

**Minimum Detection Level Determination for EPA Method 8260B ( VOCs )**  
**Gas Chromatography Mass Spectrometry of 5mL Sparger Sample by Purge & Trap**  
**Instrumentation: Charon, O.I. 4552 / O.I. Eclipse 4660 Concentrator / Varian GC450 / Varian MS**  
**Laboratory: State Laboratory Division, New Mexico Department of Health**  
**Analyst: Todd Sherrill**      **Date: 22 January 2010**

(All instrumental data are located in index folders OR-201000102)

Analyte MDL concentration	Sample population: twenty-four replicates analyzed over a three day period.																				Statistical Results			
	MS File Name:		012012	012013	012014	012015	012017	012017	012105	012105	012105	012105	012105	012105	012205	012206	012207	012208	012209	012210	012211	RSD	Standard Deviation	Minimum Detection Level*
	Date Acquired:		1/20/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/21/10	1/22/10	1/22/10	1/22/10	1/22/10	1/22/10	1/22/10			
Time Acquired:		23:50	0:28	1:06	1:43	2:21	2:58	19:14	19:52	20:29	21:06	21:44	22:21	22:59	13:12	13:50	14:28	15:05	15:42	16:20	16:57			
8260B Analytes	MDL 1	MDL 2	MDL 3	MDL 4	MDL 5	MDL 6	MDL 7	MDL 8	MDL 9	MDL 10	MDL 11	MDL 12	MDL 13	MDL 14	MDL 15	MDL 16	MDL 17	MDL 18	MDL 19	MDL 20				
1 ug/L dichlorodifluoromethane	1.04	0.96	0.92	0.90	0.83	0.83	0.94	0.81	0.87	0.84	0.86	0.84	0.81	1.03	0.91	0.91	0.83	0.90	0.88	0.80	7.7%	0.068	0.17 ug/L	
1 ug/L chloromethane	0.78	0.72	0.77	0.83	0.82	0.70	0.79	0.71	0.73	0.72	0.77	0.69	1.21	0.77	0.74	0.71	0.70	0.82	0.78	1.25	19.1%	0.153	0.39 ug/L	
1 ug/L vinyl chloride	1.18	1.15	1.15	1.16	1.18	1.08	1.13	1.09	1.21	1.16	1.16	1.09	1.41	1.19	1.14	1.14	1.15	1.24	1.19	1.35	6.8%	0.080	0.20 ug/L	
1 ug/L chloroethane	0.95	1.16	1.19	1.45	0.84	0.58	1.24	0.87	1.06	1.08	0.90	0.82	1.05	0.55	0.88	0.79	0.37	0.51	0.46	0.62	33.3%	0.289	0.73 ug/L	
1 ug/L trichlorofluoromethane	1.06	1.03	1.01	1.00	1.01	0.95	0.98	0.99	1.08	1.08	1.04	0.97	1.04	1.05	1.00	1.00	1.05	1.04	1.03	1.01	3.4%	0.035	0.09 ug/L	
5 ug/L acrolein	5.16	5.32	4.05	5.78	5.44	5.14	5.45	4.22	5.05	4.63	5.00	4.41	5.34	5.47	5.71	5.49	5.62	6.12	6.40	6.45	12.2%	0.648	1.65 ug/L	
1 ug/L 1,1-dichloroethene	1.11	1.10	1.05	1.09	1.11	1.01	1.06	1.02	1.15	1.11	1.06	0.98	1.24	1.09	1.10	1.08	1.11	1.17	1.15	1.28	6.5%	0.072	0.18 ug/L	
1 ug/L iodomethane	1.03	1.01	0.92	1.08	1.06	0.91	1.00	0.86	0.99	0.93	0.96	0.83	1.20	1.13	1.10	1.05	1.06	1.19	1.10	1.45	13.3%	0.139	0.35 ug/L	
1 ug/L carbon disulfide	1.06	1.07	1.14	1.40	1.21	2.42	0.69	0.97	1.22	1.13	1.23	1.89	1.15	0.80	0.96	0.78	0.98	0.90	1.35	1.68	33.9%	0.407	1.03 ug/L	
2 ug/L acetone	1.88	1.75	1.10	2.03	2.13	2.06	1.84	1.37	1.57	1.45	1.41	1.38	1.74	1.88	1.89	1.84	1.87	1.93	2.13	2.10	16.6%	0.294	0.75 ug/L	
1 ug/L allyl chloride	0.94	0.98	0.90	0.99	0.98	0.89	1.00	0.88	1.01	0.98	0.96	0.86	1.19	0.91	1.02	0.93	0.93	1.05	0.99	1.24	9.7%	0.095	0.24 ug/L	
10 ug/L acetonitrile	8.32	6.68	4.03	8.52	9.79	9.47	7.97	4.34	5.93	5.72	6.08	5.35	5.65	9.22	9.07	9.17	9.69	10.0	10.6	11.6	28.1%	2.207	5.60 ug/L	
1 ug/L methylene chloride	1.05	1.38	0.38	1.33	1.19	1.50	0.49	0.42	0.47	0.49	0.41	0.39	0.50	0.50	0.93	0.69	1.19	0.67	1.56	0.77	50.4%	0.411	1.04 ug/L	
1 ug/L trans-1,2-dichloroethene	1.00	0.98	0.97	1.01	1.02	0.93	0.97	0.89	0.98	0.96	0.93	0.84	1.21	0.98	0.99	0.99	0.99	1.04	1.01	1.24	9.1%	0.091	0.23 ug/L	
1 ug/L 2-chloroethyl vinyl ether	0.87	1.00	0.95	1.04	0.98	0.92	1.04	0.89	0.97	0.96	0.90	0.86	1.03	0.94	1.00	0.97	0.93	1.01	0.98	1.11	6.5%	0.063	0.16 ug/L	
1 ug/L methyl tert-butyl ether	0.87	0.91	0.88	0.95	0.95	0.84	0.94	0.94	1.02	1.01	0.94	0.90	1.05	0.89	0.92	0.91	0.91	0.94	0.96	1.00	5.6%	0.053	0.13 ug/L	
5 ug/L acrylonitrile	4.91	5.37	4.29	5.79	5.64	5.29	5.48	4.07	4.74	4.77	5.01	4.61	5.32	4.96	5.32	5.03	5.09	5.45	5.63	5.82	9.3%	0.475	1.21 ug/L	
1 ug/L 1,1-dichloroethane	0.94	0.95	0.95	0.99	1.02	0.90	0.96	0.91	1.00	1.00	0.96	0.87	1.24	0.92	0.95	0.92	0.93	0.99	0.97	1.19	9.2%	0.090	0.23 ug/L	
1 ug/L chloroprene	0.97	0.98	0.95	1.04	1.01	0.86	0.97	0.92	1.03	1.01	0.97	0.88	1.19	0.96	1.02	0.93	0.95	1.03	0.99	1.13	7.7%	0.076	0.19 ug/L	
1 ug/L vinyl acetate	1.20	1.35	1.19	1.39	1.31	1.20	1.33	1.14	1.31	1.24	1.31	1.16	1.40	0.90	1.06	1.09	0.85	0.93	1.21	1.08	13.5%	0.160	0.41 ug/L	
1 ug/L 2,2-dichloropropane	0.76	0.84	0.79	0.83	0.81	0.73	0.96	0.95	1.00	0.92	0.91	0.83	1.05	0.92	0.86	0.85	0.88	0.91	0.87	0.96	9.2%	0.081	0.21 ug/L	
1 ug/L cis-1,2-dichloroethene	0.97	0.96	0.98	0.99	1.02	0.89	0.88	0.55	0.95	0.56	0.96	0.46	0.54	0.96	0.96	0.98	0.97	1.03	1.04	1.22	22.4%	0.200	0.51 ug/L	
2 ug/L 2-butanone	1.87	2.02	1.61	2.07	1.99	1.85	2.03	1.67	1.88	1.86	1.92	1.72	1.91	1.84	1.81	1.78	1.87	1.82	1.95	2.01	6.5%	0.121	0.31 ug/L	
10 ug/L propionitrile	9.32	9.27	6.02	10.7	10.3	10.1	8.27	5.97	8.39	7.69	8.05	7.52	8.72	9.87	10.1	9.10	9.50	10.1	11.1	11.1	16.3%	1.479	3.76 ug/L	
4 ug/L tetrahydrofuran	3.77	3.85	3.33	4.07	4.01	3.59	4.01	3.34	3.63	3.71	3.59	3.33	3.96	3.77	3.69	3.68	3.67	3.80	3.79	3.75	5.8%	0.215	0.55 ug/L	
1 ug/L bromochloromethane	1.03	1.00	0.90	1.03	1.05	0.95	1.02	0.99	1.05	0.97	1.03	1.01	1.11	1.01	1.01	1.00	1.05	1.07	1.07	1.20	6.0%	0.061	0.16 ug/L	
10 ug/L methacrylonitrile	9.49	10.2	9.35	10.5	10.2	9.91	10.4	8.93	10.1	9.02	10.2	9.05	10.5	9.34	10.0	9.77	9.33	9.90	10.5	10.9	5.9%	0.581	1.48 ug/L	
1 ug/L chloroform	0.97	0.96	0.96	1.01	1.01	0.91	0.96	0.96	1.04	1.00	1.01	0.93	1.22	0.98	1.01	0.97	1.02	1.03	1.00	1.17	7.3%	0.073	0.19 ug/L	
1 ug/L 1,1,1-trichloroethane	0.94	0.96	0.96	0.95	0.98	0.89	0.93	0.94	1.05	0.99	0.99	0.89	1.18	0.92	0.98	0.96	0.96	1.00	0.99	1.09	6.9%	0.067	0.17 ug/L	
1 ug/L carbon tetrachloride	0.91	0.95	0.96	0.98	0.96	0.89	0.94	0.94	1.03	1.02	0.99	0.90	1.08	0.92	0.91	0.90	0.94	0.97	0.96	1.01	5.2%	0.050	0.13 ug/L	
1 ug/L 1,1-dichloropropene	0.99	0.94	0.97	0.98	1.00	0.91	0.94	0.97	1.06	1.00	0.97	0.91	1.14	0.97	1.00	1.00	1.00	1.05	1.01	1.11	5.9%	0.059	0.15 ug/L	
1 ug/L benzene	0.97	0.99	0.97	1.01	1.01	0.91	0.99	0.94	1.02	1.01	1.02	0.92	1.24	0.98	1.04	1.00	1.01	1.06	1.05	1.23	8.2%	0.084	0.21 ug/L	
1 ug/L 1,2-dichloroethane	0.97	0.95	0.98	1.02	1.02	0.92	0.97	0.95	1.02	1.02	0.97	0.90	1.13	0.94	0.99	1.00	1.00	1.05	1.00	1.14	6.0%	0.060	0.15 ug/L	
20 ug/L isobutanol	17.0	17.4	11.2	19.3	19.1	19.6	17.4	12.1	13.0	12.5	17.9	14.8	16.5	19.1	17.4	17.4	18.5	17.6	24.0	23.1	19.3%	3.323	8.44 ug/L	
1 ug/L trichloroethene	0.96	1.00	1.01	0.99	1.03	0.93	0.96	0.98	1.04	0.99	1.00	0.86	1.12	0.99	1.01	1.00	0.99	1.07	1.02	1.17	6.4%	0.065	0.16 ug/L	
1 ug/L 1,2-dichloropropane	0.93	0.94	0.94	1.02	1.01	0.91	0.99	0.95	1.06	1.01	1.00	0.92	1.22	0.99	0.99	0.98	1.03	1.07	1.03	1.21	8.2%	0.083	0.21 ug/L	
1 ug/L dibromomethane	0.94	0.94	0.92	0.99	0.99	0.88	0.98	0.92	0.95	1.01	0.97	0.83	1.06	0.96	0.96	0.94	0.99	0.99	0.96	1.05	5.5%	0.053	0.13 ug/L	
20 ug/L 1,4-dioxane	19.9	15.5	0.0	16.6	18.1	14.2	12.5	12.8	15.9	14.4	14.8	12.4	18.0	24.5	20.9	17.0	22.5	22.5	26.2	25.8	34.7%	5.969	15.16 ug/L	
1 ug/L methyl methacrylate	0.88	0.92	0.86	1.02	0.96	0.97	0.94	0.91	0.99	0.96	1.02	0.96	1.16	0.89	0.93	0.89	0.90	0.97	1.00	1.09	7.6%	0.073	0.19 ug/L	
1 ug/L bromodichloromethane	0.93	0.95	0.91	0.96	0.99	0.90	0.95	0.91	0.98	1.02	0.99	0.89	1.19	0.93	0.99	0.92	0.92	1.00	0.97	1.08	7.2%	0.070	0.18 ug/L	
1 ug/L cis-1,3-dichloropropene	0.88	0.93	0.90	0.94	0.97	0.86	0.95	0.95	0.99	0.98	0.95	0.84	1.10	0.93	0.94	0.95	0.93	0.99	0.96	1.08	6.5%	0.062	0.16 ug/L	
1 ug/L 4-methyl-2-pentanone	0.91	1.00	0.90	1.00	1.05	1.03	0.98	0.95	0.99	1.05	1.14	1.07	1.25	0.90	0.95	0.92	0.91	0.97	1.09	1.10	9.1%	0.091	0.23 ug/L	
1 ug/L toluene	0.98	0.98	0.99	1.01	1.03	0.92	0.99	0.98	1.09	1.04	1.04	0.94	1.22	0.99	1.05	1.04	1.03	1.06	1.07	1.23	7.5%	0.078	0.20 ug/L	
1 ug/L trans-1,3-dichloropropene	0.88	0.92	0.86	0.92	0.87	0.84	0.94	0.89	0.98	0.91	0.95	0.84	1.02	0.88	0.91	0.85	0.85	0.91	0.90	0.99	5.6%	0.051	0.13 ug/L	
1 ug/L ethyl methacrylate	0.87	0.95	0.86	0.97	0.91	0.96	0.94	0.84	0.97	0.96	1.05	0.96	1.17	0.92	0.92	0.92	0.88	0.97	1.02	1.10	8.4%	0.080	0.20 ug/L	
1 ug/L tetrachloroethene	1.00	0.98	0.98	1.01	1.01	0.93	1.00	0.98	1.07	1.04	1.02	0.95	1.15	0.99	0.98	0.98	1.00	1.05	1.03	1.09	5.0%	0.050	0.13 ug/L	
1 ug/L 1,1,2-trichloroethane	0.92	0.97	0.94	0.99	0.98	0.87	0.94	0.97	0.99	1.01	1.00	0.86	1.06	0.94	0.98									

1 ug/L	2-hexanone	0.84 0.87 0.92 0.97 0.93 0.96 0.95 0.82 0.89 0.96 1.03 1.02 1.18 0.87 0.88 0.85 0.85 0.93 1.02 1.04	9.4%	0.088	0.22 ug/L
1 ug/L	dibromochloromethane	0.90 0.91 0.89 0.98 0.99 0.90 0.93 0.91 1.00 1.01 1.00 0.88 1.11 0.90 0.96 0.92 0.96 1.00 0.97 1.07	6.5%	0.062	0.16 ug/L
1 ug/L	1,2-dibromoethane	0.93 0.94 0.92 0.97 0.98 0.91 0.92 0.92 0.99 1.00 1.01 0.92 1.08 0.93 0.93 0.96 0.91 0.99 0.98 1.03	4.8%	0.046	0.12 ug/L
1 ug/L	chlorobenzene	1.01 1.02 1.03 1.04 1.08 1.00 0.98 1.02 1.07 1.08 1.02 0.92 1.24 1.05 1.00 1.00 1.03 1.09 1.05 1.21	6.9%	0.072	0.18 ug/L
1 ug/L	ethylbenzene	0.97 1.00 1.02 1.02 1.02 0.95 0.97 0.98 1.01 1.00 1.00 0.92 1.15 0.99 1.00 0.96 0.98 1.03 1.03 1.16	5.7%	0.058	0.15 ug/L
1 ug/L	1,1,1,2-tetrachloroethane	0.94 1.01 1.01 1.04 1.06 0.96 1.00 0.97 1.05 1.03 1.03 0.93 1.18 0.97 1.00 0.99 0.96 1.03 1.01 1.12	5.8%	0.059	0.15 ug/L
2 ug/L	m/p-xylenes	1.92 2.02 1.99 1.92 2.04 1.87 1.91 1.96 2.04 2.05 2.00 1.79 2.28 1.98 2.02 1.98 1.99 2.12 2.06 2.30	6.0%	0.120	0.31 ug/L
1 ug/L	o-xylene	0.97 0.98 1.00 0.97 1.02 0.92 0.94 0.97 1.02 0.98 0.99 0.90 1.14 0.99 0.97 1.00 1.00 1.05 1.01 1.13	5.8%	0.058	0.15 ug/L
1 ug/L	styrene	0.96 0.97 0.98 0.98 0.99 0.91 0.94 0.89 0.97 0.95 0.94 0.86 1.07 0.98 0.98 0.96 0.97 1.01 0.97 1.12	5.8%	0.056	0.14 ug/L
1 ug/L	bromoform	0.84 0.93 0.91 0.94 0.95 0.87 0.90 0.91 0.96 0.93 0.92 0.81 0.99 0.88 0.89 0.87 0.88 0.92 0.90 0.94	4.6%	0.042	0.11 ug/L
1 ug/L	isopropylbenzene	0.96 0.97 0.98 0.96 1.00 0.92 0.94 0.95 1.04 1.01 1.00 0.89 1.14 0.98 0.99 0.98 0.98 1.04 1.00 1.12	6.0%	0.059	0.15 ug/L
1 ug/L	cis-1,4-dichloro-2-butene	0.89 0.92 0.93 1.00 0.98 0.97 0.78 0.64 0.68 0.72 0.81 0.69 0.69 0.96 0.99 0.90 0.94 0.97 1.03 1.10	15.4%	0.135	0.34 ug/L
1 ug/L	bromobenzene	0.95 0.99 0.98 0.98 1.02 0.96 0.96 0.95 1.00 1.00 0.97 0.86 1.09 0.99 1.00 0.97 0.97 1.03 1.00 1.13	5.5%	0.054	0.14 ug/L
1 ug/L	propylbenzene	0.97 0.96 0.96 0.94 0.95 0.91 0.89 0.83 0.80 0.36 0.29 0.53 0.12 0.99 0.98 0.98 0.98 1.02 1.00 1.10	33.1%	0.274	0.70 ug/L
1 ug/L	1,2,3-trichloropropane	0.95 1.02 1.05 0.97 0.97 0.97 0.81 0.72 0.80 0.74 0.71 0.55 0.61 0.93 0.90 0.88 0.88 0.91 0.97 0.94	15.8%	0.137	0.35 ug/L
1 ug/L	1,1,2,2-tetrachloroethane	0.89 0.97 0.99 1.00 1.02 0.91 0.97 0.94 0.95 0.96 0.80 0.74 0.88 0.89 0.94 0.92 0.92 0.95 0.94 0.98	7.1%	0.066	0.17 ug/L
1 ug/L	2-chlorotoluene	0.94 0.98 0.98 0.96 0.99 0.93 0.94 0.97 1.01 0.95 0.84 0.75 0.76 0.98 1.01 0.97 0.98 1.02 1.00 1.12	8.9%	0.085	0.22 ug/L
1 ug/L	trans-1,4-dichloro-2-butene	0.78 0.86 0.85 0.91 0.88 0.86 0.89 0.83 0.95 0.94 0.90 0.74 0.84 0.84 0.87 0.56 0.79 0.88 0.99 1.02	11.3%	0.097	0.25 ug/L
1 ug/L	4-chlorotoluene	0.93 0.95 0.98 0.95 0.97 0.88 0.93 0.87 1.03 0.94 0.62 0.41 0.47 0.96 0.97 0.97 0.94 1.00 0.97 1.17	20.6%	0.184	0.47 ug/L
1 ug/L	1,3,5-trimethylbenzene	0.94 0.96 0.99 0.96 0.97 0.90 0.89 0.86 0.94 0.73 0.51 0.52 0.39 0.98 1.00 0.96 0.96 1.02 0.98 1.10	21.6%	0.190	0.48 ug/L
1 ug/L	tert-butylbenzene	0.96 1.00 1.00 0.96 1.00 0.94 0.94 0.96 1.02 0.99 0.92 0.85 0.97 1.00 1.00 1.00 0.98 1.05 1.02 1.12	5.5%	0.054	0.14 ug/L
1 ug/L	pentachloroethane	0.91 1.00 0.97 0.96 0.98 1.05 0.97 0.89 1.00 0.96 1.15 1.03 1.26 0.93 1.03 1.00 0.94 1.01 1.14 1.25	10.1%	0.103	0.26 ug/L
1 ug/L	1,2,4-trimethylbenzene	0.94 0.95 0.98 0.94 0.97 0.89 0.90 0.93 1.01 1.01 0.93 0.86 1.05 0.95 0.98 0.97 0.96 1.02 0.99 1.12	6.0%	0.058	0.15 ug/L
1 ug/L	sec-butylbenzene	0.96 0.97 0.98 0.95 0.97 0.91 0.94 0.96 1.02 1.00 0.86 0.85 1.05 1.00 0.98 0.98 0.99 1.05 1.03 1.09	6.1%	0.059	0.15 ug/L
1 ug/L	1,3-dichlorobenzene	0.94 0.99 1.00 0.98 1.00 0.91 0.93 0.88 0.99 0.90 0.68 0.74 0.99 0.98 1.01 0.97 0.97 1.04 1.00 1.13	10.4%	0.099	0.25 ug/L
1 ug/L	4-isopropyltoluene	0.96 0.93 0.98 0.90 0.95 0.86 0.91 0.95 0.99 0.99 0.98 0.89 1.03 0.97 0.98 0.96 0.96 1.00 1.00 1.06	5.0%	0.048	0.12 ug/L
1 ug/L	1,4-dichlorobenzene	1.00 1.03 1.00 1.00 1.04 0.93 0.95 0.00 0.00 0.00 0.87 0.79 1.12 1.01 1.04 1.01 1.00 1.06 1.03 1.12	44.0%	0.374	0.95 ug/L
1 ug/L	1,2-dichlorobenzene	0.98 0.98 1.00 1.00 1.04 0.92 0.95 0.97 1.02 1.02 1.00 0.86 1.11 1.00 1.00 0.99 0.98 1.04 1.01 1.11	5.6%	0.056	0.14 ug/L
1 ug/L	n-butylbenzene	0.97 0.85 0.96 0.80 0.84 0.81 0.86 0.95 0.99 0.95 0.93 0.87 0.95 1.00 0.97 0.98 0.99 1.02 1.01 1.10	8.3%	0.078	0.20 ug/L
1 ug/L	1,2-dibromo-3-chloropropane	0.93 0.93 0.94 0.93 0.98 0.82 0.96 0.90 0.92 0.96 0.94 0.89 1.02 0.94 0.88 0.88 0.90 0.89 0.90 0.91	4.6%	0.043	0.11 ug/L
20 ug/L	nitrobenzene	20.4 19.5 19.2 19.4 19.7 18.1 18.5 18.8 19.6 19.1 18.6 16.8 18.6 19.8 18.4 18.5 18.2 18.9 18.2 18.5	4.2%	0.796	2.02 ug/L
1 ug/L	1,2,4-trichlorobenzene	1.03 0.92 0.97 0.92 0.92 0.84 0.92 0.98 0.98 0.92 0.96 0.84 1.03 1.03 1.06 1.00 0.99 1.05 1.03 1.11	7.3%	0.071	0.18 ug/L
1 ug/L	hexachlorobutadiene	1.06 0.97 0.98 1.02 1.02 0.95 0.93 0.93 0.97 0.99 0.97 0.85 1.07 1.05 1.01 1.04 1.00 1.07 1.01 1.07	5.7%	0.057	0.14 ug/L
1 ug/L	naphthalene	1.03 0.95 0.91 0.95 0.95 0.88 0.93 0.94 0.96 0.98 0.95 0.87 0.98 1.06 1.10 1.01 1.05 1.08 1.10 1.12	7.6%	0.075	0.19 ug/L
1 ug/L	1,2,3-trichlorobenzene	1.04 0.88 0.96 0.91 0.96 0.86 0.88 0.92 0.92 0.93 0.96 0.81 1.03 1.08 1.05 1.01 1.05 1.07 1.09 1.13	9.0%	0.088	0.22 ug/L

\*Note: Student t value for twenty replicates equals 2.53948; Minimum Detection Limit = 2.53948 x Standard Deviation.