

## Studies of Emissions from Oil Fires

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### Abstract

Over 35 mesoscale burns were conducted to study various aspects of diesel and crude oil burning in-situ. Extensive sampling and monitoring of these burns was conducted at downwind stations, upwind stations, and in the smoke plume using a remote-controlled helicopter. Values of emissions can now be incorporated into a simplified emission model with the burn size and downwind distance as the main input parameters.

Emission data were used to develop prediction equations for over 150 specific compounds or emission categories. These were used to calculate safe distances and levels of concern for a standard burn size of 500 square metres, an amount that would typically be contained in a boom. The safe distance for a crude oil burn of this size is about 1000 m and for a diesel burn, much farther.

Particulate samples were taken in air at the experimental spills and analysed for Polycyclic Aromatic Hydrocarbons (PAHs). PAHs were found to be lower in the soot than in the starting oil, although higher concentrations of the larger molecular PAHs were found in the soot and residue. Particulates in the air were measured by several means and were only found to be greater than recommended exposure levels up to 50 to 1000 metres downwind at ground level, depending on the size and type of fire. Combustion gases including carbon dioxide and carbon monoxide did not reach exposure level maximums. Volatile organic compound (VOCs) emissions are extensive from fires, but the levels were less than from an evaporating crude oil spill. Over 140 compounds were identified and quantified, several up to 100 metres downwind at levels of concern. Carbonyls, including aldehydes and ketones, were found to be higher in diesel burns than at crude oil burns.

Equations were developed to predict downwind emission concentrations. Summations showed that the most serious emission was that of respirable

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particulates, then PAHs on particulates, and then VOCs. Equations are presented that can be used to calculate the emissions of many types, about 200 PAHs, VOCs and other gases, from burns.

### 1.0 Introduction

In-situ burning of oil spills has been tried for more than thirty years with limited acceptance as an oil spill cleanup option in certain parts of the world. Such lack of acceptance is primarily because of the lack of understanding regarding combustion products and the issues involving the combustibility of oil-on-water. Extensive research is underway to understand the many facets of burning oil. A consortium of several agencies in the United States and Canada have joined forces to study burning and to conduct large scale experiments. This effort has resulted in data which has led to broader acceptance of in-situ burning as an acceptable spill countermeasures alternative.

The concern over atmospheric emissions remains the biggest barrier to the widespread use of burning. The burning of all kinds of materials is believed to be questionable because of concern over combustion by-products. And while analysis is difficult, extensive studies have been conducted and technology now permits an assessment of key compounds and comparison to ambient levels of pollution.

Emissions include the smoke plume, particulate matter precipitating from the smoke plume, combustion gases, unburned hydrocarbons, organic compounds produced during the burning process and the residue left at the burning pool site. Soot particles, although consisting largely of carbon particles, have a variety of chemicals absorbed and adsorbed. Complete analysis of the emissions from a burn involves measuring all of these components.

### 2.0 Measurement of Emissions

Extensive measurement of burn emissions began in 1991 with the instrumentation of several burns conducted at Mobile, Alabama, to measure various physical facets of oil burning (Fingas *et al.*, 1993). Analysis of the data from these burns showed several interesting facts and several data gaps. Monitoring of burns continued for several years. In 1992, two further series of burns were monitored for emissions (Fingas *et al.*, 1993; Booher and Janke, 1997). In 1993, two major burns were conducted at sea specifically to measure emissions, but many other measurements were taken as well (Fingas *et al.*, 1994a; 1994b; 1995a; 1995b). Further tests were conducted in 1994 and 1997 (Fingas *et al.*, 1996a; 1996b; 1998; Lambert *et al.*, 1998). Detailed analytical methods are given in these papers.

The monitoring of emissions at these burns were intended to be comprehensive and used the best field samplers or instrumentation available at the time. Measurement techniques have progressed through the years and are now available to measure many suspected emissions with sufficient accuracy.

The emphasis on sampling has been the air emissions at ground level. Such heights are usually 5 feet or 1 metre and the typical receptor heights for humans. This is the primary concern and also is the basis of the regulated value for human health purposes. This paper will focus on the same measurements and correlate these to yield prediction equations.

Volatile Organic Compounds (VOCs) were sampled using sorption tubes in 1991 and 1992. Whole air samples were also taken using 6 L pre-evacuated (to 0.05

mm Hg) stainless steel canisters (Summa canisters). Upwind and background samples were always taken. Analysis was by GC-MS. Over 150 compounds were measured by 1997 and over 90 hydrocarbons identified in the vapours from an evaporating or burning slick.

Carbonyls were sampled by reacting them on a DNPH (2,4-dinitrophenylhydrazine)-silica cartridge through which air was pumped. The sample was subsequently analyzed using HPLC.

Polycyclic Aromatic Hydrocarbons (PAHs) were sampled in air using filters and sorbent tubes initially, but later from particulates collected on high volume samplers. Analysis of PAHs was also conducted from various particulate sampling including fractionation samplers, PM-10, PM-2.5 or cascade samplers, and filters from low and medium-volume pumps. Analysis was by standard methods using GC-MS.

Heavy metals on soot were collected using personal sampling pumps and filters. Analysis was by ICP, using standard techniques.

Polychlorinated dibenzo-p-dioxin/furan were measured on particulate samples. High volume samplers were employed to collect cumulative samples at upwind and downwind locations. Sampling media were glass-fibre filters followed by a polyurethane foam plug (PUF). These same samples were used to measure TSP, or Total Suspended Particulate levels and sometimes were analysed for PAHs, other organics or metals.

PM-10 particulate (PM-10 are particulates less than 10  $\mu\text{m}$  in size, a critical size below which human lungs are affected) air sampling was performed using a General Metal Works model PM-10 instrument. The sampling media consisted of a quartz fibre filter. Some of these filters were also analyzed for PAHs.

PM-2.5 are particulates less than 2.5  $\mu\text{m}$  in diameter, and are particularly dangerous to human lungs. PM-2.5 particulate air sampling was accomplished using a Partisol PM-2.5 sampler. A Teflon filter was placed in the apparatus and used to collect sample.

Real-time particulate measurements were taken with RAMs or DataRAMs. The Ram-1 instrument was used to perform real-time aerosol monitoring and measure relative concentrations of airborne particulates. This instrument responds to a physical particle size of 0.1 to 30 microns. The DataRAM (MIE Inc, Bedford MA) is an updated version of the RAM. The advantage of this unit over the RAM is its internal data logging and processing capabilities. The apparatus is capable of employing several different sampling head configurations. These are total particulate, the 0-10  $\mu\text{m}$  particulate fractions or the 0-2.5  $\mu\text{m}$  particulate fractions.

Sulphur dioxide was measured using the Biosystems Cannonball. These data were logged electronically. Sulphur dioxide in acid form was measured using a Gilian pump and a sodium hydroxide-filled impinger. The impinger fluid is titrated to determine the amount of sulphuric acid/dioxide. The detection limit of the impinger is approximately 100  $\mu\text{g}/\text{m}^3$  or 38 ppb. The detection limit of the Cannonball is about 1 ppm.

Carbon Dioxide was measured using two electronic instruments, the Metrosonics AQ501 and the Armstrong CD-1 carbon dioxide analyser. All these data were recorded at intervals of one minute averages of 10 second measurement intervals. Carbon dioxide was also measured in some Summa samples using gas chromatography. The Metrosonics instrument also measures carbon monoxide,

moisture and temperature.

Nitric oxides were measured using the Biosystems Cannonball. Electronic output data was recorded in manner similar to the above.

### 3.0 Results of Emission Measurement

Summarized data appears in the references. These data are very extensive. Summaries of these results appear in the Appendix. The following summarizes the basic results:

#### 3.1 Particulates

All burns, especially those of diesel fuel, produced an abundance of particulate matter. The concentrations of particulates from diesel at the same distances were approximately 4 times that for similar-sized crude oil burns. PM-10 concentrations were sometimes about 0.7 of the total particulate concentration (TSP), as would be expected, but sometimes were the same as the TSP. The same is true of the PM-2.5 concentrations. This may be indicative that most material is of PM-2.5 category or that the sampling units break the particles into smaller ones. A further explanation might be that this is an artefact of the samplers. Further research is being done on this important aspect.

#### 3.2 PAHs

PAHs or Poly Aromatic Hydrocarbons are aromatic compounds found in crude oil and are often produced as a result of combustion. Many PAHs are toxic to man and the environment, particularly the larger PAHs. Crude oil burns result in PAH downwind of the fire, but the concentration on the particulate matter is often an order-of-magnitude less than the concentration in the starting oil and sometimes several orders-of-magnitude less. Diesel contains low levels of PAHs with smaller molecular size, but results in more PAHs of larger molecular sizes. Larger PAHs are either created or concentrated by the fire. Larger PAHs, some of which are not even detectable in the Diesel fuel, are found both in the soot and in the residue. The concentrations of these larger PAHs are low and often just above detection limits. Overall, more PAHs are destroyed by the fires than are created.

#### 3.3 VOCs

VOCs or volatile organic compounds are hydrocarbons having a significant concentration in the vapour phase. One-hundred and forty-eight volatile organic compounds were measured from samples taken in Summa canisters and some on carbon absorption tubes. The concentrations of VOCs are about the same in a crude or diesel burn. Concentrations appear to be under human health limits even at the closest monitoring station. VOC concentrations are about three times higher when the oil is not burning and is just evaporating. Unfortunately, this is difficult to measure at all burns.

#### 3.4 Dioxins and Dibenzofurans

Dioxins and Dibenzofurans are toxic compounds sometimes produced from the combustion of organic materials containing chlorine. Particulates precipitated downwind and oil residue were analyzed for dioxins and dibenzofurans. The levels of these toxic compounds were at background levels indicating no production by either

crude or diesel fires.

### 3.5 Carbonyls

Oil burns produce low amounts of the small aldehydes (formaldehyde, acetaldehyde, etc.) and ketones (acetone, etc.), collectively known as carbonyls. These would not be a health concern because of the low levels detected, even close to the source fire. Carbonyls from crude oil fires are found at very low concentrations and those from diesel fires are detected at slightly higher concentrations.

### 3.6 Carbon Dioxide

Carbon dioxide is the end result of combustion and is found in increased concentrations around a burn. Normal atmospheric levels are about 300 ppm and levels near a burn can be around 500 to 800 ppm. There is no human danger in this level. The three-dimensional distributions of carbon dioxide around a burn have been measured. Concentrations of carbon dioxide are highest at the 1 m level and fall to near background levels at the 4 m level. Concentrations at ground level are as high as 10 times that of the plume. Distribution along the ground is broader than for particulates.

### 3.7 Carbon Monoxide

Carbon monoxide levels are usually at or below the lowest detection levels of the instruments and thus do not pose any hazard to humans. The gas has only been measured when the burn appears to be inefficient, such as when water is sprayed into the fire. Carbon monoxide appears to be distributed in the same way as carbon dioxide.

### 3.8 Sulphur Dioxide

Sulphur dioxide, per se, is usually not detected at significant levels or sometimes not even at measurable levels. Sulphuric acid, or sulphur dioxide that has reacted with water, is detected at fires. Sulphur dioxide must be measured using impingers rather than conventional gas detectors. The measured concentrations of sulphuric acid are below concern levels and appear to correspond to the sulphur contents of the oil.

### 3.9 Other Gases

Attempts were made to measure oxides of nitrogen which might be the result of combustion. None were measured in about 10 experiments.

### 3.10 Other Compounds

A concern about burning crude oil lies with any "hidden" compounds that might be produced. One study was conducted several years ago in which soot and residue samples were extracted and "totally" analyzed in various ways. The study was not conclusive, but no compounds of the several hundred identified, were of serious environmental concern. The soot analysis revealed that the bulk of the material was carbon and that all other detectable compounds were present on this carbon matrix in abundances of parts-per-million or less. The most frequent compounds identified were aldehydes, ketones, esters, acetates and acids. These are formed by incomplete oxygenation of the oil. Similar analysis of the residue shows

that the same minority compounds are present at about the same levels. The bulk of the residue is unburned oil.

#### 4.0 Data Synthesis and Calculation

Sufficient data are now available to correlate emission data results with spatial and burn parameters. The extensive work is described in the literature. Many correlations were tried, however, it was found that atmospheric emissions correlated relatively well with distance from the fire and the area of the fire. This information was used to develop prediction equations for each pollutant, using the data gathered from the 30 test burns conducted to date. Sufficient data were available to calculate prediction equations for more than 150 individual compounds and for all the major groups. In some cases, however, there was not enough data to yield high correlation coefficients and low errors. This will improve as more data are collected. The result of the correlation will significantly increase understanding of in-situ burning in the areas of assessing the importance of specific emissions and classes, predicting 'safe' distances, and predicting concentrations at a given point. These predictions are far more accurate than those obtained from models because they are based solely on actual data.

The emissions at a given downwind site are a function of various factors including wind direction and speed, atmospheric stability conditions, and the size of the fire. The data available correlate satisfactorily because they were obtained in about the same conditions, at wind speeds of about 10 km/h, and at standard daylight atmospheric stabilities. Previous workers have shown that the area of the fire yields the burn rate and not the volume of the oil to be burned. Thus, the area correlates satisfactorily. The data are subject to a variety of sources of noise, including patchiness of emissions caused by turbulence and wind anomalies in the field. In addition, some of the data sets are derived when the wind changed and emissions that are very dependant on wind direction, such as particulates, impact a different set of sensors. This can cause some readings to be low.

At least four data points involving different distances and burn areas are needed in order to perform a three-way correlation on area of burn, distance downwind at the most impacted set of sensors, and concentration. In some cases, these data were not available. In other cases, very poor correlation was achieved and the following procedures were performed in order of preference to improve the data. 1) Data from questionable sets were added, which often improved the situation, especially at distances remote from the fire. 2) The data that appeared to be causing the difficulty were verified in experimental logs, and sometimes data was not correctly copied. 3) Data from questionable sets that appeared to be causing the difficulty were removed. If all these steps failed, the correlation was not done. The latter two corrections were rarely necessary, especially for the diesel emissions where there is more recent, and probably more reliable, data.

The data available to perform the correlations are summarized in Tables A1 to A8. The data for VOCs from crude oil are shown in Table A1 and from diesel burns in Table A2. PAHs from crude oil are shown in Table A3 and from diesel in Table A4. Carbonyls from both crude and diesel burns are shown in Table A5. Particulates from both types of burns are shown in Table A6 and fixed gases from both types of burns are shown in Table A7.

The correlation procedure involved collecting all emission data from the

studies and then finding the best correlation procedure and the best equation that fit most data. A simple equation (concentration = constant + constant X fire size - constant X natural logarithm of distance from fire) of was found to fit the data most universally using the software package, TableCurve 3D (San Raphael, CA). This software calculates up to 2000 equations and sorts them in terms of fits (best regression coefficient,  $r^2$ ). The graph and statistics for some typical correlations are shown in Figures 1 and 2. The resulting calculation formulae for the two examples and some statistics are given. The formulae resulting from the calculations for VOCs are given in Table 1, for PAHs in Table 2, and for total groupings, gases, and carbonyls in Table 3.

These tables show the regression coefficient for each equation and the error. The error given is the standard error from regression fitting and is roughly equivalent to standard deviation. As can be seen from this table, the 'quality' of fit as evidenced by the regression coefficient varies with emission type. The lower ones are generally associated with lesser amounts of data. The number of data points available to calculate each compound or class varied from 5 to about 40 data points.

These data were then used to calculate the difference between the regulated level (typically the time weight average recommended exposure to a substance) and the calculated amount of the substance for several burns. Results of a simple exercise of this type are shown in Table 4. This table shows that emissions, especially of particulate matter, are significantly higher from a diesel fire than from crude oil fire, as had been noted in several studies of particulate emissions (Fingas *et al.*, 1996a; 1996b). Other emissions of concern are similar for diesel and crude oil, although the PAHs are somewhat higher when diesel burns. This calculation confirms that particulate matter is the greatest concern, followed by the PAHs on the particulate matter, and then total VOCs.

Summation of the VOCs shows these to be close to being a matter of concern, however, it should be noted that the level of VOCs is much higher (as much as three times higher as measured in some tests) when oil is evaporating in the absence of burning than when burning. Carbonyls are another emission of concern, although they are significantly below concern levels for the scenarios in Table 4. The level of concern is the percentage of the regulated level attained by the emission. For example, if a regulated level is 75 mg/m<sup>3</sup> and the calculated value is 150, then the level of concern is given as 200%. There is no concern for fixed gases such as carbon dioxide or carbon monoxide.

Safe distances downwind from a crude oil burn can be calculated as:

$$\text{Safe Distance}(m) = \exp\left[\frac{12.5 + 0.0347 \times \text{fire size (m}^2\text{)}}{4.79}\right]$$

Safe distances downwind from a diesel fire can be calculated as:

$$\text{Safe Distance}(m) = \exp\left[\frac{1.19 + 0.0052 \times \text{fire size (m}^2\text{)}}{0.437}\right]$$

Based on these data, safe distances have been calculated for a variety of fire sizes. These are given in Table 5.

## 5.0 Conclusions

The measurement of emissions and calculation using equations developed from emission data have revealed several facts about the fate, behaviour and quantity of the basic emissions from burning.

*Particulate Matter/Soot* - Particulate matter at ground level is a matter of concern (greater than occupational health criteria maximum values) close to the fire and under the plume. The concentration of particulates in the smoke plume may not be a concern past about 1000 metres for typical crude oil burns. The level of respirable particulates, those which have a size less than 10  $\mu\text{m}$ , or 2.5  $\mu\text{m}$ , is not understood well, but follows the trends noted for TSP. Diesel fuel burns result in significantly more soot production and safe distances are much farther.

*PAHs* - Oils contain significant quantities of PAHs. These are largely destroyed in combustion. The PAH concentrations in the smoke, both in the plume and the particulate precipitation at ground level are much less than the starting oil. This also includes the concentration of multi-ringed PAHs that are often created in other combustion processes such as low-temperature incinerators and diesel engines. The burn residue does, however, show a slight increase in the concentration of multi-ringed PAHs. However, when considering the mass balance of the burn, most of the five and six-ringed PAHs are largely destroyed by the fire. Burns of diesel fuel show an increase in the concentration of multi-ringed PAHs, but still a net destruction of PAHs is noted.

*Gases* - Combustion gases such as carbon dioxide and carbon monoxide are significantly under any concern level.

*VOCs* - Many volatile organic compounds are emitted by fires, but in lesser quantity than when the oil is not burning. VOCs are not a concern, but can rise to close to concern levels very near a fire (<100 m).

*Organic Compounds* - No exotic or highly-toxic compounds are generated as a result of the combustion process. Organic macro-molecules are in lesser concentration in the smoke and downwind than they are in the oil itself. Dioxins and dibenzofurans are not created by oil fires.

*Carbonyls* - Carbonyls such as aldehydes and ketones are created by oil fires, but do not exceed health exposure limits even very near fires.

Overall, emissions are now understood to the extent that fires of various sizes and types can be evaluated for emission levels and safe distances. A standard crude oil fire would not exceed exposure limits for emissions beyond about 1000 m.

Calculation equations were developed which allow for the prediction of safe distances based on the most serious emissions, that of particulate matter.

## 6.0 References

- Booher, L.E. and B. Janke, "Air Emissions from Petroleum Hydrocarbon Fires", *American Industrial Hygiene Association Journal*, Vol. 58: pp 359-365, 1997.
- Fingas, M.F., K. Li, F. Ackerman, P.R. Campagna, R.D. Turpin, S.J. Getty, M.F. Soleki, M.J. Trespalacios, J.R.P. Paré, M.C. Bissonnette and E.J. Tennyson, "Emissions From Mesoscale In-Situ Oil Fires: The Mobile 1991 and 1992 Tests", in *Proceedings of The Sixteenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 749-821, 1993.



Fingas, M.F., F. Ackerman, K. Li, P. Lambert, Z. Wang, M.C. Bissonnette, P.R. Campagna, P. Boileau, N. Laroche, P. Jokuty, R. Nelson, R.D. Turpin, M.J. Trespalacios, G. Halley, J. Bélanger, J.R.J. Paré, N. Vanderkooy, E.J. Tennyson, D. Aurand and R. Hiltabrand, "The Newfoundland Offshore Burn Experiment - Preliminary Results of Emission Measurement", in *Proceedings of The Seventeenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 1099-1164, 1994a.

Fingas, M.F., G. Halley, F. Ackerman, N. Vanderkooy, R. Nelson, M.C. Bissonnette, N. Laroche, P. Lambert, P. Jokuty, K. Li, W. Halley, G. Warbanski, P.R. Campagna, R.D. Turpin, M.J. Trespalacios, D. Dickins, E.J. Tennyson, D. Aurand and R. Hiltabrand, "The Newfoundland Offshore Burn Experiment - NOBE Experimental Design and Overview", in *Proceedings of The Seventeenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 1053-1061, 1994b.

Fingas, M.F., G. Halley, F. Ackerman, R. Nelson, M.C. Bissonnette, N. Laroche, Z. Wang, P. Lambert, K. Li, P. Jokuty, G. Sergy, W. Halley, J. Latour, R. Galarneau, B. Ryan, P.R. Campagna, R.D. Turpin, E.J. Tennyson, J. Mullin, L. Hannon, D. Aurand and R. Hiltabrand, "The Newfoundland Offshore Burn Experiment", in *Proceedings of the 1995 International Oil Spill Conference*, American Petroleum Institute, Washington, D.C., pp. 123-132, 1995a.

Fingas, M.F., F. Ackerman, P. Lambert, K. Li, Z. Wang, J. Mullin, L. Hannon, D. Wang, A. Steenkammer, R. Hiltabrand, R.D. Turpin and P.R. Campagna, "The Newfoundland Offshore Burn Experiment: Further Results of Emissions Measurement", in *Proceedings of the Eighteenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 915-995, 1995b.

Fingas, M.F., F. Ackerman, P. Lambert, K. Li, Z. Wang, R. Nelson, M. Goldthorp, J. Mullin, L. Hannon, D. Wang, A. Steenkammer, S. Schuetz, R.D. Turpin, P.R. Campagna and R. Hiltabrand, "Emissions from Mesoscale In-Situ Oil (Diesel) Fires: The Mobile 1994 Experiments", in *Proceedings of the Nineteenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 907-978, 1996a.

Fingas, M.F., K. Li, F. Ackerman, Z. Wang, P. Lambert, L. Gamble, M.J. Trespalacios, S. Schuetz, R.D. Turpin, and P.R. Campagna, "Soot Production from In-Situ Oil Fires: Review of the Literature, Measurement and Estimation Techniques and Calculation of Values from Experimental Spills", in *Proceedings of the Nineteenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 999-1032, 1996b.

Fingas, M.F., P. Lambert, F. Ackerman, B. Fieldhouse, R. Nelson, M. Goldthorp, M. Punt, S. Whitar, P.R. Campagna, D. Mickunas, R.D. Turpin, R. Nadeau, S. Schuetz, M. Morganti, and R.A. Hiltabrand, "Particulate and Carbon Dioxide Emissions from Diesel Fires: The Mobile 1997 Experiments", in *Proceedings of the Twenty-First Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 569-598, 1998.

Lambert, P., F. Ackerman, M. Fingas, M. Goldthorp, B. Fieldhouse, R. Nelson, M. Punt, S. Whitar, S. Schuetz, A. Dubois, M. Morganti, K. Robbin, R. Magan, R. Pierson, R.D. Turpin, P.R. Campagna, D. Mickunas, R. Nadeau, and R.A. Hiltabrand, "Instrumentation and Techniques for Monitoring the Air Emissions During In-situ Oil/Fuel Burning Operations", in *Proceedings of the Twenty-First Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 529-567, 1998.

Table 1a

## Prediction Equation Parameters for VOCs

$$y = a + b(\text{size of fire, m}) - c \ln(\text{distance from fire, m})$$

Substance	Crude Oil					Diesel					Units
	a	b	c	r <sup>2</sup>	Error	a	b	c	r <sup>2</sup>	Error	
1,2,3-Trimethylbenzene	11.4	0.0106	2.53	0.13	4.2	2.99	0.00443	0.853	0.35	0.48	µg/m <sup>3</sup>
1,2,4-Trimethylbenzene	22.4	0.0239	4.58	0.08	10	15.3	0.105	4	0.2	3.37	µg/m <sup>3</sup>
1,2-Diethylbenzene						0.894	0.003	0.254	0.2	0.26	µg/m <sup>3</sup>
1,3,5-Trimethylbenzene	17.3	0.0191	4.28	0.21	4.8	5.55	0.00442	1.45	0.19	1.2	µg/m <sup>3</sup>
1,3-Butadiene						6.49	0.0244	2.27	0.45	1.9	µg/m <sup>3</sup>
1,3-Diethylbenzene						0.623	0.00104	0.129	0.06	0.24	µg/m <sup>3</sup>
1,4-Diethylbenzene	4.66	0.0053	0.947	0.08	2	3.57	0.00179	0.836	0.1	1.1	µg/m <sup>3</sup>
1-Butene/2-Methylpropene						7.5	0.0404	2.43	0.69	2.1	µg/m <sup>3</sup>
1-Heptene						2.14	0.0202	0.717	0.89	0.56	µg/m <sup>3</sup>
1-Hexene/2-Methyl-1-Pentene						1.01	0.00241	0.228	0.3	0.27	µg/m <sup>3</sup>
1-Methylcyclohexene						1.13	0.00563	0.392	0.42	0.61	µg/m <sup>3</sup>
1-Methylcyclopentene						0.238	0.00116	0.044	0.15	0.24	µg/m <sup>3</sup>
1-Nonene						4.09	0.0088	1.33	0.6	0.59	µg/m <sup>3</sup>
1-Octene						0.777	0.00065	0.164	0.14	0.23	µg/m <sup>3</sup>
1-Pentene						1.55	0.0248	0.635	0.36	2.9	µg/m <sup>3</sup>
2,2,3-Trimethylbutane	25	0.0256	7.49	0.75	1.4	0.694	0.00125	0.208	0.91	0.091	µg/m <sup>3</sup>
2,2,4-Trimethylpentane	5.41	0.0131	1.66	0.68	1.18	3.23	0.00263	0.801	0.23	0.63	µg/m <sup>3</sup>
2,2,5-Trimethylhexane	8.49	0.0081	2.58	0.8	0.38	1.09	0.00323	0.314	0.42	0.28	µg/m <sup>3</sup>
2,2-Dimethylbutane	61	0.105	19.3	0.72	8.2	1.69	0.00274	0.475	0.3	0.38	µg/m <sup>3</sup>
2,2-Dimethylpentane	52.3	0.0799	16.5	0.54	16.5						µg/m <sup>3</sup>
2,2-Dimethylpropane	25.2	0.0271	7.93	0.87	0.99	0.335	0.00145	0.089	0.41	0.12	µg/m <sup>3</sup>
2,3,4-Trimethylpentane	14	0.0249	4.53	0.81	3.1	1.92	0.00285	0.542	0.37	0.41	µg/m <sup>3</sup>
2,3-Dimethylbutane	168	0.308	57	0.53	38	3.35	0.0158	1.1	0.57	1.2	µg/m <sup>3</sup>
2,3-Dimethylpentane	173	0.294	56.8	0.6	32	7.62	0.0145	2.33	0.28	1.6	µg/m <sup>3</sup>
2,4-Dimethylhexane	72.2	0.109	22.7	0.56	22	2.23	0.00445	0.646	0.25	0.52	µg/m <sup>3</sup>
2,4-Dimethylpentane	99	0.164	32	0.53	20	3.26	0.0062	1.02	0.48	0.54	µg/m <sup>3</sup>
2,5-Dimethylhexane	40.5	0.0787	14.3	0.56	11	1.12	0.00228	0.298	0.2	0.32	µg/m <sup>3</sup>
2-Ethyltoluene	5.98	0.0083	1.47	0.29	1.8	3.32	0.00295	0.857	0.18	0.71	µg/m <sup>3</sup>
2-Methyl-1-Butene						0.951	0.00207	0.275	0.51	0.17	µg/m <sup>3</sup>
2-Methyl-2-Butene						1.67	0.00406	0.53	0.43	0.38	µg/m <sup>3</sup>
2-Methylbutane	2221	4.58	821	0.48	895	43.1	0.0762	13.2	0.33	9.4	µg/m <sup>3</sup>
2-Methylheptane	240	0.384	77.4	0.57	44	7.87	0.0205	2.45	0.31	2.14	µg/m <sup>3</sup>
2-Methylhexane						13.4	0.0399	4.44	0.34	4	µg/m <sup>3</sup>
2-Methylpentane						15.7	0.0366	4.17	0.35	3.5	µg/m <sup>3</sup>
3,6-Dimethyloctane						-0.034	0.0259	1.27	0.51	0.55	µg/m <sup>3</sup>
3-Ethyltoluene						5.74	0.004	1.44	0.17	1.3	µg/m <sup>3</sup>
3-Methylheptane						4.9	0.0124	1.51	0.26	1.5	µg/m <sup>3</sup>
3-Methylhexane	526	0.896	175	0.6	93	34.1	0.0889	12.2	0.46	5.9	µg/m <sup>3</sup>
3-Methylpentane	822	1.41	272	0.54	170	7.11	0.0139	2.09	0.42	1.3	µg/m <sup>3</sup>
4-Ethyltoluene	4.79	0.0051	0.85	0.11	2	2.84	0.00266	0.717	0.14	0.7	µg/m <sup>3</sup>
4-Methylheptane	30.1	0.063	9.44	0.28	28	1.62	0.00668	0.49	0.31	0.79	µg/m <sup>3</sup>
Benzene	72	0.0242	14.1	0.11	23	27.4	0.0649	8.15	0.32	6.5	µg/m <sup>3</sup>
Butane	1700	3.31	604	0.51	420	19.6	0.0286	5.55	0.35	3.8	µg/m <sup>3</sup>
c-1,3-Dimethylcyclohexane	82.4	0.21	28	0.34	80	5.81	0.022	1.95	0.4	2	µg/m <sup>3</sup>
c-1,4/-1,3-Dimethylcyclohexane	22.4	0.0626	6.74	0.3	32	2.46	0.00776	0.837	0.4	0.8	µg/m <sup>3</sup>
c-2-Butene	4.73	0.0108	1.6	0.99	0.16	0.673	0.00265	0.205	0.53	0.21	µg/m <sup>3</sup>
c-2-Heptene						2.02	0.00134	0.53	0.9	0.09	µg/m <sup>3</sup>
c-2-Hexene						1.91	0.00492	0.697	0.89	0.14	µg/m <sup>3</sup>
c-2-Pentene						0.596	0.00233	0.178	0.6	0.15	µg/m <sup>3</sup>
Cyclohexane	726	1.43	256	0.59	160	8.27	0.024	2.74	0.34	2.4	µg/m <sup>3</sup>
Cyclohexene						1.55	0.00346	0.479	0.26	0.4	µg/m <sup>3</sup>

Table 1b

## Prediction Equation Parameters for VOCs

$$y = a + b \cdot (\text{size of fire, } m) - c \cdot \ln(\text{distance from fire, } m)$$

Substance	Crude Oil					Diesel					Units
	a	b	c	r <sup>2</sup>	Error	a	b	c	r <sup>2</sup>	Error	
1,2,3-Trimethylbenzene	11.4	0.0106	2.53	0.13	4.2	2.99	0.00443	0.853	0.35	0.48	µg/m <sup>3</sup>
1,2,4-Trimethylbenzene	22.4	0.0239	4.58	0.08	10	15.3	0.105	4	0.2	3.37	µg/m <sup>3</sup>
1,2-Diethylbenzene						0.894	0.003	0.254	0.2	0.26	µg/m <sup>3</sup>
1,3,5-Trimethylbenzene	17.3	0.0191	4.28	0.21	4.8	5.55	0.00442	1.45	0.19	1.2	µg/m <sup>3</sup>
1,3-Butadiene						6.49	0.0244	2.27	0.45	1.9	µg/m <sup>3</sup>
1,3-Diethylbenzene						0.623	0.00104	0.129	0.06	0.24	µg/m <sup>3</sup>
1,4-Diethylbenzene	4.66	0.0053	0.947	0.08	2	3.57	0.00179	0.836	0.1	1.1	µg/m <sup>3</sup>
1-Butene/2-Methylpropene						7.5	0.0404	2.43	0.69	2.1	µg/m <sup>3</sup>
1-Heptene						2.14	0.0202	0.717	0.89	0.56	µg/m <sup>3</sup>
1-Hexene/2-Methyl-1-Pentene						1.01	0.00241	0.228	0.3	0.27	µg/m <sup>3</sup>
1-Methylcyclohexene						1.13	0.00563	0.392	0.42	0.61	µg/m <sup>3</sup>
1-Methylcyclopentene						0.238	0.00116	0.044	0.15	0.24	µg/m <sup>3</sup>
1-Nonene						4.09	0.0088	1.33	0.6	0.59	µg/m <sup>3</sup>
1-Octene						0.777	0.00065	0.164	0.14	0.23	µg/m <sup>3</sup>
1-Pentene						1.55	0.0248	0.635	0.36	2.9	µg/m <sup>3</sup>
2,2,3-Trimethylbutane	25	0.0256	7.49	0.75	1.4	0.694	0.00125	0.208	0.91	0.091	µg/m <sup>3</sup>
2,2,4-Trimethylpentane	5.41	0.0131	1.66	0.68	1.18	3.23	0.00263	0.801	0.23	0.63	µg/m <sup>3</sup>
2,2,5-Trimethylhexane	8.49	0.0081	2.58	0.8	0.38	1.09	0.00323	0.314	0.42	0.28	µg/m <sup>3</sup>
2,2-Dimethylbutane	61	0.105	19.3	0.72	8.2	1.69	0.00274	0.475	0.3	0.38	µg/m <sup>3</sup>
2,2-Dimethylpentane	52.3	0.0799	16.5	0.54	16.5						µg/m <sup>3</sup>
2,2-Dimethylpropane	25.2	0.0271	7.93	0.87	0.99	0.335	0.00145	0.089	0.41	0.12	µg/m <sup>3</sup>
2,3,4-Trimethylpentane	14	0.0249	4.53	0.81	3.1	1.92	0.00285	0.542	0.37	0.41	µg/m <sup>3</sup>
2,3-Dimethylbutane	168	0.308	57	0.53	38	3.35	0.0158	1.1	0.57	1.2	µg/m <sup>3</sup>
2,3-Dimethylpentane	173	0.294	56.8	0.6	32	7.62	0.0145	2.33	0.28	1.6	µg/m <sup>3</sup>
2,4-Dimethylhexane	72.2	0.109	22.7	0.56	22	2.23	0.00445	0.646	0.25	0.52	µg/m <sup>3</sup>
2,4-Dimethylpentane	99	0.164	32	0.53	20	3.26	0.0062	1.02	0.48	0.54	µg/m <sup>3</sup>
2,5-Dimethylhexane	40.5	0.0787	14.3	0.56	11	1.12	0.00228	0.298	0.2	0.32	µg/m <sup>3</sup>
2-Ethyltoluene	5.98	0.0083	1.47	0.29	1.8	3.32	0.00295	0.857	0.18	0.71	µg/m <sup>3</sup>
2-Methyl-1-Butene						0.951	0.00207	0.275	0.51	0.17	µg/m <sup>3</sup>
2-Methyl-2-Butene						1.67	0.00406	0.53	0.43	0.38	µg/m <sup>3</sup>
2-Methylbutane	2221	4.58	821	0.48	895	43.1	0.0762	13.2	0.33	9.4	µg/m <sup>3</sup>
2-Methylheptane	240	0.384	77.4	0.57	44	7.87	0.0205	2.45	0.31	2.14	µg/m <sup>3</sup>
2-Methylhexane						13.4	0.0399	4.44	0.34	4	µg/m <sup>3</sup>
2-Methylpentane						15.7	0.0366	4.17	0.35	3.5	µg/m <sup>3</sup>
3,6-Dimethyloctane						-0.034	0.0259	1.27	0.51	0.55	µg/m <sup>3</sup>
3-Ethyltoluene						5.74	0.004	1.44	0.17	1.3	µg/m <sup>3</sup>
3-Methylheptane						4.9	0.0124	1.51	0.26	1.5	µg/m <sup>3</sup>
3-Methylhexane	526	0.896	175	0.6	93	34.1	0.0889	12.2	0.46	5.9	µg/m <sup>3</sup>
3-Methylpentane	822	1.41	272	0.54	170	7.11	0.0139	2.09	0.42	1.3	µg/m <sup>3</sup>
4-Ethyltoluene	4.79	0.0051	0.85	0.11	2	2.84	0.00266	0.717	0.14	0.7	µg/m <sup>3</sup>
4-Methylheptane	30.1	0.063	9.44	0.28	28	1.62	0.00668	0.49	0.31	0.79	µg/m <sup>3</sup>
Benzene	72	0.0242	14.1	0.11	23	27.4	0.0649	8.15	0.32	6.5	µg/m <sup>3</sup>
Butane	1700	3.31	604	0.51	420	19.6	0.0286	5.55	0.35	3.8	µg/m <sup>3</sup>
c-1,3-Dimethylcyclohexane	82.4	0.21	28	0.34	80	5.81	0.022	1.95	0.4	2	µg/m <sup>3</sup>
c-1,4/-1,3-Dimethylcyclohexane	22.4	0.0626	6.74	0.3	32	2.46	0.00776	0.837	0.4	0.8	µg/m <sup>3</sup>
c-2-Butene	4.73	0.0108	1.6	0.99	0.16	0.673	0.00265	0.205	0.53	0.21	µg/m <sup>3</sup>
c-2-Heptene						2.02	0.00134	0.53	0.9	0.09	µg/m <sup>3</sup>
c-2-Hexene						1.91	0.00492	0.697	0.89	0.14	µg/m <sup>3</sup>
c-2-Pentene						0.596	0.00233	0.178	0.6	0.15	µg/m <sup>3</sup>
Cyclohexane	726	1.43	256	0.59	160	8.27	0.024	2.74	0.34	2.4	µg/m <sup>3</sup>
Cyclohexene						1.55	0.00346	0.479	0.26	0.4	µg/m <sup>3</sup>

Table 2

## Prediction Equation Parameters for PAHs

$$y = a + b(\text{size of fire, } m) - c \ln(\text{distance from fire, } m)$$

Substance	Crude Oil					Diesel					Units
	a	b	c	r <sup>2</sup>	Error	a	b	c	r <sup>2</sup>	Error	
1-Methylnaphthalene	1.01	0.0042	0.381	0.4	0.678	1.79	0.00435	0.585	0.61	0.264	µg/m <sup>3</sup>
1-Methylphenanthrene	0.115	5E-06	0.019	0.32	0.029	0.698	0.00182	0.238	0.46	0.14	µg/m <sup>3</sup>
2,3,5-Trimethylnaphthalene	0.286	0.0005	0.08	0.47	0.079	9.51	0.0218	3.05	0.65	1.23	µg/m <sup>3</sup>
2,6-Dimethylnaphthalene	0.614	0.0025	0.249	0.54	0.32	2.87	0.00657	0.923	0.65	0.37	µg/m <sup>3</sup>
2-Methylnaphthalene	1.4	0.004	0.462	0.45	0.57	2.37	0.00568	0.775	0.57	0.37	µg/m <sup>3</sup>
Acenaphthene	0.067	2E-05	0.01	0.19	0.022	5.67	0.0132	1.88	0.47	1.1	µg/m <sup>3</sup>
Acenaphthylene	0.067	2E-05	0.01	0.19	0.022	11.3	0.0248	3.65	0.53	1.9	µg/m <sup>3</sup>
Anthracene	0.32	0.0002	0.065	0.07	0.19	4.22	0.0101	1.39	0.49	0.79	µg/m <sup>3</sup>
Benz(a)anthracene	0.14	1E-09	0.398	0.35	0.13	0.315	0.00076	0.105	0.44	0.07	µg/m <sup>3</sup>
Benzo(a)pyrene	0.617	0.0004	0.145	0.31	0.2	0.379	0.00114	0.141	0.44	0.082	µg/m <sup>3</sup>
Benzo(b) fluoranthene	0.108	1E-05	0.023	0.11	0.057	0.536	0.00129	0.178	0.48	0.1	µg/m <sup>3</sup>
Benzo(k) fluoranthene						0.014	4.5E-05	0.004	0.15	0.007	µg/m <sup>3</sup>
Benzo(e)pyrene	0.108	1E-04	0.023	0.11	0.057	0.213	0.00064	0.079	0.51	0.04	µg/m <sup>3</sup>
Benzo(g,h,i)perylene	0.228	9E-05	0.048	0.18	0.098	0.326	0.00081	0.109	0.44	0.069	µg/m <sup>3</sup>
Biphenyl	0.507	1E-05	0.071	0.24	0.15	1.86	0.00435	0.603	0.59	0.28	µg/m <sup>3</sup>
Chrysene	0.122	0.0001	0.031	0.41	0.026	0.325	0.00078	0.108	0.46	0.065	µg/m <sup>3</sup>
Dibenz(a,h)anthracene	0.019	3E-06	0.002	0.31	0.005	0.378	7.7E-05	0.012	0.51	0.006	µg/m <sup>3</sup>
Dimethylnaphthalenes	1.75	0.0008	0.257	0.06	1	1.62	0.0037	0.52	0.65	0.21	µg/m <sup>3</sup>
Fluoranthene	0.851	3E-06	0.152	0.17	0.32	1.95	0.00463	0.647	0.46	0.39	µg/m <sup>3</sup>
Fluorene	0.299	0.0003	0.072	0.42	0.11	0.101	0.0002	0.028	0.61	0.025	µg/m <sup>3</sup>
Indeno(1,2,3-cd)pyrene	0.161	0.0001	0.039	0.52	0.052	0.261	0.00064	0.087	0.46	0.05	µg/m <sup>3</sup>
Methylphenanthrenes	0.322	0.0002	0.075	0.26	0.09	0.276	0.00077	0.092	0.36	0.075	µg/m <sup>3</sup>
Naphthalene	1.86	0.0023	0.385	0.05	1.4	2.01	0.00541	0.674	0.45	0.44	µg/m <sup>3</sup>
Perylene	0.068	7E-05	0.015	0.33	0.029	0.049	0.00012	0.016	0.43	0.01	µg/m <sup>3</sup>
Phenanthrene	0.787	0.0002	0.141	0.33	0.24	1.62	0.00375	0.527	0.56	0.26	µg/m <sup>3</sup>
Pyrene	0.542	0.0002	0.117	0.23	0.2	1.99	0.00465	0.66	0.45	0.4	µg/m <sup>3</sup>
Trimethylnaphthalenes	0.856	0.0009	0.21	0.29	0.23	0.8	0.0024	0.269	0.33	0.24	µg/m <sup>3</sup>
average				0.281	0.242				0.489	0.333	

Table 3

## Prediction Equation Parameters for Particulates and Gases

$$y = a + b(\text{size of fire, } m) - c \ln(\text{distance from fire, } m)^1$$

Substance	Crude Oil					Diesel				
	a	b	c	r <sup>2</sup>	Error	a	b	c	r <sup>2</sup>	Error
Total particulates	12.7	0.0347	4.79	0.69	2.6	2.65	0.00886	0.854	0.55	0.58
PM-10	12.7	0.0347	4.79	0.69	1.8	1.49	0.00558	0.467	0.56	0.33
PM-2.5	12.7	0.0347	4.79	0.69	1.5	1.34	0.00523	0.412	0.52	0.33
Total VOCs	13450	24.02	4426	0.35	4700	203	2.1	4.77	0.36	99
PAHs	16.2	0.0048	3.03	0.19	4.8	51.7	0.124	16.9	0.57	8.2
<b>Fixed gases</b>										
Sulphur Dioxide	19.4	0.0266	5.29	0.69	2.8	0.557	0.00114	0.183	0.54	0.06
Carbon Dioxide	520	0.523	81.5	0.18	130	77	0.246	19.6	0.49	25
Carbon Monoxide	7.72	0.0012	1.56	0.18	1.8	3.06	0.0237	1.935	0.63	0.67
<b>Carbonyls</b>										
Acetaldehyde	23.3	0.115	12.9	0.36	23	0.499	0.0325	18.4	0.81	7.8
Acetone	11.3	0.0445	5.11	0.18	15	14.7	0.0573	3.84	0.73	3.8
2-butanone						115.1	0.0407	3.64	0.52	4.4
Butyraldehydes						22.5	0.0344	5.68	0.74	2.8
Formaldehyde	58.4	0.103	20.1	0.39	17.4	35.4	0.107	9.18	0.77	6.5
Propionaldehyde						19.6	0.0371	4.85	0.69	3.1
Average				0.42					0.599	

1- the concentration of particulates will be in mg/m<sup>3</sup>, of fixed gases in ppm and of Carbonyls in µg/m<sup>3</sup>

Table 4

## Calculation of Concern Levels for Emission Groups

Substance	Crude Oil 500 square metre burn/ continuous burn			Diesel 500 square metre burn/ continuous burn		
	Percent of Concern	Percent of Concern	Distance to the	Percent of Concern	Percent of Concern	Distance to the
	Level at 500 m	Level at 1500 m	Safe Health Level (m)	Level at 500 m	Level at 1500 m	Safe Health Level (m)
Total particulates	130	0	510	1180	560	3340
PM-10	130	0	520	920	580	6930
PM-2.5	300	0	530	1910	1170	7340
Total VOCs	0	0	-	0	0	-
PAHS	0	0	-	4	0	-
Fixed gases	0	0	-	0	0	-
Carbonyls	0	0	-	0	0	-

Table 5

**Safe Distance Calculations**

	<b>Safe Distance in Kilometres</b>	<b>Safe Distance in Miles</b>
<b>Crude Oil burns</b>		
small area 250 m <sup>2</sup> (2700 ft <sup>2</sup> )	0.08	0.05
full boom pull 500 m <sup>2</sup> (5400 ft <sup>2</sup> )	0.5	0.3
large boom pull 750 m <sup>2</sup> (8100 ft <sup>2</sup> )	3.2	2
<b>Diesel burns</b>		
small area 250 m <sup>2</sup> (2700 ft <sup>2</sup> )	0.35	0.2
full boom pull 500 m <sup>2</sup> (5400 ft <sup>2</sup> )	6.9	4.3



2,4-dimethylhexane from Crude  
 Rank 33 Eqn 6  $z=a+bx+clny$   
 $r^2=0.55643094$   $DFr^2Adj=0.10892264$   $FitStdErr=22.065048$   $Fstat=1.8816606$   
 $a=72.22901$   $b=0.10926203$   
 $c=-22.743219$

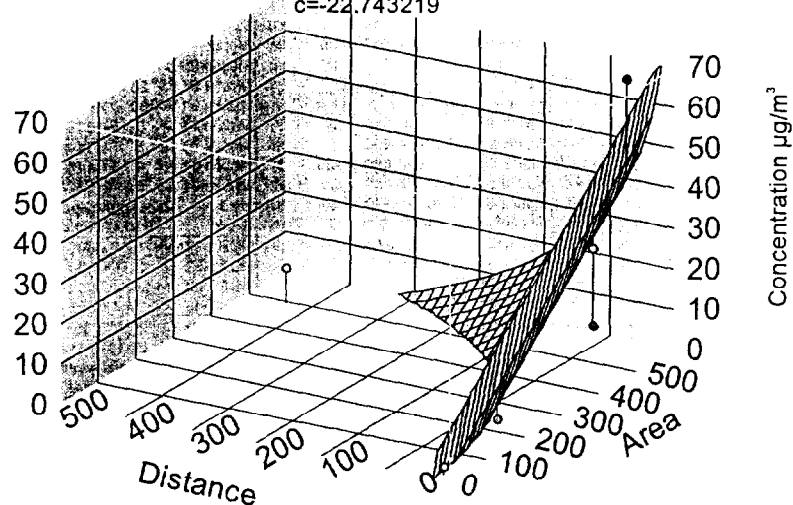


Figure 1 - Example of A TABLECURVE Correlation

Benz(e)pyrene from Diesel  
 Rank 31 Eqn 6  $z=a+bx+clny$   
 $r^2=0.50769288$   $DFr^2Adj=0.39408354$   $FitStdErr=0.040324175$   $Fstat=7.2187665$   
 $a=0.21324822$   $b=0.0006437515$   
 $c=-0.078959952$

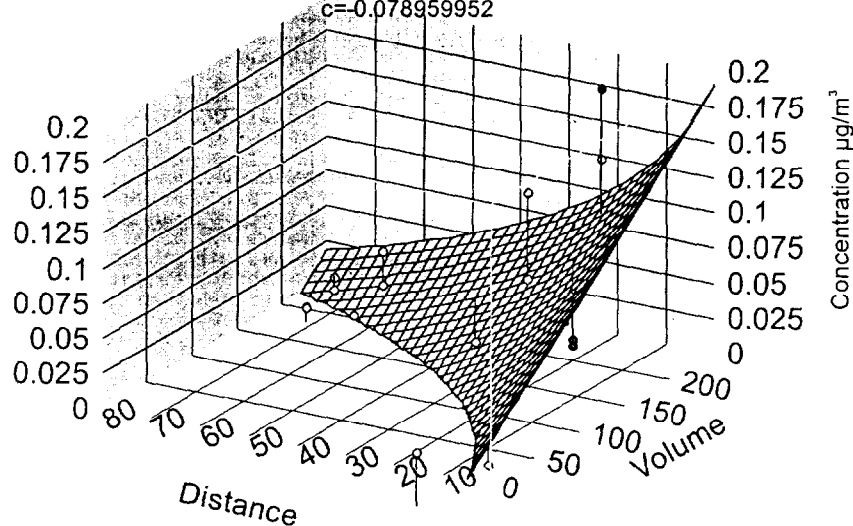


Figure 2 - Example of a TABLECURVE Correlation

Table A1-1 Emissions Measured at Previous Test Burns: VOCs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

1,2,3-Trimethylbenzene					1,4-Diethylbenzene (ctd.)					2,2-Dimethylbutane (ctd.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	10.3	Mobile 91	30	37.2	30	0.7	NOBE 93	2	600	125	16
NOBE 93	2	600	75	8	Mobile 91	3	114	30	0.8	NOBE 93	2	600	600	3
NOBE 93	2	600	125	4	Mobile 91	4	114	30	1.1	Mobile 91	23	181	30	7.2
NOBE 93	2	600	600	2	Mobile 91	5	231	30	3.0	Mobile 91	24	170	30	9.7
Mobile 91	23	181	30	0.9	2,2,3-Trimethylbutane					Mobile 91	28	72.8	30	8.7
Mobile 91	28	72.8	30	1.2	Burn	Num.	Area	Dist.	Conc.	Mobile 91	30	37.2	30	7.8
Mobile 91	30	37.2	30	0.8	Mobile 91	4	114	30	1.7	Mobile 91	3	114	30	8.3
Mobile 91	3	114	30	0.4	NOBE 93	2	600	75	10	Mobile 91	3	114	30	1.6
Mobile 91	4	114	30	10.4	NOBE 93	2	600	125	3	Mobile 91	4	114	30	6.1
Mobile 91	5	231	30	5.2	Mobile 91	23	181	30	2.7	Mobile 91	5	231	30	20.5
1,2,4-Trimethylbenzene					Mobile 91	24	170	30	3.0	2,2-Dimethylpentane				
Burn	Num.	Area	Dist.	Conc.	Mobile 91	28	72.8	30	3.0	Burn	Num.	Area	Dist.	Conc.
Mobile 92	4	114	30	27.0	Mobile 91	30	37.2	30	2.2	NOBE 93	1	600	125	1
NOBE 93	2	600	75	19	Mobile 91	3	114	30	2.7	NOBE 93	2	600	75	48
NOBE 93	2	600	125	10	Mobile 91	3	114	30	1.9	NOBE 93	2	600	125	15
NOBE 93	2	600	600	9	Mobile 91	4	114	30	1.9	NOBE 93	2	600	600	1
Mobile 91	23	181	30	3.4	Mobile 91	5	231	30	5.5	Mobile 92	2	36	30	0.3
Mobile 91	24	170	30	3.9	2,2,4-Trimethylpentane					Mobile 92	2	231	60	1
Mobile 91	28	72.8	30	3.0	Burn	Num.	Area	Dist.	Conc.	2,2-Dimethylpropane				
Mobile 91	30	37.2	30	2.2	Mobile 91	4	114	30	0.9	Burn	Num.	Area	Dist.	Conc.
Mobile 91	3	114	30	3.3	Mobile 91	5	231	30	3.2	Mobile 91	4	114	30	1.6
Mobile 91	3	114	30	1.0	NOBE 93	2	600	75	4	Mobile 91	5	231	30	3.8
Mobile 91	4	114	30	27.3	NOBE 93	2	600	125	8	NOBE 93	2	600	75	9
Mobile 91	5	231	30	18.7	NOBE 93	2	600	600	2	NOBE 93	2	600	125	2
1,3,5-Trimethylbenzene					Mobile 91	23	181	30	1.0	Mobile 91	23	181	30	2.4
Burn	Num.	Area	Dist.	Conc.	Mobile 91	28	72.8	30	1.4	Mobile 91	24	170	30	2.5
Mobile 91	4	114	30	12.1	Mobile 91	30	37.2	30	1.1	Mobile 91	28	72.8	30	0.3
Mobile 91	5	231	30	10.9	Mobile 91	3	114	30	2.0	Mobile 91	30	37.2	30	0.3
NOBE 93	2	600	75	11	Mobile 91	3	114	30	0.6	Mobile 91	3	114	30	1.0
NOBE 93	2	600	125	4	Mobile 91	4	114	30	1.1	Mobile 91	4	114	30	1.9
NOBE 93	2	600	600	3	Mobile 91	5	231	30	3.3	Mobile 91	5	231	30	3.8
Mobile 91	23	181	30	2.1	Mobile 91	24	170	30	1.4	2,3,4-Trimethylpentane				
Mobile 91	24	170	30	2.8	Mobile 91	28	72.8	30	0.4	Burn	Num.	Area	Dist.	Conc.
Mobile 91	28	72.8	30	1.1	Mobile 91	3	114	30	0.6	NOBE 93	2	600	75	12
Mobile 91	30	37.2	30	0.8	Mobile 91	5	231	30	3.6	NOBE 93	2	600	125	4
Mobile 91	3	114	30	1.2	2,2,5-Trimethylhexane					NOBE 93	2	600	600	1
Mobile 91	3	114	30	0.8	Burn	Num.	Area	Dist.	Conc.	Mobile 92	2	36	30	0.2
Mobile 91	4	114	30	12.2	Mobile 91	23	181	30	0.8	Mobile 92	2	231	60	0.2
Mobile 91	5	231	30	10.9	Mobile 91	24	170	30	1.0	2,3-Dimethylbutane				
1,4-Diethylbenzene					Mobile 91	28	72.8	30	0.2	Burn	Num.	Area	Dist.	Conc.
Burn	Num.	Area	Dist.	Conc.	Mobile 91	30	37.2	30	0.2	Mobile 91	4	114	30	10.1
Mobile 91	4	114	30	4.0	Mobile 91	3	114	30	0.3	Mobile 91	5	231	30	36.9
NOBE 93	2	600	75	3	Mobile 91	4	114	30	0.9	NOBE 93	1	600	125	3
NOBE 93	2	600	600	2	Mobile 91	5	231	30	2.2	NOBE 93	2	600	75	195
Mobile 91	4	114	30	5.7	NOBE 93	2	600	75	2	NOBE 93	2	600	125	64
Mobile 91	28	72.8	30	0.6	NOBE 93	2	600	125	1	NOBE 93	2	600	600	4
Mobile 91	30	37.2	30	0.4	2,2-Dimethylbutane					Mobile 91	23	181	30	12.5
Mobile 91	3	114	30	0.6	Burn	Num.	Area	Dist.	Conc.	Mobile 91	24	170	30	5.0
Mobile 91	4	114	30	5.8	Mobile 91	4	114	30	5.6	Mobile 91	28	72.8	30	13.1
Mobile 91	5	231	30	2.1	Mobile 91	5	231	30	20.4	Mobile 91	30	37.2	30	11.7
Mobile 91	28	72.8	30	0.2	NOBE 93	2	600	75	56	Mobile 91	3	114	30	12.7

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A1-2 Emissions Measured at Previous Test Burns: VOCs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

2,3-Dimethylpentane					2,5-Dimethylhexane (ctd.)					2-Methylpentane				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	14.7	Mobile 91	4	114	30	3.4	Mobile 91	4	114	30	61.3
NOBE 93	1	600	125	7	Mobile 91	5	231	30	12.9	Mobile 91	5	231	30	240.1
NOBE 93	2	600	75	170	2-Ethyltoluene					NOBE 93	1	600	125	24
NOBE 93	2	600	125	64	Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	75	1373
NOBE 93	2	600	600	3	Mobile 91	4	114	30	4.4	NOBE 93	2	600	125	404
Mobile 91	23	181	30	16.2	NOBE 93	2	600	75	6	NOBE 93	2	600	600	16
Mobile 91	24	170	30	22.2	NOBE 93	2	600	125	2	Mobile 91	23	181	30	84.3
Mobile 91	28	72.8	30	7.0	NOBE 93	2	600	600	2	Mobile 91	24	170	30	110.1
Mobile 91	30	37.2	30	6.6	Mobile 91	23	181	30	0.8	Mobile 91	28	72.8	30	46.9
Mobile 91	3	114	30	7.0	Mobile 91	24	170	30	1.0	Mobile 91	30	37.2	30	41.3
Mobile 91	3	114	30	7.8	Mobile 91	28	72.8	30	0.7	Mobile 91	3	114	30	41.7
Mobile 91	4	114	30	14.9	Mobile 91	30	37.2	30	0.6	Mobile 91	3	114	30	37.3
Mobile 91	5	231	30	53.5	Mobile 91	3	114	30	0.8	Mobile 91	4	114	30	65.1
2,4-Dimethylhexane					Mobile 91	4	114	30	4.5	Mobile 91	5	231	30	241.6
Burn	Num.	Area	Dist.	Conc.	Mobile 91	5	231	30	3.7	2-Methylpropane				
NOBE 93	1	600	125	2	2-Methylbutane					Burn	Num.	Area	Dist.	Conc.
NOBE 93	2	600	75	65	Burn	Num.	Area	Dist.	Conc.	Mobile 91	23	181	30	30.2
NOBE 93	2	600	125	21	Mobile 91	23	181	30	119.3	Mobile 91	24	170	30	41.8
NOBE 93	2	600	600	1	Mobile 91	24	170	30	158.9	Mobile 91	28	72.8	30	4.0
Mobile 92	2	36	30	1	Mobile 91	28	72.8	30	11.8	Mobile 91	30	37.2	30	6.6
Mobile 92	2	231	60	1	Mobile 91	30	37.2	30	16.3	Mobile 91	3	114	30	3.8
2,4-Dimethylpentane					Mobile 91	3	114	30	11.4	Mobile 91	3	114	30	11.9
Burn	Num.	Area	Dist.	Conc.	Mobile 91	3	114	30	50.9	Mobile 91	4	114	30	20.0
Mobile 91	4	114	30	7.1	Mobile 91	4	114	30	85.7	Mobile 91	5	231	30	88.0
NOBE 93	1	600	125	3	Mobile 91	5	231	30	329.2	Mobile 91	4	114	30	15.9
NOBE 93	2	600	75	104	Mobile 91	4	114	30	73.5	Mobile 91	5	231	30	87.5
NOBE 93	2	600	125	33	Mobile 91	5	231	30	328.1	NOBE	1	600	125	50
NOBE 93	2	600	600	2	NOBE 93	1	600	125	1	NOBE	2	600	500	1
Mobile 91	23	181	30	9.2	NOBE 93	2	600	75	2494	3,6-Dimethyloctane				
Mobile 91	24	170	30	10.5	NOBE 93	2	600	125	668	Burn	Num.	Area	Dist.	Conc.
Mobile 91	28	72.8	30	9.9	NOBE 93	2	600	600	32	NOBE 93	1	600	125	1
Mobile 91	30	37.2	30	8.5	2-Methylheptane					NOBE 93	2	600	75	12
Mobile 91	3	114	30	9.9	Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	125	4
Mobile 91	3	114	30	5.0	NOBE 93	1	600	125	13	3-Ethyltoluene				
Mobile 91	4	114	30	7.3	NOBE 93	2	600	75	246	Burn	Num.	Area	Dist.	Conc.
Mobile 91	5	231	30	25.5	NOBE 93	2	600	125	89	Mobile 91	4	114	30	10.5
2,4-Dimethylhexane					NOBE 93	2	600	600	3	Mobile 91	5	231	30	10.6
Burn	Num.	Area	Dist.	Conc.	2-Methylhexane					NOBE 93	2	600	75	13
Mobile 91	4	114	30	7.1	Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	125	6
NOBE 93	1	600	125	3	Mobile 91	4	114	30	33.4	NOBE 93	2	600	600	6
NOBE 93	2	600	75	104	Mobile 91	5	231	30	102.1	Mobile 91	23	181	30	1.9
NOBE 93	2	600	125	33	NOBE 93	1	600	125	9	Mobile 91	24	170	30	2.4
NOBE 93	2	600	600	2	NOBE 93	2	600	75	182	Mobile 91	28	72.8	30	1.3
2,5-Dimethylhexane					NOBE 93	2	600	125	88	Mobile 91	30	37.2	30	1.1
Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	600	6	Mobile 91	3	114	30	1.6
NOBE 93	1	600	125	2	Mobile 91	23	181	30	37.6	Mobile 91	3	114	30	0.7
NOBE 93	2	600	75	41	Mobile 91	28	72.8	30	12.3	Mobile 91	4	114	30	10.6
NOBE 93	2	600	125	15	Mobile 91	30	37.2	30	11.1	Mobile 91	5	231	30	10.6
NOBE 93	2	600	600	1	Mobile 91	3	114	30	10.9					
Mobile 91	23	181	30	3.3	Mobile 91	3	114	30	15.6					
Mobile 91	24	170	30	2.2	Mobile 91	4	114	30	34.5					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A1-3 Emissions Measured at Previous Test Burns: VOCs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

2-Methylbutane					3-Methylpentane (ctd.)					Butane (ctd.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	73.5	Mobile 91	4	114	30	52.4	NOBE 93	1	600	125	10
Mobile 91	5	231	30	328.1	Mobile 91	5	231	30	191.1	NOBE 93	2	600	75	2102
NOBE 93	1	600	125	1	4-Ethyltoluene					NOBE 93	2	600	125	472
NOBE 93	2	600	75	2490	Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	600	11
NOBE 93	2	600	125	668	Mobile 91	4	114	30	5.2	Mobile 91	23	181	30	90.1
NOBE 93	2	600	600	32	NOBE 93	2	600	75	5	Mobile 91	24	170	30	121.4
3-Methylheptane					NOBE 93	2	600	125	2	Mobile 91	28	72.8	30	8.8
Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	600	3	Mobile 91	30	37.2	30	9.6
Mobile 91	4	114	30	28.6	Mobile 91	23	181	30	0.9	Mobile 91	3	114	30	10.8
NOBE 93	1	600	125	9	Mobile 91	24	170	30	1.3	Mobile 91	3	114	30	34.9
NOBE 93	2	600	75	213	Mobile 91	28	72.8	30	1.0	Mobile 91	4	114	30	56.0
NOBE 93	2	600	125	74	Mobile 91	30	37.2	30	0.7	Mobile 91	5	231	30	246.8
NOBE 93	2	600	600	4	Mobile 91	3	114	30	1.5	c-1,3-Dimethylcyclohexane				
Mobile 91	23	181	30	26.1	Mobile 91	4	114	30	5.3	Burn	Num.	Area	Dist.	Conc.
Mobile 91	24	170	30	17.3	Mobile 91	5	231	30	5.0	NOBE 93	1	600	125	11
Mobile 91	28	72.8	30	4.1	4-Methylheptane					NOBE 93	2	600	75	190
Mobile 91	30	37.2	30	3.5	Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	125	84
Mobile 91	3	114	30	4.5	NOBE 93	1	600	125	1	NOBE 93	2	600	600	1
Mobile 91	3	114	30	9.3	NOBE 93	2	600	75	66	Mobile 92	2	231	15	3
Mobile 91	4	114	30	28.8	NOBE 93	2	600	125	17	Mobile 92	1	36	85	1
Mobile 91	5	231	30	114.5	NOBE 93	2	600	600	1	c-1,4/t-1,3-Dimethylcyclohexane				
3-Methylhexane					Mobile 92	2	231	15	3	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	40.3	Mobile 92	1	36	85	1	NOBE 93	1	600	125	2
Mobile 91	5	231	30	159.2	Benzene					NOBE 93	2	600	75	66
NOBE 93	1	600	125	19	Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	125	21
NOBE 93	2	600	75	512	Mobile 91	4	114	30	25.1	Mobile 92	2	231	15	9
NOBE 93	2	600	125	168	Mobile 91	5	231	30	72.5	Mobile 92	1	36	85	1
NOBE 93	2	600	600	6	Mobile 92	1	36	23	55.6	c-2-Butene				
Mobile 91	23	181	30	46.8	Mobile 92	1	36	46	46.8	Burn	Num.	Area	Dist.	Conc.
Mobile 91	24	170	30	64.0	Mobile 92	2	231	23	68.9	Mobile 91	28	72.8	30	0.3
Mobile 91	28	72.8	30	12.2	Mobile 92	2	231	46	13.9	Mobile 91	3	114	30	0.4
Mobile 91	30	37.2	30	9.6	Mobile 92	2	231	76	0.01	NOBE 93	2	600	600	1
Mobile 91	3	114	30	10.8	Mobile 92	3	231	23	12.7	NOBE 93	2	600	600	1
Mobile 91	3	114	30	4.8	Mobile 92	4	231	23	13.7	NOBE 93	2	600	50	5
Mobile 91	4	114	30	41.3	Mobile 92	4	231	46	6	Mobile 91	3	114	30	0.4
Mobile 91	5	231	30	159.5	Mobile 92	6	231	23	11.2	Cyclohexane				
3-Methylpentane					NOBE 93	2	600	75	29	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	50.5	NOBE 93	2	600	125	6	Mobile 91	4	114	30	39.3
Mobile 91	5	231	30	190.2	NOBE 93	2	600	600	8	Mobile 91	5	231	30	112.9
NOBE 93	1	600	125	28	Mobile 91	23	181	30	42.4	NOBE 93	1	600	125	40
NOBE 93	2	600	75	888	Mobile 91	24	170	30	32.6	NOBE 93	2	600	75	849
NOBE 93	2	600	125	285	Mobile 91	28	72.8	30	2.8	NOBE 93	2	600	125	286
NOBE 93	2	600	600	6	Mobile 91	30	37.2	30	12.1	NOBE 93	2	600	600	3
Mobile 91	23	181	30	64.0	Mobile 91	3	114	30	5.0	Mobile 91	23	181	30	42.6
Mobile 91	24	170	30	84.7	Mobile 91	3	114	30	12.0	Mobile 91	24	170	30	60.5
Mobile 91	28	72.8	30	72.2	Mobile 91	4	114	30	26.7	Mobile 91	28	72.8	30	7.8
Mobile 91	30	37.2	30	63.8	Mobile 91	5	231	30	72.9	Mobile 91	30	37.2	30	7.8
Mobile 91	3	114	30	71.5	Butane					Mobile 91	3	114	30	7.4
Mobile 91	3	114	30	30.2	Burn	Num.	Area	Dist.	Conc.	Mobile 91	3	114	30	16.5
					Mobile 91	4	114	30	43.6	Mobile 91	4	114	30	39.7
					Mobile 91	5	231	30	245.8	Mobile 91	5	231	30	113.0

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A1-4 Emissions Measured at Previous Test Burns: VOCs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

Cyclopentane					Ethylbenzene					Isobutane (ctd.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	7.2	Mobile 91	28	72.8	30	2.5	Mobile 92	1	36	15	5
NOBE 93	1	600	125	10	Mobile 91	30	37.2	30	2.6	NOBE 93	2	600	600	5
NOBE 93	2	600	75	310	Mobile 91	3	114	30	3.3	iso-Butylbenzene				
NOBE 93	2	600	125	102	Mobile 91	3	114	30	1.9	Burn	Num.	Area	Dist.	Conc.
NOBE 93	2	600	600	2	Mobile 91	4	114	30	8.4	Mobile 91	5	231	30	0.8
Mobile 91	23	181	30	9.8	Mobile 91	5	231	30	22.9	NOBE 93	2	600	75	5
Mobile 91	24	170	30	12.9	Heptane					Mobile 91	4	114	30	1.5
Mobile 91	28	72.8	30	0.9	Burn	Num.	Area	Dist.	Conc.	Mobile 91	5	231	30	0.8
Mobile 91	30	37.2	30	1.5	Mobile 91	4	114	30	72.2	NOBE 93	2	600	75	0.1
Mobile 91	3	114	30	0.7	Mobile 91	5	231	30	297.0	Mobile 91	5	231	30	0.8
Mobile 91	3	114	30	1.3	NOBE 93	1	600	125	56	NOBE 93	2	600	600	0.001
Mobile 91	4	114	30	7.5	NOBE 93	2	600	75	1224	Isoprene (2-Methyl-1,3-Butadiene)				
Mobile 91	5	231	30	28.6	NOBE 93	2	600	125	361	Burn	Num.	Area	Dist.	Conc.
Decane					NOBE 93	2	600	600	6	NOBE 93	2	600	600	1
Burn	Num.	Area	Dist.	Conc.	Mobile 91	23	181	30	80.8	Mobile 91	30	37.2	30	0.7
Mobile 91	4	114	30	68.5	Mobile 91	24	170	30	116.1	Mobile 91	3	114	30	0.8
NOBE 93	1	600	125	3	Mobile 91	28	72.8	30	1.9	Mobile 91	5	231	30	6.5
NOBE 93	2	600	75	72	Mobile 91	30	37.2	30	3.5	Isopropylbenzene				
NOBE 93	2	600	125	32	Mobile 91	3	114	30	2.6	Burn	Num.	Area	Dist.	Conc.
NOBE 93	2	600	600	1	Mobile 91	3	114	30	32.8	Mobile 91	4	114	30	2.9
Mobile 91	23	181	30	5.9	Mobile 91	4	114	30	73.0	NOBE 93	1	600	125	0
Mobile 91	24	170	30	11.9	Mobile 91	5	231	30	297.1	NOBE 93	2	600	75	5
Mobile 91	28	72.8	30	11.4	Hexane					NOBE 93	2	600	125	2
Mobile 91	30	37.2	30	9.1	Burn	Num.	Area	Dist.	Conc.	Mobile 91	23	181	30	1.3
Mobile 91	3	114	30	9.9	Mobile 91	4	114	30	98.2	Mobile 91	24	170	30	1.6
Mobile 91	3	114	30	1.3	Mobile 91	5	231	30	379.9	Mobile 91	28	72.8	30	0.7
Mobile 91	4	114	30	68.8	NOBE 93	1	600	125	103	Mobile 91	30	37.2	30	0.7
Mobile 91	5	231	30	38.3	NOBE 93	2	600	75	2521	Mobile 91	3	114	30	0.6
Dodecane					NOBE 93	2	600	125	568	Mobile 91	4	114	30	3.0
Burn	Num.	Area	Dist.	Conc.	Mobile 91	23	181	30	137.3	Mobile 91	5	231	30	4.5
Mobile 91	4	114	30	15.4	Mobile 91	24	170	30	147.2	Methylcyclohexane				
NOBE 93	2	600	75	18	Mobile 91	28	72.8	30	52.5	Burn	Num.	Area	Dist.	Conc.
NOBE 93	2	600	125	14	Mobile 91	30	37.2	30	47.7	Mobile 91	4	114	30	99.8
NOBE 93	2	600	600	1	Mobile 91	3	114	30	56.5	NOBE 93	1	600	125	81
Mobile 91	23	181	30	LDL	Mobile 91	3	114	30	61.4	NOBE 93	2	600	75	1762
Mobile 91	24	170	30	LDL	Mobile 91	4	114	30	101.5	NOBE 93	2	600	125	522
Mobile 91	28	72.8	30	0.5	Mobile 91	5	231	30	380.7	NOBE 93	2	600	600	3
Mobile 91	30	37.2	30	0.3	Indane					Mobile 91	23	181	30	107.3
Mobile 91	3	114	30	0.4	Burn	Num.	Area	Dist.	Conc.	Mobile 91	24	170	30	146.2
Mobile 91	3	114	30	LDL	Mobile 91	28	72.8	30	1.3	Mobile 91	28	72.8	30	0.9
Mobile 91	4	114	30	15.6	Mobile 91	30	37.2	30	0.9	Mobile 91	30	37.2	30	4.0
Mobile 91	5	231	30	2.8	Mobile 91	3	114	30	1.4	Mobile 91	3	114	30	1.1
Ethylbenzene					Mobile 91	5	231	30	0.6	Mobile 91	3	114	30	47.9
Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	75	3	Mobile 91	4	114	30	100.3
Mobile 91	4	114	30	8.1	NOBE 93	2	600	125	1	Mobile 91	5	231	30	380.1
Mobile 91	5	231	30	22.9	NOBE 93	2	600	600	1	Isobutane (2-Methylpropane)				
Mobile 92	2	231	23	9.1	Isobutane (2-Methylpropane)					Burn	Num.	Area	Dist.	Conc.
NOBE 93	2	600	75	14	Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	75	441
NOBE 93	2	600	600	7	NOBE 93	2	600	125	98	NOBE 93	2	600	600	5
Mobile 91	23	181	30	5.2	NOBE 93	2	600	600	5					
Mobile 91	24	170	30	6.5										

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A1-5 Emissions Measured at Previous Test Burns: VOCs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

Methylcyclopentane					n-Butylbenzene					Octane				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	30.1	Mobile 91	4	114	30	2.5	NOBE 93	2	600	600	2
Mobile 91	5	231	30	114.1	NOBE 93	2	600	75	1	Mobile 91	23	181	30	45.9
NOBE 93	1	600	125	49	NOBE 93	2	600	125	1	Mobile 91	28	72.8	30	15.2
NOBE 93	2	600	75	1307	Mobile 91	23	181	30	0.2	Mobile 91	30	37.2	30	14.5
NOBE 93	2	600	125	382	Mobile 91	24	170	30	0.4	Mobile 91	3	114	30	17.3
Mobile 91	23	181	30	36.5	Mobile 91	28	72.8	30	0.2	Mobile 91	3	114	30	13.6
Mobile 91	24	170	30	49.4	Mobile 91	30	37.2	30	0.2	Mobile 91	4	114	30	52.4
Mobile 91	28	72.8	30	38.9	Mobile 91	3	114	30	0.2	Mobile 91	5	231	30	198.9
Mobile 91	30	37.2	30	34.1	Mobile 91	4	114	30	2.6	ortho-Xylene				
Mobile 91	3	114	30	38.6	Mobile 91	5	231	30	1.0	Burn	Num.	Area	Dist.	Conc.
Mobile 91	3	114	30	8.6	NOBE 93	2	600	75	2	Mobile 92	1	36	76	10.3
Mobile 91	4	114	30	30.6	NOBE 93	2	600	125	1	Mobile 92	2	231	23	11.4
Mobile 91	5	231	30	114.5	NOBE 93	2	600	75	2	Mobile 91	4	114	30	15.2
m,p-Xylene					NOBE 93	2	600	125	1	NOBE 93	2	600	75	12
Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	75	2	NOBE 93	2	600	600	1
Mobile 91	4	114	30	49.7	NOBE 93	2	600	600	0.001	Mobile 91	23	181	30	6.9
Mobile 91	5	231	30	119.5	Nonane					Mobile 91	24	170	30	8.3
NOBE 93	2	600	75	45	Burn	Num.	Area	Dist.	Conc.	Mobile 91	28	72.8	30	3.0
NOBE 93	2	600	600	21	Mobile 91	4	114	30	58.7	Mobile 91	30	37.2	30	3.1
Mobile 92	1	36	23	10.4	NOBE 93	1	600	125	12	Mobile 91	3	114	30	3.4
Mobile 92	1	36	46	11.6	NOBE 93	2	600	75	192	Mobile 91	3	114	30	2.4
Mobile 92	1	36	76	14.0	NOBE 93	2	600	125	73	Mobile 91	4	114	30	15.5
Mobile 92	2	231	23	33.3	NOBE 93	2	600	600	1	Mobile 91	5	231	30	31.9
Mobile 92	2	231	46	7.1	Mobile 91	23	181	30	21.7	p-Cymene				
Mobile 92	4	231	23	7.3	Mobile 91	24	170	30	25.3	Burn	Num.	Area	Dist.	Conc.
Mobile 91	23	181	30	27.7	Mobile 91	28	72.8	30	11.7	Mobile 91	4	114	30	3.0
Mobile 91	24	170	30	34.2	Mobile 91	30	37.2	30	11.0	NOBE 93	2	600	75	9
Mobile 91	28	72.8	30	9.2	Mobile 91	3	114	30	10.9	NOBE 93	2	600	125	0.1
Mobile 91	30	37.2	30	10.0	Mobile 91	3	114	30	5.7	Mobile 91	24	170	30	0.6
Mobile 91	3	114	30	10.9	Mobile 91	4	114	30	58.9	Mobile 91	28	72.8	30	1.5
Mobile 91	3	114	30	9.0	Mobile 91	5	231	30	103.6	Mobile 91	30	37.2	30	1.5
Mobile 91	4	114	30	50.4	n-Propylbenzene					Mobile 91	3	114	30	7.6
Mobile 91	5	231	30	119.7	Burn	Num.	Area	Dist.	Conc.	Mobile 91	4	114	30	3.1
Naphthalene					Mobile 91	4	114	30	3.9	Mobile 91	5	231	30	2.0
Burn	Num.	Area	Dist.	Conc.	NOBE 93	2	600	75	6	NOBE 93	2	600	500	0.001
Mobile 91	28	72.8	30	0.5	NOBE 93	2	600	125	2	Pentane				
Mobile 91	30	37.2	30	0.9	NOBE 93	2	600	600	2	Burn	Num.	Area	Dist.	Conc.
Mobile 91	3	114	30	0.5	Mobile 91	23	181	30	1.0	Mobile 91	4	114	30	79.5
Mobile 91	4	114	30	0.8	Mobile 91	24	170	30	1.2	Mobile 91	5	231	30	350.5
Mobile 91	5	231	30	5.2	Mobile 91	28	72.8	30	1.4	NOBE 93	1	600	125	74
Mobile 91	4	114	30	5.1	Mobile 91	30	37.2	30	0.7	NOBE 93	2	600	75	3247
NOBE 93	2	600	600	1	Mobile 91	3	114	30	4.3	NOBE 93	2	600	125	635
Mobile 91	23	181	30	0.2	Mobile 91	4	114	30	4.0	NOBE 93	2	600	600	17
Mobile 91	24	170	30	0.4	Mobile 91	5	231	30	4.5	Mobile 91	23	181	30	125.8
Mobile 91	28	72.8	30	0.2	Octane					Mobile 91	24	170	30	167.2
Mobile 91	30	37.2	30	0.2	Burn	Num.	Area	Dist.	Conc.	Mobile 91	28	72.8	30	13.1
Mobile 91	3	114	30	0.2	Mobile 91	4	114	30	52.1	Mobile 91	30	37.2	30	23.6
Mobile 91	4	114	30	2.6	Mobile 91	5	231	30	198.8	Mobile 91	3	114	30	10.4
Mobile 91	5	231	30	1.0	NOBE 93	1	600	125	24	Mobile 91	3	114	30	56.3
					NOBE 93	2	600	75	418	Mobile 91	4	114	30	87.8
					NOBE 93	2	600	125	151	Mobile 91	5	231	30	351.1

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A1-6 Emissions Measured at Previous Test Burns: VOCs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

Propane					Total				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 91	4	114	30	25.3	Mobile 91	4	114	30	1322.3
Mobile 91	5	231	30	84.9	Mobile 91	5	231	30	4231.6
NOBE 93	1	600	125	11	NOBE 93	1	600	75	644
NOBE 93	2	600	75	269	NOBE 93	1	600	125	615
NOBE 93	2	600	125	71	NOBE 93	1	600	600	0
Mobile 91	23	181	30	37.9	NOBE 93	2	600	75	22170
Mobile 91	24	170	30	50.4	NOBE 93	2	600	125	6042
Mobile 91	28	72.8	30	10.6	NOBE 93	2	600	600	485
Mobile 91	30	37.2	30	9.3	Mobile 91	23	181	30	1506.4
Mobile 91	3	114	30	12.9	Mobile 91	24	170	30	1597.8
Mobile 91	3	114	30	15.9	Mobile 91	28	72.8	30	622.9
Mobile 91	4	114	30	30.3	Mobile 91	30	37.2	30	580.7
Mobile 91	5	231	30	87.4	Mobile 91	3	114	30	655.9
Propene					Mobile 91	3	114	30	536.4
Burn	Num.	Area	Dist.	Conc.	Mobile 91	4	114	30	1396.9
NOBE 93	2	600	75	30	Mobile 91	5	231	30	4251.0
NOBE 93	2	600	600	4	Undecane				
					Burn	Num.	Area	Dist.	Conc.
Mobile 91	5	231	30	1.4	Mobile 91	4	114	30	45.0
Mobile 91	23	181	30	2.3	NOBE 93	2	600	75	37
Mobile 91	28	72.8	30	1.9	NOBE 93	2	600	125	19
Mobile 91	30	37.2	30	1.6	NOBE 93	2	600	600	1
Mobile 91	3	114	30	1.9	Mobile 91	23	181	30	1.8
Mobile 91	5	231	30	1.6	Mobile 91	24	170	30	2.0
t-1,4-Dimethylcyclohexane					Mobile 91	28	72.8	30	4.0
Burn	Num.	Area	Dist.	Conc.	Mobile 91	30	37.2	30	2.7
NOBE 93	1	600	125	6	Mobile 91	3	114	30	3.1
NOBE 93	2	600	75	90	Mobile 91	4	114	30	45.2
NOBE 93	2	600	125	46	Mobile 91	5	231	30	9.1
Toluene									
Burn	Num.	Area	Dist.	Conc.					
Mobile 91	4	114	30	38.8					
Mobile 91	5	231	30	148.9					
Mobile 92	1	36	23	7.8					
Mobile 92	1	36	46	8.3					
Mobile 92	2	231	23	30.7					
Mobile 92	2	231	46	5.6					
Mobile 92	2	231	76	0.01					
Mobile 92	4	231	23	6.9					
NOBE 93	2	600	75	170					
NOBE 93	2	600	125	20					
NOBE 93	2	600	600	1					
Mobile 91	23	181	30	39.4					
Mobile 91	24	170	30	51.0					
Mobile 91	28	72.8	30	159.9					
Mobile 91	30	37.2	30	143.7					
Mobile 91	3	114	30	158.6					
Mobile 91	3	114	30	16.4					
Mobile 91	4	114	30	41.0					
Mobile 91	5	231	30	150.2					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-1 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

1,4-Diethylbenzene					1-Butene/2-Methylpropene (cid.)					1-Methylcyclohexene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	30	0.2	Mobile 97	3a-1	25	15	1.3	Mobile 94	1	199	30	0.2
Mobile 94	2	231	30	1.7	Mobile 97	3a-1	25	30	1.3	Mobile 94	1	199	50	0.1
Mobile 94	3	231	30	1.2	Mobile 97	4-1	25	15	0.9	Mobile 94	1	199	30	0.5
Mobile 94	3	231	50	0.3	Mobile 97	4-1	25	30	0.8	Mobile 94	2	231	85	0.6
Mobile 94	3	231	85	0.2	Mobile 97	4-2	25	15	1.0	Mobile 94	2	231	30	0.9
Mobile 94	3	231	45	0.4	Mobile 97	4-2	25	30	1.6	Mobile 94	2	231	45	0.7
Mobile 94	3	231	75	1.5	Mobile 97	4-3	25	15	1.0	Mobile 94	3	231	30	2.9
Mobile 97	1-1	25	15	0.2	Mobile 97	4-3	25	30	1.1	Mobile 94	3	231	50	1.3
Mobile 97	1-1	25	45	0.1	Mobile 97	5-1	25	15	1.2	Mobile 94	3	231	45	0.8
Mobile 97	2-1	25	15	1.0	Mobile 97	5-1	25	30	0.7	Mobile 97	1-1	25	45	0.0
Mobile 97	2-1	25	30	1.6	1-Heptene					Mobile 97	2-1	25	30	0.2
Mobile 97	2-2	25	15	0.5	Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-2	25	15	0.1
Mobile 97	2-2	25	30	0.2	Mobile 97	1-1	25	15	0.3	Mobile 97	4-2	25	30	0.1
Mobile 97	2-3	25	15	1.1	Mobile 97	1-1	25	45	0.3	Mobile 97	4-3	25	15	0.1
Mobile 97	2-3	25	30	0.5	Mobile 97	2-1	25	15	0.5	Mobile 97	4-3	25	30	0.0
Mobile 97	3-1	25	15	0.3	Mobile 97	2-1	25	30	1.1	Mobile 97	5-1	25	15	0.1
Mobile 97	3-1	25	30	0.3	Mobile 97	2-2	25	30	0.2	1-Methylcyclopentene				
Mobile 97	3a-1	25	30	0.5	Mobile 97	2-3	25	15	0.2	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-1	25	15	0.7	Mobile 97	2-3	25	30	0.2	Mobile 94	2	231	85	0.2
Mobile 97	4-1	25	30	0.4	Mobile 97	3-1	25	30	0.5	Mobile 94	2	231	30	0.7
Mobile 97	4-2	25	15	5.1	Mobile 94	3-1	221	15	5.0	Mobile 94	2	231	45	0.4
Mobile 97	4-2	25	30	2.1	Mobile 94	3-1	110	75	0.5	Mobile 94	2	231	75	0.2
Mobile 97	4-3	25	15	3.1	1-Hexene/2-Methyl-1-Pentene					Mobile 94	3	231	30	0.6
Mobile 97	4-3	25	30	0.4	Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	50	0.2
Mobile 97	5-1	25	15	1.0	Mobile 97	1-1	25	15	0.2	Mobile 94	3	231	85	0.1
1-Butene/2-Methylpropene					Mobile 97	2-1	25	15	0.5	Mobile 94	3	231	45	0.2
Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-2	25	15	0.3	Mobile 97	1-1	25	15	0.0
Mobile 94	1	199	30	5.3	Mobile 97	2-3	25	15	0.2	Mobile 97	2-1	25	15	0.1
Mobile 94	1	199	45	1.4	Mobile 97	3-1	25	15	0.3	Mobile 97	2-1	25	30	1.0
Mobile 94	1	199	75	1.7	Mobile 97	3a-1	25	15	0.6	Mobile 97	2-2	25	15	0.0
Mobile 94	2	231	50	8.4	Mobile 97	4-1	25	15	0.3	Mobile 97	2-3	25	15	0.0
Mobile 94	2	231	85	7.5	Mobile 97	4-2	25	15	0.5	Mobile 97	2-3	25	30	0.0
Mobile 94	2	231	30	11.5	Mobile 97	4-3	25	15	0.4	Mobile 97	3-1	25	30	0.0
Mobile 94	2	231	45	7.7	Mobile 97	5-1	25	15	0.3	Mobile 97	3a-1	25	15	0.1
Mobile 94	2	231	75	2.5	Mobile 97	1-1	25	30	0.3	Mobile 97	3a-1	25	30	0.1
Mobile 94	3	231	30	14.3	Mobile 97	2-1	25	30	0.2	Mobile 97	4-1	25	15	0.1
Mobile 94	3	231	50	10.8	Mobile 97	2-2	25	30	0.2	Mobile 97	4-1	25	30	0.1
Mobile 94	3	231	85	3.7	Mobile 97	2-3	25	30	0.3	Mobile 97	4-2	25	15	0.1
Mobile 94	3	231	45	5.8	Mobile 97	3-1	25	30	0.4	Mobile 97	4-2	25	30	0.4
Mobile 94	3	231	75	8.3	Mobile 97	3a-1	25	30	0.7	Mobile 97	4-3	25	15	0.1
Mobile 97	1-1	25	15	0.7	Mobile 97	4-1	25	30	0.3	Mobile 97	4-3	25	30	0.0
Mobile 97	1-1	25	30	0.6	Mobile 97	4-2	25	30	0.9	Mobile 97	5-1	25	15	0.1
Mobile 97	1-1	25	45	0.7	Mobile 97	4-3	25	30	0.3	1-Nonene				
Mobile 97	2-1	25	15	1.5	Mobile 97	5-1	25	30	0.2	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2-1	25	30	1.7	Mobile 97	1-1	25	45	0.3	Mobile 97	1-1	25	15	0.3
Mobile 97	2-2	25	15	1.7	Mobile 94	2	231	30	0.4	Mobile 97	2-1	25	15	0.2
Mobile 97	2-2	25	30	0.8	Mobile 94	2	231	15	1.5	Mobile 97	2-1	25	30	0.3
Mobile 97	2-3	25	15	0.8	Mobile 94	2	231	50	1.0	Mobile 97	4-2	25	15	0.7
Mobile 97	2-3	25	30	0.8	Mobile 94	3	231	75	0.1	Mobile 94	1	110	15	2.0
Mobile 97	3-1	25	15	1.0						Mobile 94	1	221	75	0.1
Mobile 97	3-1	25	30	1.1										

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$



Table A2-2 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

1-Octene					2,2,3-Trimethylbutane					2,2,5-Trimethylhexane (ctd.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	1-1	25	15	0.3	Mobile 94	2	231	30	0.3	Mobile 97	2-2	25	15	0.1
Mobile 97	1-1	25	30	0.0	Mobile 97	2-1	25	15	0.1	Mobile 97	2-2	25	30	0.1
Mobile 97	1-1	25	45	0.3	Mobile 97	2-1	25	30	0.1	Mobile 97	2-3	25	15	0.1
Mobile 97	2-1	25	15	0.4	Mobile 97	2-2	25	15	0.1	Mobile 97	2-3	25	30	0.1
Mobile 97	2-2	25	15	0.3	Mobile 97	2-3	25	30	0.1	Mobile 97	3-1	25	15	0.3
Mobile 97	2-2	25	30	0.2	Mobile 97	3a-1	25	15	0.1	Mobile 97	3-1	25	30	0.3
Mobile 97	2-3	25	15	0.2	Mobile 97	3a-1	25	30	0.1	Mobile 97	3a-1	25	15	0.5
Mobile 97	2-3	25	30	0.1	Mobile 97	4-2	25	15	0.1	Mobile 97	3a-1	25	30	0.1
Mobile 97	3-1	25	30	0.4	Mobile 97	4-2	25	30	0.1	Mobile 97	4-1	25	15	0.3
Mobile 97	3a-1	25	30	0.2	Mobile 94	1	199	1	1.0	Mobile 97	4-1	25	30	0.3
Mobile 97	4-1	25	15	0.2	Mobile 94	2	231	85	0.0	Mobile 97	4-2	25	15	0.3
Mobile 97	4-2	25	15	0.7	2,2,4-Trimethylpentane					Mobile 97	4-2	25	30	0.2
Mobile 97	4-2	25	30	0.4	Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-3	25	30	0.1
Mobile 97	4-3	25	15	0.4	Mobile 97	1-1	25	15	0.2	Mobile 97	5-1	25	15	0.1
Mobile 97	4-3	25	30	0.2	Mobile 97	2-2	25	15	0.3	Mobile 97	5-1	25	30	0.1
Mobile 97	5-1	25	15	0.3	Mobile 97	2-3	25	15	0.3	Mobile 94	2	231	15	1.5
Mobile 94	1	199	15	1.0	Mobile 97	3-1	25	15	1.7	2,2-Dimethylbutane				
Mobile 94	2	231	15	0.0	Mobile 97	3a-1	25	15	2.4	Burn	Num.	Area	Dist.	Conc.
1-Pentene					Mobile 97	4-1	25	15	1.5	Mobile 94	1	199	30	0.2
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-2	25	15	0.7	Mobile 94	1	199	45	0.2
Mobile 94	1	199	30	1.3	Mobile 97	4-3	25	15	0.3	Mobile 94	2	231	85	0.1
Mobile 94	1	199	50	1.0	Mobile 97	5-1	25	15	0.5	Mobile 94	2	231	30	1.2
Mobile 94	1	199	30	2.5	Mobile 97	1-1	25	30	0.3	Mobile 94	2	231	45	0.3
Mobile 94	2	231	50	0.9	Mobile 97	2-1	25	30	1.0	Mobile 94	3	231	30	0.7
Mobile 94	2	231	85	3.4	Mobile 97	2-2	25	30	0.2	Mobile 94	3	231	50	0.2
Mobile 94	2	231	30	2.4	Mobile 97	2-3	25	30	0.3	Mobile 94	3	231	85	0.2
Mobile 94	2	231	45	1.3	Mobile 97	3-1	25	30	1.8	Mobile 94	3	231	45	0.6
Mobile 94	3	231	30	14.1	Mobile 97	3a-1	25	15	1.8	Mobile 97	1-1	25	15	0.2
Mobile 94	3	231	50	13.7	Mobile 97	4-1	25	30	1.3	Mobile 97	1-1	25	30	0.2
Mobile 97	1-1	25	15	0.2	Mobile 97	4-2	25	15	1.8	Mobile 97	1-1	25	45	0.2
Mobile 97	1-1	25	30	0.1	Mobile 97	5-1	25	30	0.3	Mobile 97	2-1	25	15	0.1
Mobile 97	1-1	25	45	0.2	Mobile 97	1-1	25	45	0.2	Mobile 97	2-1	25	30	0.1
Mobile 97	2-1	25	15	0.4	Mobile 94	1	199	30	0.4	Mobile 97	2-3	25	15	0.1
Mobile 97	2-1	25	30	0.3	Mobile 94	1	199	45	0.3	Mobile 97	2-3	25	30	0.1
Mobile 97	2-2	25	15	0.2	Mobile 94	1	199	75	0.3	Mobile 97	3-1	25	15	0.6
Mobile 97	2-2	25	30	0.2	Mobile 94	2	231	30	2.1	Mobile 97	3-1	25	30	0.5
Mobile 97	2-3	25	15	0.2	Mobile 94	3	231	30	1.6	Mobile 97	3a-1	25	15	0.7
Mobile 97	2-3	25	30	0.2	Mobile 94	2	231	45	1.3	Mobile 97	3a-1	25	30	0.8
Mobile 97	3-1	25	15	0.2	Mobile 94	3	231	45	0.6	Mobile 97	4-1	25	15	0.7
Mobile 97	3-1	25	30	0.4	Mobile 94	3	231	50	0.2	Mobile 97	4-1	25	30	0.7
Mobile 97	3a-1	25	15	0.3	Mobile 94	2	231	75	0.2	Mobile 97	4-2	25	15	0.2
Mobile 97	3a-1	25	30	0.4	Mobile 94	3	231	75	0.175	Mobile 97	4-2	25	15	2.2
Mobile 97	4-1	25	15	0.2	Mobile 94	2	231	85	0.2	Mobile 97	4-3	25	15	0.2
Mobile 97	4-1	25	30	0.2	Mobile 94	3	231	85	0.2	Mobile 97	4-3	25	30	0.2
Mobile 97	4-2	25	15	0.4	2,2,5-Trimethylhexane					Mobile 97	5-1	25	15	0.1
Mobile 97	4-2	25	30	0.8	Burn	Num.	Area	Dist.	Conc.	Mobile 97	5-1	25	30	0.1
Mobile 97	4-3	25	15	0.2	Mobile 94	2	231	30	0.2	Mobile 94	1	199	30	0.2
Mobile 97	4-3	25	30	0.2	Mobile 97	1-1	25	15	0.1	Mobile 94	2	231	30	0.9
Mobile 97	5-1	25	15	0.2	Mobile 97	1-1	25	45	0.0	Mobile 94	3	231	30	0.4
Mobile 97	5-1	25	30	0.1	Mobile 97	2-1	25	15	0.1	Mobile 97	2-3	25	15	0.0
					Mobile 97	2-1	25	15	1.0					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-3 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

2,2-Dimethylpropane					2,3-Dimethylbutane (cid.)					2,4-Dimethylhexane				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	1-1	25	15	0.0	Mobile 97	5-1	25	15	0.1	Mobile 94	1	199	50	0.1
Mobile 97	1-1	25	45	0.0	Mobile 97	1-1	25	30	0.3	Mobile 94	1	199	30	0.7
Mobile 97	2-1	25	30	0.3	Mobile 97	2-1	25	15	5.2	Mobile 94	1	199	45	0.1
Mobile 97	2-2	25	15	0.0	Mobile 97	2-2	25	30	0.1	Mobile 94	2	231	50	0.6
Mobile 97	3-1	25	15	0.1	Mobile 97	2-3	25	30	0.1	Mobile 94	2	231	85	0.1
Mobile 97	3-1	25	30	0.1	Mobile 97	3-1	25	30	0.8	Mobile 94	2	231	30	2.6
Mobile 97	3a-1	25	15	0.1	Mobile 97	3a-1	25	30	1.2	Mobile 94	2	231	45	0.5
Mobile 97	3a-1	25	30	0.1	Mobile 97	4-1	25	30	0.8	Mobile 94	2	231	75	0.3
Mobile 97	4-1	25	15	0.1	Mobile 97	4-2	25	30	3.1	Mobile 94	3	231	30	1.9
Mobile 97	4-1	25	30	0.1	Mobile 97	4-3	25	30	0.2	Mobile 94	3	231	85	0.2
Mobile 97	4-2	25	15	0.1	Mobile 97	5-1	25	30	0.1	Mobile 94	3	231	45	0.4
Mobile 97	4-2	25	30	0.2	Mobile 97	1-1	25	45	0.2	Mobile 97	1-1	25	15	0.3
Mobile 97	4-3	25	15	0.0	Mobile 94	1	199	30	5.1	Mobile 97	2-1	25	15	0.1
Mobile 97	4-3	25	30	0.1	Mobile 94	1	199	45	5.4	Mobile 97	2-1	25	30	0.1
Mobile 97	5-1	25	15	0.0	Mobile 94	2	231	30	4.4	Mobile 97	2-3	25	15	0.1
Mobile 94	1	199	85	0.0	Mobile 94	3	231	30	3.8	Mobile 97	3-1	25	15	0.3
Mobile 94	2	231	15	0.6	Mobile 94	2	231	45	1.3	Mobile 97	3-1	25	30	0.3
2,3,4-Trimethylpentane					Mobile 94	3	231	45	1.5	Mobile 97	3a-1	25	15	0.6
Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	50	0.5	Mobile 97	3a-1	25	30	0.9
Mobile 94	1	199	30	0.2	Mobile 94	3	231	85	0.2	Mobile 97	4-1	25	15	0.4
Mobile 94	1	199	45	0.1	2,3-Dimethylpentane					Mobile 97	4-1	25	30	0.3
Mobile 94	2	231	85	0.1	Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-2	25	15	0.4
Mobile 94	2	231	30	0.4	Mobile 94	1	199	30	0.4	Mobile 97	4-2	25	30	1.1
Mobile 94	3	231	30	0.4	Mobile 94	1	199	50	0.3	Mobile 97	4-3	25	15	0.5
Mobile 94	3	231	85	0.1	Mobile 94	1	199	30	3.2	Mobile 97	4-3	25	30	0.2
Mobile 94	3	231	45	0.6	Mobile 94	1	199	45	0.3	Mobile 97	5-1	25	30	0.1
Mobile 97	2-1	231	30	2.1	Mobile 94	1	199	75	0.3	2,4-Dimethylpentane				
Mobile 97	2-3	25	30	0.1	Mobile 94	2	231	50	1.5	Burn	Num.	Area	Dist.	Conc.
Mobile 97	3-1	25	15	0.5	Mobile 94	2	231	85	0.5	Mobile 97	5-1	25	15	0.1
Mobile 97	3-1	25	30	0.6	Mobile 94	2	231	30	8.2	Mobile 97	1-1	25	15	0.1
Mobile 97	3a-1	25	15	0.8	Mobile 94	2	231	45	1.2	Mobile 97	2-3	25	15	0.2
Mobile 97	3a-1	25	15	1.1	Mobile 94	2	231	75	0.7	Mobile 97	4-3	25	15	0.2
Mobile 97	4-1	25	15	0.6	Mobile 94	3	231	30	5.7	Mobile 97	4-2	25	15	0.2
Mobile 97	4-1	25	30	0.5	Mobile 94	3	231	50	0.6	Mobile 97	4-1	25	15	0.5
Mobile 97	4-2	25	15	0.3	Mobile 94	3	231	85	0.5	Mobile 97	3-1	25	15	0.6
Mobile 97	4-2	25	15	1.3	Mobile 94	3	231	45	1.1	Mobile 97	3a-1	25	15	0.7
Mobile 97	4-3	25	15	0.2	Mobile 94	3	231	75	0.54	Mobile 97	2-3	25	30	0.1
Mobile 97	4-3	25	30	0.1	Mobile 97	2-1	25	30	1.0	Mobile 97	2-2	25	30	0.1
Mobile 97	5-1	25	15	0.2	Mobile 97	3-1	25	15	0.8	Mobile 97	4-3	25	30	0.1
Mobile 97	5-1	25	30	0.1	Mobile 97	3-1	25	30	0.9	Mobile 94	1	199	30	0.4
2,3-Dimethylbutane					Mobile 97	3a-1	25	15	1.1	Mobile 97	4-1	25	30	0.5
Burn	Num.	Area	Dist.	Conc.	Mobile 97	3a-1	25	30	1.2	Mobile 97	3-1	25	30	0.6
Mobile 97	1-1	25	15	0.2	Mobile 97	4-1	25	15	0.8	Mobile 97	3a-1	25	30	0.8
Mobile 97	2-1	25	15	0.1	Mobile 97	4-1	25	30	0.7	Mobile 94	3	231	30	0.9
Mobile 97	2-2	25	15	0.1	Mobile 97	4-2	25	15	0.4	Mobile 97	4-2	25	30	1.6
Mobile 97	2-3	25	15	0.2	Mobile 97	4-2	25	30	2.3	Mobile 94	2	231	30	1.8
Mobile 97	3-1	25	15	0.7	Mobile 97	5-1	25	15	0.2	Mobile 97	2-1	25	15	3.3
Mobile 97	3a-1	25	15	1.1	Mobile 97	5-1	25	30	0.1	Mobile 94	1	199	45	0.1
Mobile 97	4-1	25	15	0.9						Mobile 94	3	231	45	0.3
Mobile 97	4-2	25	15	0.3						Mobile 94	2	231	45	0.4
Mobile 97	4-3	25	15	0.2						Mobile 94	2	231	50	0.4

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-4 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

2,5-Dimethylhexane					2-Ethyltoluene (cid.)					2-Methyl-2-Butene (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	30	0.3	Mobile 97	4-2	25	30	2.0	Mobile 97	3a-1	25	30	0.3
Mobile 94	2	231	30	1.7	Mobile 97	4-3	25	15	2.1	Mobile 97	4-1	25	15	0.3
Mobile 94	2	231	45	0.3	Mobile 97	4-3	25	30	0.7	Mobile 97	4-1	25	30	0.3
Mobile 94	2	231	75	0.2	Mobile 97	5-1	25	15	0.7	Mobile 97	4-2	25	15	0.2
Mobile 94	3	231	30	0.8	Mobile 97	5-1	25	30	0.1	Mobile 97	4-2	25	15	2.6
Mobile 94	3	231	85	0.1	2-Methyl-1-Butene					Mobile 97	4-3	25	15	0.1
Mobile 94	3	231	45	0.2	Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-3	25	30	0.1
Mobile 97	1-1	25	15	0.1	Mobile 94	2	231	85	0.2	Mobile 97	5-1	25	15	0.1
Mobile 97	2-1	25	15	0.2	Mobile 94	2	231	30	0.4	2-Methylbutane				
Mobile 97	2-1	25	30	0.2	Mobile 94	3	231	50	0.0	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2-3	25	15	0.1	Mobile 97	1-1	25	45	0.1	Mobile 94	1	199	30	0.2
Mobile 97	2-3	25	30	0.1	Mobile 97	2-1	25	15	0.2	Mobile 94	1	199	30	3.3
Mobile 97	3-1	25	15	0.2	Mobile 97	2-1	25	30	0.1	Mobile 94	1	199	45	2.5
Mobile 97	3-1	25	30	0.3	Mobile 97	2-2	25	15	0.1	Mobile 94	1	199	75	2.3
Mobile 97	3a-1	25	15	0.4	Mobile 97	2-2	25	30	0.1	Mobile 94	2	231	50	3.8
Mobile 97	3a-1	25	30	0.5	Mobile 97	2-3	25	15	0.1	Mobile 94	2	231	85	1.5
Mobile 97	4-1	25	15	0.3	Mobile 97	2-3	25	30	0.1	Mobile 94	2	231	30	12.3
Mobile 97	4-1	25	30	0.2	Mobile 97	3-1	25	15	0.2	Mobile 94	2	231	45	3.2
Mobile 97	4-2	25	15	0.4	Mobile 97	3-1	25	30	0.2	Mobile 94	2	231	75	2.3
Mobile 97	4-2	25	30	0.7	Mobile 97	3a-1	25	15	0.3	Mobile 94	3	231	30	9.6
Mobile 97	4-3	25	15	0.3	Mobile 97	3a-1	25	30	0.3	Mobile 94	3	231	50	3.5
Mobile 97	4-3	25	30	0.2	Mobile 97	4-1	25	15	0.3	Mobile 94	3	231	85	3.7
Mobile 97	5-1	25	30	0.1	Mobile 97	4-1	25	30	0.2	Mobile 94	3	231	15	56.2
2-Ethyltoluene					Mobile 97	4-2	25	15	0.2	Mobile 94	3	231	75	1.9
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-2	25	15	1.1	Mobile 97	1-1	25	15	2.4
Mobile 94	1	199	30	0.3	Mobile 97	4-3	25	15	0.1	Mobile 97	1-1	25	30	2.5
Mobile 94	1	199	45	0.1	Mobile 97	4-3	25	30	0.1	Mobile 97	1-1	25	45	2.1
Mobile 94	2	231	50	0.5	Mobile 97	5-1	25	15	0.1	Mobile 97	2-1	25	15	1.3
Mobile 94	2	231	30	2.4	Mobile 97	5-1	25	30	0.1	Mobile 97	2-1	25	30	1.0
Mobile 94	2	231	45	0.4	2-Methyl-2-Butene					Mobile 97	2-2	25	15	0.9
Mobile 94	2	231	75	0.2	Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-2	25	30	0.9
Mobile 94	3	231	30	1.6	Mobile 94	1	199	30	0.0	Mobile 97	2-3	25	15	1.6
Mobile 94	3	231	85	0.3	Mobile 94	2	231	85	0.5	Mobile 97	2-3	25	30	1.0
Mobile 94	3	231	45	0.6	Mobile 94	2	231	30	0.8	Mobile 97	3-1	25	15	9.9
Mobile 94	3	231	75	0.2	Mobile 94	2	231	45	0.6	Mobile 97	3-1	25	30	9.6
Mobile 97	1-1	25	15	0.2	Mobile 94	2	231	75	0.2	Mobile 97	3a-1	25	15	14.5
Mobile 97	1-1	25	30	0.1	Mobile 94	3	231	30	0.4	Mobile 97	3a-1	25	30	13.3
Mobile 97	1-1	25	45	0.1	Mobile 94	3	231	85	0.1	Mobile 97	4-1	25	15	11.7
Mobile 97	2-1	25	15	0.7	Mobile 94	3	231	45	0.3	Mobile 97	4-1	25	30	11.3
Mobile 97	2-1	25	30	0.7	Mobile 94	3	231	75	0.1	Mobile 97	4-2	25	15	3.7
Mobile 97	2-2	25	15	0.4	Mobile 97	1-1	25	15	0.1	Mobile 97	4-2	25	30	38.4
Mobile 97	2-2	25	30	0.2	Mobile 97	1-1	25	45	0.1	Mobile 97	4-3	25	15	1.7
Mobile 97	2-3	25	15	0.8	Mobile 97	2-1	25	15	0.1	Mobile 97	4-3	25	30	2.1
Mobile 97	2-3	25	30	0.4	Mobile 97	2-1	25	30	0.1	Mobile 97	5-1	25	15	1.1
Mobile 97	3-1	25	15	0.4	Mobile 97	2-2	25	15	0.1	Mobile 97	5-1	25	30	0.8
Mobile 97	3-1	25	30	0.5	Mobile 97	2-2	25	30	0.1					
Mobile 97	3a-1	25	15	0.5	Mobile 97	2-3	25	15	0.1					
Mobile 97	3a-1	25	30	0.7	Mobile 97	2-3	25	30	0.1					
Mobile 97	4-1	25	15	0.8	Mobile 97	3-1	25	15	0.2					
Mobile 97	4-1	25	30	0.6	Mobile 97	3-1	25	30	0.2					
Mobile 97	4-2	25	15	3.3	Mobile 97	3a-1	25	15	0.3					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-5 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

2-Methylheptane					2-Methylhexane (ctd.)					3-Ethyltoluene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	30	0.9	Mobile 97	2-3	25	30	0.3	Mobile 94	1	199	30	0.2
Mobile 94	1	199	45	0.2	Mobile 97	3-1	25	15	0.9	Mobile 94	1	199	50	0.2
Mobile 94	2	231	50	2.5	Mobile 97	3-1	25	30	1.1	Mobile 94	1	199	30	0.6
Mobile 94	2	231	85	0.1	Mobile 97	3a-1	25	15	1.6	Mobile 94	1	199	45	0.2
Mobile 94	2	231	30	12.9	Mobile 97	3a-1	25	30	1.5	Mobile 94	1	199	75	0.2
Mobile 94	2	231	45	2.3	Mobile 97	4-1	25	15	1.2	Mobile 94	2	231	50	0.9
Mobile 94	2	231	75	1.4	Mobile 97	4-1	25	30	1.0	Mobile 94	2	231	85	0.1
Mobile 94	3	231	30	6.8	Mobile 97	4-2	25	15	1.2	Mobile 94	2	231	30	4.8
Mobile 94	3	231	85	1.0	Mobile 97	4-2	25	30	2.6	Mobile 94	2	231	45	0.8
Mobile 94	3	231	45	0.8	Mobile 97	4-3	25	15	1.0	Mobile 94	3	231	30	3.0
Mobile 97	1-1	25	15	0.7	Mobile 97	4-3	25	30	0.7	Mobile 94	3	231	50	0.4
Mobile 97	1-1	25	30	0.5	Mobile 97	5-1	25	30	0.2	Mobile 94	3	231	85	0.3
Mobile 97	1-1	25	45	0.4	2-Methylpentane					Mobile 94	3	231	45	1.3
Mobile 97	2-1	25	15	0.8	Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	75	0.5
Mobile 97	2-1	25	30	1.5	Mobile 94	1	199	85	1.8	Mobile 97	1-1	25	15	0.3
Mobile 97	2-2	25	15	0.5	Mobile 94	1	199	30	10.5	Mobile 97	1-1	25	30	0.3
Mobile 97	2-3	25	15	0.4	Mobile 94	1	199	45	5.3	Mobile 97	1-1	25	45	0.2
Mobile 97	2-3	25	30	0.4	Mobile 94	1	199	75	6.5	Mobile 97	2-1	25	15	1.2
Mobile 97	3-1	25	15	0.3	Mobile 94	2	231	50	16.2	Mobile 97	2-1	25	30	1.0
Mobile 97	3-1	25	30	0.5	Mobile 94	2	231	85	5.8	Mobile 97	2-2	25	15	0.7
Mobile 97	3a-1	25	15	0.7	Mobile 94	2	231	30	14.3	Mobile 97	2-2	25	30	0.3
Mobile 97	3a-1	25	30	0.7	Mobile 94	2	231	45	6.7	Mobile 97	2-3	25	15	1.3
Mobile 97	4-1	25	15	1.0	Mobile 94	2	231	75	4.4	Mobile 97	2-3	25	30	0.7
Mobile 97	4-1	25	30	0.6	Mobile 94	3	231	30	7.8	Mobile 97	3-1	25	15	1.1
Mobile 97	4-2	25	15	2.8	Mobile 94	3	231	50	7.2	Mobile 97	3-1	25	30	1.2
Mobile 97	4-2	25	30	1.8	Mobile 94	3	231	85	2.1	Mobile 97	3a-1	25	15	0.8
Mobile 97	4-3	25	15	1.9	Mobile 94	3	231	45	7.7	Mobile 97	3a-1	25	30	0.8
Mobile 97	4-3	25	30	0.8	Mobile 94	3	231	75	4.0	Mobile 97	4-1	25	15	1.9
Mobile 97	5-1	25	15	1.0	Mobile 97	2-1	25	30	1.0	Mobile 97	4-1	25	30	1.4
Mobile 97	5-1	25	30	0.3	Mobile 97	3-1	25	30	2.3	Mobile 97	4-2	25	15	5.3
2-Methylhexane					Mobile 97	3a-1	25	15	3.2	Mobile 97	4-2	25	30	4.8
Burn	Num.	Area	Dist.	Conc.	Mobile 97	3a-1	25	30	3.8	Mobile 97	4-3	25	15	3.5
Mobile 94	1	199	30	0.3	Mobile 97	4-1	25	15	3.0	Mobile 97	4-3	25	30	1.1
Mobile 94	1	199	50	0.4	Mobile 97	4-1	25	30	2.7	Mobile 97	5-1	25	15	1.2
Mobile 94	1	199	85	0.13	Mobile 97	4-2	25	15	1.4	Mobile 97	5-1	25	30	0.2
Mobile 94	1	199	30	8.1	Mobile 97	4-2	25	30	10.6	3-Methylheptane				
Mobile 94	1	199	45	0.7	3,6-Dimethyloctane					Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	75	0.6	Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	199	30	0.6
Mobile 94	2	231	50	4.4	Mobile 94	1	199	30	0.3	Mobile 94	1	199	45	0.2
Mobile 94	2	231	30	23.1	Mobile 94	1	199	45	0.1	Mobile 94	2	231	50	1.5
Mobile 94	2	231	45	3.6	Mobile 94	2	231	50	0.5	Mobile 94	2	231	85	0.1
Mobile 94	3	231	30	14.8	Mobile 94	2	231	30	0.8	Mobile 94	2	231	30	8.9
Mobile 94	3	231	50	1.2	Mobile 94	2	231	75	0.3	Mobile 94	2	231	45	1.7
Mobile 94	3	231	45	2.8	Mobile 94	3	231	30	2.4	Mobile 94	2	231	75	0.8
Mobile 97	1-1	25	15	0.5	Mobile 94	3	231	50	0.2	Mobile 94	3	231	30	4.2
Mobile 97	1-1	25	30	0.5	Mobile 94	3	231	85	0.2	Mobile 94	3	231	50	0.3
Mobile 97	1-1	25	45	0.3	Mobile 94	3	231	45	0.4	Mobile 94	3	231	85	0.7
Mobile 97	2-1	25	15	0.4	Mobile 94	3	231	75	0.2	Mobile 94	3	231	45	0.7
Mobile 97	2-1	25	30	0.3						Mobile 97	1-1	25	15	0.4
Mobile 97	2-2	25	15	0.3						Mobile 97	1-1	25	30	0.3
Mobile 97	2-3	25	15	0.3						Mobile 97	1-1	25	45	0.2

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-6 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

3-Methylheptane (cid.)					3-Methylpentane					4-Ethyltoluene (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2-1	25	15	0.5	Mobile 94	3	231	45	2.1	Mobile 97	4-3	25	15	1.7
Mobile 97	2-1	25	30	1.5	Mobile 94	3	231	75	0.4	Mobile 97	4-3	25	30	0.4
Mobile 97	2-2	25	15	0.2	Mobile 97	1-1	25	15	0.6	Mobile 97	5-1	25	15	0.6
Mobile 97	2-3	25	15	0.3	Mobile 97	1-1	25	30	0.9	Mobile 97	5-1	25	30	0.1
Mobile 97	2-3	25	30	0.2	Mobile 97	1-1	25	45	0.6	4-Methylheptane				
Mobile 97	3-1	25	15	0.3	Mobile 97	2-1	25	15	0.3	Burn	Num.	Area	Dist.	Conc.
Mobile 97	3-1	25	30	0.5	Mobile 97	2-1	25	30	1.0	Mobile 94	1	199	30	0.3
Mobile 97	3a-1	25	15	0.5	Mobile 97	2-3	25	15	0.4	Mobile 94	2	231	50	0.8
Mobile 97	3a-1	25	30	0.7	Mobile 97	2-3	25	30	0.4	Mobile 94	2	231	30	4.5
Mobile 97	4-1	25	15	0.7	Mobile 97	3-1	25	15	1.5	Mobile 94	2	231	45	0.7
Mobile 97	4-1	25	30	0.5	Mobile 97	3-1	25	30	1.6	Mobile 94	3	231	30	1.4
Mobile 97	4-2	25	15	1.5	Mobile 97	3a-1	25	15	2.2	Mobile 94	3	231	45	0.3
Mobile 97	4-2	25	30	1.1	Mobile 97	3a-1	25	30	2.3	Mobile 97	1-1	25	30	0.3
Mobile 97	4-3	25	15	1.0	Mobile 97	4-1	25	15	2.2	Mobile 97	2-1	25	15	0.2
Mobile 97	4-3	25	30	0.6	Mobile 97	4-1	25	30	2.0	Mobile 97	2-1	25	30	0.6
Mobile 97	5-1	25	15	0.6	Mobile 97	4-2	25	15	0.9	Mobile 97	2-2	25	15	0.2
Mobile 97	5-1	25	30	0.2	Mobile 97	4-2	25	30	6.4	Mobile 97	2-3	25	15	0.2
3-Methylhexane					Mobile 97	4-3	25	15	0.6	Mobile 97	2-3	25	30	0.2
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-3	25	30	0.6	Mobile 97	3-1	25	15	0.2
Mobile 94	1	199	30	0.6	Mobile 97	5-1	25	15	0.3	Mobile 97	3-1	25	30	0.2
Mobile 94	1	199	50	0.4	Mobile 97	5-1	25	30	0.2	Mobile 97	3a-1	25	15	0.3
Mobile 94	1	199	85	0.06	4-Ethyltoluene					Mobile 97	4-1	25	15	0.4
Mobile 94	1	199	30	11.3	Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-1	25	30	0.2
Mobile 94	1	199	45	0.8	Mobile 94	1	199	30	0.3	Mobile 97	4-2	25	15	0.7
Mobile 94	1	199	75	0.6	Mobile 94	1	199	45	0.1	Mobile 97	4-2	25	30	0.6
Mobile 94	2	231	50	5.7	Mobile 94	1	199	75	0.2	Mobile 97	4-3	25	15	0.5
Mobile 94	2	231	85	1.7	Mobile 94	2	231	50	0.5	Mobile 97	4-3	25	30	0.3
Mobile 94	2	231	30	29.9	Mobile 94	2	231	30	2.6	Mobile 97	5-1	25	15	0.2
Mobile 94	2	231	45	4.4	Mobile 94	2	231	45	0.4	Mobile 97	5-1	25	30	0.1
Mobile 94	2	231	75	2.8	Mobile 94	3	231	30	1.7	Benzene				
Mobile 94	3	231	30	18.9	Mobile 94	3	231	50	0.2	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	50	1.6	Mobile 94	3	231	85	0.2	Mobile 94	1	199	30	2.0
Mobile 94	3	231	85	2.1	Mobile 94	3	231	45	0.6	Mobile 94	1	199	50	1.2
Mobile 94	3	231	45	3.6	Mobile 94	3	231	75	0.2	Mobile 94	1	199	30	5.1
Mobile 94	3	231	75	2.2	Mobile 97	1-1	25	15	0.2	Mobile 94	1	199	45	2.4
Mobile 97	2-1	25	30	1.0	Mobile 97	1-1	25	30	0.1	Mobile 94	1	199	75	1.4
Mobile 97	3-1	25	15	1.0	Mobile 97	1-1	25	45	0.1	Mobile 94	2	231	50	11.0
Mobile 97	3a-1	25	15	1.6	Mobile 97	2-1	25	15	0.6	Mobile 94	2	231	85	2.6
3-Methylpentane					Mobile 97	2-1	25	30	0.6	Mobile 94	2	231	30	37.4
Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-2	25	15	0.3	Mobile 94	2	231	45	17.5
Mobile 94	1	199	30	0.8	Mobile 97	2-2	25	30	0.2	Mobile 94	2	231	75	8.8
Mobile 94	1	199	45	0.4	Mobile 97	2-3	25	15	0.6	Mobile 94	3	231	30	28.1
Mobile 94	1	199	75	0.5	Mobile 97	2-3	25	30	0.3	Mobile 94	3	231	50	10.7
Mobile 94	2	231	50	2.7	Mobile 97	3-1	25	15	0.5	Mobile 94	3	231	85	4.9
Mobile 94	2	231	85	0.3	Mobile 97	3-1	25	30	0.5	Mobile 94	3	231	45	6.5
Mobile 94	2	231	15	7.5	Mobile 97	3a-1	25	15	0.2	Mobile 94	3	231	75	3.1
Mobile 94	2	231	45	2.0	Mobile 97	3a-1	25	30	0.9	Mobile 97	1-1	25	15	1.6
Mobile 94	2	231	75	1.1	Mobile 97	4-1	25	15	0.9	Mobile 97	1-1	25	30	1.4
Mobile 94	3	231	30	3.5	Mobile 97	4-1	25	30	0.7	Mobile 97	1-1	25	45	1.2
Mobile 94	3	231	50	0.6	Mobile 97	4-2	25	15	2.6	Mobile 97	2-1	25	15	6.1
Mobile 94	3	231	85	0.9	Mobile 97	4-2	25	30	2.4	Mobile 97	2-1	25	30	1.0

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-7 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Benzene					c-1,3-Dimethylcyclohexane					c-2-Butene (ctd.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2-2	25	15	2.6	Mobile 94	1	199	30	1.0	Mobile 94	2	231	15	1.2
Mobile 97	2-2	25	30	1.1	Mobile 94	2	231	50	2.3	Mobile 94	2	231	30	0.7
Mobile 97	2-3	25	15	2.7	Mobile 94	2	231	85	0.3	Mobile 94	2	231	45	0.8
Mobile 97	2-3	25	30	2.1	Mobile 94	2	231	30	12.2	Mobile 94	2	231	75	0.5
Mobile 97	3-1	25	15	3.9	Mobile 94	2	231	45	2.3	Mobile 94	3	231	30	1.0
Mobile 97	3-1	25	30	4.0	Mobile 94	3	231	30	5.1	Mobile 94	3	231	50	0.3
Mobile 97	3a-1	25	15	5.7	Mobile 94	3	231	45	0.8	Mobile 94	3	231	85	0.3
Mobile 97	3a-1	25	30	5.0	Mobile 97	1-1	25	15	0.2	Mobile 94	3	231	45	0.2
Mobile 97	4-1	25	15	5.0	Mobile 97	1-1	25	30	0.1	Mobile 94	3	231	75	0.4
Mobile 97	4-1	25	30	4.8	Mobile 97	1-1	25	45	0.1	Mobile 97	1-1	25	45	0.1
Mobile 97	4-2	25	15	9.7	Mobile 97	2-1	25	15	0.4	Mobile 97	2-1	25	15	0.1
Mobile 97	4-2	25	30	12.7	Mobile 97	2-1	25	30	0.3	Mobile 97	2-1	25	30	0.5
Mobile 97	4-3	25	15	6.2	Mobile 97	2-2	25	15	0.2	Mobile 97	2-2	25	15	0.1
Mobile 97	4-3	25	30	3.2	Mobile 97	2-3	25	15	0.2	Mobile 97	2-3	25	15	0.0
Mobile 97	5-1	25	15	4.1	Mobile 97	2-3	25	30	0.2	Mobile 97	2-3	25	30	0.1
Mobile 97	5-1	25	30	2.4	Mobile 97	3a-1	25	15	0.2	Mobile 97	3-1	25	15	0.1
Butane					Mobile 97	3a-1	25	30	0.1	Mobile 97	3-1	25	30	0.1
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-1	25	15	0.5	Mobile 97	3a-1	25	15	0.1
Mobile 94	1	199	30	2.3	Mobile 97	4-1	25	30	0.2	Mobile 97	3a-1	25	30	0.1
Mobile 94	1	199	45	2.1	Mobile 97	4-2	25	15	1.5	Mobile 97	4-1	25	15	0.1
Mobile 94	1	199	75	2.2	Mobile 97	4-2	25	30	0.6	Mobile 97	4-1	25	30	0.1
Mobile 94	2	231	50	2.7	Mobile 97	4-3	25	15	1.0	Mobile 97	4-2	25	15	0.1
Mobile 94	2	231	85	1.7	Mobile 97	4-3	25	30	0.4	Mobile 97	4-2	25	30	0.2
Mobile 94	2	231	30	5.2	Mobile 97	5-1	25	15	0.5	Mobile 97	4-3	25	15	0.1
Mobile 94	2	231	45	2.1	Mobile 97	5-1	25	30	0.1	Mobile 97	4-3	25	30	0.1
Mobile 94	2	231	75	1.8	c-1,4/t-1,3-Dimethylcyclohexane					Mobile 97	5-1	25	15	0.1
Mobile 94	3	231	30	3.2	Burn	Num.	Area	Dist.	Conc.	c-2-Heptene				
Mobile 94	3	231	50	2.4	Mobile 94	1	199	30	0.3	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	85	2.2	Mobile 94	2	231	50	0.8	Mobile 94	2	231	30	0.6
Mobile 94	3	231	45	4.9	Mobile 94	2	231	30	3.9	Mobile 94	2	231	45	0.2
Mobile 94	3	231	75	1.7	Mobile 94	2	231	45	0.7	Mobile 97	2-1	25	30	0.3
Mobile 97	1-1	25	15	3.2	Mobile 94	2	231	75	0.3	Mobile 97	2-2	25	30	0.2
Mobile 97	1-1	25	30	3.2	Mobile 94	3	231	30	1.6	Mobile 94	2	231	85	0.0
Mobile 97	1-1	25	45	2.7	Mobile 94	3	231	85	0.3	c-2-Hexene				
Mobile 97	2-1	25	15	1.3	Mobile 94	3	231	45	0.3	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2-1	25	30	2.0	Mobile 97	1-1	25	15	0.0	Mobile 94	2	231	45	0.2
Mobile 97	2-2	25	15	1.0	Mobile 97	1-1	25	45	0.0	Mobile 94	3	231	30	0.8
Mobile 97	2-2	25	30	0.9	Mobile 97	2-2	25	15	0.0	Mobile 94	3	231	50	0.3
Mobile 97	2-3	25	15	1.2	Mobile 97	2-2	25	30	0.0	Mobile 94	3	231	85	0.0
Mobile 97	2-3	25	30	1.0	Mobile 97	2-3	25	30	0.0	Mobile 97	3	25	15	0.1
Mobile 97	3-1	25	15	7.8	Mobile 97	3-1	25	15	0.0	c-2-Pentene				
Mobile 97	3-1	25	30	8.0	Mobile 97	3-1	25	30	0.1	Burn	Num.	Area	Dist.	Conc.
Mobile 97	3a-1	25	15	11.8	Mobile 97	4-1	25	15	0.1	Mobile 97	2-1	25	15	0.1
Mobile 97	3a-1	25	30	11.0	Mobile 97	5-1	25	30	0.0	Mobile 97	2-1	25	30	0.1
Mobile 97	4-1	25	15	10.1	c-2-Butene					Mobile 97	3-1	25	15	0.1
Mobile 97	4-1	25	30	9.9	Burn	Num.	Area	Dist.	Conc.	Mobile 97	3-1	25	30	0.1
Mobile 97	4-2	25	15	4.6	Mobile 94	1	199	30	0.2	Mobile 97	3a-1	25	15	0.2
Mobile 97	4-2	25	15	22.7	Mobile 94	1	199	50	0.1	Mobile 97	3a-1	25	30	0.2
Mobile 97	4-3	25	15	1.5	Mobile 94	1	199	30	0.3	Mobile 97	4-1	25	15	0.1
Mobile 97	4-3	25	30	2.3	Mobile 94	1	199	45	0.2	Mobile 97	4-1	25	30	0.2
Mobile 97	5-1	25	15	1.1	Mobile 94	2	231	50	0.5	Mobile 97	4-2	25	15	0.1

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-8 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

c-2-Pentene (dd.)					Cyclopentane					Decane				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-2	25	15	0.9	Mobile 94	1	199	85	0.0	Mobile 94	1	199	30	0.5
Mobile 97	4-3	25	15	0.1	Mobile 94	2	231	30	1.3	Mobile 94	1	199	50	0.1
Mobile 97	4-3	25	30	0.1	Mobile 94	2	231	45	0.3	Mobile 94	1	199	30	2.1
Mobile 97	5-1	25	15	0.1	Mobile 94	3	231	30	0.6	Mobile 94	1	199	45	0.6
Mobile 97	5-1	25	85	0.0	Mobile 94	3	231	45	1.4	Mobile 94	1	199	75	0.8
Mobile 97	5-1	25	85	0.0	Mobile 97	1-1	25	15	0.1	Mobile 94	2	231	50	2.3
Cyclohexane					Mobile 97	1-1	25	30	0.2	Mobile 94	2	231	85	0.3
Burn	Num.	Area	Dist.	Conc.	Mobile 97	1-1	25	45	0.1	Mobile 94	2	231	30	9.3
Mobile 94	1	199	30	1.0	Mobile 97	2-1	25	15	0.1	Mobile 94	2	231	45	2.1
Mobile 94	1	199	45	0.1	Mobile 97	2-1	25	15	3.4	Mobile 94	2	231	75	1.1
Mobile 94	1	199	75	0.2	Mobile 97	2-3	25	15	0.1	Mobile 94	3	231	30	7.7
Mobile 94	2	231	50	3.5	Mobile 97	2-3	25	30	0.1	Mobile 94	3	231	50	0.7
Mobile 94	2	231	85	0.2	Mobile 97	3-1	25	15	0.4	Mobile 94	3	231	85	1.1
Mobile 94	2	231	30	15.3	Mobile 97	3-1	25	30	0.4	Mobile 94	3	231	45	2.2
Mobile 94	2	231	45	3.0	Mobile 97	3a-1	25	15	0.6	Mobile 94	3	231	75	0.7
Mobile 94	2	231	75	1.6	Mobile 97	3a-1	25	30	0.7	Mobile 97	1-1	25	15	1.0
Mobile 94	3	231	30	6.6	Mobile 97	4-1	25	15	0.6	Mobile 97	1-1	25	30	0.7
Mobile 94	3	231	50	0.2	Mobile 97	4-1	25	30	0.5	Mobile 97	1-1	25	45	0.5
Mobile 94	3	231	85	1.0	Mobile 97	4-2	25	15	0.2	Mobile 97	2-1	25	15	6.0
Mobile 94	3	231	45	2.0	Mobile 97	4-2	25	15	2.1	Mobile 97	2-1	25	30	2.8
Mobile 97	1-1	25	15	0.3	Mobile 97	4-3	25	15	0.1	Mobile 97	2-2	25	15	2.8
Mobile 97	1-1	25	30	0.3	Mobile 97	4-3	25	30	0.2	Mobile 97	2-2	25	30	0.9
Mobile 97	1-1	25	45	0.2	Cyclopentene					Mobile 97	2-3	25	15	7.1
Mobile 97	2-1	25	15	0.3	Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-3	25	30	3.4
Mobile 97	2-1	25	30	0.9	Mobile 94	2	231	85	0.2	Mobile 97	3-1	25	15	0.9
Mobile 97	2-2	25	15	0.2	Mobile 94	2	231	30	0.5	Mobile 97	3-1	25	30	1.4
Mobile 97	2-2	25	30	0.1	Mobile 94	2	231	45	0.4	Mobile 97	3a-1	25	15	0.2
Mobile 97	2-3	25	30	0.1	Mobile 94	2	231	75	0.2	Mobile 97	3a-1	25	30	0.6
Mobile 97	3-1	25	15	0.3	Mobile 94	3	231	30	0.4	Mobile 97	4-1	25	15	2.6
Mobile 97	3-1	25	30	0.3	Mobile 97	1-1	25	15	0.0	Mobile 97	4-1	25	30	1.1
Mobile 97	3a-1	25	15	0.5	Mobile 97	1-1	25	30	0.0	Mobile 97	4-2	25	15	31.0
Mobile 97	3a-1	25	30	0.4	Mobile 97	1-1	25	45	0.0	Mobile 97	4-2	25	30	9.6
Mobile 97	4-1	25	15	0.6	Mobile 97	2-1	25	15	0.1	Mobile 97	4-3	25	15	18.1
Mobile 97	4-1	25	30	0.5	Mobile 97	2-1	25	30	0.1	Mobile 97	4-3	25	30	3.1
Mobile 97	4-2	25	15	0.8	Mobile 97	2-2	25	15	0.1	Mobile 97	5-1	25	15	5.8
Mobile 97	4-2	25	30	0.8	Mobile 97	2-2	25	30	0.0	Mobile 97	5-1	25	30	1.4
Mobile 97	4-3	25	15	0.8	Mobile 97	2-3	25	15	0.0	Dodecane				
Mobile 97	4-3	25	30	0.3	Mobile 97	2-3	25	30	0.0	Burn	Num.	Area	Dist.	Conc.
Mobile 97	5-1	25	15	0.4	Mobile 97	3-1	25	30	0.0	Mobile 94	1	199	30	2.3
Mobile 97	5-1	25	30	0.1	Mobile 97	3a-1	25	15	0.1	Mobile 94	1	199	45	1.6
Cyclohexene					Mobile 97	3a-1	25	30	0.1	Mobile 94	1	199	75	0.3
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-1	25	15	0.0	Mobile 94	2	231	50	0.6
Mobile 94	1	199	30	0.3	Mobile 97	4-1	25	30	0.0	Mobile 94	2	231	85	0.1
Mobile 94	1	199	50	0.2	Mobile 97	4-2	25	15	0.1	Mobile 94	2	231	30	2.2
Mobile 94	1	199	30	0.6	Mobile 97	4-2	25	30	0.3	Mobile 94	2	231	45	0.8
Mobile 94	1	199	45	0.1	Mobile 97	4-3	25	15	0.1	Mobile 94	2	231	75	0.2
Mobile 94	2	231	85	0.4	Mobile 97	4-3	25	30	0.0	Mobile 94	3	231	30	6.0
Mobile 94	2	231	30	0.4	Mobile 97	5-1	25	15	0.1	Mobile 94	3	231	50	1.5
Mobile 94	2	231	45	0.3	Mobile 97	5-1	25	30	0.0	Mobile 94	3	231	85	0.9
Mobile 94	3	231	30	1.6						Mobile 94	3	231	45	1.9
Mobile 94	3	231	50	0.7						Mobile 94	3	231	75	0.9

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-9 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Dodecane					Ethylbenzene (cid.)					Hexane (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	1-1	25	15	2.9	Mobile 97	4-2	25	30	5.9	Mobile 97	2-3	25	15	2.5
Mobile 97	1-1	25	30	1.8	Mobile 97	4-3	25	15	2.2	Mobile 97	2-3	25	30	2.7
Mobile 97	1-1	25	45	0.8	Mobile 97	4-3	25	30	0.9	Mobile 97	3-1	25	15	1.8
Mobile 97	2-1	25	15	45.9	Mobile 97	5-1	25	15	1.0	Mobile 97	3-1	25	30	2.3
Mobile 97	2-1	25	30	12.6	Mobile 97	5-1	25	30	0.3	Mobile 97	3a-1	25	15	2.9
Mobile 97	2-2	25	15	13.8	Heptane					Mobile 97	3a-1	25	30	2.9
Mobile 97	2-2	25	30	4.5		Num.	Area	Dist.	Conc.	Mobile 97	4-1	25	15	4.6
Mobile 97	2-3	25	15	50.5	Mobile 94	1	199	30	0.4	Mobile 97	4-1	25	30	3.5
Mobile 97	2-3	25	30	19.5	Mobile 94	1	199	30	12.4	Mobile 97	4-2	25	15	3.0
Mobile 97	3-1	25	15	0.7	Mobile 94	1	199	45	0.9	Mobile 97	4-2	25	30	9.0
Mobile 97	3-1	25	30	1.6	Mobile 94	1	199	75	0.6	Mobile 97	4-3	25	15	1.4
Mobile 97	3a-1	25	30	0.5	Mobile 94	2	231	50	12.7	Mobile 97	4-3	25	30	1.2
Mobile 97	4-1	25	15	6.2	Mobile 94	2	231	85	2.2	Mobile 97	5-1	25	15	0.8
Mobile 97	4-1	25	30	1.5	Mobile 94	2	231	30	59.9	Mobile 97	5-1	25	30	0.4
Mobile 97	4-2	25	15	136.0	Mobile 94	2	231	45	9.9	Hexylbenzene				
Mobile 97	4-2	25	30	37.2	Mobile 94	2	231	75	5.4	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-3	25	15	74.6	Mobile 94	3	231	30	33.3	Mobile 94	1	199	75	0.4
Mobile 97	4-3	25	30	2.7	Mobile 94	3	231	50	2.2	Mobile 94	2	25	30	0.3
Mobile 97	5-1	25	15	36.7	Mobile 94	3	231	85	4.1	Mobile 94	3	231	50	0.6
Mobile 97	5-1	25	30	0.4	Mobile 94	3	231	45	5.0	Mobile 97	1-1	25	30	0.1
Ethylbenzene					Mobile 94	3	231	75	2.4	Mobile 97	2-1	25	15	1.2
Burn	Num.	Area	Dist.	Conc.	Mobile 97	1-1	25	15	1.0	Mobile 97	2-1	25	30	0.4
Mobile 94	1	199	30	0.8	Mobile 97	1-1	25	30	0.9	Mobile 97	2-2	25	15	0.5
Mobile 94	1	199	45	0.3	Mobile 97	1-1	25	45	0.8	Mobile 97	2-3	25	30	0.5
Mobile 94	1	199	75	0.4	Mobile 97	2-1	25	15	1.1	Mobile 97	3-1	25	15	0.0
Mobile 94	2	231	50	1.6	Mobile 97	2-1	25	30	1.0	Mobile 97	4-2	25	15	3.8
Mobile 94	2	231	85	0.3	Mobile 97	2-2	25	15	0.6	Mobile 97	4-2	25	30	0.7
Mobile 94	2	231	15	6.5	Mobile 97	2-2	25	30	0.3	Mobile 97	4-3	25	15	1.4
Mobile 94	2	231	45	1.6	Mobile 97	2-3	25	15	0.6	Mobile 97	5-1	25	15	0.6
Mobile 94	2	231	75	0.8	Mobile 97	2-3	25	30	0.5	Indan (2,3-Dihydroindene)				
Mobile 94	3	231	30	4.3	Mobile 97	3-1	25	15	0.8	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	50	0.4	Mobile 97	3-1	25	30	1.4	Mobile 97	1-1	25	15	0.0
Mobile 94	3	231	85	0.9	Mobile 97	3a-1	25	15	1.1	Mobile 97	1-1	25	45	0.0
Mobile 94	3	231	45	1.5	Mobile 97	3a-1	25	30	1.3	Mobile 97	2-1	25	15	0.1
Mobile 94	3	231	75	0.3	Mobile 97	4-1	25	15	1.6	Mobile 97	2-1	25	30	0.7
Mobile 97	1-1	25	15	0.8	Mobile 97	4-1	25	30	1.1	Mobile 97	2-2	25	15	0.1
Mobile 97	1-1	25	30	0.7	Mobile 97	4-2	25	15	3.0	Mobile 97	2-2	25	30	0.0
Mobile 97	1-1	25	45	0.5	Mobile 97	4-2	25	30	2.9	Mobile 97	2-3	25	15	0.1
Mobile 97	2-1	25	15	1.2	Mobile 97	4-3	25	15	2.5	Mobile 97	2-3	25	30	0.1
Mobile 97	2-1	25	30	1.0	Mobile 97	4-3	25	30	1.6	Mobile 97	3-1	25	15	0.1
Mobile 97	2-2	25	15	0.7	Mobile 97	5-1	25	15	1.4	Mobile 97	3-1	25	30	0.2
Mobile 97	2-2	25	30	0.3	Mobile 97	5-1	25	30	0.5	Mobile 97	3a-1	25	15	0.1
Mobile 97	2-3	25	15	1.0	Hexane					Mobile 97	3a-1	25	30	0.2
Mobile 97	2-3	25	30	0.6	Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-1	25	15	0.2
Mobile 97	3-1	25	15	1.6	Mobile 97	1-1	25	15	2.9	Mobile 97	4-1	25	30	0.2
Mobile 97	3-1	25	30	1.7	Mobile 97	1-1	25	30	7.7	Mobile 97	4-2	25	15	0.6
Mobile 97	3a-1	25	15	1.7	Mobile 97	1-1	25	45	4.2	Mobile 97	4-2	25	30	0.5
Mobile 97	3a-1	25	30	2.3	Mobile 97	2-1	25	15	1.4	Mobile 97	4-3	25	15	0.4
Mobile 97	4-1	25	15	2.2	Mobile 97	2-1	25	30	1.0	Mobile 97	4-3	25	30	0.1
Mobile 97	4-1	25	30	1.9	Mobile 97	2-2	25	15	2.4	Mobile 97	5-1	25	15	0.1
Mobile 97	4-2	25	15	3.1	Mobile 97	2-2	25	30	4.3	Mobile 97	5-1	25	30	0.3

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$



Table A2-10 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Indene					iso-Butylbenzene (cid.)					iso-Propylbenzene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	75	0.1	Mobile 97	2-3	25	15	0.1	Mobile 94	2	231	30	1.0
Mobile 94	2	231	30	0.4	Mobile 97	2-3	25	30	0.1	Mobile 94	2	231	75	0.1
Mobile 94	3	231	30	0.3	Mobile 97	3-1	25	15	0.0	Mobile 94	3	231	30	0.6
Mobile 94	3	231	45	0.3	Mobile 97	3-1	25	30	0.0	Mobile 94	3	231	85	0.1
Mobile 94	3	231	45	0.3	Mobile 97	3a-1	25	15	0.0	Mobile 94	3	231	45	0.2
Mobile 94	3	231	45	0.3	Mobile 97	3a-1	25	30	0.0	Mobile 94	3	231	75	0.3
Mobile 94	3	25	15	0.1	Mobile 97	4-1	25	15	0.1	Mobile 97	1-1	25	15	0.1
Mobile 97	3	25	45	0.0	Mobile 97	4-1	25	30	0.0	Mobile 97	1-1	25	30	0.1
Mobile 97	3	25	45	0.0	Mobile 97	4-2	25	15	0.6	Mobile 97	1-1	25	45	0.0
Isobutane (2-Methylpropane)					Mobile 97	4-2	25	30	0.2	Mobile 97	2-1	25	15	0.2
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-3	25	15	0.4	Mobile 97	2-1	25	30	0.2
Mobile 94	1	199	30	1.2	Mobile 97	4-3	25	30	0.1	Mobile 97	2-2	25	15	0.1
Mobile 94	1	199	45	1.0	Mobile 97	5-1	25	15	0.1	Mobile 97	2-2	25	30	0.0
Mobile 94	1	199	75	1.1	Mobile 97	5-1	25	30	0.0	Mobile 97	2-3	25	15	0.2
Mobile 94	2	231	50	0.9	Isoprene (2-Methyl-1,3-Butadiene)					Mobile 97	2-3	25	30	0.1
Mobile 94	2	231	85	0.6	Burn	Num.	Area	Dist.	Conc.	Mobile 97	3-1	25	15	0.2
Mobile 94	2	231	30	1.3	Mobile 94	1	199	30	0.6	Mobile 97	3-1	25	30	0.2
Mobile 94	2	231	45	0.8	Mobile 94	1	199	50	0.8	Mobile 97	3a-1	25	15	0.2
Mobile 94	2	231	75	0.7	Mobile 94	1	199	30	2.9	Mobile 97	3a-1	25	30	0.2
Mobile 94	3	231	30	3.4	Mobile 94	1	199	45	0.3	Mobile 97	4-1	25	15	0.3
Mobile 94	3	231	50	1.4	Mobile 94	1	199	75	1.0	Mobile 97	4-1	25	30	0.2
Mobile 94	3	231	85	0.6	Mobile 94	2	231	85	1.3	Mobile 97	4-2	25	15	0.7
Mobile 94	3	231	15	9.0	Mobile 94	2	231	30	1.7	Mobile 97	4-2	25	30	0.5
Mobile 94	3	231	75	0.6	Mobile 94	2	231	45	0.8	Mobile 97	4-3	25	15	0.5
Mobile 97	1-1	25	15	1.5	Mobile 94	3	231	30	0.6	Mobile 97	4-3	25	30	0.2
Mobile 97	1-1	25	30	1.6	Mobile 94	3	231	60	2.4	Mobile 97	5-1	25	15	0.2
Mobile 97	1-1	25	45	1.5	Mobile 94	3	231	45	2.1	Mobile 97	5-1	25	30	0.1
Mobile 97	2-1	25	15	0.5	Mobile 94	3	231	15	0.9	Methylcyclohexane				
Mobile 97	2-1	25	30	5.3	Mobile 97	1-1	25	30	1.0	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2-2	25	15	0.4	Mobile 97	1-1	25	45	0.8	Mobile 94	1	199	30	4.3
Mobile 97	2-2	25	30	0.4	Mobile 97	2-1	25	15	0.8	Mobile 94	1	199	45	0.3
Mobile 97	2-3	25	15	0.5	Mobile 97	2-1	25	30	0.8	Mobile 94	1	199	75	0.2
Mobile 97	2-3	25	30	0.4	Mobile 97	2-2	25	15	0.6	Mobile 94	2	231	50	10.6
Mobile 97	3-1	25	15	3.9	Mobile 97	2-2	25	30	0.5	Mobile 94	2	231	85	0.5
Mobile 97	3-1	25	30	3.9	Mobile 97	2-3	25	15	1.0	Mobile 94	2	231	30	51.5
Mobile 97	3a-1	25	15	6.6	Mobile 97	2-3	25	30	1.0	Mobile 94	2	231	45	9.4
Mobile 97	3a-1	25	30	5.5	Mobile 97	3-1	25	15	2.2	Mobile 94	2	231	75	5.0
Mobile 97	4-1	25	15	4.6	Mobile 97	3-1	25	30	2.2	Mobile 94	3	231	30	21.5
Mobile 97	4-1	25	30	4.7	Mobile 97	3a-1	25	15	1.0	Mobile 94	3	231	50	0.6
Mobile 97	4-2	25	15	2.4	Mobile 97	3a-1	25	30	0.5	Mobile 94	3	231	85	3.5
Mobile 97	4-2	25	30	5.0	Mobile 97	4-1	25	15	0.7	Mobile 94	3	231	45	2.9
Mobile 97	4-3	25	15	0.6	Mobile 97	4-1	25	30	0.6	Mobile 94	3	231	75	0.5
Mobile 97	4-3	25	30	0.9	Mobile 97	4-2	25	15	2.2	Mobile 97	1-1	25	15	0.7
Mobile 97	5-1	25	15	0.3	Mobile 97	4-2	25	30	1.9	Mobile 97	1-1	25	30	0.6
Mobile 97	5-1	25	30	0.3	Mobile 97	4-3	25	15	1.4	Mobile 97	1-1	25	45	0.5
iso-Butylbenzene					Mobile 97	4-3	25	30	0.5	Mobile 97	2-1	25	15	1.0
Burn	Num.	Area	Dist.	Conc.	Mobile 97	5-1	25	15	0.5	Mobile 97	2-1	25	30	1.2
Mobile 94	2	231	30	0.4	Mobile 97	5-1	25	30	0.2	Mobile 97	2-2	25	15	0.5
Mobile 97	1-1	25	15	0.0						Mobile 97	2-2	25	30	0.2
Mobile 97	2-1	25	15	0.1						Mobile 97	2-3	25	15	0.5
Mobile 97	2-1	25	30	0.2						Mobile 97	2-3	25	30	0.4
Mobile 97	2-2	25	15	0.1										

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-11 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Methylcyclohexane					m,p-Xylene					Naphthalene (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	3-1	25	15	0.4	Mobile 97	1-1	25	45	1.8	Mobile 97	2-2	25	30	0.4
Mobile 97	3-1	25	30	0.4	Mobile 97	2-1	25	15	4.7	Mobile 97	2-3	25	15	1.9
Mobile 97	3a-1	25	15	0.7	Mobile 97	2-1	25	30	3.0	Mobile 97	2-3	25	30	0.7
Mobile 97	3a-1	25	30	0.7	Mobile 97	2-2	25	15	2.9	Mobile 97	3-1	25	15	0.2
Mobile 97	4-1	25	15	1.1	Mobile 97	2-2	25	30	1.1	Mobile 97	3-1	25	30	0.7
Mobile 97	4-1	25	30	0.7	Mobile 97	2-3	25	15	4.4	Mobile 97	3a-1	25	15	0.1
Mobile 97	4-2	25	15	3.1	Mobile 97	2-3	25	30	2.4	Mobile 97	3a-1	25	30	0.8
Mobile 97	4-2	25	30	1.6	Mobile 97	3-1	25	15	5.0	Mobile 97	4-1	25	15	1.3
Mobile 97	4-3	25	15	2.7	Mobile 97	3-1	25	30	5.2	Mobile 97	4-1	25	30	0.8
Mobile 97	4-3	25	30	1.1	Mobile 97	3a-1	25	15	4.8	Mobile 97	4-2	25	15	11.5
Mobile 97	5-1	25	15	1.4	Mobile 97	3a-1	25	30	4.0	Mobile 97	4-2	25	30	2.8
Mobile 97	5-1	25	30	0.4	Mobile 97	4-1	25	15	8.7	Mobile 97	4-3	25	15	5.3
Methylcyclopentane					Mobile 97	4-1	25	30	6.0	Mobile 97	4-3	25	30	0.3
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-2	25	15	16.3	Mobile 97	5-1	25	15	2.3
Mobile 94	1	199	30	0.2	Mobile 97	4-2	25	30	26.1	Mobile 97	5-1	25	30	0.1
Mobile 94	1	199	50	0.2	Mobile 97	4-3	25	15	11.7	n-Butylbenzene				
Mobile 94	1	199	30	0.7	Mobile 97	4-3	25	30	4.0	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	45	0.2	Mobile 97	5-1	25	15	4.1	Mobile 94	2	231	30	0.4
Mobile 94	1	199	75	0.2	Mobile 97	5-1	25	30	1.1	Mobile 94	3	231	75	0.1
Mobile 94	2	231	50	4.4	Mobile 94	1	199	30	3.8	Mobile 97	1-1	25	15	0.1
Mobile 94	2	231	85	0.6	Mobile 94	1	199	45	1.0	Mobile 97	1-1	25	30	0.1
Mobile 94	2	231	30	9.3	Mobile 94	1	199	75	1.4	Mobile 97	1-1	25	45	0.1
Mobile 94	2	231	45	4.2	Mobile 94	2	231	50	7.9	Mobile 97	2-1	25	15	0.3
Mobile 94	2	231	75	2.3	Mobile 94	2	231	85	1.0	Mobile 97	2-1	25	30	0.4
Mobile 94	3	231	30	4.1	Mobile 94	2	231	30	36.7	Mobile 97	2-2	25	15	0.1
Mobile 94	3	231	50	0.3	Mobile 94	2	231	45	7.1	Mobile 97	2-2	25	30	0.1
Mobile 94	3	231	85	0.6	Mobile 94	2	231	75	3.4	Mobile 97	2-3	25	15	0.3
Mobile 94	3	231	45	1.8	Mobile 94	3	231	30	20.9	Mobile 97	2-3	25	30	0.2
Mobile 94	3	231	75	0.2	Mobile 94	3	231	50	1.8	Mobile 97	3-1	25	15	0.1
Mobile 97	1-1	25	15	0.6	Mobile 94	3	231	85	3.5	Mobile 97	3-1	25	30	0.1
Mobile 97	1-1	25	30	1.1	Mobile 94	3	231	45	5.9	Mobile 97	3a-1	25	15	0.0
Mobile 97	1-1	25	45	0.6	Naphthalene					Mobile 97	3a-1	25	30	0.1
Mobile 97	2-1	25	15	0.4	Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-1	25	15	1.9
Mobile 97	2-1	25	30	0.3	Mobile 94	1	199	30	0.2	Mobile 97	4-1	25	30	0.1
Mobile 97	2-2	25	15	0.4	Mobile 94	1	199	45	0.3	Mobile 97	4-2	25	15	1.2
Mobile 97	2-2	25	30	0.6	Mobile 94	1	199	75	1.0	Mobile 97	4-2	25	30	0.5
Mobile 97	2-3	25	15	0.5	Mobile 94	2	231	50	3.1	Mobile 97	4-3	25	15	0.8
Mobile 97	2-3	25	30	0.4	Mobile 94	2	231	85	0.2	Mobile 97	4-3	25	30	0.1
Mobile 97	3-1	25	15	0.8	Mobile 94	2	231	30	6.4	Mobile 97	5-1	25	15	0.3
Mobile 97	3-1	25	30	0.8	Mobile 94	2	231	45	0.9	Mobile 97	5-1	25	30	0.1
Mobile 97	3a-1	25	15	1.2	Mobile 94	3	231	30	7.1	Nonane				
Mobile 97	4-1	25	15	1.4	Mobile 94	3	231	50	2.1	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-1	25	30	1.2	Mobile 94	3	231	85	0.9	Mobile 94	1	199	30	1.7
Mobile 97	4-2	25	15	0.8	Mobile 94	3	231	45	1.4	Mobile 94	1	199	45	0.2
Mobile 97	4-2	25	30	2.7	Mobile 94	3	231	75	1.4	Mobile 94	1	199	75	0.3
Mobile 97	4-3	25	30	0.3	Mobile 97	1-1	25	15	0.2	Mobile 94	2	231	50	3.9
Mobile 97	5-1	25	30	0.2	Mobile 97	1-1	25	30	0.2	Mobile 94	2	231	85	0.2
m,p-Xylene					Mobile 97	1-1	25	45	0.2	Mobile 94	2	231	30	18.2
Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-1	25	15	3.9	Mobile 94	2	231	45	3.6
Mobile 97	1-1	25	15	2.8	Mobile 97	2-1	25	30	2.2	Mobile 94	2	231	75	1.7
Mobile 97	1-1	25	30	2.2	Mobile 97	2-2	25	15	1.3	Mobile 94	3	231	30	11.1

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-12 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Nonane (cid.)					n-Propylbenzene (cid.)					o-Xylene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	50	0.6	Mobile 97	4-2	25	15	1.6	Mobile 94	2	231	75	1.6
Mobile 94	3	231	85	1.6	Mobile 97	4-2	25	30	1.6	Mobile 94	3	231	30	8.8
Mobile 94	3	231	45	1.6	Mobile 97	4-3	25	15	1.1	Mobile 94	3	231	50	0.6
Mobile 94	3	231	75	0.3	Mobile 97	4-3	25	30	0.3	Mobile 94	3	231	85	1.4
Mobile 97	1-1	25	15	1.2	Mobile 97	5-1	25	15	0.4	Mobile 94	3	231	45	2.2
Mobile 97	1-1	25	30	0.8	Mobile 97	5-1	25	30	0.1	Mobile 94	3	231	15	21.9
Mobile 97	1-1	25	45	0.6	Octane					Mobile 97	1-1	25	15	0.9
Mobile 97	2-1	25	15	3.5	Burn	Num.	Area	Dist.	Conc.	Mobile 97	1-1	25	30	0.7
Mobile 97	2-1	25	30	1.8	Mobile 94	1	199	30	2.3	Mobile 97	1-1	25	45	0.6
Mobile 97	2-2	25	15	1.8	Mobile 94	1	199	45	0.2	Mobile 97	2-1	25	15	2.0
Mobile 97	2-2	25	30	0.7	Mobile 94	1	199	75	0.2	Mobile 97	2-1	25	30	1.0
Mobile 97	2-3	25	15	3.0	Mobile 94	2	231	50	5.3	Mobile 97	2-2	25	15	1.3
Mobile 97	2-3	25	30	1.6	Mobile 94	2	231	85	16.3	Mobile 97	2-2	25	30	0.5
Mobile 97	3-1	25	15	0.7	Mobile 94	2	231	30	27.5	Mobile 97	2-3	25	15	2.2
Mobile 97	3-1	25	30	1.5	Mobile 94	2	231	45	4.9	Mobile 97	2-3	25	30	1.2
Mobile 97	3a-1	25	15	0.3	Mobile 94	2	231	75	2.5	Mobile 97	3-1	25	15	1.7
Mobile 97	3a-1	25	30	0.7	Mobile 94	3	231	30	13.5	Mobile 97	3-1	25	30	1.8
Mobile 97	4-1	25	15	2.1	Mobile 94	3	231	50	0.6	Mobile 97	3a-1	25	15	2.2
Mobile 97	4-1	25	30	1.1	Mobile 94	3	231	85	2.1	Mobile 97	3a-1	25	30	2.7
Mobile 97	4-2	25	15	15.3	Mobile 94	3	231	45	1.9	Mobile 97	4-1	25	15	3.3
Mobile 97	4-2	25	30	5.3	Mobile 94	3	231	75	0.2	Mobile 97	4-1	25	30	2.0
Mobile 97	4-3	25	15	10.0	Mobile 97	1-1	25	15	1.2	Mobile 97	4-2	25	15	7.7
Mobile 97	4-3	25	30	2.9	Mobile 97	1-1	25	30	1.0	Mobile 97	4-2	25	30	8.0
Mobile 97	5-1	25	15	3.3	Mobile 97	1-1	25	45	0.8	Mobile 97	4-3	25	15	5.3
Mobile 97	5-1	25	30	1.1	Mobile 97	2-1	25	15	2.0	Mobile 97	4-3	25	30	2.1
n-Propylbenzene					Mobile 97	2-1	25	30	2.0	Mobile 97	5-1	25	15	2.1
Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-2	25	15	0.9	Mobile 97	5-1	25	30	0.6
Mobile 94	1	199	30	0.3	Mobile 97	2-2	25	30	0.5	p-Cymene				
Mobile 94	2	231	30	1.7	Mobile 97	2-3	25	15	1.2	Burn	Num.	Area	Dist.	Conc.
Mobile 94	2	231	45	0.3	Mobile 97	2-3	25	30	0.7	Mobile 94	1	199	30	0.2
Mobile 94	2	231	75	0.2	Mobile 97	3-1	25	15	0.5	Mobile 94	1	199	45	0.1
Mobile 94	3	231	30	1.0	Mobile 97	3-1	25	30	1.3	Mobile 94	1	199	75	0.1
Mobile 94	3	231	50	0.0	Mobile 97	3a-1	25	15	0.5	Mobile 94	2	231	50	1.4
Mobile 94	3	231	85	0.2	Mobile 97	3a-1	25	30	0.9	Mobile 94	2	231	85	0.1
Mobile 94	3	231	45	0.4	Mobile 97	4-1	25	15	1.8	Mobile 94	2	231	30	1.0
Mobile 94	3	231	75	0.3	Mobile 97	4-1	25	30	1.0	Mobile 94	2	231	45	0.2
Mobile 97	1-1	25	15	0.1	Mobile 97	4-2	25	15	7.4	Mobile 94	3	231	50	0.3
Mobile 97	1-1	25	30	0.1	Mobile 97	4-2	25	30	3.2	Mobile 94	3	231	45	1.4
Mobile 97	1-1	25	45	0.1	Mobile 97	4-3	25	15	4.7	Mobile 94	3	231	75	0.6
Mobile 97	2-1	25	15	0.4	Mobile 97	4-3	25	30	2.0	Mobile 97	1-1	25	15	0.1
Mobile 97	2-1	25	30	0.4	Mobile 97	5-1	25	15	2.1	Mobile 97	1-1	25	30	0.1
Mobile 97	2-2	25	15	0.2	Mobile 97	5-1	25	30	0.7	Mobile 97	1-1	25	45	0.1
Mobile 97	2-2	25	30	0.1	o-Xylene					Mobile 97	2-1	25	15	0.2
Mobile 97	2-3	25	15	0.4	Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-1	25	30	0.2
Mobile 97	2-3	25	30	0.2	Mobile 94	1	199	30	1.7	Mobile 97	2-2	25	15	0.1
Mobile 97	3-1	25	15	0.4	Mobile 94	1	199	45	0.4	Mobile 97	2-3	25	15	0.2
Mobile 97	3-1	25	30	0.4	Mobile 94	1	199	75	0.7	Mobile 97	2-3	25	30	0.1
Mobile 97	3a-1	25	15	0.2	Mobile 94	2	231	50	3.4	Mobile 97	3-1	25	15	0.1
Mobile 97	3a-1	25	30	0.6	Mobile 94	2	231	85	0.3	Mobile 97	3-1	25	30	0.1
Mobile 97	4-1	25	15	0.7	Mobile 94	2	231	30	15.1	Mobile 97	3a-1	25	15	0.2
Mobile 97	4-1	25	30	0.5	Mobile 94	2	231	45	2.9	Mobile 97	3a-1	25	30	0.1

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-13 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

p-Cymene (cid.)					Propane					Propene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-1	25	30	0.2	Mobile 94	2	231	75	4.5	Mobile 97	2-3	25	15	1.0
Mobile 97	4-2	25	15	1.1	Mobile 94	3	231	30	2.9	Mobile 97	2-3	25	30	1.0
Mobile 97	4-2	25	30	0.5	Mobile 94	3	231	50	5.9	Mobile 97	3-1	25	15	1.4
Mobile 97	4-3	25	15	0.7	Mobile 94	3	231	85	2.8	Mobile 97	3-1	25	30	1.3
Mobile 97	4-3	25	30	0.3	Mobile 94	3	231	15	17.9	Mobile 97	3a-1	25	15	1.9
Mobile 97	5-1	25	15	0.2	Mobile 94	3	231	75	2.8	Mobile 97	3a-1	25	30	2.5
Pentane					Propene					Propyne				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	30	2.1	Mobile 97	1-1	25	30	6.4	Mobile 97	4-1	25	30	2.8
Mobile 94	1	199	45	1.5	Mobile 97	1-1	25	45	4.9	Mobile 97	4-2	25	15	1.9
Mobile 94	1	199	75	1.4	Mobile 97	2-1	25	15	3.3	Mobile 97	4-2	25	30	1.5
Mobile 94	2	231	50	3.5	Mobile 97	2-1	25	30	3.4	Mobile 97	4-3	25	15	1.1
Mobile 94	2	231	85	1.0	Mobile 97	2-2	25	15	2.2	Mobile 97	4-3	25	30	0.9
Mobile 94	2	231	30	11.9	Mobile 97	2-2	25	30	2.3	Mobile 97	5-1	25	15	1.5
Mobile 94	2	231	45	2.8	Mobile 97	2-3	25	15	2.7	Mobile 97	5-1	25	30	0.5
Mobile 94	2	231	75	1.8	Mobile 97	2-3	25	30	2.4	Propyne				
Mobile 94	3	231	30	6.3	Mobile 97	3-1	25	15	7.3	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	50	2.2	Mobile 97	3-1	25	30	7.9	Mobile 97	2-1	25	15	0.3
Mobile 94	3	231	85	2.6	Mobile 97	3a-1	25	15	11.4	Mobile 97	2-1	25	30	0.2
Mobile 94	3	231	15	33.2	Mobile 97	3a-1	25	30	10.0	Mobile 97	2-2	25	15	0.2
Mobile 94	3	231	75	1.3	Mobile 97	4-1	25	15	12.2	Mobile 97	2-2	25	30	0.1
Mobile 97	1-1	25	15	1.9	Mobile 97	4-1	25	30	11.9	Mobile 97	2-3	25	15	0.2
Mobile 97	1-1	25	30	2.2	Mobile 97	4-2	25	15	7.6	Mobile 97	2-3	25	30	0.1
Mobile 97	1-1	25	45	1.9	Mobile 97	4-2	25	30	9.6	Mobile 97	3-1	25	15	0.2
Mobile 97	2-1	25	15	1.1	Mobile 97	4-3	25	15	4.2	Mobile 97	3-1	25	30	0.2
Mobile 97	2-1	25	30	1.0	Mobile 97	4-3	25	30	6.5	Mobile 97	3a-1	25	15	0.2
Mobile 97	2-2	25	15	0.6	Mobile 97	5-1	25	15	2.3	Mobile 97	3a-1	25	30	0.3
Mobile 97	2-2	25	30	0.6	Mobile 97	5-1	25	30	1.1	Mobile 97	4-1	25	15	0.2
Mobile 97	2-3	25	15	1.2	Propene					Mobile 97	4-1	25	30	0.2
Propane					Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-2	25	15	0.4
Mobile 97	2-3	25	30	0.7	Mobile 94	1	199	30	2.9	Mobile 97	4-2	25	30	0.2
Mobile 97	3-1	25	15	4.9	Mobile 94	1	199	50	1.5	Mobile 97	4-3	25	15	0.2
Mobile 97	3-1	25	30	5.4	Mobile 94	1	199	30	4.3	Mobile 97	4-3	25	30	0.1
Mobile 97	3a-1	25	15	7.5	Mobile 94	1	199	45	2.0	Mobile 97	5-1	25	15	0.2
Mobile 97	3a-1	25	30	7.2	Mobile 94	1	199	75	1.0	Mobile 97	5-1	25	30	0.1
Mobile 97	4-1	25	15	7.0	Mobile 94	2	231	50	8.0	Mobile 97	5-1	25	15	0.8
Mobile 97	4-1	25	30	6.7	Mobile 94	2	231	85	9.3	Mobile 97	5-1	25	30	0.4
Mobile 97	4-2	25	15	3.0	Mobile 94	2	231	30	21.1	Mobile 97	5-1	25	85	0.0
Mobile 97	4-2	25	30	32.5	Mobile 94	2	231	45	16.3	sec-Butylbenzene				
Mobile 97	4-3	25	15	1.1	Mobile 94	2	231	75	8.1	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-3	25	30	1.8	Mobile 94	3	231	30	14.0	Mobile 94	2	231	85	0.0
Mobile 97	5-1	25	15	0.9	Mobile 94	3	231	50	6.6	Mobile 94	3	231	30	0.3
Propane					Mobile 94	3	231	85	3.0	Mobile 97	1-1	25	15	0.0
Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	45	2.2	Mobile 97	2-1	25	15	0.2
Mobile 94	1	199	30	11.3	Mobile 94	3	231	75	4.0	Mobile 97	2-1	25	30	0.2
Mobile 94	1	199	30	13.2	Mobile 97	1-1	25	15	0.5	Mobile 97	2-2	25	15	0.1
Mobile 94	1	199	45	4.5	Mobile 97	1-1	25	30	0.5	Mobile 97	2-3	25	15	0.2
Mobile 94	1	199	75	2.5	Mobile 97	1-1	25	45	0.5	Mobile 97	2-3	25	30	0.1
Mobile 94	2	231	50	3.9	Mobile 97	2-1	25	15	2.9	Mobile 97	3-1	25	15	0.1
Mobile 94	2	231	85	3.0	Mobile 97	2-1	25	30	2.4	Mobile 97	3-1	25	30	0.1
Mobile 94	2	231	30	14.9	Mobile 97	2-2	25	15	1.3	Mobile 97	3a-1	25	15	0.1
Mobile 94	2	231	45	3.5	Mobile 97	2-2	25	30	0.9	Mobile 97	3a-1	25	30	0.1

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-14 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

sec-Butylbenzene					1,1,2-Dimethylcyclohexane (cid.)					1,2-Butene (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-1	25	15	0.1	Mobile 97	2-1	25	30	0.3	Mobile 94	3	231	50	0.3
Mobile 97	4-1	25	30	0.1	Mobile 97	2-2	25	15	0.2	Mobile 97	2-1	25	15	0.1
Mobile 97	4-2	25	15	0.9	Mobile 97	2-2	25	30	0.2	Mobile 97	2-1	25	30	0.1
Mobile 97	4-2	25	30	0.4	Mobile 97	2-3	25	15	0.2	Mobile 97	2-2	25	15	0.1
Mobile 97	4-3	25	15	0.6	Mobile 97	2-3	25	30	0.2	Mobile 97	2-3	25	30	0.1
Mobile 97	4-3	25	30	0.2	Mobile 97	3-1	25	15	0.1	Mobile 97	3-1	25	15	0.1
Mobile 97	5-1	25	15	0.2	Mobile 97	3-1	25	30	0.1	Mobile 97	3-1	25	30	0.1
Mobile 97	5-1	25	30	0.0	Mobile 97	3a-1	25	15	0.1	Mobile 97	3a-1	25	15	0.1
Styrene					Mobile 97	3a-1	25	30	0.1	Mobile 97	3a-1	25	30	0.2
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-1	25	15	0.4	Mobile 97	4-1	25	15	0.1
Mobile 94	1	199	45	0.6	Mobile 97	4-1	25	30	0.2	Mobile 97	4-1	25	30	0.1
Mobile 94	1	199	75	0.3	Mobile 97	4-2	25	15	1.5	Mobile 97	4-2	25	15	0.1
Mobile 94	2	231	30	5.2	Mobile 97	4-2	25	30	0.6	Mobile 97	4-2	25	30	0.3
Mobile 94	2	231	45	0.3	Mobile 97	4-3	25	15	1.0	Mobile 97	4-3	25	15	0.1
Mobile 94	3	231	30	7.4	Mobile 97	4-3	25	30	0.5	Mobile 97	4-3	25	30	0.1
Mobile 94	3	231	50	2.1	Mobile 97	5-1	25	15	0.5	Mobile 97	5-1	25	15	0.1
Mobile 94	3	231	45	7.6	Mobile 97	5-1	25	30	0.2	1,2-Heptene				
Mobile 97	1-1	25	15	0.1	1,1,4-Dimethylcyclohexane					Burn	Num.	Area	Dist.	Conc.
Mobile 97	1-1	25	30	0.1	Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	199	30	0.6
Mobile 97	1-1	25	45	0.1	Mobile 94	1	199	30	0.6	Mobile 94	1	199	50	0.3
Mobile 97	2-1	25	15	0.7	Mobile 94	2	231	50	1.3	Mobile 94	1	199	45	0.2
Mobile 97	2-1	25	30	0.4	Mobile 94	2	231	30	6.1	Mobile 94	2	231	30	0.2
Mobile 97	2-2	25	15	0.2	Mobile 94	2	231	45	1.3	Mobile 94	3	231	15	2.2
Mobile 97	2-2	25	30	0.1	Mobile 94	3	231	30	2.6	Mobile 94	3	231	45	1.1
Mobile 97	2-3	25	15	0.2	Mobile 94	3	231	45	0.5	Mobile 94	3	25	15	0.2
Mobile 97	2-3	25	30	0.2	Mobile 97	1-1	25	15	0.1	Mobile 94	3	25	85	0.0
Mobile 97	3-1	25	15	0.1	Mobile 97	1-1	25	30	0.1	1,2-Hexene				
Mobile 97	3-1	25	30	0.3	Mobile 97	1-1	25	45	0.1	Burn	Num.	Area	Dist.	Conc.
Mobile 97	3a-1	25	15	0.1	Mobile 97	2-1	25	15	0.2	Mobile 94	1	199	30	0.6
Mobile 97	3a-1	25	30	0.5	Mobile 97	2-2	25	15	0.1	Mobile 94	1	199	50	0.2
Mobile 97	4-1	25	15	0.4	Mobile 97	2-2	25	30	0.0	Mobile 94	1	199	30	0.6
Mobile 97	4-1	25	30	0.3	Mobile 97	2-3	25	15	0.1	Mobile 94	1	199	45	0.3
Mobile 97	4-2	25	15	1.2	Mobile 97	2-3	25	30	0.1	Mobile 94	2	231	85	0.6
Mobile 97	4-2	25	30	0.4	Mobile 97	3a-1	25	15	0.1	Mobile 94	2	231	45	0.4
Mobile 97	4-3	25	15	0.5	Mobile 97	3a-1	25	30	0.1	Mobile 94	3	231	30	2.8
Mobile 97	4-3	25	30	0.0	Mobile 97	4-1	25	15	0.2	Mobile 94	3	231	50	1.0
Mobile 97	5-1	25	15	0.2	Mobile 97	4-1	25	30	0.1	Mobile 94	3	231	45	0.5
1,1,2-Dimethylcyclohexane					Mobile 97	4-2	25	15	0.7	1,2-Octene				
Burn	Num.	Area	Dist.	Conc.	Mobile 97	4-2	25	30	0.3	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	199	30	0.5	Mobile 97	4-3	25	15	0.5	Mobile 94	1	199	30	0.6
Mobile 94	2	231	50	1.3	Mobile 97	4-3	25	30	0.2	Mobile 94	1	199	50	0.2
Mobile 94	2	231	30	6.6	Mobile 97	5-1	25	15	0.3	Mobile 94	1	199	30	2.4
Mobile 94	2	231	45	1.2	Mobile 97	5-1	25	30	0.1	Mobile 94	1	199	45	0.2
Mobile 94	2	231	75	0.7	1,2-Butene					Mobile 94	2	231	50	1.6
Mobile 94	3	231	30	2.8	Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	30	8.8
Mobile 94	3	231	85	0.5	Mobile 94	1	199	30	0.2	Mobile 94	2	231	45	2.4
Mobile 94	3	231	45	0.4	Mobile 94	1	199	50	0.1	Mobile 94	2	231	75	2.6
Mobile 97	1-1	25	15	0.2	Mobile 94	1	199	30	0.3	Mobile 94	3	231	50	1.2
Mobile 97	1-1	25	30	0.2	Mobile 94	1	199	45	0.2	Mobile 94	3	231	85	1.5
Mobile 97	1-1	25	45	0.1	Mobile 94	2	231	15	1.2	Mobile 94	3	231	45	2.6
Mobile 97	2-1	25	15	0.4	Mobile 94	2	231	30	0.5					
					Mobile 94	2	231	45	0.6					
					Mobile 94	3	231	30	0.9					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A2-15 Emissions Measured at Previous Test Burns: VOCs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

1,2-Pentene					Toluene					Total VOCs (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2-1	25	30	1.1	Mobile 97	2-1	25	15	4.5	Mobile 97	4-2	25	15	140.3
Mobile 97	2-3	25	15	0.1	Mobile 97	2-1	25	30	3.0	Mobile 97	4-2	25	30	115.7
Mobile 97	3-1	25	15	0.2	Mobile 97	2-2	25	15	3.0	Mobile 97	4-3	25	15	254.4
Mobile 97	3-1	25	30	0.1	Mobile 97	2-2	25	30	1.9	Mobile 97	4-3	25	30	65.7
Mobile 97	3a-1	25	15	0.3	Mobile 97	2-3	25	15	5.0	Mobile 97	5-1	25	15	112.8
Mobile 97	3a-1	25	30	0.3	Mobile 97	2-3	25	30	2.9	Mobile 97	5-1	25	30	21.9
Mobile 97	4-1	25	15	0.2	Mobile 97	3-1	25	15	9.6	Undecane				
Mobile 97	4-1	25	30	0.2	Mobile 97	3-1	25	30	9.7	Burn	Num.	Area	Dist.	Conc.
Mobile 97	4-2	25	15	0.1	Mobile 97	3a-1	25	15	13.7	Mobile 94	1	199	30	1.0
Mobile 97	4-2	25	30	1.7	Mobile 97	3a-1	25	30	10.0	Mobile 94	1	199	50	0.5
Mobile 97	4-3	25	30	0.1	Mobile 97	4-1	25	15	14.4	Mobile 94	1	199	30	1.8
Mobile 97	5-1	25	15	0.1	Mobile 97	4-1	25	30	15.1	Mobile 94	1	199	45	0.8
Mobile 97	5-1	25	85	0.0	Mobile 97	4-2	25	15	12.3	Mobile 94	1	199	75	0.4
Mobile 97	5-1	25	15	3.3	Mobile 97	4-2	25	30	55.2	Mobile 94	2	231	50	1.0
Mobile 97	5-1	25	15	2.0	Mobile 97	4-3	25	15	7.2	Mobile 94	2	231	85	0.2
1,3-Heptene					Mobile 97	4-3	25	30	3.8	Mobile 94	2	231	30	4.1
Burn	Num.	Area	Dist.	Conc.	Mobile 97	5-1	25	15	3.9	Mobile 94	2	231	45	1.1
Mobile 94	1	199	30	9.2	Mobile 97	5-1	25	30	1.7	Mobile 94	2	231	75	0.5
Mobile 94	2	231	50	1.2	Total VOCs					Mobile 94	3	231	30	5.8
Mobile 94	2	231	30	5.2	Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	50	0.9
Mobile 94	3	231	30	24.7	Mobile 94	1	199	30	64.35	Mobile 94	3	231	85	0.8
Mobile 94	3	231	50	0.4	Mobile 94	1	199	45	38.07	Mobile 94	3	231	45	2.7
Mobile 97	2-1	25	30	0.1	Mobile 94	1	199	85	29.94	Mobile 94	3	231	75	1.6
tert-Butylbenzene					Mobile 94	1	199	30	132.2	Mobile 97	1-1	25	15	1.7
Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	199	45	44.26	Mobile 97	1-1	25	30	1.2
Mobile 97	2-1	25	15	0.1	Mobile 94	1	199	75	34.62	Mobile 97	1-1	25	45	0.7
Mobile 97	2-3	25	45	0.0	Mobile 94	2	231	50	174.8	Mobile 97	2-1	25	15	15.7
Mobile 97	4-2	25	15	0.5	Mobile 94	2	231	85	73.2	Mobile 97	2-1	25	30	5.4
Mobile 97	4-2	25	30	0.2	Mobile 94	2	231	30	650.0	Mobile 97	2-2	25	15	6.1
Mobile 97	4-3	25	15	0.3	Mobile 94	2	231	45	172.5	Mobile 97	2-2	25	30	2.0
Mobile 97	5-1	25	15	0.1	Mobile 94	2	231	75	85.1	Mobile 97	2-3	25	15	19.6
Mobile 97	5-1	25	15	1.0	Mobile 94	3	231	30	433.0	Mobile 97	2-3	25	30	8.8
Mobile 97	5-1	25	85	0.0	Mobile 94	3	231	50	107.4	Mobile 97	3-1	25	15	0.9
Toluene					Mobile 94	3	231	85	67.3	Mobile 97	3-1	25	30	1.4
Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	45	290.2	Mobile 97	3a-1	25	15	0.1
Mobile 94	1	199	30	5.7	Mobile 94	3	231	75	98.45	Mobile 97	3a-1	25	30	0.5
Mobile 94	1	199	45	2.0	Mobile 97	1-1	25	15	50.1	Mobile 97	4-1	25	15	4.0
Mobile 94	1	199	75	2.8	Mobile 97	1-1	25	30	49.8	Mobile 97	4-1	25	30	1.1
Mobile 94	2	231	50	15.3	Mobile 97	1-1	25	45	37.7	Mobile 97	4-2	25	15	54.6
Mobile 94	2	231	85	3.0	Mobile 97	2-1	25	15	133.0	Mobile 97	4-2	25	30	22.1
Mobile 94	2	231	30	50.6	Mobile 97	2-1	25	30	107.0	Mobile 97	4-3	25	15	41.7
Mobile 94	2	231	45	13.4	Mobile 97	2-2	25	15	60.9	Mobile 97	4-3	25	30	3.2
Mobile 94	2	231	75	7.1	Mobile 97	2-2	25	30	31.1	Mobile 97	5-1	25	15	15.7
Mobile 94	3	231	30	27.1	Mobile 97	2-3	25	15	130.1	Mobile 97	5-1	25	30	1.6
Mobile 94	3	231	50	4.2	Mobile 97	2-3	25	30	67.2					
Mobile 94	3	231	85	5.5	Mobile 97	3-1	25	15	86.2					
Mobile 94	3	231	45	45.2	Mobile 97	3-1	25	30	97.4					
Mobile 94	3	231	75	7.3	Mobile 97	3a-1	25	15	119.9					
Mobile 97	1-1	25	15	4.5	Mobile 97	3a-1	25	30	115.5					
Mobile 97	1-1	25	30	4.6	Mobile 97	4-1	25	15	143.0					
Mobile 97	1-1	25	45	3.1	Mobile 97	4-1	25	30	115.9					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A3-1 Emissions Measured at Previous Test Burns: PAHs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

1-Methylnaphthalene					1-Methylphenanthrene (cid.)					2,3,5-Trimethylnaphthalene (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 92	1	36	23	0.17	Mobile 92	2	500	46	0.07	Nobe 93	1	600	125	0.26
Mobile 92	1	36	23	1.04	Mobile 92	3	231	46	0.03	Nobe 93	1	600	125	0.15
Mobile 92	1	36	46	0.13	Mobile 92	5	300	46	0.05	Nobe 93	1	600	900	0.03
Mobile 92	1	36	76	0.05	Mobile 92	6	231	46	0.01	Nobe 93	1	600	900	0.03
Mobile 92	2	231	23	0.73	Mobile 92	2	231	76	0.02	2,6-Dimethylnaphthalene				
Mobile 92	2	231	23	0.86	Mobile 92	3	231	76	0.02	Burn	Num.	Area	Dist.	Conc.
Mobile 92	3	231	23	0.37	Nobe 93	2	427	75	0.02	Mobile 92	1	36	23	0.01
Mobile 92	4	231	23	0.11	Nobe 93	2	427	75	0.03	Mobile 92	1	36	46	0.01
Mobile 92	5	231	23	0.34	Nobe 93	2	427	125	0.01	Mobile 92	1	36	76	0.01
Mobile 92	5	231	23	0.42	Nobe 93	2	427	125	0.01	Mobile 92	2	231	23	0.04
Mobile 92	6	231	23	0.29	Nobe 93	2	427	600	0.01	Mobile 92	2	231	23	0.43
Mobile 92	6	231	23	0.12	Nobe 93	1	500	500	0.00	Mobile 92	3	231	23	0.22
Mobile 92	2	231	46	0.94	Nobe 93	2	500	500	0.00	Mobile 92	4	231	23	0.14
Mobile 92	3	231	46	0.17	Nobe 93	1	600	75	0.02	Mobile 92	5	231	23	0.30
Mobile 92	4	231	46	0.09	Nobe 93	1	600	75	0.02	Mobile 92	5	231	23	0.06
Mobile 92	5	231	46	0.18	Nobe 93	1	600	125	0.01	Mobile 92	6	231	23	0.15
Mobile 92	6	231	46	0.03	Nobe 93	1	600	125	0.01	Mobile 92	6	231	23	0.02
Mobile 92	2	231	76	0.38	Nobe 93	1	100	125	0.00	Mobile 92	2	231	46	0.06
Mobile 92	3	231	76	0.15	2,3,5-Trimethylnaphthalene					Mobile 92	3	231	46	0.11
Mobile 92	4	231	76	0.06	Burn	Num.	Area	Dist.	Conc.	Mobile 92	4	231	46	0.07
Mobile 92	5	231	76	0.01	Mobile 92	1	36	23	0.02	Mobile 92	2	231	76	0.02
Mobile 92	6	231	76	0.02	Mobile 92	1	36	23	0.09	Mobile 92	3	231	76	0.11
Nobe 93	2	427	75	1.39	Mobile 92	1	36	46	0.05	Mobile 92	4	231	76	0.06
Nobe 93	2	427	75	1.88	Mobile 92	1	36	76	0.03	Nobe 93	1	500	500	0.00
Nobe 93	2	427	125	3.07	Mobile 92	2	231	23	0.14	Nobe 93	2	500	500	0.00
Nobe 93	2	427	125	2.88	Mobile 92	2	231	23	0.14	Nobe 93	2	427	75	0.94
Nobe 93	2	427	600	0.58	Mobile 92	3	231	23	0.06	Nobe 93	2	427	75	1.41
Nobe 93	2	427	600	0.37	Mobile 92	4	231	23	0.05	Nobe 93	2	427	125	0.93
Nobe 93	1	500	500	0.00	Mobile 92	5	231	23	0.23	Nobe 93	2	427	125	0.88
Nobe 93	2	500	500	0.00	Mobile 92	5	231	23	0.38	Nobe 93	2	427	600	0.21
Nobe 93	1	600	75	1.64	Mobile 92	6	231	23	0.07	Nobe 93	2	427	600	0.16
Nobe 93	1	600	75	2.00	Mobile 92	6	231	23	0.06	Nobe 93	1	600	75	0.94
Nobe 93	1	600	125	2.10	Mobile 92	2	231	46	0.19	Nobe 93	1	600	75	1.62
Nobe 93	1	600	125	2.09	Mobile 92	3	231	46	0.04	Nobe 93	1	600	125	1.00
Nobe 93	1	600	900	0.55	Mobile 92	4	231	46	0.02	Nobe 93	1	600	125	0.87
Nobe 93	1	600	900	0.39	Mobile 92	5	231	46	0.18	Nobe 93	1	600	900	0.16
1-Methylphenanthrene					Mobile 92	6	231	46	0.02	Nobe 93	1	600	900	0.12
Burn	Num.	Area	Dist.	Conc.	Mobile 92	2	231	76	0.07	2-Methylnaphthalene				
Mobile 92	1	36	23	0.09	Mobile 92	3	231	76	0.03	Burn	Num.	Area	Dist.	Conc.
Mobile 92	1	36	23	0.10	Mobile 92	4	231	76	0.01	Mobile 92	1	36	23	0.17
Mobile 92	1	36	46	0.09	Mobile 92	5	231	76	0.01	Mobile 92	1	36	23	0.01
Mobile 92	1	36	76	0.05	Nobe 93	2	427	75	0.24	Mobile 92	1	36	23	1.54
Mobile 92	2	231	23	0.07	Nobe 93	2	427	75	0.32	Mobile 92	1	36	46	0.12
Mobile 92	2	231	23	0.02	Nobe 93	2	427	125	0.14	Mobile 92	1	36	76	0.05
Mobile 92	2	231	23	0.01	Nobe 93	2	427	125	0.12	Mobile 92	2	231	23	0.94
Mobile 92	3	231	23	0.03	Nobe 93	2	427	600	0.04	Mobile 92	2	231	23	0.01
Mobile 92	4	231	23	0.02	Nobe 93	2	427	600	0.05	Mobile 92	2	231	23	1.33
Mobile 92	5	500	23	0.08	Nobe 93	1	500	500	0.00	Mobile 92	3	231	23	0.45
Mobile 92	5	500	23	0.13	Nobe 93	2	500	500	0.00	Mobile 92	4	231	23	0.14
Mobile 92	6	231	23	0.02	Nobe 93	1	600	75	0.21	Mobile 92	5	231	23	0.55
Mobile 92	6	231	23	0.03	Nobe 93	1	600	75	0.36					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$ , cum = cumulative

Table A3-2 Emissions Measured at Previous Test Burns: PAHs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

2-Methylnaphthalene (cid.)					Acenaphthene (cid.)					Acenaphthylene (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 92	5	231	23	0.53	Nobe 93	2	427	125	0.03	Nobe 93	1	500	500	0.00
Mobile 92	6	231	23	0.44	Nobe 93	2	427	600	0.01	Nobe 93	2	500	500	0.00
Mobile 92	6	231	23	0.14	Nobe 93	2	427	600	0.01	Mobile 91	cum	1071	30	0.55
Mobile 92	2	231	46	1.27	Nobe 93	1	500	500	0.00	Mobile 91	cum	1071	60	0.16
Mobile 92	3	231	46	0.22	Nobe 93	2	500	500	0.00	Anthracene				
Mobile 92	4	231	46	0.11	Nobe 93	1	600	75	0.01	Burn	Num.	Area	Dist.	Conc.
Mobile 92	5	231	46	0.24	Nobe 93	1	600	75	0.08	Mobile 92	1	36	23	0.49
Mobile 92	6	231	46	0.04	Nobe 93	1	600	125	0.05	Mobile 92	1	36	23	0.01
Mobile 92	2	231	76	0.53	Nobe 93	1	600	125	0.05	Mobile 92	1	36	23	0.66
Mobile 92	3	231	76	0.21	Nobe 93	1	600	900	0.01	Mobile 92	1	500	46	0.50
Mobile 92	4	231	76	0.08	Nobe 93	1	600	900	0.01	Mobile 92	1	36	76	0.17
Mobile 92	5	231	76	0.02	Mobile 91	cum	1071	30	0.06	Mobile 91	30	600	60	0.79
Mobile 92	6	231	76	0.02	Acenaphthylene					Mobile 92	2	231	23	0.10
Nobe 93	2	427	75	1.97	Burn	Num.	Area	Dist.	Conc.	Mobile 92	2	231	23	0.01
Nobe 93	2	427	75	1.86	Nobe 93	2	427	75	0.71	Mobile 92	2	231	23	0.07
Nobe 93	2	427	125	1.61	Nobe 93	2	427	75	1.24	Mobile 92	3	231	23	0.09
Nobe 93	2	427	125	1.56	Nobe 93	2	427	125	0.14	Mobile 92	4	231	23	0.08
Nobe 93	2	427	600	0.46	Nobe 93	2	427	125	0.14	Mobile 92	5	231	23	0.03
Nobe 93	2	427	600	0.32	Nobe 93	2	427	600	0.05	Mobile 92	5	231	23	0.04
Nobe 93	1	500	500	0.00	Nobe 93	2	427	600	0.04	Mobile 92	6	231	23	0.03
Nobe 93	2	500	500	0.00	Nobe 93	1	600	75	0.14	Mobile 92	6	231	23	0.05
Nobe 93	1	600	75	2.27	Nobe 93	1	600	75	0.71	Mobile 92	2	231	46	0.09
Nobe 93	1	600	75	2.75	Nobe 93	1	600	125	0.29	Mobile 92	3	231	46	0.03
Nobe 93	1	600	125	1.33	Nobe 93	1	600	125	0.24	Mobile 92	4	231	46	0.02
Nobe 93	1	600	125	1.19	Nobe 93	1	600	900	0.03	Mobile 92	5	231	46	0.02
Nobe 93	1	600	900	0.28	Nobe 93	1	600	900	0.02	Mobile 92	6	231	46	0.01
Nobe 93	1	600	900	0.20	Mobile 92	1	600	23	2.63	Mobile 92	2	231	76	0.03
Acenaphthene					Mobile 92	1	36	23	1.15	Mobile 92	3	231	76	0.02
Burn	Num.	Area	Dist.	Conc.	Mobile 92	1	36	46	3.50	Nobe 93	2	427	75	0.08
Mobile 92	1	36	23	0.05	Mobile 92	1	36	76	1.20	Nobe 93	2	427	75	0.11
Mobile 92	1	36	23	0.09	Mobile 91	30	114	30	1.20	Nobe 93	2	427	125	0.01
Mobile 92	1	36	46	0.07	Mobile 91	30	114	60	3.30	Nobe 93	2	427	125	0.11
Mobile 92	1	36	76	0.03	Mobile 92	2	231	23	1.21	Nobe 93	1	500	500	0.00
Mobile 92	2	231	23	0.03	Mobile 92	2	231	23	0.83	Nobe 93	2	500	500	0.00
Mobile 92	2	231	23	0.03	Mobile 92	3	231	23	0.78	Nobe 93	1	600	75	0.02
Mobile 92	3	231	23	0.03	Mobile 92	4	231	23	0.53	Nobe 93	1	600	75	0.04
Mobile 92	4	231	23	0.02	Mobile 92	5	231	23	0.14	Nobe 93	1	600	125	0.12
Mobile 92	5	231	23	0.03	Mobile 92	5	231	23	0.34	Nobe 93	1	600	125	0.02
Mobile 92	5	231	23	0.06	Mobile 92	6	231	23	0.22	Nobe 93	1	600	900	0.00
Mobile 92	6	231	23	0.01	Mobile 92	6	231	23	0.47	Nobe 93	1	600	900	0.00
Mobile 92	6	231	23	0.03	Mobile 91	5	231	30	0.63	Benz(a)anthracene				
Mobile 92	2	231	46	0.04	Mobile 92	2	231	46	1.15	Burn	Num.	Area	Dist.	Conc.
Mobile 92	3	231	46	0.02	Mobile 92	3	231	46	0.23	Mobile 92	1	36	23	0.41
Mobile 92	5	231	46	0.02	Mobile 92	4	231	46	0.12	Mobile 92	1	600	23	0.58
Mobile 92	6	231	46	0.01	Mobile 92	5	231	46	0.15	Mobile 92	1	500	46	0.38
Mobile 92	2	231	76	0.03	Mobile 92	6	231	46	0.08	Mobile 92	1	36	76	0.10
Mobile 92	3	231	76	0.02	Mobile 91	5	231	60	0.36	Mobile 92	2	231	23	0.05
Mobile 92	5	231	76	0.01	Mobile 92	2	231	76	0.28	Mobile 92	2	231	23	0.06
Nobe 93	2	427	75	0.01	Mobile 92	3	231	76	0.21	Mobile 92	3	231	23	0.06
Nobe 93	2	427	75	0.07	Mobile 92	4	231	76	0.05	Mobile 92	4	231	23	0.06
Nobe 93	2	427	125	0.03	Mobile 92	6	231	76	0.02	Mobile 92	5	231	23	0.01

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$ , cum = cumulative



Table A3-3 Emissions Measured at Previous Test Burns: PAHs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

Benz(a)anthracene					Benzo(b,k) fluoranthene (ctd.)					Benzo(g,h,i)perylene (ctd.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 92	6	231	23	0.03	Mobile 92	6	231	23	0.06	Mobile 92	3	231	76	0.03
Mobile 92	2	231	46	0.05	Mobile 92	2	231	46	0.13	Nobe 93	1	500	500	0.00
Mobile 92	3	231	46	0.02	Mobile 92	3	231	46	0.04	Nobe 93	2	500	500	0.00
Mobile 92	4	231	46	0.01	Mobile 92	4	231	46	0.03	Mobile 91	cum	1071	30	0.04
Mobile 92	2	231	76	0.01	Mobile 92	6	231	46	0.01	Nobe 93	2	427	75	0.06
Mobile 92	3	231	76	0.02	Mobile 92	2	231	76	0.03	Nobe 93	2	427	75	0.10
Nobe 93	2	427	75	0.05	Mobile 92	3	231	76	0.04	Nobe 93	1	600	75	0.01
Nobe 93	2	427	75	0.06	Mobile 92	4	231	76	0.01	Nobe 93	1	600	75	0.01
Nobe 93	1	500	500	0.00	Nobe 93	1	500	500	0.00	Biphenyl				
Nobe 93	2	500	500	0.00	Nobe 93	2	500	500	0.00	Burn	Num.	Area	Dist.	Conc.
Nobe 93	1	600	75	0.01	Nobe 93	2	427	75	0.01	Mobile 92	1	36	23	0.30
Nobe 93	1	600	75	0.01	Nobe 93	2	427	75	0.01	Mobile 92	1	36	23	0.04
Benzo(a)pyrene					Nobe 93	2	427	125	0.01	Mobile 92	1	36	23	0.72
Burn	Num.	Area	Dist.	Conc.	Nobe 93	1	600	75	0.02	Mobile 92	1	36	46	0.40
Nobe 93	2	427	75	0.07	Benzo(e)pyrene					Mobile 92	1	36	76	0.18
Nobe 93	2	427	75	0.08	Burn	Num.	Area	Dist.	Conc.	Mobile 92	2	231	23	0.58
Nobe 93	1	600	75	0.01	Mobile 92	1	36	23	0.04	Mobile 92	2	231	23	0.04
Nobe 93	1	600	75	0.01	Mobile 92	1	36	23	0.04	Mobile 92	2	231	23	0.28
Mobile 92	1	600	23	0.80	Mobile 92	1	36	46	0.03	Mobile 92	3	231	23	0.28
Mobile 92	1	600	23	0.82	Mobile 92	1	36	76	0.09	Mobile 92	4	231	23	0.19
Mobile 92	1	500	46	0.43	Mobile 92	2	231	23	0.05	Mobile 92	5	231	23	0.30
Mobile 92	1	36	76	0.10	Mobile 92	2	231	23	0.06	Mobile 92	5	231	23	0.26
Mobile 91	29	37.2	30	0.07	Mobile 92	3	231	23	0.04	Mobile 92	6	231	23	0.23
Mobile 91	29	37.2	60	0.04	Mobile 92	2	231	46	0.06	Mobile 92	6	231	23	0.28
Mobile 91	28	72.8	30	0.75	Mobile 92	3	231	46	0.01	Mobile 92	2	231	46	0.62
Mobile 92	2	231	23	0.08	Mobile 92	4	231	46	0.01	Mobile 92	3	231	46	0.11
Mobile 92	2	231	23	0.10	Mobile 92	2	231	76	0.01	Mobile 92	4	231	46	0.06
Mobile 92	3	231	23	0.07	Mobile 92	3	231	76	0.01	Mobile 92	5	231	46	0.16
Mobile 92	2	231	46	0.08	Mobile 92	4	600	76	0.25	Mobile 92	6	231	46	0.19
Mobile 92	3	231	46	0.02	Nobe 93	1	500	500	0.00	Mobile 92	2	231	76	0.28
Mobile 92	4	231	46	0.02	Nobe 93	2	500	500	0.00	Mobile 92	3	231	76	0.11
Mobile 92	2	231	76	0.02	Nobe 93	2	427	75	0.04	Mobile 92	4	231	76	0.04
Mobile 92	3	231	76	0.02	Nobe 93	2	427	75	0.06	Mobile 92	5	231	76	0.09
Mobile 92	4	231	76	0.05	Nobe 93	1	600	75	0.01	Mobile 92	6	231	76	0.06
Nobe 93	1	500	500	0.00	Nobe 93	1	600	75	0.01	Nobe 93	2	427	75	0.15
Nobe 93	2	500	500	0.00	Benzo(g,h,i)perylene					Nobe 93	2	427	75	0.18
Benzo(b,k) fluoranthene					Burn	Num.	Area	Dist.	Conc.	Nobe 93	2	427	125	0.17
Burn	Num.	Area	Dist.	Conc.	Mobile 92	1	36	23	0.04	Nobe 93	2	427	125	0.20
Nobe 93	2	427	75	0.15	Mobile 92	1	600	23	0.49	Nobe 93	2	427	600	0.15
Nobe 93	2	427	75	0.20	Mobile 92	1	36	46	0.03	Nobe 93	2	427	600	0.04
Nobe 93	2	427	125	0.01	Mobile 92	1	36	76	0.09	Nobe 93	1	500	500	0.00
Nobe 93	2	427	125	0.01	Mobile 92	2	231	23	0.11	Nobe 93	2	500	500	0.00
Mobile 92	1	36	23	0.08	Mobile 92	2	231	23	0.14	Nobe 93	1	600	75	0.17
Mobile 92	1	600	23	1.18	Mobile 92	3	231	23	0.09	Nobe 93	1	600	75	0.14
Mobile 92	1	36	46	0.08	Mobile 92	4	231	23	0.09	Nobe 93	1	600	125	0.30
Mobile 92	1	36	76	0.02	Mobile 92	5	231	23	0.01	Nobe 93	1	600	125	0.30
Mobile 92	2	231	23	0.15	Mobile 92	6	231	23	0.03	Nobe 93	1	600	900	0.03
Mobile 92	2	231	23	0.19	Mobile 92	2	231	46	0.09	Nobe 93	1	600	900	0.03
Mobile 92	3	231	23	0.14	Mobile 92	3	231	46	0.03					
Mobile 92	4	231	23	0.15	Mobile 92	4	231	46	0.02					
Mobile 92	5	231	23	0.01	Mobile 92	2	231	76	0.02					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$ , cum = cumulative

Table A3-4 Emissions Measured at Previous Test Burns: PAHs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

Chrysene					Dimethylnaphthalenes					Fluorene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 92	1	36	23	0.04	Nobe 93	2	427	75	0.06	Mobile 92	1	36	76	0.02
Mobile 92	1	36	23	0.06	Nobe 93	2	427	125	0.02	Mobile 91	30	114	30	0.06
Mobile 92	1	36	46	0.04	Nobe 93	2	427	125	0.02	Mobile 91	23	181	30	0.08
Mobile 92	1	600	76	0.12	Nobe 93	2	427	600	0.02	Mobile 91	23	181	60	0.07
Mobile 92	2	231	23	0.06	Nobe 93	1	600	75	0.01	Mobile 92	2	231	23	0.20
Mobile 92	2	231	23	0.07	Nobe 93	1	600	75	0.04	Mobile 92	2	231	23	0.15
Mobile 92	3	231	23	0.07	Nobe 93	1	600	125	0.02	Mobile 92	3	231	23	0.15
Mobile 92	4	231	23	0.08	Nobe 93	1	600	125	0.03	Mobile 92	4	231	23	0.12
Mobile 92	5	231	23	0.02	Fluoranthene					Mobile 92	5	231	23	0.17
Mobile 92	6	231	23	0.04	Burn	Num.	Area	Dist.	Conc.	Mobile 92	5	231	23	0.19
Mobile 92	2	231	46	0.06	Mobile 92	1	1000	23	1.15	Mobile 92	6	231	23	0.06
Mobile 92	3	231	46	0.02	Mobile 92	1	500	23	0.57	Mobile 92	6	231	23	0.12
Mobile 92	4	231	46	0.01	Mobile 92	1	100	23	1.34	Mobile 92	2	231	46	0.20
Mobile 92	5	231	46	0.01	Mobile 92	1	36	46	1.11	Mobile 92	3	231	46	0.07
Mobile 92	6	231	46	0.01	Mobile 92	1	36	76	0.39	Mobile 92	4	231	46	0.03
Mobile 92	2	231	76	0.02	Mobile 91	30	114	30	0.71	Mobile 92	5	231	46	0.09
Mobile 92	3	231	76	0.02	Mobile 92	2	231	23	0.32	Mobile 92	6	231	46	0.02
Nobe 93	2	427	75	0.00	Mobile 92	2	231	23	0.24	Mobile 92	2	231	76	0.07
Nobe 93	2	427	75	0.06	Mobile 92	2	231	23	0.12	Mobile 92	3	231	76	0.05
Nobe 93	1	500	500	0.00	Mobile 92	3	231	23	0.31	Mobile 92	4	231	76	0.02
Nobe 93	2	500	500	0.00	Mobile 92	4	231	23	0.42	Mobile 92	5	231	76	0.01
Nobe 93	1	600	75	0.06	Mobile 92	5	231	23	0.04	Mobile 92	6	231	76	0.01
Dibenz(a,h)anthracene					Mobile 92	5	231	23	0.07	Nobe 93	2	427	75	0.20
Burn	Num.	Area	Dist.	Conc.	Mobile 92	6	231	23	0.05	Nobe 93	2	427	75	0.28
Mobile 92	1	36	23	0.01	Mobile 92	6	231	23	0.12	Nobe 93	2	427	125	0.08
Mobile 92	1	36	23	0.01	Mobile 92	2	231	46	0.29	Nobe 93	2	427	125	0.07
Mobile 92	1	36	46	0.01	Mobile 92	3	231	46	0.10	Nobe 93	2	427	600	0.00
Mobile 92	1	36	76	0.02	Mobile 92	4	231	46	0.09	Nobe 93	2	427	600	0.00
Mobile 92	2	231	23	0.01	Mobile 92	5	231	46	0.03	Nobe 93	1	500	500	0.00
Mobile 92	2	231	23	0.01	Mobile 92	6	231	46	0.03	Nobe 93	2	500	500	0.00
Mobile 92	6	231	23	0.01	Mobile 92	2	231	76	0.08	Nobe 93	1	600	75	0.14
Nobe 93	2	600	46	0.01	Mobile 92	3	231	76	0.10	Nobe 93	1	600	75	0.21
Nobe 93	1	500	500	0.00	Mobile 92	4	231	76	0.05	Nobe 93	1	600	125	0.12
Nobe 93	2	500	500	0.00	Mobile 92	6	231	76	0.01	Nobe 93	1	600	125	0.14
Nobe 93	2	427	75	0.01	Nobe 93	2	427	75	0.23	Nobe 93	1	600	900	0.02
Nobe 93	2	427	75	0.01	Nobe 93	2	427	75	0.31	Nobe 93	1	600	900	0.02
Dimethylnaphthalenes					Nobe 93	2	427	125	0.03	Mobile 91	cum	1071	30	0.15
Burn	Num.	Area	Dist.	Conc.	Nobe 93	2	427	125	0.04	Mobile 91	cum	1071	60	0.04
Nobe 93	2	427	75	2.38	Nobe 93	2	427	600	0.01	Indeno(123-cd)pyrene				
Nobe 93	2	427	75	1.47	Nobe 93	1	500	500	0.00	Burn	Num.	Area	Dist.	Conc.
Nobe 93	2	427	125	1.88	Nobe 93	2	500	500	0.00	Mobile 91	cum	1071	30	0.20
Nobe 93	2	427	125	1.74	Nobe 93	1	600	75	0.04	Nobe 93	2	427	75	0.10
Nobe 93	2	427	600	0.59	Nobe 93	1	600	75	0.05	Nobe 93	2	427	75	0.15
Nobe 93	2	427	600	0.46	Nobe 93	1	600	125	0.02	Nobe 93	1	600	75	0.02
Nobe 93	1	600	75	2.25	Nobe 93	1	600	125	0.04	Mobile 92	1	36	23	0.04
Nobe 93	1	600	75	0.77	Mobile 91	cum	1071	30	0.11	Mobile 92	1	1071	23	0.26
Nobe 93	1	600	125	2.95	Fluorene					Mobile 92	1	36	46	0.03
Nobe 93	1	600	125	2.52	Burn	Num.	Area	Dist.	Conc.	Mobile 92	1	36	76	0.08
Nobe 93	1	600	900	0.48	Mobile 92	1	36	23	0.05	Mobile 92	2	231	23	0.01
Nobe 93	1	600	900	0.34	Mobile 92	1	1000	23	0.88	Mobile 92	2	231	23	0.01
Nobe 93	2	427	75	0.03	Mobile 92	1	36	46	0.06	Mobile 92	3	231	23	0.07

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$ , cum = cumulative

Table A3-5 Emissions Measured at Previous Test Burns: PAHs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

Indeno(123-cd)pyrene (cid.)					Naphthalene (cid.)					Phenanthrene (cid.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 92	4	231	23	0.07	Mobile 92	6	231	23	1.31	Mobile 92	1	36	46	0.22
Mobile 92	6	231	23	0.03	Mobile 92	6	231	23	0.10	Mobile 92	1	36	76	0.82
Mobile 92	2	231	46	0.06	Mobile 92	2	231	46	1.04	Mobile 91	30	1071	30	1.14
Mobile 92	3	231	46	0.02	Mobile 92	3	231	46	0.23	Mobile 91	23	181	30	0.72
Mobile 92	4	231	46	0.01	Mobile 92	4	231	46	0.04	Mobile 91	23	181	60	0.47
Mobile 92	2	231	76	0.02	Mobile 92	5	231	46	0.16	Mobile 92	2	231	23	0.63
Mobile 92	3	231	76	0.02	Mobile 92	6	231	46	0.05	Mobile 92	2	231	23	0.05
Nobe 93	1	1071	500	0.00	Mobile 92	2	231	76	0.43	Mobile 92	2	231	23	0.48
Nobe 93	2	500	500	0.00	Mobile 92	3	231	76	0.36	Mobile 92	3	231	23	0.57
Methylphenanthrenes					Mobile 92	4	231	76	0.03	Mobile 92	4	231	23	0.65
Burn	Num.	Area	Dist.	Conc.	Mobile 92	5	231	76	0.02	Mobile 92	5	231	23	0.29
Mobile 92	1	36	23	0.30	Mobile 92	6	231	76	0.03	Mobile 92	5	231	23	0.38
Mobile 92	1	36	23	0.03	Nobe 93	2	427	75	1.91	Mobile 92	6	231	23	0.16
Mobile 92	1	36	23	0.03	Nobe 93	2	427	75	1.74	Mobile 92	6	231	23	0.32
Mobile 92	1	36	46	0.02	Nobe 93	2	427	125	2.55	Mobile 92	2	231	46	0.60
Mobile 92	1	36	76	0.01	Nobe 93	2	427	125	2.77	Mobile 92	3	231	46	0.24
Mobile 92	2	231	23	0.08	Nobe 93	2	427	600	1.42	Mobile 92	4	231	46	0.16
Mobile 92	2	231	23	0.08	Nobe 93	2	427	600	0.24	Mobile 92	5	231	46	0.17
Mobile 92	2	231	23	0.07	Nobe 93	1	500	500	0.00	Mobile 92	6	231	46	0.07
Mobile 92	3	231	23	0.11	Nobe 93	2	500	500	0.00	Mobile 92	2	231	76	0.19
Mobile 92	4	231	23	0.10	Nobe 93	1	600	75	1.41	Nobe 93	2	427	75	0.00
Mobile 92	5	231	23	0.30	Nobe 93	1	600	75	1.11	Nobe 93	2	427	75	0.06
Mobile 92	5	231	23	0.40	Nobe 93	1	600	125	2.07	Nobe 93	2	427	125	0.08
Mobile 92	6	231	23	0.06	Nobe 93	1	600	125	2.26	Nobe 93	2	427	125	0.10
Mobile 92	6	231	23	0.10	Nobe 93	1	600	900	0.12	Nobe 93	2	427	600	0.06
Mobile 92	2	231	46	0.15	Nobe 93	1	600	900	0.31	Nobe 93	2	427	600	0.07
Mobile 92	3	231	46	0.06	Perylene					Nobe 93	1	500	500	0.00
Mobile 92	4	231	46	0.04	Burn	Num.	Area	Dist.	Conc.	Nobe 93	2	500	500	0.00
Mobile 92	5	231	46	0.18	Mobile 92	1	36	23	0.09	Nobe 93	1	600	75	0.06
Mobile 92	6	231	46	0.02	Mobile 92	1	1000	23	0.11	Nobe 93	1	600	125	0.12
Mobile 92	2	231	76	0.07	Mobile 92	1	36	46	0.01	Nobe 93	1	600	125	0.19
Mobile 92	3	231	76	0.04	Mobile 92	1	36	76	0.01	Nobe 93	1	600	900	0.03
Mobile 92	4	231	76	0.03	Mobile 92	2	231	23	0.02	Nobe 93	1	600	900	0.02
Mobile 92	5	231	76	0.01	Mobile 92	2	231	23	0.03	Mobile 91	cum	1071	30	0.50
Mobile 92	6	231	76	0.02	Mobile 92	3	231	23	0.02	Mobile 91	cum	1071	60	0.13
Nobe 93	1	500	500	0.00	Mobile 92	4	231	23	0.02	Pyrene				
Nobe 93	2	500	500	0.00	Mobile 92	5	231	23	0.01	Burn	Num.	Area	Dist.	Conc.
Naphthalene					Mobile 92	6	231	23	0.01	Mobile 92	1	1000	23	1.10
Burn	Num.	Area	Dist.	Conc.	Mobile 92	2	231	46	0.02	Mobile 92	1	36	23	0.07
Mobile 92	1	36	23	0.09	Mobile 92	5	231	46	0.01	Mobile 92	1	36	23	0.12
Mobile 92	1	36	23	0.02	Mobile 92	4	231	76	0.08	Mobile 92	1	36	46	0.11
Mobile 92	1	36	23	7.22	Nobe 93	2	427	75	0.01	Mobile 92	1	36	76	0.04
Mobile 92	1	36	46	0.08	Nobe 93	2	427	75	0.05	Mobile 91	30	114	30	0.79
Mobile 92	1	36	76	0.05	Nobe 93	1	500	500	0.00	Mobile 92	2	231	23	0.33
Mobile 92	2	231	23	0.72	Nobe 93	2	500	500	0.00	Mobile 92	2	231	23	0.29
Mobile 92	2	231	23	0.03	Nobe 93	1	600	75	0.05	Mobile 92	2	231	23	0.09
Mobile 92	2	231	23	3.17	Phenanthrene					Mobile 92	3	231	23	0.32
Mobile 92	3	231	23	0.55	Burn	Num.	Area	Dist.	Conc.	Mobile 92	4	231	23	0.43
Mobile 92	4	231	23	0.10	Mobile 92	1	1000	23	0.72	Mobile 92	5	231	23	0.03
Mobile 92	5	231	23	0.90	Mobile 92	1	36	23	0.05	Mobile 92	5	231	23	0.06
Mobile 92	5	231	23	0.24	Mobile 92	1	36	23	0.30	Mobile 92	6	231	23	0.05

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A3-6 Emissions Measured at Previous Test Burns: PAHs from Crude (concentrations in  $\mu\text{g}/\text{m}^3$ )

Pyrene (cid )					Total (cid )				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 92	6	231	23	0.12	Mobile 92	5	231	76	0.23
Mobile 92	2	231	46	0.30	Mobile 92	6	231	76	0.27
Mobile 92	3	231	46	0.09	Nobe 93	2	427	75	11.59
Mobile 92	4	231	46	0.09	Nobe 93	2	427	75	13.12
Mobile 92	5	231	46	0.02	Nobe 93	2	427	125	6.39
Mobile 92	6	231	46	0.02	Nobe 93	2	427	125	6.05
Mobile 92	2	231	76	0.07	Nobe 93	1	500	500	0.00
Mobile 92	3	231	76	0.10	Nobe 93	2	500	500	0.00
Mobile 92	4	231	76	0.04	Nobe 93	1	600	75	10.07
Mobile 92	6	231	76	0.01	Nobe 93	1	600	75	12.04
Nobe 93	2	427	75	0.23	Nobe 93	1	600	125	2.92
Nobe 93	2	427	75	0.31	Nobe 93	1	600	125	2.77
Nobe 93	2	427	125	0.03	Mobile 91	cum	1071	30	8.56
Nobe 93	2	427	125	0.03	Mobile 91	cum	1071	60	8.37
Nobe 93	2	427	600	0.01	Mobile 91	cum	1071	500	0.001
Nobe 93	1	500	500	1E-05	Trimethylnaphthalenes				
Nobe 93	2	500	500	1E-05	Burn	Num.	Area	Dist.	Conc.
Nobe 93	1	600	75	0.04	Mobile 92	1	36	23	0.17
Nobe 93	1	600	75	0.05	Mobile 92	1	36	23	0.15
Nobe 93	1	600	125	0.02	Mobile 92	1	36	46	0.14
Nobe 93	1	600	125	0.03	Mobile 92	1	36	76	0.07
Mobile 91	cum	1071	30	0.12	Mobile 92	2	231	23	0.44
Mobile 91	cum	1071	60	0.04	Mobile 92	2	231	23	0.28
Total					Mobile 92	3	231	23	0.29
Burn	Num.	Area	Dist.	Conc.	Mobile 92	4	231	23	0.2
Mobile 92	1	231	23	15.07	Mobile 92	5	231	23	0.38
Mobile 92	1	231	23	11.23	Mobile 92	5	231	23	1.21
Mobile 92	1	100	23	23.56	Mobile 92	6	231	23	0.13
Mobile 92	1	231	46	13.52	Mobile 92	6	231	23	0.34
Mobile 92	1	36	76	4.67	Mobile 92	2	231	46	0.61
Mobile 91	30	114	30	9.44	Mobile 92	3	231	46	0.19
Mobile 91	30	114	60	2.08	Mobile 92	4	231	46	0.08
Mobile 91	23	181	30	1.95	Mobile 92	5	231	46	0.55
Mobile 91	23	181	60	0.55	Mobile 92	6	231	46	0.07
Mobile 92	2	231	23	10.10	Mobile 92	2	231	76	0.23
Mobile 92	2	231	23	1.55	Mobile 92	3	231	76	0.13
Mobile 92	2	231	23	9.23	Mobile 92	4	231	76	0.06
Mobile 92	3	231	23	6.02	Mobile 92	5	231	76	0.05
Mobile 92	4	231	23	4.18	Mobile 92	6	231	76	0.05
Mobile 92	5	231	23	5.08	Nobe 93	1	500	500	1E-04
Mobile 92	5	231	23	4.99	Nobe 93	2	500	500	1E-04
Mobile 92	6	231	23	3.61					
Mobile 92	6	231	23	2.67					
Mobile 92	2	231	46	8.29					
Mobile 92	3	231	46	2.50					
Mobile 92	4	231	46	1.35					
Mobile 92	5	231	46	2.32					
Mobile 92	6	231	46	0.71					
Mobile 92	2	231	76	2.95					
Mobile 92	3	231	76	2.10					
Mobile 92	4	231	76	1.04					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A4-1 Emissions Measured at Previous Test Burns: PAHs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

1-Methylnaphthalene					2,3,5-Trimethylnaphthalene (ctd.)					Acenaphthalene (ctd.)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2	25	15	0.039	Mobile 94	2	231	45	3.12	Mobile 94	1	199	30	1.07
Mobile 97	2	25	30	0.002	Mobile 94	3	231	45	2.64	Mobile 94	1	199	30	2.61
Mobile 97	2	25	45	0.006	Mobile 94	2	231	75	1.85	Mobile 94	1	199	50	0.7
Mobile 94	1	199	30	0.234	Mobile 94	3	231	75	0.9	Mobile 94	1	199	50	1.21
Mobile 94	1	199	30	0.493	Mobile 94	2	231	85	0.16	Mobile 94	1	199	75	0.71
Mobile 94	1	199	50	0.143	Mobile 94	3	231	85	0.56	Mobile 94	1	199	85	0.25
Mobile 94	1	199	50	0.185	2,6-Dimethylnaphthalene					Mobile 94	1	199	85	0.19
Mobile 94	1	199	75	0.141	Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	30	6.24
Mobile 94	1	199	85	0.061	Mobile 97	2	25	15	0.094	Mobile 94	3	231	30	9.89
Mobile 94	1	199	85	0.042	Mobile 97	2	25	30	0.02	Mobile 94	2	231	45	2.37
Mobile 94	2	231	30	1.475	Mobile 97	2	25	45	0.01	Mobile 94	3	231	45	2.36
Mobile 94	3	231	30	1.03	Mobile 94	1	199	30	0.368	Mobile 94	2	231	75	1.47
Mobile 94	2	231	45	0.62	Mobile 94	1	199	30	0.999	Mobile 94	3	231	75	0.87
Mobile 94	3	231	45	0.607	Mobile 94	1	199	50	0.251	Mobile 94	2	231	85	0.12
Mobile 94	2	231	75	0.38	Mobile 94	1	199	50	0.426	Mobile 94	3	231	85	0.51
Mobile 94	3	231	75	0.254	Mobile 94	1	199	75	0.277	Acenaphthene				
Mobile 94	2	231	85	0.028	Mobile 94	1	199	85	0.085	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	85	0.129	Mobile 94	1	199	85	0.067	Mobile 97	2	25	15	0.042
1-Methylphenanthrene					Mobile 94	2	231	30	2.149	Mobile 97	2	25	30	0.007
Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	30	1.645	Mobile 97	2	25	45	0.004
Mobile 97	2	25	15	0.008	Mobile 94	2	231	45	0.835	Mobile 94	1	199	30	0.306
Mobile 97	2	25	45	0.002	Mobile 94	3	231	45	0.832	Mobile 94	1	199	30	0.629
Mobile 94	1	199	30	0.044	Mobile 94	2	231	75	0.535	Mobile 94	1	199	50	0.159
Mobile 94	1	199	30	0.131	Mobile 94	3	231	75	0.323	Mobile 94	1	199	50	0.235
Mobile 94	1	199	50	0.032	Mobile 94	2	231	85	0.048	Mobile 94	1	199	75	0.128
Mobile 94	1	199	50	0.056	Mobile 94	3	231	85	0.186	Mobile 94	1	199	85	0.058
Mobile 94	1	199	75	0.025	2-Methylnaphthalene					Mobile 94	1	199	85	0.038
Mobile 94	1	199	85	0.015	Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	30	5.252
Mobile 94	1	199	85	0.009	Mobile 97	2	25	15	0.053	Mobile 94	3	231	30	3.561
Mobile 94	2	231	30	0.687	Mobile 97	2	25	30	0.012	Mobile 94	2	231	45	1.847
Mobile 94	3	231	30	0.378	Mobile 97	2	25	45	0.009	Mobile 94	3	231	45	1.139
Mobile 94	2	231	45	0.314	Mobile 94	1	199	30	0.247	Mobile 94	2	231	75	1.034
Mobile 94	3	231	45	0.123	Mobile 94	1	199	30	0.551	Mobile 94	3	231	75	0.388
Mobile 94	2	231	75	0.161	Mobile 94	1	199	50	0.203	Mobile 94	2	231	85	0.039
Mobile 94	3	231	75	0.041	Mobile 94	1	199	50	0.22	Mobile 94	3	231	85	0.242
Mobile 94	2	231	85	0.009	Mobile 94	1	199	75	0.211	Anthracene				
Mobile 94	3	231	85	0.029	Mobile 94	1	199	85	0.089	Burn	Num.	Area	Dist.	Conc.
2,3,5-Trimethylnaphthalene					Mobile 94	1	199	85	0.06	Mobile 97	2	25	15	0.07
Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	30	1.96	Mobile 97	2	25	30	0.021
Mobile 97	2	25	15	0.275	Mobile 94	3	231	30	1.537	Mobile 97	2	25	45	0.013
Mobile 97	2	25	30	0.075	Mobile 94	2	231	45	0.709	Mobile 94	1	199	30	0.389
Mobile 97	2	25	45	0.038	Mobile 94	3	231	45	0.743	Mobile 94	1	199	30	0.622
Mobile 94	1	199	30	1.33	Mobile 94	2	231	75	0.432	Mobile 94	1	199	50	0.179
Mobile 94	1	199	30	3.34	Mobile 94	3	231	75	0.311	Mobile 94	1	199	50	0.334
Mobile 94	1	199	50	0.93	Mobile 94	2	231	85	0.043	Mobile 94	1	199	75	0.233
Mobile 94	1	199	50	1.67	Mobile 94	3	231	85	0.155	Mobile 94	1	199	85	0.121
Mobile 94	1	199	75	0.89	Acenaphthalene					Mobile 94	1	199	85	0.066
Mobile 94	1	199	85	0.29	Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	30	3.943
Mobile 94	1	199	85	0.29	Mobile 97	2	25	15	0.263	Mobile 94	3	231	30	2.492
Mobile 94	2	231	30	7.26	Mobile 97	2	25	30	0.02	Mobile 94	2	231	45	1.713
Mobile 94	3	231	30	5.08	Mobile 97	2	25	45	0.013	Mobile 94	3	231	45	0.859

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A4-2 Emissions Measured at Previous Test Burns: PAHs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Benz(a)anthracene					Benzo(b)fluoranthene (cid.)					Benz(k)fluoranthene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2	25	15	0.001	Mobile 94	2	231	45	0.285	Mobile 94	1	199	30	0.003
Mobile 97	2	25	30	4E-04	Mobile 94	3	231	45	0.104	Mobile 94	1	199	50	0.012
Mobile 97	2	25	45	2E-04	Mobile 94	2	231	75	0.096	Mobile 94	1	199	50	0.014
Mobile 94	1	199	30	0.014	Mobile 94	3	231	75	0.032	Mobile 94	1	199	75	3E-04
Mobile 94	1	199	30	0.026	Mobile 94	2	231	85	0.003	Mobile 94	1	199	85	0.004
Mobile 94	1	199	50	0.006	Mobile 94	3	231	85	0.028	Mobile 94	1	199	85	8E-04
Mobile 94	1	199	50	0.009	Benz(e)pyrene					Mobile 94	2	231	30	0
Mobile 94	1	199	75	0.003	Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	30	0.029
Mobile 94	1	199	85	0.002	Mobile 97	2	25	15	0.001	Mobile 94	2	231	45	0
Mobile 94	1	199	85	0.001	Mobile 97	2	25	30	0	Mobile 94	3	231	45	0.008
Mobile 94	2	231	30	0.288	Mobile 94	1	199	30	0.012	Mobile 94	2	231	75	0.011
Mobile 94	3	231	30	0.185	Mobile 94	1	199	30	0.016	Mobile 94	3	231	75	0.002
Mobile 94	2	231	45	0.178	Mobile 94	1	199	50	3E-04	Mobile 94	2	231	85	0.001
Mobile 94	3	231	45	0.058	Mobile 94	1	199	50	2E-04	Mobile 94	3	231	85	0.002
Mobile 94	2	231	75	0.066	Mobile 94	1	199	75	0.002	Biphenyl				
Mobile 94	3	231	75	0.013	Mobile 94	1	199	85	4E-04	Burn	Num.	Area	Dist.	Conc.
Mobile 94	2	231	85	0.001	Mobile 94	1	199	85	0.001	Mobile 97	2	25	15	0.063
Mobile 94	3	231	85	0.012	Mobile 94	2	231	30	0.183	Mobile 97	2	25	30	0.009
Benz(a)pyrene					Mobile 94	3	231	30	0.132	Mobile 97	2	25	45	0.005
Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	45	0.098	Mobile 94	1	199	30	0.189
Mobile 97	2	25	15	9E-04	Mobile 94	3	231	45	0.037	Mobile 94	1	199	30	0.46
Mobile 97	2	25	30	2E-05	Mobile 94	2	231	75	0.035	Mobile 94	1	199	50	0.13
Mobile 94	1	199	30	0.004	Mobile 94	3	231	75	0.012	Mobile 94	1	199	50	0.21
Mobile 94	1	199	30	0.013	Mobile 94	2	231	85	0.002	Mobile 94	1	199	75	0.143
Mobile 94	1	199	50	0.004	Mobile 94	3	231	85	0.011	Mobile 94	1	199	85	0.048
Mobile 94	1	199	50	0.006	Benz(ghi)perylene					Mobile 94	1	199	85	0.038
Mobile 94	1	199	75	0.001	Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	30	1.449
Mobile 94	1	199	85	0.001	Mobile 97	2	25	15	0.003	Mobile 94	3	231	30	1.198
Mobile 94	1	199	85	0.001	Mobile 97	2	25	30	6E-04	Mobile 94	2	231	45	0.551
Mobile 94	2	231	30	0.367	Mobile 97	2	25	45	1E-04	Mobile 94	3	231	45	0.575
Mobile 94	3	231	30	0.202	Mobile 94	1	199	30	0.017	Mobile 94	2	231	75	0.36
Mobile 94	2	231	45	0.194	Mobile 94	1	199	30	0.022	Mobile 94	3	231	75	0.234
Mobile 94	3	231	45	0.048	Mobile 94	1	199	50	0.008	Mobile 94	2	231	85	0.023
Mobile 94	2	231	75	0.056	Mobile 94	1	199	50	0.01	Mobile 94	3	231	85	0.131
Mobile 94	3	231	75	0.012	Mobile 94	1	199	75	0.004	Chrysene				
Mobile 94	2	231	85	7E-04	Mobile 94	1	199	85	0.003	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	85	0.012	Mobile 94	1	199	85	7E-04	Mobile 97	2	25	15	0.002
Benzo(b)fluoranthene					Mobile 94	2	231	30	0.178	Mobile 97	2	25	30	8E-04
Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	30	0.309	Mobile 97	2	25	45	3E-04
Mobile 97	2	25	15	0.003	Mobile 94	2	231	45	0.195	Mobile 94	1	199	30	0.02
Mobile 97	2	25	30	9E-04	Mobile 94	3	231	45	0.084	Mobile 94	1	199	30	0.028
Mobile 97	2	25	45	4E-04	Mobile 94	2	231	75	0.056	Mobile 94	1	199	50	0.008
Mobile 94	1	199	30	0.034	Mobile 94	3	231	75	0.025	Mobile 94	1	199	50	0.01
Mobile 94	1	199	30	0.048	Mobile 94	2	231	85	8E-04	Mobile 94	1	199	75	0.004
Mobile 94	1	199	50	0.014	Mobile 94	3	231	85	0.023	Mobile 94	1	199	85	0.003
Mobile 94	1	199	50	0.016	Benz(k)fluoranthene					Mobile 94	1	199	85	0.002
Mobile 94	1	199	75	0.006	Burn	Num.	Area	Dist.	Conc.	Mobile 94	2	231	30	0.294
Mobile 94	1	199	85	0.005	Mobile 97	2	25	15	2E-04	Mobile 94	3	231	30	0.207
Mobile 94	1	199	85	0.002	Mobile 97	2	25	30	8E-04	Mobile 94	2	231	45	0.148
Mobile 94	2	231	30	0.431	Mobile 97	2	25	45	5E-06	Mobile 94	3	231	45	0.061
Mobile 94	3	231	30	0.37	Mobile 94	1	199	30	0	Mobile 94	2	231	75	0.071

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A4-3 Emissions Measured at Previous Test Burns: PAHs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Dibenz(a,h)anthracene					Fluoranthene					Naphthalene				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2	25	15	0.000	Mobile 94	3	231	30	1.311	Mobile 97	2	25	15	0.057
Mobile 97	2	25	30	0.003	Mobile 94	2	231	45	0.780	Mobile 97	2	25	30	0.000
Mobile 97	2	25	45	0.000	Mobile 94	3	231	45	0.366	Mobile 97	2	25	45	0.009
Mobile 94	1	199	30	0.025	Mobile 94	2	231	75	0.390	Mobile 94	1	199	30	0.099
Mobile 94	1	199	30	0.002	Mobile 94	3	231	75	0.115	Mobile 94	1	199	30	0.169
Mobile 94	1	199	50	0.001	Mobile 94	2	231	85	0.020	Mobile 94	1	199	50	0.090
Mobile 94	1	199	50	0.005	Mobile 94	3	231	85	0.102	Mobile 94	1	199	50	0.080
Mobile 94	1	199	75	0.000	Fluorene					Mobile 94	1	199	75	0.117
Mobile 94	1	199	85	0.000	Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	199	85	0.101
Mobile 94	1	199	85	0.000	Mobile 97	2	25	30	0.002	Mobile 94	1	199	85	0.099
Mobile 94	2	231	30	0.025	Mobile 97	2	25	45	0.001	Mobile 94	2	231	30	1.486
Mobile 94	3	231	30	0.015	Mobile 94	1	199	30	0.067	Mobile 94	3	231	30	2.031
Mobile 94	2	231	45	0.014	Mobile 94	2	231	45	0.013	Mobile 94	2	231	45	0.649
Mobile 94	3	231	45	0.004	Mobile 94	2	231	200	0.000	Mobile 94	3	231	45	0.890
Mobile 94	2	231	75	0.008	Indeno(123-cd)pyrene					Mobile 94	2	231	75	0.316
Mobile 94	3	231	75	0.006	Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	75	0.592
Mobile 94	2	231	85	0.000	Mobile 97	2	25	15	0.002	Mobile 94	2	231	85	0.061
Mobile 94	3	231	85	0.001	Mobile 97	2	25	30	0.000	Mobile 94	3	231	85	0.256
Dimethylnaphthalenes					Mobile 97	2	25	45	0.000	Perylene				
Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	199	30	0.012	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2	25	15	0.042	Mobile 94	1	199	30	0.018	Mobile 97	2	25	15	0.000
Mobile 97	2	25	30	0.013	Mobile 94	1	199	50	0.006	Mobile 97	2	25	30	0.000
Mobile 97	2	25	45	0.004	Mobile 94	1	199	50	0.008	Mobile 97	2	25	45	0.000
Mobile 94	1	199	30	0.240	Mobile 94	1	199	75	0.003	Mobile 94	1	199	30	0.000
Mobile 94	1	199	30	0.594	Mobile 94	1	199	85	0.002	Mobile 94	1	199	30	0.002
Mobile 94	1	199	50	0.148	Mobile 94	1	199	85	0.000	Mobile 94	1	199	50	0.001
Mobile 94	1	199	50	0.288	Mobile 94	2	231	30	0.176	Mobile 94	1	199	50	0.005
Mobile 94	1	199	75	0.146	Mobile 94	3	231	30	0.213	Mobile 94	1	199	75	0.000
Mobile 94	1	199	85	0.053	Mobile 94	2	231	45	0.154	Mobile 94	1	199	85	0.000
Mobile 94	1	199	85	0.054	Mobile 94	3	231	45	0.057	Mobile 94	1	199	85	0.000
Mobile 94	2	231	30	1.239	Mobile 94	2	231	75	0.039	Mobile 94	2	231	30	0.043
Mobile 94	3	231	30	0.840	Mobile 94	3	231	75	0.018	Mobile 94	3	231	30	0.034
Mobile 94	2	231	45	0.550	Mobile 94	2	231	85	0.001	Mobile 94	2	231	45	0.023
Mobile 94	3	231	45	0.408	Mobile 94	3	231	85	0.015	Mobile 94	3	231	45	0.009
Mobile 94	2	231	75	0.326	Methylphenanthrenes					Mobile 94	2	231	75	0.010
Mobile 94	3	231	75	0.135	Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	75	0.000
Mobile 94	2	231	85	0.028	Mobile 97	2	25	15	0.005	Mobile 94	2	231	85	0.000
Mobile 94	3	231	85	0.086	Mobile 97	2	25	30	0.003	Mobile 94	3	231	85	0.002
Fluoranthene					Mobile 97	2	25	45	0.003	Phenanthrene				
Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	199	30	0.100	Burn	Num.	Area	Dist.	Conc.
Mobile 97	2	25	15	0.024	Mobile 94	1	199	30	0.040	Mobile 97	2	25	15	0.020
Mobile 97	2	25	30	0.007	Mobile 94	1	199	50	0.010	Mobile 97	2	25	30	0.007
Mobile 97	2	25	45	0.004	Mobile 94	1	199	50	0.020	Mobile 97	2	25	45	0.004
Mobile 94	1	199	30	0.119	Mobile 94	1	199	75	0.020	Mobile 94	1	199	30	0.303
Mobile 94	1	199	30	0.165	Mobile 94	1	199	85	0.015	Mobile 94	1	199	30	0.420
Mobile 94	1	199	50	0.052	Mobile 94	1	199	85	0.010	Mobile 94	1	199	50	0.117
Mobile 94	1	199	50	0.094	Mobile 94	2	231	30	0.340	Mobile 94	1	199	50	0.216
Mobile 94	1	199	75	0.063	Mobile 94	3	231	30	0.100	Mobile 94	1	199	75	0.147
Mobile 94	1	199	85	0.033	Mobile 94	2	231	45	0.130	Mobile 94	1	199	85	0.050
Mobile 94	1	199	85	0.017	Mobile 94	3	231	45	0.070	Mobile 94	1	199	85	0.043
Mobile 94	2	231	30	1.758	Mobile 94	2	231	75	0.200	Mobile 94	2	231	30	1.471

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$

Table A4-4 Emissions Measured at Previous Test Burns: PAHs from Diesel (concentrations in  $\mu\text{g}/\text{m}^3$ )

Phenanthrene (cld.)					Trimethynaphthalenes				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	3	231	30	0.74	Mobile 97	2	25	15	0.02
Mobile 94	2	231	45	0.57	Mobile 97	2	25	30	0.01
Mobile 94	3	231	45	0.33	Mobile 97	2	25	45	0.01
Mobile 94	2	231	75	0.32	Mobile 94	1	199	30	0.30
Mobile 94	3	231	75	0.11	Mobile 94	1	199	30	0.13
Mobile 94	2	231	85	0.04	Mobile 94	1	199	50	0.03
Mobile 94	3	231	85	0.07	Mobile 94	1	199	50	0.05
Pyrene					Mobile 94	1	199	75	0.15
Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	199	85	0.03
Mobile 97	2	25	15	0.02	Mobile 94	1	199	85	0.03
Mobile 97	2	25	30	0.01	Mobile 94	2	231	30	1.02
Mobile 97	2	25	45	0.00	Mobile 94	3	231	30	0.34
Mobile 94	1	199	30	0.11	Mobile 94	2	231	45	0.42
Mobile 94	1	199	30	0.17	Mobile 94	3	231	45	0.19
Mobile 94	1	199	50	0.05	Mobile 94	2	231	75	0.72
Mobile 94	1	199	50	0.07	Mobile 94	3	231	75	0.06
Mobile 94	1	199	75	0.04	Mobile 94	2	231	85	0.03
Mobile 94	1	199	85	0.02	Mobile 94	3	231	85	0.06
Mobile 94	1	199	85	0.01					
Mobile 94	2	231	30	1.83					
Mobile 94	3	231	30	1.27					
Mobile 94	2	231	45	0.78					
Mobile 94	3	231	45	0.34					
Mobile 94	2	231	75	0.36					
Mobile 94	3	231	75	0.10					
Mobile 94	2	231	85	0.02					
Mobile 94	3	231	85	0.09					
Total PAHs									
Burn	Num.	Area	Dist.	Conc.					
Mobile 97	2	25	15	1.10					
Mobile 97	2	25	30	0.22					
Mobile 97	2	25	45	0.13					
Mobile 94	1	199	30	5.59					
Mobile 94	1	199	30	11.77					
Mobile 94	1	199	50	3.28					
Mobile 94	1	199	50	5.45					
Mobile 94	1	199	75	3.47					
Mobile 94	1	199	85	1.34					
Mobile 94	1	199	85	1.08					
Mobile 94	2	231	30	41.50					
Mobile 94	3	231	30	35.14					
Mobile 94	2	231	45	17.32					
Mobile 94	3	231	45	12.95					
Mobile 94	2	231	75	10.30					
Mobile 94	3	231	75	4.89					
Mobile 94	2	231	85	3.74					
Mobile 94	3	231	85	2.96					

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$



Table A5-1 Emissions Measured at Previous Test Burns: Carbonyls and Gases (concentrations in  $\mu\text{g}/\text{m}^3$ , or ppm)

Acetaldehyde from Crude					Carbon Dioxide from Crude (ppm)					Carbon Dioxide from Crude (std. - ppm)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Nobe 93	1	600	75	12.8	Nobe 93	1	600	75	799	Mobile 92	4	231	46	240
Nobe 93	1	600	125	60.3	Nobe 93	1	600	125	552	Mobile 92	4	231	76	240
Nobe 93	1	600	75	12.8	Nobe 93	1	600	900	17	Mobile 92	5	231	23	180
Nobe 93	1	600	125	60.3	Nobe 93	2	427	75	629	Mobile 92	5	231	46	140
Nobe 93	1	600	125	31.7	Nobe 93	2	427	125	543	Mobile 92	5	231	76	100
Mobile 92	1	110	15	1.7	Nobe 93	2	427	900	25	Sulphur Dioxide from crude (ppm)				
Mobile 92	1	231	30	5	Mobile 91	16	37	30	238	Burn	Num.	Area	Dist.	Conc.
Nobe 93	1	600	600	0.001	Mobile 91	16	37	60	278	Nobe 93	2	600	75	13.4
Nobe 93	1	600	900	0.001	Mobile 91	23	181	30	147	Nobe 93	2	600	125	12.9
Nobe 93	5-1	25	15	0.3	Mobile 91	23	181	60	352	Nobe 93	2	600	600	5.4
Acetone from Crude					Mobile 91	23	181	30	188	Nobe 93	2	600	600	0.01
Burn	Num.	Area	Dist.	Conc.	Mobile 91	23	181	60	392	Nobe 93	2	600	600	0.001
Nobe 93	1	400	75	31.7	Mobile 91	24	170	30	257	Nobe 93	2	600	75	8
Nobe 93	1	400	125	1.7	Mobile 91	24	170	60	275	Nobe 93	1	600	75	10
Nobe 93	1	900	75	31.7	Mobile 91	28	73	30	369	Nobe 93	1	600	125	11
Nobe 93	1	900	125	1.7	Mobile 91	28	73	60	317	Nobe 93	1	600	600	6
Mobile 92	1	110	15	1.7	Mobile 91	30	114	30	206	Nobe 93	1	600	600	0.01
Mobile 92	1	231	30	5	Mobile 91	30	114	60	212	Nobe 93	1	600	600	0.001
Nobe 93	1	600	600	0.001	Mobile 91	31	114	30	272	Mobile 92	1	231	23	14.2
Nobe 93	1	600	900	0.001	Mobile 91	31	114	60	191	Mobile 92	1	231	46	5
Formaldehyde from Crude					Mobile 91	3	114	30	304	Mobile 92	1	231	76	0.4
Burn	Num.	Area	Dist.	Conc.	Mobile 91	3	114	60	185	Mobile 92	2	231	46	4
Nobe 93	1	600	75	40.8	Mobile 91	4	114	30	301	Mobile 92	2	231	76	2
Nobe 93	1	600	125	26.8	Mobile 91	4	114	60	217	Mobile 92	3	231	23	14.2
Nobe 93	2	427	75	32	Mobile 91	5	231	30	437	Mobile 92	3	231	46	5.1
Nobe 93	2	427	125	7.6	Mobile 91	5	231	60	353	Mobile 92	3	231	76	6
Mobile 92	1	36	15	2	Mobile 92	1	36	23	449	Mobile 92	4	231	23	11
Nobe 93	1	600	125	0.01	Mobile 92	1	36	46	388	Mobile 92	4	231	46	7
Carbon Monoxide from Crude (ppm)					Mobile 92	1	36	76	378	Mobile 92	4	231	76	0.3
Burn	Num.	Area	Dist.	Conc.	Mobile 92	2	200	23	393	Mobile 92	5	231	23	9.5
Nobe 93	1	600	75	0.5	Mobile 92	2	200	46	419	Mobile 92	5	231	46	6
Nobe 93	1	600	125	0.1	Mobile 92	2	200	76	405	Mobile 92	5	231	76	0.001
Nobe 93	2	427	75	0.1	Mobile 92	3	200	23	398	Mobile 92	6	231	23	4.5
Nobe 93	2	427	125	0.7	Mobile 92	3	200	46	412	Mobile 92	6	231	46	4
Mobile 92	1	36	23	2.5	Mobile 92	3	200	76	369	Mobile 92	6	231	76	0.001
Mobile 92	1	36	46	1.7	Mobile 92	4	200	23	272	Mobile 92	1	36	23	1
Mobile 92	1	36	76	1.3	Mobile 92	4	200	46	433	Mobile 92	1	36	46	0.2
Mobile 92	2	231	23	1.7	Mobile 92	4	200	76	402	Mobile 92	1	36	76	1E-04
Mobile 92	2	231	46	0.2	Mobile 92	5	200	23	238	Acetaldehyde from Diesel				
Mobile 92	2	231	76	1.3	Mobile 92	5	200	46	328	Burn	Num.	Area	Dist.	Conc.
Mobile 92	4	231	23	3.4	Mobile 92	5	200	76	273	Mobile 94	1	231	30	53.4
Mobile 92	4	231	46	0.01	Mobile 92	6	200	23	319	Mobile 94	1	231	50	42.6
Mobile 92	4	231	76	1.7	Mobile 92	6	200	46	399	Mobile 94	1	231	85	36.2
Mobile 92	5	231	23	7.2	Mobile 92	6	200	76	375	Mobile 94	2	231	30	31.6
Mobile 92	5	231	46	0.01	Mobile 92	1	36	23	345	Mobile 94	2	231	50	24
Mobile 92	5	231	76	3.7	Mobile 92	1	36	46	211	Mobile 94	2	231	85	21.5
Mobile 92	6	231	23	2	Mobile 92	1	36	76	160	Mobile 94	3	231	30	39.4
Mobile 92	6	231	46	3.8	Mobile 92	3	231	23	180	Mobile 94	3	231	50	31.9
Mobile 92	6	231	76	1.7	Mobile 92	3	231	46	160	Mobile 94	3	231	85	25.2
Nobe 93	1	600	75	4.5	Mobile 92	3	231	76	100	Mobile 97	3	25	15	10
Mobile 92	2-2	25	15	0.3	Mobile 92	4	231	23	270	Mobile 97	3	25	30	5

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$  or ppm

Table A5-2 Emissions Measured at Previous Test Burns: Carbonyls and Gases (concentrations in  $\mu\text{g}/\text{m}^3$ , or ppm)

Acetone from Diesel					Propionaldehyde from Diesel (ctd.)					Sulphur Dioxide (ppm)				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	1	231	30	17.7	Mobile 94	3	231	30	12.8	Mobile 94	1	231	39	0.1
Mobile 94	1	231	50	15.9	Mobile 94	3	231	50	11.7	Mobile 94	1	231	58	0.01
Mobile 94	1	231	85	12.1	Mobile 94	3	231	85	4	Mobile 94	1	231	72	0.001
Mobile 94	2	231	30	11.7	Mobile 97	3	25	15	6	Mobile 94	1	231	39	0.3
Mobile 94	2	231	50	6	Mobile 97	3	25	30	3	Mobile 94	1	231	58	0.1
Mobile 94	2	231	85	5.4	Mobile 97	3	25	75	1	Mobile 94	1	231	72	0.001
Mobile 94	3	231	30	19.5	Mobile 97	3	25	85	0.1	Mobile 94	1	231	39	0.2
Mobile 94	3	231	50	15.1	Carbon Monoxide from Diesel (ppm)					Mobile 94	1	231	58	0.05
Mobile 94	3	231	85	12.1	Burn	Num.	Area	Dist.	Conc.	Mobile 94	1	231	72	0.001
Mobile 97	3	25	15	4	Mobile 94	2	231	30	3	Mobile 97	1	25	15	0.02
Mobile 97	3	25	30	2	Mobile 94	2	231	45	2	Mobile 97	1	25	30	0.001
Mobile 97	3	25	75	1	Mobile 94	2	231	75	0.01	Mobile 97	1	25	15	0.08
Mobile 97	3	25	85	0.2	Mobile 94	3	231	30	1	Mobile 97	1	25	30	0.001
Butyraldehydes from Diesel					Mobile 94	3	231	45	1	Mobile 97	1	25	15	0.04
Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	75	0.01	Mobile 97	1	25	30	0.001
Mobile 94	1	231	30	14	Mobile 94	1	199	30	1					
Mobile 94	1	231	50	12	Mobile 94	1	199	45	0.01					
Mobile 94	1	231	85	4	Mobile 94	1	199	75	0.001					
Mobile 94	2	231	30	9.9	Mobile 94	2	231	30	3					
Mobile 94	2	231	50	8	Mobile 94	2	231	45	1					
Mobile 94	2	231	85	4	Mobile 94	2	231	75	0.01					
Mobile 94	3	231	30	13.3	Mobile 94	3	231	30	1					
Mobile 94	3	231	50	8.6	Mobile 94	3	231	45	1					
Mobile 94	3	231	85	0.01	Mobile 94	3	231	75	0.1					
Mobile 97	3	25	15	5	Carbon Dioxide from Diesel (ppm)									
Mobile 97	3	25	30	3	Burn	Num.	Area	Dist.	Conc.					
Mobile 97	3	25	75	1	Mobile 94	2	231	30	132					
Mobile 97	3	25	85	0.01	Mobile 94	2	231	45	71					
Formaldehyde from Diesel					Mobile 94	2	231	75	23					
Burn	Num.	Area	Dist.	Conc.	Mobile 94	3	231	30	72					
Mobile 94	1	231	30	29.9	Mobile 94	3	231	45	34					
Mobile 94	1	231	50	17.5	Mobile 94	3	231	75	19					
Mobile 94	1	231	85	24	Mobile 97	Burn 2-1	25	15	21					
Mobile 94	2	231	30	44	Mobile 97	Burn 2-2	25	15	21					
Mobile 94	2	231	50	18	Mobile 97	Burn 2-3	25	15	21					
Mobile 94	2	231	85	16.5	Mobile 97	Burn 5-1	25	15	17					
Mobile 94	3	231	30	31.6	Mobile 97	Burn 2-1	25	30	5					
Mobile 94	3	231	50	21.5	Mobile 97	Burn 3-1	25	30	21					
Mobile 94	3	231	85	15.6	Mobile 97	Burn 3a-	25	30	56					
Mobile 97	3	25	15	8	Mobile 97	Burn 4-1	25	30	19					
Mobile 97	3	25	30	5	Mobile 97	Burn 4-3	25	30	2					
Mobile 97	3	25	75	2	Mobile 97	Burn 5-1	25	30	1					
Mobile 97	3	25	85	1	Mobile 97	Burn 2-1	25	72	19					
Propionaldehyde from Diesel					Mobile 97	Burn 2-2	25	72	11					
Burn	Num.	Area	Dist.	Conc.	Mobile 97	Burn 2-3	25	72	1					
Mobile 94	1	231	30	15.3										
Mobile 94	1	231	50	12.7										
Mobile 94	1	231	85	9.5										
Mobile 94	2	231	30	9										
Mobile 94	2	231	50	5.7										
Mobile 94	2	231	85	2										

Num. = experiment number, Area = area in  $\text{m}^2$ , dist. = distance in m, Conc. = concentration in  $\mu\text{g}/\text{m}^3$  or ppm

Table A6-1 Emissions Measured at Previous Test Burns: Particulates (concentrations in mg/m<sup>3</sup>)

TSP from crude					TSP from Diesel Burns					TSP from Diesel Burns				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 91	1	231	30	7.4	Mobile 94	3	231	30	2.972	Mobile 97	4-1&2	25	30	0.02
Mobile 91	1	231	30	4.1	Mobile 94	3	231	45	0.884	Mobile 97	4-1&2	25	15	0.34
Mobile 91	1	231	30	0.5	Mobile 94	3	231	75	0.198	Mobile 97	4-1&2	25	30	0.14
Nobe 93	1	600	75	15.05	Mobile 94	3	231	30	2.206	Mobile 97	4-1&2	25	30	0.09
Nobe 93	1	600	125	14.29	Mobile 94	3	231	45	0.636	Mobile 97	4-3	25	30	0.07
Nobe 93	1	600	900	0.01	Mobile 94	3	231	75	0.267	Mobile 97	4-3	25	15	0.35
Nobe 93	1	600	900	0.01	Mobile 94	3	231	30	2.577	Mobile 97	4-3	25	30	0.17
Nobe 93	1	600	900	0.01	Mobile 94	3	231	50	1.111	Mobile 97	4-3	25	30	0.53
Mobile 91	2	231	23	5	Mobile 94	3	231	85	0.383	Mobile 97	4-3	25	15	0.35
Mobile 91	2	231	46	3	Mobile 97	2-1	25	30	0.15	Mobile 97	4-3	25	30	0.23
Mobile 91	2	231	76	1.3	Mobile 97	2-1	25	15	0.33	Mobile 97	4-3	25	30	0.92
Nobe 93	2	600	75	14.4	Mobile 97	2-1	25	30	0.07	Mobile 97	5-1	25	30	0.09
Nobe 93	2	600	125	17.15	Mobile 97	2-1	25	30	0.09	Mobile 97	5-1	25	15	0.12
Nobe 93	2	600	550	0.01	Mobile 97	2-1	25	30	0.10	Mobile 97	5-1	25	30	0.14
Nobe 93	2	600	550	0.01	Mobile 97	2-1	25	15	0.43	Mobile 97	5-1	25	30	0.11
Mobile 92	3	231	23	3.4	Mobile 97	2-1	25	30	0.21	Mobile 97	5-1	25	15	0.33
Mobile 92	3	231	46	2	Mobile 97	2-1	25	30	0.15	Mobile 97	5-1	25	30	0.16
Mobile 92	3	231	76	1.5	Mobile 97	2-1	25	30	0.08	Mobile 97	5-1	25	30	0.03
Mobile 92	4	231	23	4.1	Mobile 97	2-1	25	15	0.24					
Mobile 92	4	231	46	1.8	Mobile 97	2-1	25	30	0.14					
Mobile 92	4	231	76	2.1	Mobile 97	2-1	25	30	0.11					
Mobile 91	5	231	30	0.5	Mobile 97	2-2	25	30	0.04					
Mobile 91	5	231	30	0.2	Mobile 97	2-2	25	15	0.07					
Mobile 92	5	231	23	1	Mobile 97	2-2	25	30	0.06					
Mobile 92	5	231	46	0.5	Mobile 97	2-2	25	30	0.04					
Mobile 92	5	231	76	0.2	Mobile 97	2-2	25	15	0.11					
Mobile 92	6	231	46	0.3	Mobile 97	2-2	25	30	0.04					
Mobile 92	6	231	76	0.1	Mobile 97	2-2	25	30	0.05					
Mobile 91	16	37.2	30	0.5	Mobile 97	2-2	25	15	0.09					
Mobile 91	22	114	30	1.1	Mobile 97	2-2	25	30	0.03					
Mobile 91	22	114	30	1.5	Mobile 97	2-2	25	30	0.10					
Mobile 91	23	181	30	3.9	Mobile 97	2-3	25	15	0.08					
Mobile 91	23	181	60	0.4	Mobile 97	2-3	25	30	0.08					
Mobile 91	24	170	30	0.1	Mobile 97	2-3	25	30	0.02					
Mobile 91	30	114	30	2.7	Mobile 97	2-3	25	30	0.02					
Mobile 91	30	114	60	0.5	Mobile 97	2-3	25	15	0.16					
Mobile 91	31	114	30	0.5	Mobile 97	2-3	25	30	0.12					
Mobile 91	31	114	60	0.1	Mobile 97	2-3	25	30	0.02					
TSP from Diesel Burns					Mobile 97	2-3	25	30	0.02					
Burn	Num.	Area	Dist.	Conc.	Mobile 97	2-3	25	15	0.07					
Mobile 94	2	231	30	1.019	Mobile 97	2-3	25	30	0.10					
Mobile 94	2	231	30	5.361	Mobile 97	2-3	25	30	0.01					
Mobile 94	2	231	45	2.145	Mobile 97	3-1	25	30	0.06					
Mobile 94	2	231	75	0.912	Mobile 97	3-1	25	15	0.11					
Mobile 94	2	231	30	1.282	Mobile 97	3a-1	25	30	0.01					
Mobile 94	2	231	45	0.566	Mobile 97	3a-1	25	15	0.01					
Mobile 94	2	231	75	0.176	Mobile 97	3a-1	25	30	0.05					
Mobile 94	2	231	30	2.274	Mobile 97	4-1&2	25	30	0.01					
Mobile 94	2	231	50	1.274	Mobile 97	4-1&2	25	15	0.03					
Mobile 94	2	231	85	0.187	Mobile 97	4-1&2	25	30	0.02					
Mobile 94	3	231	30	2.188	Mobile 97	4-1&2	25	30	0.02					

Num. = experiment number, Area = area in m<sup>2</sup>, dist. = distance in m, Conc. = concentration in mg/m<sup>3</sup>

Table A6-2 Emissions Measured at Previous Test Burns: Particulates (concentrations in mg/m<sup>3</sup>)

PM-10 from Diesel					PM-2.5 from Diesel				
Burn	Num.	Area	Dist.	Conc.	Burn	Num.	Area	Dist.	Conc.
Mobile 94	2	231	30	1.52	Mobile 97	2-1	25	30	0.03
Mobile 94	2	231	45	0.46	Mobile 97	2-1	25	15	0.11
Mobile 94	2	231	75	0.63	Mobile 97	2-1	25	30	0.04
Mobile 94	3	231	30	2.43	Mobile 97	2-1	25	30	0.54
Mobile 94	3	231	45	0.71	Mobile 97	2-2	25	15	0.07
Mobile 94	3	231	75	0.16	Mobile 97	2-2	25	30	0.01
Mobile 97	2-1	25	15	0.27	Mobile 97	2-2	25	30	0.15
Mobile 97	2-1	25	30	0.15	Mobile 97	2-3	25	30	0.11
Mobile 97	2-1	25	30	0.13	Mobile 97	2-3	25	15	0.08
Mobile 97	2-2	25	15	0.06	Mobile 97	2-3	25	30	0.18
Mobile 97	2-3	25	30	0.06	Mobile 97	2-3	25	30	0.04
Mobile 97	2-3	25	15	0.08	Mobile 97	4-1&2	25	30	0.03
Mobile 97	2-3	25	30	0.09	Mobile 97	4-1&2	25	15	0.18
Mobile 97	2-3	25	30	0.04	Mobile 97	4-1&2	25	30	0.09
Mobile 97	3-1	25	30	0.06	Mobile 97	4-1&2	25	30	0.26
Mobile 97	3-1	25	15	0.11	Mobile 97	4-3	25	30	0.03
Mobile 97	3-1	25	30	0.07	Mobile 97	4-3	25	15	0.03
Mobile 97	3-1	25	30	0.07	Mobile 97	4-3	25	30	0.05
Mobile 97	3a-1	25	30	0.01	Mobile 97	4-3	25	30	0.47
Mobile 97	3a-1	25	15	0.14	Mobile 97	4-3	25	15	0.13
Mobile 97	3a-1	25	30	0.02	Mobile 97	4-3	25	30	0.15
Mobile 97	3a-1	25	30	0.04	Mobile 97	4-3	25	30	0.58
Mobile 97	4-1&2	25	30	0.01	Mobile 97	5-1	25	30	0.03
Mobile 97	4-1&2	25	15	0.17	Mobile 97	5-1	25	15	0.35
Mobile 97	4-1&2	25	30	0.07	Mobile 97	5-1	25	30	0.16
Mobile 97	4-1&2	25	30	0.05	Mobile 97	5-1	25	30	0.1
Mobile 97	4-3	25	30	0.08	Mobile 97	5-1	25	15	0.15
Mobile 97	4-3	25	15	0.39	Mobile 97	5-1	25	30	0.12
Mobile 97	4-3	25	30	0.18	Mobile 97	5-1	25	30	0.02
Mobile 97	4-3	25	30	0.77	Mobile 94	2	231	30	2.36
Mobile 97	5-1	25	30	0.15	Mobile 94	2	231	45	1.15
Mobile 97	5-1	25	15	0.23	Mobile 94	2	231	75	0.11
Mobile 97	5-1	25	30	0.20	Mobile 94	2	231	75	0.18
Mobile 97	5-1	25	30	0.03	Mobile 94	2	231	30	1.27
					Mobile 94	2	231	50	0.67

Num. = experiment number, Area = area in m<sup>2</sup>, dist. = distance in m, Conc. = concentration in mg/m<sup>3</sup>