Appendix B - Chemical Composition of Vehicle Exhaust Samples

Species	Species Description	units	High W1-1	High W6-1	High W6-4	Med W1-2	Med W3-1	Med W5-3
MASS	Gravimetric mass	mg/mi	113.12	56.31	73.13	43.21	29.38	45.26
OC	Organic Carbon	mg/mi	74.958	32.125	49.201	31.258	10.207	15.572
EC	Elemental Carbon	mg/mi	14.094	20.387	4.270	10.008	16.248	15.662
TC	Total Carbon	mg/mi	89.053	52.513	53.470	41.266	26.457	31.238
O1	Organic Carbon Fraction 1	mg/mi	30.315	19.798	27.138	19.243	4.040	3.870
O2	Organic Carbon Fraction 2	mg/mi	32.806	7.444	17.357	6.533	2.800	5.775
O3	Organic Carbon Fraction 3	mg/mi	6.667	2.636	2.799	2.070	1.350	3.732
O4	Organic Carbon Fraction 4	mg/mi	4.799	2.170	1.806	0.886	1.935	2.193
OP	Pyrolyzed Organic Carbon	mg/mi	0.370	0.075	0.103	2.526	0.083	0.004
E1	Elemental Carbon Fraction 1	mg/mi	7.742	7.804	2.344	1.609	6.625	6.031
E2	Elemental Carbon Fraction 2	mg/mi	6.666	12.598	1.981	10.889	9.589	9.459
E3	Elemental Carbon Fraction 3	mg/mi	0.059	0.063	0.047	0.035	0.118	0.177
Na	Sodium (qualitative only)	ug/mi	149.71	66.44	60.74	4.45	99.84	153.68
Mg	Magnesium (qualitative only)	ug/mi	32.34	8.12	4.99	0.00	7.29	55.01
Al	Aluminum	ug/mi	88.39	3.16	16.02	51.96	22.23	324.79
Si	Silicon	ug/mi	395.64	132.73	77.24	467.93	145.46	3757.61
P	Phosphorous	ug/mi	236.44	136.66	160.81	64.10	94.97	90.21
S	Sulfur	ug/mi	2884.92	232.46	248.82	466.92	215.25	1829.35
Ca	Calcium	ug/mi	187.61	357.59	328.47	127.65	235.61	68.14
Ti	Titanium	ug/mi	1.89	0.70	2.13	0.38	1.29	0.55
Va	Vanadium	ug/mi	0.14	0.40	0.00	0.00	0.31	0.00
Cr	Chromium	ug/mi	16.98	8.92	14.06	2.31	11.52	4.65
Mn	Manganese	ug/mi	5.67	1.66	1.97	0.36	2.24	1.75
Fe	Iron	ug/mi	677.81	164.57	456.34	123.06	387.99	54.17
Ni	Nickel	ug/mi	3.66	2.18	3.65	1.14	3.16	0.46
Cu	Copper	ug/mi	11.76	4.01	14.58	1.35	8.55	1.67
Zn	Zinc	ug/mi	123.00	183.38	167.00	29.54	114.34	23.43
Mo	Molybdenum	ug/mi	2.74	1.72	8.95	0.22	2.19	3.91
Ag	Silver	ug/mi	2.18	4.84	0.00	0.00	0.00	2.40
Cd	Cadmium	ug/mi	0.00	0.02	0.00	0.00	0.00	0.00
Sn	Tin	ug/mi	1.06	0.45	0.88	0.19	0.93	0.00
Ba	Barium	ug/mi	5.45	5.07	2.24	0.00	7.14	0.00
W	Tungsten	ug/mi						
Pb	Lead	ug/mi	68.40	1.81	13.72	4.76	35.77	2.04
UR	Uranium	ug/mi	2.63	0.93	0.00	0.64	0.00	0.00
Cr-ICP	Chromium by ICP/MS	ug/mi	17.57	10.49	11.47	3.08	10.70	8.03
Mn-ICP	Manganese by ICP/MS	ug/mi	6.43	1.91	2.71	1.07	2.58	1.09
Cu-ICP	Copper by ICP/MS	ug/mi	19.03	20.27	15.16	20.98	7.59	4.46
Zn-ICP	Zinc by ICP/MS	ug/mi	161.76	219.74	176.87	71.54	117.89	52.79
As-ICP	Arsenic by ICP/MS	ug/mi	0.23	0.03	0.08	0.00	0.12	0.11
Hg-ICP	Mercury by ICP/MS	ug/mi	0.00	0.00	0.00	0.00	0.00	0.00
Pb-ICP	Lead by ICP/MS	ug/mi	116.94	4.08	20.39	10.23	48.66	8.57
NO3	Nitrate ion	ug/mi	72.37	8.23	8.22	16.68	15.50	56.93
SO4	Sulfate ion	ug/mi	8397.85	200.08	218.99	982.48	236.58	4187.26
NAPHTH	Naphthalene	ug/mi	4081.51	4786.73	4284.80	5910.91	1924.91	7313.75
MNAPH2	2-methylnaphthalene	ug/mi	9410.47	5840.62	9798.31	12495.84	3566.82	18124.51
MNAPH1	1-methylnaphthalene	ug/mi	5346.25	2700.41	4261.56	6622.75	1923.09	9217.26
BIPHEN	Biphenyl	ug/mi	589.43	235.45	230.05	467.30	241.78	648.08
ENAP12	1+2ethylnaphthalene	ug/mi	1217.18	461.93	734.77	1439.55	499.03	1993.46
DMN267	2,6+2,7-dimethylnaphthalene	ug/mi	1396.61	494.64	756.20	1156.44	476.49	1442.15
DM1367	1,3+1,6+1,7dimethylnaphth	ug/mi	2129.17	832.91	1092.67	1682.82	715.20	1919.17
D14523	1,4+1,5+2,3-dimethylnaphth	ug/mi	585.96	208.06	251.20	362.92	57.40	325.24
DMN12	1,2-dimethylnaphthalene	ug/mi	1090.95	440.76	271.98	551.67	280.72	722.21
M_2BPH	2-Methylbiphenyl	ug/mi	0.00	0.00	0.00	0.00	0.00	117.60
M_3BPH	3-Methylbiphenyl	ug/mi	247.43	59.05	66.11	94.05	65.93	259.64
M_4BPH	4-Methylbiphenyl	ug/mi	132.75	23.29	29.35	46.04	29.78	91.97
DBZFUR	Dibenzofuran	ug/mi	51.04	52.11	42.46	52.10	24.91	48.01
ATMNAP	A-trimethylnaphthalene	ug/mi	240.31	91.24	101.71	156.27	70.40	117.99
EM_12N	1-ethyl-2-methylnaphthalene	ug/mi	47.68	21.86	20.69	29.19	14.38	20.88
BTMNAP	B-trimethylnaphthalene	ug/mi	174.90	100.80	109.16	79.22	92.54	99.83
CTMNAP	C-trimethylnaphthalene	ug/mi	184.48	74.83	73.11	86.46	48.02	59.10
EM_21N	2-ethyl-1-methylnaphthalene	ug/mi	5.57	3.05	2.30	3.37	1.53	2.16
ETMNAP	E-trimethylnaphthalene	ug/mi	137.40	45.88	45.18	54.31	30.97	38.82
FTMNAP	F-trimethylnaphthalene	ug/mi	112.28	43.25	44.44	52.58	29.38	35.91
TMI235N	2,3,5+I-trimethylnaphthalene	ug/mi	141.28	59.16	56.57	62.35	32.77	40.23
TM245N	2,4,5-trimethylnaphthalene	ug/mi	29.15	11.63	8.95	12.75	5.60	6.52
JTMNAP	J-trimethylnaphthalene	ug/mi	68.65	16.76	16.82	26.42	17.27	14.64
TM145N	1,4,5-trimethylnaphthalene	ug/mi	26.37	8.19	8.14	11.35	5.76	5.70
ACNAPY	Acenaphthylene	ug/mi	477.44	1125.66	440.69	260.61	128.24	993.69
ACNAPE	Acenaphthene	ug/mi	57.97	15.41	14.88	358.67	88.89	139.78

Appendix B - Chemical Composition of Vehicle Exhaust Samples

Species	Species Description	units	High W1-1	High W6-1	High W6-4	Med W1-2	Med W3-1	Med W5-3
FLUORE	Fluorene	ug/mi	256.67	157.06	157.99	189.69	112.50	311.17
DBTH	Dibenzothiophene	ug/mi	7.88	46.86	4.13	5.43	1.90	7.38
PHENAN	Phenanthrene	ug/mi	877.20	608.41	292.67	536.59	376.44	695.50
ANTHRA	Anthracene	ug/mi	217.94	108.81	69.30	124.71	94.40	174.01
A_MFLU	A-methylfluorene	ug/mi	132.39	38.67	51.88	55.35	30.39	55.81
M_1FLU	1-methylfluorene	ug/mi	68.03	31.66	36.85	36.27	20.15	36.92
B_MFLU	B-methylfluorene	ug/mi	25.52	11.20	10.81	12.09	6.39	15.50
FL9ONE	9-fluorenone	ug/mi	152.32	137.97	50.20	153.41	37.54	98.34
XANONE	Xanthone	ug/mi	96.35	8.63	8.85	31.15	14.10	28.17
ACQUONE	Acenaphthenequinone	ug/mi	20.66	0.00	0.00	0.00	8.39	12.13
PNAPONE	Perinaphthenone	ug/mi	186.86	58.36	19.94	58.23	39.51	131.46
M_2ANTH	2-methylanthracene	ug/mi	79.93	17.93	18.22	31.07	18.71	30.25
M_3PHEN	3-methylphenanthrene	ug/mi	190.22	56.92	49.11	72.26	40.85	51.04
M_2PHEN	2-methylphenanthrene	ug/mi	198.55	70.75	56.13	80.02	44.54	58.44
M_9PHEN	9-methylphenanthrene	ug/mi	86.12	33.77	22.59	37.61	19.19	41.22
MPHT_1	1-methylphenanthrene	ug/mi	104.70	55.76	28.16	45.80	28.70	42.30
ANTHONE	Anthrone	ug/mi	6.83	1.18	1.72	1.53	0.00	0.00
ANRQUONE	Anthraquinone	ug/mi	129.24	31.21	21.70	44.19	40.72	90.53
DM36PH	3,6-dimethylphenanthrene	ug/mi	30.94	9.73	8.73	11.85	5.86	6.59
A_DMPH	A-dimethylphenanthrene	ug/mi	44.59	19.79	14.11	15.79	7.96	7.88
B_DMPH	B-dimethylphenanthrene	ug/mi	25.40	7.74	7.28	11.07	4.31	8.75
C_DMPH	C-dimethylphenanthrene	ug/mi	71.89	23.77	18.63	23.22	11.90	14.24
D_DMPH	D-dimethylphenanthrene	ug/mi	19.76	7.10	5.57	6.38	3.32	4.29
DM17PH	1,7-dimethylphenanthrene	ug/mi	41.12	14.60	12.43	14.65	8.21	7.99
E_DMPH	E-dimethylphenanthrene	ug/mi	26.83	10.39	7.24	9.61	5.55	5.90
M_9ANT	9-methylanthracene	ug/mi	3.74	1.52	1.60	2.03	1.37	2.09
FLUORA	Fluoranthene	ug/mi	188.61	199.98	104.71	146.04	96.38	203.23
PYRENE	Pyrene	ug/mi	280.79	241.66	133.50	222.44	96.81	227.09
ANTAL9	9-Anthraaldehyde	ug/mi	4.01	22.38	5.61	1.14	0.33	12.77
RETENE	Retene	ug/mi	1.35	5.20	1.02	0.71	0.23	1.14
BNTIOP	Benzonaphthothiophene	ug/mi	0.00	0.00	0.00	0.00	0.10	0.00
M_13FL	1+3-methylfluoranthene	ug/mi	18.57	14.04	8.31	8.15	4.79	8.74
C1MFLPY	1-MeFl+C-MeFl/Py	ug/mi	18.45	13.55	10.14	9.24	4.81	9.17
BMPYFL	B-MePy/MeFl	ug/mi	36.33	19.78	14.56	11.14	8.36	20.91
CMPYFL	C-MePy/MeFl	ug/mi	29.54	13.55	10.81	9.16	6.24	16.88
DMPYFL	D-MePy/MeFl	ug/mi	19.70	11.79	8.49	8.05	4.08	7.52
M_4PYR	4-methylpyrene	ug/mi	16.99	11.17	7.99	7.26	3.19	8.26
M_1PYR	1-methylpyrene	ug/mi	16.12	11.99	6.62	5.92	3.00	6.69
BZCPHEN	Benzo(c)phenanthrene	ug/mi	11.92	12.35	5.16	5.50	3.69	8.31
BGHIFL	Benzo(ghi)fluoranthene	ug/mi	143.34	80.84	25.61	90.54	40.60	141.95
CP_CDPYR	Cyclopenta(c,d)pyrene	ug/mi	142.88	99.99	17.57	15.34	12.02	42.22
BAANTH	Benz(a)anthracene	ug/mi	59.16	40.96	20.19	17.55	14.89	36.60
TRIPHEN	Triphenylene	ug/mi	0.00	0.00	0.00	0.00	0.00	0.00
CHRYSN	Chrysene	ug/mi	66.75	43.07	20.81	18.70	18.63	46.16
BZANTHR	Benzanthrone	ug/mi	0.00	0.00	0.00	0.00	35.34	0.00
M_7BAA	7-methylbenz(a)anthracene	ug/mi	1.80	0.00	0.00	0.00	0.11	0.77
M_3CHR	3-methylchrysene	ug/mi	8.88	3.38	2.83	1.99	1.71	3.52
BAA7_12	Benz(a)anthracene-7,12-dione	ug/mi	9.07	5.26	1.02	2.50	7.02	17.42
CHRY56M	5+6-methylchrysene	ug/mi	7.73	0.00	0.00	0.00	0.44	1.21
BBJKFL	Benzo(b+j+k)fluoranthene	ug/mi	28.07	60.55	19.29	8.17	19.34	28.65
BAFL	Benzo(a)fluoranthene	ug/mi	3.19	7.07	1.67	0.59	2.40	3.66
BEPYRN	BeP	ug/mi	38.79	24.90	8.57	12.25	16.80	39.44
BAPYRN	BaP	ug/mi	48.41	32.84	8.14	11.66	16.78	50.61
PERYLE	Perylene	ug/mi	8.81	8.66	1.60	2.55	3.36	8.32
M_7BPY	7-methylbenzo(a)pyrene	ug/mi	0.00	0.00	0.00	0.00	0.00	0.00
BPY910DIH	9,10-dihydrobenzo(a)pyrene-7(8H)-one	ug/mi	0.00	0.00	0.00	0.00	0.00	0.00
DBAJAN	Dibenzo(a,j)anthracene	ug/mi	6.95	1.90	0.00	0.83	1.26	5.05
IN123PYR	Indeno[123-cd]pyrene	ug/mi	77.90	87.92	21.41	14.23	19.27	59.27
DBAHACAN	Dibenzo(ah+ac)anthracene	ug/mi	3.88	1.83	0.29	0.38	1.16	2.93
BBCHR	Benzo(b)chrysene	ug/mi	2.36	1.16	0.00	0.27	1.03	1.87
PIC	Picene	ug/mi	6.71	1.57	0.43	0.47	2.14	1.33
BGHIPE	Benzo(ghi)perylene	ug/mi	203.06	94.43	26.06	50.43	37.46	118.47
ANTHAN	Anthanthrene	ug/mi	14.83	11.43	1.43	4.43	3.02	12.44
DBBKFL	Dibenzo(b,k)fluoranthene	ug/mi	4.00	2.61	0.00	0.56	1.55	6.08
DBAEPYR	Dibenzo(a,e)pyrene	ug/mi	12.16	3.02	0.82	2.58	0.44	12.70
CORONE	Coronene	ug/mi	83.48	24.30	4.09	23.06	15.11	74.44
DBAHPYR	Dibenzo(a,h)pyrene	ug/mi	0.00	0.00	0.00	0.99	0.00	4.57
HOP13+14	18a(H),21ß(H)-22,29,30-Trisnorhopane & 17a(H),18a(H),21ß(H)-25,28,30-Tri	ug/mi	19.74	12.58	14.75	8.90	1.15	2.01
HOP15	17a(H),21ß(H)-22,29,30-Trisnorhopane	ug/mi	18.07	9.75	13.99	1.53	0.47	0.43

Appendix B - Chemical Composition of Vehicle Exhaust Samples

Species	Species Description	units	High W1-1	High W6-1	High W6-4	Med W1-2	Med W3-1	Med W5-3
HOP17	17a(H),21ß(H)-30-Norhopane	ug/mi	83.25	47.16	61.83	30.10	4.19	7.73
HOP19	17a(H),21ß(H)-Hopane	ug/mi	55.34	29.18	39.59	14.74	2.68	5.01
HOP20	17ß(H),21a(H)-hopane	ug/mi	3.28	1.70	3.63	0.00	0.00	0.00
HOP21	22S-17a(H),21ß(H)-30-Homohopane	ug/mi	34.84	21.04	25.66	14.80	1.55	2.51
HOP22	22R-17a(H),21ß(H)-30-Homohopane	ug/mi	25.08	17.26	20.73	10.95	0.85	0.00
HOP23	17ß(H),21ß(H)-Hopane	ug/mi	4.99	2.19	4.11	0.00	0.28	0.00
HOP24	22S-17a(H),21ß(H)-30,31-Bishomohopane	ug/mi	17.76	12.50	13.90	7.27	0.72	0.81
HOP25	22R-17a(H),21ß(H)-30,31-Bishomohopane	ug/mi	11.63	8.03	8.81	5.59	0.52	0.45
HOP26	22S-17a(H),21ß(H)-30,31,32-Trisomohopane	ug/mi	11.25	6.66	7.26	0.00	0.24	0.00
HOP27	22R-17a(H),21ß(H)-30,31,32-Trishomohopane	ug/mi	5.21	2.77	2.29	0.00	0.16	0.00
STER42	C27-20S5a(H),14a(H)-cholestane	ug/mi	0.00	0.25	0.00	0.00	0.08	1.25
STER43	C27-20R5a(H),14ß(H)-cholestane	ug/mi	9.87	4.64	10.95	0.00	0.03	1.65
STER44	C27-20S5a(H),14ß(H),17ß(H)-cholestane	ug/mi	11.14	6.32	11.85	1.42	0.48	0.74
STER45_40	ster45+40(cholestane)	ug/mi	11.67	5.54	11.47	1.25	0.42	0.65
STER46	C28-20S5a(H),14a(H),17a(H)-ergostane	ug/mi	4.54	2.96	6.04	1.44	0.24	0.40
STER47	C28-20R5a(H),14ß(H),17ß(H)-ergostane	ug/mi	6.11	3.37	7.49	0.50	0.08	0.39
STER48	C28-20S5a(H),14ß(H),17ß(H)-ergostane	ug/mi	9.46	2.15	5.26	0.00	0.15	1.53
STER49	C28-20R5a(H),14a(H),17a(H)-ergostane	ug/mi	6.68	3.32	5.67	0.00	0.21	0.30
STER50	C29-20S5a(H),14a(H),17a(H)-stigmastane	ug/mi	3.53	4.41	8.21	0.00	0.23	0.96
STER51	C29-20R5a(H),14ß(H),17ß(H)-stigmastane	ug/mi	6.75	7.79	13.83	0.00	0.00	2.30
STER52	C29-20S5a(H),14ß(H),17ß(H)-stigmastane	ug/mi	10.74	6.02	10.02	0.00	0.39	0.87
STER53	C29-20R5a(H),14a(H),17a(H)-stigmastane	ug/mi	0.00	3.27	8.19	1.00	0.23	0.74
DODEC	Dodecane	ug/mi	139.28	1.92	334.31	178.00	75.95	163.35
TRIDEC	Tridecane	ug/mi	133.98	367.10	500.95	175.47	46.82	514.91
NORFARN	Norfarnesane	ug/mi	161.83	138.13	202.38	185.47	10.86	343.54
HPYCYHX	Heptylcyclohexane	ug/mi	15.85	0.40	2.88	46.26	9.22	3.42
FARNES	Farnesane	ug/mi	100.23	29.59	55.64	79.57	43.89	103.23
TDEC	Tetradecane	ug/mi	330.51	120.91	156.09	184.59	105.11	234.56
OCYCYHX	Octylcyclohexane	ug/mi	10.48	4.99	4.88	0.00	2.07	7.74
PENTAD	Pentadecane	ug/mi	203.19	50.02	67.46	58.72	4.83	38.86
NOYCYHX	Nonylcyclohexane	ug/mi	2.90	3.05	3.34	7.12	1.13	3.07
HEXAD	Hexadecane	ug/mi	127.60	93.23	62.91	66.67	27.10	66.92
NORPRST	Norpristane	ug/mi	62.99	14.18	23.47	22.62	17.49	6.65
HEPD	Heptadecane	ug/mi	164.07	34.23	46.59	34.32	26.65	14.51
DECYHX	Decylcyclohexane	ug/mi	4.50	5.05	5.07	3.55	1.69	0.26
HEPTDPRIS	Heptadecane_Pristane	ug/mi	45.19	12.77	22.57	19.30	11.74	6.33
DEC1YHX	Undecylcyclohexane	ug/mi	13.78	1.38	3.02	0.16	1.99	0.37
OCTAD	Octadecane	ug/mi	103.40	139.88	65.27	31.89	12.45	46.16
PHYTAN	Phytane	ug/mi	66.37	16.19	23.89	18.98	13.59	5.24
DEC2YHX	Dodecylcyclohexane	ug/mi	3.56	3.25	1.97	2.16	0.96	0.12
NONAD	Nonadecane	ug/mi	102.07	37.51	35.70	29.30	16.43	8.65
DEC3YHX	Tridecylcyclohexane	ug/mi	4.85	2.91	2.26	1.80	0.85	0.37
EICOSA	Eicosane	ug/mi	82.46	156.32	61.11	13.24	0.00	22.08
DEC4YHX	Tetradecylcyclohexane	ug/mi	1.79	9.19	6.57	4.51	1.74	1.05
HENEIC	Heneicosane	ug/mi	50.53	40.72	56.74	18.64	6.05	7.60
DEC5YHX	Pentadecylcyclohexane	ug/mi	19.83	14.19	16.57	2.65	1.26	0.00
DOCOSA	Docosane	ug/mi	46.27	109.39	87.39	10.43	0.34	14.58
DEC6YHX	Hexadecylcyclohexane	ug/mi	1.52	4.45	1.99	7.33	1.24	2.52
TRICOSA	Tricosane	ug/mi	44.18	16.75	26.49	13.43	3.68	0.00
DEC7YHX	Heptadecylcyclohexane	ug/mi	0.00	23.49	1.70	0.60	3.99	12.61
DEC8YHX	Octadecylcyclohexane	ug/mi	15.58	3.97	3.20	3.15	1.32	4.63
TETCOS	Tetracosane	ug/mi	0.00	15.56	1.95	0.00	0.00	0.00
PENCOS	Pentacosane	ug/mi	21.94	3.31	15.29	1.39	1.91	0.00
DEC9YHX	Nonadecylcyclohexane	ug/mi	5.05	3.85	2.07	0.19	1.61	4.02
HEXCOS	Hexacosane	ug/mi	3.38	32.03	0.00	0.00	0.00	7.12
CYHXEIC	Eicosylcyclohexane	ug/mi	4.15	5.79	3.64	6.83	0.46	0.30
HEPCOS	Heptacosane	ug/mi	5.70	0.10	0.00	9.72	5.28	7.00
CYHXHEN	Heneicosylcyclohexane	ug/mi	1.77	0.31	1.86	0.53	0.42	0.96
OCTCOS	Octacosane	ug/mi	0.00	35.28	0.00	0.00	1.26	6.94
NONCOS	Nonacosane	ug/mi	6.71	10.72	1.52	0.47	5.25	6.35
TRICONT	Triacontane	ug/mi	0.00	14.39	0.00	1.21	2.11	3.51
HTRICONT	Hentriacontane	ug/mi	0.00	0.00	0.00	0.00	1.70	0.00
DTRICONT	Dotriacontane	ug/mi	0.00	8.54	0.00	0.00	1.18	2.83
TTRICONT	Tritriacontane	ug/mi	0.87	0.00	0.00	0.00	0.73	0.00
TETRICONT	Tetratriacontane	ug/mi	0.00	5.15	0.00	0.00	0.82	1.96
PTRICONT	Pentatriacontane	ug/mi	0.00	0.00	3.15	0.00	0.04	0.00
HXTRICONT	Hexatriacontane	ug/mi	0.00	4.16	0.00	0.00	0.40	1.62
HPTRICONT	Heptatriacontane	ug/mi	0.00	0.00	0.00	0.00	0.16	0.00
OTRICONT	Octatriacontane	ug/mi	0.00	1.68	0.00	0.00	0.04	0.52
NTRICONT	Nonatriacontane	ug/mi	0.00	0.00	0.00	0.00	0.93	0.00

Appendix B - Chemical Composition of Vehicle Exhaust Samples

Species	Low W4-2	Low W7-3	Low W8-2	mean	mean Hi	mean Med	mean Low
MASS	6.02	3.45	8.46	42.04	80.85	39.28	5.98
OC	2.563	2.692	2.950	24.614	52.095	19.012	2.735
EC	3.073	1.285	4.534	9.951	12.917	13.973	2.964
TC	5.637	3.978	7.483	34.566	65.012	32.987	5.699
O1	0.935	0.594	0.715	11.850	25.750	9.051	0.748
O2	0.564	0.856	0.539	8.297	19.203	5.036	0.653
O3	0.709	0.903	0.628	2.388	4.034	2.384	0.747
O4	0.370	0.370	1.053	1.731	2.925	1.672	0.598
OP	0.002	0.002	0.036	0.356	0.183	0.871	0.013
E1	1.101	1.000	3.180	4.160	5.964	4.755	1.760
E2	1.962	0.295	1.306	6.083	7.082	9.979	1.188
E3	0.014	0.003	0.094	0.068	0.056	0.110	0.037
Na	3.71	43.60	33.01	68.3552	92.2988	85.9923	26.7746
Mg	0.00	12.07	1.28	13.4559	15.1500	20.7654	4.4523
Al	5.05	10.51	15.89	59.7783	35.8574	132.9910	10.4866
Si	57.07	57.98	56.52	572.0213	201.8719	1457.0024	57.1897
P	15.88	19.08	34.41	94.7287	177.9692	83.0937	23.1232
S	166.03	74.28	166.23	698.2528	1122.0692	837.1755	135.5137
Ca	40.08	68.42	76.16	165.5244	291.2241	143.7976	61.5514
Ti	0.52	1.25	0.70	1.0463	1.5752	0.7381	0.8255
Va	0.24	0.08	0.15	0.1473	0.1823	0.1022	0.1575
Cr	2.80	1.69	7.51	7.8263	13.3174	6.1606	4.0008
Mn	0.51	0.56	0.31	1.6706	3.1000	1.4521	0.4598
Fe	45.24	52.71	107.48	229.9289	432.9039	188.4055	68.4773
Ni	1.29	0.00	2.64	2.0209	3.1639	1.5860	1.3127
Cu	9.70	3.19	6.27	6.7866	10.1161	3.8543	6.3895
Zn	17.75	14.95	28.80	78.0199	157.7925	55.7692	20.4979
Mo	0.32	0.26	0.35	2.2973	4.4734	2.1077	0.3109
Ag	0.68	3.25	0.99	1.5940	2.3404	0.8016	1.6400
Cd	0.42	0.56	0.01	0.1128	0.0083	0.0000	0.3301
Sn	3.00	2.50	0.10	1.0115	0.7952	0.3745	1.8648
Ba	5.16	11.19	6.33	4.7309	4.2494	2.3797	7.5637
W							
Pb	1.47	1.55	2.10	14.6247	27.9763	14.1888	1.7089
UR	1.12	0.23	1.54	0.7876	1.1853	0.2124	0.9652
Cr-ICP	3.34	3.79	9.00	8.60960	13.17984	7.26991	5.37905
Mn-ICP	0.33	0.90	0.97	1.99982	3.68563	1.57918	0.73464
Cu-ICP	4.46	5.28	7.49	11.63378	18.15098	11.00857	5.74180
Zn-ICP	21.90	22.89	37.99	98.15427	186.12334	80.74325	27.59621
As-ICP	0.00	0.02	0.01	0.06759	0.11722	0.07519	0.01035
Hg-ICP	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
Pb-ICP	0.96	1.66	3.17	23.85105	47.13420	22.48747	1.93148
NO3	29.92	19.37	32.47	28.8528	29.6054	29.7019	27.2512
SO4	403.15	128.59	313.13	1674.2337	2938.9720	1802.1071	281.6221
NAPHTH	523.21	928.52	1524.80	3475.46	4384.34	5049.86	992.18
MNAPH2	753.20	2080.22	3288.80	7262.09	8349.80	11395.73	2040.74
MNAPH1	346.41	971.29	1661.23	3672.25	4102.74	5921.03	992.98
BIPHEN	37.00	67.08	157.10	297.03	351.65	452.39	87.06
ENAP12	115.33	163.24	370.80	777.26	804.63	1310.68	216.45
DMN267	65.10	195.65	351.61	703.88	882.48	1025.03	204.12
DM1367	105.88	308.54	553.22	1037.73	1351.58	1439.06	322.55
D14523	3.71	67.81	120.27	220.29	348.41	248.52	63.93
DMN12	17.20	64.93	232.75	408.13	601.23	518.20	104.96
M_2BPH	0.00	0.00	0.02	13.07	0.00	39.20	0.01
M_3BPH	0.00	0.00	43.75	92.89	124.20	139.88	14.58
M_4BPH	0.00	0.00	20.62	41.53	61.80	55.93	6.87
DBZFUR	6.95	15.95	15.41	34.33	48.53	41.67	12.77
ATMNAP	10.56	30.65	52.16	96.81	144.42	114.89	31.12
EM_12N	2.16	6.04	10.10	19.22	30.08	21.48	6.10
BTMNAP	10.31	32.66	52.53	83.55	128.29	90.53	31.83
CTMNAP	6.73	23.14	34.92	65.64	110.81	64.53	21.60
EM_21N	0.19	0.61	0.95	2.19	3.64	2.35	0.58
ETMNAP	3.72	13.99	22.24	43.61	76.15	41.37	13.32
FTMNAP	4.02	13.65	20.45	39.55	66.66	39.29	12.71
TMI235N	4.42	16.44	25.07	48.70	85.67	45.12	15.31
TM245N	0.63	4.15	7.10	9.61	16.58	8.29	3.96
JTMNAP	1.26	1.81	3.24	18.54	34.08	19.44	2.10
TM145N	0.55	0.91	1.26	7.58	14.23	7.60	0.91
ACNAPY	31.32	99.39	280.80	426.43	681.26	460.85	137.17
ACNAPE	24.35	5.22	89.69	88.32	29.42	195.78	39.75

Appendix B - Chemical Composition of Vehicle Exhaust Samples

Species	Low W4-2	Low W7-3	Low W8-2	mean	mean Hi	mean Med	mean Low
FLUORE	18.64	47.98	110.31	151.33	190.57	204.45	58.98
DBTH	0.99	2.88	1.09	8.73	19.62	4.90	1.65
PHENAN	69.73	96.62	221.26	419.38	592.76	536.18	129.21
ANTHRA	9.04	17.17	39.81	95.02	132.02	131.04	22.01
A_MFLU	4.33	13.56	18.29	44.52	74.31	47.18	12.06
M_1FLU	5.07	10.54	13.00	28.72	45.51	31.12	9.53
B_MFLU	1.15	3.15	4.18	10.00	15.85	11.32	2.82
FL9ONE	22.93	18.16	12.97	75.98	113.49	96.43	18.02
XANONE	10.52	4.88	1.48	22.68	37.94	24.47	5.63
ACQUONE	5.03	3.63	0.70	5.62	6.89	6.84	3.12
PNAPONE	29.71	9.99	6.01	60.01	88.38	76.40	15.24
M_2ANTH	6.35	3.71	3.27	23.27	38.70	26.68	4.44
M_3PHEN	16.05	10.40	12.42	55.48	98.75	54.72	12.96
M_2PHEN	19.12	12.40	13.93	61.54	108.48	61.00	15.15
M_9PHEN	6.72	5.23	6.56	28.78	47.49	32.67	6.17
MPHT_1	13.87	10.86	9.41	37.73	62.87	38.94	11.38
ANTHONE	0.74	0.21	0.00	1.36	3.24	0.51	0.32
ANRQUONE	31.01	7.86	3.78	44.47	60.72	58.48	14.22
DM36PH	5.13	1.80	1.48	9.12	16.47	8.10	2.80
A_DMPH	7.77	2.26	2.72	13.65	26.16	10.54	4.25
B_DMPH	0.98	3.66	0.76	7.77	13.47	8.04	1.80
C_DMPH	10.92	4.30	2.29	20.13	38.09	16.46	5.84
D_DMPH	3.21	1.32	0.67	5.73	10.81	4.66	1.73
DM17PH	6.80	2.54	1.19	12.17	22.72	10.28	3.51
E_DMPH	5.02	1.94	0.93	8.16	14.82	7.02	2.63
M_9ANT	0.75	0.22	0.00	1.48	2.29	1.83	0.33
FLUORA	30.44	24.15	29.55	113.67	164.43	148.55	28.04
PYRENE	37.04	21.93	26.04	143.03	218.65	182.11	28.34
ANTAL9	0.36	0.00	0.00	5.18	10.67	4.75	0.12
RETENE	0.22	0.00	0.01	1.10	2.53	0.69	0.07
BNTIOP	0.04	0.13	0.11	0.04	0.00	0.03	0.09
M_13FL	3.51	2.54	0.97	7.74	13.64	7.22	2.34
C1MFLPY	4.07	3.03	1.22	8.19	14.05	7.74	2.77
BMPYFL	5.17	3.38	2.29	13.55	23.56	13.47	3.61
CMPYFL	3.29	2.22	1.48	10.35	17.96	10.76	2.33
DMPYFL	2.73	1.60	0.92	7.21	13.33	6.55	1.75
M_4PYR	1.92	1.33	1.03	6.57	12.05	6.24	1.42
M_1PYR	1.88	2.73	1.02	6.22	11.58	5.20	1.88
BZCPHEN	1.74	0.98	1.80	5.72	9.81	5.83	1.50
BGHIFL	18.72	9.39	10.83	62.42	83.26	91.03	12.98
CP_CDPYR	2.20	2.37	4.01	37.62	86.81	23.20	2.86
BAANTH	4.64	3.79	5.54	22.59	40.10	23.01	4.66
TRIPHEN	0.00	0.21	0.00	0.02	0.00	0.00	0.07
CHRYSN	6.51	4.53	6.36	25.72	43.54	27.83	5.80
BZANTHR	11.41	1.61	2.05	5.60	0.00	11.78	5.02
M_7BAA	0.04	0.00	0.06	0.31	0.60	0.29	0.03
M_3CHR	0.42	0.24	0.47	2.60	5.03	2.41	0.38
BAA7_12	2.84	0.73	0.77	5.18	5.12	8.98	1.45
CHRY56M	0.13	0.20	0.21	1.10	2.58	0.55	0.18
BBJKFL	10.05	4.02	10.63	20.97	35.97	18.72	8.23
BAFL	0.89	0.38	1.38	2.36	3.98	2.22	0.88
BEPYRN	4.96	1.78	3.81	16.81	24.09	22.83	3.52
BAPYRN	4.09	2.13	5.67	20.04	29.80	26.35	3.96
PERYLE	0.92	0.33	0.84	3.93	6.35	4.74	0.70
M_7BPY	0.79	0.00	0.00	0.09	0.00	0.00	0.26
BPY910DIH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DBAJAN	0.40	0.12	0.20	1.86	2.95	2.38	0.24
IN123PYR	5.51	0.57	0.00	31.79	62.41	30.92	2.03
DBAHACAN	0.37	0.20	0.00	1.23	2.00	1.49	0.19
BBCHR	0.00	0.00	0.42	0.79	1.17	1.06	0.14
PIC	0.00	0.04	0.38	1.45	2.91	1.31	0.14
BGHIPE	8.87	5.31	10.17	61.58	107.85	68.78	8.12
ANTHAN	0.17	0.71	1.26	5.53	9.23	6.63	0.71
DBBKFL	0.56	0.00	0.73	1.79	2.20	2.73	0.43
DBAEPYR	0.78	0.00	0.82	3.70	5.33	5.24	0.53
CORONE	4.70	2.64	4.22	26.23	37.29	37.54	3.85
DBAHPYR	0.00	0.00	0.00	0.62	0.00	1.85	0.00
HOP13+14	0.15	0.34	0.26	6.65	15.69	4.02	0.25
HOP15	0.00	0.18	0.14	4.95	13.94	0.81	0.10

Appendix B - Chemical Composition of Vehicle Exhaust Samples

Species	Low W4-2	Low W7-3	Low W8-2	mean	mean Hi	mean Med	mean Low
HOP17	0.51	0.63	0.71	26.24	64.08	14.01	0.62
HOP19	0.33	0.83	0.51	16.46	41.37	7.47	0.55
HOP20	0.00	0.00	0.00	0.96	2.87	0.00	0.00
HOP21	0.36	0.44	0.28	11.28	27.18	6.29	0.36
HOP22	0.25	0.43	0.15	8.41	21.02	3.93	0.28
HOP23	0.00	0.00	0.00	1.29	3.76	0.09	0.00
HOP24	0.06	0.09	0.08	5.91	14.72	2.93	0.08
HOP25	0.14	0.11	0.00	3.92	9.49	2.19	0.08
HOP26	0.11	0.00	0.00	2.83	8.39	0.08	0.04
HOP27	0.00	0.00	0.00	1.16	3.43	0.05	0.00
STER42	0.00	0.04	0.00	0.18	0.08	0.44	0.01
STER43	0.03	0.18	0.02	3.04	8.49	0.56	0.08
STER44	0.09	0.32	0.10	3.61	9.77	0.88	0.17
STER45_40	0.06	0.34	0.11	3.50	9.56	0.78	0.17
STER46	0.03	0.08	0.07	1.76	4.51	0.70	0.06
STER47	0.00	0.10	0.11	2.02	5.66	0.32	0.07
STER48	0.07	0.14	0.01	2.08	5.62	0.56	0.07
STER49	0.06	0.00	0.75	1.89	5.22	0.17	0.27
STER50	0.09	0.06	0.06	1.95	5.38	0.40	0.07
STER51	0.25	0.22	0.14	3.48	9.45	0.77	0.21
STER52	0.08	0.16	0.10	3.15	8.92	0.42	0.11
STER53	0.16	0.10	0.01	1.52	3.82	0.66	0.09
DODEC	57.48	0.00	140.52	121.20	158.51	139.10	66.00
TRIDEC	69.76	0.00	185.68	221.63	334.01	245.74	85.15
NORFARN	9.99	9.01	85.48	127.41	167.45	179.95	34.82
HPYCYHX	3.15	1.33	0.00	9.17	6.38	19.63	1.49
FARNES	4.48	16.00	31.67	51.59	61.82	75.57	17.38
TDEC	15.25	36.56	83.77	140.82	202.51	174.75	45.19
OCYCYHX	0.00	0.00	0.00	3.35	6.78	3.27	0.00
PENTAD	4.39	15.71	29.12	52.48	106.89	34.14	16.41
NOYCYHX	0.00	0.25	0.00	2.32	3.10	3.77	0.08
HEXAD	20.55	11.10	29.56	56.18	94.58	53.56	20.40
NORPRST	3.04	4.96	7.06	18.05	33.55	15.59	5.02
HEPD	3.64	8.36	9.69	38.01	81.63	25.16	7.23
DECYHX	0.04	0.40	0.87	2.38	4.87	1.83	0.44
HEPTDPRIS	2.81	5.16	5.61	14.61	26.84	12.46	4.53
DEC1YHX	0.49	0.61	0.59	2.49	6.06	0.84	0.56
OCTAD	3.64	10.11	43.56	50.71	102.85	30.17	19.10
PHYTAN	2.91	3.20	4.29	17.18	35.48	12.60	3.46
DEC2YHX	0.44	0.47	0.57	1.50	2.93	1.08	0.49
NONAD	4.70	4.41	4.95	27.08	58.43	18.13	4.69
DEC3YHX	0.26	0.05	0.29	1.52	3.34	1.01	0.20
EICOSA	0.00	9.83	38.69	42.64	99.96	11.77	16.17
DEC4YHX	1.27	0.46	0.15	2.97	5.85	2.43	0.62
HENEIC	3.58	3.07	1.75	20.96	49.33	10.76	2.80
DEC5YHX	1.13	1.00	0.00	6.29	16.86	1.31	0.71
DOCOSA	0.00	4.75	19.56	32.52	81.02	8.45	8.11
DEC6YHX	1.21	0.11	0.01	2.26	2.65	3.70	0.44
TRICOSA	1.66	1.17	1.38	12.08	29.14	5.70	1.40
DEC7YHX	2.30	6.87	0.19	5.75	8.40	5.73	3.12
DEC8YHX	0.86	0.11	0.18	3.67	7.59	3.03	0.38
TETCOS	0.00	0.58	5.47	2.62	5.83	0.00	2.02
PENCOS	0.00	0.00	0.00	4.87	13.52	1.10	0.00
DEC9YHX	0.73	0.70	1.80	2.22	3.66	1.94	1.08
HEXCOS	0.00	1.89	4.90	5.48	11.80	2.37	2.26
CYHXEIC	0.03	0.02	0.06	2.36	4.53	2.53	0.03
HEPCOS	0.00	0.00	0.20	3.11	1.93	7.33	0.07
CYHXHEN	0.03	0.08	0.05	0.67	1.31	0.63	0.05
OCTCOS	0.00	2.40	4.43	5.59	11.76	2.73	2.28
NONCOS	0.76	0.00	0.38	3.57	6.32	4.02	0.38
TRICONT	0.00	0.85	1.80	2.65	4.80	2.28	0.88
HTRICONT	0.00	0.00	0.00	0.19	0.00	0.57	0.00
DTRICONT	0.00	0.60	1.01	1.57	2.85	1.34	0.54
TTRICONT	0.00	0.00	0.00	0.18	0.29	0.24	0.00
TETRICONT	0.13	0.28	0.93	1.03	1.72	0.93	0.45
PTRICONT	0.00	0.00	0.00	0.35	1.05	0.01	0.00
HXTRICONT	0.00	0.00	0.49	0.74	1.39	0.67	0.16
HPTRICONT	0.00	0.00	0.13	0.03	0.00	0.05	0.04
OTRICONT	0.12	0.03	0.40	0.31	0.56	0.19	0.18
NTRICONT	0.00	0.00	0.00	0.10	0.00	0.31	0.00