Table S-1. The measured *m/z*'s and assigned elemental formulas for the rainwater sample collected in the Pinelands, NJ on July 20, 2002. The sample was analyzed in the negative ion mode over the mass range *m/z* 50-400 using the instrument conditions described in Section 2.

CHO	*m/z* measured	Elemental Formula $[M-H]^-$
	59.01384	C2 H3 O2
	69.03457	C4 H5 O1
	71.01383	C3 H3 O2
	72.9931	C2 H1 O3
	73.02948	C3 H5 O2
	75.00875	C2 H3 O3
	103.00368	C3 H3 O4
	115.04009	C5 H7 O3
	117.01935	C4 H5 O4
	119.03502	C4 H7 O4
	121.02954	C7 H5 O2
	125.02445	C6 H5 O3
	125.06083	C7 H9 O2
	127.00373	C5 H3 O4
	127.04011	C6 H7 O3
	129.01937	C5 H5 O4
	129.05576	C6 H9 O3
	130.99861	C4 H3 O5
	131.03501	C5 H7 O4
	131.0714	C6 H11 O3
	133.01427	C4 H5 O5
	133.05067	C5 H9 O4
	134.9935	C3 H3 O6
	135.0299	C4 H7 O5
	135.04519	C8 H7 O2
	137.00916	C3 H5 O6
	137.02446	C7 H5 O3
	137.06085	C8 H9 O2
	139.00373	C6 H3 O4
	139.04011	C7 H7 O3
	139.07649	C8 H11 O2
	141.01936	C6 H5 O4
	141.05575	C7 H9 O3
	143.03501	C6 H7 O4
	143.07141	C7 H11 O3
	145.01426	C5 H5 O5
	145.05067	C6 H9 O4
	147.02991	C5 H7 O5
	149.00917	C4 H5 O6
	149.04555	C5 H9 O5

	149.06085	C9 H9 O2
	151.04012	C8 H7 O3
	153.01938	C7 H5 O4
	153.09214	C9 H13 O2
	155.03503	C7 H7 O4
	155.07141	C8 H11 O3
	157.01428	C6 H5 O5
	157.05064	C7 H9 O4
	157.08706	C8 H13 O3
	159.0299	C6 H7 O5
	159.0663	C7 H11 O4
	161.00917	C5 H5 O6
	161.04556	C6 H9 O5
	163.00377	C8 H3 O4
	163.02481	C5 H7 O6
	165.01934	C8 H5 O4
	169.05069	C8 H9 O4
	171.02993	C7 H7 O5
	171.06632	C8 H11 O4
	171.10273	C9 H15 O3
	173.04557	C7 H9 O5
	173.082	C8 H13 O4
	175.02483	C6 H7 O6
	175.06122	C7 H11 O5
	177.04047	C6 H9 O6
	179.03503	C9 H7 O4
	181.0143	C8 H5 O5
	181.07176	C6 H13 O6
	185.0456	C8 H9 O5
	185.082	C9 H13 O4
	187.02485	C7 H7 O6
	187.06126	C8 H11 O5
	187.09766	C9 H15 O4
	189.04051	C7 H9 O6
	191.01975	C6 H7 O7
	197.08203	C10 H13 O4
	199.06131	C9 H11 O5
	199.09768	C10 H15 O4
	201.04056	C8 H9 O6
	201.07694	C9 H13 O5
	201.1133	C10 H17 O4
	203.01985	C7 H7 O7
	203.0562	C8 H11 O6
	205.03546	C7 H9 O7
	207.03	C10 H7 O5
	207.05107	C7 H11 O7

	209.00926	C9 H5 O6
	209.04568	C10 H9 O5
	211.0613	C10 H11 O5
	211.13402	C12 H19 O3
	213.04056	C9 H9 O6
	213.07695	C10 H13 O5
	213.11333	C11 H17 O4
	213.14967	C12 H21 O3
	215.01991	C8 H7 O7
	215.05621	C9 H11 O6
	215.09259	C10 H15 O5
	215.12895	C11 H19 O4
	217.03546	C8 H9 O7
	217.07186	C9 H13 O6
	217.10819	C10 H17 O5
	219.01468	C7 H7 O8
	219.05107	C8 H11 O7
	219.08746	C9 H15 O6
	219.1755	C15 H23 O1
	221.03033	C7 H9 O8
	221.04564	C11 H9 O5
	221.06674	C8 H13 O7
	221.08199	C12 H13 O4
	223.02489	C10 H7 O6
	223.04594	C7 H11 O8
	223.06126	C11 H11 O5
	223.08233	C8 H15 O7
	223.09765	C12 H15 O4
	223.13404	C13 H19 O3
	225.00415	C9 H5 O7
	225.04048	C10 H9 O6
	225.06157	C7 H13 O8
	225.0769	C11 H13 O5
	225.1133	C12 H17 O4
	225.1497	C13 H21 O3
	227.0562	C10 H11 O6
	227.09257	C11 H15 O5
	227.12895	C12 H19 O4
	227.16531	C13 H23 O3
	227.20169	C14 H27 O2
	229.03545	C9 H9 O7
	229.07184	C10 H13 O6
	229.10821	C11 H17 O5
	229.14457	C12 H21 O4
	231.01473	C8 H7 O8
	231.05109	C9 H11 O7

	231.08746	C10 H15 O6
	231.12383	C11 H19 O5
	233.03034	C8 H9 O8
	233.06672	C9 H13 O7
	233.1031	C10 H17 O6
	233.15473	C15 H21 O2
	235.04596	C8 H11 O8
	235.08236	C9 H15 O7
	235.17041	C15 H23 O2
	237.0405	C11 H9 O6
	237.06161	C8 H13 O8
	237.07694	C12 H13 O5
	239.05619	C11 H11 O6
	239.07731	C8 H15 O8
	239.09259	C12 H15 O5
	239.12894	C13 H19 O4
	241.07181	C11 H13 O6
	241.10821	C12 H17 O5
	241.18101	C14 H25 O3
	241.21736	C15 H29 O2
	243.05109	C10 H11 O7
	243.08744	C11 H15 O6
	243.12384	C12 H19 O5
	243.16027	C13 H23 O4
	245.03029	C9 H9 O8
	245.06671	C10 H13 O7
	245.10308	C11 H17 O6
	247.04596	C9 H11 O8
	247.08236	C10 H15 O7
	249.0616	C9 H13 O8
	253.07181	C12 H13 O6
	253.14461	C14 H21 O4
	255.05105	C11 H11 O7
	255.08744	C12 H15 O6
	255.23303	C16 H31 O2
	257.06669	C11 H13 O7
	257.10314	C12 H17 O6
	259.04596	C10 H11 O8
	259.08235	C11 H15 O7
	259.11868	C12 H19 O6
	261.02522	C9 H9 O9
	261.06157	C10 H13 O8
	261.09798	C11 H17 O7
	263.04082	C9 H11 O9
	263.07722	C10 H15 O8
	269.06665	C12 H13 O7

	269.21227	C16 H29 O3
	271.0459	C11 H11 O8
	271.08227	C12 H15 O7
	273.06155	C11 H13 O8
	273.09802	C12 H17 O7
	275.04083	C10 H11 O9
	275.07719	C11 H15 O8
	277.05647	C10 H13 O9
	277.09279	C11 H17 O8
	277.1446	C16 H21 O4
	283.26421	C18 H35 O2
	285.06157	C12 H13 O8
	285.09789	C13 H17 O7
	287.07721	C12 H15 O8
CHOS	***m/z* measured**	**Elemental Formula [M-H]$^-$**
	110.97577	C1 H3 O4 S1
	124.99144	C2 H5 O4 S1
	136.99144	C3 H5 O4 S1
	138.97073	C2 H3 O5 S1
	139.00711	C3 H7 O4 S1
	140.98638	C2 H5 O5 S1
	142.96558	C1 H3 O6 S1
	152.98638	C3 H5 O5 S1
	153.02277	C4 H9 O4 S1
	154.96565	C2 H3 O6 S1
	155.00205	C3 H7 O5 S1
	167.00202	C4 H7 O5 S1
	167.03842	C5 H11 O4 S1
	168.98125	C3 H5 O6 S1
	170.99693	C3 H7 O6 S1
	181.0177	C5 H9 O5 S1
	181.05408	C6 H13 O4 S1
	182.99693	C4 H7 O6 S1
	184.9762	C3 H5 O7 S1
	194.99696	C5 H7 O6 S1
	197.01265	C5 H9 O6 S1
	198.99188	C4 H7 O7 S1
	199.02827	C5 H11 O6 S1
	200.97104	C3 H5 O8 S1
	209.01264	C6 H9 O6 S1
	209.04898	C7 H13 O5 S1
	209.08534	C8 H17 O4 S1
	210.9919	C5 H7 O7 S1
	211.02828	C6 H11 O6 S1
	211.06462	C7 H15 O5 S1
	212.97116	C4 H5 O8 S1

	213.00754	C5 H9 O7 S1
	214.98676	C4 H7 O8 S1
	215.02317	C5 H11 O7 S1
	216.95712	C4 H9 O8 S1
	221.08535	C9 H17 O4 S1
	222.99183	C6 H7 O7 S1
	223.02828	C7 H11 O6 S1
	223.06462	C8 H15 O5 S1
	223.10103	C9 H19 O4 S1
	225.00751	C6 H9 O7 S1
	225.04387	C7 H13 O6 S1
	225.0803	C8 H17 O5 S1
	226.98677	C5 H7 O8 S1
	227.02316	C6 H11 O7 S1
	228.96605	C4 H5 O9 S1
	229.00243	C5 H9 O8 S1
	230.98163	C4 H7 O9 S1
	231.01805	C5 H11 O8 S1
	237.00751	C7 H9 O7 S1
	237.04388	C8 H13 O6 S1
	237.11667	C10 H21 O4 S1
	238.98677	C6 H7 O8 S1
	239.02317	C7 H11 O7 S1
	239.05956	C8 H15 O6 S1
	241.00243	C6 H9 O8 S1
	241.03882	C7 H13 O7 S1
	242.98168	C5 H7 O9 S1
	243.01805	C6 H11 O8 S1
	244.99727	C5 H9 O9 S1
	246.9765	C4 H7 O10 S1
	247.01289	C5 H11 O9 S1
	251.02315	C8 H11 O7 S1
	251.05953	C9 H15 O6 S1
	253.00243	C7 H9 O8 S1
	253.03884	C8 H13 O7 S1
	254.98166	C6 H7 O9 S1
	255.01808	C7 H11 O8 S1
	255.05446	C8 H15 O7 S1
	256.99729	C6 H9 O9 S1
	257.03371	C7 H13 O8 S1
	258.97654	C5 H7 O10 S1
	259.01292	C6 H11 O9 S1
	260.99212	C5 H9 O10 S1
	262.98665	C8 H7 O8 S1
	265.0388	C9 H13 O7 S1
	265.14796	C12 H25 O4 S1

	267.01806	C8 H11 O8 S1
	267.05446	C9 H15 O7 S1
	268.99727	C7 H9 O9 S1
	269.03366	C8 H13 O8 S1
	269.07007	C9 H17 O7 S1
	270.97649	C6 H7 O10 S1
	271.01288	C7 H11 O9 S1
	271.0493	C8 H15 O8 S1
	272.99216	C6 H9 O10 S1
	273.02857	C7 H13 O9 S1
	275.00776	C6 H11 O10 S1
	277.01156	C20 H5 S1
	277.0234	C6 H13 O10 S1
	279.05435	C10 H15 O7 S1
	279.16357	C13 H27 O4 S1
	281.03366	C9 H13 O8 S1
	281.07002	C10 H17 O7 S1
	283.01288	C8 H11 O9 S1
	283.04927	C9 H15 O8 S1
	283.08568	C10 H19 O7 S1
	284.99211	C7 H9 O10 S1
	285.0285	C8 H13 O9 S1
	285.06489	C9 H17 O8 S1
	287.00774	C7 H11 O10 S1
	287.04419	C8 H15 O9 S1
	289.02334	C7 H13 O10 S1
	293.17924	C14 H29 O4 S1
	295.04925	C10 H15 O8 S1
	297.02848	C9 H13 O9 S1
	297.06488	C10 H17 O8 S1
	297.15295	C16 H25 O3 S1
	299.00775	C8 H11 O10 S1
	299.04413	C9 H15 O9 S1
	300.98708	C7 H9 O11 S1
	301.02341	C8 H13 O10 S1
	309.17405	C14 H29 O5 S1
	311.00772	C9 H11 O10 S1
	311.04407	C10 H15 O9 S1
	311.08053	C11 H19 O8 S1
	311.16856	C17 H27 O3 S1
	313.02342	C9 H13 O10 S1
	313.05979	C10 H17 O9 S1
	315.00268	C8 H11 O11 S1
	315.03909	C9 H15 O10 S1
	317.01832	C8 H13 O11 S1
	325.02345	C10 H13 O10 S1

	325.18422	C18 H29 O3 S1
	327.03902	C10 H15 O10 S1
	329.01832	C9 H13 O11 S1
	329.0546	C10 H17 O10 S1
	331.0339	C9 H15 O11 S1
	339.19986	C19 H31 O3 S1
	343.03398	C10 H15 O11 S1
CHONS	***m/z* measured**	**Elemental Formula $[M-H]^-$**
	217.01897	C9 H5 N4 O1 S1
	217.96123	C2 H4 N1 O9 S1
	226.00272	C5 H8 N1 O7 S1
	231.97693	C3 H6 N1 O9 S1
	235.98708	C6 H6 N1 O7 S1
	244.0133	C5 H10 N1 O8 S1
	245.99251	C4 H8 N1 O9 S1
	257.99251	C5 H8 N1 O9 S1
	260.00817	C5 H10 N1 O9 S1
	261.98736	C4 H8 N1 O10 S1
	273.98743	C5 H8 N1 O10 S1
	275.019	C5 H11 N2 O9 S1
	276.00297	C5 H10 N1 O10 S1
	278.01865	C5 H12 N1 O10 S1
	288.00303	C6 H10 N1 O10 S1
	291.99794	C5 H10 N1 O11 S1
	302.01864	C7 H12 N1 O10 S1
	304.99317	C5 H9 N2 O11 S1
	323.00371	C5 H11 N2 O12 S1
Other	***m/z* measured**	**Elemental Formula $[M-H]^-$**
	142.9751	142.975098
	231.00626	231.006398
	244.98545	244.985663
	294.98216	294.982034
	304.99317	304.992873
	323.00371	323.003438
	333.01709	333.016963