Chemistry Table 1. This Table summarizes data for major elements and all trace elements analyzed in the WTC dust and beam coating samples. Some elements (such as mercury and tin) were not analyzed in these samples. Major elements are listed in percent concentration and trace elements are listed in parts per million concentration. One percent equals 10,000 parts per million.

Chemistry Table 1					
	Outdoor dust samples				
	WTC 01-02	WTC 01-03	WTC01-05	WTC01-06	WTC 01-14
Silicon %	21.2	26.3	11.4	11.4	15.3
Calcium %	15.01	9.58	20.94	20.58	17.65
Magnesium %	3.11	2.23	2.73	2.73	2.83
Sulfur %	1.33	0.87	nm	nm	4.32
Iron %	4.13	2.16	1.41	1.42	1.87
Aluminum %	4.13	2.75	2.75	2.73	2.86
Carbon, organic %	0.98	3.55	nm	nm	3.08
Carbon, Carbonate %	1.24	1.63	nm	nm	1.46
Sodium %	0.82	0.76	0.50	0.50	0.59
Potassium %	0.63	0.69	0.46	0.47	0.56
Titanium %	0.39	0.25	0.24	0.24	0.31
Manganese %	0.15	0.08	0.10	0.10	0.12
Phosphorous %	0.03	0.05	0.03	0.03	0.02
Loss on Ignition %	7.96	13.6	19.6	19.6	18.1
Barium ppm	765	376	nm	nm	461
Strontium ppm	1000	409	nm	nm	643
Zinc ppm	2990	1200	nm	nm	1570
Lead ppm	710	176	nm	nm	276
Copper ppm	438	142	nm	nm	242
Cerium ppm	108	50.9	nm	nm	68.8
Yttrium ppm	58.9	30.2	nm	nm	46.5
Chromium ppm	224	98	nm	nm	116
Nickel ppm	88.4	30.8	nm	nm	28.6
Lanthanum ppm	51	25.8	nm	nm	34.8
Antimony ppm	52.1	26.3	nm	nm	40.2
Vanadium ppm	38.8	42.5	nm	nm	30.6
Molybdenum ppm	25.4	14.5	nm	nm	19.1
Lithium ppm	27.4	17.4	nm	nm	23.2
Thorium ppm	11.2	5.56	nm	nm	7.92
Rubidium ppm	21.2	23.7	nm	nm	25.2
Cobalt ppm	13.9	8.4	nm	nm	7.1

Niobium ppm	11	7.8	nm	nm	9.1
Scandium ppm	8.8	6.6	nm	nm	6.1
Uranium ppm	3.92	1.96	nm	nm	2.89
Cadmium ppm	7.3	3.2	nm	nm	3.4
Arsenic ppm	6.8	3.7	nm	nm	5.1
Gallium ppm	6	5.4	nm	nm	4.1
Beryllium ppm	3.7	2.2	nm	nm	2.9
Silver ppm	1.2	3.8	nm	nm	1.2
Cesium ppm	0.73	0.76	nm	nm	0.88
Bismuth ppm	0.5	0.68	nm	nm	0.56
Thallium ppm	0.1	0.13	nm	nm	0.11
nm - not measured; ppm - parts per million					

Chemistry Table 1, continued

	Outdoor dust samples, continued				
	WTC 01-15	WTC 01-16	WTC01-17	WTC 01-21	WTC 01-22
Silicon %	13.6	17.0	16.0	12.8	17.0
Calcium %	18.58	13.36	17.01	18.94	16.80
Magnesium %	2.64	1.79	2.06	2.68	2.77
Sulfur %	5.40	3.68	nm	5.10	3.70
Iron %	1.87	1.92	1.71	1.49	2.78
Aluminum %	2.59	2.27	2.30	2.73	2.78
Carbon, organic %	2.30	2.51	nm	4.02	2.55
Carbon, Carbonate %	1.48	1.47	nm	1.44	1.31
Sodium %	0.66	0.87	0.93	0.50	0.83
Potassium %	0.49	0.69	0.54	0.50	0.52
Titanium %	0.25	0.26	0.25	0.24	0.29
Manganese %	0.10	0.07	0.07	0.12	0.12
Phosphorous %	0.03	0.02	0.02	0.03	0.03
Loss on Ignition %	17.3	22.8	15.9	21.2	15.3
Barium ppm	405	3670	nm	460	452
Strontium ppm	736	3130	nm	787	710
Zinc ppm	1110	1410	nm	1500	1380
Lead ppm	152	208	nm	278	452
Copper ppm	367	307	nm	153	130
Cerium ppm	64.9	132	nm	77	72
Yttrium ppm	46.1	31.4	nm	54.5	47.6
Chromium ppm	129	95.2	nm	104	111
Nickel ppm	32.9	31.4	nm	31.2	30.6
Lanthanum ppm	32.7	69.9	nm	38.6	35.4
Antimony ppm	30.2	148	nm	33.1	27.5

Vanadium ppm	27.1	24.9	nm	27.9	29.7
Molybdenum ppm	12.1	10	nm	9	6.9
Lithium ppm	22.1	18	nm	23.3	23
Thorium ppm	7.3	5.36	nm	8.48	8.5
Rubidium ppm	21.6	21.6	nm	21	21.1
Cobalt ppm	6.5	6.5	nm	5.3	6.3
Niobium ppm	7.6	6.6	nm	9	9.2
Scandium ppm	5.9	4.4	nm	6.2	6.2
Uranium ppm	2.71	2.3	nm	3.16	3.09
Cadmium ppm	4	3	nm	4.6	3.8
Arsenic ppm	4	4.3	nm	3.6	6.6
Gallium ppm	3.9	4.3	nm	3.9	4
Beryllium ppm	2.4	1.8	nm	2.9	2.9
Silver ppm	1.4	1.5	nm	2.4	1.4
Cesium ppm	0.78	0.87	nm	0.76	0.76
Bismuth ppm	0.25	0.28	nm	0.5	0.43
Thallium ppm	0.11	0.12	nm	0.1	0.1
nm - not measured; ppm - parts per million					
Chemistry Table 1, continued					
	Outdoor dust samples, continued				
	WTC 01-25	WTC 01-27	WTC 01-28	WTC01-30	WTC01-34
Silicon %	13.2	15.2	13.8	15.1	12.2
Calcium %	20.37	19.51	19.65	19.73	20.51
Magnesium %	3.29	3.04	2.83	3.49	3.01
Sulfur %	4.03	4.29	4.56	nm	nm
Iron %	1.33	1.72	1.80	1.85	1.45
Aluminum %	3.28	3.05	2.95	3.59	2.98
Carbon, organic %	2.94	1.95	2.42	nm	nm
Carbon, Carbonate %	1.87	1.82	1.68	nm	nm
Sodium %	0.62	0.62	0.76	0.71	0.50
Potassium %	0.56	0.50	0.54	0.56	0.51
Titanium %	0.29	0.29	0.26	0.29	0.25
Manganese %	0.15	0.12	0.12	0.14	0.12
Phosphorous %	0.03	0.03	0.02	0.04	0.03
Loss on Ignition %	17.5	14.4	16.7	17.5	18.5
Barium ppm	624	470	491	nm	nm
Strontium ppm	695	701	711	nm	nm
Zinc ppm	1910	1650	1720	nm	nm
Lead ppm	756	204	234	nm	nm

Copper ppm	251	188	218	nm	nm
Cerium ppm	85	77.7	75	nm	nm
Yttrium ppm	61.6	54.9	53.8	nm	nm
Chromium ppm	134	126	106	nm	nm
Nickel ppm	39.2	39.4	26.1	nm	nm
Lanthanum ppm	43.5	39.5	38.4	nm	nm
Antimony ppm	65.8	50.4	51.8	nm	nm
Vanadium ppm	30.5	30	28.9	nm	nm
Molybdenum ppm	30.9	27.1	42	nm	nm
Lithium ppm	28.5	25.2	24.8	nm	nm
Thorium ppm	9.94	9.14	8.48	nm	nm
Rubidium ppm	24	21.7	22.5	nm	nm
Cobalt ppm	7.4	6.2	5.9	nm	nm
Niobium ppm	11	11	10	nm	nm
Scandium ppm	7.1	6.6	6.2	nm	nm
Uranium ppm	3.78	3.36	3.27	nm	nm
Cadmium ppm	7.5	5	5.2	nm	nm
Arsenic ppm	4.2	5	4.8	nm	nm
Gallium ppm	4.3	4.3	4.1	nm	nm
Beryllium ppm	3.6	3.2	3.1	nm	nm
Silver ppm	1.4	1.4	1.7	nm	nm
Cesium ppm	0.83	0.77	0.76	nm	nm
Bismuth ppm	0.67	0.4	0.48	nm	nm
Thallium ppm	0.1	0.09	0.11	nm	nm

nm - not measured; ppm - parts per million

Chemistry Table 1, continued

	Indoor dust samples		Girder coatings		
	WTC 01-20	WTC 01-36	WTC 01-08	WTC 01-09	
Silicon %	14.2	11.7	15.0	15.5	
Calcium %	19.44	21.30	20.73	26.01	
Magnesium %	2.59	2.88	6.94	3.23	
Sulfur %	5.51	5.77	1.39	1.23	
Iron %	1.25	1.38	1.25	0.55	
Aluminum %	2.55	2.86	2.92	3.56	
Carbon, organic %	2.68	2.32	2.48	2.45	
Carbon, Carbonate %	1.27	1.50	1.89	1.86	
Sodium %	1.16	0.58	0.12	0.16	
Potassium %	0.46	0.46	0.28	0.32	
Titanium %	0.25	0.23	0.21	0.28	
Manganese %	0.10	0.11	0.14	0.19	

Phosphorous %	0.02	0.02	0.01	0.01	
Loss on Ignition %	15.7	16.9	15.8	13	
Barium ppm	390	438	317	472	
Strontium ppm	706	823	444	378	
Zinc ppm	1330	1400	57.4	101	
Lead ppm	153	159	9.13	11.7	
Copper ppm	176	95	10.3	12.8	
Cerium ppm	61.6	70.2	202	356	
Yttrium ppm	44.1	52.6	134	243	
Chromium ppm	94	107	153	86.5	
Nickel ppm	29.8	28.5	202	22.6	
Lanthanum ppm	31.3	35.6	102	175	
Antimony ppm	38.9	33.9	0.56	1.2	
Vanadium ppm	25	28.6	30.5	40.1	
Molybdenum ppm	19	16.1	0.85	1.2	
Lithium ppm	21.9	24.9	25.2	36.4	
Thorium ppm	7.25	8.64	17.9	30.7	
Rubidium ppm	18.9	21.1	8	8.2	
Cobalt ppm	5	5.3	12.3	1.7	
Niobium ppm	8	9	4.4	6.3	
Scandium ppm	5.4	6.4	9.2	9.8	
Uranium ppm	2.7	3.23	4.72	7.57	
Cadmium ppm	4.2	5.8	0.11	0.21	
Arsenic ppm	3.5	3.8	< 2	< 2	
Gallium ppm	3.6	4	2.8	4.2	
Beryllium ppm	2.5	3.1	4	4.2	
Silver ppm	3.5	1.6	1.8	0.96	
Cesium ppm	0.72	0.78	0.18	0.22	
Bismuth ppm	0.64	0.82	0.008	0.01	
Thallium ppm	0.09	0.09	0.02	0.02	

nm - not measured; ppm - parts per million

Chemistry Table 1, continued

	minimum	maximum	mean*		
Silicon %	11.4	26.3	14.8		
Calcium %	9.58	26.01	18.36		
Magnesium %	1.79	6.94	2.88		
Sulfur %	0.87	5.77	3.11		
Iron %	0.55	4.13	1.63		
Aluminum %	2.27	4.13	2.90		
Carbon, organic %	0.98	4.02	2.48		

Carbon, Carbonate %	1.24	1.89	1.55		
Sodium %	0.12	1.16	0.57		
Potassium %	0.28	0.69	0.50		
Titanium %	0.21	0.39	0.26		
Manganese %	0.07	0.19	0.11		
Phosphorous %	0.01	0.05	0.02		
Loss on Ignition %	7.96	22.8	16.35		
Barium ppm	317	3670	533.38		
Strontium ppm	378	3130	726.61		
Zinc ppm	57.4	2990	1004.70		
Lead ppm	9.13	756	166.75		
Copper ppm	10.3	438	136.31		
Cerium ppm	50.9	356	91.23		
Yttrium ppm	30.2	243	57.45		
Chromium ppm	86.5	224	116.61		
Nickel ppm	22.6	202	37.77		
Lanthanum ppm	25.8	175	45.96		
Antimony ppm	0.56	148	24.84		
Vanadium ppm	24.9	42.5	30.67		
Molybdenum ppm	0.85	42	11.34		
Lithium ppm	17.4	36.4	24.00		
Thorium ppm	5.36	30.7	9.31		
Rubidium ppm	8	25.2	19.01		
Cobalt ppm	1.7	13.9	6.36		
Niobium ppm	4.4	11	8.34		
Scandium ppm	4.4	9.8	6.63		
Uranium ppm	1.96	7.57	3.29		
Cadmium ppm	0.11	7.5	2.80		
Arsenic ppm	3.5	6.8	***		
Gallium ppm	2.8	6	4.15		
Beryllium ppm	1.8	4.2	2.96		
Silver ppm	0.96	3.8	1.66		
Cesium ppm	0.18	0.88	0.64		
Bismuth ppm	0.008	0.82	0.28		
Thallium ppm	0.02	0.13	0.08		

*Geometric mean for all parameters except pH; ***Geometric mean not calculated due to one or more samples having concentrations below detection limit; ppm - parts per million

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