Appendix A

Sampling Precision

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Monthly Vapor Sample Precision

All concentrations are ppmv.

	Sample Time	Analysis Time	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4	Tot VOC	H_2O
Sample Repeats									
	13:01	11:43:43	2.08E+01	5.94E+00	3.61E+00	2.50E+01	1.06E+02	1.61E+02	6.02E+03
	13:01	11:45:57	2.10E+01	5.94E+00	3.64E+00	2.54E+01	1.07E+02	1.63E+02	6.02E+03
RPD			0.96%	0.00%	0.83%	1.59%	0.94%	1.01%	0.00%
	12:53	11:59:58	8.29E+00	2.63E+00	1.70E+00	9.23E+00	3.99E+01	6.18E+01	5.93E+03
	12:53	12:02:14	8.28E+00	2.61E+00	1.64E+00	9.01E+00	3.93E+01	6.08E+01	5.95E+03
RPD			0.12%	0.76%	3.59%	2.41%	1.52%	1.48%	0.34%
	13:57	12:30:43	2.58E+01	1.17E+01	9.16E+00	3.13E+01	1.63E+02	2.41E+02	6.14E+03
	13:57	12:33:01	2.54E+01	1.15E+01	9.08E+00	3.11E+01	1.61E+02	2.38E+02	6.17E+03
RPD			1.56%	1.72%	0.88%	0.64%	1.23%	1.20%	0.49%
	15:23	13:03:10	8.68E+00	4.68E+00	4.03E+00	1.02E+01	1.98E+01	4.74E+01	6.02E+03
	15:23	13:05:20	8.83E+00	4.75E+00	4.09E+00	1.01E+01	1.97E+01	4.75E+01	6.02E+03
RPD			1.71%	1.48%	1.48%	0.99%	0.51%	0.17%	0.00%
	13:30	13:28:24	2.26E+00	4.40E-01	2.70E-01	8.91E-01	1.41E+00	5.27E+00	5.99E+03
	13:30	13:30:33	2.22E+00	4.30E-01	2.30E-01	8.80E-01	1.40E+00	5.16E+00	6.00E+03
RPD			1.79%	2.30%	16.00%	1.24%	0.71%	2.13%	0.17%
	13:03	13:09:16	2.91E+00	7.87E-01	4.09E-01	2.26E+00	6.15E+00	1.25E+01	3.18E+03
	13:03	13:11:28	3.02E+00	8.25E-01	4.23E-01	2.22E+00	6.19E+00	1.27E+01	3.19E+03
RPD			3.71%	4.71%	3.37%	1.79%	0.65%	1.29%	0.31%
	11:27	13:39:10	1.66E+01	4.53E+00	2.35E+00	2.38E+01	8.58E+01	1.33E+02	3.25E+03
	11:27	13:41:36	1.40E+01	4.16E+00	2.36E+00	1.81E+01	6.88E+01	1.07E+02	3.21E+03
RPD			16.99%	8.52%	0.42%	27.21%	21.99%	21.34%	1.24%
	10:30	14:17:12	3.01E+00	2.13E+00	1.38E+00	4.95E+00	1.63E+01	2.78E+01	4.68E+03
	10:30	14:19:33	2.79E+00	2.19E+00	1.25E+00	4.38E+00	1.52E+01	2.58E+01	4.66E+03
RPD			7.59%	2.78%	9.89%	12.22%	6.98%	7.32%	0.43%
	12:22	14:51:53	2.70E+01	6.83E+00	4.07E+00	3.16E+01	1.38E+02	2.08E+02	4.63E+03
	12:22	14:54:15	2.48E+01	6.52E+00	3.97E+00	2.75E+01	1.24E+02	1.87E+02	4.63E+03
RPD			8.49%	4.64%	2.49%	13.87%	10.69%	10.50%	0.00%
	11:46	15:30:24	2.95E+00	5.96E-01	5.94E-01	2.90E+00	7.26E+00	1.43E+01	4.80E+03
	11:46	15:32:34	3.00E+00	6.14E-01	5.81E-01	2.71E+00	6.85E+00	1.38E+01	4.81E+03
RPD			1.68%	2.98%	2.21%	6.77%	5.81%	3.89%	0.21%
	12:40	12:37:26	1.30E+01	6.22E+00	4.03E+00	1.43E+01	7.38E+01	1.11E+02	3.60E+03
	12:40	12:39:42	1.30E+01	6.15E+00	3.92E+00	1.44E+01	7.37E+01	1.11E+02	3.60E+03
RPD			0.00%	1.13%	2.77%	0.70%	0.14%	0.16%	0.00%
	13:47	13:04:51	1.51E+01	9.95E+00	9.90E+00	3.06E+01	7.25E+01	1.38E+02	3.71E+03
	13:47	13:07:01	1.52E+01	9.99E+00	1.00E+01	3.10E+01	7.26E+01	1.39E+02	3.70E+03
RPD			0.66%	0.40%	1.01%	1.30%	0.14%	0.53%	0.27%
	13:07	13:25:15	4.40E+00	1.65E+00	1.39E+00	2.93E+00	9.04E+00	1.94E+01	3.72E+03
	13:07	13:27:26	4.49E+00	1.61E+00	1.42E+00	2.78E+00	8.93E+00	1.92E+01	3.72E+03
RPD			2.02%	2.45%	2.14%	5.25%	1.22%	0.93%	0.00%
	11:30	13:24:50	4.17E+00	1.58E+00	1.14E+00	3.33E+00	1.22E+01	2.24E+01	2.26E+04
	11:30	13:27:20	3.96E+00	1.54E+00	1.14E+00	3.21E+00	1.23E+01	2.22E+01	2.19E+04
RPD			5.17%	2.56%	0.00%	3.67%	0.82%	1.21%	3.15%

Monthly Vapor Sample Precision

All concentrations are ppmv.

	Sample Time	Analysis Time	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4	Tot VOC	H_2O
Sample Repeats									
	11:06	13:51:58	4.22E+00	2.09E+00	1.36E+00	4.49E+00	2.03E+01	3.25E+01	1.67E+04
	11:06	13:54:08	4.12E+00	2.07E+00	1.39E+00	4.55E+00	2.05E+01	3.26E+01	1.57E+04
RPD			2.40%	0.96%	2.18%	1.33%	0.98%	0.52%	6.17%
	12:34	14:46	5.03E+00	2.60E+00	1.60E+00	5.12E+00	2.07E+01	3.51E+01	5.90E+03
	12:34	14.48	5.01E+00	2.61E+00	1.54E+00	5.02E+00	2.02E+01	3.44E+01	5.95E+03
RPD			0.40%	0.38%	3.82%	1.97%	2.44%	1.93%	0.84%
	10:50	15:43	8.28E+01	1.60E+01	2.99E+01	9.96E+01	3.29E+02	5.57E+02	6.17E+03
	10:50	15:46	8.37E+01	1.61E+01	3.04E+01	1.01E+02	3.34E+02	5.65E+02	6.20E+03
RPD			1.08%	0.62%	1.66%	1.40%	1.51%	1.41%	0.49%
	10:43	16:11	1.17E+01	3.10E+00	4.71E+00	1.41E+01	5.37E+01	8.73E+01	6.12E+03
	10:43	16:13	1.21E+01	3.94E+00	4.72E+00	1.36E+01	5.30E+01	8.74E+01	6.22E+03
RPD			3.36%	23.86%	0.21%	3.61%	1.31%	0.06%	1.62%
	13:01	16:25	2.19E+00	1.72E-01	4.55E-01	1.13E+00	2.06E+00	6.01E+00	6.11E+03
	13:01	16:27	2.24E+00	2.15E-01	4.44E-01	1.04E+00	2.01E+00	5.95E+00	6.11E+03
RPD			2.26%	22.22%	2.45%	8.29%	2.46%	0.97%	0.00%
	11:48	12:30	1.75E+01	8.63E+00	1.39E+01	2.62E+01	4.91E+01	1.15E+02	6.08E+03
	11:48	12:32	1.76E+01	8.67E+00	1.41E+01	2.63E+01	4.90E+01	1.16E+02	6.09E+03
RPD			0.57%	0.46%	1.43%	0.38%	0.20%	0.29%	0.16%
	13:33	12:50	4.59E+00	1.64E+00	2.33E+00	3.88E+00	9.77E+00	2.22E+01	6.00E+03
	13:33	12:52	4.48E+00	1.62E+00	2.33E+00	3.76E+00	8.51E+00	2.07E+01	6.01E+03
RPD			2.43%	1.23%	0.00%	3.14%	13.79%	7.04%	0.17%
	11:23	13:11	1.37E+01	2.80E+00	4.94E+00	1.83E+01	5.79E+01	9.76E+01	5.94E+03
	11:23	13:13	9.85E+00	2.39E+00	3.64E+00	1.19E+01	4.03E+01	6.81E+01	5.99E+03
RPD			32.70%	15.80%	30.30%	42.38%	35.85%	35.67%	0.84%
	11:17	13:45	5.13E+02	5.80E+01	9.36E+01	3.99E+02	1.17E+03	2.23E+03	6.20E+03
	11:17	13:47	5.17E+02	5.84E+01	9.54E+01	4.07E+02	1.18E+03	2.26E+03	6.19E+03
RPD			0.78%	0.69%	1.90%	1.99%	0.85%	1.08%	0.16%
	13:30	13:59:45	7.39E+00	2.50E+00	1.66E+01	1.01E+01	3.32E+01	6.98E+01	4.83E+03
	13:31	14:01:57	7.30E+00	2.49E+00	1.67E+01	1.02E+01	3.37E+01	7.04E+01	4.80E+03
RPD			1.23%	0.40%	0.60%	0.99%	1.49%	0.86%	0.62%
	13:18	14:22:11	4.75E+00	1.87E+00	2.00E+00	5.00E+00	1.88E+01	3.24E+01	4.48E+03
	13:18	14:24:22	4.80E+00	1.88E+00	2.02E+00	5.10E+00	1.89E+01	3.27E+01	4.44E+03
RPD			1.05%	0.53%	1.00%	1.98%	0.53%	0.86%	0.90%
	14:10	14:40:13	4.01E+00	1.57E+00	1.55E+00	4.23E+00	1.83E+01	2.97E+01	4.54E+03
	14:10	14:42:25	4.02E+00	1.59E+00	1.53E+00	4.32E+00	1.84E+01	2.99E+01	4.52E+03
RPD			0.25%	1.27%	1.30%	2.11%	0.54%	0.67%	0.44%
	13:41	12:03:37	7.31E+00	2.98E+00	3.45E+00	9.10E+00	3.38E+01	5.66E+01	4.20E+03
	13:41	12:05:55	6.82E+00	2.93E+00	3.18E+00	8.31E+00	3.11E+01	5.23E+01	4.20E+03
RPD			6.94%	1.69%	8.14%	9.08%	8.32%	7.89%	0.00%
	10:06	12:24:26	7.43E+00	3.61E+00	6.76E+00	1.35E+01	2.35E+01	5.48E+01	5.82E+03
	10:06	12:26:36	7.26E+00	3.67E+00	6.75E+00	1.35E+01	2.34E+01	5.46E+01	5.76E+03
RPD			2.31%	1.65%	0.15%	0.00%	0.43%	0.40%	1.04%
	10:24	12:53:58	1.74E+01	6.51E+00	8.73E+00	2.35E+01	8.33E+01	1.39E+02	4.88E+03
	10:24	12:56:10	1.75E+01	6.57E+00	8.65E+00	2.33E+01	8.30E+01	1.39E+02	4.85E+03
RPD			0.57%	0.92%	0.92%	0.85%	0.36%	0.30%	0.62%
	10:08	13:35:19	7.68E+00	2.80E+00	3.56E+00	8.34E+00	2.65E+01	4.89E+01	4.40E+03
	10:08	13:37:28	7.70E+00	2.79E+00	3.57E+00	8.44E+00	2.68E+01	4.93E+01	4.40E+03
RPD			0.26%	0.36%	0.28%	1.19%	1.13%	0.86%	0.00%
	14:15	14:30:47	1.59E+00	1.75E-01	1.97E-01	4.23E-01	1.03E+00	3.42E+00	3.82E+03
	14:15	14:32:56	1.62E+00	1.79E-01	1.46E-01	4.68E-01	9.16E-01	3.33E+00	3.81E+03
RPD			1.87%	2.26%	29.74%	10.10%	11.72%	2.55%	0.26%

Monthly Vapor Sample Precision

All concentrations are ppmv.

	Sample Time	Analysis Time	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4	Tot VOC	H_2O
Sample Repeats									
	13:15	10:21:40	2.38E+00	3.30E-01	5.92E-01	2.27E+00	3.57E+00	9.14E+00	9.30E+03
	13:15	10:24:28	2.57E+00	3.00E-01	4.31E-01	1.89E+00	3.11E+00	8.30E+00	9.26E+03
RPD			7.68%	9.52%	31.48%	18.27%	13.77%	9.64%	0.43%
	13:23	10:52:11	9.09E+00	4.96E+00	3.35E+00	7.84E+00	5.10E+01	7.62E+01	9.41E+03
	13:23	10:55:03	8.93E+00	4.83E+00	3.00E+00	6.54E+00	4.99E+01	7.32E+01	9.45E+03
RPD			1.78%	2.66%	11.02%	18.08%	2.18%	4.07%	0.42%
	10:57	15:33:51	2.31E+00	2.74E-01	2.73E-01	7.79E-01	1.61E+00	5.25E+00	8.75E+03
	10:57	15:36:13	2.54E+00	3.17E-01	1.75E-01	4.78E-01	7.15E-01	4.23E+00	8.73E+03
RPD			9.48%	14.55%	43.75%	47.89%	76.99%	21.56%	0.23%
	13:21	16:03:28	6.64E+00	2.33E+00	1.43E+01	7.79E+00	2.88E+01	5.99E+01	9.58E+03
	13:21	16:05:51	6.67E+00	2.37E+00	1.43E+01	7.97E+00	2.91E+01	6.04E+01	9.54E+03
RPD			0.45%	1.70%	0.00%	2.28%	1.04%	0.91%	0.42%
	13:46	16:34:56	3.15E+00	7.36E-01	3.02E-01	8.09E-01	5.05E+00	1.00E+01	9.51E+03
	13:46	16:37:05	3.32E+00	8.95E-01	5.44E-01	1.88E+00	5.27E+00	1.19E+01	9.20E+03
RPD			5.26%	19.50%	57.21%	79.66%	4.26%	16.96%	3.31%
	11:32	14:40:44	3.90E+00	5.03E-01	6.54E-01	1.23E+00	1.83E+00	8.12E+00	1.08E+04
	11:32	14:42:55	3.97E+00	4.87E-01	5.40E-01	1.02E+00	1.62E+00	7.64E+00	1.07E+04
RPD			1.78%	3.23%	19.10%	18.67%	12.17%	6.09%	0.93%
	14:02	14:56:38	1.61E+01	5.37E+00	3.86E+00	1.54E+01	4.81E+01	8.88E+01	1.04E+04
	14:02	14:59:06	1.63E+01	5.29E+00	3.57E+00	1.49E+01	4.70E+01	8.71E+01	1.03E+04
RPD			1.23%	1.50%	7.81%	3.30%	2.31%	2.01%	0.97%
	12:44	15:19:31	1.08E+01	3.18E+00	3.77E+00	5.47E+00	8.92E+00	3.21E+01	1.06E+04
	12:44	15:21:59	1.12E+01	3.22E+00	3.76E+00	5.20E+00	8.55E+00	3.19E+01	1.06E+04
RPD			3.64%	1.25%	0.27%	5.06%	4.24%	0.66%	0.00%
	9:46	15:42:31	3.19E+01	7.99E+00	4.77E+00	3.49E+01	1.34E+02	2.14E+02	9.52E+03
	9:46	15:44:42	3.11E+01	7.91E+00	4.77E+00	3.40E+01	1.31E+02	2.09E+02	9.59E+03
RPD			2.54%	1.01%	0.00%	2.61%	2.26%	2.26%	0.73%
	10:09	15:49:00	4.87E+00	9.63E-01	5.82E-01	2.32E+00	7.61E+00	1.63E+01	9.32E+03
	10:09	15:51:39	4.71E+00	8.64E-01	4.60E-01	1.62E+00	5.17E+00	1.28E+01	9.31E+03
RPD			3.34%	10.84%	23.42%	35.53%	38.18%	24.14%	0.11%
	10:59	16:25:49	1.18E+01	5.33E+00	6.92E+00	6.16E+01	8.34E+01	1.69E+02	9.16E+03
	10:59	16:28:04	1.09E+01	5.27E+00	6.88E+00	6.13E+01	8.10E+01	1.65E+02	9.18E+03
RPD			7.93%	1.13%	0.58%	0.49%	2.92%	2.21%	0.22%
	10:02	9:44:16	9.70E+01	2.01E+01	1.37E+01	1.01E+02	3.60E+02	5.92E+02	1.62E+04
	10:02	9:47:12	9.74E+01	2.02E+01	1.39E+01	1.03E+02	3.63E+02	5.98E+02	1.62E+04
RPD			0.41%	0.50%	1.45%	1.96%	0.83%	0.96%	0.00%
	11:52	10:26:53	6.37E+00	1.64E+00	9.33E-01	2.75E+00	8.78E+00	2.05E+01	1.66E+04
	11:52	10:29:02	6.73E+00	1.70E+00	9.84E-01	2.57E+00	8.73E+00	2.07E+01	1.66E+04
RPD			5.50%	3.59%	5.32%	6.77%	0.57%	1.17%	0.00%
	13:03	10:58:14	4.45E+00	1.67E+00	7.43E-01	2.83E+00	1.56E+01	2.53E+01	1.65E+04
	13:03	11:00:23	4.42E+00	1.67E+00	7.13E-01	2.87E+00	1.56E+01	2.53E+01	1.65E+04
RPD			0.68%	0.00%	4.12%	1.40%	0.00%	0.08%	0.00%
Sample Duplicates									
	12:15	11:31:59	2.97E+00	2.11E+00	1.31E+00	4.62E+00	1.56E+01	2.66E+01	6.00E+03
	12:16	11:34:18	3.87E+00	2.08E+00	1.14E+00	3.73E+00	1.26E+01	2.34E+01	5.93E+03
RPD			26.32%	1.43%	13.88%	21.32%	21.28%	12.75%	1.17%
	16:00	12:04:24	1.76E+01	6.70E+00	4.89E+00	1.56E+01	7.68E+01	1.22E+02	6.00E+03
	16:01	12:07:05	1.78E+01	6.71E+00	4.74E+00	1.55E+01	7.75E+01	1.22E+02	6.00E+03
RPD			1.13%	0.15%	3.12%	0.64%	0.91%	0.54%	0.00%
	14:12	12:44:39	1.22E+01	5.27E+00	3.22E+00	1.42E+01	5.66E+01	9.15E+01	5.99E+03
	14:12	12:47:15	1.01E+01	4.98E+00	3.09E+00	1.42E+01	5.56E+01	8.80E+01	5.90E+03
RPD			18.83%	5.66%	4.12%	0.00%	1.78%	3.92%	1.51%

Monthly Vapor Sample Precision

All concentrations are ppmv.

	Sample Time	Analysis Time	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4	Tot VOC	H_2O
Sample Duplicates									
	12:22	12:30:09	1.83E+00	8.37E-01	7.18E-01	2.55E+00	5.32E+00	1.13E+01	3.20E+03
	12:23	12:32:35	1.31E+00	5.52E-01	5.69E-01	1.57E+00	2.87E+00	6.87E+00	3.25E+03
RPD			33.12%	41.04%	23.15%	47.57%	59.83%	48.37%	1.55%
	12:02	12:39:17	2.02E+00	4.17E-01	3.91E-01	2.03E+00	3.38E+00	8.24E+00	3.11E+03
	12:03	12:41:32	2.22E+00	4.23E-01	3.41E-01	1.98E+00	1.83E+00	6.79E+00	3.13E+03
RPD			9.43%	1.43%	13.66%	2.49%	59.50%	19.21%	0.64%
	13:20	13:20:48	1.57E+00	7.05E-01	3.61E-01	9.34E-01	3.49E+00	7.06E+00	3.33E+03
	13:20	13:23:19	2.29E+00	8.37E-01	3.53E-01	1.01E+00	3.63E+00	8.12E+00	3.25E+03
RPD			37.31%	17.12%	2.24%	7.82%	3.93%	13.97%	2.43%
	11:35	13:48:39	8.68E+02	1.26E+02	2.95E+01	7.67E+02	3.32E+03	5.11E+03	4.09E+03
	11:36	13:51:13	9.59E+02	1.33E+02	3.32E+01	8.60E+02	3.45E+03	5.44E+03	4.09E+03
RPD			9.96%	5.41%	11.80%	11.43%	3.84%	6.16%	0.00%
	10:30	14:19:33	2.79E+00	2.19E+00	1.25E+00	4.38E+00	1.52E+01	2.58E+01	4.66E+03
	10:30	14:21:42	3.63E+00	2.17E+00	1.09E+00	4.10E+00	1.45E+01	2.55E+01	4.65E+03
RPD			26.17%	0.92%	13.68%	6.60%	4.71%	1.25%	0.21%
	12:35	15:01:25	9.49E+02	1.19E+02	3.72E+01	7.25E+02	1.79E+03	3.62E+03	5.27E+03
	12:36	15:03:59	9.63E+02	1.24E+02	3.83E+01	7.42E+02	1.85E+03	3.72E+03	5.26E+03
RPD			1.46%	4.12%	2.91%	2.32%	3.30%	2.65%	0.19%
	14:50	12:11:52	4.87E+01	1.98E+01	1.39E+01	3.43E+01	2.42E+02	3.59E+02	3.65E+03
	14:51	12:14:14	4.99E+01	2.03E+01	1.48E+01	3.65E+01	2.49E+02	3.71E+02	3.61E+03
RPD			2.43%	2.49%	6.27%	6.21%	2.85%	3.24%	1.10%
	13:30	12:48:39	1.49E+01	5.84E+00	4.33E+00	1.61E+01	5.81E+01	9.93E+01	3.68E+03
	13:31	12:51:23	1.23E+01	5.42E+00	4.11E+00	1.56E+01	5.73E+01	9.47E+01	3.58E+03
RPD			19.12%	7.46%	5.21%	3.15%	1.39%	4.68%	2.75%
	11:20	13:16:11	2.65E+00	1.00E+00	6.52E-01	1.15E+00	5.06E+00	1.05E+01	2.06E+04
	11:21	13:18:22	2.56E+00	9.47E-01	5.15E-01	9.47E-01	4.49E+00	9.46E+00	2.22E+04
RPD			3.45%	5.44%	23.48%	19.36%	11.94%	10.55%	7.48%
	11:32	13:33:55	1.67E+00	2.93E-01	6.19E-02	5.47E-02	2.25E-01	2.30E+00	2.21E+04
	11:34	13:36:18	1.86E+00	3.40E-01	4.97E-02	4.69E-02	-1.04E-01	2.19E+00	2.08E+04
RPD			10.76%	14.85%	21.86%	15.35%	543.80%	4.98%	6.06%
	11:45	14:58	3.11E+00	1.20E+00	6.64E-01	1.09E+00	5.91E+00	1.20E+01	5.73E+03
	11:46	15:00	3.75E+00	1.24E+00	4.71E-01	9.76E-01	4.79E+00	1.12E+01	4.93E+03
RPD			18.66%	3.28%	34.01%	11.04%	20.93%	6.44%	15.01%
	11:30	15:49	2.80E+00	3.80E-01	1.14E+00	3.07E+00	8.13E+00	1.55E+01	5.98E+03
	11:31	15:42	2.60E+00	4.76E-01	7.56E-01	1.78E+00	5.33E+00	1.09E+01	6.32E+03
RPD			7.41%	22.43%	40.51%	53.20%	41.60%	34.60%	5.53%
	11:12	13:18	3.18E+02	3.81E+01	6.24E+01	2.57E+02	8.07E+02	1.48E+03	6.18E+03
	11:13	13:21	3.22E+02	2.16E+01	3.77E+01	1.53E+02	4.77E+02	1.01E+03	6.05E+03
RPD			1.25%	55.28%	49.35%	50.73%	51.40%	37.79%	2.13%
	13:00	13:46:23	3.78E+00	2.27E+00	2.22E+00	5.02E+00	1.68E+01	3.01E+01	4.66E+03
	13:01	13:48:50	5.30E+00	2.45E+00	2.16E+00	5.03E+00	1.68E+01	3.17E+01	4.87E+03
RPD			33.48%	7.63%	2.74%	0.20%	0.00%	5.34%	4.41%
	13:36	14:06:15	3.38E+00	1.25E+00	9.04E-01	1.90E+00	7.22E+00	1.47E+01	4.69E+03
	13:38	14:08:58	3.66E+00	1.34E+00	8.75E-01	1.82E+00	7.02E+00	1.47E+01	4.68E+03
RPD			7.95%	6.95%	3.26%	4.30%	2.81%	0.42%	0.21%
	14:50	12:15:20	1.20E+02	4.70E+01	7.04E+01	1.56E+02	4.72E+02	8.65E+02	4.29E+03
	14:51	12:17:30	1.25E+02	4.89E+01	7.33E+01	1.62E+02	4.87E+02	8.96E+02	4.28E+03
RPD			4.08%	3.96%	4.04%	3.77%	3.13%	3.50%	0.23%
	14:58	13:05:08	1.72E+01	5.51E+00	7.55E+00	1.98E+01	6.08E+01	1.11E+02	4.07E+03
	14:59	13:07:21	1.41E+01	4.97E+00	7.04E+00	1.87E+01	5.74E+01	1.02E+02	4.03E+03
RPD			19.81%	10.31%	6.99%	5.71%	5.75%	8.12%	0.99%

Monthly Vapor Sample Precision

All concentrations are ppmv.

	Sample Time	Analysis Time	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4	Tot VOC	H_2O
Sample Duplicates									
	14:42	13:55:55	3.27E+02	3.72E+01	6.19E+01	2.47E+02	7.40E+02	1.41E+03	4.14E+03
	14:43	13:58:15	3.24E+02	3.65E+01	6.29E+01	2.48E+02	7.27E+02	1.40E+03	4.13E+03
RPD			0.92%	1.90%	1.60%	0.40%	1.77%	1.05%	0.24%
	12:57	10:01:13	6.49E+00	1.11E+00	1.02E+00	4.65E+00	1.54E+01	2.87E+01	9.26E+03
	12:57	10:03:20	6.45E+00	1.01E+00	1.02E+00	4.40E+00	1.48E+01	2.77E+01	9.35E+03
RPD			0.62%	9.43%	0.00%	5.52%	3.97%	3.51%	0.97%
	13:45	10:40:51	1.33E+01	5.35E+00	4.08E+00	1.56E+01	5.38E+01	9.21E+01	9.47E+03
	13:45	10:43:25	1.15E+01	4.99E+00	3.79E+00	1.48E+01	5.15E+01	8.66E+01	9.31E+03
RPD			14.52%	6.96%	7.37%	5.26%	4.37%	6.21%	1.70%
	12:33	11:44:39	3.73E+02	6.98E+01	2.42E+01	3.64E+02	1.22E+03	2.05E+03	9.74E+03
	12:34	11:47:06	3.81E+02	6.65E+01	2.39E+01	3.61E+02	1.17E+03	2.00E+03	9.74E+03
RPD			2.12%	4.84%	1.25%	0.83%	4.18%	2.40%	0.00%
	11:15	15:12:47	4.26E+00	2.35E+00	1.64E+00	5.29E+00	1.73E+01	3.08E+01	8.63E+03
	11:16	15:15:28	5.05E+00	2.24E+00	1.35E+00	4.41E+00	1.46E+01	2.77E+01	8.51E+03
RPD			16.97%	4.79%	19.40%	18.14%	16.93%	10.91%	1.40%
	13:30	15:42:54	2.13E+00	2.95E-01	4.37E-01	2.22E+00	5.45E+00	1.05E+01	9.05E+03
	13:31	15:45:49	1.96E+00	2.24E-01	1.51E-01	4.98E-01	7.19E-01	3.55E+00	8.99E+03
RPD			8.31%	27.36%	97.28%	126.71%	153.38%	99.12%	0.67%
	13:21	16:10:08	2.55E+00	6.80E-01	2.38E-01	6.71E-01	2.68E+00	6.82E+00	9.22E+03
	13:22	16:12:20	2.63E+00	6.44E-01	2.63E-01	5.18E-01	2.54E+00	6.60E+00	9.21E+03
RPD			3.09%	5.44%	9.98%	25.74%	5.36%	3.34%	0.11%
	13:00	16:46:13	1.48E+00	2.87E-01	1.38E-01	2.67E-01	1.18E+00	3.35E+00	8.92E+03
	13:01	16:48:21	2.60E+00	3.71E-01	1.41E-01	2.86E-01	1.13E+00	4.53E+00	8.88E+03
RPD			54.90%	25.53%	2.15%	6.87%	4.33%	29.85%	0.45%
	11:10	14:18:45	9.00E+01	4.47E+01	4.86E+01	1.70E+02	4.09E+02	7.62E+02	1.11E+04
	11:11	14:21:26	9.13E+01	4.54E+01	5.03E+01	1.75E+02	4.16E+02	7.78E+02	1.06E+04
RPD			1.43%	1.55%	3.44%	2.90%	1.70%	2.04%	4.61%
	14:02	14:56:38	1.61E+01	5.37E+00	3.86E+00	1.54E+01	4.81E+01	8.88E+01	1.04E+04
	14:02	15:01:25	1.24E+01	4.86E+00	3.46E+00	1.47E+01	4.64E+01	8.18E+01	1.02E+04
RPD			25.96%	9.97%	10.93%	4.65%	3.60%	8.22%	1.94%
	10:32	16:14:14	1.06E+02	1.29E+01	7.52E+00	7.44E+01	2.13E+02	4.14E+02	9.44E+03
	10:33	16:16:33	9.54E+01	1.16E+01	7.13E+00	6.75E+01	1.92E+02	3.74E+02	9.10E+03
RPD			10.53%	10.61%	5.32%	9.73%	10.37%	10.21%	3.67%
	10:30	9:28:58	4.55E+00	2.40E+00	1.90E+00	4.50E+00	1.60E+01	2.94E+01	1.63E+04
	10:31	9:31:06	5.12E+00	2.34E+00	1.58E+00	3.82E+00	1.41E+01	2.70E+01	1.64E+04
RPD			11.79%	2.53%	18.39%	16.35%	12.62%	8.49%	0.61%
	11:28	10:06:29	3.76E+00	1.08E+00	6.03E-01	1.50E+00	6.38E+00	1.33E+01	1.64E+04
	11:28	10:08:42	3.90E+00	1.10E+00	5.71E-01	1.39E+00	6.23E+00	1.32E+01	1.63E+04
RPD			3.66%	1.83%	5.45%	7.61%	2.38%	1.00%	0.61%
	11:59	10:15:44	2.64E+00	3.85E-01	1.87E-01	3.57E-01	8.94E-01	4.46E+00	1.65E+04
	11:59	10:17:56	3.16E+00	3.82E-01	1.18E-01	2.49E-01	3.74E-01	4.28E+00	1.66E+04
RPD			17.93%	0.78%	45.25%	35.64%	82.02%	4.12%	0.60%

Appendix B

Sampling Accuracy

Table B-1. B&K Sampling Accuracy

Sample ID	Analysis Date	Analysis Time	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4	Total VOCs	H_2O	Standard	Lower 20%	Upper 20%
1PPM	2/7/01	12:18:38	2.07E+00	1.44E+00	3.09E+00	1.93E+00	1.28E+00	9.81E+00	1720	1.01	0.8	1.2
1PPM	2/7/01	12:20:52	1.92E+00	1.27E+00	2.60E+00	1.60E+00	1.10E+00	8.49E+00	1970	1.01	0.8	1.2
1PPM	2/28/01	13:52:33	1.40E+00	1.15E+00	1.63E+00	1.19E+00	1.14E+00	6.51E+00	1290	1.01	0.8	1.2
1PPM	3/2/01	11:29:47	1.21E+00	1.03E+00	1.32E+00	1.01E+00	1.23E+00	5.80E+00	816	1.01	0.8	1.2
1PPM	3/5/01	13:03:59	1.63E+00	1.12E+00	2.00E+00	1.35E+00	1.17E+00	7.27E+00	1840	1.01	0.8	1.2
1PPM	3/30/01	14:16	7.66E-01	9.73E-01	1.19E+00	9.62E-01	1.24E+00	5.13E+00	1410	1.01	0.8	1.2
1PPM	3/30/01	14:18	1.09E+00	9.77E-01	1.26E+00	9.55E-01	1.16E+00	5.44E+00	1200	1.01	0.8	1.2
1PPM	3/30/01	14:20	1.22E+00	9.84E-01	1.26E+00	9.72E-01	1.13E+00	5.57E+00	1270	1.01	0.8	1.2
1PPM	4/3/01	15:15	1.50E+00	1.05E+00	1.59E+00	1.15E+00	1.82E+00	7.11E+00	1500	1.01	0.8	1.2
1PPM	4/3/01	15:18	1.63E+00	1.04E+00	1.59E+00	1.20E+00	1.85E+00	7.31E+00	1650	1.01	0.8	1.2
1PPM	4/4/01	11:52	1.19E+00	9.54E-01	1.55E+00	1.19E+00	1.89E+00	6.77E+00	2040	1.01	0.8	1.2
1PPM	4/4/01	11:54	1.34E+00	1.00E+00	1.55E+00	1.15E+00	1.76E+00	6.80E+00	2210	1.01	0.8	1.2
1PPM	5/1/01	13:23:48	9.33E-01	9.78E-01	1.43E+00	1.10E+00	1.75E+00	6.19E+00	1160	1.01	0.8	1.2
1PPM	5/1/01	13:32:31	1.51E+00	1.04E+00	1.50E+00	1.14E+00	1.80E+00	6.99E+00	1290	1.01	0.8	1.2
1PPM	5/3/01	11:25:10	1.26E+00	9.87E-01	1.42E+00	1.08E+00	1.78E+00	6.53E+00	928	1.01	0.8	1.2
1PPM	5/3/01	11:31:48	1.50E+00	1.04E+00	1.45E+00	1.10E+00	1.78E+00	6.87E+00	1210	1.01	0.8	1.2
1PPM	6/6/01	9:42:30	5.09E-01	9.22E-01	1.23E+00	8.67E-01	1.19E+00	4.72E+00	2360	1.01	0.8	1.2
1PPM	6/6/01	9:44:52	7.92E-01	9.90E-01	1.22E+00	9.90E-01	1.12E+00	5.11E+00	2240	1.01	0.8	1.2
1PPM	6/7/01	14:56:17	6.56E-01	9.58E-01	1.16E+00	9.05E-01	1.35E+00	5.03E+00	2430	1.01	0.8	1.2
1PPM	6/7/01	14:59:09	1.03E+00	9.89E-01	1.09E+00	9.28E-01	1.10E+00	5.14E+00	2180	1.01	0.8	1.2
1PPM	7/3/01	13:52:37	1.22E+00	1.05E+00	1.15E+00	9.12E-01	1.06E+00	5.39E+00	4720	1.01	0.8	1.2
1PPM	7/6/01	9:03:17	1.91E+00	2.19E+00	5.57E+00	3.67E+00	3.28E+00	1.66E+01	2510	1.01	0.8	1.2
1PPM	7/6/01	9:06:11	1.36E+00	1.29E+00	2.83E+00	1.70E+00	1.66E+00	8.84E+00	2970	1.01	0.8	1.2
1PPM	7/6/01	9:08:20	1.33E+00	1.17E+00	2.17E+00	1.48E+00	1.40E+00	7.55E+00	3590	1.01	0.8	1.2
1PPM	7/6/01	9:10:29	1.55E+00	1.14E+00	1.97E+00	1.35E+00	1.32E+00	7.33E+00	4710	1.01	0.8	1.2
100PPM	2/5/01	10:48:56	8.41E+01	8.23E+01	8.13E+01	7.52E+01	8.19E+01	4.05E+02	1200	100.5	80.4	120.6
100PPM	2/6/01	11:07:50	8.41E+01	8.29E+01	8.09E+01	7.74E+01	8.45E+01	4.10E+02	1480	100.5	80.4	120.6
100PPM	2/7/01	12:08:50	8.15E+01	8.00E+01	8.21E+01	7.53E+01	8.12E+01	4.00E+02	807	100.5	80.4	120.6
100PPM	2/7/01	12:16:24	8.03E+01	8.17E+01	8.39E+01	7.41E+01	8.11E+01	4.01E+02	803	100.5	80.4	120.6

Table B-1. (continued).

Sample ID	Analysis Date	Analysis Time	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4	Total VOCs	H_2O	Standard	Lower 20%	Upper 20%
100PPM	2/28/01	13:55:21	9.27E+01	9.09E+01	9.00E+01	8.45E+01	8.85E+01	4.47E+02	950	100.5	80.4	120.6
100PPM	3/2/01	11:43:32	9.93E+01	9.77E+01	9.74E+01	9.14E+01	9.59E+01	4.82E+02	1660	100.5	80.4	120.6
100PPM	3/5/01	13:06:20	9.51E+01	9.30E+01	9.20E+01	8.55E+01	8.97E+01	4.55E+02	1970	100.5	80.4	120.6
100PPM	3/30/01	14:23	8.73E+01	8.61E+01	8.40E+01	7.95E+01	8.45E+01	4.21E+02	2250	100.5	80.4	120.6
100PPM	4/3/01	15:20	1.09E+02	9.44E+01	1.10E+02	1.01E+02	1.49E+02	5.63E+02	1940	100.5	80.4	120.6
100PPM	4/4/01	11:57	1.13E+02	9.71E+01	1.14E+02	1.03E+02	1.50E+02	5.77E+02	1980	100.5	80.4	120.6
100PPM	5/1/01	13:34:40	1.11E+02	9.60E+01	1.11E+02	1.03E+02	1.50E+02	5.71E+02	1370	100.5	80.4	120.6
100PPM	5/3/01	11:33:57	1.15E+02	9.90E+01	1.15E+02	1.06E+02	1.54E+02	5.89E+02	1210	100.5	80.4	120.6
100PPM	5/3/01	11:36:20	1.16E+02	9.99E+01	1.19E+02	1.08E+02	1.57E+02	6.00E+02	1280	100.5	80.4	120.6
100PPM	6/6/01	9:47:01	8.70E+01	8.53E+01	8.48E+01	7.81E+01	8.22E+01	4.17E+02	4190	100.5	80.4	120.6
100PPM	6/7/01	15:01:18	9.83E+01	9.64E+01	9.54E+01	8.89E+01	9.29E+01	4.72E+02	2440	100.5	80.4	120.6
100PPM	7/3/01	13:55:30	1.01E+02	9.91E+01	9.11E+01	8.96E+01	9.63E+01	4.77E+02	2300	100.5	80.4	120.6
100PPM	7/6/01	9:12:38	9.86E+01	9.68E+01	8.96E+01	8.78E+01	9.41E+01	4.67E+02	6060	100.5	80.4	120.6
100PPM	7/6/01	9:15:33	9.94E+01	9.76E+01	9.25E+01	8.97E+01	9.55E+01	4.75E+02	6930	100.5	80.4	120.6
1000PPM	3/30/01	14:25	1.02E+01	2.76E+00	3.01E+00	4.94E+00	7.59E+02	7.80E+02	1780	998.77	799.0	1198.5
1000PPM	3/30/01	14:28	9.85E+00	2.21E+00	1.43E+00	3.88E+00	7.67E+02	7.84E+02	1850	998.77	799.0	1198.5
1000PPM	4/3/01	15:25	2.24E+01	3.09E+00	4.50E+00	5.36E+01	7.57E+02	8.41E+02	2030	998.77	799.0	1198.5
1000PPM	4/4/01	12:02	2.28E+01	3.17E+00	5.55E+00	5.23E+01	7.46E+02	8.30E+02	1950	998.77	799.0	1198.5
1000PPM	5/1/01	13:37:04	2.23E+01	3.09E+00	4.81E+00	5.27E+01	7.44E+02	8.27E+02	1690	998.77	799.0	1198.5
1000PPM	5/3/01	11:38:28	2.25E+01	3.23E+00	5.81E+00	5.31E+01	7.46E+02	8.31E+02	1500	998.77	799.0	1198.5
1000PPM	6/6/01	9:49:24	1.07E+01	2.57E+00	3.43E+00	3.47E+00	7.31E+02	7.51E+02	3040	998.77	799.0	1198.5
1000PPM	6/7/01	15:03:42	1.11E+01	2.80E+00	3.99E+00	4.43E+00	7.60E+02	7.82E+02	2840	998.77	799.0	1198.5
1000PPM	7/3/01	13:57:54	1.11E+01	3.07E+00	4.36E+00	5.47E+00	7.81E+02	8.05E+02	2320	998.77	799.0	1198.5
1000PPM	7/3/01	14:00:23	1.05E+01	2.31E+00	2.02E+00	4.04E+00	7.95E+02	8.14E+02	2500	998.77	799.0	1198.5
1000PPM	7/6/01	9:17:44	1.17E+01	3.48E+00	6.28E+00	6.43E+00	7.74E+02	8.02E+02	6370	998.77	799.0	1198.5

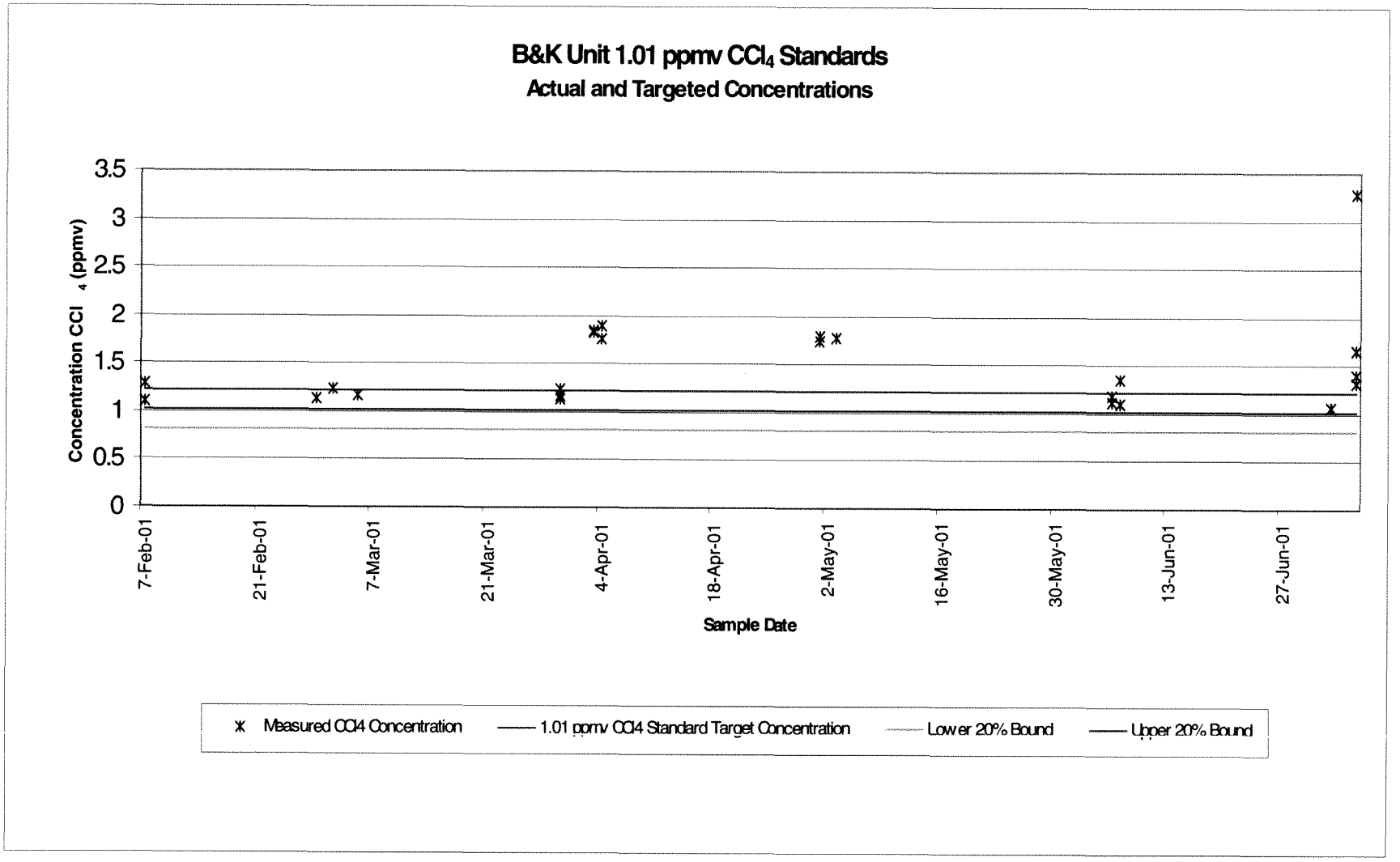

Figure B-1. B&K 1.01 ppmv standard.

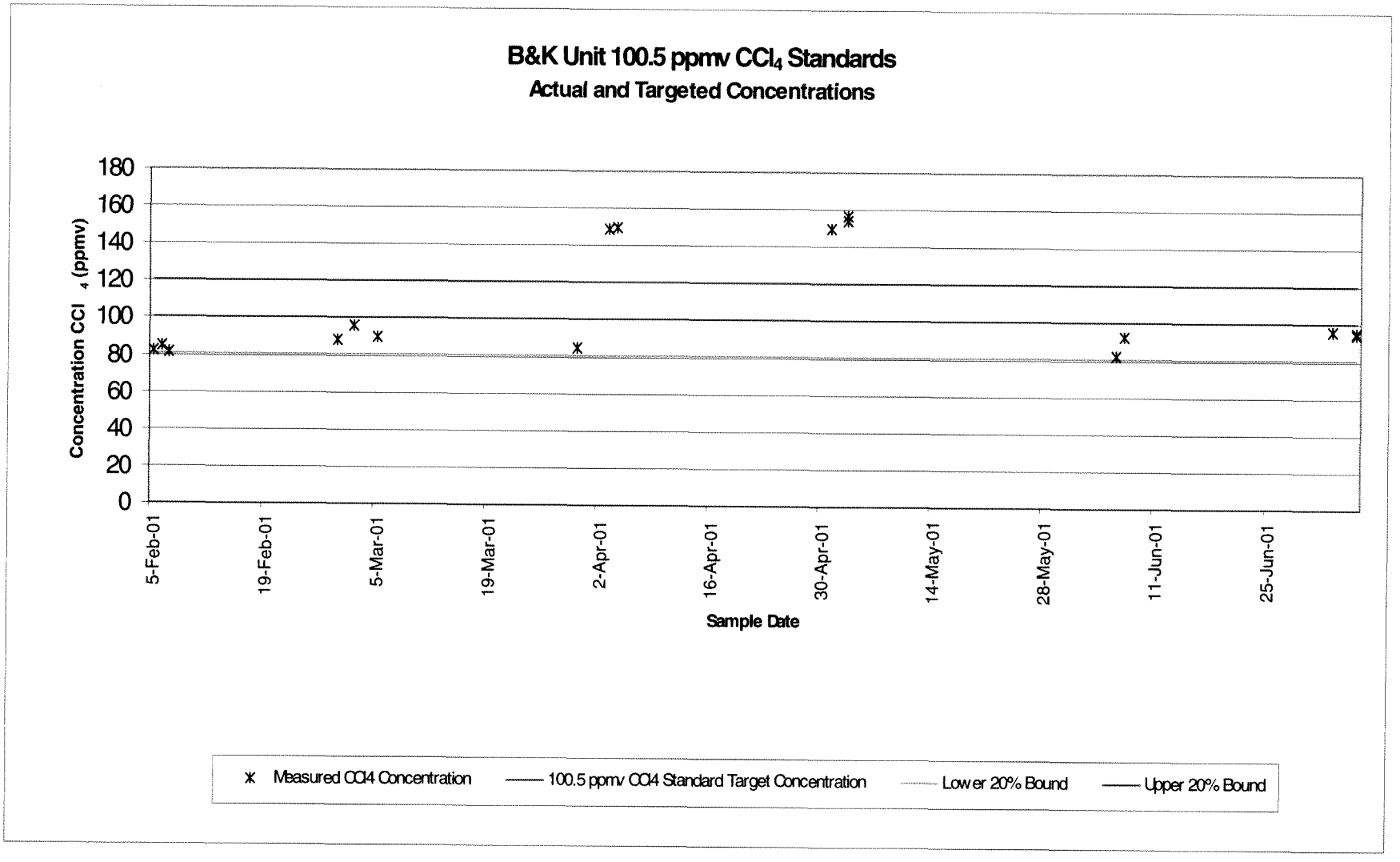

Figure B-2. B&K 100.5 ppmv standard.

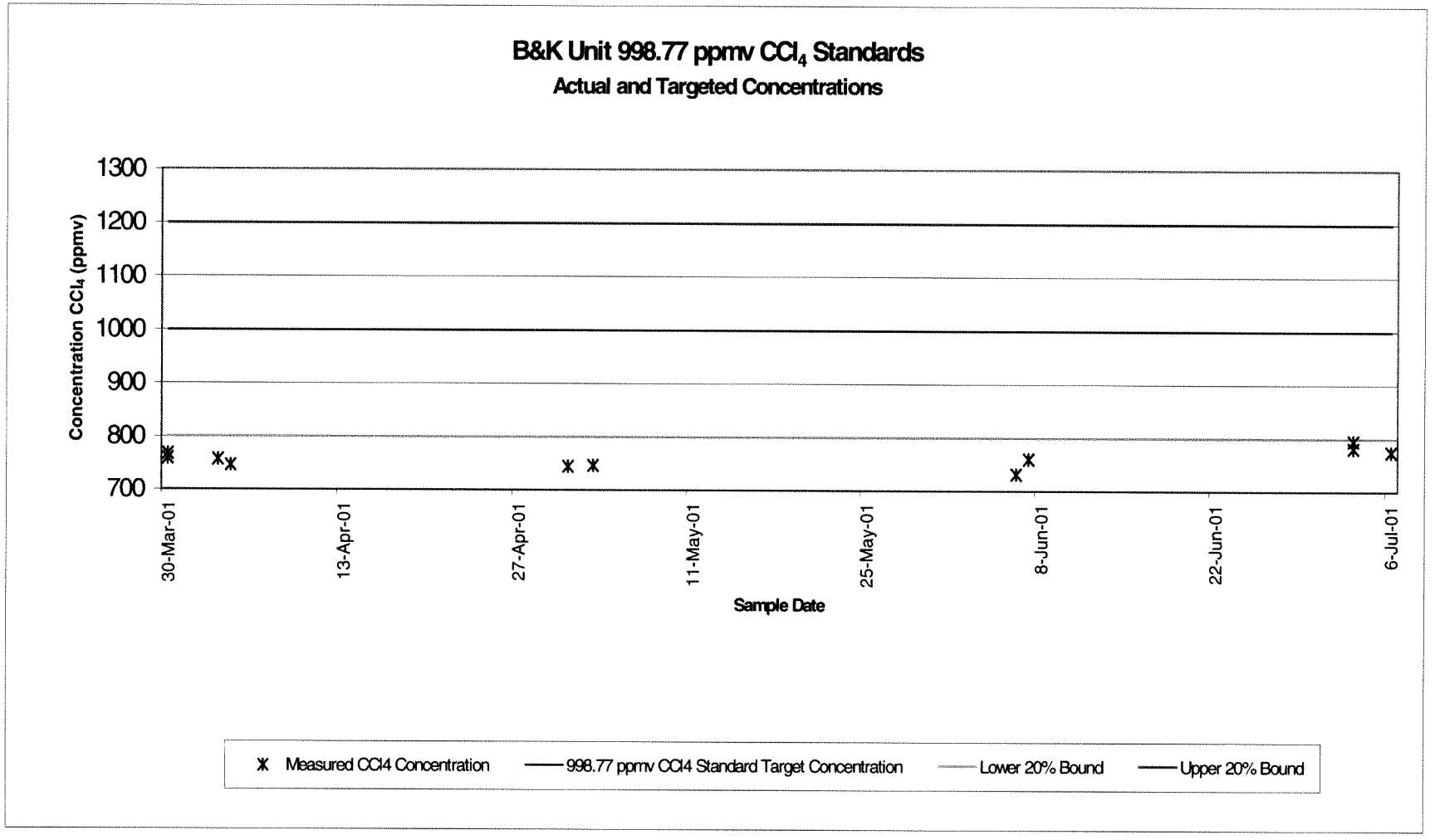

Figure B-3. B&K 998.77 ppmv standard.

Appendix C

Organic Contamination in the Vadose Zone
Mass Removal Sample Data

Table C-1. Unit A Mass Removal Calculations.

ID NUMBER	SAMPLE TIME	ACTUAL DATA $CHCl_3$ (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	CCl_4 (ppmv)	# of Days	RIEMANN SUMS $CHCl_3$ (ppmv*day)	1,1,1-TCA (ppmv*day)	PCE (ppmv*day)	TCE (ppmv*day)	CCl_4 (ppmv*day)
START	13:00	5.42E+01	1.24E+01	5.39E+00	5.14E+01	2.91E+02	0.00	3.01	0.69	0.30	2.86	16.17
UNIT A-1/2/01-1	15:40	5.42E+01	1.24E+01	5.39E+00	5.14E+01	2.91E+02	0.11	24.28	5.55	2.41	23.02	130.34
UNIT A-1/3/01-1	10:30	3.29E+01	8.29E+00	7.15E+00	3.22E+01	1.70E+02	0.90	27.99	7.05	6.08	27.39	144.62
UNITA-1/4/01-1	8:30	5.27E+01	9.75E+00	3.83E+00	5.07E+01	2.26E+02	1.81	96.62	17.87	7.02	92.95	414.33
STOP	2:30	5.27E+01	9.75E+00	3.83E+00	5.07E+01	2.26E+02	4.56	72.46	13.41	5.27	69.71	310.75
START	15:45	5.44E+01	8.22E+00	4.80E+00	4.30E+01	1.72E+02	0.00	0.30	0.05	0.03	0.24	0.96
UNIT A-1/8/01-1	16:01	5.44E+01	8.22E+00	4.80E+00	4.30E+01	1.72E+02	0.01	18.98	2.87	1.67	15.01	60.02
UNIT A-1/9/01-1	8:30	5.00E+01	7.99E+00	3.60E+00	4.23E+01	1.73E+02	0.70	42.76	6.83	3.08	36.18	147.95
UNIT A-1/10/01-1	9:04	4.21E+01	6.20E+00	2.88E+00	3.55E+01	1.34E+02	1.72	42.90	6.32	2.94	36.18	136.56
UNIT A-1/11/01-1	9:25	4.32E+01	7.10E+00	3.06E+00	3.78E+01	1.61E+02	2.74	108.24	17.79	7.67	94.71	403.39
UNIT A-1/15/01-1	9:20	3.40E+01	6.60E+00	4.08E+00	2.70E+01	1.39E+02	6.73	84.29	16.36	10.12	66.94	344.60
UNIT A-1/16/01-1	8:25	3.83E+01	6.91E+00	3.12E+00	3.26E+01	1.55E+02	7.69	37.04	6.68	3.02	31.52	149.89
UNIT A-1/17/01-1	7:45	3.97E+01	6.65E+00	2.74E+00	3.16E+01	1.47E+02	8.67	42.66	7.15	2.94	33.96	157.97
STOP	12:00	4.26E+01	7.93E+00	3.01E+00	3.67E+01	1.81E+02	9.84	25.07	4.67	1.77	21.60	106.53
START	15:00	1.74E+02	3.80E+01	1.75E+01	1.49E+02	7.09E+02	0.00	0.85	0.18	0.09	0.72	3.45
UNIT A-3/15/01	15:14	1.74E+02	3.80E+01	1.75E+01	1.49E+02	7.09E+02	0.01	334.10	72.97	33.60	286.10	1361.38
UNIT A-3/19/01	11:10	9.54E+01	1.62E+01	8.15E+00	6.96E+01	3.27E+02	3.84	230.12	39.08	19.66	167.89	788.77
UNIT A-3/20/01	11:01	8.34E+01	1.33E+01	6.91E+00	6.43E+01	2.70E+02	4.83	81.52	13.00	6.75	62.85	263.91
UNIT A-3/21/01	10:05	8.45E+01	1.27E+01	6.62E+00	6.48E+01	2.53E+02	5.80	79.60	11.96	6.24	61.04	238.33
UNIT A-3/22/01	8:14	7.23E+01	1.07E+01	5.71E+00	5.64E+01	2.17E+02	6.72	179.87	26.62	14.21	140.31	539.86
UNIT A-3/26/01	9:30	6.94E+01	1.08E+01	7.17E+00	5.38E+01	2.08E+02	10.77	176.05	27.40	18.19	136.48	527.66
UNIT A-3/27/01	10:00	6.58E+01	9.46E+00	4.98E+00	4.90E+01	1.90E+02	11.79	66.49	9.56	5.03	49.51	191.98
UNIT A-3/28/01	10:00	7.62E+01	1.23E+01	5.78E+00	6.33E+01	2.50E+02	12.79	73.03	11.79	5.54	60.66	239.58
UNIT A-3/29/01	8:00	7.15E+01	1.02E+01	5.14E+00	5.75E+01	2.05E+02	13.71	178.75	25.50	12.85	143.75	512.50
UNIT A-4/1/01	10:00	8.15E+01	1.17E+01	2.10E+01	7.01E+01	2.28E+02	17.79	207.15	29.74	53.37	178.17	579.50
UNIT A-4/2/01	10:00	7.39E+01	9.63E+00	1.64E+01	5.89E+01	1.95E+02	18.79	73.90	9.63	16.40	58.90	195.00
UNIT A-4/3/01	10:00	7.29E+01	1.02E+01	1.60E+01	5.94E+01	2.09E+02	19.79	72.90	10.20	16.00	59.40	209.00
UNIT A-4/4/01	10:00	7.73E+01	1.21E+01	1.74E+01	6.64E+01	2.55E+02	20.79	191.64	30.00	43.14	164.62	632.19
UNIT A-4/8/01	9:00	5.92E+01	8.19E+00	1.27E+01	4.85E+01	1.79E+02	24.75	146.77	20.30	31.49	120.24	443.77
UNIT A-4/9/01	9:00	7.43E+01	1.27E+01	1.68E+01	6.70E+01	2.79E+02	25.75	86.68	14.82	19.60	78.17	325.50

Table C-1. (continued).

		ACTUAL DATA						RIEMANN SUMS				
ID NUMBER	SAMPLE	$CHCl_3$	TCA	PCE	TCE	CCl_4	# of Days	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4
	TIME	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)		(ppmv*day)	(ppmv*day)	(ppmv*day)	(ppmv*day)	(ppmv*day)
STOP	17:00	7.43E+01	1.27E+01	1.68E+01	6.70E+01	2.79E+02	27.08	49.53	8.47	11.20	44.67	186.00
START	14:37	1.46E+02	2.49E+01	3.29E+01	1.29E+02	5.25E+02	0.00	77.21	13.17	17.40	68.22	277.63
UNITA-4/26/01	16:00	1.40E+02	2.12E+01	3.11E+01	1.20E+02	4.39E+02	1.06	141.12	21.37	31.35	120.96	442.51
UNIT A-4/27/01	15:00	2.60E+02	3.76E+01	5.47E+01	2.06E+02	6.92E+02	2.02	650.90	94.13	136.94	515.72	1732.40
UNIT A-5/1/01	16:10	7.01E+01	9.83E+00	1.50E+01	5.56E+01	2.04E+02	6.06	165.68	23.23	35.45	131.41	482.16
UNIT A-5/2/01	8:27	6.35E+01	8.60E+00	1.37E+01	5.05E+01	1.78E+02	6.74	52.50	7.11	11.33	41.75	147.16
UNIT A-5/3/01	7:51	6.74E+01	9.27E+00	1.48E+01	5.42E+01	1.90E+02	7.72	167.87	23.09	36.86	134.99	473.22
UNIT A-5/7/01	8:00	5.56E+01	8.71E+00	4.30E+00	3.89E+01	1.74E+02	11.72	140.33	21.98	10.85	98.18	439.17
UNIT A-5/8/01	9:00	5.58E+01	9.99E+00	4.21E+00	3.97E+01	1.92E+02	12.77	58.12	10.41	4.39	41.35	200.00
UNIT A-5/9/01	10:00	6.86E+01	1.21E+01	4.72E+00	5.76E+01	2.42E+02	13.81	71.46	12.60	4.92	60.00	252.08
UNIT A-5/10/01	11:00	3.54E+01	5.46E+00	2.49E+00	2.84E+01	1.10E+02	14.85	87.76	13.54	6.17	70.41	272.71
UNIT A-5/14/01	9:00	7.41E+01	1.33E+01	7.14E+00	5.72E+01	2.73E+02	18.77	183.71	32.97	17.70	141.81	676.81
UNIT A-5/15/01	10:00	7.19E+01	1.12E+01	6.07E+00	5.29E+01	2.14E+02	19.81	74.90	11.67	6.32	55.10	222.92
UNIT A-5/16/01	11:00	5.78E+01	8.54E+00	4.74E+00	4.14E+01	1.68E+02	20.85	37.03	5.47	3.04	26.52	107.63
UNIT A-5/16/01	16:45	5.78E+01	8.54E+00	4.74E+00	4.14E+01	1.68E+02	21.09	32.75	4.84	2.69	23.46	95.20
UNIT A-5/17/01	14:12	7.83E+01	1.25E+01	5.95E+00	5.42E+01	2.56E+02	21.98	184.33	29.43	14.01	127.60	602.67
UNIT A-5/21/01	9:45	5.93E+01	9.12E+00	4.60E+00	4.15E+01	1.73E+02	25.80	142.13	21.86	11.03	99.47	414.66
UNIT A-5/22/01	9:15	5.61E+01	9.26E+00	4.42E+00	3.91E+01	1.76E+02	26.78	57.37	9.47	4.52	39.98	179.97
UNIT A-5/23/01	10:50	5.32E+01	8.97E+00	4.35E+00	3.97E+01	1.81E+02	27.84	52.87	8.91	4.32	39.45	179.87
UNIT A-5/24/01	8:57	6.02E+01	1.01E+01	5.47E+00	4.66E+01	1.79E+02	28.76	178.30	29.91	16.20	138.02	530.16
UNIT A-5/29/01	9:00	5.31E+01	7.26E+00	4.04E+00	3.66E+01	1.38E+02	33.77	160.46	21.94	12.21	110.60	417.02
UNIT A-5/30/01	10:00	4.72E+01	6.64E+00	3.78E+00	3.21E+01	1.25E+02	34.81	55.07	7.75	4.41	37.45	145.83
STOP	17:00	4.77E+01	7.82E+00	4.31E+00	3.45E+01	1.52E+02	36.10	30.81	5.05	2.78	22.28	98.17
START	15:20	6.44E+01	1.04E+01	5.74E+00	4.03E+01	2.09E+02	0.00	25.04	4.04	2.23	15.67	81.28
UNIT A-6/06/01	10:00	5.11E+01	8.41E+00	4.85E+00	3.92E+01	1.66E+02	0.78	43.56	7.17	4.13	33.42	141.50
UNIT A- 6/7/01	8:15	5.17E+01	8.20E+00	4.60E+00	3.61E+01	1.62E+02	1.70	128.44	20.37	11.43	89.69	402.47
UNIT A- 6/11/01	9:15	5.33E+01	7.90E+00	4.88E+00	3.68E+01	1.50E+02	5.75	132.88	19.70	12.17	91.74	373.96
UNIT A-6/12/01	7:55	5.22E+01	7.89E+00	4.67E+00	3.66E+01	1.55E+02	6.69	50.70	7.66	4.54	35.55	150.53
UNIT A-6/13/01	7:52	4.04E+01	5.44E+00	3.56E+00	2.74E+01	1.04E+02	7.69	39.77	5.36	3.50	26.97	102.38
UNIT A-6/14/01	7:10	4.47E+01	6.03E+00	4.00E+00	3.00E+01	1.10E+02	8.66	112.22	15.14	10.04	75.31	276.15
UNIT A-6/18/01	8:22	2.74E+01	4.01E+00	5.60E+00	2.12E+01	8.04E+01	12.71	69.45	10.16	14.19	53.74	203.79
UNIT A-6/19/01	8:50	2.85E+01	4.17E+00	6.13E+00	2.30E+01	8.42E+01	13.73	28.46	4.16	6.12	22.97	84.08
UNIT A-6/20/01	8:18	2.56E+01	3.87E+00	5.42E+00	2.04E+01	7.81E+01	14.71	25.96	3.92	5.50	20.68	79.18
UNIT A-6/21/01	9:30	2.86E+01	4.44E+00	6.19E+00	2.34E+01	8.67E+01	15.76	85.52	13.28	18.51	69.97	259.26

Table C-1. (continued).

		ACTUAL DATA						RIEMANN SUMS				
ID NUMBER	SAMPLE	$CHCl_3$	TCA	PCE	TCE	CCl_4	# of Days	$CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4
	TIME	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)		(ppmv*day)	(ppmv*day)	(ppmv*day)	(ppmv*day)	(ppmv*day)
UNIT A-6/26/01	7:50	2.73E+01	4.11E+00	6.12E+00	2.13E+01	8.17E+01	20.69	81.38	12.25	18.24	63.49	243.54
UNIT A-6/27/01	8:35	2.52E+01	3.72E+00	5.51E+00	1.89E+01	6.83E+01	21.72	25.29	3.73	5.53	18.97	68.54
UNIT A-6/28/01	8:00	2.53E+01	3.65E+00	5.51E+00	1.96E+01	7.02E+01	22.69	29.62	4.27	6.45	22.95	82.19
STOP	16:47	2.53E+01	3.65E+00	5.51E+00	1.96E+01	7.02E+01	24.06	17.28	2.49	3.76	13.39	47.95
						Total days	101.65	6554	1038	889	5165	20749
							avg/day	64	10	9	51	204
							(ft^3)	3983	631	540	3139	12609
							n	4604	729	624	3628	14575
							(lb)	1212	214	228	1051	4942
							Total (lb)	7647		Total Hours	2439.58	

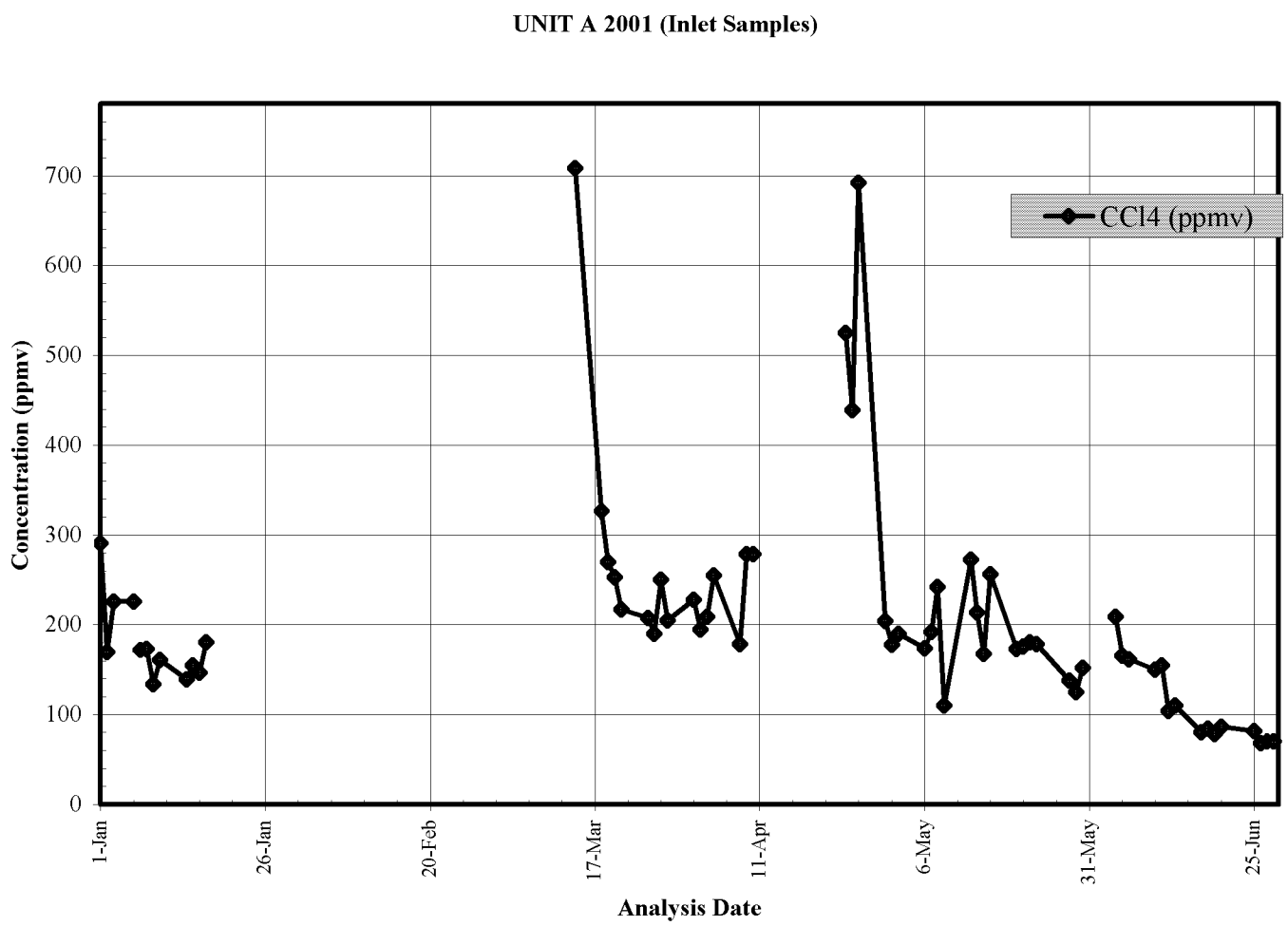

Figure C-1. Unit A 2001 (inlet samples).

Table C-2. Unit B mass removal calculations.

ID NUMBER	ACTUAL DATA $CHCl_3$	TCA	PCE	TCE	CCl_4	# of Days	RIEMANN SUMS $CHCl_3$	1,1,1-TCA	PCE	TCE	CCl_4
	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)		(ppmv*day)	(ppmv*day)	(ppmv*day)	(ppmv*day)	(ppmv*day)
START	2.60E+02	3.76E+01	5.47E+01	2.06E+02	6.92E+02	0.00	123.86	17.91	26.06	98.14	329.66
UNIT B-4/27/01	2.60E+02	3.76E+01	5.47E+01	2.06E+02	6.92E+02	0.95	482.26	69.74	101.46	382.10	1283.56
UNIT B-4/30/01	6.75E+01	1.08E+01	1.56E+01	5.48E+01	2.00E+02	3.71	126.33	20.21	29.20	102.56	374.31
UNIT B-5/1/01	8.97E+01	1.60E+01	2.35E+01	8.35E+01	3.03E+02	4.70	88.61	15.81	23.21	82.49	299.32
UNIT B-5/2/01	7.26E+01	1.11E+01	1.75E+01	6.13E+01	2.08E+02	5.69	71.47	10.93	17.23	60.34	204.75
STOP	6.38E+01	9.94E+00	1.64E+01	5.67E+01	1.91E+02	6.66	31.24	4.87	8.03	27.76	93.51
START	6.05E+01	9.98E+00	6.50E+00	4.48E+01	1.72E+02	0.00	19.83	3.27	2.13	14.68	56.38
UNIT B-6/12/01	6.07E+01	1.18E+01	7.73E+00	4.72E+01	1.93E+02	0.66	50.20	9.76	6.39	39.04	159.63
UNIT B-6/13/01	5.31E+01	9.91E+00	6.84E+00	4.24E+01	1.64E+02	1.65	51.98	9.70	6.70	41.50	160.53
UNIT B-6/14/01	5.20E+01	8.91E+00	6.17E+00	4.06E+01	1.53E+02	2.61	130.63	22.38	15.50	101.99	384.36
UNIT B-6/18/01	4.05E+01	6.72E+00	9.65E+00	3.60E+01	1.25E+02	6.68	102.97	17.08	24.53	91.52	317.80
UNIT B-6/19/01	3.83E+01	6.65E+00	9.66E+00	3.53E+01	1.22E+02	7.70	38.13	6.62	9.62	35.14	121.45
UNIT B-6/20/01	3.85E+01	6.72E+00	9.92E+00	3.64E+01	1.25E+02	8.67	38.74	6.76	9.98	36.63	125.78
UNIT B-6/21/01	3.98E+01	6.96E+00	1.07E+01	3.90E+01	1.29E+02	9.71	100.54	17.58	27.03	98.52	325.86
UNIT B-6/25/01	3.93E+01	6.26E+00	9.25E+00	3.25E+01	1.10E+02	13.72	97.24	15.49	22.89	80.41	272.17
UNIT B-6/26/01	4.06E+01	7.21E+00	1.12E+01	3.83E+01	1.27E+02	14.66	39.90	7.08	11.01	37.64	124.80
UNIT B-6/27/01	3.65E+01	6.18E+00	9.40E+00	3.23E+01	1.09E+02	15.69	36.54	6.19	9.41	32.33	109.11
UNIT B-6/28/01	3.56E+01	5.76E+00	9.24E+00	3.24E+01	1.08E+02	16.66	64.70	10.47	16.79	58.88	196.27
UNIT B-6/30/01	4.68E+01	8.18E+00	4.86E+00	3.41E+01	1.42E+02	19.32	62.25	10.88	6.46	45.36	188.89
					Total days	25.99	1757	283	374	1467	5128
						avg/day	68	11	14	56	197
						(ft^3)	1068	172	227	891	3116
						n	1234	199	262	1030	3602
						(lb)	325	58	96	299	1221
						Total (lb)	1999		Total Hours	623.67	

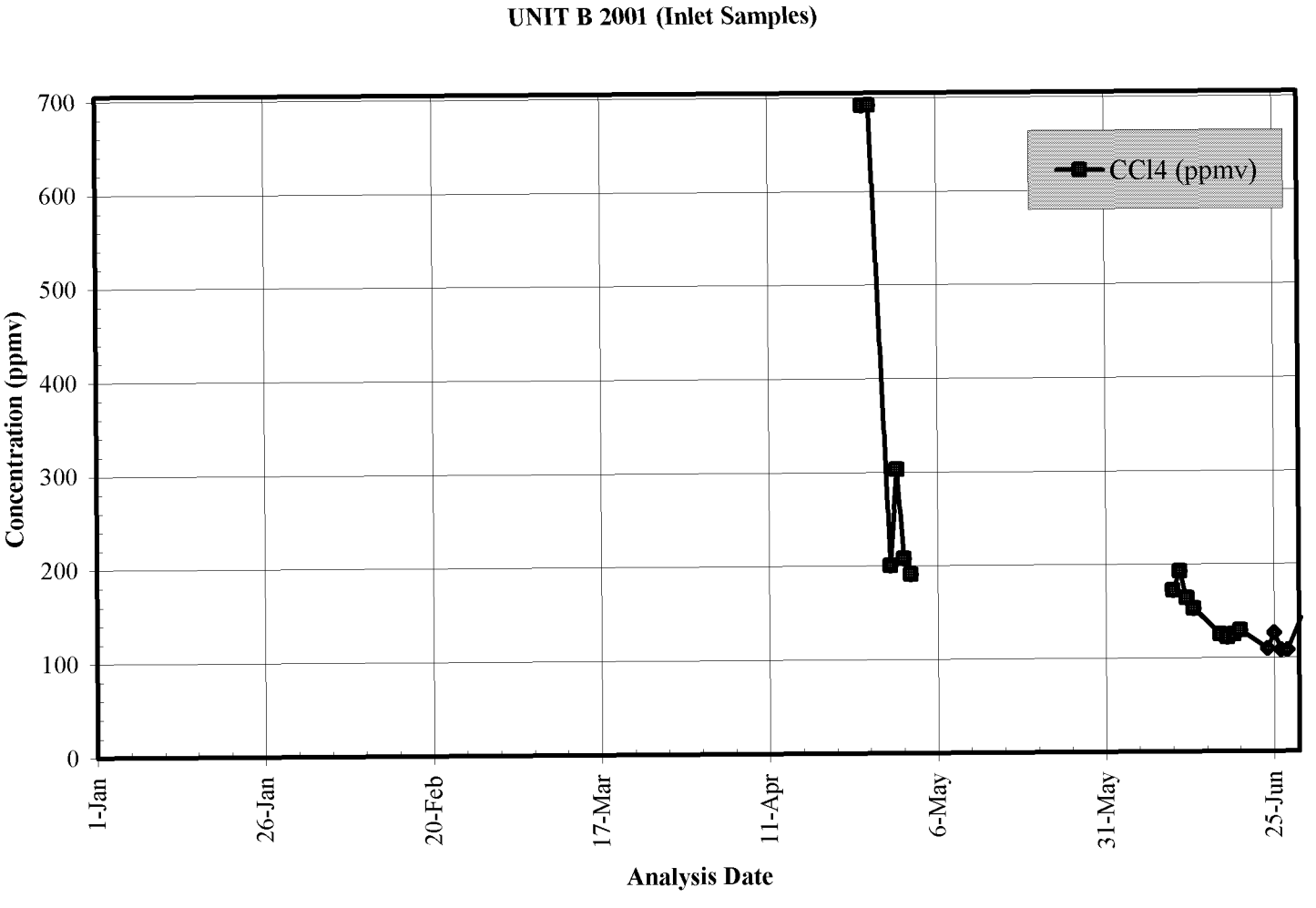

Figure C-2. Unit B 2001 (inlet samples).

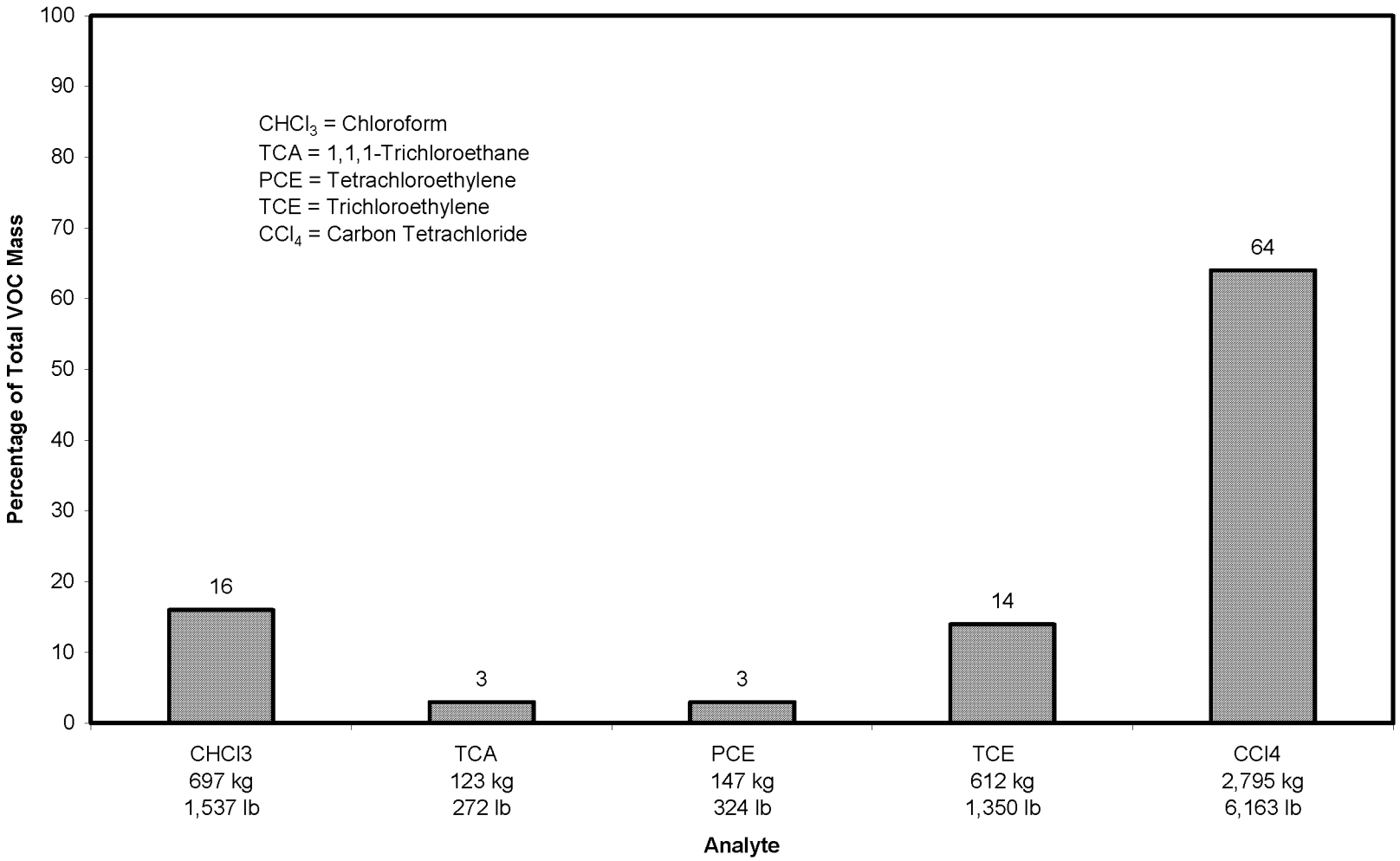

Figure C-3. Analyte mass contribution to total volatile organic compound mass (2001 mid-year operating-shutdown cycle).

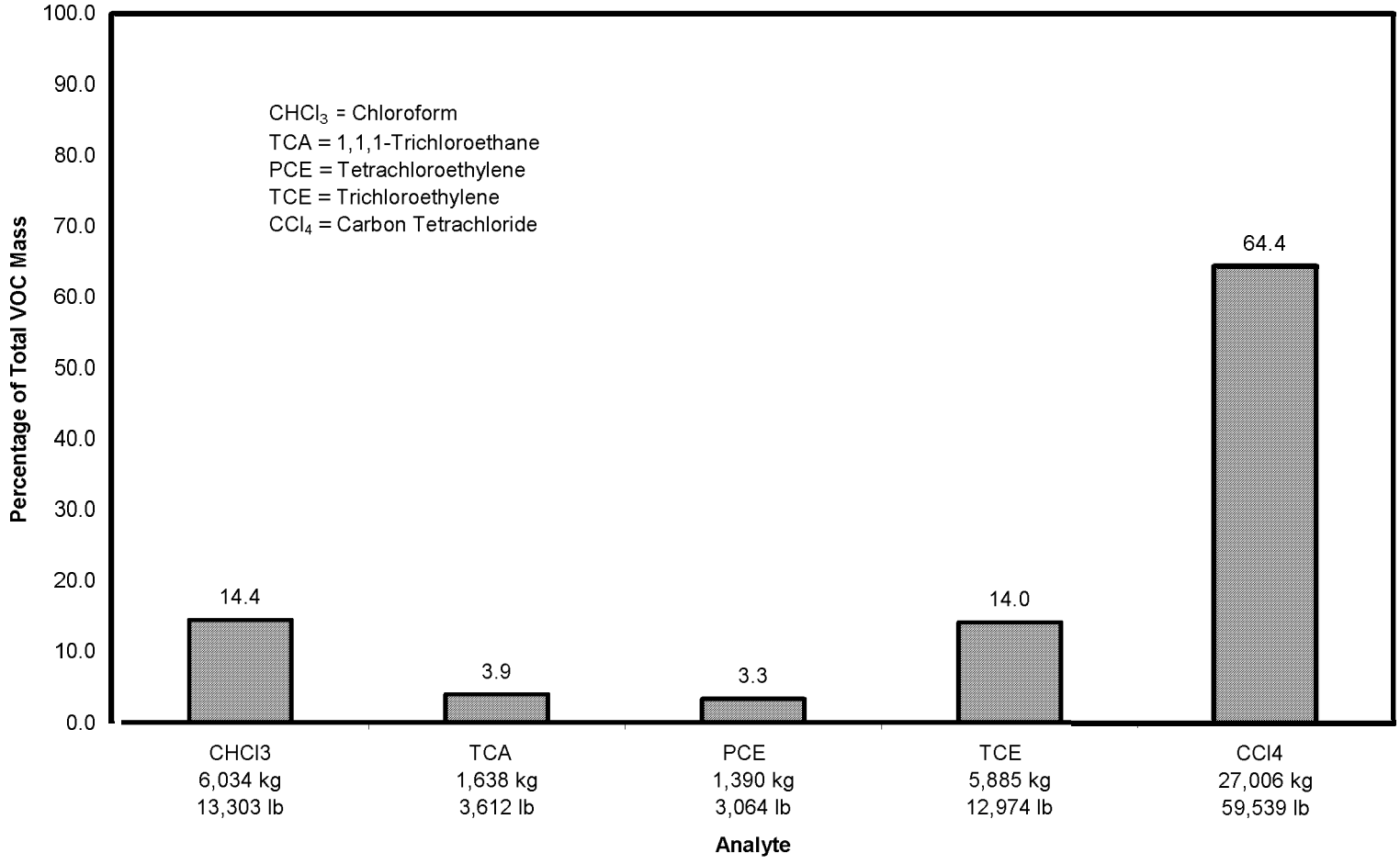

Figure C-4. Analyte mass contribution to total volatile organic compound mass (1996-2001 operating-shutdown cycles)

Table C-3. Breakdown per operating cycle of the mass of contaminants removed to date.

Operating Period	Year	$CHCl_3$ (kg)	TCA (kg)	PCE (kg)	TCE (kg)	CCl_4 (kg)	Total (kg)
First Eight-Weeks	1996	510	151	106	461	2277	3505
Percentage of Total		15%	4%	3%	13%	65%	
Second Eight-Weeks	1996	258	80	64	247	1203	1853
Percentage of Total		14%	4%	3%	13%	65%	
Third Eight-Weeks	1996	169	51	36	151	753	1159
Percentage of Total		15%	4%	3%	13%	65%	
First Quarter	1997	196	48	28	142	857	1270
Percentage of Total		15%	4%	2%	11%	67%	
Second Quarter	1997	497	165	134	494	2393	3684
Percentage of Total		13%	4%	4%	13%	65%	
Third Quarter	1997	291	54	65	273	1266	1949
Percentage of Total		15%	3%	3%	14%	65%	
Fourth Quarter	1997	547	155	110	449	2452	3713
Percentage of Total		15%	4%	3%	12%	66%	
Mid-Year	1998	489	153	112	436	2147	3337
Percentage of Total		15%	5%	3%	13%	64%	
End-Year	1998	674	175	191	714	2768	4523
Percentage of Total		15%	4%	4%	16%	61%	

Table C-3. (continued)

Operating Period	Year	$CHCl_3$ (kg)	TCA (kg)	PCE (kg)	TCE (kg)	CCl_4 (kg)	Total (kg)
Mid-Year	1999	378	98	74	404	1860	2814
Percentage of Total		13%	4%	3%	14%	66%	
End-Year	1999	514	178	163	637	2490	3982
Percentage of Total		13%	4%	4%	16%	63%	
Mid-Year	2000	528	149	139	608	2414	3838
Percentage of Total		14%	4%	4%	16%	63%	
End-Year	2000	286	58	31	257	1331	1964
Percentage of Total		14%	3%	2%	13%	68%	
Mid-Year	2001	697	123	147	612	2,795	4,374
Percentage of Total		16%	3%	3%	14%	64%	
Total	1996—2001	6,304	1,638	1,390	5,885	27,006	42,223
Percentage of Total		14.4%	3.9%	3.3%	14.0%	64.4%	

$CHCl_3$ = chloroform TCA = trichloroethane PCE = tetrachloroethylene TCE = trichloroethylene CCl4 = carbon tetrachloride

Appendix D

Spatial and Temporal Distribution of Volatile Organic Compounds in the Vadose Zone

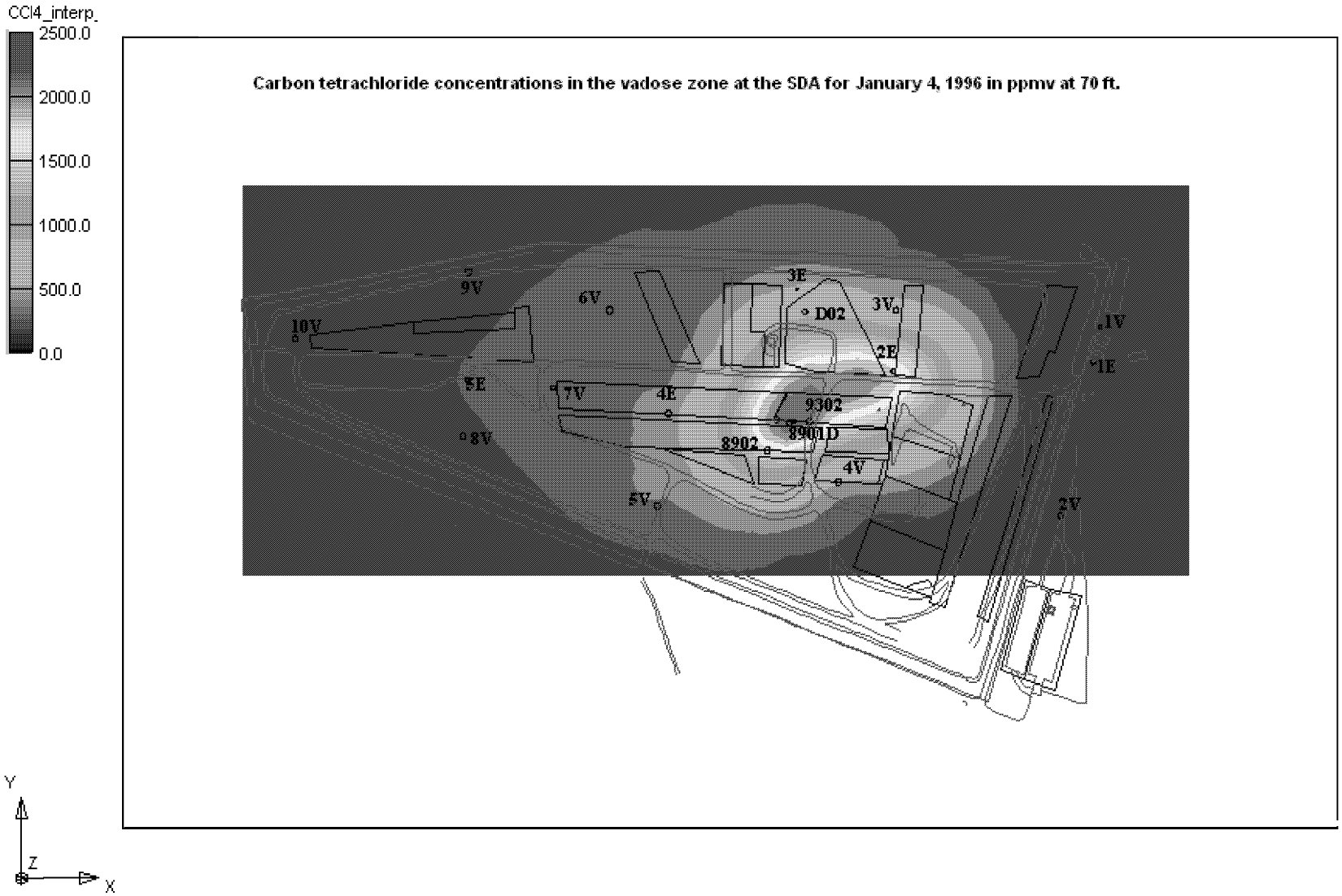

Figure D-1. Spatial distribution of volatile organic compounds in the Subsurface Disposal Area at approximately 70 ft below land surface on January 4, 1996.

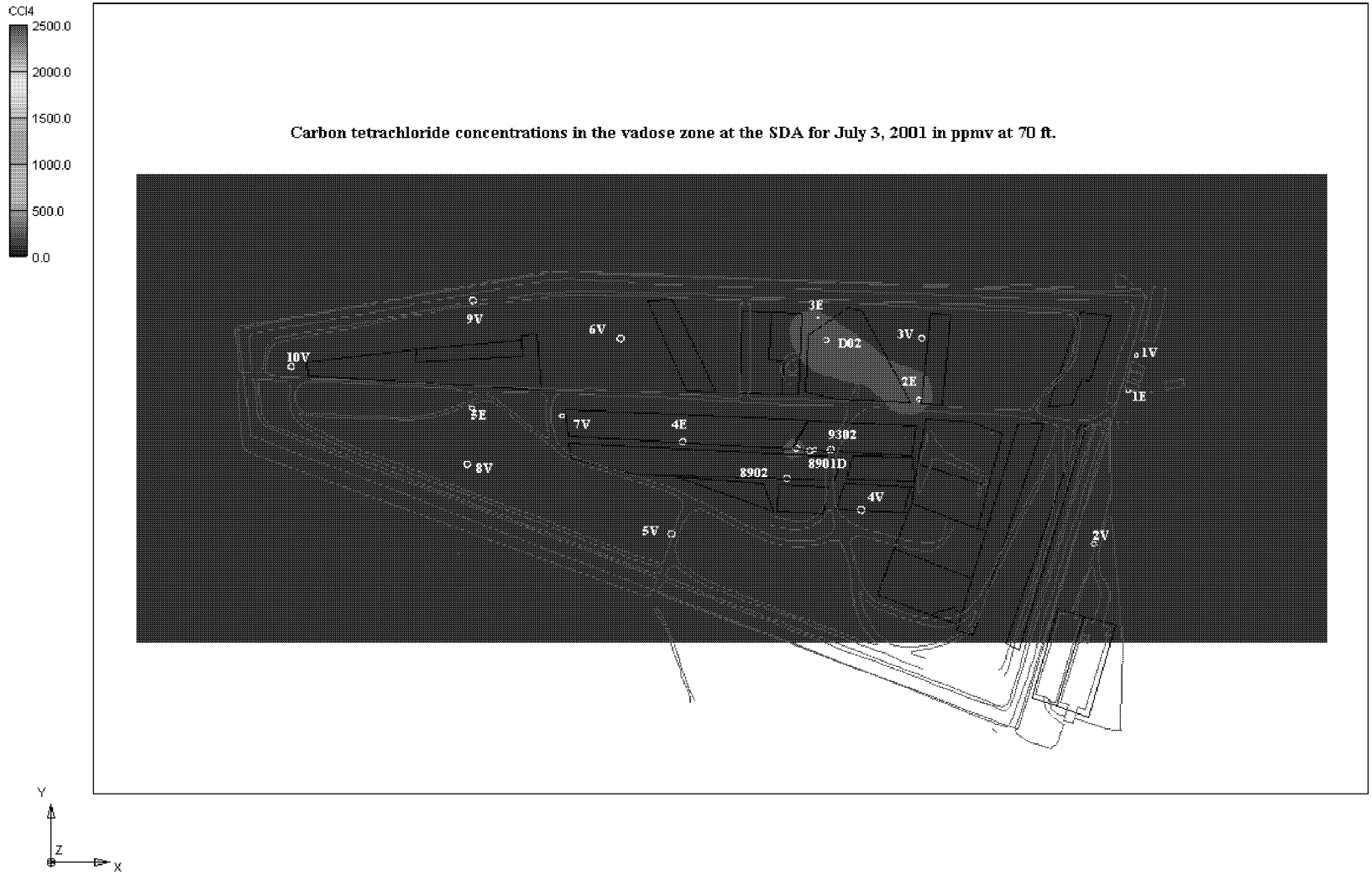

Figure D-2. Spatial distribution of volatile organic compounds in the Subsurface Disposal Area at approximately 70 ft below land surface on July 3, 2001.

Appendix E

Vapor Vacuum Extraction with Treatment Unit Operations History

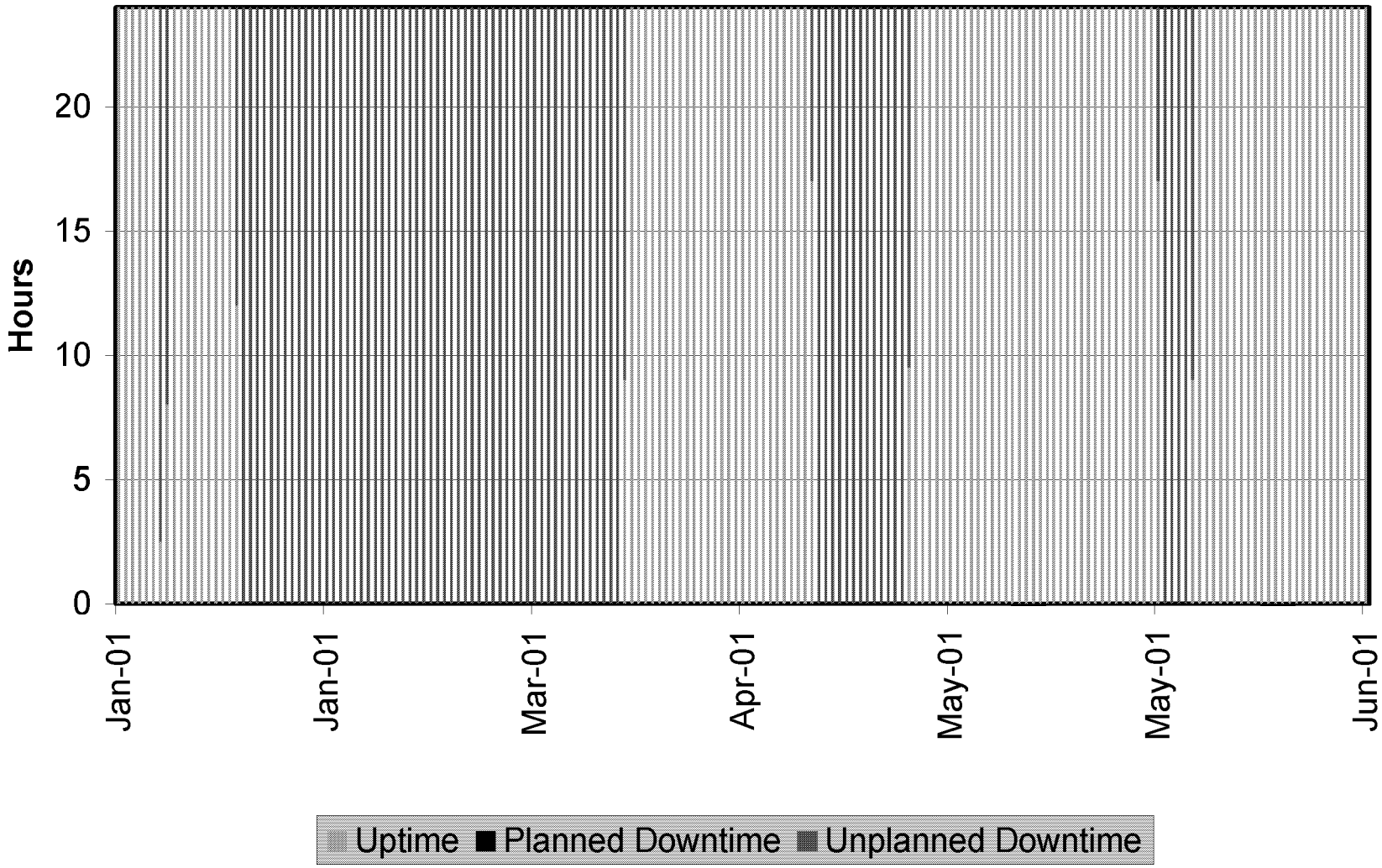

Figure E-1. Unit A operations.

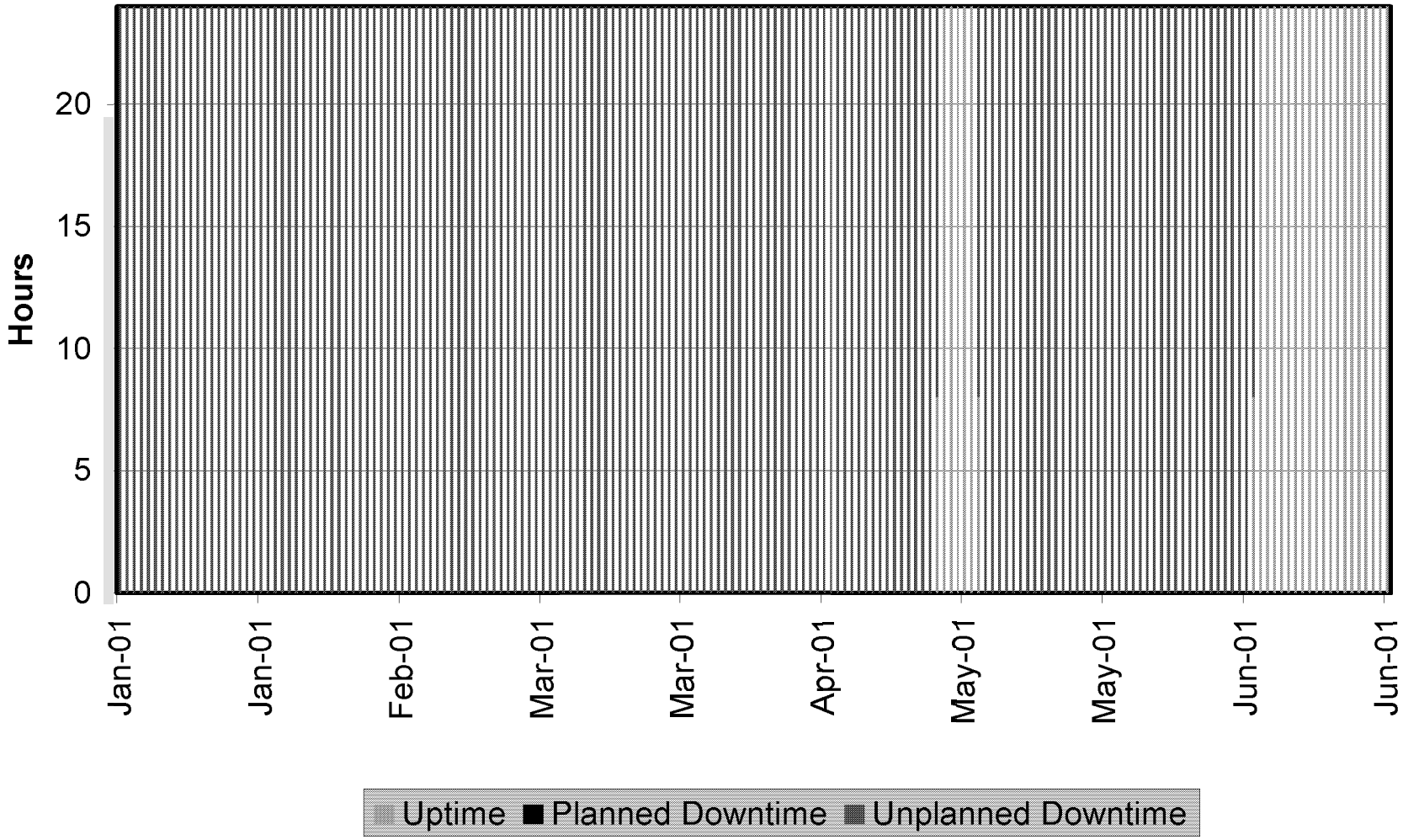

Figure E-2. Unit B operations.

Table E-1. Cumulative operating schedule of OCVZ oxidizers.

Operating Period	Year	Unit A (hour)	Unit B (hour)	Unit C (hour)
First Eight-Week	1996			
Hours Operated		1,321	1,137	1,102
Hours Available		1,602	1,437	1,265
Percent Operated		82%	79%	87%
Second Eight-Week	1996			
Hours Operated		916	614	915
Hours Available		994	971	994
Percent Operated		92%	63%	92%
Third Eight-Week	1996			
Hours Operated		750	640	752
Hours Available		1,008	864	1,056
Percent Operated		74%	74%	71%
First Quarter	1997			
Hours Operated		120	744	1,056
Hours Available		2,952	2,952	2,952
Percent Operated		4%	25%	36%
Second Quarter	1997			
Hours Operated		899	1,223	1,355
Hours Available		1,023	1,531	1,633
Percent Operated		88%	80%	83%
Third Quarter	1997			
Hours Operated		824	764	898
Hours Available		954	817	912
Percent Operated		86%	94%	98%
Fourth Quarter	1997			
Hours Operated		2,776	2,677	160
Hours Available		2,845	2,840	2,848
Percent Operated		98%	94%	6%
Mid-Year	1998			
Hours Operated		2,821	2,639	0
Hours Available		2,880	2,880	2,880
Percent Operated		98%	92%	0%

Operating Period	Year	Unit A (hour)	Unit B (hour)	Unit C (hour)
End-Year	1998			
Hours Operated		3,809	3,713	0
Hours Available		4,200	4,152	4,104
Percent Operated		91%	90%	0%
Mid-Year	1999			
Hours Operated		3,162	305	0
Hours Available		4,152	407	4,152
Percent Operated		76%	75%	0%
End-Year	1999			
Hours Operated		3,120	2,544	2,424
Hours Available		3,432	3,432	3,432
Percent Operated		91%	74%	71%
Mid-Year	2000			
Hours Operated		3,520	3,236	1,938
Hours Available		4,032	4,032	4,032
Percent Operated		87%	80%	48%
End-Year	2000			
Hours Operated		2,325	0	N/A
Hours Available		3,144	3,144	N/A
Percent Operated		74%	0%	N/A
Mid-Year	2001			
Hours Operated		2,440	624	N/A
Hours Available		4,008	4,008	N/A
Percent Operated		61%	16%	N/A
Total	1996—2001			
Hours Operated		28,803	20,860	10,600
Hours Available		37,226	33,467	30,260
Percent Operated		77%	62%	35%