V. DISCUSSION

Diesel-powered vehicles are a major source of particulate matter (PM) in California. Based on a 1990 inventory estimate, diesel engines produce 58,000 tons of PM in California per year (Calif.ARB, 1993). Almost all of diesel PM emitted is 10 μm aerodynamic diameter or considerably less than PM2.5, and therefore these particles can penetrate the deepest portions of the human lung. The adverse health effects of PM10 include increases in respiratory problems, mortality, and association with cancer. Diesel PM is considered a probable human carcinogen and the particles have adsorbed to them a complex mixture of toxic compounds.

In 1993, California implemented a new fuel requirement for diesel engines that required decreased levels of aromatic compounds and a decrease in the concentration of sulfur. The new fuel formulation was implemented to decrease the levels of diesel PM, oxides of nitrogen, and sulfur dioxide. In the current study, we focused on the particulate- and vapor-phase-associated emissions from a heavy-duty diesel engine tested with two fuels: Fuel 1, a fuel with specifications available prior to October 1993 and Fuel 2, a fuel obtained from the stock supply at the Los Angeles County Metropolitan Transportation Authority (LACMTA) facility during the March 1995 sampling period. To study the particle- and vapor-phase-associated compounds, we used integrated chemical and bioassay analyses.

An interdisciplinary approach was used in this investigation to further develop a mutagenicity-directed chemical analysis procedure for vapor-phase mutagens in heavy-duty diesel engine exhaust collected under the controlled conditions of a dynamometer dilution tunnel facility. Emissions from heavy-duty diesel engines are known to contain high concentrations of particle-associated mutagenic compounds, as well as vapor-phase mutagens. Our goal was to validate specific methods for the trapping, extraction and concentration of vapor-phase mutagens from heavy-duty diesel engine exhaust and to integrate these methods with a modified *Salmonella* mutagenicity assay and chemical analysis. Further, this methodology was used to investigate particulate and vapor-phase emissions from two different diesel fuel formulations.

The first part of this project required the assembly of a sampling train using commercially available adsorbents so that field samples could be conveniently acquired, transported to the laboratory, and analyzed by both the mutagenicity bioassay and chemical analysis. By designing a sampling unit that maximized the amount of sample collected from the dynamometer facility, we were able to maintain the advantages of low volume sampling. Based on our previous experience, three different adsorbents are necessary to trap a wide range of volatile compounds which may be present in the diesel exhaust. Teflon filters were used to trap the non-volatile PM, PUF was used to trap the moderate and less volatile compounds, and XAD was used to trap the more volatile compounds.

Particulate matter and vapor-phase samples were collected from a dilution tunnel-engine dynamometer located at the LACMTA facility. We developed a split sampler to maximize the amount of sample collected from the dynamometer facility for both chemical and bioassay analyses, while maintaining the advantages of low volume sampling.

For the PM samples, chemical analyses of the PAHs from cold and hot start test cycles were evaluated. For the hot start runs, PAH concentrations based on micrograms PAH per gram PM were higher when using Fuel 2 than when using Fuel 1. PAHs in Fuel 2 emissions ranged from 7 to 83% higher than in Fuel 1 emissions. Perylene and pyrene concentrations had the greatest percentage differences between the two fuels. The total PAH concentration (calculated as the sum of all the individual PAHs) for the hot starts was 340 μg/g and 289 μg/g in Fuel 2 and Fuel 1 emissions, respectively. This result represents a 16% increase in the PAH concentrations in emissions from Fuel 2 over those from Fuel 1.

Cold Start results were similar to the hot start results. PAH concentrations for Fuel 2 ranged from 38% lower for phenanthrene to 45% higher for pyrene. Benzo[a]pyrene and benzo[e]pyrene were present at levels that were over 30% higher in the Fuel 2 emissions. Total PAH concentrations in the cold starts were similar to the hot starts with 303 μg/gram and 348 μg/gram found in Fuel 1 and Fuel 2 emissions, respectively.

Although total PAH concentrations in the diesel particles from using these two fuels were notably different, the total PAH emissions based on micrograms of PAHs per horsepower-hour were virtually identical at 111 μg/hp-hr and 107 μg/hp-hr for the hot starts and 124 and 120 μg/hp-hr for the cold starts of Fuel 1 and Fuel 2, respectively. Individual PAH emissions are presented in Table 37 for hot starts and in Table 38 for cold starts. For the hot start emissions, phenanthrene, anthracene, benz[a]anthracene, chrysene, and indeno[1,2,3-c,d]pyrene were emitted at lower rates using Fuel 2, while fluoranthene, pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[e]pyrene, benzo[a]pyrene, perylene, and benzo[g,h,i]perylene were emitted at higher rates. For cold starts, most of the PAHs were emitted at higher rates using Fuel 2, except for phenanthrene and chrysene, which were emitted at lower rates using Fuel 2

Table 37. Summary of PAHs in Hot Start Diesel Particle Emissions from Fuel 1 and Fuel 2.

Compound	Fuel 1 Hot Start Cycle Samples H12, H14, H15, and H17 Average (μg/hp-hr)	Fuel 2 Hot Start Cycle Samples H05, H06, H07, and H09 Average (μg/hp-hr)
Phenanthrene	46.7	37.5
Anthracene	6.02	5.63
Fluoranthene	12.2	14.0
Pyrene	18.7	29.1
Benz[a]anthracene	4.87	4.58
Chrysene/triphenylene	4.95	4.92
Benzo[b]fluoranthene	3.23	3.54
Benzo[k]fluoranthene	4.30	4.69
Benzo[e]pyrene	1.64	1.87
Benzo[a]pyrene	1.46	1.71
Perylene	0.135	0.215
Indeno[1,2,3-c,d]pyrene	1.65	1.62
Dibenz[a,h]anthracene	1.51	
Benzo[g,h,i]perylene		1.55
Total PAHs	107	111

Table 38. Summary of PAHs in Cold Start Diesel Particle Emission Exhaust for Fuel 1 and Fuel 2.

Compound	Fuel 1 Cold Start Cycle Sample C13 Average (μg/hp-hr)	Fuel 2 Cold Start Cycle Sample C08 Average (μg/hp-hr)
Phenanthrene	48.3	30.9
Anthracene	4.96	5.20
Fluoranthene	15.5	18.1
Pyrene	24.7	39.5
Benz[a]anthracene	4.40	5.22
Chrysene/triphenylene	6.04	5.60
Benzo[b]fluoranthene	4.86	5.47
Benzo[k]fluoranthene	5.16	5.66
Benzo[e]pyrene	1.74	2.24
Benzo[a]pyrene	1.69	2.23
Perylene		
Indeno[1,2,3-c,d]pyrene	1.35	1.65
Dibenz[a,h]anthracene		
Benzo[g,h,i]perylene	1.62	2.12
Total PAHs	120	124

An important factor in the rate of PAH emission is the amount of PM emitted from the combustion of fuel. Both fuels generate almost identical hp-hr per liter of fuel consumed. The difference however, is the amount of PM emitted. The combustion of Fuel 1 produced 13.5% more PM than the combustion of Fuel 2. The net result is that the emission of PAHs were nearly identical.

Using SFE to extract the volatile compounds that were adsorbed on PUF and XAD, it was possible to concentrate each adsorbed sample into a small volume of collection solvent. The SFE extracts obtained could then be readily analyzed by both the mutagenicity assay and GC/MS. The traditional method of Soxhlet extraction for 6 to 24 hr has limited utility because it requires large

volumes of solvent and a concentration step with an unavoidable loss of volatile compounds (Alfheim *et al.*, 1984, Dorie *et al.*, 1987).

With respect to the chemical characterization of diesel exhaust, Bagley *et al.* (1987) chemically characterized compounds in diesel PM and in the vapor-phase as trapped on XAD-2 resin using an ultra-high volume sampler. The lowest boiling point compounds reported included parent and substituted naphthalenes, fluorenones, anthracenes, phenanthrenes, and fluorenes. Westerholm *et al.* (1991) reported a number of semi-volatile PAHs collected using PUF and XAD-2 including phenanthrene or substituted phenanthrenes, fluoranthene, pyrene, and anthracene. The authors used volumetric sampling flow rates of 240 and 340 LPM for XAD-2 and PUF sorbents, respectively. Based on results from our Main Study, chemical identification of vapor-phase mutagens present in the diesel engine exhaust samples require further fractionation of the most mutagenic SFE fractions. To obtain a large enough sample for SPE fractionation and subsequent mutagenicity testing, future studies will require the use of high volume sampling techniques.

Westerholm *et al.* (1991) reported that for solvent-extracted PUF and XAD samples, the activities for TA98 were higher with the addition of S9, while the activities for TA100 were higher without the addition of S9. These authors also reported that the contribution of the semi-volatile phase to the total mutagenic activity (particle and semi-volatile associated activities) was approximately 20% in strain TA100 (with and without the addition of S9), approximately 10% in TA98 (-S9), and 37% in TA98 (+S9).

The *Salmonella*/microsuspension mutagenicity assay for vapor-phase mutagens was based on our previous work (Hsieh *et al.*, 1990; Kado *et al.*, 1992; Hsieh *et al.*, 1993; Kado *et al.*, 1996) and is consistent with the results of Hughes *et al.* (1984; 1987) who reported that a *Salmonella* pre-incubation procedure could be used for detecting semi-volatile mutagens.

A number of investigators have used the microsuspension assay in their work with complex mixtures and emissions. For example, Arey *et al.* (1992) have successfully used the microsuspension assay to investigate ambient air mutagenicity and in controlled chamber studies to generate atmospheric transformation products from PAHs. With respect to diesel emissions, Bagley et al (1987, 1996) used the microsuspension assay to examine mutagenicity of emissions with and without particle traps. Rasmussen (1990) also used the microsuspension assay to examine traps and initially examined fuel characteristics and mutagenicity in PM. In general, the authors reported that there was a decrease in total emissions of mutagenic compounds when traps were used. Rasmussen (1990) also reported that there appeared to be a decrease in mutagenicity when the aromaticity in the fuel was decreased. Bagley et al., (1996) reported that the concentration of mutagenic activity actually increased (per m^3 of exhaust) when low sulfur fuel was used compared to a higher sulfur fuel (both with and without traps).

For the bioassay analyses, we have developed and routinely use the *Salmonella/* microsuspension mutagenicity assay (Kado et al., 1983;1986;1996) applied to collected emissions. Linear dose-response relationships were observed for all particle extracts and the specific mutagenic activities (mutagenic activity per mass of particle) for particles from the exhaust of the two fuels were very similar. However, based on emissions, or mutagenic activity per hp-hr, Fuel 1 emissions were greater than Fuel 2 emissions. This was primarily due to the increase of particle emissions from Fuel 1 and indicates that since the specific mutagenic activity per particle mass was similar, the combustion of the two fuels may be similar. The mutagenic activity of the SPE fractions indicates that most of the extractable mutagens associated with the diesel PM using this approach are present in Fraction 1 (methanol). Further subfractionation and testing are required to chemically characterize the compounds from the combustion of the two fuels. The level of mutagenic activity recovered from Fraction 1 indicates that almost all of the added amounts of measurable mutagenic compounds were present in this fraction.

In the current study, we found a higher yield of mutagenicity in the PUF compared to the XAD samples. This could be due to a number of factors including: 1) the semi-volatile compounds trapped on PUF are more potent mutagens or are present in relatively higher concentrations, 2) SFE is more efficient for extracting compounds trapped on PUF, or 3) nitrogen oxides present in diesel exhaust are chemically reacting with the adsorbents. The reaction of nitrogen oxides with XAD resin has been reported by Hanson *et al.* (1981). Exhaust gases have been reported to react with XAD-2 to form toxic compounds such as quinones (Schuetzle, 1983) . The formation of mutagen artifacts directly resulting from the reaction of nitrogen oxides with XAD cannot be completely ruled out in our study. We have previously tested NO_2 and its effects on our adsorbents and found no artifactual mutagenic activity (Kado et al., 1996). Furthermore, the total contribution of mutagenic activity from the XAD samples is substantially less compared to the PUF samples. Hunt *et al.* (1982) reported the qualitative and quantitative characterization of residual organics in XAD-4 resin and other commercially available solid sorbent materials. The authors described high artifact levels that included alkyl derivatives of benzene, styrene, naphthalene, and biphenyl. The high contaminant levels were mostly attributed to inadequate cleanup procedures, along with some concerns regarding storage and handling of the cleaned resins. For our studies, we incorporated additional cleanup procedures for the XAD to minimize any artifacts so as to not interfere with either the bioassay or chemical analysis.

Prior to using the SPE technique to fractionate pooled PUF sample extracts, we performed model PAH recovery studies. The overall recoveries for substituted PAHs ranged from 70-90%. For each PUF sample extract, five (5) fractions were collected. Most of aromatic compounds were found in Fraction #1 (methanol) and in Fraction #2 (methanol:acetonitrile). Chemical analyses of these fractions indicate that the emissions from Fuel 2 contained higher levels of C_1-, C_2-, and C_3-tetrahydronaphthalenes. The partially hydrogenated naphthalenes were found mainly in Fraction #2, while PAHs and substituted PAHs were found in both Fractions #1 and #2, respectively. The major components in Fractions #3, #4, and #5 appear to be saturated hydrocarbons.

The SPE fractions from the PUF extract were subsequently tested for mutagenic activity. There appears to be slightly elevated levels of mutagenicity in Fraction #1 of Fuel 1 and Fuel 2 PUF exhaust sample extracts, with possible toxicity in Fuel 2 PUF exhaust sample. Elevated levels of mutagenicity were also observed in Fraction #2 and toxicity was observed in the PUF exhaust sample obtained using Fuel 1. There were no indications of mutagenicity in Fraction #3 or #4. However, significantly elevated levels of mutagenicity were observed in Fraction #5. The level of mutagenicity was much higher than that observed in either Fractions #1 or #2. The chemical analysis of Fraction #5 (hexane) was dominated by saturated hydrocarbons. Other compounds that are mutagenic, but not detected due to degradation, for example, cannot be ruled out in Fraction #5.

In general, the PUF samples contained considerable amounts of naphthalene, acenaphthylene, acenaphthene, fluorene, and phenanthrene, along with lower amounts of anthracene, fluoranthene, and pyrene. PAHs containing four or more fused benzene rings were not detected in the PUF samples, indicating that the sampling flowrate and sampling time minimized the loss of PAHs (4 rings or greater) from the filter to the vapor-phase. The XAD sample contained higher concentrations of naphthalene, but much lower levels of acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, and pyrene. The XAD samples did not contain PAHs with four or more fused benzene rings. This indicates that the sampling train functioned as designed with the heavier 5-ring PAHs being collected on the filter, the 3-ring and 4-ring PAHs collected on the PUF, and the 2-ring PAHs collected on the XAD.

To determine the total levels of PAHs in the PUF and XAD extracts, the PAH and substituted PAH levels for each fuel type (hot-start) were summed. There were comparable levels of PAHs in emissions from both Fuel 1 and Fuel 2. Notable exceptions are 2,6- and 2,7-dimethyl-naphthalene, 1,3-dimethylnaphthalene, and 1,2-dimethylnaphthalene, where levels were higher in the emissions from Fuel 1. The cold-start Fuel 1 emission samples had higher levels of substituted PAHs than those obtained using Fuel 2 However, there were lower levels of

acenaphthylene, fluorene, phenanthrene, and anthracene in the emissions from Fuel 2 than in those from the Fuel 1.

With respect to the PAHs measured in the vapor-phase, there were significant differences in levels of selected PAHs from Fuel 1 and Fuel 2, especially in the cold start samples. To evaluate exposure to the vapor-phase compounds from diesel exhaust, the collection of a much larger sample through the use of high volume sampling would greatly assist in the mutagenicity-directed chemical analysis and would help to further chemically characterize the most potent vapor-phase mutagens present in diesel exhaust and other combustion sources. Further, this approach could be useful to analyze emissions from different fuel types. The results of our study suggest that the mutagenicity associated with vapor-phase compounds in diesel exhaust is significant and any assessment of health risk should incorporate vapor-phase exposure.

The results of the current study is a summary of emissions from a single heavy-duty engine and two diesel fuels. The methods are applicable to a wide range of studies. However, there are some specific points to mention. First, the study was conducted using a standardized method of testing diesel emissions. The engine was run on an engine dynamometer that is computer-controlled through a specified testing cycle. Diesel exhaust is emitted into a dilution tunnel where the sample is diluted with ambient air. The main advantage of this procedure is that samples are tested in a standardized and reproducible manner. Also, regulated pollutants are routinely measured and other fuels and engines can be tested under the same conditions. Although these results are reproducibly generated and collected, the test procedure may not accurately duplicate real world driving conditions. Engines are mounted in trucks and are operated under a variety of weather, engine, and road conditions that cannot all be accurately represented in a single FTP cycle.

Secondly, the design of the test as previously mentioned involves just one engine and two fuels. Considering the types of fuel and variability of fuels available, the results of this test may not represent an average Fuel 1 or Fuel 2. Although California required the use of a reformulated

fuel after October 1993, Fuel 2 had a similar percent of aromatics, but lower PNAs and sulfur (as quantitated by the ARB) compared to Fuel 1 used in this study. Fuel 2 was supplied by MTA from their fuel tanks, which were filled by a refiner just prior to our testing in March 1995. In this respect, the fuel was provided by a refiner, was used by the transportation fleet at MTA, but was not generally available. Studies that incorporate other factors into the experimental design such as the range of aromatic and PAH concentrations would assist in evaluating the importance of specific components in the fuel and comparison with actual emissions.

The integrated approaches and methods used in this study can be applied to studies of mobile as well as stationary source emissions. Chemical and bioassay analyses of the emissions would help better characterize human exposure and better evaluate public health impacts.

VI. RECOMMENDATIONS FOR FUTURE RESEARCH

In the present investigation, we collected the particle- and vapor-phase emissions from a heavy-duty diesel engine using two diesel fuels: Fuel 1, a Pre-Oct. '93 specification fuel and Fuel 2, a newer fuel that was available from the MTA storage tanks during the Main Study sampling period. Chemical and bioassay analyses were conducted on the PM and vapor-phase extracts. Chemical analyses was performed using GC/MS analyses and was highly accurate and precise for the measurement of PAHs. To facilitate GC/MS identification, the filter extracts were pooled and fractionated by SPE.

Bioassay analyses used a sensitive Salmonella microsuspension assay to measure mutagenic activity. To investigate the vapor-phase, a mutagenicity-directed chemical analysis procedure was developed for the identification of vapor-phase mutagens in diesel exhaust. The procedure involved collecting vapor-phase compounds on PUF and XAD adsorbents, desorbing and concentrating by SFE, testing for mutagenicity using a microsuspension assay, and qualitatively identifying the major chemical components in the mutagenic SFE fractions by GC/MS analysis. To facilitate GC/MS identification, the SFE extracts from the PUF samples were pooled and fractionated by SPE. In order to further enhance and optimize our analytical and bioassay capabilities for particulate-associated and vapor-phase mutagens, we offer the following suggestions:

1. Future studies should be conducted using high volume sampling techniques to collect a larger sample for the quantitative identification of particulate-associated and vapor-phase mutagens in the diesel exhaust. Further comparisons of these mutagenic compounds should also be investigated using the microsuspension bioassay and GC/MS analysis.

2. A number of fuels that are commercially available and acquired directly from the "pump" are recommended for testing to acquire a spectrum of fuel samples used by the public.

3. Particle and vapor-phase samples should be collected and analyzed when evaluating differences in the emission of toxic compounds from new or modified fuels, when fuel specifications are changed, or when different engines are tested.

4. The SFE fractionation methods could be refined by optimizing the extraction pressure to facilitate the chemical separation and identification of mutagens in complex diesel exhaust mixtures. The use of solvent modifiers should also be evaluated for the efficient extraction of diesel exhaust vapor-phase mutagens adsorbed on PUF and XAD.

5. Investigation of artifact formation or loss of vapor-phase mutagens should be incorporated into future studies. One method to investigate this process is to use deuterated chemical standards with similar chemical characteristics of compounds tentatively identified.

6. The integrated experimental approaches developed for particulate as well as vapor-phase associated PAHs and mutagens in diesel emissions are applicable to a number of emission sources viewed as important by the Air Resources Board. These include other mobile sources or stationary sources, such as toxic waste sites and industrial emissions.

Based on results of the present study, particulate-associated and vapor-phase mutagens are an important component of diesel engine emissions. Continued study of vapor-phase mutagens would assist in the effort to evaluate and better define potential human exposure. Future extensions of our work could include the characterization of vapor-phase mutagens in other emission sources. The use of integrated analytical methods that we have developed for particulate- and vapor-phase mutagenic compounds would help the Air Resources Board to better evaluate and assess public health risk to these compounds.

VII. REFERENCES

Abbey, D.E., Mills, P.K., Petersen, F.F., and Beeson, W.L. (1991), Environ. Health Perspectives, 94: 43-50.

Alfheim, I., Bergstrom, J.G.T., Jenssen, D., and Moller, M. (1983). Mutagenicity in emissions from coal and oil-fired boilers, Environ. Health Perspectives, 47: 177-187.

Alfheim, I., Becher, G., Hongslo, J. K., and Ramdahl, T. (1984). Mutagenicity testing of high performance liquid chromatography fractions from wood stove emission samples using a modified *Salmonella* assay requiring smaller sample volumes, Environ. Mutagen., 6: 91-102.

Ames, B., McCann, J., and Yamasaki, E. (1975). Methods for detecting carcinogens and mutagens with the *Salmonella* mammalian microsome mutagenicity test, Mut. Res., 31: 347-364.

Arey, J., Harger, W.P., Helmig, D., and Atkinson, R. (1992). Bioassay-directed fractionation of mutagenic PAH atmospheric photooxidation products and ambient particulate extracts, Mut. Res., 281: 67-76.

Atkinson, R., Arey, J., Winer, A.M., Zielinska, B., Dinoff, T.M., Harger, W.P., McElroy, P.A. A Survey of Ambient Concentrations of Selected Polycyclic Aromatic Hydrocarbons (PAH) at Various Locations in California. Final Report, California Air Resources Board, Sacramento, California, 1988.

Bagley, S.T., Korie, L.D., Leddy, D.G., and Johnson, J.H. (1987) An Investigation into the Effect of a Ceramic Particle Trap on the Chemical Mutagens in Diesel Exhaust. Research Report No. 5. Health Effects Institute. 67 pp.

Bagley, S.T., Baumgard, K.J., Gratz, L.D., Jonson, J.H., and Leddy, D.G. (1996). Characterization of Fuel and Aftertreatment Device Effects on Diesel Emissions. Health Effects Institute. Research Report No. 76, 88 pp.

Bennett, R. L., Knapp, K. T., Jones, P. W., Wilkerson, J. E., and Strup, P. E. (1979). Measurement of Polynuclear Aromatic Hydrocarbons and other Hazardous Organic Compounds in Stack Gases, in Polynuclear Aromatic Hydrocarbons, P.W. Jones, Ed. (Ann Arbor, MI: Ann Arbor Science Publishers, Inc., 1979), pp. 419-428.

California Air Resources Board (ARB; 1993). California's reformulated diesel fuel program. Public workshop presentation by ARB staff, May 4, 1993. Fuels Section, Stationary Source Division, ARB.

Chrisp, C.E., and Fisher, G.L. (1980). Mutagenicity of airborne particles, Mut.Res., 76: 143-164.

Chrisp, C.E., Fisher, G.L., and Lammert, J.E. (1978). Mutagenicity of filtrates from respirable coal fly ash, Science, 199: 73-75.

Chuang, J. C., Hannan, S. W., and Wilson, N. K. (1987). Field comparison of polyurethane foam and XAD-2 resin for air sampling for polynuclear aromatic hydrocarbons, Environ. Sci. Technol., 21(8): 798-804.

Code of Federal Regulations. CFR40, Part 86, Subpart N.

Coleman, W.E., Munch, J.W., Slater, R.W., Melton, R.G. and Kopfler, F.C. (1983). Optimization of purging efficiency and quantification of organic contaminants from water using a 1-L closed-loop-stripping apparatus and computerized capillary column GC/MS, Environ. Sci. Technol., 17: 571-576.

Daisey, J.M. (1987), in: Toxic Air Pollution, A Comprehensive Study of Non-criteria Air Pollutants, P.. Lioy an J..M. Daisey, Eds., Lewis Publishers, Inc., Chelsea, MI, pp. 47-65.

De Raat, W. K., Schulting, F. L., Burghardt, E., and De Meijere, F. A. (1987). Application of polyurethane foam for sampling volatile mutagens from ambient air, Science of the Total Environment, 63: 175-189.

Dockery, D.W., Schwartz, J., and Spengler, J.D. (1992) Environ. Res., 59: 362-373.

Dorie, L. D., Bagley, S. T., Leddy, D. G., and Johnson, J. H. (1987). Characterization of mutagenic subfractions of diesel exhaust modified ceramic particulate traps, Environ. Sci. Technol., 21: 757-765.

Egeback, K.E., Tejle, G., Stenberg, U., Westholm, R., Alsberg, T., Rannug, U., and Sundvall, U. (1982). A comparative study of diluted and undiluted automobile exhausts by means of polynuclear aromatic hydrocarbon analyses and mutagenicity tests, in Polynuclear Aromatic Hydrocarbons, M. Cooke, Ed.Battelle Publishers, Columbus, Ohio.

Engelhardt, H. and Gross, A. (1988). On-line extraction and separation by supercritical fluid chromatography with packed columns, J. High Resol.Chromatog., 11: 38-42.

Hanson, R.L., Clark, C.R., Carpenter, R.L., and Hobbs, C.H. (1981). Evaluation of Tenax-GC and XAD-2 as polymer adsorbents for sampling fossil fuel combustion products containing nitrogen oxides. Environ. Sci. Tech. 15: 701-705.

Hawthorne, S.B. (1990). Analytical-scale supercritical fluid extraction, Anal. Chem., 62: 633A-642A.

Hawthorne, S.B., Miller, D.J., and Krieger, M.S. (1988). Rapid extraction and analysis of organic compounds from solid samples using coupled supercritical fluid extraction/gas chromatography, Fresenius Z. Anal. Chem., 330: 211-215.

Hawthorne, S.B. and Miller, D.J. (1987). Directly coupled supercritical fluid extraction-gas chromatographic analysis of polycyclic aromatic hydrocarbons and polychlorinated biphenyls from environmental solids, J. Chromatogr., 403: 63-76.

Hawthorne, S. B., and Miller, D. J. (1987). Extraction and recovery of polycyclic aromatic hydrocarbons from environmental solids using supercritical fluids, Anal. Chem., 59: 1705-1708.

Hawthorne, S. B., and Miller, D. J. (1986). Extraction and recovery of organic pollutants from environmental solids and Tenax-GC using supercritical CO_2, J. Chromatogr. Sci., 24: 258-264.

Hsieh, D.P., Kado, N.Y., Okamoto, R.A., Kuzmicky, P.A., Rathbun, C., and Ito, J. (1993). Measurement and Chemical Characterization of Vapor-Phase Mutagens in Diesel Exhaust. Final Report. Prepared for California Air Resources Board. Contract No. A032-095.

Hsieh, D.P.H., Kado, N.Y., Seiber, J.N., Shibamoto, T., Kuzmicky, P., Ning, H., Wong, J., Woodrow, J., and Yasuhara, A. (1990). Methods Development for Assessment of Vapor- Phase Mutagens and Carcinogens in Ambient Air. Final Report. Prepared for California Air Resources Board. Contract No. A6-174-32.

Hughes, T.J., Sparacino, C., and Frazier, S. (1984). Validation of chemical and biological techniques for evaluation of vapors in ambient air/Mutagenicity testing of twelve (12) vapor-phase compounds, EPA 600/1-84-005.

Hughes, T. J., Simmons, D. M., Monteith, L. G., and Claxton, L. D. (1987).Vaporization technique to measure mutagenic activity of volatile organic chemicals in the Ames/ *Salmonella* assay, Environ. Mutagen., 9: 421-441.

Hunt, G. and Pangaro, N. (1982). Potential contamination from the use of synthetic adsorbents in air sampling procedures, Anal. Chem., 54:369-372.

IARC (International Agency for Research on Cancer, 1974-1985). Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Lyon, France, Volumes 7-36.

IARC (International Agency for Research on Cancer, 1993). Indoor Air. Monograph on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Lyon, France.

IARC (International Agency for Research on Cancer, (1989). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Diesel and Gasoline Engine Exhausts and Some Nitroarenes.

Iwai, K., Udagawa, T., Yamagishi, M., and Yamada, H. (1986). Long-term inhalation studies of diesel exhaust on F344 SPF rats. Incidence of lung cancer and lymphoma, in Carcinogenic and Mutagenic Effects of Diesel Engine Exhaust, N. Ishimizu, A. Koizumi, R.O. McClellan, and W. Stoker (Eds.), Elsevier Publishers, pp. 349-360.

Jonsson, A. and Berg, S. (1980). Determination of 1,2-dibromoethane, 1,2-dichloroethane and benzene in ambient air using porous polymer traps and gas chromatographic-mass spectrometric analysis with selected ion monitoring, J. Chromatogr., 190: 97-106.

Junk, G. A., and Richard, J. J. (1984). Vapor-Phase Sampling of Organic Compounds, in Identification and Analysis of Organic Pollutants in Air, L. H. Keith (Ed.), Butterworth Publishers, pp. 61-78.

Kado, N. Y., D. Langley, and E. Eisenstadt. (1983). A simple modification of the*Salmonella* liquid-incubation assay: increased sensitivity for detecting mutagens in human urine. Mutation Res., 121, 25-32.

Kado, N.Y., Guirguis, G.N., Flessel, C.P., Chan, R.C., Chang, K., and Wesolowski, J.J. (1986). Mutagenicity of fine (< 2.5um) airborne particles: Diurnal variation in community air determined by a *Salmonella* micro preincubation (microsuspension) procedure, Environ. Mutagen., 8: 53-66.

Kado, N.Y., Wong, J.M., Kuzmicky, P.A., Woodrow, J.E., Ning, H., Seiber, J.N., and Hsieh, D.P.H. (1992). Quantitative integration of the *Salmonella* microsuspension assay with supercritical fluid extraction of model airborne vapor-phase mutagens, Mutation Res., 271: 253-260.

Kado, N.Y., Okamoto, R.A., Kuzmicky, P.A., Rathbun, C.J., and Hsieh, D.P.H. (1996). Integrated supercritical fluid extraction, bioassay and chemical screening methods for analyzing vapor-phase compounds of an environmental complex mixture: diesel exhaust, Chemosphere, 33: 495-516.

Kaiser, R. E. (1973). Enriching volatile compounds by a temperature gradient tube, Anal. Chem., 45: 965-967.

Kanagasabapathy, V.M., Bell, R.W., Yang, P., Allan, L., Au, L., Parmar, J., Lusis, M.A., and Chapman, R.E. (1995). Developments in the supercritical fluid extraction of PAH's from Environmental matrix, J. Chromat. Sci., 33: 467-474.

Lewtas, J. (1988). Genotoxicity of complex mixtures: strategies for the identification and comparative assessment of airborne mutagens and carcinogens from combustion sources, Fund. Appl. Tox., 10: 571-589.

Marano, R.S., Updegrove, W.S. and Machen, R.C. (1982). Determination of trace levels of nitrosamines in air by gas chromatography/low-resolution mass spectrometry, Anal. Chem., 54: 1947-1951.

Matsushita, H., Goto, S., Endo, O., Lee J. and Kawai, A. (1986). Mutagenicity of diesel exhaust and related chemicals. In Carcinogenic and Mutagenic Effects of Diesel Exhaust. Ishinishi, N., Koizumi, A., McClellan, and Strober, W. (Eds.) Elsevier Science Publishers B.B. pp. 103-118.

Mauderly, J.L., Snipes, M.B.Barr, E.B., et al. (1994). Pulmonary toxicity of inhaled diesel exhaust and carbon black in chronically exposed rats. Health Effects Institute, Research Report No. 68, 97 pp.

McNally, M.E. and Wheeler, J.R. (1988). Supercritical fluid extraction coupled with supercritical fluid chromatography for the separation of sulfonylurea herbicides and their metabolites from complex matrices, J. Chromatogr., 435: 63-71.

Moller, M., and Alfheim, I. (1983). Mutagenicity of air samples from various combustion sources, Mut. Res., 116: 35-46.

Montreuil, C. N., Ball, J. C., Gorse Jr., R. A., and Young, W. C. (1992). Solvent extraction efficiencies of mutagenic components from diesel particles, Mut. Res., 282: 89-92.

National Research Council. (1981). Health Effects of Exposure to Diesel Exhaust, National Academy Press, Washington, DC.

Nunez, A. J., and Gonzalez, L. F. (1984). Preconcentration of headspace volatiles for trace organic analysis by gas chromatography, J. Chromatogr., 300: 127-162.

Ohnishi, S.T. and Barr, J.K. (1978). A simplified method of quantitating protein using the biuret and phenol reagents, Anal. Biochem., 86: 193-200.

Parrish, T.D., Francis, E.S., Booth, G.M., Eatough, D.J., and Lee, M.L. (1992). Supercritical fluid chromatography coupled with the Salmonella microsuspension mutagenicity assay, Fres. J. Anal. Chem., 344: 442-446.

Peltonen, K. and Kuljukka, T. (1995). Air sampling and analysis of polycyclic aromatic hydrocarbons, J. of Chromatography A, 710: 93-108.

Pitts, J., Grosjean, D., Mischke, T., Simmon, T., and Poole, D. (1977). Mutagenic activity of airborne organic pollutants, Toxicol. Lett., 1: 65-70.

Pope, C.A. 3rd, Schwartz, J., and Ranson, M.R. (1992) Arch. Environ. Health, 47: 211-217.

Rasmussen R.E. (1990). Effect of fuel properties on mutagenic activity in extracts of heavy-duty diesel exhaust particulate. J. Air and Waste Management Assoc., 40:1391-1396.

Raynor, M.W., Davies, I.L., Bartle, K.D., Clifford, A.A., Williams, A., Chalmers, J.M., and Cook, B.W. (1988). Supercritical fluid extraction/capillary supercritical fluid chromatography/Fourier transform infrared microspectrometry of polycyclic aromatic compounds in a coal tar pitch, J. High Resol. Chromatogr., 11: 766-775.

Schantz, M. M., and Chester, S. N. (1986). Supercritical fluid extraction procedure for the removal of trace organic species from solid samples, J. Chromatogr., 363: 397-401.

Schlesinger, R.B. (1985) J. Tox. and Environ. Health, 15: 197-214.

Schuetzle, D. (1983) Sampling of vehicle emissions for chemical analysis and biological testing. Environ. Health Perspec. 47:65-80.

Schuetzle, D. and Lewtas, J. (1986). Bioassay-directed chemical analysis in environmental research, Anal. Chem., 58: 1060A-1075A.

Schuetzle, D., Riley, T.L., Prater, T.J., Harvey, T.M. and Hunt, D.F. (1982). Analysis of nitrated polycyclic aromatic hydrocarbons in diesel particulates, Anal. Chem., 54: 265-271.

Sheldon, L, Clayton, A., Keever, J., Perritt, R. and Whitaker, D. (1992), PTEAM: Monitoring of Phthalates and PAHs in indoor and Outdoor Air Samples in Riverside, California. Final Report. California Air Resources Board, Sacramento, California,

Slaga, T.J., Triplett, L.L., and Nesnow, S. (1980). Mutagenic and carcinogenic potency of extracts of diesel and related environmental emissions: Two stage carcinogenesis in skin tumor sensitive mice (SENTAR). In: Health Effects of Diesel Engine Emissions, Pepello, W.E., Danner, R.M., and Clarke, W.A. (eds.). EPA-600/9-80-057b. Washington, D.C.: Environmental Protection Agency. pp. 874-897.

Sugimura, T., Terada, M., Yokota, J., Hirohashi, s., and Wakabayashi, K. (1992). Multiple genetic alterations in human carcinogenesis. Environ. Health Perspec., 98: 5-12.

Talcott, R. and Wei, E. (1977). Airborne mutagens bioassayed in *Salmonella typhimurium*, J. Natl. Cancer Inst., 58: 449-451.

Taylor, L. (1992). SFE provides quick release of stubborn compounds, R & D Magazine, February, pp. 78-80.

Tong, H.Y. and Karasek, F.W. (1984). Quantitation of polycyclic aromatic hydrocarbons in diesel exhaust particulate matter by high-performance liquid chromatography fractionation and high-resolution gas chromatography, Anal. Chem., 56: 2129-2134.

Umlauf, G. and Kaupp, H. (1993). A sampling device for semivolatile compounds in ambient air. Chemosphere, 27: 1293-1296.

Vannoort, R.W., Chervet, J.P., Lingeman, H., Dejong, G.J., and Brinkman, U.A. Th. (1990). Coupling of supercritical fluid extraction with chromatographic techniques, J. Chromatogr., 505: 45-77.

Ware, J.H., Ferris, B.G., Jr., Dockery, D.W., Spengler, J.D., Stram, D.O.and Speizer, F.E. (1986), Am. Rev. Respir. Dis., 133: 834-842.

Wehner, T. A., Woodrow, J. E., Kim, Y.-H., and Seiber, J. N. (1984) Multiresidue analysis of trace organic pesticides in air, in Identification and Analysis of Organic Pollutants in Air, L. H. Keith (Ed.), Butterworth Publishers, pp. 273-290.

Westerholm, R.N., Almen, J., Li, H. (1991). Chemical and biological characterization of particulate-, semivolatile-, and gas-phase-associated compounds in diluted heavy-duty diesel exhausts: A comparison of three different semivolatile-phase samplers, Environ. Sci. Technol., 25: 332-338.

Wong, J. M., Kado, N.Y., Kuzmicky, P.A., Ning, H-S., Woodrow, J.E., Hsieh, D.P.H., and Seiber, J.N. (1991). Determination of volatile and semivolatile mutagens in air using solid adsorbents and supercritical fluid extraction, Anal. Chem., 63: 1644-1650.

Wong, J. M., Woodrow, J. E., and Seiber, J. N. (1988). Trapping of vapor-phase mutagens, presented at the 196th ACS National Meeting, Los Angeles, CA, September 25-30.

Woodrow, J. E., and Seiber, J. N. (1978). Portable device with XAD-4 resin trap for sampling airborne residues of some organophosphorus pesticides, Anal.Chem., 50(8): 1229-1231.

Wright, B. W., Frye, S. R., McMinn, D. G., and Smith, R. D. (1987). On-line supercritical fluid extraction-capillary gas chromatography, Anal. Chem., 59: 640-644.

Wright, B. W., Wright, C. W., Gale, R. W., and Smith, R. D. (1987). Analytical supercritical fluid extraction of adsorbent materials, Anal. Chem., 59: 38-44.

Yasuhara, A., Mizoguchi, T., Fuwa, K., Nakayama, S. and Ishiguro, T. (1984). Identification of odorous compounds in air and gas from painting and printing industries by gas chromatography-mass spectrometry and library search system, Chemosphere, 13: 469-482.

Yasuhara, A. and Fuwa, K. (1978). Hydrogen sulfide and dimethyl sulfide in liquid swine manure, Chemosphere, 7: 833-838.

VIII. GLOSSARY OF TERMS AND ABBREVIATIONS

CARB	California Air Resources Board
DCM	Dichloromethane
FTP	Federal Test Procedure
GC/MS	Gas chromatography-mass spectrometry
HPLC	High performance liquid chromatography
HR	Hour
IARC	International Agency for Research on Cancer
LACMTA	Los Angeles County Metropolitan Transit Authority
LPM	Liters per minute
MSD	Mass selective detection
ML	Milliliter
MIN	Minute
MTA	Metropolitan Transit Authority
NIST	National Institute of Standards and Technology
PAH	Polycyclic aromatic hydrocarbons
PM	Particulate matter
PNA	Polynuclear aromatic hydrocarbons
PSI	Pounds per square inch
PUF	Polyurethane foam
Revertants	The number of mutant colonies detected. Technically, the number of histidine-independent bacterial colonies present that have mutated from histidine dependent growth.
SFE	Supercritical fluid extraction
SPE	Solid-phase extraction
S9	9,000 x g rat liver supernatant
TA98	Bacterial tester strain
TA100	Bacterial tester strain

GLOSSARY OF TERMS AND ABBREVIATIONS (cont'd)

TIC	Total ion chromatogram
μG/HP-HR	Micrograms per horsepower-hour
Vapor	The gas-phase of a substance that are normally in the liquid or solid phase.
XAD	Macroreticular polystyrene, divinylbenzene copolymer adsorbent resin #4 (XAD-4)

Appendix A

Appendix A-1. Chemical Analysis of Combined PUF Hot Start Emission Data for Fuel 1 and Fuel 2				
	Chemical Analyses of Hot Start Emission Samples			
	Fuel 1 Samples H12, H14, H15		Fuel 2 Samples H04, H06, H09	
Compound	Average (ng/cycle)	RSD	Average (ng/cycle)	RSD
2-methylnaphthalene	1630	29	932	12
1-methylnaphthalene	986	27	608	15
2-ethylnaphthalene	1120	18	771	14
1-ethyl naphthalene	435	18	347	14
2,6 & 2,7-dimethylnaphthalene	3910	19	1840	19
1,3-dimethylnaphthalene	4780	18	2380	22
1,4 &2,3 dimethylnaphthalene	2150	17	1040	23
1,5-dimethylnaphthalene	852	18	429	23
1,2-dimethylnaphthalene	1130	14	684	28
1,8-dimethylnaphthalene	ND		ND	
9,10-dihydrophenanthrene	632	16	756	24
1-methylfluorene	1130	13	985	34
2-methylanthracene	69	13	71	7
1-methylphenanthrene	278	23	235	26
9-methylphenanthrene	20	173	ND	
9,10-dimethylanthracene	ND		ND	
retene	ND		ND	
naphthalene	188	29	199	15
acenaphthylene	604	4	563	14
acenaphthene	303	9	254	19
fluorene	935	7	744	32
phenanthrene	1210	17	756	24
anthracene	196	21	218	24
fluoranthene	42	9	49	0
pyrene	39	11	62	3
benz[a]anthracene	ND		ND	
chrysene	ND		ND	
benzo[b]fluoranthene	ND		ND	
benzo[k]fluoranthene	ND		ND	
benzo[e]pyrene	ND		ND	
benzo[a]pyrene	ND		ND	
perylene	ND		ND	
ND = not detected				

Appendix A-2. Chemical Analysis of PUF Cold Start Emission Data for Fuel 1 and Fuel 2				
	Chemical Analyses of Cold Start Emission Samples			
	Fuel 1 Samples C13		Fuel 2 Samples C08	
Compound	(ng/cycle)		(ng/cycle)	
2-methylnaphthalene	3040		1600	
1-methylnaphthalene	1880		831	
2-ethylnaphthalene	1700		939	
1-ethylnaphthalene	589		316	
2,6 & 2,7-dimethylnaphthalene	4640		2090	
1,3-dimethylnaphthalene	4680		2440	
1,4 &2,3 dimethylnaphthalene	1260		584	
1,5-dimethylnaphthalene	940		428	
1,2-dimethylnaphthalene	1270		631	
1,8-dimethylnaphthalene	65.5		63.5	
9,10-dihydrophenanthrene	576		512	
1-methyl fluorene	920		721	
2-methylanthracene	434		35.3	
1-methylphenanthrene	167		168	
9-methylphenanthrene	2.00		1.8	
9,10-dimethylanthracene	1.95		1.70	
retene	3.93		3.65	
naphthalene	512		358	
acenaphthylene	1690		146	
acenaphthene	572		604	
fluorene	99.7		634	
phenanthrene	847		676	
anthracene	163		209	
fluoranthene	1.99		23.4	
pyrene	1.68		24.6	
benz[a]anthracene	ND		ND	
chrysene	ND		ND	
benzo[b]fluoranthene	ND		ND	
benzo[k]fluoranthene	ND		ND	
benzo[e]pyrene	ND		ND	
benzo[a]pyrene	ND		ND	
perylene	ND		ND	
ND = not detected				

Appendix A-3. Chemical Analysis of PUF Trip and Field Blanks				
	Trip Blank		Field Blank	
	Sample T20		Sample H11	
Compound	(ng/cycle)	RSD	(ng/cycle)	
2-methylnaphthalene	108	24.3	74.8	
1-methylnaphthalene	69.0	1.01	48.6	
2-ethylnaphthalene	ND		173	
1-ethylnaphthalene	ND		115	
2,6 & 2,7-dimethylnaphthalene	ND		108	
1,3-dimethylnaphthalene	ND		85.5	
1,4&2,3 dimethylnaphthalene	ND		101	
1,5-dimethylnaphthalene	ND		ND	
1,2-dimethylnaphthalene	ND		56.3	
1,8-dimethylnaphthalene	ND		ND	
9,10-dihydrophenanthrene	ND		114	
1-methylfluorene	ND		184	
2-methylanthracene	ND		62.0	
1-methylphenanthrene	98.7	12.1	131	
9-methylphenanthrene	ND		ND	
9,10-dimethylanthracene	ND		ND	
retene	ND		ND	
naphthalene	56.4	14.9	53.4	
acenaphthylene	ND		54.0	
acenaphthene	ND		46.9	
fluorene	57.8	14.2	67.8	
phenanthrene	106	31.9	317	
anthracene	ND		97.7	
fluoranthene	41.3		36.5	
pyrene	27.7		60.8	
benz[a]anthracene	ND		ND	
chrysene	ND		ND	
benzo[b]fluoranthene	ND		ND	
benzo[k]fluoranthene	ND		ND	
benzo[e]pyrene	ND		ND	
benzo[a]pyrene	ND		ND	
perylene	ND		ND	
ND = not detected				

Appendix A-4. Chemical Analysis of Combined XAD Hot Start Emission Data for Fuel 1 and Fuel 2				
	Chemical Analyses of Hot Start Emission Samples			
	Fuel 1 Samples H12, H14, H15		Fuel 2 Samples H04, H06, H09	
Compound	Average (ng/cycle)	RSD	Average (ng/cycle)	RSD
2-methylnaphthalene	9560	28.7	9130	50.7
1-methylnaphthalene	5380	22.0	5180	45.6
2-ethylnaphthalene	NQ		1840	3.77
1-ethylnaphthalene	NQ		1280	42.2
2,6 & 2,7-dimethylnaphthalene	2050	23.6	2780	58.9
1,3-dimethylnaphthalene	2410	29.9	4070	67.2
1,4 &2,3 dimethylnaphthalene	1040	9.85	2210	32.7
1,5-dimethylnaphthalene	NQ		NQ	
1,2-dimethylnaphthalene	3660		1120	33.0
1,8-dimethylnaphthalene	NQ		NQ	
9,10-dihydrophenanthrene	NQ		NQ	
1-methylfluorene	NQ		NQ	
2-methylanthracene	NQ		NQ	
1-methylphenanthrene	NQ		NQ	
9-methylphenanthrene	ND		ND	
9,10-dimethylanthracene	ND		ND	
retene	ND		ND	
naphthalene	14900	12.0	16200	32.0
acenaphthylene	NQ		NQ	
acenaphthene	NQ		1120	
fluorene	NQ		1000	
phenanthrene	812		1620	
anthracene	NQ		NQ	
fluoranthene	NQ		NQ	
pyrene	NQ		NQ	
benz[a]anthracene	ND		ND	
chrysene	ND		ND	
benzo[b]fluoranthene	ND		ND	
benzo[k]fluoranthene	ND		ND	
perylene	ND		ND	
ND = not detected				
NQ = not quantitated				

Appendix A-5. Chemical Analysis of XAD Cold Start Emission Data for Fuel 1 and Fuel 2			
	Chemical Analyses of Cold Start Emission Samples		
	Fuel 1 Samples C13		Fuel 2 Samples C08
Compound	(ng/cycle)		(ng/cycle)
2-methylnaphthalene	3820		2130
1-methylnaphthalene	2430		1060
2-ethylnaphthalene	2110		615
1-ethyl naphthalene	804		95.7
2,6 & 2,7-dimethylnaphthalene	4470		361
1,3-dimethylnaphthalene	7100		636
1,4 &2,3 dimethylnaphthalene	1770		107
1,5-dimethylnaphthalene	1120		79.5
1,2-dimethylnaphthalene	2530		482
1,8-dimethylnaphthalene	150		17.6
9,10-dihydrophenanthrene	71.6		79.2
1-methylfluorene	1070		165
2-methylanthracene	202		44.8
1-methylphenanthrene	54.1		149
9-methylphenanthrene	22.70		7.41
9,10-dimethylanthracene	18.6		123
retene	83.9		30.5
naphthalene	6610		6820
acenaphthylene	775		7.61
acenaphthene	184		74.2
fluorene	1050		67.2
phenanthrene	1330		131
anthracene	22.2		137
fluoranthene	27.4		14.3
pyrene	32.7		13.1
benz[a]anthracene	ND		ND
chrysene	ND		ND
benzo[b]fluoranthene	ND		ND
benzo[k]fluoranthene	ND		ND
benzo[e]pyrene	ND		ND
benzo[a]pyrene	ND		ND
perylene	ND		ND
indeno[1,2,3-cd]pyrene	NQ		NQ
dibenz[a,h]anthracene	NQ		NQ
benzo[g,h,i]perylene	NQ		NQ
ND = not detected			
NQ = not quantitated			

Appendix A-6. Chemical Analysis of XAD Trip and Field Blanks				
	Trip Blank		Field Blank	
	Sample T20		Sample H11	
Compound	(ng/cycle)			
2-methylnaphthalene	ND		330	
1-methylnaphthalene	ND		340	
2-ethylnaphthalene	ND		ND	
1-ethylnaphthalene	ND		ND	
2,6 & 2,7-dimethylnaphthalene	ND		ND	
1,3-dimethylnaphthalene	ND		ND	
1,4 &2,3 dimethylnaphthalene	ND		ND	
1,5-dimethylnaphthalene	ND		ND	
1,2-dimethylnaphthalene	ND		ND	
1,8-dimethylnaphthalene	ND		ND	
9,10-dihydrophenanthrene	ND		ND	
1-methyl fluorene	ND		ND	
2-methylanthracene	ND		ND	
1-methylphenanthrene	ND		ND	
9-methylphenanthrene	ND		ND	
9,10-dimethylanthracene	ND		ND	
retene	ND		ND	
naphthalene	ND		NA	
acenaphthylene	ND		NA	
acenaphthene	ND		NA	
fluorene	ND		NA	
phenanthrene	ND		NA	
anthracene	ND		NA	
fluoranthene	ND		NA	
pyrene	ND		NA	
benz[a]anthracene	ND		NA	
chrysene	ND		NA	
benzo[b]fluoranthene	ND		NA	
benzo[k]fluoranthene	ND		NA	
benzo[e]pyrene	ND		NA	
benzo[a]pyrene	ND		NA	
perylene	ND		NA	
ND = not detected				
NA = not analyzed				

Appendix B

Library Search of SPE Methanol Fractions of Diesel Par ticulate Emission from Fuel 1.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	13.2	0.27	C:\DATABASE\NBS54K.L			
			[1,1'-Biphenyl]-3,4-diol, 4'-chlor	23349	055097-84-2	64
			4-Piperidinepropanoic acid, 1-benz	42129	077572-69-1	53
			Benzoic acid, ammonium salt	6201	001863-63-4	50
2	13.6	0.67	C:\DATABASE\NBS54K.L			
			Ethanol, 1-(2-butoxyethoxy)-	11074	054446-78-5	72
			Ethanol, 2-(2-butoxyethoxy)-	11075	000112-34-5	64
			Butane, 1-(1-methylpropoxy)-	4855	000999-65-5	64
3	14.18	0.88	C:\DATABASE\NBS54K.L			
			4-Octene, (E)-	2423	014850-23-8	58
			2-Propenoic acid, 6-methylheptyl e	16083	054774-91-3	53
			cis-1-Butyl-2-methylcyclopropane	2403	038851-69-3	49
4	14.42	0.5	C:\DATABASE\NBS54K.L			
			Methenamine	6315	000100-97-0	35
			2,4(1H,3H)-Pyrimidinedione, 3,6-di	6304	019674-60-3	9
			Germacyclohexane, 1,1-dichloro-	22182	056438-28-9	9
5	14.72	0.27	C:\DATABASE\NBS54K.L			
			trans-1,4-Cyclohexanedicarbonitril	5329	006550-85-2	10
			Disulfide, ethyl 2-methylpropyl	8332	040136-66-1	9
			1,5-Cyclooctadiene, (E,E)-	1973	017612-50-9	9
6	15.38	0.35	C:\DATABASE\NBS54K.L			
			1-Propyne, 1,3,3,3-tetrafluoro-	2210	020174-11-2	83
			Benzaldehyde, 2-hydroxy-	3462	000090-02-8	78
			1-Butanamine, 4-(methylthio)-	3222	055021-77-7	74
7	16.11	0.73	C:\DATABASE\NBS54K.L			
			Benzaldehyde, 4-hydroxy-	3465	000123-08-0	49
			Benzamide, 4-ethoxy-	11775	055836-71-0	47
			Benzoic acid, 2-hydroxy-, hydrazid	8749	000936-02-7	38
8	16.25	0.41	C:\DATABASE\NBS54K.L			
			1-Octene	2383	000111-66-0	38
			1-Undecanethiol	16955	005332-52-5	38
			2-Undecene, 7-methyl-	12601	000000-00-0	35
9	16.57	0.3	C:\DATABASE\NBS54K.L			
			Cyclopentane, 2-methyl-1-methylene	5803	056710-83-9	42
			2,4,6-Octatriene, 2,6-dimethyl-	5758	000673-84-7	41
			Ethanone, 1-(3-hydroxyphenyl)-	5623	000121-71-1	38

10	16.72	0.62	C:\DATABASE\NBS54K.L			
			N1,N4-Diacetyl sulphanilamide	29718	005626-90-4	23
			.beta.-D-Glucopyranoside, 2-methyl	48440	005346-66-7	22
			p-Chlorophenyl-2,3,4,6-tetra-O-ace	49390	005041-92-9	10
11	17.2	0.28	C:\DATABASE\NBS54K.L			
			Quinoline, 5,8-dimethyl-	10096	002623-50-9	16
			1,2,4-Triazolidine-1-carboxylic ac	25215	039636-04-9	12
			Quinoline, 4,8-dimethyl-	10105	013362-80-6	12
12	17.56	0.33	C:\DATABASE\NBS54K.L			
			3-Tetradecene, (Z)-	18683	041446-67-7	91
			1-Pentadecene	21622	013360-61-7	86
			3-Tetradecene, (E)-	18684	041446-68-8	83
13	18.21	0.33	C:\DATABASE\NBS54K.L			
			Acetamide, N-1-isoquinolinyl-	16559	051640-00-7	42
			2-Naphthalenol	7398	000135-19-3	38
			7-Quinolinamine	7338	000580-19-8	38
14	18.59	0.54	C:\DATABASE\NBS54K.L			
			Pentadecanoic acid	27497	001002-84-2	50
			Dodecanoic acid	19481	000143-07-7	38
			Octane, 1-(ethenylthio)-	13536	042779-08-8	32
15	18.96	0.55	C:\DATABASE\NBS54K.L			
			Phthalic acid, allyl ethyl ester	26057	033672-94-5	37
			Diethyl phthalate	23791	000084-66-2	37
			1,2-Benzenedicarboxylic acid, decy	45471	025724-58-7	27
16	19.09	1.36	C:\DATABASE\NBS54K.L			
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	87
			Octadecane	29560	000593-45-3	86
			Heptadecane	27201	000629-78-7	86
17	19.64	2.81	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	72
			Undecane, 3,6-dimethyl-	16191	017301-28-9	64
			Dodecane, 2,5-dimethyl-	19142	056292-65-0	62
18	19.92	0.58	C:\DATABASE\NBS54K.L			
			9-Undecen-2-one, 6,10-dimethyl-	18664	004433-36-7	25
			2(3H)-Benzofuranone, hexahydro-4,4	15641	016778-27-1	25
			Octadecanenitrile	31266	000638-65-3	14
19	20.15	0.4	C:\DATABASE\NBS54K.L			
			2-Quinolinecarbonitrile, 4-methyl-	16066	010222-47-6	50
			Naphthalene, 1-methyl-7-(1-methyle	16265	000490-65-3	38
			2,4,6(1H,3H,5H)-Pyrimidinetrione,	15973	007391-61-9	35

20	20.24	3.02	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	96
			Tridecane, 3-ethyl-	22042	013286-73-2	87
			1-Iodo-2-methylundecane	35665	073105-67-6	83
21	20.27	4.1	C:\DATABASE\NBS54K.L			
			Undecane, 2,6-dimethyl-	16248	017301-23-4	70
			Bacchotricuneatin c	41250	066563-30-2	60
			Decane, 5-propyl-	16226	017312-62-8	60
22	20.41	0.67	C:\DATABASE\NBS54K.L			
			9H-Fluorene, 9-methyl-	15302	002523-37-7	50
			9H-Fluorene, 4-methyl-	15290	001556-99-6	37
			Ethanone, 1-(2-hydroxy-5-methoxy-4	15105	004223-84-1	35
23	20.71	0.83	C:\DATABASE\NBS54K.L			
			Hexadecane, 2,6,10-trimethyl-	31822	055000-52-7	89
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	86
			Heptadecane, 2,6-dimethyl-	31816	054105-67-8	76
24	20.78	1.05	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	53
			Silane, trichlorooctadecyl-	45070	000112-04-9	27
			Undecane, 2,4-dimethyl-	16190	017312-80-0	25
25	20.86	0.8	C:\DATABASE\NBS54K.L			
			Tetradecane, 4,11-dimethyl-	24802	055045-12-0	46
			Tetradecane, 4-methyl-	22040	025117-24-2	38
			Hexadecane, 7-methyl-	27204	026730-20-1	30
26	20.93	1.86	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	38
			Hexadecane, 2-methyl-	27203	001560-92-5	38
			Heptadecane, 2-methyl-	29561	001560-89-0	38
27	21.01	0.49	C:\DATABASE\NBS54K.L			
			Pentadecane, 2-methyl-	24808	001560-93-6	49
			Octadecane, 2-methyl-	31812	001560-88-9	47
			1-Heptanol, 2-propyl-	10367	010042-59-8	38
28	21.28	0.78	C:\DATABASE\NBS54K.L			
			Anthracene	14816	000120-12-7	93
			9H-Fluorene, 9-methylene-	14817	004425-82-5	87
			Phenanthrene	14815	000085-01-8	83
29	21.33	5.23	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	91
			1-Iodo-2-methylundecane	35665	073105-67-6	87
			Hexadecane, 3-methyl-	27200	006418-43-5	87

30	21.39	6.58	C:\DATABASE\NBS54K.L			
			Tridecane, 5-propyl-	24819	055045-11-9	81
			Dodecane, 2,7,10-trimethyl-	22048	074645-98-0	80
			Nonane, 3,7-dimethyl-	9970	017302-32-8	74
31	21.75	1.87	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	60
			Heptadecane, 2-methyl-	29561	001560-89-0	55
			Nonadecane, 9-methyl-	33853	013287-24-6	55
32	21.92	0.56	C:\DATABASE\NBS54K.L			
			Heptadecane, 4-methyl-	29566	026429-11-8	43
			Pentane, 3-ethyl-2-methyl-	2755	000609-26-7	43
			Pentane, 3-ethyl-	1444	000617-78-7	38
33	22.06	0.93	C:\DATABASE\NBS54K.L			
			Tridecane, 4-cyclohexyl-, 4-cyclohe	31490	013151-89-8	50
			Cyclohexane, (1-butylhexadecyl)-	43428	004443-59-8	47
			2-Piperidinecarboxylic acid, 1-nit	10148	004515-18-8	27
34	22.24	2.41	C:\DATABASE\NBS54K.L			
			Hexadecane, 2,6,10,14-tetramethyl-	33856	000638-36-8	76
			Pentatriacontane	50625	000630-07-9	68
			Heptacosane	44714	000593-49-7	64
35	22.36	6.28	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	90
			Tridecane, 7-hexyl-	31814	007225-66-3	90
			Hexadecane	24818	000544-76-3	90
36	22.45	0.83	C:\DATABASE\NBS54K.L			
			Phenanthrene, 4-methyl-	17768	000832-64-4	70
			Anthracene, 1-methyl-	17770	000610-48-0	58
			9H-Fluorene, 9-ethylidene-	17765	007151-64-6	58
37	22.52	2.16	C:\DATABASE\NBS54K.L			
			1H-Phenalen-1-one	15272	000548-39-0	96
			4H-1-Benzothiopyran-4-one, 2,3-dih	15041	026524-91-4	38
			Biphenylene	9016	000259-79-0	35
38	22.7	0.87	C:\DATABASE\NBS54K.L			
			Anthracene, 2-methyl-	17763	000613-12-7	81
			Phenanthrene, 4-methyl-	17768	000832-64-4	81
			Anthracene, 1-methyl-	17770	000610-48-0	74
39	22.76	0.98	C:\DATABASE\NBS54K.L			
			Anthracene, 2-methyl-	17763	000613-12-7	76
			1H-Indene, 2-phenyl-	17769	004505-48-0	64
			1H-Indene, 1-phenyl-	17773	001961-96-2	64

40	22.93	0.81	C:\DATABASE\NBS54K.L			
			Eicosanoic acid	37908	000506-30-9	38
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	27
			Undecane, 2-methyl-	13150	007045-71-8	27
41	22.98	0.37	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	50
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	38
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	38
42	23.34	6.44	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	94
			Pentatriacontane	50625	000630-07-9	90
			Pentadecane	22044	000629-62-9	90
43	24.02	1.63	C:\DATABASE\NBS54K.L			
			Eicosane, 2-methyl-	35844	001560-84-5	93
			Tetradecane, 6,9-dimethyl-	24804	055045-13-1	87
			Pentatriacontane	50625	000630-07-9	87
44	24.14	1.93	C:\DATABASE\NBS54K.L			
			17-Pentatriacontene	50596	006971-40-0	86
			1-Octadecanol	32132	000112-92-5	80
			1-Hexadecanol	27519	036653-82-4	72
45	24.29	5.14	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	96
			Pentadecane, 2-methyl-	24808	001560-93-6	90
			Eicosane	33850	000112-95-8	90
46	24.61	2.55	C:\DATABASE\NBS54K.L			
			Fluoranthene	19911	000206-44-0	70
			Pyrene	19913	000129-00-0	70
			Pyrene, 10b,10c-dihydro-10b,10c-di	34791	028816-94-6	50
47	24.8	1.25	C:\DATABASE\NBS54K.L			
			Phenanthrene, 2,3,5-trimethyl-	23526	003674-73-5	83
			Cinnoline, 6-methyl-4-phenyl-	23452	021039-72-5	38
			Naphthalene, 1,4-bis(methylthio)-	23361	010075-73-7	37
48	24.86	1.01	C:\DATABASE\NBS54K.L			
			Tridecane	16180	000629-50-5	42
			Undecane, 3,5-dimethyl-	16194	017312-81-1	38
			Octadecane, 4-methyl-	31813	010544-95-3	38
49	25.18	2.99	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	93
			Tridecane, 6-propyl-	24817	055045-10-8	90
			Heptadecane	27201	000629-78-7	90

50	26.05	1.68	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	91
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	91
			Octacosane	45764	000630-02-4	83
51	26.34	1.89	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	90
			Pentatriacontane	50625	000630-07-9	87
			Heptadecane, 9-octyl-	42283	007225-64-1	87
52	26.88	0.86	C:\DATABASE\NBS54K.L			
			Pentadecane, 4-methyl-	24813	002801-87-8	89
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	81
			Tridecane, 1-iodo-	37542	035599-77-0	81
53	27.15	1.54	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	90
			Pentatriacontane	50625	000630-07-9	83
			Tetracosane, 11-decyl-	50196	055429-84-0	80
54	27.38	0.91	C:\DATABASE\NBS54K.L			
			1,2-Benzenedicarboxylic acid, decy	47379	000119-07-3	53
			1,2-Benzenedicarboxylic acid, isod	47377	001330-96-7	50
			1,2-Benzenedicarboxylic acid, bis(	40425	000146-50-9	50
55	27.5	0.78	C:\DATABASE\NBS54K.L			
			Ethanol, 2-(4-phenoxyphenoxy)-, be	40436	055191-59-8	50
			Formamide, n-ethyl-N-phenyl-	8232	005461-49-4	38
			1,2-Benzenedicarboxylic acid, decy	47379	000119-07-3	32
56	27.62	1.37	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	46
			Octadecane, 3-ethyl-5-(2-ethylbuty	43598	055282-12-7	43
			Decane, 2-methyl-	9982	006975-98-0	43
57	27.92	5.99	C:\DATABASE\NBS54K.L			
			Cyclopropanenonanoic acid, 2-[(2-b	39079	010152-69-9	91
			1,2-Benzenedicarboxylic acid, decy	47379	000119-07-3	59
			1,2-Benzenedicarboxylic acid, isod	47377	001330-96-7	59
58	29.62	4.89	C:\DATABASE\NBS54K.L			
			1,2-Benzenedicarboxylic acid, bis(	45468	000131-15-7	72
			1,2-Benzenedicarboxylic acid, decy	47379	000119-07-3	56
			1,2-Benzenedicarboxylic acid, isod	47377	001330-96-7	56
59	34.02	0.84	C:\DATABASE\NBS54K.L			
			4(1H)-Pteridinone, 6-acetyl-2-amin	20807	042310-08-7	45
			Anthracene, 9-butyltetradecahydro-	28538	055133-89-6	25
			9H-Fluorene-2-carbonitrile	17485	002523-48-0	22

60	34.92	0.66	C:\DATABASE\NBS54K.L			
			1,2-Benzenedicarboxylic acid, buty	40421	000084-78-6	72
			1,2-Benzenedicarboxylic acid, decy	47379	000119-07-3	64
			1,2-Benzenedicarboxylic acid, buty	43192	000089-18-9	50

Library Search of SPE ACN:MeOH Fractions of Diesel Par ticulate Emission from Fuel 1.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	18.98	1.11	C:\DATABASE\NBS54K.L			
			Diethyl phthalate	23791	000084-66-2	96
			Nitrofurantoin	26594	000067-20-9	50
			Cyclopropanenonanoic acid, 2-[(2-b	39079	010152-69-9	43
2	19.07	0.66	C:\DATABASE\NBS54K.L			
			Benzene, 1-fluoro-3-(phenylmethyl)	16655	001496-00-0	45
			1-Naphthalenecarboxaldehyde, 4-met	16623	015971-29-6	42
			Cyclohept[f]indene, 1,2,3,5,6,7,8,	16674	007140-25-2	35
3	19.12	1.48	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	95
			Hexadecane	24818	000544-76-3	93
			Heptadecane, 8-methyl-	29562	013287-23-5	89
4	19.65	3.1	C:\DATABASE\NBS54K.L			
			Nonadecane	31819	000629-92-5	70
			Nonane, 3-methyl-	6983	005911-04-6	70
			Octadecane, 3-methyl-	31817	006561-44-0	70
5	19.78	0.44	C:\DATABASE\NBS54K.L			
			2,5-Furandicarboxylic acid	9708	003238-40-2	38
			1-Propene, 2-chloro-	348	000557-98-2	33
			6-Undecen-3-one, 5-butyl-2,2-dimet	29219	055976-05-1	25
6	19.85	0.91	C:\DATABASE\NBS54K.L			
			2,5-Cyclohexadiene-1,4-dione, 2,5-	28503	004584-63-8	25
			1-Butanone, 3-methyl-1-[2,3,5-trih	31397	000520-40-1	12
			5,8-Methano-1,7-dioxacyclopent[cd]	35692	070219-70-4	10
7	19.93	0.66	C:\DATABASE\NBS54K.L			
			9,10-Anthracenedione, 1,8-dihydrox	39842	000081-55-0	14
			1-Undecanamine	13273	007307-55-3	14
			Heptadecane, 9-hexyl-	39301	055124-79-3	12
8	20.26	5.76	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	98
			Heptadecane, 4-methyl-	29566	026429-11-8	90
			Eicosane	33850	000112-95-8	90
9	20.3	7.1	C:\DATABASE\NBS54K.L			
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	87
			Pentadecane, 2,6,10,14-tetramethyl	31820	001921-70-6	80
			Hexadecane, 2,6,10-trimethyl-	31822	055000-52-7	72

10	20.34	0.62	C:\DATABASE\NBS54K.L			
			Acetic acid, chloro-, ethyl ester	3431	000105-39-5	10
			Cyclohexane, 1,1'-[4-(3-cyclohexyl	45344	055334-73-1	9
			Propane, 1,3-dichloro-2-methyl-	3869	000616-19-3	7
11	20.51	0.76	C:\DATABASE\NBS54K.L			
			Cyclopentaneundecanoic acid, methy	31768	025779-85-5	45
			2-Naphthalenol, 8-amino-	10493	000118-46-7	35
			Decanoic acid, methyl ester	16580	000110-42-9	35
12	20.63	0.89	C:\DATABASE\NBS54K.L			
			Nonadecanol	34171	052783-43-4	46
			1-Pentadecene, 2-methyl-	24412	029833-69-0	45
			1-Eicosanol	36135	000629-96-9	43
13	20.72	1.47	C:\DATABASE\NBS54K.L			
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	76
			Docosane, 9-octyl-	47578	055319-83-0	64
			Decane, 3,6-dimethyl-	13142	017312-53-7	64
14	20.81	1.13	C:\DATABASE\NBS54K.L			
			Dodecane	13141	000112-40-3	64
			Decane	6985	000124-18-5	53
			1-Heptadecanamine	29690	004200-95-7	52
15	20.88	0.87	C:\DATABASE\NBS54K.L			
			Decane, 2,3,8-trimethyl-	16240	062238-14-6	50
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	49
			Hexadecane	24818	000544-76-3	49
16	20.95	1.88	C:\DATABASE\NBS54K.L			
			Heptadecane, 2-methyl-	29561	001560-89-0	74
			Tridecane, 2-methyl-	19147	001560-96-9	68
			Octane, 2-methyl-	4506	003221-61-2	64
17	21.04	0.68	C:\DATABASE\NBS54K.L			
			Hexadecanoic acid, 2-oxo-, methyl	34109	055836-30-1	47
			Heptadecane, 3-methyl-	29558	006418-44-6	46
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	43
18	21.35	7.95	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	93
			1-Iodo-2-methylundecane	35665	073105-67-6	93
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
19	21.42	9.11	C:\DATABASE\NBS54K.L			
			Dodecane	13141	000112-40-3	90
			1-IODO-2-METHYLNONANE	31632	000000-00-0	87
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	87

20	21.68	0.66	C:\DATABASE\NBS54K.L			
			Tridecane, 2,5-dimethyl-	22039	056292-66-1	64
			Tricosane, 2-methyl-	40894	001928-30-9	58
			Heptadecane, 9-octyl-	42283	007225-64-1	58
21	21.77	2.25	C:\DATABASE\NBS54K.L			
			Eicosane, 2-methyl-	35844	001560-84-5	83
			Tetracontane, 3,5,24-trimethyl-	52650	055162-61-3	59
			Dodecane, 2,5-dimethyl-	19142	056292-65-0	58
22	21.86	0.42	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	9
			Nonacosane	46739	000630-03-5	9
			2-Butene-1,4-diol, 2,3-dibromo-	27630	003234-02-4	9
23	21.94	1.41	C:\DATABASE\NBS54K.L			
			Octadecane, 4-methyl-	31813	010544-95-3	35
			Undecane, 4-methyl-	13148	002980-69-0	27
			11-Tricosene	39087	052078-56-5	25
24	22.02	1.06	C:\DATABASE\NBS54K.L			
			2,6-Octadiene, 1-methoxy-3,7-dimet	12587	002565-82-4	22
			2,6,10-Dodecatrienoic acid, 3,7,11	31147	020085-73-8	17
			4-Nonenoic acid, 4-methyl-8-oxo-,	18991	067884-61-1	15
25	22.08	1.46	C:\DATABASE\NBS54K.L			
			1-Octadecanethiol	34454	002885-00-9	43
			Octane, 2-cyclohexyl-	18697	002883-05-8	38
			Pentatriacontane	50625	000630-07-9	35
26	22.26	2.98	C:\DATABASE\NBS54K.L			
			Nonadecane, 9-methyl-	33853	013287-24-6	93
			Heneicosane	35851	000629-94-7	91
			Pentatriacontane	50625	000630-07-9	74
27	22.38	8.63	C:\DATABASE\NBS54K.L			
			Tridecane, 6-propyl-	24817	055045-10-8	91
			Heptadecane	27201	000629-78-7	91
			Eicosane	33850	000112-95-8	91
28	22.61	0.89	C:\DATABASE\NBS54K.L			
			Pentadecanoic acid, 13-methyl-, me	32100	005487-50-3	64
			Nonanoic acid, methyl ester	13485	001731-84-6	50
			Decanoic acid, methyl ester	16580	000110-42-9	50
29	22.93	1.24	C:\DATABASE\NBS54K.L			
			Hexadecanoic acid	29876	000057-10-3	25
			Pentanoic acid, 4-methyl-	2919	000646-07-1	10
			Heptadecanoic acid	32097	000506-12-7	10

30	23	0.62	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	50
			Nonadecane, 4-methyl-	33854	025117-27-5	43
			Nonadecane, 2,6,10,14-tetramethyl-	39302	055124-80-6	40
31	23.28	0.79	C:\DATABASE\NBS54K.L			
			Hexadecanoic acid, 2-oxo-, methyl	34109	055836-30-1	27
			Hexadecane, 7-methyl-	27204	026730-20-1	27
			Hexadecane, 2,6,11,15-tetramethyl-	33855	000504-44-9	27
32	23.36	5.65	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	97
			Tetradecane, 2-methyl-	22045	001560-95-8	94
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	93
33	24.04	1.85	C:\DATABASE\NBS54K.L			
			Pentadecane, 3-methyl-	24809	002882-96-4	80
			Dodecane, 2,5-dimethyl-	19142	056292-65-0	76
			Tricosane, 2-methyl-	40894	001928-30-9	70
34	24.3	4.4	C:\DATABASE\NBS54K.L			
			Pentadecane	22044	000629-62-9	94
			Octadecane	29560	000593-45-3	93
			Heneicosane	35851	000629-94-7	93
35	24.53	0.8	C:\DATABASE\NBS54K.L			
			Heptadecanoic acid, 14-methyl-, me	36105	002490-23-5	74
			Heptadecanoic acid, 14-methyl-, me	36103	057274-45-0	74
			Heptadecanoic acid, 10-methyl-, me	36108	002490-25-7	72
36	24.64	1.59	C:\DATABASE\NBS54K.L			
			6-Octadecenal	31480	056554-97-3	25
			(Z)-3,7-Dimethyl-6-oxo-2-octenal	12517	070856-11-0	12
			1,3-Cyclohexanediamine	2641	003385-21-5	12
37	24.88	0.81	C:\DATABASE\NBS54K.L			
			Heneicosane	35851	000629-94-7	44
			Propanoic acid, 2,2-dimethyl-, 2,6	36970	054644-43-8	43
			1,2,3-Thiadiazole, 5-methyl-	1301	050406-54-7	9
38	25.06	1.55	C:\DATABASE\NBS54K.L			
			Octadecanoic acid, butyl ester	41094	000123-95-5	40
			Oxirane, 2,3-bis(1-methylethyl)-,	4444	054644-32-5	38
			Pentadecane, 8-methylene-	24409	055668-09-2	30
39	25.2	1.8	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	91
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	90
			Tricosane, 2-methyl-	40894	001928-30-9	87

40	26.07	0.88	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	96
			Docosane, 2,21-dimethyl-	40892	077536-31-3	92
			Eicosane	33850	000112-95-8	91
41	26.35	0.74	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	43
			Eicosane, 10-hexyl-10-methyl-	44720	055282-32-1	41
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	35
42	26.77	1.12	C:\DATABASE\NBS54K.L			
			Octadecanoic acid, butyl ester	41094	000123-95-5	94
			Cyclopropane, 1-(1-methylethyl)-2-	21618	041977-39-3	30
			Cyclohexaneacetic acid, butyl este	19043	027948-12-5	27
43	27.92	2.53	C:\DATABASE\NBS54K.L			
			1,2-Benzenedicarboxylic acid, 3-ni	21644	000603-11-2	80
			Bis(2-ethylhexyl) phthalate	45466	000117-81-7	64
			1,2-Benzenedicarboxylic acid, isod	47377	001330-96-7	59
44	29.65	1.01	C:\DATABASE\NBS54K.L			
			2-Propenenitrile, 2-methyl-	162	000126-98-7	9
			Phosphonic acid, diethyl ester	5931	000762-04-9	4
			Benzeneethanamine	3385	000064-04-0	3
45	30.57	4.5	C:\DATABASE\NBS54K.L			
			6,10,14-Hexadecatrien-1-ol, 3,7,11	35308	036237-66-8	74
			3,7,11-Tridecatrienoic acid, 4,8,1	31138	036237-70-4	72
			2,6,10-Dodecatrien-1-ol, 3,7,11-tr	23939	004602-84-0	72
46	32.01	0.38	C:\DATABASE\NBS54K.L			
			1,3,2-Dioxarsenane, 2-propyl-	17507	042541-32-2	47
			Carbamodithioic acid, acetyl-, met	8149	016696-88-1	46
			1,2-Benzisothiazole-3-acetamide	17558	029273-65-2	43
47	34.79	0.54	C:\DATABASE\NBS54K.L			
			2-Propyn-1-amine, N-2-propynyl-	903	006921-28-4	38
			7-ISOPROPYL-12-METHYL-13-METHY	30628	000000-00-0	38
			2H-Pyrano[3,2-b]pyridine	5214	004767-91-3	32
48	34.96	0.83	C:\DATABASE\NBS54K.L			
			Carbamodithioic acid, acetyl-, met	8149	016696-88-1	59
			1,2-Benzenedicarboxylic acid, buty	40431	000085-69-8	53
			1,2-Benzenedicarboxylic acid, bis(	28780	000605-45-8	53

Library Search of SPE ACN Fractions of Diesel Par ticulate Emission from Fuel 1.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	19.06	0.79	C:\DATABASE\NBS54K.L			
			1-Naphthalenecarboxaldehyde, 4-met	16623	015971-29-6	50
			Benzene, 1,1'-thiobis-	16626	000139-66-2	38
			[1,1'-Biphenyl]-2,5-diol	16616	001079-21-6	27
2	19.1	0.65	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	70
			Decane, 3,6-dimethyl-	13142	017312-53-7	50
			Decane, 5-propyl-	16226	017312-62-8	49
3	19.64	1.79	C:\DATABASE\NBS54K.L			
			1-Iodo-2-methylundecane	35665	073105-67-6	72
			Nonadecane	31819	000629-92-5	70
			Heptane, 2,6-dimethyl-	4520	001072-05-5	64
4	19.83	0.58	C:\DATABASE\NBS54K.L			
			Acetamide, N-(4-chlorophenyl)-	12753	000539-03-7	27
			Phosphine, acetyldimethyl-	1699	018983-86-3	9
			Benzoic acid, 3-amino-2,5-dichloro	23134	007286-84-2	9
5	20.25	5.04	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	96
			Heptadecane	27201	000629-78-7	90
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	90
6	20.28	5.43	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	87
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	87
			Heptadecane, 2,6-dimethyl-	31816	054105-67-8	87
7	20.61	0.55	C:\DATABASE\NBS54K.L			
			.beta.-Chlordene	40568	056534-03-3	25
			Propane, 2-bromo-1-chloro-	9686	003017-95-6	9
			Acetamide, 2-chloro-N-(2-cyanoethy	7550	017756-81-9	9
8	20.71	1.54	C:\DATABASE\NBS54K.L			
			Pentadecane, 4-methyl-	24813	002801-87-8	86
			Nonane, 5-butyl-	16228	017312-63-9	70
			Tetradecane, 4-methyl-	22040	025117-24-2	68
9	20.79	1.16	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	70
			Pentadecane, 2-methyl-	24808	001560-93-6	62
			Pentadecane, 3-methyl-	24809	002882-96-4	59

10	20.86	0.63	C:\DATABASE\NBS54K.L			
			2-Hexen-1-ol, 3-methyl-, (E)-	2674	030801-96-8	49
			Heptadecane, 2,6-dimethyl-	31816	054105-67-8	45
			Tridecane, 4-methyl-	19148	026730-12-1	43
11	20.93	1.93	C:\DATABASE\NBS54K.L			
			Heptadecane, 2-methyl-	29561	001560-89-0	58
			Hexadecane	24818	000544-76-3	50
			Hexacosane	43605	000630-01-3	50
12	21.02	0.85	C:\DATABASE\NBS54K.L			
			Pentadecane, 6-methyl-	24806	010105-38-1	59
			Heptadecane, 3-methyl-	29558	006418-44-6	53
			Docosane, 11-butyl-	43595	013475-76-8	53
13	21.07	0.45	C:\DATABASE\NBS54K.L			
			2-Butenoic acid, 2-methyl-, 4,5,6,	39931	056298-87-4	83
			Octadecane, 1,1'-[(1-methyl-1,2-et	52340	035545-51-8	74
			Pregn-5-ene-3,12,14,17,20-pentol,	43555	028417-32-5	74
14	21.33	9.08	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	91
			Hexadecane, 3-methyl-	27200	006418-43-5	91
			Octacosane	45764	000630-02-4	90
15	21.4	10.74	C:\DATABASE\NBS54K.L			
			Hexadecane, 2,6,10,14-tetramethyl-	33856	000638-36-8	90
			1-IODO-2-METHYLNONANE	31632	000000-00-0	87
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	86
16	21.67	0.84	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	49
			2-Heptadecanone	29546	002922-51-2	47
			Tetradecane	19145	000629-59-4	43
17	21.75	2.69	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	58
			Decane, 2,4,6-trimethyl-	16223	062108-27-4	53
			Docosane, 7-butyl-	43601	055282-15-0	53
18	21.85	0.52	C:\DATABASE\NBS54K.L			
			2-Butene-1,4-diol, 2,3-dibromo-	27630	003234-02-4	17
			2-Propenenitrile, 2-methyl-	162	000126-98-7	10
			2-Propanone, 1-chloro-	876	000078-95-5	9
19	21.92	1.54	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,3-dimethyl-	31811	061868-03-9	38
			Tetracosane, 3-ethyl-	43604	055282-17-2	38
			Hexadecane, 2,6,11,15-tetramethyl-	33855	000504-44-9	35

20	21.98	1.53	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	55
			Heptadecane, 2,3-dimethyl-	31811	061868-03-9	52
			Docosane, 11-butyl-	43595	013475-76-8	52
21	22.06	1.75	C:\DATABASE\NBS54K.L			
			Decane 3-cyclohexyl-, 3-cyclohexyl	24417	013151-74-1	38
			Hexane, 1,6-dicyclohexyl-	28894	001610-23-7	32
			Cyclohexane, decyl-	24407	001795-16-0	32
22	22.25	3.95	C:\DATABASE\NBS54K.L			
			Octadecane	29560	000593-45-3	96
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
			Tetratetracontane	52799	007098-22-8	87
23	22.36	10.43	C:\DATABASE\NBS54K.L			
			Tridecane, 6-propyl-	24817	055045-10-8	93
			Hexadecane, 4-methyl-	27202	025117-26-4	91
			Heptadecane	27201	000629-78-7	91
24	22.75	0.88	C:\DATABASE\NBS54K.L			
			Undecane, 5-methyl-	13156	001632-70-8	43
			Tridecane	16180	000629-50-5	38
			Undecane, 4-methyl-	13148	002980-69-0	38
25	22.98	0.52	C:\DATABASE\NBS54K.L			
			Hexacosane	43605	000630-01-3	37
			Undecane, 3,5-dimethyl-	16194	017312-81-1	37
			Octane, 5-ethyl-2-methyl-	9977	062016-18-6	37
26	23.03	0.52	C:\DATABASE\NBS54K.L			
			5-Hexen-3-yn-2-ol, 2-methyl-	2074	000690-94-8	25
			Phenol, 2,6-dinitro-4-(trifluorome	29009	000393-77-1	16
			1-Hexene, 6-nitro-	4567	004812-17-3	12
27	23.27	1.01	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	38
			Heneicosane, 11-(1-ethylpropyl)-	43597	055282-11-6	38
			Dodecane, 2,5-dimethyl-	19142	056292-65-0	38
28	23.34	7.21	C:\DATABASE\NBS54K.L			
			Hexadecane	24818	000544-76-3	91
			Docosane	37669	000629-97-0	91
			Eicosane	33850	000112-95-8	90
29	23.44	0.58	C:\DATABASE\NBS54K.L			
			Cyclopentane, 1,1'-[3-(2-cyclopent	36720	054934-71-3	45
			2-Acetonylcyclopentanone	6410	060415-94-3	22
			Decane 5-cyclohexyl-, 5-cyclohexyl	24404	013151-76-3	20

30	23.6	0.59	C:\DATABASE\NBS54K.L			
			2-Furancarboxaldehyde	983	000098-01-1	38
			Isocrotonic acid	615	000503-64-0	32
			2,5-Furandione, dihydro-3-methyl-	2551	004100-80-5	32
31	23.66	0.63	C:\DATABASE\NBS54K.L			
			Acetaldehyde, 2-butenylhydrazone	2296	075268-07-4	25
			MUCO-INOSITOL TRI-METHANEBORO	29028	000000-00-0	14
			1H-Pyrazole, 4,5-dihydro-3,4,5-tri	2293	022591-95-3	14
32	24.02	2.07	C:\DATABASE\NBS54K.L			
			Nonadecane, 3-methyl-	33848	006418-45-7	93
			Eicosane, 2-methyl-	35844	001560-84-5	89
			Tetracosane, 11-decyl-	50196	055429-84-0	72
33	24.28	4.29	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	93
			Heneicosane	35851	000629-94-7	91
			Octadecane, 2-methyl-	31812	001560-88-9	90
34	24.62	1.54	C:\DATABASE\NBS54K.L			
			Cyclohexane, (1-hexyltetradecyl)-	43429	004443-60-1	43
			Diisoamylene	6586	054063-09-1	35
			Dodecane 6-cyclohexyl-, 6-cyclohex	29233	013151-86-5	32
35	24.86	0.78	C:\DATABASE\NBS54K.L			
			2-Nonadecanone	33842	000629-66-3	59
			18-Pentatriacontanone	50977	000504-53-0	28
			Propanethioic acid, 2-methyl-, S-e	5033	002432-50-0	16
36	24.96	1.54	C:\DATABASE\NBS54K.L			
			Dodecane, 1,2-dibromo-	39369	055334-42-4	46
			Cyclohexane, (1-octylnonyl)-	39085	055124-77-1	38
			10-Undecenoic acid, octyl ester	35795	028080-85-5	35
37	25.05	1.17	C:\DATABASE\NBS54K.L			
			1-Octanol, 2,2,3,3,4,4,5,5,6,6,7,7	46114	000307-30-2	14
			Ampyrone	19978	000083-07-8	10
			Octadecanoic acid, butyl ester	41094	000123-95-5	10
38	25.18	2.11	C:\DATABASE\NBS54K.L			
			Tridecane, 2-methyl-	19147	001560-96-9	94
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	93
			Hexadecane, 2-methyl-	27203	001560-92-5	93
39	25.46	0.53	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	46
			Tetradecane	19145	000629-59-4	38
			Hexadecane, 3-methyl-	27200	006418-43-5	35

40	25.5	0.77	C:\DATABASE\NBS54K.L			
			2,5-Furandicarboxylic acid	9708	003238-40-2	37
			2-Butenal, (E)-	209	000123-73-9	25
			3,4-Furandicarboxylic acid	9709	003387-26-6	9
41	25.86	0.55	C:\DATABASE\NBS54K.L			
			3,5-Cyclohexadiene-1,2-dione, 5-(h	12361	077745-42-7	9
			Propane, 1,1,2,2-tetrachloro-	14935	013116-60-4	9
			1-Propanesulfonyl chloride, 3-chlo	14141	001633-82-5	9
42	25.93	0.58	C:\DATABASE\NBS54K.L			
			Dodecane 2-cyclohexyl-, 2-cyclohex	29227	013151-82-1	14
			7-Azabicyclo[4.1.0]heptane, 1-meth	9132	077774-31-3	14
			Eicosane, 2-cyclohexyl-	43424	004443-56-5	12
43	26.05	0.65	C:\DATABASE\NBS54K.L			
			Bacchotricuneatin c	41250	066563-30-2	97
			Tetracosane	40896	000646-31-1	58
			Hexadecane, 8-hexyl-8-pentyl-	44717	055282-29-6	53
44	26.35	1.31	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	50
			Pentacosane	42284	000629-99-2	50
			Octacosane	45764	000630-02-4	50
45	26.88	0.62	C:\DATABASE\NBS54K.L			
			Benzofurazan, 5-nitro-	11727	018772-11-7	15
			5-Hexen-3-yn-2-ol, 2-methyl-	2074	000690-94-8	14
			1,3-Dioxolane, 4-ethenyl-5-(2-fura	18059	036334-91-5	12
46	27.16	1.44	C:\DATABASE\NBS54K.L			
			Acetoacetic acid, 1-thio-, S-allyl	10161	015780-65-1	25
			2-Butene-1,4-diol, 2,3-dibromo-	27630	003234-02-4	17
			Tetracosane, 9-octyl-	49084	055401-54-2	12
47	27.61	0.77	C:\DATABASE\NBS54K.L			
			2-Propenenitrile, 2-methyl-	162	000126-98-7	45
			3,4-Furandicarboxylic acid	9709	003387-26-6	20
			3-Octen-1-yne, (E)-	1943	042104-42-7	11
48	27.92	1.61	C:\DATABASE\NBS54K.L			
			Bis(2-ethylhexyl) phthalate	45466	000117-81-7	72
			Aspidofractinine-3-methanol, (2.al	37639	002656-44-2	64
			1,2-Benzenedicarboxylic acid, mono	33218	004376-20-9	47
49	29.9	0.7	C:\DATABASE\NBS54K.L			
			Copper, bis(4-methyl-3,5-cyclohexa	47018	050928-45-5	91
			Biphenyl, tetrachloro-	34910	012672-29-6	91
			9,10-Anthracenedione, 1,8-dihydrox	39842	000081-55-0	90

50	35.12	0.57	C:\DATABASE\NBS54K.L			
			Thiocyanic acid, 2,4-dinitrophenyl	24428	001594-56-5	91
			9-Tricosene, (Z)-	39086	027519-02-4	90
			Biphenyl-4-carboxylic acid, 4'-(1,	29537	057484-25-0	90

Library Search of SPE DCM Fractions of Diesel Par ticulate Emission from Fuel 1.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	19.1	0.33	C:\DATABASE\NBS54K.L			
			Nonadecane	31819	000629-92-5	93
			Eicosane	33850	000112-95-8	91
			Tridecane, 1-iodo-	37542	035599-77-0	87
2	19.64	0.58	C:\DATABASE\NBS54K.L			
			Dodecane, 2-methyl-8-propyl-	24812	055045-07-3	87
			Tridecane	16180	000629-50-5	74
			Hexadecane	24818	000544-76-3	64
3	20.24	1.9	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	97
			Pentatriacontane	50625	000630-07-9	91
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	90
4	20.28	1.47	C:\DATABASE\NBS54K.L			
			Pentadecane, 2,6,10,14-tetramethyl	31820	001921-70-6	93
			Dodecane, 2-methyl-8-propyl-	24812	055045-07-3	91
			Undecane, 3,6-dimethyl-	16191	017301-28-9	74
5	20.7	0.52	C:\DATABASE\NBS54K.L			
			Undecane, 3,8-dimethyl-	16200	017301-30-3	86
			Hexadecane, 2,6,10-trimethyl-	31822	055000-52-7	80
			Dodecane, 2,7,10-trimethyl-	22048	074645-98-0	72
6	20.78	0.32	C:\DATABASE\NBS54K.L			
			Tetracosane	40896	000646-31-1	76
			Hydroxylamine, O-decyl-	13654	029812-79-1	68
			Tetradecane, 4-methyl-	22040	025117-24-2	64
7	20.93	0.52	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	95
			Heptadecane, 2-methyl-	29561	001560-89-0	93
			Octadecane, 3-methyl-	31817	006561-44-0	87
8	21.33	4.15	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	91
			Heptadecane, 8-methyl-	29562	013287-23-5	90
			Pentadecane	22044	000629-62-9	90
9	21.4	3.76	C:\DATABASE\NBS54K.L			
			Heptadecane, 7-methyl-	29563	020959-33-5	87
			Hexadecane, 3-methyl-	27200	006418-43-5	86
			Dodecane, 2,7,10-trimethyl-	22048	074645-98-0	80

10	21.67	0.39	C:\DATABASE\NBS54K.L			
			Tridecane, 4,8-dimethyl-	22043	055030-62-1	72
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	70
			Tridecane, 2,5-dimethyl-	22039	056292-66-1	70
11	21.75	1.14	C:\DATABASE\NBS54K.L			
			Tridecane, 1-iodo-	37542	035599-77-0	92
			Tetracosane, 9-octyl-	49084	055401-54-2	90
			Tritetracontane	52649	007098-21-7	87
12	21.92	0.5	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,3-dimethyl-	31811	061868-03-9	64
			Nonadecane, 2,3-dimethyl-	35848	075163-99-4	58
			Octadecane, 4-methyl-	31813	010544-95-3	58
13	21.98	0.69	C:\DATABASE\NBS54K.L			
			Tetradecane, 2,6,10-trimethyl-	27205	014905-56-7	83
			Eicosane, 2-methyl-	35844	001560-84-5	80
			Octadecane	29560	000593-45-3	72
14	22.06	0.72	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	55
			Pentacosane	42284	000629-99-2	47
			Heptadecane, 2-methyl-	29561	001560-89-0	46
15	22.25	1.98	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	90
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	86
			Octacosane	45764	000630-02-4	86
16	22.36	6.61	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	94
			Docosane	37669	000629-97-0	90
			Heptadecane	27201	000629-78-7	90
17	22.46	0.64	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	81
			Docosane, 5-butyl-	43603	055282-16-1	80
			Tridecane, 6-propyl-	24817	055045-10-8	64
18	22.67	0.43	C:\DATABASE\NBS54K.L			
			2,6-Octadienoic acid, 3,7-dimethyl	15673	001189-09-9	38
			1,1'-Bicyclohexyl, 2-propyl-, tran	21217	054934-89-3	32
			Cyclopentane, 1-butyl-2-propyl-	12685	062199-50-2	27
19	22.75	0.59	C:\DATABASE\NBS54K.L			
			Hexadecane, 7-methyl-	27204	026730-20-1	76
			Pentadecane	22044	000629-62-9	70
			Hexacosane	43605	000630-01-3	64

20	22.92	0.45	C:\DATABASE\NBS54K.L			
			Phosphonic acid, [1-(1,1-dimethyle	25669	042087-76-3	90
			Octadecane, 3-methyl-	31817	006561-44-0	86
			Nonadecane, 4-methyl-	33854	025117-27-5	72
21	22.99	0.54	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	91
			Heptadecane, 9-octyl-	42283	007225-64-1	91
			Heptadecane	27201	000629-78-7	87
22	23.14	0.72	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	94
			Hexacosane	43605	000630-01-3	90
			Docosane, 7-hexyl-	45765	055373-86-9	90
23	23.27	0.63	C:\DATABASE\NBS54K.L			
			Nonadecane, 2,3-dimethyl-	35848	075163-99-4	90
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	87
			Heptadecane, 4-methyl-	29566	026429-11-8	87
24	23.35	7.08	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	97
			Heptadecane	27201	000629-78-7	91
			Pentadecane, 8-hexyl-	35849	013475-75-7	91
25	23.43	0.3	C:\DATABASE\NBS54K.L			
			Pyridinium, 1-hexadecyl-, chloride	42687	006004-24-6	41
			Cyclopentane, 1-methyl-3-(2-methyl	6537	029053-04-1	38
			Tetradecane, 1-chloro-	25756	002425-54-9	38
26	23.66	0.41	C:\DATABASE\NBS54K.L			
			Tetradecane, 4-methyl-	22040	025117-24-2	27
			Octadecane, 4-methyl-	31813	010544-95-3	27
			Undecane, 3,5-dimethyl-	16194	017312-81-1	22
27	23.72	1.01	C:\DATABASE\NBS54K.L			
			Tridecane, 1-iodo-	37542	035599-77-0	90
			Pentatriacontane	50625	000630-07-9	90
			Eicosane, 9-octyl-	45767	013475-77-9	87
28	23.88	0.5	C:\DATABASE\NBS54K.L			
			Tetradecane, 4-methyl-	22040	025117-24-2	91
			Heneicosane, 11-(1-ethylpropyl)-	43597	055282-11-6	80
			Pentatriacontane	50625	000630-07-9	52
29	23.94	0.76	C:\DATABASE\NBS54K.L			
			Eicosane, 2-methyl-	35844	001560-84-5	90
			Octadecane, 3-methyl-	31817	006561-44-0	76
			Pentadecane, 3-methyl-	24809	002882-96-4	76

30	24.03	2.82	C:\DATABASE\NBS54K.L			
			Eicosane, 3-methyl-	35845	006418-46-8	89
			Tetratetracontane	52799	007098-22-8	87
			Nonacosane	46739	000630-03-5	87
31	24.09	0.3	C:\DATABASE\NBS54K.L			
			Glycine, N-(3-methyl-1-oxo-2-buten	13213	056009-34-8	45
			Pyridine, 2,3,4,5-tetrahydro-	486	000505-18-0	38
			2(5H)-Furanone, 5-(2-hydroxyethyli	3907	089291-42-9	35
32	24.21	0.52	C:\DATABASE\NBS54K.L			
			Tetradecane, 4-methyl-	22040	025117-24-2	55
			Undecane, 4-methyl-	13148	002980-69-0	38
			Propanoic acid, 2-methyl-, 2-methy	10280	002445-69-4	27
33	24.29	6.25	C:\DATABASE\NBS54K.L			
			Heneicosane	35851	000629-94-7	95
			Eicosane	33850	000112-95-8	91
			Heptadecane, 4-methyl-	29566	026429-11-8	91
34	24.54	0.76	C:\DATABASE\NBS54K.L			
			Tetradecane, 4,11-dimethyl-	24802	055045-12-0	91
			Pentadecane, 2,6,10,14-tetramethyl	31820	001921-70-6	83
			Tetracosane, 11-decyl-	50196	055429-84-0	80
35	24.62	1.33	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	89
			Hexadecane, 3-methyl-	27200	006418-43-5	76
			Nonacosane	46739	000630-03-5	76
36	24.74	0.32	C:\DATABASE\NBS54K.L			
			Tetracosane	40896	000646-31-1	55
			Heneicosane, 5-methyl-	37668	025117-37-7	50
			1-Dodecanol, 2-methyl-, (S)-	19526	057289-26-6	47
37	24.8	0.72	C:\DATABASE\NBS54K.L			
			Hexadecane, 4-methyl-	27202	025117-26-4	91
			Heptadecane, 4-methyl-	29566	026429-11-8	91
			Tridecane, 4-methyl-	19148	026730-12-1	81
38	24.86	1.37	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	62
			Eicosane, 10-methyl-	35847	054833-23-7	58
			Undecane, 2,10-dimethyl-	16188	017301-27-8	58
39	24.96	1.92	C:\DATABASE\NBS54K.L			
			3-Eicosene, (E)-	33553	074685-33-9	83
			9-Eicosene, (E)-	33551	074685-29-3	56
			Tridecane, 4,8-dimethyl-	22043	055030-62-1	56

40	25.04	0.92	C:\DATABASE\NBS54K.L			
			Cyclohexane, (1-methylpropyl)-	6530	007058-01-7	72
			Hexane, 1,6-dicyclohexyl-	28894	001610-23-7	50
			Cyclohexane, propyl-	4083	001678-92-8	50
41	25.19	4.29	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	96
			Eicosane	33850	000112-95-8	91
			Eicosane, 10-methyl-	35847	054833-23-7	91
42	25.46	1.13	C:\DATABASE\NBS54K.L			
			Eicosane, 2-methyl-	35844	001560-84-5	86
			Hexacosane	43605	000630-01-3	83
			Octane, 5-ethyl-2-methyl-	9977	062016-18-6	80
43	25.51	2.99	C:\DATABASE\NBS54K.L			
			1-IODO-2-METHYLNONANE	31632	000000-00-0	50
			Tridecane	16180	000629-50-5	50
			Octadecane, 3-ethyl-5-(2-ethylbuty	43598	055282-12-7	50
44	25.63	0.54	C:\DATABASE\NBS54K.L			
			Eicosane, 3-methyl-	35845	006418-46-8	50
			Undecane, 2,4-dimethyl-	16190	017312-80-0	43
			Decane, 1-iodo-	31633	002050-77-3	38
45	25.69	1.04	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	91
			Nonadecane, 4-methyl-	33854	025117-27-5	80
			Undecane, 3,8-dimethyl-	16200	017301-30-3	72
46	25.74	0.82	C:\DATABASE\NBS54K.L			
			Tricosane, 2-methyl-	40894	001928-30-9	87
			Heptacosane	44714	000593-49-7	87
			Docosane, 7-butyl-	43601	055282-15-0	86
47	25.82	0.85	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	74
			Eicosane, 3-methyl-	35845	006418-46-8	72
			Heptadecane, 9-octyl-	42283	007225-64-1	58
48	25.87	0.51	C:\DATABASE\NBS54K.L			
			Hexadecane, 1,1-bis(dodecyloxy)-	52525	056554-64-4	22
			Cyclopentane, undecyl-	24411	006785-23-5	18
			Cyclopentane, decyl-	21621	001795-21-7	15
49	25.95	0.55	C:\DATABASE\NBS54K.L			
			Cyclohexane, undecyl-	26851	054105-66-7	72
			Cyclohexane, 1,1'-(1,5-pentanediyl	26454	054833-31-7	64
			Glycine, N-(3-methyl-1-oxo-2-buten	13213	056009-34-8	64

50	26.06	2.87	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	93
			Tridecane, 7-hexyl-	31814	007225-66-3	93
			Pentadecane, 8-hexyl-	35849	013475-75-7	93
51	26.15	0.57	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	81
			Docosane, 7-hexyl-	45765	055373-86-9	50
			Undecane, 5-ethyl-5-propyl-	24803	002755-07-9	47
52	26.36	3.28	C:\DATABASE\NBS54K.L			
			Heptadecane, 3-methyl-	29558	006418-44-6	94
			Hexadecane, 5-butyl-	33852	006912-07-8	91
			Pentatriacontane	50625	000630-07-9	91
53	26.81	1.15	C:\DATABASE\NBS54K.L			
			Cyclohexane, undecyl-	26851	054105-66-7	64
			Cyclohexane, eicosyl-	43423	004443-55-4	59
			Undecane 2-cyclohexyl-, 2-cyclohex	26846	013151-77-4	52
54	26.89	1.91	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	91
			Heptadecane	27201	000629-78-7	91
			Heptacosane	44714	000593-49-7	91
55	27.17	3.37	C:\DATABASE\NBS54K.L			
			Tridecane, 3-ethyl-	22042	013286-73-2	87
			Eicosane, 10-methyl-	35847	054833-23-7	83
			Pentadecane, 8-hexyl-	35849	013475-75-7	83
56	27.65	3.21	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	90
			Nonadecane, 3-methyl-	33848	006418-45-7	87
			Pentadecane, 8-hexyl-	35849	013475-75-7	70
57	27.95	1.9	C:\DATABASE\NBS54K.L			
			Tridecane, 1-iodo-	37542	035599-77-0	90
			Tetracosane, 9-octyl-	49084	055401-54-2	83
			Tetracosane, 11-decyl-	50196	055429-84-0	83
58	28.75	3.05	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	87
			Tridecane, 1-iodo-	37542	035599-77-0	87
			Docosane, 11-decyl-	49085	055401-55-3	80
59	28.93	2.04	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	70
			Docosane, 2,21-dimethyl-	40892	077536-31-3	64
			Octadecane, 4-methyl-	31813	010544-95-3	58

60	29.69	4.51	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	91
			Pentatriacontane	50625	000630-07-9	90
			Eicosane, 10-butyl-10-propyl-	44721	055282-33-2	83
61	32.17	2.57	C:\DATABASE\NBS54K.L			
			Nonadecane	31819	000629-92-5	50
			Tricosane, 2-methyl-	40894	001928-30-9	50
			Tritetracontane	52649	007098-21-7	46

Library Search of SPE Hexane Fractions of Diesel Par ticulate Emission from Fuel 1.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	17.96	1.15	C:\DATABASE\NBS54K.L			
			Phenol, 2,6-bis(1,1-dimethylethyl)	23484	000128-37-0	95
			Phenol, 4,6-di(1,1-dimethylethyl)-	23482	000616-55-7	83
			2H-1-Benzopyran, 6,7-dimethoxy-2,2	23403	000644-06-4	59
2	19.09	0.52	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	86
			Undecane, 5-methyl-	13156	001632-70-8	81
			Nonane, 4,5-dimethyl-	9980	017302-23-7	81
3	19.63	0.35	C:\DATABASE\NBS54K.L			
			Dodecane	13141	000112-40-3	74
			Tridecane	16180	000629-50-5	68
			Undecane, 5,5-dimethyl-	16243	017312-73-1	64
4	20.24	2.02	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	96
			Eicosane	33850	000112-95-8	87
			Tridecane, 4-methyl-	19148	026730-12-1	87
5	20.27	0.79	C:\DATABASE\NBS54K.L			
			Undecane, 3,6-dimethyl-	16191	017301-28-9	59
			Undecane, 4,6-dimethyl-	16199	017312-82-2	59
			Hexadecane, 7-methyl-	27204	026730-20-1	53
6	20.7	0.32	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	76
			Hexadecane, 2,6,10,14-tetramethyl-	33856	000638-36-8	68
			Hexacosane	43605	000630-01-3	68
7	20.93	0.44	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	93
			Nonadecane, 2-methyl-	33849	001560-86-7	93
			Docosane	37669	000629-97-0	74
8	21.32	3.66	C:\DATABASE\NBS54K.L			
			Octadecane	29560	000593-45-3	94
			Pentadecane, 8-hexyl-	35849	013475-75-7	93
			Eicosane, 10-methyl-	35847	054833-23-7	93
9	21.39	2.01	C:\DATABASE\NBS54K.L			
			Octadecane, 4-methyl-	31813	010544-95-3	91
			Eicosane, 10-methyl-	35847	054833-23-7	90
			Hexadecane, 2,6,10,14-tetramethyl-	33856	000638-36-8	90

10	21.75	0.66	C:\DATABASE\NBS54K.L			
			Dodecane, 2,5-dimethyl-	19142	056292-65-0	68
			Pentadecane, 2-methyl-	24808	001560-93-6	64
			Decane, 3,6-dimethyl-	13142	017312-53-7	60
11	21.91	0.3	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,3-dimethyl-	31811	061868-03-9	49
			Butanoic acid, pentyl ester	10248	000540-18-1	47
			Undecane, 3,8-dimethyl-	16200	017301-30-3	47
12	21.97	0.42	C:\DATABASE\NBS54K.L			
			Hexadecane	24818	000544-76-3	93
			Bacchotricuneatin c	41250	066563-30-2	83
			Pentadecane, 2-methyl-	24808	001560-93-6	80
13	22.06	0.41	C:\DATABASE\NBS54K.L			
			Nonahexacontanoic acid	53932	040710-32-5	50
			Pentatriacontane	50625	000630-07-9	49
			Tetratetracontane	52799	007098-22-8	47
14	22.24	1.02	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	94
			Docosane, 2,21-dimethyl-	40892	077536-31-3	93
			Hexadecane, 3-methyl-	27200	006418-43-5	90
15	22.36	5.68	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	91
			Heptadecane	27201	000629-78-7	91
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
16	22.74	0.54	C:\DATABASE\NBS54K.L			
			Heptadecane, 8-methyl-	29562	013287-23-5	90
			Docosane, 7-butyl-	43601	055282-15-0	72
			Eicosane	33850	000112-95-8	70
17	22.91	0.34	C:\DATABASE\NBS54K.L			
			Dotriacontane	49086	000544-85-4	64
			Octadecane, 3-methyl-	31817	006561-44-0	59
			Heptadecane	27201	000629-78-7	53
18	22.98	0.42	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	95
			Tricosane, 2-methyl-	40894	001928-30-9	90
			Docosane, 2,21-dimethyl-	40892	077536-31-3	86
19	23.06	0.57	C:\DATABASE\NBS54K.L			
			Eicosane, 3-methyl-	35845	006418-46-8	53
			Undecane, 2,9-dimethyl-	16185	017301-26-7	50
			Undecane, 3,9-dimethyl-	16205	017301-31-4	50

20	23.14	0.49	C:\DATABASE\NBS54K.L			
			Tetracosane, 2,6,10,15,19,23-hexam	47580	000111-01-3	50
			Octane, 2-methyl-	4506	003221-61-2	47
			Hexacosane	43605	000630-01-3	43
21	23.26	0.37	C:\DATABASE\NBS54K.L			
			Docosane, 5-butyl-	43603	055282-16-1	58
			Pentacosane	42284	000629-99-2	52
			Nonacosane	46739	000630-03-5	52
22	23.34	6.35	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	95
			Eicosane	33850	000112-95-8	94
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	92
23	23.43	0.25	C:\DATABASE\NBS54K.L			
			7-Hexadecene, (Z)-	24410	035507-09-6	46
			Cyclohexane, 1,2-dimethyl-3-pentyl	24415	062376-17-4	43
			Cyclohexadecane	24414	000295-65-8	38
24	23.49	0.48	C:\DATABASE\NBS54K.L			
			Pentadecane, 6-methyl-	24806	010105-38-1	47
			Undecane, 3,5-dimethyl-	16194	017312-81-1	43
			1-Octanol, 2-butyl-	16643	003913-02-8	43
25	23.71	0.72	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	72
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	72
			Tetratetracontane	52799	007098-22-8	72
26	23.87	0.3	C:\DATABASE\NBS54K.L			
			Octadecane, 4-methyl-	31813	010544-95-3	59
			Undecane, 4,8-dimethyl-	16217	017301-33-6	53
			Dodecane, 4-methyl-	16216	006117-97-1	50
27	23.94	0.64	C:\DATABASE\NBS54K.L			
			Eicosane, 2-methyl-	35844	001560-84-5	95
			Heptadecane, 2-methyl-	29561	001560-89-0	87
			Hexadecane, 2-methyl-	27203	001560-92-5	86
28	24.01	1.89	C:\DATABASE\NBS54K.L			
			Nonadecane, 3-methyl-	33848	006418-45-7	95
			Heptadecane, 3-methyl-	29558	006418-44-6	90
			Pentatriacontane	50625	000630-07-9	87
29	24.2	0.36	C:\DATABASE\NBS54K.L			
			Tetradecane, 4-methyl-	22040	025117-24-2	52
			Methyl 2,3-di-O-acetyl-4,6-di-O-me	37087	053919-56-5	47
			Dodecane, 2,6,11-trimethyl-	22041	031295-56-4	47

30	24.28	5.83	C:\DATABASE\NBS54K.L			
			Nonacosane	46739	000630-03-5	91
			Eicosane	33850	000112-95-8	91
			Hexadecane	24818	000544-76-3	91
31	24.53	0.53	C:\DATABASE\NBS54K.L			
			Bacchotricuneatin c	41250	066563-30-2	87
			Heptadecane, 2,6-dimethyl-	31816	054105-67-8	83
			Hexadecane, 2,6,10-trimethyl-	31822	055000-52-7	72
32	24.62	1.19	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	93
			Pentatriacontane	50625	000630-07-9	87
			Eicosane, 9-octyl-	45767	013475-77-9	87
33	24.79	0.6	C:\DATABASE\NBS54K.L			
			Tetradecane, 4,11-dimethyl-	24802	055045-12-0	86
			Docosane	37669	000629-97-0	86
			Hexadecane, 4-methyl-	27202	025117-26-4	74
34	24.86	1.09	C:\DATABASE\NBS54K.L			
			Tetracosane, 9-octyl-	49084	055401-54-2	87
			Docosane, 2,21-dimethyl-	40892	077536-31-3	76
			Nonacosane	46739	000630-03-5	74
35	24.93	1.57	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	86
			Docosane	37669	000629-97-0	86
			Eicosane, 7-hexyl-	43594	055333-99-8	80
36	25.02	0.7	C:\DATABASE\NBS54K.L			
			Cyclohexane, undecyl-	26851	054105-66-7	64
			Cyclohexane, 1,1'-(1,2-ethanediyl)	18219	003321-50-4	59
			Cyclohexane, 1,1'-(1,3-propanediyl	21212	003178-24-3	53
37	25.19	4.42	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	99
			Tritetracontane	52649	007098-21-7	91
			Octacosane	45764	000630-02-4	91
38	25.46	0.9	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	90
			Docosane	37669	000629-97-0	87
			Hexacosane	43605	000630-01-3	86
39	25.5	1.42	C:\DATABASE\NBS54K.L			
			Decanedioic acid, didecyl ester	50295	002432-89-5	72
			Undecane, 4-ethyl-	16213	017312-59-3	59
			Decane, 2,3,7-trimethyl-	16239	062238-13-5	53

40	25.62	0.52	C:\DATABASE\NBS54K.L			
			Tricosane, 2-methyl-	40894	001928-30-9	86
			Docosane	37669	000629-97-0	83
			Ethanol, 2-(dodecyloxy)-	25444	004536-30-5	72
41	25.68	0.92	C:\DATABASE\NBS54K.L			
			Heptadecane, 4-methyl-	29566	026429-11-8	87
			Nonadecane, 4-methyl-	33854	025117-27-5	86
			Tetradecane, 4-methyl-	22040	025117-24-2	81
42	25.73	0.87	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	90
			Docosane, 2,21-dimethyl-	40892	077536-31-3	90
			Heptadecane, 3-methyl-	29558	006418-44-6	87
43	25.81	0.87	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	93
			Tricosane, 2-methyl-	40894	001928-30-9	83
			Tetracosane, 11-decyl-	50196	055429-84-0	74
44	25.86	0.62	C:\DATABASE\NBS54K.L			
			11-Tricosene	39087	052078-56-5	50
			5-Octadecene, (E)-	29226	007206-21-5	38
			Cyclopentane, butyl-	4090	002040-95-1	38
45	25.94	0.95	C:\DATABASE\NBS54K.L			
			Cyclohexane, 1,1'-(1,4-butanediyl)	23970	006165-44-2	72
			Cyclohexane, 1,1'-(1,3-propanediyl	21212	003178-24-3	72
			Cyclohexane, 1,1'-(1-methyl-1,2-et	21229	041851-34-7	64
46	26.05	3.18	C:\DATABASE\NBS54K.L			
			Tridecane, 6-propyl-	24817	055045-10-8	93
			Hexadecane	24818	000544-76-3	91
			Pentatriacontane	50625	000630-07-9	91
47	26.13	0.42	C:\DATABASE\NBS54K.L			
			2,6,10-TRIDECANETRIONE	24687	000000-00-0	50
			Octadecane, 1-(ethenyloxy)-	35836	000930-02-9	49
			2,6,10,14-Pentadecanetetrone	31710	036452-83-2	41
48	26.34	3.1	C:\DATABASE\NBS54K.L			
			Bacchotricuneatin c	41250	066563-30-2	96
			Tetradecane, 2-methyl-	22045	001560-95-8	91
			Tridecane, 1-iodo-	37542	035599-77-0	83
49	26.42	1.56	C:\DATABASE\NBS54K.L			
			Benzyl butyl phthalate	37844	000085-68-7	76
			Cyclopropanenonanoic acid, 2-[(2-b	39079	010152-69-9	49
			Bis(2-chlorocyclohexyl) S,S-dithio	39380	105214-29-7	42

50	26.52	0.29	C:\DATABASE\NBS54K.L			
			Undecane, 4-methyl-	13148	002980-69-0	68
			Octadecane, 4-methyl-	31813	010544-95-3	64
			Tridecane, 4-methyl-	19148	026730-12-1	64
51	26.65	0.37	C:\DATABASE\NBS54K.L			
			Tridecane, 3-methyl-	19151	006418-41-3	50
			Heneicosane, 11-decyl-	48376	055320-06-4	43
			Hexane, 3-methyl-	1442	000589-34-4	38
52	26.72	0.74	C:\DATABASE\NBS54K.L			
			Cyclopentane, heneicosyl-	43430	006703-82-8	68
			5-Octadecene, (E)-	29226	007206-21-5	41
			Decane 3-cyclohexyl-, 3-cyclohexyl	24417	013151-74-1	30
53	26.8	0.72	C:\DATABASE\NBS54K.L			
			Cyclohexane, undecyl-	26851	054105-66-7	62
			Undecane 2-cyclohexyl-, 2-cyclohex	26846	013151-77-4	58
			Cyclohexane, eicosyl-	43423	004443-55-4	53
54	26.88	2.06	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	94
			Pentadecane, 3-methyl-	24809	002882-96-4	93
			Tricosane, 2-methyl-	40894	001928-30-9	93
55	26.99	0.7	C:\DATABASE\NBS54K.L			
			Hexadecane, 4-methyl-	27202	025117-26-4	53
			Undecane, 4,8-dimethyl-	16217	017301-33-6	47
			Undecane, 2,8-dimethyl-	16182	017301-25-6	47
56	27.16	3.27	C:\DATABASE\NBS54K.L			
			1-Iodo-2-methylundecane	35665	073105-67-6	87
			Tridecane, 1-iodo-	37542	035599-77-0	81
			Dodecane, 1-iodo-	35666	004292-19-7	80
57	27.28	0.3	C:\DATABASE\NBS54K.L			
			7-Oxabicyclo[4.1.0]heptane, 3-meth	2352	036099-51-1	43
			MYO-INOSITOL TRI-METHANEBORONA	29027	000000-00-0	35
			1,3-Cyclohexanediamine	2641	003385-21-5	27
58	27.34	0.7	C:\DATABASE\NBS54K.L			
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	64
			Octadecane, 5,14-dibutyl-	43599	055282-13-8	64
			Heptadecane, 2,3-dimethyl-	31811	061868-03-9	64
59	27.63	2.26	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	53
			Octadecane, 3-methyl-	31817	006561-44-0	50
			Tetracosane, 11-decyl-	50196	055429-84-0	49

60	27.94	2.03	C:\DATABASE\NBS54K.L			
			Heptadecane, 3-methyl-	29558	006418-44-6	91
			Tetracosane, 11-decyl-	50196	055429-84-0	86
			Heptadecane, 9-hexyl-	39301	055124-79-3	80
61	28.75	2.81	C:\DATABASE\NBS54K.L			
			Tricosane, 2-methyl-	40894	001928-30-9	93
			Docosane, 2,21-dimethyl-	40892	077536-31-3	93
			Tridecane, 6-propyl-	24817	055045-10-8	91
62	28.91	2.13	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	87
			Octadecane, 4-methyl-	31813	010544-95-3	83
			Hexacosane	43605	000630-01-3	83
63	29.67	5.57	C:\DATABASE\NBS54K.L			
			Tetracosane, 11-decyl-	50196	055429-84-0	87
			Undecane, 2-methyl-	13150	007045-71-8	87
			Pentatriacontane	50625	000630-07-9	83
64	30.78	3.94	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	89
			Heptadecane	27201	000629-78-7	87
			Pentatriacontane	50625	000630-07-9	72
65	32.15	2.69	C:\DATABASE\NBS54K.L			
			Tetracosane, 11-decyl-	50196	055429-84-0	58
			Pentadecane	22044	000629-62-9	55
			Pentatriacontane	50625	000630-07-9	53
66	33.74	0.83	C:\DATABASE\NBS54K.L			
			Docosane, 7-butyl-	43601	055282-15-0	47
			Tricosane, 2-methyl-	40894	001928-30-9	41
			Pentadecane, 2-methyl-	24808	001560-93-6	38
67	34.06	1.29	C:\DATABASE\NBS54K.L			
			1,1,3,3-Tetramethyl-1,3-disilainda	20632	054113-93-8	59
			Isoquinoline, 1,2,3,4-tetrahydro-7	33950	036646-87-4	38
			Phenanthrene, 9-dodecyltetradecahy	43051	055334-01-5	35
68	35.08	0.67	C:\DATABASE\NBS54K.L			
			Docosane, 7-hexyl-	45765	055373-86-9	83
			Heneicosane, 11-decyl-	48376	055320-06-4	83
			Hexatriacontane	50978	000630-06-8	83
69	36.19	1.11	C:\DATABASE\NBS54K.L			
			Tridecane, 2-methyl-	19147	001560-96-9	52
			Hexadecane, 2-methyl-	27203	001560-92-5	49
			Octadecane, 2-methyl-	31812	001560-88-9	47

70	37.15	0.8	C:\DATABASE\NBS54K.L			
			Nonadecane	31819	000629-92-5	49
			Tetradecane, 4-ethyl-	24805	055045-14-2	46
			Undecane, 2,7-dimethyl-	16250	017301-24-5	43

Library Search of SPE MeOH Fraction of Diesel Particulate Emission from Fuel 2.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	13.59	1.24	C:\DATABASE\NBS54K.L			
			3,6,9,12-Tetraoxahexadecan-1-ol	28745	001559-34-8	64
			1-Propanol, 2-ethoxy-	1726	019089-47-5	64
			.beta.-D-Erythro-Hexopyranoside, 2	39229	077880-37-6	58
2	13.69	0.48	C:\DATABASE\NBS54K.L			
			Urea, (2,3,4,5-tetrachloro-6-metho	36515	018355-14-1	91
			1-Propanesulfinic acid, 2-methyl-,	5554	056909-12-7	27
			1-Butanesulfinic acid, methyl este	5553	000673-80-3	27
3	14.19	2.84	C:\DATABASE\NBS54K.L			
			2-Propenoic acid, 6-methylheptyl e	16083	054774-91-3	64
			Cyclopentane, 1,2,3-trimethyl-, (1	2425	002613-69-6	53
			Cyclopentane, 1,2,4-trimethyl-, (1	2378	016883-48-0	49
4	15.39	0.91	C:\DATABASE\NBS54K.L			
			Benzaldehyde, 3-hydroxy-	3466	000100-83-4	43
			Iron, dicarbonyl(.eta.5-2,4-cyclop	24155	012080-10-3	38
			3-Pyridinecarboxylic acid, 5-ethen	39558	022667-62-5	25
5	16.13	0.75	C:\DATABASE\NBS54K.L			
			Benzaldehyde, 4-hydroxy-	3465	000123-08-0	87
			Benzaldehyde, 2-nitro-	8590	000552-89-6	40
			Isocrotonic acid	615	000503-64-0	25
6	16.26	0.68	C:\DATABASE\NBS54K.L			
			Cyclopropane, pentyl-	2382	002511-91-3	27
			Cyclopentane, 2-ethyl-1,1-dimethyl	4081	054549-80-3	25
			Nonane, 2,8-dimethyl-4-methylene-	12615	007323-15-1	25
7	16.61	0.55	C:\DATABASE\NBS54K.L			
			Pyrazine, 1H-tetrazol-5-yl-	7933	016289-54-6	90
			Acetic acid, mercapto-, methyl est	1785	002365-48-2	90
			Benzaldehyde, 2-methoxy-	5624	000135-02-4	90
8	16.73	1.28	C:\DATABASE\NBS54K.L			
			N1,N4-Diacetyl sulphanilamide	29718	005626-90-4	40
			Ethanone, 1-(4,5-diethyl-2-methyl-	15264	062338-24-3	25
			(3E,5E,7E)-6-Methyl-8-(2,6,6-trime	30228	017974-57-1	9
9	17.58	1.04	C:\DATABASE\NBS54K.L			
			1-Dodecene	12625	000112-41-4	91
			Cyclododecane	12689	000294-62-2	64
			.beta.-Chlordene	40568	056534-03-3	56
10	18.05	0.65	C:\DATABASE\NBS54K.L			
			1H-Pyrido[2,3-b]indole, 2,3,4,9-te	22388	055030-51-8	47
			1H-Pyrido[3,4-b]indole, 2,3,4,9-te	22387	006650-04-0	46
			2,2-Dimethyl-5-phenyl-2H-pyrrole	13293	053675-97-1	32

11	18.23	0.62	C:\DATABASE\NBS54K.L			
			2-Naphthalenol	7398	000135-19-3	52
			Furan, 3-phenyl-	7400	013679-41-9	49
			4-METHYLCINNOLINE	7323	000000-00-0	40
12	18.32	0.5	C:\DATABASE\NBS54K.L			
			Benzenamine, 4-(2H-tetrazol-2-yl)-	10860	052708-35-7	90
			Thiophene, tetrahydro-, 1-oxide	1682	001600-44-8	90
			2,4-Heptadienoic acid, 6-methyl-,	12512	010236-06-3	90
13	18.6	1.69	C:\DATABASE\NBS54K.L			
			Glycine, N-methyl-N-(1-oxododecyl)	32198	000097-78-9	58
			Undecanoic acid	16599	000112-37-8	40
			Tridecanoic acid	22337	000638-53-9	40
14	18.81	0.72	C:\DATABASE\NBS54K.L			
			1-Undecene	9539	000821-95-4	50
			Cyclododecane	12689	000294-62-2	49
			1-Undecanethiol	16955	005332-52-5	43
15	18.97	2.05	C:\DATABASE\NBS54K.L			
			Cyclopropanenonanoic acid, 2-[(2-b	39079	010152-69-9	83
			Diethyl phthalate	23791	000084-66-2	46
			1,2-Benzenedicarboxylic acid, buty	40431	000085-69-8	43
16	19.11	1.54	C:\DATABASE\NBS54K.L			
			Octadecane, 3-methyl-	31817	006561-44-0	90
			Heptadecane, 2-methyl-	29561	001560-89-0	81
			Tetratetracontane	52799	007098-22-8	80
17	19.27	1.16	C:\DATABASE\NBS54K.L			
			Cyclohexanecarboxylic acid, 2-hydr	21480	024372-06-3	35
			2-Propenal, 2-(diethylamino)-3-(di	12982	049582-61-8	27
			1,13-Tridecanediol, diacetate	36334	042236-70-4	25
18	19.65	2.12	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	49
			Docosane, 7-hexyl-	45765	055373-86-9	43
			Tetracosane, 11-decyl-	50196	055429-84-0	38
19	19.99	1.17	C:\DATABASE\NBS54K.L			
			1-Tridecene	15758	002437-56-1	70
			1-Hexadecene	24413	000629-73-2	62
			7-Hexadecene, (Z)-	24410	035507-09-6	50
20	20.16	0.53	C:\DATABASE\NBS54K.L			
			Naphthalene, 1-(1,1-dimethylethyl)	16269	017085-91-5	50
			Acetamide, N-[1,1'-biphenyl]-4-yl-	21722	004075-79-0	35
			2-Allylhexahydro-2H-azepine-2-thio	12793	001558-76-5	35
21	20.21	0.62	C:\DATABASE\NBS54K.L			
			2-Phenazinol	18576	004190-95-8	18
			1,3-Benzodioxole-5-carboxylic acid	18448	007168-93-6	14
			Benzaldehyde, 2,4,5-trimethoxy-	18487	004460-86-0	11

22	20.25	2.53	C:\DATABASE\NBS54K.L			
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	90
			Decane, 3,6-dimethyl-	13142	017312-53-7	80
			Undecane, 3-methyl-	13155	001002-43-3	72
23	20.29	1.78	C:\DATABASE\NBS54K.L			
			Hexadecane, 2,6,10-trimethyl-	31822	055000-52-7	50
			Decane, 3,3,8-trimethyl-	16224	062338-16-3	47
			Butyric acid, thio-, S-hexyl ester	16903	002432-54-4	46
24	20.43	1.68	C:\DATABASE\NBS54K.L			
			9H-Fluorene, 4-methyl-	15290	001556-99-6	45
			Benzenethiol, 4-(1,1-dimethylethyl	15187	015570-10-2	38
			9H-Fluorene, 9-methyl-	15302	002523-37-7	35
25	20.7	1.26	C:\DATABASE\NBS54K.L			
			Phenol, 4-(2-phenylethenyl)-, (E)-	18676	006554-98-9	25
			Azulene, 7-ethyl-1,4-dimethyl-	16266	000529-05-5	18
			4H-Pyrrolo[1,2-b]pyrazole, 5,6-dih	16124	010183-74-1	11
26	20.8	1.02	C:\DATABASE\NBS54K.L			
			1,3-Benzenedicarboxylic acid, 5-me	15043	000499-49-0	27
			9H-Fluoren-9-one	15273	000486-25-9	27
			1,1'-Biphenyl, 4-ethenyl-	15292	002350-89-2	16
27	20.87	1.15	C:\DATABASE\NBS54K.L			
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	14
			Dodecanoic acid	19481	000143-07-7	14
			Tridecanoic acid	22337	000638-53-9	14
28	20.94	1.1	C:\DATABASE\NBS54K.L			
			Benzenamine, ar-(phenylmethyl)-	15883	027985-90-6	38
			Benzoselenazole	15801	000273-91-6	35
			1-Dibenzofuranamine	15870	050548-40-8	27
29	21.3	2.34	C:\DATABASE\NBS54K.L			
			9H-Fluorene, 9-methylene-	14817	004425-82-5	90
			Anthracene	14816	000120-12-7	83
			Phenanthrene	14815	000085-01-8	70
30	21.34	4.31	C:\DATABASE\NBS54K.L			
			Nonadecane	31819	000629-92-5	93
			Octadecane	29560	000593-45-3	93
			Heptadecane, 2-methyl-	29561	001560-89-0	87
31	21.4	2.7	C:\DATABASE\NBS54K.L			
			Pentadecane, 2,6,10,14-tetramethyl	31820	001921-70-6	83
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	78
			Hexacosane	43605	000630-01-3	64
32	21.52	0.59	C:\DATABASE\NBS54K.L			
			Sulfuric acid, dimethyl ester	3858	000077-78-1	17
			Formamide, N-(3-methyl-5-isoxazoly	3888	053907-67-8	12
			1-Dodecen-1-ol, acetate	24743	056438-08-5	11

33	21.76	1.48	C:\DATABASE\NBS54K.L			
			Naphtho[1,2-b]furan, 2,3-dihydro-2	21616	077630-44-5	47
			Naphtho[1,2-b]furan, 2,3-dihydro-2	21608	055702-38-0	47
			1,1'-Biphenyl, 3,4-diethyl-	21631	061141-66-0	35
34	22.37	4.47	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	94
			Pentadecane	22044	000629-62-9	93
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	80
35	22.47	1.88	C:\DATABASE\NBS54K.L			
			Phenanthrene, 4-methyl-	17768	000832-64-4	86
			Phenanthrene, 3-methyl-	17772	000832-71-3	76
			Phenanthrene, 1-methyl-	17771	000832-69-9	76
36	22.54	6.53	C:\DATABASE\NBS54K.L			
			Benzo[c]cinnoline	15199	000230-17-1	70
			1H-Phenalen-1-one	15272	000548-39-0	50
			9H-Fluoren-9-one	15273	000486-25-9	38
37	22.7	0.85	C:\DATABASE\NBS54K.L			
			Anthracene, 2-methyl-	17763	000613-12-7	83
			Phenanthrene, 9-methyl-	17762	000883-20-5	80
			Phenanthrene, 3-methyl-	17772	000832-71-3	72
38	22.76	1.11	C:\DATABASE\NBS54K.L			
			Phenanthrene, 4-methyl-	17768	000832-64-4	49
			Anthracene, 2-methyl-	17763	000613-12-7	49
			Anthracene, 1-methyl-	17770	000610-48-0	49
39	22.93	2	C:\DATABASE\NBS54K.L			
			Hexadecanoic acid	29876	000057-10-3	47
			Benzothiazole, 2-methyl-	8190	000120-75-2	22
			Dodecanoic acid, silver(1+) salt	37246	018268-45-6	14
40	23.35	5.95	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	96
			Eicosane	33850	000112-95-8	93
			1-IODO-2-METHYLNONANE	31632	000000-00-0	91
41	23.56	1.37	C:\DATABASE\NBS54K.L			
			2H-Pyran-2-one, 6-[4,4-bis(methylt	26636	054932-70-6	35
			Phenanthrene, 9,10-dimethyl-	20792	000604-83-1	14
			Isothiazole, 3,5-bis(methylthio)-4	20495	037589-39-2	14
42	23.62	1.64	C:\DATABASE\NBS54K.L			
			Phenanthrene, 3,6-dimethyl-	20796	001576-67-6	87
			Phenanthrene, 2,5-dimethyl-	20782	003674-66-6	76
			Phenanthrene, 2,7-dimethyl-	20797	001576-69-8	74
43	23.8	1.55	C:\DATABASE\NBS54K.L			
			Phenanthrene, 3,6-dimethyl-	20796	001576-67-6	83
			9,10-Dimethylanthracene	20786	000781-43-1	81
			Phenanthrene, 2,5-dimethyl-	20782	003674-66-6	68

44	24.1	0.9	C:\DATABASE\NBS54K.L			
			Benzene, 1,1'-(1,3-butadiyne-1,4-d	19912	000886-66-8	53
			Pyrimidine, 4-methoxy-6-(2-hydroxy	19786	097630-79-0	47
			Pyrene	19913	000129-00-0	43
45	24.15	3.55	C:\DATABASE\NBS54K.L			
			9-Eicosene, (E)-	33551	074685-29-3	95
			3-Eicosene, (E)-	33553	074685-33-9	95
			Cyclopentane, 1-pentyl-2-propyl-	15762	062199-51-3	91
46	24.29	2.17	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	96
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	89
			Eicosane	33850	000112-95-8	87
47	24.61	3.71	C:\DATABASE\NBS54K.L			
			Fluoranthene	19911	000206-44-0	93
			Pyrene	19913	000129-00-0	64
			Anthracene, 9-(2-nitroethenyl)-	28624	058349-77-2	42
48	24.81	1.44	C:\DATABASE\NBS54K.L			
			Phenanthrene, 2,3,5-trimethyl-	23526	003674-73-5	90
			l-Phenylalanine, N-(trifluoroacety	40247	052558-84-6	40
			1,4-Diphenylpyrazole	23451	015132-01-1	38
49	25.05	1.3	C:\DATABASE\NBS54K.L			
			N-NITROSO-2-ISOPROPYL-4,4-DIMET	13387	000000-00-0	32
			Cyclohexaneacetic acid, butyl este	19043	027948-12-5	16
			Decane, 4-methylene-	9531	024949-41-5	12
50	25.19	2.27	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	89
			Eicosane	33850	000112-95-8	70
			Heptadecane	27201	000629-78-7	70
51	25.67	0.72	C:\DATABASE\NBS54K.L			
			2,2-Dichloro-1-oxa-2-sila-1,2-dihy	22536	064749-19-5	52
			11H-Benzo[b]fluorene	22747	000243-17-4	47
			Pyrene, 1-methyl-	22746	002381-21-7	47
52	26.05	0.99	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	50
			Hydroxylamine, O-decyl-	13654	029812-79-1	46
			Octane, 2-methyl-	4506	003221-61-2	45
53	27.92	9.18	C:\DATABASE\NBS54K.L			
			1,2-Benzenedicarboxylic acid, 3-ni	21644	000603-11-2	90
			Bis(2-ethylhexyl) phthalate	45466	000117-81-7	90
			1,2-Benzenedicarboxylic acid, diis	45472	027554-26-3	86
54	29.63	1.36	C:\DATABASE\NBS54K.L			
			Cyclopropanenonanoic acid, 2-[(2-b	39079	010152-69-9	59
			Phenol, 2-methyl-4-(1,1,3,3-tetram	23477	002219-84-3	59
			1,2-Benzenedicarboxylic acid, buty	40421	000084-78-6	53

Library Search of SPE ACN:MeOH Fraction of Diesel Particulate Emission from Fuel 2.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	18.96	0.6	C:\DATABASE\NBS54K.L			
			Tetracosane, 9-octyl-	49084	055401-54-2	10
			Aziridine, 2,2-dimethyl-	241	002658-24-4	9
			Acetamide, N-(4-chlorophenyl)-	12753	000539-03-7	9
2	19.09	2	C:\DATABASE\NBS54K.L			
			Bacchotricuneatin c	41250	066563-30-2	98
			Hexadecane	24818	000544-76-3	91
			Nonadecane	31819	000629-92-5	90
3	19.63	3.02	C:\DATABASE\NBS54K.L			
			Hexadecane, 3-methyl-	27200	006418-43-5	86
			Docosane, 2,21-dimethyl-	40892	077536-31-3	74
			1-Iodo-2-methylundecane	35665	073105-67-6	72
4	19.82	0.63	C:\DATABASE\NBS54K.L			
			Octane	2741	000111-65-9	50
			Undecane, 2,4-dimethyl-	16190	017312-80-0	50
			Decane, 3-bromo-	23314	030571-71-2	42
5	19.9	0.84	C:\DATABASE\NBS54K.L			
			Pentadecane	22044	000629-62-9	46
			Docosane	37669	000629-97-0	35
			Docosane, 11-decyl-	49085	055401-55-3	35
6	20.23	7.73	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	96
			Eicosane	33850	000112-95-8	90
			Octacosane	45764	000630-02-4	87
7	20.27	5.15	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6-dimethyl-	31816	054105-67-8	83
			Hexadecane, 2,6,11,15-tetramethyl-	33855	000504-44-9	72
			Dodecane, 2-methyl-8-propyl-	24812	055045-07-3	59
8	20.32	0.72	C:\DATABASE\NBS54K.L			
			Butane, 1-(methylsulfinyl)-	3293	002976-98-9	10
			1-Butanol, 4-chloro-, carbonate (2	27361	055044-83-2	9
			Phenol, 2,6-dinitro-4-(trifluorome	29009	000393-77-1	9
9	20.6	0.69	C:\DATABASE\NBS54K.L			
			7-Hexadecene, (Z)-	24410	035507-09-6	38
			Cyclopropane, 1-hexyl-2-propyl-, c	12677	074630-58-3	38
			4-Dodecene	12706	002030-84-4	38

10	20.7	1.32	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	91
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	90
			Eicosane, 2-methyl-	35844	001560-84-5	87
11	20.78	1.28	C:\DATABASE\NBS54K.L			
			Heptacosane	44714	000593-49-7	83
			Tritetracontane	52649	007098-21-7	80
			Hexatriacontane	50978	000630-06-8	80
12	20.92	1.32	C:\DATABASE\NBS54K.L			
			Heptadecane, 2-methyl-	29561	001560-89-0	91
			Pentadecane, 2-methyl-	24808	001560-93-6	87
			Tricosane, 2-methyl-	40894	001928-30-9	80
13	21.01	0.83	C:\DATABASE\NBS54K.L			
			Hexadecane	24818	000544-76-3	55
			Pentadecane, 8-hexyl-	35849	013475-75-7	50
			Decane	6985	000124-18-5	49
14	21.32	10.96	C:\DATABASE\NBS54K.L			
			Octadecane	29560	000593-45-3	95
			Dodecane, 5,8-diethyl-	24814	024251-86-3	91
			Tridecane, 6-propyl-	24817	055045-10-8	91
15	21.39	6.92	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	92
			Hexadecane, 4-methyl-	27202	025117-26-4	91
			Eicosane, 10-methyl-	35847	054833-23-7	90
16	21.65	0.98	C:\DATABASE\NBS54K.L			
			Nonadecane, 3-methyl-	33848	006418-45-7	70
			Tricosane, 2-methyl-	40894	001928-30-9	64
			Tetradecane, 2-methyl-	22045	001560-95-8	50
17	21.75	2.31	C:\DATABASE\NBS54K.L			
			Hexadecane	24818	000544-76-3	86
			Undecane	9979	001120-21-4	55
			Pentadecane, 2-methyl-	24808	001560-93-6	50
18	21.9	1.07	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	55
			Tetratriacontane	50193	014167-59-0	53
			Docosane, 9-octyl-	47578	055319-83-0	52
19	21.99	1.18	C:\DATABASE\NBS54K.L			
			Cyclopentane, undecyl-	24411	006785-23-5	74
			Cyclopentane, decyl-	21621	001795-21-7	47
			Cyclopentane, heneicosyl-	43430	006703-82-8	38

20	22.05	1.49	C:\DATABASE\NBS54K.L			
			Octadecane, 3-methyl-	31817	006561-44-0	45
			Cyclohexane, 1,1'-(1,5-pentanediyl	26454	054833-31-7	38
			Cyclohexane, undecyl-	26851	054105-66-7	35
21	22.24	2.75	C:\DATABASE\NBS54K.L			
			Tricosane, 2-methyl-	40894	001928-30-9	94
			Tetradecane, 2-methyl-	22045	001560-95-8	90
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	87
22	22.35	11.28	C:\DATABASE\NBS54K.L			
			Pentadecane, 8-hexyl-	35849	013475-75-7	93
			Tridecane, 6-propyl-	24817	055045-10-8	93
			1-Iodo-2-methylundecane	35665	073105-67-6	93
23	22.74	0.66	C:\DATABASE\NBS54K.L			
			1-Heptanol, 2-propyl-	10367	010042-59-8	38
			Pentadecane, 6-methyl-	24806	010105-38-1	38
			Docosane, 7-butyl-	43601	055282-15-0	38
24	22.91	0.6	C:\DATABASE\NBS54K.L			
			Pentadecane, 4-methyl-	24813	002801-87-8	45
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	42
			Octadecane, 3-methyl-	31817	006561-44-0	42
25	23.25	1.18	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	47
			1-Octanol, 2,2-dimethyl-	10357	002370-14-1	43
			Hexanal, 4,4-dimethyl-	4448	005932-91-2	43
26	23.34	8.11	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	96
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
			Heptadecane	27201	000629-78-7	91
27	23.7	0.72	C:\DATABASE\NBS54K.L			
			1,3,5-Triazine-2,4-diamine, 6-chlo	7416	003397-62-4	35
			Pentane, 1,2-dichloro-	6285	001674-33-5	16
			Cyclohexanol, 2-methyl-	2714	000583-59-5	11
28	23.93	0.89	C:\DATABASE\NBS54K.L			
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	47
			Hexacosane	43605	000630-01-3	47
			Undecane, 2,8-dimethyl-	16182	017301-25-6	47
29	24.01	2.32	C:\DATABASE\NBS54K.L			
			Heptacosane	44714	000593-49-7	72
			Tetratetracontane	52799	007098-22-8	59
			Tetracosane, 11-decyl-	50196	055429-84-0	59

30	24.27	5.6	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	97
			Heptadecane	27201	000629-78-7	93
			Tridecane, 6-propyl-	24817	055045-10-8	93
31	24.5	0.73	C:\DATABASE\NBS54K.L			
			Trichothec-9-en-4-ol, 7,8:12,13-di	40151	021284-11-7	25
			Tetradecanoic acid, 12-methyl-, me	29887	005129-66-8	25
			Tetradecanoic acid, methyl ester	27500	000124-10-7	25
32	24.62	1.02	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	49
			Octacosane	45764	000630-02-4	49
			Diisoamylene	6586	054063-09-1	46
33	24.85	0.8	C:\DATABASE\NBS54K.L			
			Tetradecane, 2,6,10-trimethyl-	27205	014905-56-7	10
			Acetoacetic acid, 1-thio-, S-allyl	10161	015780-65-1	9
			2-Propen-1-amine	88	000107-11-9	7
34	24.94	1.17	C:\DATABASE\NBS54K.L			
			7-Hexadecene, (Z)-	24410	035507-09-6	25
			1,2-Oxathiane, 6-dodecyl-, 2,2-dio	36891	015224-88-1	15
			Cyclohexanone, 2-methyl-, oxime	4205	001122-26-5	10
35	25.04	2.41	C:\DATABASE\NBS54K.L			
			Oxirane, 2,3-bis(1-methylethyl)-,	4444	054644-32-5	38
			1-Hexene, 5-methyl-	1214	003524-73-0	27
			2H-1,3-Benzoxazine, 3-cyclohexyl-3	22854	006638-11-5	27
36	25.17	2.87	C:\DATABASE\NBS54K.L			
			Pentadecane, 8-hexyl-	35849	013475-75-7	86
			Eicosane	33850	000112-95-8	83
			Hexacosane	43605	000630-01-3	83
37	25.48	1.5	C:\DATABASE\NBS54K.L			
			Nonane, 2,6-dimethyl-	9967	017302-28-2	10
			3,4-Hexanedione, 2,2,5-trimethyl-	9862	020633-03-8	10
			3-Hexanone, 2,2-dimethyl-	4445	005405-79-8	10
38	26.03	1.21	C:\DATABASE\NBS54K.L			
			Tetradecane, 3-methyl-	22047	018435-22-8	74
			Pentadecane	22044	000629-62-9	70
			Hexadecane	24818	000544-76-3	64
39	26.33	0.9	C:\DATABASE\NBS54K.L			
			Dotriacontane	49086	000544-85-4	72
			Docosane	37669	000629-97-0	64
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	60

40	26.75	0.66	C:\DATABASE\NBS54K.L			
			Octadecanoic acid, butyl ester	41094	000123-95-5	94
			Cyclopropane, 1-(1-methylethyl)-2-	21618	041977-39-3	38
			Cyclohexaneacetic acid, butyl este	19043	027948-12-5	32
41	27.9	1.59	C:\DATABASE\NBS54K.L			
			Bis(2-ethylhexyl) phthalate	45466	000117-81-7	72
			1,2-Benzenedicarboxylic acid, 3-ni	21644	000603-11-2	56
			1,2-Benzenedicarboxylic acid, diis	48929	026761-40-0	53

Library Search of SPE ACN Fraction of Diesel Particulate Emission from Fuel 2.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	19.09	1.04	C:\DATABASE\NBS54K.L			
			Pentacosane	42284	000629-99-2	72
			Nonacosane	46739	000630-03-5	72
			Tridecane, 4,8-dimethyl-	22043	055030-62-1	68
2	19.62	2.26	C:\DATABASE\NBS54K.L			
			Undecane, 3,6-dimethyl-	16191	017301-28-9	74
			Butane, 2-iodo-2-methyl-	18833	000594-38-7	72
			Tetradecane, 6,9-dimethyl-	24804	055045-13-1	70
3	19.74	0.56	C:\DATABASE\NBS54K.L			
			Docosane, 9-butyl-	43600	055282-14-9	14
			Dodecane, 1-(ethylthio)-	25447	002851-83-4	11
			Docosane, 9-octyl-	47578	055319-83-0	10
4	19.82	0.63	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	70
			Oxirane, 2-methyl-3-propyl-, cis-	1386	006124-90-9	49
			Tetracosane	40896	000646-31-1	47
5	19.9	0.72	C:\DATABASE\NBS54K.L			
			Acetamide, N-(4-chlorophenyl)-	12753	000539-03-7	27
			Benzoic acid, 3-amino-2,5-dichloro	23134	007286-84-2	11
			Pentadecane, 6-methyl-	24806	010105-38-1	10
6	20.23	6.72	C:\DATABASE\NBS54K.L			
			Bacchotricuneatin c	41250	066563-30-2	92
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	90
			Hexadecane, 2-methyl-	27203	001560-92-5	81
7	20.26	3.84	C:\DATABASE\NBS54K.L			
			Hexadecane, 2,6,10-trimethyl-	31822	055000-52-7	72
			Octane, 1,1'-oxybis-	27521	000629-82-3	70
			Nonane, 3-methyl-	6983	005911-04-6	60
8	20.59	0.66	C:\DATABASE\NBS54K.L			
			Cyclopentane, 1-(2-decyldodecyl)-2	46645	055429-26-0	9
			Acetoacetic acid, 1-thio-, S-allyl	10161	015780-65-1	9
			Aziridine, 2,2-dimethyl-	241	002658-24-4	7
9	20.69	1.79	C:\DATABASE\NBS54K.L			
			Undecane, 3,5-dimethyl-	16194	017312-81-1	47
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	46
			Cyclopentanol, 3-methyl-	1364	018729-48-1	46

10	20.77	1.25	C:\DATABASE\NBS54K.L			
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	89
			Decane	6985	000124-18-5	68
			Tridecane, 4,8-dimethyl-	22043	055030-62-1	64
11	20.85	0.65	C:\DATABASE\NBS54K.L			
			Undecane, 4-methyl-	13148	002980-69-0	43
			Pentane, 2,3,3-trimethyl-	2745	000560-21-4	43
			Hexane, 3,3-dimethyl-	2752	000563-16-6	43
12	20.92	2.11	C:\DATABASE\NBS54K.L			
			Heptadecane, 2-methyl-	29561	001560-89-0	95
			Docosane	37669	000629-97-0	53
			Docosane, 11-butyl-	43595	013475-76-8	53
13	21	0.67	C:\DATABASE\NBS54K.L			
			Heptadecane, 3-methyl-	29558	006418-44-6	58
			Pentadecane, 3-methyl-	24809	002882-96-4	55
			Tetracontane, 3,5,24-trimethyl-	52650	055162-61-3	43
14	21.31	11.52	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
			Octadecane	29560	000593-45-3	91
			Heptadecane	27201	000629-78-7	87
15	21.38	7.35	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	91
			Docosane, 2,21-dimethyl-	40892	077536-31-3	90
			Nonane, 3,7-dimethyl-	9970	017302-32-8	81
16	21.65	0.87	C:\DATABASE\NBS54K.L			
			Dodecane	13141	000112-40-3	64
			Tetradecane, 2-methyl-	22045	001560-95-8	64
			Undecane, 3,5-dimethyl-	16194	017312-81-1	55
17	21.75	2.52	C:\DATABASE\NBS54K.L			
			Hexadecane	24818	000544-76-3	55
			Octane, 2,7-dimethyl-	6986	001072-16-8	50
			Octacosane	45764	000630-02-4	47
18	21.83	0.51	C:\DATABASE\NBS54K.L			
			Spiro[cyclobutane-1,2'(1'aH)-inden	38834	067884-37-1	37
			.beta.-D-Arabinofuranoside, ethyl	26158	056206-95-2	25
			Pentadecane, 5-methyl-	24810	025117-33-3	14
19	21.9	1.25	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	50
			Docosane, 7-hexyl-	45765	055373-86-9	46
			Heptadecane, 2,3-dimethyl-	31811	061868-03-9	46

20	21.99	1.23	C:\DATABASE\NBS54K.L			
			Cyclopentane, decyl-	21621	001795-21-7	58
			Cyclopentane, heneicosyl-	43430	006703-82-8	50
			Cyclopentane, undecyl-	24411	006785-23-5	38
21	22.04	1.34	C:\DATABASE\NBS54K.L			
			Cyclohexane, 1,1'-methylenebis-	15288	003178-23-2	38
			Cyclohexane, 2-propenyl-	3756	002114-42-3	38
			Cyclohexane, decyl-	24407	001795-16-0	38
22	22.13	0.55	C:\DATABASE\NBS54K.L			
			1,4-Naphthalenedione, 5,8-dihydrox	28725	002808-46-0	16
			l-Proline, 1-[(2,4,5-trichlorophen	43440	066789-88-6	10
			Trichothec-9-en-4-ol, 7,8:12,13-di	40151	021284-11-7	10
23	22.23	2.97	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	90
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	89
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	86
24	22.35	11.72	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	91
			Eicosane	33850	000112-95-8	91
			Hexadecane	24818	000544-76-3	90
25	22.65	0.77	C:\DATABASE\NBS54K.L			
			3-Cyclobutene-1,2-dicarboxylic aci	12913	001517-11-9	12
			Ethane, 1,1-dichloro-2,2-difluoro-	5234	000471-43-2	10
			2-Butanone, 1-chloro-	1789	000616-27-3	9
26	22.73	0.58	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	64
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	55
			Pentadecane	22044	000629-62-9	50
27	22.91	0.65	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	35
			Pentacosane	42284	000629-99-2	27
			Tridecane, 4-methyl-	19148	026730-12-1	27
28	22.97	0.78	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	64
			Docosane	37669	000629-97-0	58
			Tetracosane, 11-decyl-	50196	055429-84-0	52
29	23.02	0.62	C:\DATABASE\NBS54K.L			
			Cyclopentane, 2-propenyl-	2126	003524-75-2	53
			1,1'-Bicyclopentyl	6105	001636-39-1	45
			1,6-Heptadiene, 3,3-dimethyl-	3766	068701-61-1	35

30	23.24	0.96	C:\DATABASE\NBS54K.L			
			Decane, 6-ethyl-2-methyl-	16201	062108-21-8	47
			Decane, 2,4,6-trimethyl-	16223	062108-27-4	47
			Docosane, 7-butyl-	43601	055282-15-0	38
31	23.32	8.2	C:\DATABASE\NBS54K.L			
			Tetratetracontane	52799	007098-22-8	91
			Heptadecane, 9-hexyl-	39301	055124-79-3	91
			Nonacosane	46739	000630-03-5	90
32	23.41	0.57	C:\DATABASE\NBS54K.L			
			MUCO-INOSITOL TRI-METHANEBO	29028	000000-00-0	25
			(7R,8R)-CIS-SYN-TRANS-TRICYCLO	18583	000000-00-0	18
			4-Acetonylcyclohexanone	9302	086428-59-3	14
33	23.92	0.61	C:\DATABASE\NBS54K.L			
			3(2H)-Furanone, dihydro-5-isopropy	4358	034004-69-8	35
			Nonane, 4,5-dimethyl-	9980	017302-23-7	25
			Hexanoic acid, 3,5-dioxo-, methyl	10163	029736-80-9	11
34	24	2.13	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	95
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	92
			Octadecane, 3-methyl-	31817	006561-44-0	89
35	24.27	4.94	C:\DATABASE\NBS54K.L			
			Heptadecane, 4-methyl-	29566	026429-11-8	91
			Nonacosane	46739	000630-03-5	91
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
36	24.61	0.89	C:\DATABASE\NBS54K.L			
			1,3-Cyclohexanediamine	2641	003385-21-5	30
			6-Undecen-3-one, 5-butyl-2,2-dimet	29219	055976-05-1	25
			Eicosane, 10-methyl-	35847	054833-23-7	25
37	24.84	0.95	C:\DATABASE\NBS54K.L			
			Tetracosane, 11-decyl-	50196	055429-84-0	43
			Tetracosane, 9-octyl-	49084	055401-54-2	43
			Docosane, 11-decyl-	49085	055401-55-3	43
38	24.92	0.64	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,3-dimethyl-	31811	061868-03-9	22
			Octadecane, 3-ethyl-5-(2-ethylbuty	43598	055282-12-7	16
			Docosane, 9-octyl-	47578	055319-83-0	14
39	25.01	1.05	C:\DATABASE\NBS54K.L			
			Hexane, 1,6-dicyclohexyl-	28894	001610-23-7	47
			Cyclohexane, 1,1'-(1-methyl-1,3-pr	23971	041851-35-8	46
			Cyclohexane, 1,1'-(1-methyl-1,2-et	21229	041851-34-7	42

40	25.17	2.71	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	91
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	90
			Pentadecane	22044	000629-62-9	80
41	25.49	2.1	C:\DATABASE\NBS54K.L			
			Tridecane, 7-propyl-	24816	055045-09-5	18
			2H-Pyran, 2-(butylthio)tetrahydro-	13837	016315-52-9	18
			2H-Pyran-2-ol, tetrahydro-	1532	000694-54-2	14
42	26.03	1.17	C:\DATABASE\NBS54K.L			
			Pentadecane	22044	000629-62-9	93
			Tridecane, 4,8-dimethyl-	22043	055030-62-1	90
			Nonadecane, 2-methyl-	33849	001560-86-7	83
43	26.1	2.26	C:\DATABASE\NBS54K.L			
			1,3-Dioxane, 4-phenyl-	11579	000772-00-9	13
			Benzene, (3,3-dimethyl-1-methylene	13985	007283-47-8	9
			Butanethioic acid, S-methyl ester	3090	002432-51-1	9
44	26.32	0.75	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	38
			Tritetracontane	52649	007098-21-7	35
			Tetradecane, 2-methyl-	22045	001560-95-8	30
45	27.9	1.31	C:\DATABASE\NBS54K.L			
			1,3-Dioxolane, 2-methyl-2-phenyl-	11575	003674-77-9	50
			1,3-Dioxolane-2-heptanenitrile, .a	34569	058422-90-5	47
			Benzothiazole, 2-methyl-	8190	000120-75-2	43
46	31.51	0.66	C:\DATABASE\NBS54K.L			
			2,5-Furandicarboxylic acid	9708	003238-40-2	27
			Benzofurazan, 4-nitro-	11726	016322-19-3	23
			Tricyclo[4.2.0.02,4]octan-5-one	3506	019093-14-2	10

Library Search of SPE DCM Fraction of Diesel Particulate Emission from Fuel 2.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	19.62	0.39	C:\DATABASE\NBS54K.L			
			Undecane, 3,5-dimethyl-	16194	017312-81-1	76
			1-Iodo-2-methylundecane	35665	073105-67-6	72
			Decane, 2,6,8-trimethyl-	16221	062108-26-3	70
2	20.23	1.83	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	96
			Eicosane	33850	000112-95-8	95
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	90
3	20.27	0.75	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6-dimethyl-	31816	054105-67-8	81
			Hexadecane, 2,6,10-trimethyl-	31822	055000-52-7	58
			Pentadecane, 2,6,10,14-tetramethyl	31820	001921-70-6	49
4	20.7	0.44	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	93
			Nonadecane, 3-methyl-	33848	006418-45-7	81
			Docosane	37669	000629-97-0	80
5	20.92	0.53	C:\DATABASE\NBS54K.L			
			Heptadecane, 2-methyl-	29561	001560-89-0	93
			Nonadecane, 2-methyl-	33849	001560-86-7	93
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
6	21.32	4.36	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	91
			Hexadecane	24818	000544-76-3	91
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	90
7	21.38	2.28	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	93
			1-IODO-2-METHYLNONANE	31632	000000-00-0	90
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	89
8	21.66	0.4	C:\DATABASE\NBS54K.L			
			Tetratriacontane	50193	014167-59-0	86
			Heptadecane	27201	000629-78-7	86
			Tridecane, 1-iodo-	37542	035599-77-0	81
9	21.74	1.07	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	93
			Octadecane	29560	000593-45-3	83
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	83

10	21.91	0.46	C:\DATABASE\NBS54K.L			
			Octadecane, 4-methyl-	31813	010544-95-3	86
			Octane, 1,1'-oxybis-	27521	000629-82-3	52
			Hexadecane, 4-methyl-	27202	025117-26-4	50
11	21.97	0.56	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	80
			Tridecane, 2-methyl-	19147	001560-96-9	76
			Heptadecane, 3-methyl-	29558	006418-44-6	70
12	22.05	0.53	C:\DATABASE\NBS54K.L			
			Nonadecane, 2-methyl-	33849	001560-86-7	86
			Eicosane	33850	000112-95-8	60
			Heptadecane, 9-octyl-	42283	007225-64-1	58
13	22.23	1.35	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	87
			Hexatriacontane	50978	000630-06-8	86
			Octacosane	45764	000630-02-4	86
14	22.35	7.18	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	91
			Tridecane, 7-hexyl-	31814	007225-66-3	91
			Pentadecane	22044	000629-62-9	90
15	22.74	0.45	C:\DATABASE\NBS54K.L			
			Nonadecane, 9-methyl-	33853	013287-24-6	72
			Decane, 2,3,7-trimethyl-	16239	062238-13-5	64
			Hexadecane, 7-methyl-	27204	026730-20-1	62
16	22.89	0.98	C:\DATABASE\NBS54K.L			
			Cyclopropanenonanoic acid, 2-[(2-b	39079	010152-69-9	96
			1,2-Benzenedicarboxylic acid, buty	40421	000084-78-6	80
			1,2-Benzenedicarboxylic acid, buty	40431	000085-69-8	80
17	22.97	0.6	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	91
			Heptadecane	27201	000629-78-7	90
			Hexadecane, 2-methyl-	27203	001560-92-5	87
18	23.06	1.13	C:\DATABASE\NBS54K.L			
			Nonadecane, 3-methyl-	33848	006418-45-7	72
			Heptadecane, 3-methyl-	29558	006418-44-6	64
			Undecane, 3-methyl-	13155	001002-43-3	53
19	23.13	0.62	C:\DATABASE\NBS54K.L			
			Tetradecane, 5-methyl-	22046	025117-32-2	50
			Undecane, 4-ethyl-	16213	017312-59-3	38
			Undecane, 3,7-dimethyl-	16193	017301-29-0	38

20	23.25	0.59	C:\DATABASE\NBS54K.L			
			Nonahexacontanoic acid	53932	040710-32-5	86
			Heptadecane, 3-methyl-	29558	006418-44-6	81
			Hexadecane, 2-methyl-	27203	001560-92-5	80
21	23.34	7.69	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	98
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
			Docosane	37669	000629-97-0	91
22	23.42	0.35	C:\DATABASE\NBS54K.L			
			Phosphonic acid, dioctadecyl ester	52433	019047-85-9	45
			1,1'-Bicyclohexyl, 2-propyl-, tran	21217	054934-89-3	43
			1-Octadecene	29236	000112-88-9	38
23	23.48	0.61	C:\DATABASE\NBS54K.L			
			Docosane, 6-methyl-	39303	055124-81-7	51
			Nonadecane, 2,6,10,14-tetramethyl-	39302	055124-80-6	35
			Hexacosane	43605	000630-01-3	22
24	23.65	0.33	C:\DATABASE\NBS54K.L			
			9-Octadecene, (E)-	29232	007206-25-9	38
			2-Cyclohexen-1-ol, 1-methyl-	2356	023758-27-2	30
			Cyclohexanone, 3-(3,3-dimethylbuty	15738	040564-94-1	27
25	23.7	0.75	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	72
			Tetratetracontane	52799	007098-22-8	72
			Decane, 2,4-dimethyl-	13153	002801-84-5	72
26	23.87	0.52	C:\DATABASE\NBS54K.L			
			Heptadecane, 4-methyl-	29566	026429-11-8	89
			Pentacosane	42284	000629-99-2	58
			Nonacosane	46739	000630-03-5	58
27	23.93	0.72	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	91
			Hexadecane, 2-methyl-	27203	001560-92-5	87
			Tridecane, 2-methyl-	19147	001560-96-9	87
28	24.01	2.13	C:\DATABASE\NBS54K.L			
			Nonadecane, 3-methyl-	33848	006418-45-7	95
			Heptadecane, 3-methyl-	29558	006418-44-6	93
			Pentatriacontane	50625	000630-07-9	90
29	24.19	0.43	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	86
			Docosane, 9-octyl-	47578	055319-83-0	58
			Eicosane, 10-hexyl-10-methyl-	44720	055282-32-1	50

30	24.28	6.76	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	93
			Eicosane	33850	000112-95-8	91
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
31	24.52	0.63	C:\DATABASE\NBS54K.L			
			Nonane, 4,5-dimethyl-	9980	017302-23-7	55
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	53
			Pentadecane, 8,8-diheptyl-	46740	055268-72-9	53
32	24.61	1.4	C:\DATABASE\NBS54K.L			
			Nonadecane, 9-methyl-	33853	013287-24-6	93
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
			Decane, 1-iodo-	31633	002050-77-3	86
33	24.72	0.31	C:\DATABASE\NBS54K.L			
			Heneicosane, 5-methyl-	37668	025117-37-7	52
			Hexane, 2,3,5-trimethyl-	4525	001069-53-0	50
			Undecane, 2,4-dimethyl-	16190	017312-80-0	46
34	24.79	0.56	C:\DATABASE\NBS54K.L			
			Heptadecane, 4-methyl-	29566	026429-11-8	72
			Dodecane, 4-methyl-	16216	006117-97-1	59
			Decane, 2,3,4-trimethyl-	16241	062238-15-7	59
35	24.84	1.2	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	87
			Heneicosane, 11-decyl-	48376	055320-06-4	83
			Tetracosane, 11-decyl-	50196	055429-84-0	83
36	24.93	1.88	C:\DATABASE\NBS54K.L			
			Tetradecane, 1-chloro-	25756	002425-54-9	72
			Hexatriacontane	50978	000630-06-8	64
			Tetratetracontane	52799	007098-22-8	64
37	25.02	0.8	C:\DATABASE\NBS54K.L			
			Decane 2-cyclohexyl-, 2-cyclohexyl	24416	013151-73-0	72
			Cyclohexane, undecyl-	26851	054105-66-7	64
			Hexane, 1,6-dicyclohexyl-	28894	001610-23-7	43
38	25.18	5.41	C:\DATABASE\NBS54K.L			
			Tridecane, 7-hexyl-	31814	007225-66-3	93
			Hexadecane	24818	000544-76-3	91
			Docosane	37669	000629-97-0	91
39	25.44	1.06	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	96
			Hexacosane	43605	000630-01-3	86
			Tetracosane, 11-decyl-	50196	055429-84-0	86

40	25.49	2.7	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	86
			Docosane	37669	000629-97-0	64
			Tetradecane	19145	000629-59-4	60
41	25.61	0.61	C:\DATABASE\NBS54K.L			
			Tetradecane, 4-ethyl-	24805	055045-14-2	49
			Undecane, 2,7-dimethyl-	16250	017301-24-5	47
			Tridecane, 7-propyl-	24816	055045-09-5	46
42	25.67	0.85	C:\DATABASE\NBS54K.L			
			Octadecane, 4-methyl-	31813	010544-95-3	90
			Docosane, 2,21-dimethyl-	40892	077536-31-3	78
			Octadecane, 3-methyl-	31817	006561-44-0	76
43	25.73	0.72	C:\DATABASE\NBS54K.L			
			Octadecane, 3-methyl-	31817	006561-44-0	86
			Docosane	37669	000629-97-0	78
			Pentadecane, 3-methyl-	24809	002882-96-4	76
44	25.81	0.84	C:\DATABASE\NBS54K.L			
			Docosane, 2,21-dimethyl-	40892	077536-31-3	90
			Tricosane, 2-methyl-	40894	001928-30-9	86
			Tridecane, 1-iodo-	37542	035599-77-0	78
45	25.86	0.47	C:\DATABASE\NBS54K.L			
			1-Docosene	37434	001599-67-3	38
			3-Eicosene, (E)-	33553	074685-33-9	35
			17-Pentatriacontene	50596	006971-40-0	35
46	25.93	1.12	C:\DATABASE\NBS54K.L			
			Dodecane 2-cyclohexyl-, 2-cyclohex	29227	013151-82-1	90
			Cyclohexane, 1,1'-(1,5-pentanediyl	26454	054833-31-7	72
			Cyclohexane, undecyl-	26851	054105-66-7	72
47	26.04	3.44	C:\DATABASE\NBS54K.L			
			Heptadecane, 3-methyl-	29558	006418-44-6	93
			Eicosane, 10-methyl-	35847	054833-23-7	93
			Hexacosane	43605	000630-01-3	91
48	26.14	1.68	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	83
			Hexacosane	43605	000630-01-3	83
			Heptadecane, 9-octyl-	42283	007225-64-1	74
49	26.34	3.39	C:\DATABASE\NBS54K.L			
			Eicosane, 10-methyl-	35847	054833-23-7	93
			Pentadecane, 8-hexyl-	35849	013475-75-7	90
			Nonadecane, 9-methyl-	33853	013287-24-6	86

50	26.72	0.68	C:\DATABASE\NBS54K.L			
			11-Tricosene	39087	052078-56-5	60
			1-Octadecanol	32132	000112-92-5	47
			5-Eicosene, (E)-	33552	074685-30-6	45
51	26.79	0.62	C:\DATABASE\NBS54K.L			
			Cyclohexane, undecyl-	26851	054105-66-7	64
			Dodecane 2-cyclohexyl-, 2-cyclohex	29227	013151-82-1	64
			1-Azabicyclo[3.1.0]hexane	484	000285-76-7	59
52	26.87	2.65	C:\DATABASE\NBS54K.L			
			Tridecane, 6-propyl-	24817	055045-10-8	91
			Pentadecane, 3-methyl-	24809	002882-96-4	91
			Tridecane, 7-hexyl-	31814	007225-66-3	90
53	27.16	3.57	C:\DATABASE\NBS54K.L			
			Tetracosane, 11-decyl-	50196	055429-84-0	83
			Tetracosane, 9-octyl-	49084	055401-54-2	74
			Heneicosane, 11-decyl-	48376	055320-06-4	74
54	27.33	0.59	C:\DATABASE\NBS54K.L			
			Docosane, 11-decyl-	49085	055401-55-3	62
			Docosane, 9-butyl-	43600	055282-14-9	53
			Dodecane, 4-methyl-	16216	006117-97-1	52
55	27.63	2.56	C:\DATABASE\NBS54K.L			
			Tridecane, 6-propyl-	24817	055045-10-8	70
			Docosane, 2,21-dimethyl-	40892	077536-31-3	64
			Tetratriacontane	50193	014167-59-0	64
56	27.94	1.83	C:\DATABASE\NBS54K.L			
			Tridecane, 6-propyl-	24817	055045-10-8	86
			Tricosane, 2-methyl-	40894	001928-30-9	68
			Docosane, 11-decyl-	49085	055401-55-3	64
57	28.73	2.89	C:\DATABASE\NBS54K.L			
			Octadecane, 3-methyl-	31817	006561-44-0	86
			Heptadecane, 9-octyl-	42283	007225-64-1	86
			Heneicosane, 11-(1-ethylpropyl)-	43597	055282-11-6	86
58	28.9	2.04	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	91
			Tetratetracontane	52799	007098-22-8	90
			Docosane, 11-decyl-	49085	055401-55-3	90
59	29.66	4.41	C:\DATABASE\NBS54K.L			
			Tridecane, 1-iodo-	37542	035599-77-0	76
			Tetratetracontane	52799	007098-22-8	74
			Eicosane, 3-methyl-	35845	006418-46-8	74

60	34.04	1.44	C:\DATABASE\NBS54K.L			
			1,1,3,3-Tetramethyl-1,3-disilainda	20632	054113-93-8	40
			4(1H)-Pteridinone, 6-acetyl-2-amin	20807	042310-08-7	37
			Anthracene, 9-butyltetradecahydro-	28538	055133-89-6	25
61	35.1	0.84	C:\DATABASE\NBS54K.L			
			2H-1,2,3-Triazole-4-carboxaldehyde	17420	051306-43-5	58
			Isoquinoline, 1,2,3,4-tetrahydro-7	33950	036646-87-4	34
			Phenol, bis(1,1-dimethylethyl)-	20720	026746-38-3	32

Library Search of SPE Hexane Fraction of Diesel Particulate Emission from Fuel 2.						
Pk#	RT	Area%	Library/ID	Ref#	CAS#	Qual
1	11.01	0.53	C:\DATABASE\NBS54K.L			
			Ethanone, 1-(3-ethyloxiranyl)-	2581	017257-81-7	47
			1,5-Heptadiene-3,4-diol, 2,5-dimet	9826	022607-16-5	47
			1,1'-Bicyclopentyl-1,1'-diol	13032	005181-75-9	47
2	11.38	0.57	C:\DATABASE\NBS54K.L			
			Pentanoic acid, 2,2-dimethyl-, eth	9827	044970-05-0	50
			Hexane, 2-iodo-	21762	018589-27-0	50
			1,2-Cyclopentanediol, 1-(1-methyle	7247	056335-92-3	50
3	17.95	1.53	C:\DATABASE\NBS54K.L			
			Phenol, 2,6-bis(1,1-dimethylethyl)	23484	000128-37-0	95
			Phenol, 4,6-di(1,1-dimethylethyl)-	23482	000616-55-7	80
			Phenol, 2,4-bis(1-methylbutyl)-	26116	000096-94-6	42
4	19.09	0.77	C:\DATABASE\NBS54K.L			
			Hexadecane	24818	000544-76-3	93
			Tridecane, 4-methyl-	19148	026730-12-1	87
			Tetradecane, 1-iodo-	39201	019218-94-1	83
5	19.62	0.36	C:\DATABASE\NBS54K.L			
			Octadecane, 2,6-dimethyl-	33851	075163-97-2	43
			Undecane, 3,5-dimethyl-	16194	017312-81-1	38
			Tridecane, 3-methyl-	19151	006418-41-3	35
6	20.23	3.42	C:\DATABASE\NBS54K.L			
			Heptadecane	27201	000629-78-7	96
			Octacosane	45764	000630-02-4	87
			Tetradecane, 4-ethyl-	24805	055045-14-2	87
7	20.69	0.49	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	68
			Docosane	37669	000629-97-0	58
			Hexadecane	24818	000544-76-3	58
8	20.92	0.59	C:\DATABASE\NBS54K.L			
			Tridecane, 2-methyl-	19147	001560-96-9	83
			Heptadecane, 2-methyl-	29561	001560-89-0	74
			Docosane, 2,21-dimethyl-	40892	077536-31-3	72
9	21.31	5.32	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	96
			Tridecane, 7-hexyl-	31814	007225-66-3	94
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	91

10	21.38	1.57	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	87
			Undecane, 2-methyl-	13150	007045-71-8	86
			Tridecane, 4-methyl-	19148	026730-12-1	83
11	21.74	0.76	C:\DATABASE\NBS54K.L			
			Nonane, 4,5-dimethyl-	9980	017302-23-7	76
			Decane, 5-propyl-	16226	017312-62-8	68
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	64
12	21.91	0.36	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	38
			Hexadecane, 8-hexyl-8-pentyl-	44717	055282-29-6	38
			Tetradecane, 4-ethyl-	24805	055045-14-2	35
13	21.96	0.58	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	76
			Tetracontane, 3,5,24-trimethyl-	52650	055162-61-3	59
			Eicosane, 2-methyl-	35844	001560-84-5	53
14	22.04	0.51	C:\DATABASE\NBS54K.L			
			2H-1,3-Benzoxazine, 6-chloro-3-cyc	28950	035183-44-9	43
			Heptadecane	27201	000629-78-7	35
			Eicosane, 9-octyl-	45767	013475-77-9	30
15	22.22	0.98	C:\DATABASE\NBS54K.L			
			Eicosane, 2-methyl-	35844	001560-84-5	72
			Tetradecane, 2-methyl-	22045	001560-95-8	64
			Tetratetracontane	52799	007098-22-8	64
16	22.34	7.51	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,14-tetramethyl	35850	018344-37-1	95
			1-Iodo-2-methylundecane	35665	073105-67-6	94
			Pentadecane, 8-hexyl-	35849	013475-75-7	93
17	22.97	0.47	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	80
			Nonadecane, 2-methyl-	33849	001560-86-7	72
			Decane, 2,4,6-trimethyl-	16223	062108-27-4	59
18	23.12	0.41	C:\DATABASE\NBS54K.L			
			Methenolone	36673	000153-00-4	37
			.alpha.-DL-1-Methyl-5-allyl-5-(1'-	33192	080832-89-9	37
			Ethanol, 2-[(1-methylene-2-propeny	2578	038653-51-9	25
19	23.25	0.48	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	78
			Eicosane	33850	000112-95-8	53
			1-Undecene, 4-methyl-	12702	074630-39-0	49

20	23.33	7.81	C:\DATABASE\NBS54K.L			
			Eicosane	33850	000112-95-8	97
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
			Heptadecane	27201	000629-78-7	91
21	23.48	0.47	C:\DATABASE\NBS54K.L			
			Undecane, 3,5-dimethyl-	16194	017312-81-1	46
			Tetradecane, 2,5-dimethyl-	24807	056292-69-4	38
			Decane, 3-methyl-	9973	013151-34-3	38
22	23.7	0.57	C:\DATABASE\NBS54K.L			
			Dodecane, 2-methyl-6-propyl-	24815	055045-08-4	62
			Eicosane	33850	000112-95-8	52
			Decane, 1-iodo-	31633	002050-77-3	52
23	23.93	0.61	C:\DATABASE\NBS54K.L			
			Eicosane, 2-methyl-	35844	001560-84-5	90
			Tricosane, 2-methyl-	40894	001928-30-9	89
			Bacchotricuneatin c	41250	066563-30-2	78
24	24.01	1.56	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	93
			Hexadecane, 3-methyl-	27200	006418-43-5	87
			Heptacosane	44714	000593-49-7	76
25	24.27	6.51	C:\DATABASE\NBS54K.L			
			Heneicosane	35851	000629-94-7	95
			Eicosane	33850	000112-95-8	91
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	91
26	24.52	0.42	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	90
			Undecane, 3,5-dimethyl-	16194	017312-81-1	81
			Hexacosane	43605	000630-01-3	72
27	24.61	1.04	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	78
			Octadecane, 1-bromo-	40146	000112-89-0	72
			Tetracosane, 11-decyl-	50196	055429-84-0	72
28	24.79	0.51	C:\DATABASE\NBS54K.L			
			Pentane, 2,3,3-trimethyl-	2745	000560-21-4	47
			Decane, 2,3,4-trimethyl-	16241	062238-15-7	47
			Hexane, 3,3,4-trimethyl-	4499	016747-31-2	46
29	24.84	0.97	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	90
			Tetradecane, 2-methyl-	22045	001560-95-8	89
			Nonacosane	46739	000630-03-5	83

30	24.92	1.46	C:\DATABASE\NBS54K.L			
			Heneicosane, 3-methyl-	37665	006418-47-9	87
			Eicosane, 3-methyl-	35845	006418-46-8	58
			Hexadecane, 2-methyl-	27203	001560-92-5	55
31	25.02	0.6	C:\DATABASE\NBS54K.L			
			Cyclohexane, (1,3-dimethylbutyl)-	12675	061142-19-6	59
			Hexane, 1,6-dicyclohexyl-	28894	001610-23-7	43
			1-Hexene, 6-bromo-	11007	002695-47-8	43
32	25.17	5.42	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	96
			Eicosane	33850	000112-95-8	95
			Pentadecane, 8-hexyl-	35849	013475-75-7	94
33	25.33	0.49	C:\DATABASE\NBS54K.L			
			Acetic acid, [(2-methylpropyl)thio	7960	020600-62-8	50
			2-Butene, 1-bromo-2-chloro-	12307	054410-84-3	9
			Silane, methoxytrimethyl-	1701	001825-61-2	9
34	25.44	0.73	C:\DATABASE\NBS54K.L			
			Hexadecane, 4-methyl-	27202	025117-26-4	94
			Hexadecane, 2,6,10,14-tetramethyl-	33856	000638-36-8	90
			Hexacosane	43605	000630-01-3	87
35	25.48	2.06	C:\DATABASE\NBS54K.L			
			Tetracontane, 3,5,24-trimethyl-	52650	055162-61-3	47
			Dodecane, 1-fluoro-	16992	000334-68-9	47
			Octane, 2,7-dimethyl-	6986	001072-16-8	43
36	25.6	0.51	C:\DATABASE\NBS54K.L			
			Tetradecane, 2-methyl-	22045	001560-95-8	53
			Pentane, 3-ethyl-2-methyl-	2755	000609-26-7	50
			Heptadecane, 4-propyl-	33847	055044-10-5	47
37	25.67	0.77	C:\DATABASE\NBS54K.L			
			Heptadecane, 4-methyl-	29566	026429-11-8	81
			Tetradecane, 4-methyl-	22040	025117-24-2	81
			Docosane, 2,21-dimethyl-	40892	077536-31-3	76
38	25.72	0.71	C:\DATABASE\NBS54K.L			
			Decane, 3,6-dimethyl-	13142	017312-53-7	81
			Eicosane, 2-methyl-	35844	001560-84-5	72
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	64
39	25.8	0.8	C:\DATABASE\NBS54K.L			
			Docosane, 9-octyl-	47578	055319-83-0	53
			Hexadecane, 3-methyl-	27200	006418-43-5	53
			Tricosane, 2-methyl-	40894	001928-30-9	49

40	25.85	0.42	C:\DATABASE\NBS54K.L			
			1-Docosene	37434	001599-67-3	38
			Cyclohexane, 1,1'-tetradecylideneb	43225	055334-08-2	37
			Cyclohexane, 1,2,4,5-tetraethyl-,	18695	061142-24-3	32
41	25.92	0.43	C:\DATABASE\NBS54K.L			
			Undecane 2-cyclohexyl-, 2-cyclohex	26846	013151-77-4	87
			Decane 2-cyclohexyl-, 2-cyclohexyl	24416	013151-73-0	83
			Eicosane, 2-cyclohexyl-	43424	004443-56-5	78
42	26.03	3.48	C:\DATABASE\NBS54K.L			
			Pentadecane, 8-hexyl-	35849	013475-75-7	94
			Eicosane, 10-methyl-	35847	054833-23-7	93
			Heptadecane, 9-octyl-	42283	007225-64-1	91
43	26.33	2.51	C:\DATABASE\NBS54K.L			
			Tridecane, 6-propyl-	24817	055045-10-8	93
			Nonacosane	46739	000630-03-5	90
			Tetratriacontane	50193	014167-59-0	90
44	26.64	0.36	C:\DATABASE\NBS54K.L			
			Undecane, 2,9-dimethyl-	16185	017301-26-7	50
			Eicosane, 7-hexyl-	43594	055333-99-8	43
			Decane, 3,6-dimethyl-	13142	017312-53-7	43
45	26.71	0.61	C:\DATABASE\NBS54K.L			
			Cyclopentane, undecyl-	24411	006785-23-5	38
			1H-Imidazole, 2-ethyl-4,5-dihydro-	2282	000931-35-1	38
			1-Eicosanol	36135	000629-96-9	37
46	26.78	0.94	C:\DATABASE\NBS54K.L			
			Dodecane 2-cyclohexyl-, 2-cyclohex	29227	013151-82-1	59
			Cyclohexane, undecyl-	26851	054105-66-7	43
			Cyclohexane, 1,1'-(1-methyl-1,2-et	21229	041851-34-7	42
47	26.86	1.87	C:\DATABASE\NBS54K.L			
			Tricosane, 2-methyl-	40894	001928-30-9	94
			Eicosane, 10-methyl-	35847	054833-23-7	93
			Heptadecane, 9-hexyl-	39301	055124-79-3	93
48	27.15	2.57	C:\DATABASE\NBS54K.L			
			Pentatriacontane	50625	000630-07-9	83
			Tetracosane, 11-decyl-	50196	055429-84-0	83
			Eicosane, 9-octyl-	45767	013475-77-9	80
49	27.26	0.4	C:\DATABASE\NBS54K.L			
			3-Acetonylcyclohexanone	9313	000937-45-1	14
			Tetradecane, 5-methyl-	22046	025117-32-2	11
			Tetracosane	40896	000646-31-1	11

50	27.33	0.58	C:\DATABASE\NBS54K.L			
			Docosane, 9-butyl-	43600	055282-14-9	53
			Docosane, 11-decyl-	49085	055401-55-3	53
			Nonadecane	31819	000629-92-5	50
51	27.62	2.07	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	70
			Docosane	37669	000629-97-0	50
			Nonadecane, 3-methyl-	33848	006418-45-7	50
52	27.93	1.72	C:\DATABASE\NBS54K.L			
			Heptadecane, 2,6,10,15-tetramethyl	35846	054833-48-6	64
			Heptadecane, 9-octyl-	42283	007225-64-1	64
			Tridecane, 7-hexyl-	31814	007225-66-3	64
53	28.43	1.42	C:\DATABASE\NBS54K.L			
			Decane 2-cyclohexyl-, 2-cyclohexyl	24416	013151-73-0	47
			Octadecane, 1-chloro-	34714	003386-33-2	38
			Nonadecane	31819	000629-92-5	38
54	28.72	2.75	C:\DATABASE\NBS54K.L			
			Tetracosane, 9-octyl-	49084	055401-54-2	86
			Nonacosane	46739	000630-03-5	86
			Nonahexacontanoic acid	53932	040710-32-5	86
55	28.89	2.05	C:\DATABASE\NBS54K.L			
			Octadecane, 3-methyl-	31817	006561-44-0	91
			Docosane, 2,21-dimethyl-	40892	077536-31-3	91
			Tetracosane, 11-decyl-	50196	055429-84-0	91
56	29.49	0.83	C:\DATABASE\NBS54K.L			
			1,2-Benzenedicarboxylic acid, diis	47383	028553-12-0	72
			Cyclopropanenonanoic acid, 2-[(2-b	39079	010152-69-9	43
			1,2-Benzenedicarboxylic acid, bis(	48926	000089-16-7	40
57	29.65	1.92	C:\DATABASE\NBS54K.L			
			Hexadecane, 7,9-dimethyl-	29564	021164-95-4	93
			Tetradecane, 2-methyl-	22045	001560-95-8	93
			Pentacosane	42284	000629-99-2	90
58	30.75	3.73	C:\DATABASE\NBS54K.L			
			Docosane	37669	000629-97-0	91
			Octadecane, 3-methyl-	31817	006561-44-0	91
			Tetracosane, 11-decyl-	50196	055429-84-0	90
59	32.1	2.95	C:\DATABASE\NBS54K.L			
			Dodecane, 2,6,10-trimethyl-	22038	003891-98-3	68
			Dotriacontane	49086	000544-85-4	58
			Hexadecane, 7-methyl-	27204	026730-20-1	55

60	33.7	0.57	C:\DATABASE\NBS54K.L			
			Formamide, N-(3-methyl-5-isoxazoly	3888	053907-67-8	10
			Ethane, 1,1'-sulfonylbis-	3433	000597-35-3	9
			Azetidine, 1-methyl-	239	004923-79-9	9
61	34.03	1.14	C:\DATABASE\NBS54K.L			
			Phenanthrene, 9-dodecyltetradecahy	43051	055334-01-5	49
			5H-Dibenzo[a,d]cycloheptene-5-carb	26215	010423-37-7	42
			Anthracene, 9-dodecyltetradecahydr	43049	055401-75-7	32
62	35.08	1.4	C:\DATABASE\NBS54K.L			
			Isoquinoline, 1,2,3,4-tetrahydro-7	33950	036646-87-4	40
			Anthracene, 9-dodecyltetradecahydr	43049	055401-75-7	38
			Phenol, 2,5-bis(1,1-dimethylethyl)	20718	005875-45-6	35
63	36.16	1.01	C:\DATABASE\NBS54K.L			
			Hexadecane, 2-methyl-	27203	001560-92-5	55
			Dodecane	13141	000112-40-3	49
			Eicosane, 10-butyl-10-propyl-	44721	055282-33-2	49
64	37.13	0.62	C:\DATABASE\NBS54K.L			
			Propanamide, 2,2-dimethyl-N-(4-nit	23760	056619-95-5	10
			Hexadecane, 1,1'-[1,2-ethanediylbi	51074	017367-09-8	6
			1,3,5-Triazine-2,4-diamine, N,N'-b	32452	055723-98-3	4
65	38.52	0.42	C:\DATABASE\NBS54K.L			
			9,10-Anthracenedione, 1,8-dihydrox	39842	000081-55-0	15
			.beta.-Chlordene	40568	056534-03-3	11
			Benzoic acid, 3-amino-2,5-dichloro	23134	007286-84-2	10

Appendix C

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
	125109
Test Date	**95-03-02**
Test Time	**12:51:09**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Sample ID: H05

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1004.83	Pd: Pascal	1970.07
Ave. Ambient Temp.: degF	62.24	HC Den.: lb/ft+3	0.04
Relative Hum.: %	70.99	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52179.18		
Integ. meas. fuel flow: lb	9.315		
Integ. Power: hp-hr	16.767		
Integ. meas. BSFC: lb/hp-hr	0.556		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.86	57.42	18.08	0.513
Ambient Conc.:	4.45	0.18	1.10	0.038
Engine Conc.:	4.41	57.24	16.97	0.474
Mass: g	3.78	119.74	29.22	12835.0
Brake Specific: g/hp-hr	0.23	7.14	1.74	765.5
Mass of Carbon: g	3519.77			
Calc. Mass of Fuel: lb	8.964			
Calc. BSFC: lb/hp-hr	0.535			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	21.29	60.52	18.31	0.530
Ambient Conc. (Bag):	4.45	0.18	1.10	0.038
Engine Conc.:	16.83	60.34	17.20	0.492

Mass: g	14.56	126.02	29.67	13329.18
Brake Specific: g/hp-hr	0.87	7.52	1.77	794.9
Dilution Factor:	27.04			
Mass of Carbon: g	3664.20			
Calc. Mass of Fuel: lb	9.33			
Calc. BSFC: lb/hp-hr	0.557			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-02**
Test Time	**12:51:09**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1004.55	Pd: Pascal	1981.82
Ave. Ambient Temp.: degF	62.57	HC Den.: lb/ft+3	0.04
Relative Hum.: %	70.81	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52208.13		
Integ. meas. fuel flow: lb	9.329		
Integ. Power: hp-hr	16.825		
Integ. meas. BSFC: lb/hp-hr	0.554		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	9.11	59.69	18.11	0.516
Ambient Conc.:	4.71	0.20	1.06	0.038
Engine Conc.:	4.41	59.50	17.05	0.479
Mass: g	3.78	124.53	29.36	12958.6
Brake Specific: g/hp-hr	0.22	7.40	1.75	770.2
Mass of Carbon: g	3553.56			
Calc. Mass of Fuel: lb	9.050			
Calc. BSFC: lb/hp-hr	0.538			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	35.76	57.34	12.53	0.528
Ambient Conc. (Bag):	4.71	0.20	1.06	0.038
Engine Conc.:	31.05	57.14	11.47	0.490

Mass: g	26.79	119.41	19.81	13285.57
Brake Specific: g/hp-hr	1.59	7.10	1.18	789.6
Dilution Factor:	27.09			
Mass of Carbon: g	3658.65			
Calc. Mass of Fuel: lb	9.32			
Calc. BSFC: lb/hp-hr	0.554			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-02**
Test Time **12:51:09**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	58	60	
Max Part. Sample Temp.: degF	72	72	
Ave. Part. Sample Temp.: degF	65	66	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	57.35	57.96	115.31
Dilution Air Volume: ft+3	8.50	8.56	17.07
Part. Sample Volume: ft+3	48.84	49.40	98.24
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	16.767	16.825	
Weighted Integrated Power:: hp-hr	2.395	14.422	16.817
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

EPA Heavy Duty Transient Emissions Re

Sample ID: H06

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
	142703
Test Date	**95-03-02**
Test Time	**14:27:03**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1004.61	Pd: Pascal	2010.55
Ave. Ambient Temp.: degF	63.63	HC Den.: lb/ft+3	0.04
Relative Hum.: %	70.63	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52203.48		
Integ. meas. fuel flow: lb	9.317		
Integ. Power: hp-hr	16.796		
Integ. meas. BSFC: lb/hp-hr	0.555		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.99	58.75	18.17	0.514
Ambient Conc.:	4.64	0.19	1.09	0.038
Engine Conc.:	4.35	58.55	17.08	0.476
Mass: g	3.73	122.54	29.42	12898.3
Brake Specific: g/hp-hr	0.22	7.30	1.75	767.9
Mass of Carbon: g	3537.09			
Calc. Mass of Fuel: lb	9.008			
Calc. BSFC: lb/hp-hr	0.536			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	18.56	60.10	18.40	0.526
Ambient Conc. (Bag):	4.64	0.19	1.09	0.038
Engine Conc.:	13.92	59.90	17.31	0.488

Mass: g	12.08	125.19	29.86	13220.33
Brake Specific: g/hp-hr	0.72	7.45	1.78	787.1
Dilution Factor:	27.29			
Mass of Carbon: g	3632.42			
Calc. Mass of Fuel: lb	9.25			
Calc. BSFC: lb/hp-hr	0.551			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-02**
Test Time	**14:27:03**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1004.71	Pd: Pascal	1993.19
Ave. Ambient Temp.: degF	63.02	HC Den.: lb/ft+3	0.04
Relative Hum.: %	70.97	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52194.05		
Integ. meas. fuel flow: lb	9.413		
Integ. Power: hp-hr	16.755		
Integ. meas. BSFC: lb/hp-hr	0.562		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	9.30	58.29	18.66	0.515
Ambient Conc.:	4.73	0.24	1.61	0.039
Engine Conc.:	4.57	58.05	17.05	0.476
Mass: g	3.92	121.48	29.36	12880.7
Brake Specific: g/hp-hr	0.23	7.25	1.75	768.7
Mass of Carbon: g	3532.41			
Calc. Mass of Fuel: lb	8.997			
Calc. BSFC: lb/hp-hr	0.537			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	25.96	57.20	13.21	0.527
Ambient Conc. (Bag):	4.73	0.24	1.61	0.039
Engine Conc.:	21.23	56.96	11.60	0.488

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-02**
Test Time **14:27:03**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	59	61	
Max Part. Sample Temp.: degF	73	72	
Ave. Part. Sample Temp.: degF	66	66	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	57.18	57.96	115.14
Dilution Air Volume: ft+3	8.50	8.56	17.07
Part. Sample Volume: ft+3	48.67	49.40	98.07
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	16.796	16.755	
Weighted Integrated Power:: hp-hr	2.399	14.362	16.761
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

Sample ID: H07

160642

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-02**
Test Time	**16:06:42**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1004.72	Pd: Pascal	1977.50
Ave. Ambient Temp.: degF	63.84	HC Den.: lb/ft+3	0.04
Relative Hum.: %	74.49	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52228.95		
Integ. meas. fuel flow: lb	9.367		
Integ. Power: hp-hr	16.780		
Integ. meas. BSFC: lb/hp-hr	0.558		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	9.15	57.76	18.72	0.511
Ambient Conc.:	4.76	0.15	1.69	0.038
Engine Conc.:	4.40	57.61	17.03	0.473
Mass: g	3.77	120.62	29.35	12818.2
Brake Specific: g/hp-hr	0.22	7.19	1.75	763.9
Mass of Carbon: g	3515.22			
Calc. Mass of Fuel: lb	8.953			
Calc. BSFC: lb/hp-hr	0.534			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	19.76	59.27	18.80	0.526
Ambient Conc. (Bag):	4.76	0.15	1.69	0.038
Engine Conc.:	15.00	59.11	17.12	0.488

Mass: g	13.02	123.58	29.58	13238.40
Brake Specific: g/hp-hr	0.78	7.36	1.76	789.0
Dilution Factor:	27.26			
Mass of Carbon: g	3638.04			
Calc. Mass of Fuel: lb	9.27			
Calc. BSFC: lb/hp-hr	0.552			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-02**
Test Time	**16:06:42**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1004.67	Pd: Pascal	2005.19
Ave. Ambient Temp.: degF	64.06	HC Den.: lb/ft+3	0.04
Relative Hum.: %	72.49	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52206.70		
Integ. meas. fuel flow: lb	9.300		
Integ. Power: hp-hr	16.807		
Integ. meas. BSFC: lb/hp-hr	0.553		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	9.01	58.14	17.91	0.512
Ambient Conc.:	4.70	0.14	1.50	0.038
Engine Conc.:	4.31	58.00	16.42	0.475
Mass: g	3.70	121.40	28.28	12849.9
Brake Specific: g/hp-hr	0.22	7.22	1.68	764.5
Mass of Carbon: g	3523.35			
Calc. Mass of Fuel: lb	8.974			
Calc. BSFC: lb/hp-hr	0.534			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	27.15	57.43	12.67	0.523
Ambient Conc. (Bag):	4.70	0.14	1.50	0.038
Engine Conc.:	22.46	57.29	11.17	0.486

Mass: g	19.42	119.71	19.32	13156.74
Brake Specific: g/hp-hr	1.16	7.12	1.15	782.8
Dilution Factor:	27.41			
Mass of Carbon: g	3616.88			
Calc. Mass of Fuel: lb	9.21			
Calc. BSFC: lb/hp-hr	0.548			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-02**
Test Time **16:06:42**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	59	61	
Max Part. Sample Temp.: degF	72	73	
Ave. Part. Sample Temp.: degF	65	66	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	57.92	57.96	115.88
Dilution Air Volume: ft+3	8.50	8.56	17.06
Part. Sample Volume: ft+3	49.41	49.40	98.81
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	16.780	16.807	
Weighted Integrated Power:: hp-hr	2.397	14.406	16.803
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

Sample ID: C08

Cold Start 80543

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Emission: ~~Hot~~ Cold**

Test Date	**Test Conditions**		
Ave. Barometer: mbar	**23:45:36**	**Pd: Pasca**	**2123.39**
Ave. Ambient Temp.: degF	**65.04**	**HC Den.: lb/ft+3**	**0.04**
Relative Hum.: %	**71.35**	**NOx Den.: lb/ft+3**	**0.12**
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52306.15		
Integ. meas. fuel flow: lb	8.943		
Integ. Power: hp-hr	16.619		
Integ. meas. BSFC: lb/hp-hr	0.538		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.92	59.08	18.57	0.529
Ambient Conc.:	4.51	0.29	1.07	0.038
Engine Conc.:	4.40	58.79	17.50	0.490
Mass: g	3.79	123.28	30.19	13304.9
Brake Specific: g/hp-hr	0.23	7.42	1.82	800.6
Mass of Carbon: g	3648.46			
Calc. Mass of Fuel: lb	9.292			
Calc. BSFC: lb/hp-hr	0.559			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	92.08	57.69	18.70	0.532
Ambient Conc. (Bag):	4.51	0.29	1.07	0.038
Engine Conc.:	87.56	57.40	17.63	0.494
Mass: g	75.41	120.18	30.48	13416.55
Brake Specific: g/hp-hr	4.54	7.23	1.83	807.3
Dilution Factor:	26.55			
Mass of Carbon: g	3741.07			
Calc. Mass of Fuel: lb	9.53			
Calc. BSFC: lb/hp-hr	0.573			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-03**
Test Time **08:05:43**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	32	60	
Max Part. Sample Temp.: degF	32	74	
Ave. Part. Sample Temp.: degF	32	66	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	0.00	54.07	54.07
Dilution Air Volume: ft+3	0.00	7.97	7.97
Part. Sample Volume: ft+3	0.00	46.10	46.10
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	0.000	16.619	
Weighted Integrated Power:: hp-hr	0.000	14.245	14.245
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
	Sample ID: H09
Test Date	**95-03-03**
	91507
Test Time	**09:15:07**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1008.45	Pd: Pascal	2156.59
Ave. Ambient Temp.: degF	65.67	HC Den.: lb/ft+3	0.04
Relative Hum.: %	68.67	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52404.07		
Integ. meas. fuel flow: lb	9.204		
Integ. Power: hp-hr	16.761		
Integ. meas. BSFC: lb/hp-hr	0.549		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	9.06	57.92	17.37	0.511
Ambient Conc.:	4.98	0.37	0.83	0.038
Engine Conc.:	4.08	57.55	16.54	0.473
Mass: g	3.51	120.92	28.59	12859.3
Brake Specific: g/hp-hr	0.21	7.21	1.71	767.2
Mass of Carbon: g	3525.89			
Calc. Mass of Fuel: lb	8.980			
Calc. BSFC: lb/hp-hr	0.536			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	13.42	57.59	17.42	0.526
Ambient Conc. (Bag):	4.98	0.37	0.83	0.038
Engine Conc.:	8.44	57.22	16.59	0.488

Mass: g	7.42	120.05	28.71	13279.07
Brake Specific: g/hp-hr	0.44	7.16	1.71	792.3
Dilution Factor:	27.31			
Mass of Carbon: g	3643.92			
Calc. Mass of Fuel: lb	9.28			
Calc. BSFC: lb/hp-hr	0.554			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-03**
Test Time	**09:15:07**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1008.30	Pd: Pascal	2131.68
Ave. Ambient Temp.: degF	66.14	HC Den.: lb/ft+3	0.04
Relative Hum.: %	69.38	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52390.79		
Integ. meas. fuel flow: lb	9.283		
Integ. Power: hp-hr	16.739		
Integ. meas. BSFC: lb/hp-hr	0.555		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.96	57.86	17.70	0.508
Ambient Conc.:	4.76	0.11	1.60	0.038
Engine Conc.:	4.20	57.75	16.10	0.470
Mass: g	3.62	121.30	27.83	12775.7
Brake Specific: g/hp-hr	0.22	7.25	1.66	763.2
Mass of Carbon: g	3502.82			
Calc. Mass of Fuel: lb	8.921			
Calc. BSFC: lb/hp-hr	0.533			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	15.72	56.79	11.86	0.520
Ambient Conc. (Bag):	4.76	0.11	1.60	0.038
Engine Conc.:	10.96	56.68	10.25	0.483

Mass: g	9.59	118.87	17.80	13129.23
Brake Specific: g/hp-hr	0.57	7.10	1.06	784.4
Dilution Factor:	27.64			
Mass of Carbon: g	3600.21			
Calc. Mass of Fuel: lb	9.17			
Calc. BSFC: lb/hp-hr	0.548			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-03**
Test Time	**09:15:07**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	62	64	
Max Part. Sample Temp.: degF	75	76	
Ave. Part. Sample Temp.: degF	68	69	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	56.52	57.97	114.49
Dilution Air Volume: ft+3	8.33	8.51	16.85
Part. Sample Volume: ft+3	48.19	49.46	97.65
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	16.761	16.739	
Weighted Integrated Power:: hp-hr	2.394	14.348	16.742
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Sample ID: H010

110046

Test Date **95-03-03**
Test Time **11:00:46**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1008.13	Pd: Pascal	2112.23
Ave. Ambient Temp.: degF	65.15	HC Den.: lb/ft+3	0.04
Relative Hum.: %	70.28	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52322.22		
Integ. meas. fuel flow: lb	9.326		
Integ. Power: hp-hr	16.783		
Integ. meas. BSFC: lb/hp-hr	0.556		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.94	56.87	17.70	0.512
Ambient Conc.:	4.69	0.04	1.05	0.038
Engine Conc.:	4.25	56.83	16.65	0.474
Mass: g	3.65	119.21	28.74	12867.8
Brake Specific: g/hp-hr	0.22	7.10	1.71	766.7
Mass of Carbon: g	3528.40			
Calc. Mass of Fuel: lb	8.986			
Calc. BSFC: lb/hp-hr	0.535			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	18.78	56.89	17.96	0.528
Ambient Conc. (Bag):	4.69	0.04	1.05	0.038
Engine Conc.:	14.09	56.85	16.92	0.490

Mass: g	12.25	119.04	29.25	13310.61
Brake Specific: g/hp-hr	0.73	7.09	1.74	793.1
Dilution Factor:	27.17			
Mass of Carbon: g	3656.95			
Calc. Mass of Fuel: lb	9.31			
Calc. BSFC: lb/hp-hr	0.555			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-03**
Test Time	**11:00:46**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1007.99	Pd: Pascal	2108.43
Ave. Ambient Temp.: degF	65.45	HC Den.: lb/ft+3	0.04
Relative Hum.: %	72.13	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52352.70		
Integ. meas. fuel flow: lb	9.298		
Integ. Power: hp-hr	16.814		
Integ. meas. BSFC: lb/hp-hr	0.553		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.87	57.77	17.53	0.512
Ambient Conc.:	4.69	0.17	1.28	0.038
Engine Conc.:	4.18	57.60	16.24	0.474
Mass: g	3.60	120.90	28.06	12879.8
Brake Specific: g/hp-hr	0.21	7.19	1.67	766.0
Mass of Carbon: g	3531.32			
Calc. Mass of Fuel: lb	8.994			
Calc. BSFC: lb/hp-hr	0.535			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	26.44	56.30	12.66	0.527
Ambient Conc. (Bag):	4.69	0.17	1.28	0.038
Engine Conc.:	21.75	56.14	11.38	0.489

Mass: g	18.86	117.62	19.72	13292.99
Brake Specific: g/hp-hr	1.12	7.00	1.17	790.6
Dilution Factor:	27.20			
Mass of Carbon: g	3653.77			
Calc. Mass of Fuel: lb	9.31			
Calc. BSFC: lb/hp-hr	0.553			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-03**
Test Time **11:00:46**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	60	62	
Max Part. Sample Temp.: degF	74	75	
Ave. Part. Sample Temp.: degF	67	69	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	56.53	56.66	113.20
Dilution Air Volume: ft+3	8.33	8.35	16.69
Part. Sample Volume: ft+3	48.20	48.31	96.51
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	16.783	16.814	
Weighted Integrated Power:: hp-hr	2.398	14.412	16.810
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
	Sample ID: H12
Test Date	**95-03-03**
	14414
Test Time	**14:41:14**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1006.75	Pd: Pascal	2181.46
Ave. Ambient Temp.: degF	66.24	HC Den.: lb/ft+3	0.04
Relative Hum.: %	66.10	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52248.34		
Integ. meas. fuel flow: lb	9.275		
Integ. Power: hp-hr	17.217		
Integ. meas. BSFC: lb/hp-hr	0.539		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.15	58.88	17.50	0.505
Ambient Conc.:	4.46	0.22	1.36	0.037
Engine Conc.:	3.69	58.66	16.14	0.467
Mass: g	3.17	122.87	27.82	12668.9
Brake Specific: g/hp-hr	0.18	7.14	1.62	735.8
Mass of Carbon: g	3473.29			
Calc. Mass of Fuel: lb	8.846			
Calc. BSFC: lb/hp-hr	0.514			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	20.60	59.27	17.74	0.519
Ambient Conc. (Bag):	4.46	0.22	1.36	0.037
Engine Conc.:	16.14	59.06	16.38	0.482

Mass: g	13.99	123.51	28.31	13064.07
Brake Specific: g/hp-hr	0.81	7.17	1.64	758.8
Dilution Factor:	27.62			
Mass of Carbon: g	3590.75			
Calc. Mass of Fuel: lb	9.15			
Calc. BSFC: lb/hp-hr	0.531			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-03**
Test Time **14:41:14**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1006.98	Pd: Pascal	2165.61
Ave. Ambient Temp.: degF	66.18	HC Den.: lb/ft+3	0.04
Relative Hum.: %	66.12	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52300.70		
Integ. meas. fuel flow: lb	9.339		
Integ. Power: hp-hr	17.243		
Integ. meas. BSFC: lb/hp-hr	0.542		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.41	58.85	17.95	0.508
Ambient Conc.:	4.60	0.23	1.01	0.036
Engine Conc.:	3.81	58.63	16.94	0.471
Mass: g	3.27	122.93	29.23	12783.6
Brake Specific: g/hp-hr	0.19	7.13	1.70	741.4
Mass of Carbon: g	3505.31			
Calc. Mass of Fuel: lb	8.928			
Calc. BSFC: lb/hp-hr	0.518			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	27.36	57.23	12.74	0.518
Ambient Conc. (Bag):	4.60	0.23	1.01	0.036
Engine Conc.:	22.75	57.00	11.73	0.481

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-03**
Test Time **14:41:14**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	61	65	
Max Part. Sample Temp.: degF	76	76	
Ave. Part. Sample Temp.: degF	68	70	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	56.27	57.98	114.25
Dilution Air Volume: ft+3	8.32	8.51	16.83
Part. Sample Volume: ft+3	47.95	49.46	97.41
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	17.217	17.243	
Weighted Integrated Power:: hp-hr	2.460	14.780	17.239
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

Sample ID: C13

Cold Start

80009

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Emission: ~~Hot~~** Cold

Test Date	**Test Conditions**		
Ave. Barometer: mbar	**20:38:24**	**Pd: Pasca**	**1840.93**
Ave. Ambient Temp.: degF	**60.60**	**HC Den.: lb/ft+3**	**0.04**
Relative Hum.: %	**65.63**	**NOx Den.: lb/ft+3**	**0.12**
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52394.30		
Integ. meas. fuel flow: lb	9.432		
Integ. Power: hp-hr	16.901		
Integ. meas. BSFC: lb/hp-hr	0.558		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	9.28	60.21	21.28	0.528
Ambient Conc.:	5.30	0.10	1.84	0.041
Engine Conc.:	3.98	60.10	19.44	0.487
Mass: g	3.43	126.25	33.60	13244.6
Brake Specific: g/hp-hr	0.20	7.47	1.99	783.6
Mass of Carbon: g	3633.15			
Calc. Mass of Fuel: lb	9.253			
Calc. BSFC: lb/hp-hr	0.547			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	19.40	59.42	20.99	0.533
Ambient Conc. (Bag):	5.30	0.10	1.84	0.041
Engine Conc.:	14.10	59.31	19.15	0.492
Mass: g	12.29	124.38	33.21	13375.31
Brake Specific: g/hp-hr	0.73	7.36	1.96	791.4
Dilution Factor:	27.07			
Mass of Carbon: g	3676.35			
Calc. Mass of Fuel: lb	9.36			
Calc. BSFC: lb/hp-hr	0.554			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-04**
Test Time	**08:00:09**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	32	55	
Max Part. Sample Temp.: degF	32	70	
Ave. Part. Sample Temp.: degF	32	62	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	0.00	56.39	56.39
Dilution Air Volume: ft+3	0.00	8.36	8.36
Part. Sample Volume: ft+3	0.00	48.03	48.03
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	0.000	16.901	
Weighted Integrated Power:: hp-hr	0.000	14.487	14.487
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
	Sample ID: H14
Test Date	**95-03-04**
	84716
Test Time	**08:47:16**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: ~~Cold~~

Test Conditions

Ave. Barometer: mbar	1008.94	Pd: Pascal	1951.33
Ave. Ambient Temp.: degF	64.01	HC Den.: lb/ft+3	0.04
Relative Hum.: %	64.37	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52452.25		
Integ. meas. fuel flow: lb	9.362		
Integ. Power: hp-hr	17.118		
Integ. meas. BSFC: lb/hp-hr	0.547		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.65	59.73	18.74	0.510
Ambient Conc.:	4.96	0.19	1.29	0.039
Engine Conc.:	3.69	59.54	17.45	0.471
Mass: g	3.18	125.19	30.19	12806.9
Brake Specific: g/hp-hr	0.19	7.31	1.76	748.1
Mass of Carbon: g	3511.97			
Calc. Mass of Fuel: lb	8.945			
Calc. BSFC: lb/hp-hr	0.523			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	19.81	59.47	18.87	0.524
Ambient Conc. (Bag):	4.96	0.19	1.29	0.039
Engine Conc.:	14.85	59.28	17.57	0.485

Mass: g	12.94	124.45	30.47	13213.64
Brake Specific: g/hp-hr	0.76	7.27	1.78	771.9
Dilution Factor:	27.43			
Mass of Carbon: g	3631.60			
Calc. Mass of Fuel: lb	9.25			
Calc. BSFC: lb/hp-hr	0.540			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-04**
Test Time **08:47:16**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1009.23	Pd: Pascal	1996.47
Ave. Ambient Temp.: degF	64.85	HC Den.: lb/ft+3	0.04
Relative Hum.: %	61.12	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52434.41		
Integ. meas. fuel flow: lb	9.360		
Integ. Power: hp-hr	17.221		
Integ. meas. BSFC: lb/hp-hr	0.544		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.43	60.17	18.09	0.508
Ambient Conc.:	4.68	0.35	0.88	0.037
Engine Conc.:	3.75	59.82	17.21	0.471
Mass: g	3.23	125.75	29.78	12796.0
Brake Specific: g/hp-hr	0.19	7.30	1.73	743.0
Mass of Carbon: g	3508.89			
Calc. Mass of Fuel: lb	8.937			
Calc. BSFC: lb/hp-hr	0.519			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	27.69	58.91	13.13	0.520
Ambient Conc. (Bag):	4.68	0.35	0.88	0.037
Engine Conc.:	23.01	58.56	12.25	0.483

Mass: g	19.98	122.91	21.23	13141.65
Brake Specific: g/hp-hr	1.16	7.14	1.23	763.1
Dilution Factor:	27.55			
Mass of Carbon: g	3614.07			
Calc. Mass of Fuel: lb	9.20			
Calc. BSFC: lb/hp-hr	0.534			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-04**
Test Time **08:47:16**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	59	61	
Max Part. Sample Temp.: degF	72	74	
Ave. Part. Sample Temp.: degF	65	67	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	56.58	56.62	113.20
Dilution Air Volume: ft+3	8.34	8.35	16.68
Part. Sample Volume: ft+3	48.24	48.27	96.52
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	17.118	17.221	
Weighted Integrated Power:: hp-hr	2.445	14.761	17.207
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**	Sample ID: H15
Engine Tag Identification Nur	**6V92**	
Operator's Name	**Sylvia**	101540
Test Date	**95-03-04**	
Test Time	**10:15:40**	
Test Schedule	**DieselTrans**	
Test Description	**HDD, Manual trans. no mechanical clutc**	

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1008.90	Pd: Pascal	2075.64
Ave. Ambient Temp.: degF	65.92	HC Den.: lb/ft+3	0.04
Relative Hum.: %	56.31	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52428.01		
Integ. meas. fuel flow: lb	9.373		
Integ. Power: hp-hr	17.232		
Integ. meas. BSFC: lb/hp-hr	0.544		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.50	59.44	18.52	0.507
Ambient Conc.:	4.81	0.15	1.19	0.038
Engine Conc.:	3.70	59.29	17.33	0.470
Mass: g	3.18	124.62	29.97	12773.9
Brake Specific: g/hp-hr	0.18	7.23	1.74	741.3
Mass of Carbon: g	3502.90			
Calc. Mass of Fuel: lb	8.921			
Calc. BSFC: lb/hp-hr	0.518			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	19.77	59.08	18.77	0.522
Ambient Conc. (Bag):	4.81	0.15	1.19	0.038
Engine Conc.:	14.96	58.93	17.58	0.484

Mass: g	13.03	123.67	30.46	13175.52
Brake Specific: g/hp-hr	0.76	7.18	1.77	764.6
Dilution Factor:	27.49			
Mass of Carbon: g	3621.26			
Calc. Mass of Fuel: lb	9.22			
Calc. BSFC: lb/hp-hr	0.535			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-04**
Test Time	**10:15:40**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1008.53	Pd: Pascal	2185.48
Ave. Ambient Temp.: degF	67.11	HC Den.: lb/ft+3	0.04
Relative Hum.: %	54.80	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52377.37		
Integ. meas. fuel flow: lb	9.343		
Integ. Power: hp-hr	17.256		
Integ. meas. BSFC: lb/hp-hr	0.541		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.32	59.68	18.12	0.507
Ambient Conc.:	4.75	0.21	0.83	0.037
Engine Conc.:	3.56	59.48	17.29	0.470
Mass: g	3.07	124.89	29.88	12772.4
Brake Specific: g/hp-hr	0.18	7.24	1.73	740.2
Mass of Carbon: g	3502.34			
Calc. Mass of Fuel: lb	8.920			
Calc. BSFC: lb/hp-hr	0.517			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	27.75	58.95	12.68	0.520
Ambient Conc. (Bag):	4.75	0.21	0.83	0.037
Engine Conc.:	23.00	58.75	11.86	0.483

Mass: g	19.94	123.17	20.52	13125.15
Brake Specific: g/hp-hr	1.16	7.14	1.19	760.6
Dilution Factor:	27.55			
Mass of Carbon: g	3609.23			
Calc. Mass of Fuel: lb	9.19			
Calc. BSFC: lb/hp-hr	0.533			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-04**
Test Time **10:15:40**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	62	65	
Max Part. Sample Temp.: degF	75	77	
Ave. Part. Sample Temp.: degF	68	70	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	56.63	56.61	113.24
Dilution Air Volume: ft+3	8.35	8.34	16.69
Part. Sample Volume: ft+3	48.28	48.27	96.55
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	17.232	17.256	
Weighted Integrated Power:: hp-hr	2.462	14.791	17.253
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-04**
Test Time	**11:49:56**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Sample ID: H16

114956

Emission: Cold

Test Conditions

Ave. Barometer: mbar	1007.89	Pd: Pascal	2228.29
Ave. Ambient Temp.: degF	68.22	HC Den.: lb/ft+3	0.04
Relative Hum.: %	52.93	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52355.21		
Integ. meas. fuel flow: lb	9.333		
Integ. Power: hp-hr	17.274		
Integ. meas. BSFC: lb/hp-hr	0.540		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.25	59.65	18.09	0.505
Ambient Conc.:	4.65	0.28	0.89	0.037
Engine Conc.:	3.60	59.37	17.19	0.467
Mass: g	3.10	124.62	29.70	12695.0
Brake Specific: g/hp-hr	0.18	7.21	1.72	734.9
Mass of Carbon: g	3481.15			
Calc. Mass of Fuel: lb	8.866			
Calc. BSFC: lb/hp-hr	0.513			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	20.44	59.28	18.32	0.518
Ambient Conc. (Bag):	4.65	0.28	0.89	0.037
Engine Conc.:	15.78	59.00	17.42	0.481

Mass: g	13.71	123.64	30.13	13066.83
Brake Specific: g/hp-hr	0.79	7.16	1.74	756.4
Dilution Factor:	27.67			
Mass of Carbon: g	3592.04			
Calc. Mass of Fuel: lb	9.15			
Calc. BSFC: lb/hp-hr	0.530			

EPA Heavy Duty Transient Emissions Re

Engine Type	**Diesel**
Engine Tag Identification Nur	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-04**
Test Time	**11:49:56**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Emission: Hot

Test Conditions

Ave. Barometer: mbar	1007.25	Pd: Pascal	2291.89
Ave. Ambient Temp.: degF	68.97	HC Den.: lb/ft+3	0.04
Relative Hum.: %	51.41	NOx Den.: lb/ft+3	0.12
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52307.02		
Integ. meas. fuel flow: lb	9.324		
Integ. Power: hp-hr	17.258		
Integ. meas. BSFC: lb/hp-hr	0.540		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.43	59.83	18.67	0.510
Ambient Conc.:	4.68	0.03	0.72	0.037
Engine Conc.:	3.75	59.80	17.95	0.473
Mass: g	3.22	125.40	30.98	12834.1
Brake Specific: g/hp-hr	0.19	7.27	1.80	743.7
Mass of Carbon: g	3519.80			
Calc. Mass of Fuel: lb	8.964			
Calc. BSFC: lb/hp-hr	0.519			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	28.00	58.70	13.34	0.517
Ambient Conc. (Bag):	4.68	0.03	0.72	0.037
Engine Conc.:	23.32	58.67	12.63	0.480

Mass: g	20.19	122.85	21.81	13034.49
Brake Specific: g/hp-hr	1.17	7.12	1.26	755.3
Dilution Factor:	27.71			
Mass of Carbon: g	3585.25			
Calc. Mass of Fuel: lb	9.13			
Calc. BSFC: lb/hp-hr	0.529			

EPA Heavy Duty Transient Emissions Re

Engine Type **Diesel**
Engine Tag Identification Nur **6V92**
Operator's Name **Sylvia**

Test Date **95-03-04**
Test Time **11:49:56**
Test Schedule **DieselTrans**
Test Description **HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	64	66	
Max Part. Sample Temp.: degF	77	78	
Ave. Part. Sample Temp.: degF	70	72	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	56.45	56.50	112.96
Dilution Air Volume: ft+3	8.32	8.33	16.65
Part. Sample Volume: ft+3	48.13	48.18	96.31
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	17.274	17.258	
Weighted Integrated Power:: hp-hr	2.468	14.793	17.260
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00

Sample ID: H17

132150

EPA Heavy Duty Transient Emissions Report

Engine Type	**Diesel**
Engine Tag I.D. No.	**6V92**
Operator's Name	**Emission: Hot**

Test Date	**Test Conditions**		
Ave. Barometer: mbar	**19:26:24**	**Pd: Pasca**	**2233.56**
Ave. Ambient Temp.: degF	**66.79**	**HC Den.: lb/ft+3**	**0.04**
Relative Hum.: %	**59.26**	**NOx Den.: lb/ft+3**	**0.12**
Spec. Hum.: g/g	0.01	CO Den.: lb/ft+3	0.07
NOx Hum. Corr. Factor (K):	0.739	CO2 Den.: lb/ft+3	0.11
H/C ratio of Fuel:	1.85		
Fuel Den.: lb/ft+3	0.04		
gm Carbon/gm of Fuel:	0.87		
Bench Bleedoff: cu ft	4.99		
CVS Volume: ft+3	52272.11		
Integ. meas. fuel flow: lb	9.335		
Integ. Power: hp-hr	17.268		
Integ. meas. BSFC: lb/hp-hr	0.541		

Bag Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	8.73	58.85	19.71	0.519
Ambient Conc.:	4.96	0.16	1.48	0.039
Engine Conc.:	3.77	58.68	18.23	0.480
Mass: g	3.24	122.98	31.45	13016.1
Brake Specific: g/hp-hr	0.19	7.12	1.82	753.8
Mass of Carbon: g	3569.68			
Calc. Mass of Fuel: lb	9.091			
Calc. BSFC: lb/hp-hr	0.527			

Integrated (Dilute) Emission Test Results

	HC ppm	NOx ppm	CO ppm	CO2%
Sample Conc.:	20.43	57.36	19.77	0.522
Ambient Conc. (Bag):	4.96	0.16	1.48	0.039
Engine Conc.:	15.47	57.20	18.29	0.483
Mass: g	13.43	119.69	31.61	13118.94
Brake Specific: g/hp-hr	0.78	6.93	1.83	759.7
Dilution Factor:	27.52			
Mass of Carbon: g	3606.66			
Calc. Mass of Fuel: lb	9.19			
Calc. BSFC: lb/hp-hr	0.532			

EPA Heavy Duty Transient Emissions Report

Engine Type	**Diesel**
Engine Tag I.D. No.	**6V92**
Operator's Name	**Sylvia**
Test Date	**95-03-04**
Test Time	**13:21:50**
Test Schedule	**DieselTrans**
Test Description	**HDD, Manual trans. no mechanical clutc**

Particulate Test Results

	Cold Cycle	Hot Cycle	Total
Dilution Ratio Set Point	4.00	4.00	
Sample Temp. Set Point: degF	302.00	302.00	
Total Part. Flow Set Point: ft+3/min	10.00	10.00	
Min Part. Sample Temp.: degF	32	65	
Max Part. Sample Temp.: degF	32	77	
Ave. Part. Sample Temp.: degF	32	70	
Part. Filter 1 Final Weight: milli gra	0.000	0.000	
Part. Filter 1 Initial Weight: milli g	0.000	0.000	
Part. Filter 2 Final Weight: milli gra	0.000	0.000	
Part. Filter 2 Initial Weight: milli g	0.000	0.000	
Part. Filter Net Weight: milli gram	0.000	0.000	0.000
Total Dilution and Sample Volume: ft+3	0.00	56.42	56.42
Dilution Air Volume: ft+3	0.00	8.31	8.31
Part. Sample Volume: ft+3	0.00	48.11	48.11
Part. Mass: g	0.00	0.00	0.00
Weighted Part. Mass: g	0.00	0.00	0.00
Integrated Power: hp-hr	0.000	17.268	
Weighted Integrated Power:: hp-hr	0.000	14.801	14.801
Weighted BS Part. Mass: g/hp-hr	0.000E+00	0.000E+00	0.000E+00