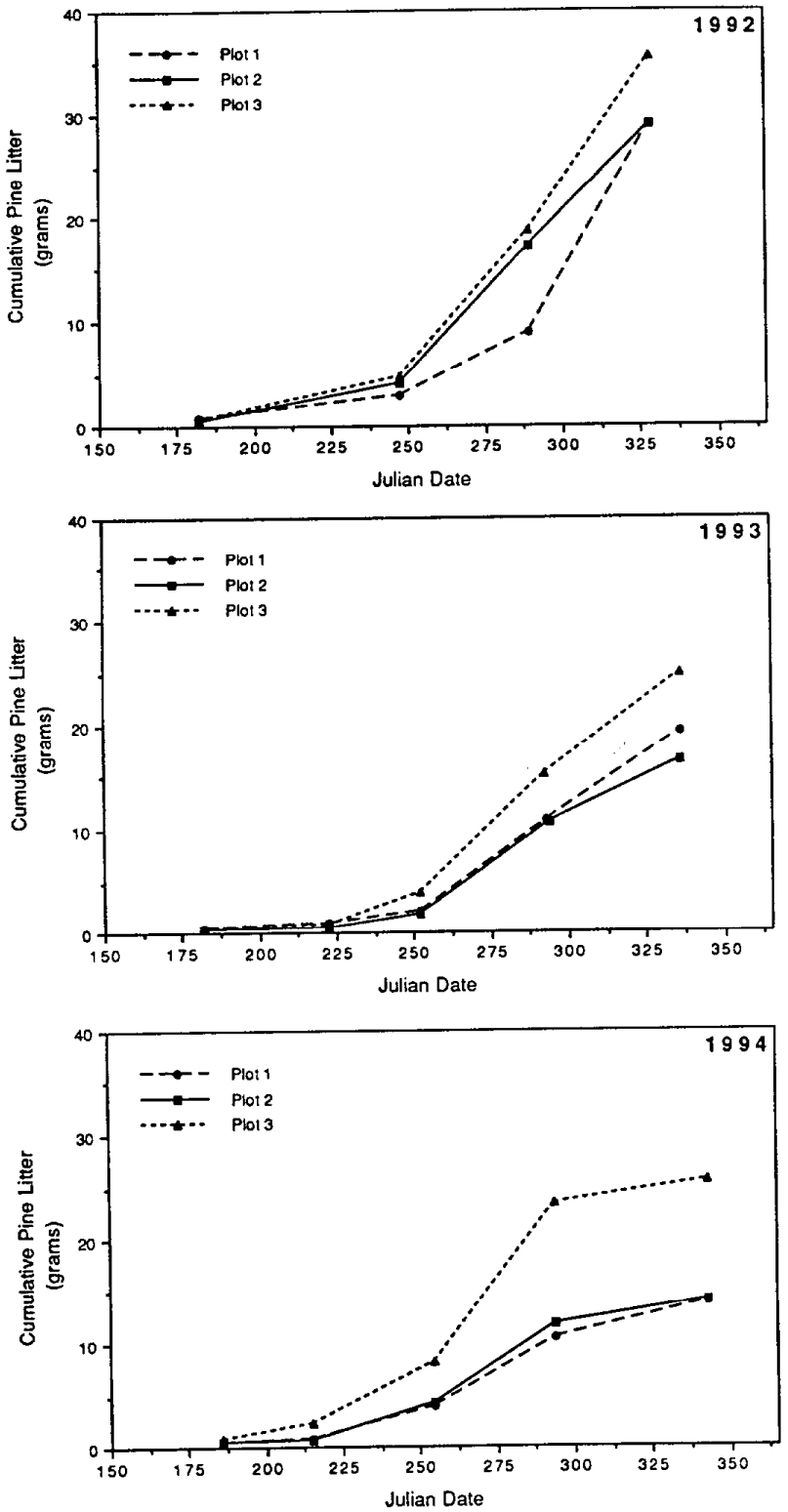


Figure 12-9. Litter accumulation as a function of individual tree ozone injury index of trees at all plots in: a) 1992, b) 1993, and c) 1994.

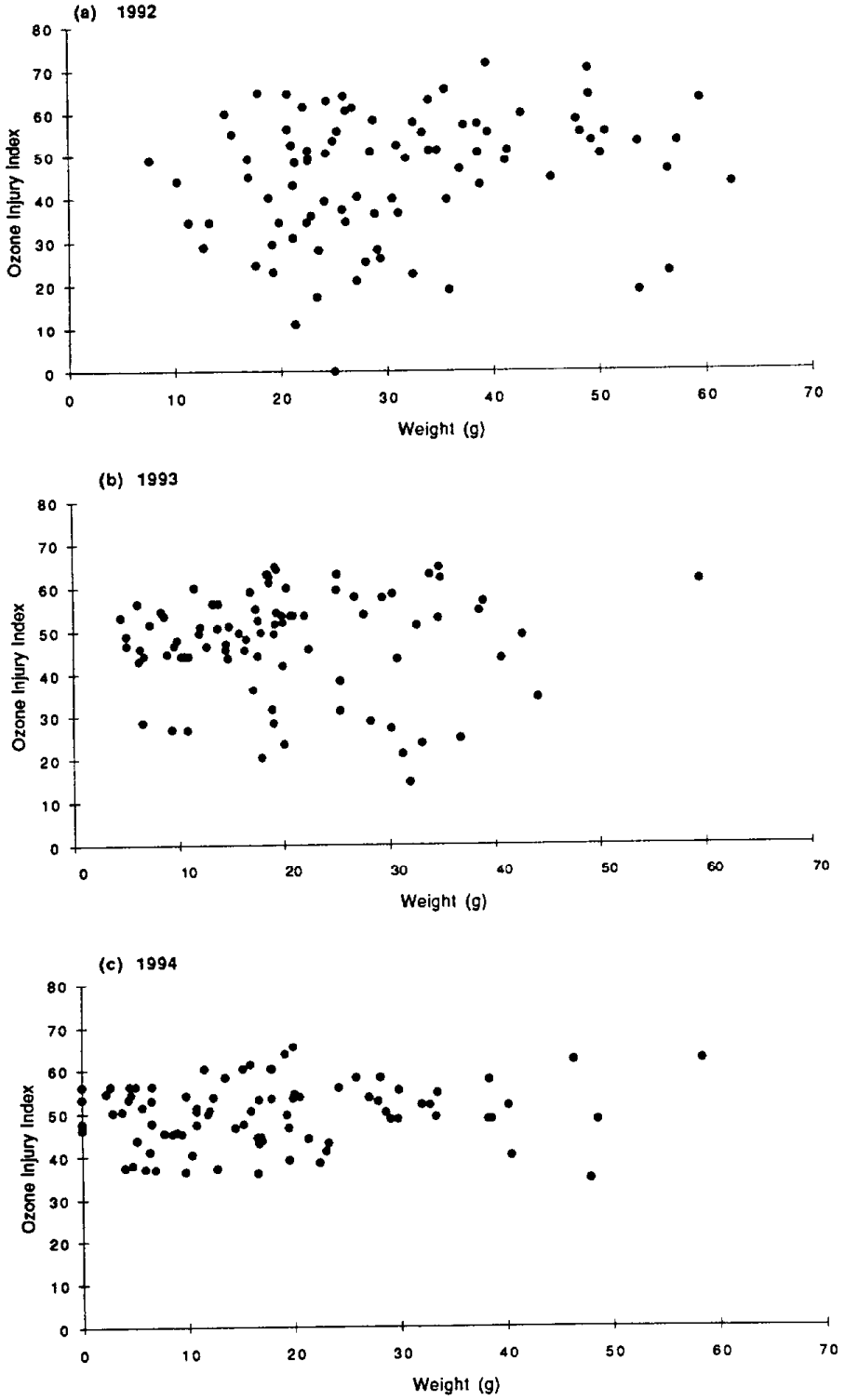
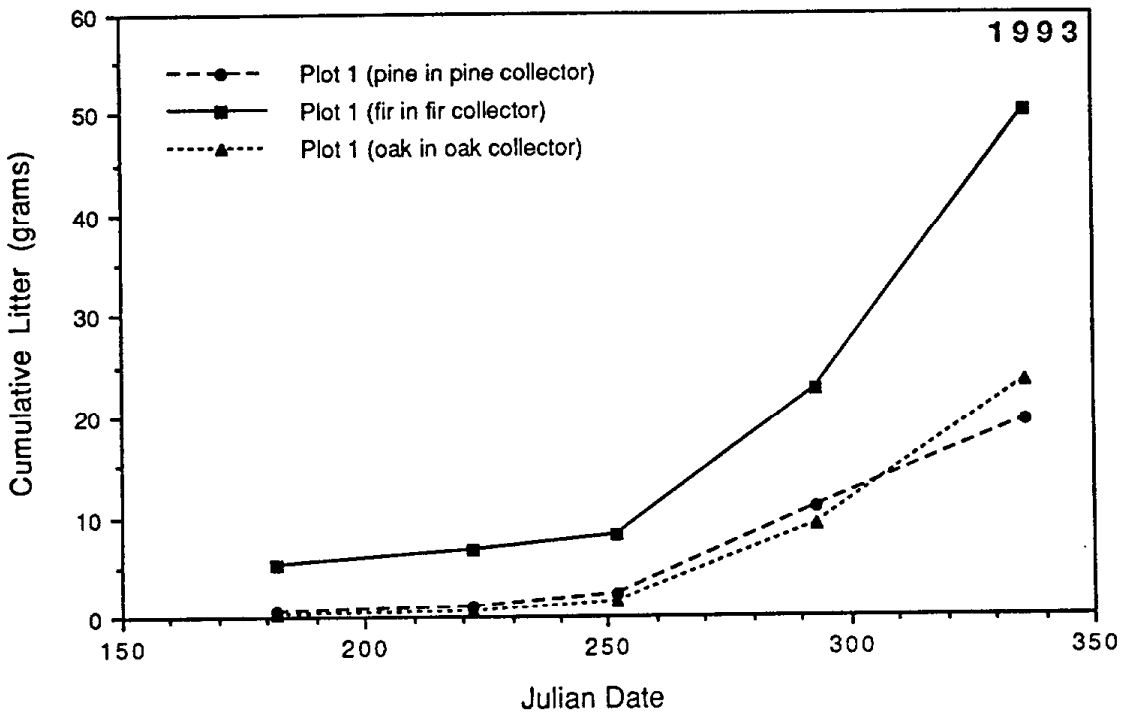


Figure 12-10. Comparisons of litter accumulation under ponderosa or Jeffrey pines, white firs, and black oaks at Plots 1 and 2 in 1993.



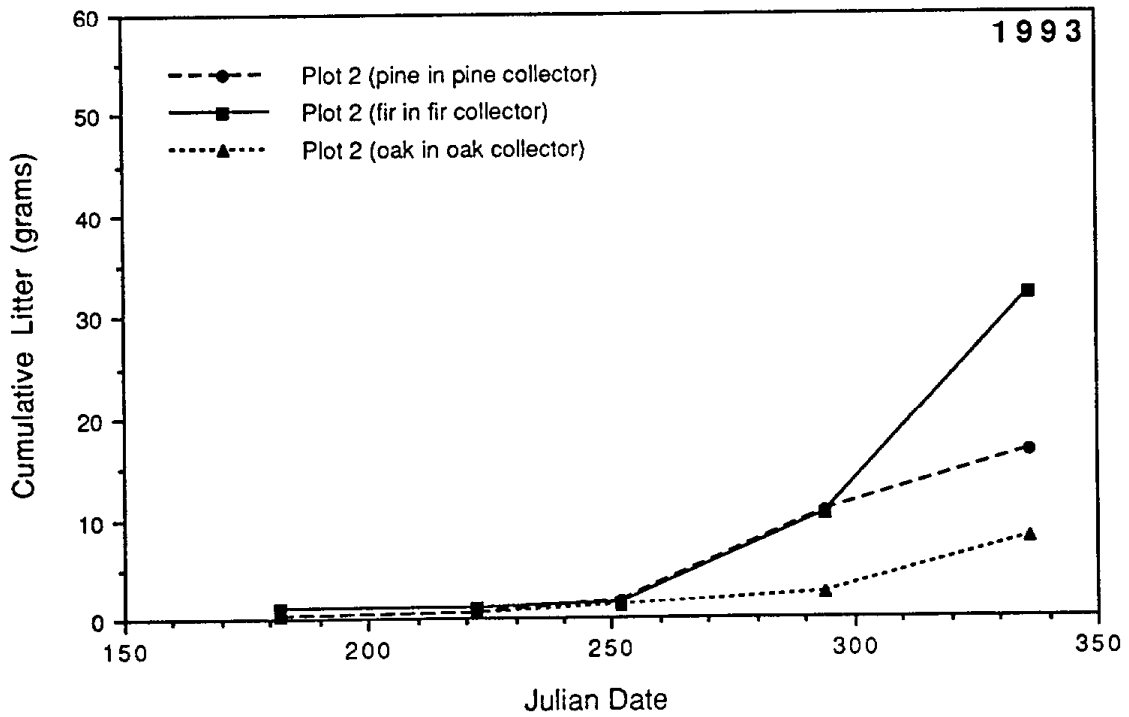
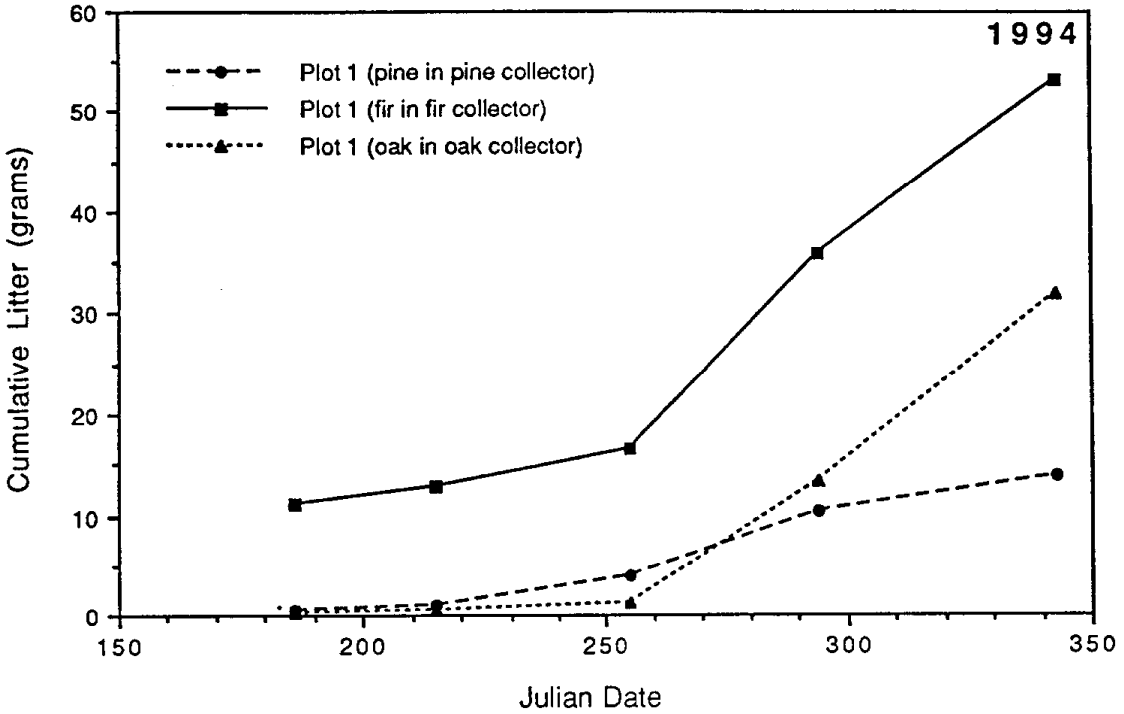
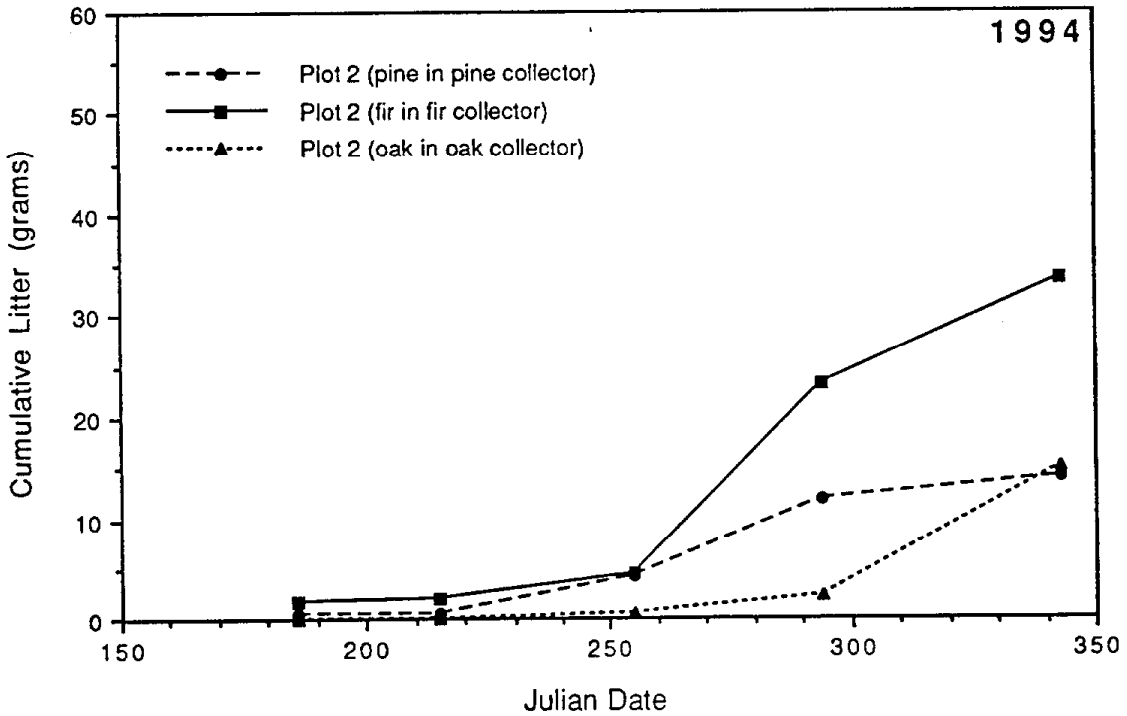


Figure 12-11. Comparisons of litter accumulation under ponderosa or Jeffrey pines, white firs and black oaks at Plots 1 and 2 in 1994.





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