Chapter 9
Response to Comments

With the release of the Draft Final MATES-II report in November 1999, the AQMD provided the public an opportunity to review and comment over a period of time ending February 22, 2000, coincident with a public workshop on the MATES-II program. A listing of comment letters submitted is shown on Table 9-1. A total of 22 comment categories (listed in Table 9-2) were identified from the comment letters.

Responses to these comments are summarized in this chapter. In providing this summary as part of the report, it is AQMD's intent to give readers some perspective as to the nature of the comments along with AQMD's position as to how those comments affected changes from the draft version.

Table 9-1

List of Commentors
on MATES II Draft Report

	Company/Organization	Contact/Commentor	Letter(s) Dated
1	Chemical Manufacturers Assoc. (CMA) - Acetone Panel	Courtney Price/Andrew Jacks	2/1/00
2	Chemical Manufacturers Assoc. (CMA) - Ketones Panel	Courtney Price/Andrew Jacks	2/1/00
3	Chemical Manufacturers Assoc. (CMA) - Olefins Panel	Courtney Price	1/31/00
4	City of Irvine	Joseph Farber	12/28/99
5	Communities for a Better Environment (CBE)	Julia May, Carlos Poras, Suzana Tapia	2/1/00
6	Cooper Environmental	Fred Cooper	1/18/00
7	County Sanitation District of Los Angeles County	Greg Adams	12/9/00, 12/23/99, & 1/13/00
8 & 8A	Engine Manufacturers Assoc. (EMA) & EMA/Environ	Joseph Suchecki	2/1/00 & 2/21/00
9	International Fuel Technology	(Concerned Citizen) Robert Wilson (Shareholder)	11/9/99
10	Latham and Watkins/Wash.D.C. (for) Navistar ITC (Int'l. Transp. Corp.)	Claudia O'Brien	1/31/00
11	Latham and Watkins/S.F. (for) Navistar TAC	Richard Raushenbush	2/1/00
12	Lorax	Karim Damji	1/31/00
13	Mendocino County AQMD	Dean Wolbach	1/21/00
14	Northrop Grumman	Millie Yamada	1/18/00
15	OEHHA	Robert Blaisdell	2/1/00
16	Pacific Environmental Services (PES)	Dean High	12/15/99, 1/6, 1/20, 1/25 & 2/10/00
17	Puget Sound Clean Air Agency	Naydene Maykut & Maggie Corbin	12/7 & 12/29/99
18	QSS Group, Inc.	Richard Bechtold	1/26/2000
19	WSPA/ARCO	Mark Saperstein	11/2/99, 11/19/99, & 2/3/00
20	City of Los Angeles	Lillian Kawasaki	2/1/00
21	Printing Industries of California	Tom Diep	2/2/00
22	Foothill Transit	Dan Phu	2/1/00
23	California Trucking Association	Stephanie Williams	2/22/00
24	Metal Finishing Assoc. of So. Calif.	Dan Cunningham	2/22/00

Table 9-2

Category of Comments

Category Number	Description of Category
I	Exclusion of Compounds as Toxic
2	• Using other than Cal EPA URF (i.e., USEPA's) • 70-Year Exposure Assumption
3	Styrene Categorization as a Carcinogen
4	Treatment of Monitoring Data
5	Modeling Issues: • Treatment of Non-Detect Values • Background Concentrations • Modeling Uncertainties
6	Definition of Cancer Risk
7	Indoor vs. Outdoor Risks
8	Inadequacy of Microscale Analysis
9	Other Health Effects of PM
10	Need for Further Analysis
11	Emissions Inventory Clarification
12	Detailed Data Availability
13	Definition of Hot Spots
14	Definition of Diesel Measured as Elemental Carbon (1.04 Factor)
15	Double-Counting of Diesel Contribution due to its Toxic Constituents (i.e., Other VOCs such as Benzene)
16	Definition of Average Risk
17	New Technology Solutions
18	Miscellaneous
19	Overview Document
20	Suggestions to Change Language of the Text
21	Identification of Sites vs. Regional Description
22	Vehicle Count vs. Elemental Carbon Measurements

Comment Category #1: Exclusion of Compounds as Toxic

Compounds such as acetones and methyl ethyl ketone (MEK) should not be listed as "toxic" or "high risk compounds" since they are not regulated as an air toxic in California or by the EPA, or have relatively low toxicity.

Commentors:
CMA Acetone Panel (Letter #1)
CMA Ketones Panel (Letter #2)

Response:

Table 4-1 and Table 4-2: Footnotes were added to clarify toxicity of compounds. Methyl ethyl ketone will continue to be identified as a toxic compound since according to Rule 1401 it has an acute reference exposure level of 13,000 $\mu g/m^3$.

Comment Category #2: • Using Other than Cal EPA URF (i.e., USEPA's)
• Exclusion of Compounds as Toxic

Several questions were raised about the appropriateness of using unit risk factors developed by Cal EPA, and the validity of assumptions incorporated in the values (70-year outdoor exposure, inadequacy of animal and epidemiology studies). Suggestions were made to use the USEPA unit risk factors and add further discussions about uncertainties associated with the development of URFs.

Commentors:
CMA Olefins Panel (Letter #3)
EMA (Letter #8)
Latham & Watkins for Navistar ITC (International Transp. Corp.) (Letter #10)
Lorax (Letter #12)
WSPA/ARCO (Letter #19)
City of Los Angeles (Letter #20)
Calif. Trucking Assoc. (CTA) (Letter #22)
Foothill Transit (Letter #23)

Response:

The AQMD recognizes that there are inherent uncertainties associated with the quantified risk factors established in California, and that on a national level, there has not been any recommendation for a quantified value for diesel. The AQMD further understands the concerns about earlier studies, which contributed to the California assessment of diesel. However, the AQMD staff relies upon the medical expertise within the Cal EPA for establishing pollutant toxicity factors (as well as the state ambient air quality standards for criteria pollutants), and believes the current estimate to be appropriately health protective. Also, the AQMD staff accepts risk factors established by Cal EPA as

applicable to the entire state. The 70-year exposure is one of the parameters used by Cal EPA in their URF calculations.

Comment Category #3: Styrene Categorization as a Carcinogen

Questions were raised about the listing of styrene as a non-carcinogenic compound. References were made to studies being conducted that could lead to listing styrene as a toxic compound.

Commentors:

City of Irvine (Letter #4)
OEHHA (Letter #15)

Response:

The text was revised to reflect the most current status of identification.

Comment Category #4: Treatment of Monitoring Data

- Comments were received that trends showing elemental carbon reductions have not been addressed.
- Questions were asked about the modeling treatment of concentrations below the minimum detection limit.

Commentors:

EMA (Letter #8)
EMA/Environ (Letter #8a)

Response:

Trends in Elemental Carbon:
The AQMD is aware of the study by Christoforou et.al., which was published in January 2000. Appropriate references to the study have been added to the text to reflect findings of about a 32% decrease in elemental carbon in the South Coast Air Basin between 1982 and 1993, although staff has some concerns about the consistency of the analytical methods for measuring elemental carbon reported in the article.

Model performance estimation of contaminants set to ½ detection limit:
The model performance for those contaminants where observations were set to half of the detection limit is poor, in part due to the fact that at very low levels, variability in modeled results is compared against non-varying levels presumed from measurements.

While the performance was poor, the modeled risk contributions from these contaminants to the overall risk are minimal, and do not appreciably affect the results of the study.

Comment Category #5: Modeling Issues
- ***Treatment of Non-Detect Values***
- ***Background Concentrations***
- ***Modeling Concentrations***
- ***Risk Uncertainties***

Modeling Issues:

Treatment of Non-Detect Values
A request was made to further analyze and discuss model performances in view of the number of measurements at or near the minimum detection level.

Boundary Conditions
Questions were raised about the consistency of boundary conditions in AQMP/SIP and toxic modeling exercises.

Modeling Performance
No modeling performance goals were set; performance is poor; USEPA's performance goals should be met.

Risk Uncertainties
Comments were made that modeling underestimates the impact of stationary sources.

Commentors:

EMA & EMA/Environ (Letters #8 and 8a)
Lorax (Letter #12)
City of Los Angeles (Letter #20)
Metal Finishing Assoc. (Letter #24)

Response:

Treatment of Non-Detect:
There are situations where low levels of certain pollutants are below the detection limits of current laboratory methods of analysis. When such circumstances occur, the actual ambient concentrations are unknown and range between zero and the instrumentation limit of detection In the MATES-II study, when "non-detects" occurred, it was assumed that the measured level was half way between zero and the detection limit. This convention has been in use by the Air Resources Board since the reporting of monitored toxics in the state commenced in 1990. This convention allows the vast majority of the data users to statistically manage the data. Other methods of handling non-detects are often difficult to implement or offer no practical advantage. The method is a conservative one that protects the public when analytical shortcomings cannot address

real emissions that are known to exist. Although the one-half this convention is not a regulation, it is considered at this time to be the best available tool for addressing "non-detects." The text of the report has been modified to include this explanation.

Regarding different detection limits (as illustrated in the table below) for the same compound, as occurred for some pollutants that were measured at two different laboratories (AQMD and ARB), such limits are a function of the type and age of the laboratory equipment used. Newer equipment tends to have greater low-concentration detection capabilities as compared to older equipment. Thus in the MATES-II database, in some instances different detection limits (and non-detect values) were used depending upon which laboratory conducted the analyses.

For computational purposes, measurements below minimum detection levels (MDLs) are also assumed to be one-half the respective MDL. The MDLs for the pollutants sampled for both the ARB and AQMD laboratories are given in the table below. Also shown are the percentages of non-detects. An argument could be made that if 90 percent or more of the samples are below the detection level then the ambient concentrations are probably closer to zero than to one-half the detection level. Note that the percentage of non-detects only exceed 90 percent for ethylene dibromide, ethylene dichloride, arsenic, and cadmium. Assuming that the ambient concentrations of ethylene dibromide, ethylene dichloride, arsenic, and cadmium are zero reduces the estimated risks on average for the ten fixed sites by 65 in a million. The total estimated risk is approximately 1413 in one million including diesel and 406 in one million excluding diesel toxicity. This should be considered as another source of uncertainty in the risk estimate.

	Minimum Detection Level		Non-detects
Toxic	**ARB**	**AQMD**	**(%)**
1,3 Butadiene	0.04 ppb	0.10 ppb	9
Acetaldehyde	0.10 ppb	0.10 ppb	3
Benzene	0.20 ppb	0.10 ppb	3
Carbon tetrachloride	0.02 ppb	0.20 ppb	46
Chloroform	0.02 ppb	0.10 ppb	58
Ethylene dibromide	--	0.10 ppb	100
Ethylene dichloride	--	0.10 ppb	98
Formaldehyde	0.10 ppb	0.10 ppb	2
Methylene chloride	1.00 ppb	0.10 ppb	37
Para-dichlorobenzene	0.20 ppb	0.10 ppb	47
Perchloroethylene	0.01 ppb	0.10 ppb	10
Trichloroethylene	0.02 ppb	0.10 ppb	55
Arsenic	3 ng/m^3	4 ng/m^3	97
Cadmium	--	10 ng/m^3	99
Hexavalent chromium	0.2 ng/m^3	0.06 ng/m^3	50
Nickel	2 ng/m^3	1 ng/m^3	5
Lead	3 ng/m^3	--	0
Selenium	2 ng/m^3	1 ng/m^3	65

Boundary Conditions:
The set of boundary conditions for the toxic contaminants modeled for the MATES-II analyses are presented in Table V-6 of the Appendix. The boundary conditions were determined from a variety of sources including a technical study conducted for EPA, monitored data, and estimated global background concentrations. For several contaminants, the background concentrations were set to near zero concentrations. We recognize that for 13 contaminants, the background concentration was set at levels that when multiplied by the corresponding URF contribute at least 1-in –1,000,000 to the background risk. The assumption of an 18 percent contribution from the boundary concentrations to the overall modeled risk, however, is overstated.

We can further examine the impacts by examining the highest four boundary concentrations from diesel, carbon tetrachloride, benzene and secondary formaldehyde. First, carbon tetrachloride has a recognized global background concentration. For formaldehyde, the boundary concentration was based on UAM speciation information used in the 1997 AQMP ozone attainment demonstration. The net impact to modeled formaldehyde resulted in less than 5 percent. For benzene, the boundary was extracted from the EPA technical study; and with its low reactivity, it is expected to have a long residence time in the atmosphere.

The largest contribution to the background risk arose from the diesel contribution. The diesel boundary concentration was set at 0.41μg/m3 for PM2.5 and 0.04 μg/m3 for the coarse fraction. These estimated levels were based on PM2.5 observations of elemental carbon (EC) taken at San Nicholas Island (SNI) where the EC concentration was measured at 0.18 μg/m3. SNI is located 80 miles offshore, approximately 40 miles further offshore that the western boundary for the modeling domain. The SNI EC

concentration was extrapolated to the western modeling boundary with the assumption that the concentration would increase slightly at the coastal shoreline as compared to NSI. Since there are no direct ambient measurements of diesel particulate emissions, the diesel contribution to the boundary condition was set to be equivalent to the EC concentration as a conservative assumption.

Model Performance:
EPA has set performance goals for episodic modeling demonstration used in control program evaluation. These goals are designed to estimate model performance for an ozone simulation that evaluates model performance for a limited set of days. No specific model performance criteria have been defined for an annual simulation of toxic compounds. We recognize that model performance can improve. One major limitation of the UAM analysis was the potential underestimation of mobile source emissions for the simulation. As stated in the MATES-II report and Appendix V, underestimation of the mobile source emissions was a contributing factor to lower model performance estimates. Uncertainties in the meteorological characterization may have also contributed. More recent work by ARB indicates that mobile source VOC emissions will be higher.

Under-Estimation of Risk from Stationary Sources:
Since the UAM uses a 2-km by 2-km grid resolution, emissions (both stationary and mobile) are assumed to be evenly distributed over the grid cell. As such, the model calculated concentrations are more regional in nature. The relative contribution between stationary and mobile emissions is accounted for in the model. The mobile source contribution would not be overstated relative to the concentrations calculated by the model.

Comment Category #6: Definition of Cancer Risk

Comments were made that the definition of cancer risk needed further clarification.

Commentors:

OEHHA (Letter #15)
WSPA/ARCO (Letter #19)

Response:

The language in the text was revised.

Comment Category #7: Indoor vs. Outdoor Risks

Comments were made about the assumption of total outdoor exposure in calculating URFs. Other comments were made that in Southern California, indoor and outdoor exposures could be very similar.

Commentors

EMA (Letter #8)
OEHHA (Letter #15)
City of Los Angeles (Letter #20)

Response:

Ideally, one would like to estimate risk based on total exposure an individual experiences while moving from one microenvironment or activity (such as a home, an office, or driving a car) to another. The MATES-II study only considers outdoor exposure so the risks estimated from the ambient measurements represents those experienced outdoors. The modeled risks discussed in Chapters 5 and 6 also represent outdoor exposures. The text was modified, as appropriate.

Comment Category #8: Inadequacy of Microscale Analysis

Questions were asked about the exclusion of mobile source emissions in the microscale modeling efforts. Suggestions were made on how to explain the purpose of the microscale study.

Commentors:

OEHHA (Letter #15)
Metal Finishing Assoc. (Letter #24)

Response:

Microscale modeling was designed primarily to analyze concentrations of toxic air pollutants in areas of expected localized higher stationary source impact. Although the modeling did not, in most cases, include mobile sources, the monitored results provide some indication of the relative risks between mobile and stationary sources. Please also see response to comment category #10.

The language on Page 6-1 was modified to better reflect the purpose of the microscale study.

Comment Category #9: Other Health Effects of PM

Comments were made regarding the potential risks and health effects of fine particulates (e.g., PM2.5) that were not characterized in the report.

Commentors:

City of Irvine (Letter #4)

Response:

The purpose of the study was to evaluate the risk of toxic compounds in the Basin. Other impacts of air pollution, including non-toxic health effects, are extensively analyzed in the development process for the National and State Air Quality Standards. These types of issues are extensively addressed in various Air Quality Management Plans.

Comment Category #10: Need for Further Analysis

Various commentors suggested that further analyses should be conducted in order to improve the report and to further clarify issues. Among the suggestions were:

- Monitoring platforms were not properly situated and need to be close to identified stationary toxic sources.
- Plans should be made to perform year-round microscale monitoring.
- Accidental releases should be addressed.
- The reason for higher PM at Burbank should be explained.
- The results of microscale modeling should be compared with measured data.
- Continue the development process and resolve the uncertainty in the diesel risk factor.

Commentors:

CBE (Letter #5)
Northrop Grumman (Letter #14)
City of Los Angeles (Letter #20)

Response:

Location of Microscale Monitors:
The microscale study was intended to sample in residential areas immediately downwind of clusters of facilities that are known to emit toxic pollutants. Because the objectives of the microscale monitoring program were to be within residential areas immediately downwind of facility clusters, and because logistical factors were crucial to the exact location of the monitoring platforms (due to permission to use private property; available

power; security considerations; etc.), the model predictions of maximum source impact did not coincide with the location of the measurements. It is important to recognize that local maximal impacts could indeed occur at locations which were not monitored, but the data collected at least provided some indication of what was occurring in the residential area around the monitoring platform. As indicated in changes to the text of the report, the microscale study can, in many respects, be considered a "pilot" study for any future microscale sampling programs.

Year round monitoring and accidental-release monitoring at microscale sites:
We agree that ideally, year round monitoring, or special monitoring for accidental releases would be desirable, however, the program was constrained by available resources. In total, the entire MATES-II study cost approximately $1.3 million. With the technical guidance from the Air Toxics Study Technical Review Group, staff believes that MATES-II represents the most comprehensive toxics monitoring program that could be conducted within the available resources.

Unusual "Other PM" measurements at Burbank:
The commentor is correct in pointing out the higher levels of "other PM" reported at Burbank. On 11/13/98, a cadmium level of 192 ng/m3 was measured at Burbank, whereas all other Burbank samples were near or below the detection limit of 10 ng/m3. It turns out that elevated cadmium levels were also detected on PM10 and TSP samples collected simultaneously at Burbank on that date, indicating that there was a source of airborne cadmium, as opposed to an instrument malfunction. We are unable to determine the cause of that singular event. Since the measurement is considered to be valid, it is included in the MATES-II averages, and it is the reason why "other PM" at Burbank are elevated as compared to other sites, and also why November is slightly higher than other months as depicted in Figure 3-6 (bottom).

Uncertainty in the Diesel Risk Factor:
Please see response to comment category #2.

Microscale Model vs. Measurements:
Requests were made to compare the results of microscale modeling with measured data. Given the limited length of microscale monitoring, this exercise would be beyond the scope of the study and will not be technically sound at this time. Please also refer to the response to comment category #8.

Comment Category #11: Emissions Inventory Clarification

Questions were asked about how the emissions of some specific source categories were allocated to specific locations. Comments were received about typical sources of emissions for specific compounds. Requests were made for more detailed emissions data.

Commentors:

CBE (Letter #5)
Puget Sound Clean Air Agency (Letter #17)
City of Los Angeles (Letter #20)
Metal Finishing Assoc. (Letter #24)

Response:

Area source emissions for dry cleaners, gas stations, and chrome plating operations were distributed to their exact location (specific point location) as shown in Figures 4-3, 4-4, and 4-5.

Table 4-1 was revised and matched to the inventory.

Emissions inventory Table 4-3 "Emissions by Major Source Category" was added to the report.

Comment Category #12: Detailed Data Availability

Requests were made to make the entire MATES-II database available on the AQMD web site. Specific requests for data were submitted to the District.

Commentors:

CBE (Letter #5)
Pacific Environmental Services (Letter #16)

Response:

Detailed data are available upon request through the AQMD's Public Records Request.

Comment Category #13: Definition of Hot Spots

Questions were asked about the definition of "Hot Spots".

Commentors:

Cooper Environmental (Letter #6)
Printing Industries of California (Letter #21)
City of Los Angeles (Letter #20)

Response:

AQMD staff believes that there is no well-accepted definition of "hot spots," and indeed there many be many different interpretations of that term. Within the context of this report, AQMD staff has used "hot spots" to denote conditions where measured concentrations at microscale sites were significantly (in a statistical sense) greater than at the closest paired fixed site, and also higher than observed at all other locations during the study. So that future uses of "hot spots" in air monitoring programs can have a more consistent definition, the AQMD will seek input from the ATSTRG to develop a consensus definition.

Comment Category #14: Definition of Diesel Measured as Elemental Carbon (1.04 Factor)

Comments were made about the validity of using elemental carbon as a surrogate for measuring diesel particulate, and the incorrectness of the 1.04 multiplier factor.

Commentors:

County Sanitation District of Los Angeles County (Letter #7)
EMA & EMA/Environ (Letters #8 and 8a)
Latham & Watkins (S.F.Ofc.) for Navistar TAC (Letter #11)
QSS Group, Inc. (Letter #18)
City of Los Angeles (Letter #20)
California Trucking Assoc. (CTA) (Letter #23)

Response:

Based on the 1982 inventory of fine particle emissions, Gray derived a factor 1.04 to estimate diesel as a function of EC. Gray's method relied on estimates that the elemental carbon portion of diesel particulate was 64 percent of the total diesel particulate load and that 67 percent of the fine elemental carbon mass in the Los Angeles atmosphere comes from diesel emissions.

Mathematically (to address questions in letter #23):

0.64 TD = DEC	TD	=	Total Diesel PM
DEC = 6.67 EC	DEC	=	Elemental Carbon Portion of Diesel
0.64 TD = 0.67 EC	EC	=	Elemental Carbon

TD = 1.04 EC

Using the 1998 emissions inventory, a more direct estimation of the Diesel/EC ratio can be made. The SCAB modeling emission inventory for PM2.5 diesel and PM2.5 EC from all sources are as follows:

	Emissions (TPD)			
	On-Road	Area and Off-Road	Point	Total
Diesel	10.92	10.63		21.55
EC	6.57	10.49	0.37	17.44

The 1998 ratio of diesel emissions to EC emissions equals 1.24.

Similarly, the modeling analysis for the ten MATES-II sites suggests that a slightly higher ratio of 1.39 exits between diesel particulate and elemental carbon from all sources. The following table summarizes the modeling results.

MATES-II Site	Diesel PM2.5 (µg/m3)	EC2.5 (µg/m3)	Diesel/EC
Anaheim	2.85	2.33	1.22
Burbank	2.52	2.13	1.18
Compton	3.20	2.16	1.48
Fontana	2.25	1.95	1.15
Huntington Park	2.70	2.22	1.22
Los Angeles	3.53	2.42	1.46
Long Beach	3.01	1.85	1.63
Pico Rivera	2.68	1.95	1.37
Rubidoux	2.24	1.95	1.15
Wilmington	3.43	1.71	2.01
Average			1.39

One of the advantages in dealing with PM2.5 inventories and PM2.5 modeling results is that the concerns over the influence by coarse particulates are eliminated. In the AQMD's TEP-2000 study, elemental carbon for both PM10 and PM2.5 fractions were sampled over one year, which predominantly coincided with the MATES-II sampling program. Five sites were common to both sampling programs: Long Beach, Los Angeles, Anaheim, Fontana, and Rubidoux,. The percent of PM2.5 elemental carbon contained within PM10 elemental carbon is 98.6%, 87.9%, 100%, 94.4%, and 86.7%, respectively for each of the five sites, indicating that fine particulate elemental carbon is dominant, and the coarse fraction is very small. Accordingly, for each of these sites, we can calculate the diesel particulate levels using the 1998 measured data to get PM2.5 elemental carbon, coupled with the modeled diesel/elemental carbon ratios. On a site-specific basis, these results can be compared with the methods used in the MATES-II report, that is, using the 1.04 factor multiplied by the PM10 elemental carbon levels. The results are shown below:

	Measured			**Estimated**	**EC-PM10**

Site	EC-PM10 (ug/m3)	TEP-2000 EC PM2.5/ PM10 Ratio	Modeled Diesel/EC Ratio	Diesel Particulate (ug/m3)	x 1.04 Diesel Partic. (ug/m3)
Long Beach	2.54	.986	1.22	3.06	2.64
Los Angeles	3.53	.879	1.46	4.53	3.67
Fontana	3.38	.944	1.15	3.67	3.51
Rubidoux	3.39	.867	1.15	3.38	3.52
Anaheim	2.44	1.00	1.22	2.97	2.53
Average				**3.522**	**3.174**

It can be seen that in every case, the 1998 estimates for diesel particulates are greater than the estimates based on the 1.04 factor developed in 1982. On average, the 1998 results are about 11% greater than the results with the 1982 factor.

While each method gives a different ratio for estimating potential risk due to diesel emissions, when examining monitored ambient concentrations, the most direct approach is to model diesel particulate emissions. When using measured data, the results above show that the use of the 1.04 factor does not overestimate diesel particulates.

Comment Category #15: Double-Counting of Diesel Contribution due to its Toxic Constituents (i.e., Other VOCs such as Benzene)

Questions were asked about possible double counting of diesel toxicity in the monitoring program. Specifically, the diesel unit risk factor is meant to reflect the toxicity of all compounds in diesel exhaust emissions. However, the District measured elemental carbon (surrogate to diesel), and some of the other compounds that are included in the diesel exhaust, separately. How significant is the double counting in the risk calculations?

Commentors:

County Sanitation District of Los Angeles County (Letter #7)
Puget Sound Clean Air Agency (Letter #17)
QSS Group, Inc. (Letter #18)
City of Los Angeles (Letter #20)

Response:

The inventoried emissions from diesel engines incorporated diesel particulates as well as several additional species including benzene, 1,3butadiene, formaldehyde, acetaldehyde, cadmium, lead, and nickel. Both gaseous and particulate diesel emissions were modeled and the resulting concentrations were used for the risk calculation. However, the unit risk factor assigned to diesel particles alone accounts for the whole diesel exhaust. Consequently, when the risk was calculated for the non-diesel particulate components of

the diesel exhaust an overlap or double counting of estimated risk occurred. The overlapping count of risk amounted to approximately about 1% of the total from diesel emissions.

The on-road diesel truck emissions can be used to demonstrate the effect of the overlapping risk estimation. Shown below is the risk calculation done for the two separate components of the diesel emissions: diesel emissions other than "diesel particulate", and diesel particulate emissions.

Species	Emissions (lbs/day)	URF ($x10^{-6}$)	URF Weighted Emissions
(a) Diesel Emissions Other Than "Diesel Particulate"			
Benzene	834	29	24186
1,3Butadiene	79	170	13430
Formaldehyde	6136	6	36816
Acetaldehyde	3066	2.7	8278
Cadmium	1.54	4200	6468
Lead	0.68	12	8
Nickel	0.36	260	94
Total			**89280**
(b) "Diesel Particulate" Emissions			
Diesel Particulate	**22890**	**300**	**6867000**

Since the total risk from diesel exhaust is represented by that calculated for diesel particulate, the additional risk calculated from (a), above, represents the overlap. From the calculation, a 1.3 percent increase in total risk is incurred. This margin of error is not viewed by AQMD staff as significant, given other counterbalancing factors such as those discussed in comment category #14.

Comment Category #16: Definition of Average Risk

Comments were received about the inappropriate use of the term "average risk", and comments were provided to clarify it.

Commentors:

EMA (Letter #8)
WSPA/ARCO (Letter #19)

Response:

In the MATES-II report, the term "average" was used to convey the average of the conditions across all fixed monitoring sites. The AQMD staff recognizes that the term "average cancer risk" may misconstrue the fact that potency factors are taken to reflect the upper limit of the confidence intervals, not the average. To avoid confusion, the term "basinwide cancer risk" will be used instead of "average cancer risk," and this term will be explained in the report to represent the risk derived from the average concentration of pollutants measured at the fixed monitoring sites.

Comment Category #17: New Technology Solutions

A product was presented to reduce diesel emissions.

Commentors:

International Fuel Technology (Letter #9)

Response:

The evaluation of new technology is outside of the scope of this study. Evaluation of advances in fuel or any other technology are regularly pursued by the AQMD's Office of Science and Technology Advancement (TAO), and/or the California Air Resources Board's Mobile Source and Research Division. A copy of the commentor's letter has been forwarded to TAO. (Of course, engine manufacturers and fuel producers are very interested in emission reducing technologies.)

Comment Category #18: Miscellaneous

- The final report should discuss the monitoring of accidental releases from stationary sources.
- There are inconsistencies between the federal PM2.5 standard of 15μg/m^3 and the unit risk factors used by the District.
- There are inconsistencies in the report about carbon tetrachloride.
- The AQMD should establish a formal process to determine how to best use the information in MATES-II.
- Various other questions were asked that are mostly answered in the report.

Commentors:

Communities for a Better Environment (CBE) (Letter #5)
EMA/Environ (Letter #8a)
WSPA/ARCO (Letter #19)
City of Los Angeles (Letter #20)
Foothill Transit (Letter #22)

Response:

Accidental Releases:
The assessment of potential impact of accidental releases was beyond the scope of this study.

Inconsistency between Risk Factor for Diesel and PM2.5 Standard:
AQMD staff believes the considerations made in establishing the PM2.5 standard of 15 ug/m3 as an annual average did not take into account toxic pollutants, since these are individual compounds handled separately under the toxics programs. By analogy, hexavalent chromium is a potent carcinogen measured in the atmosphere at levels around 1 nanogram per cubic meter. If hexavalent chromium, which has been listed as a federal hazardous air pollutant long before the new PM2.5 standards were promulgated by U.S. EPA, were part of that consideration, then a particulate standard at the nanometer level would be expected. We therefore do not believe there are inconsistencies between specific PM carcinogenic risk factors and the PM2.5 federal standards.

Carbon Tetrachloride:
The text was revised.

Application of the Report:
The AQMD Board will consider all available information in establishing the process by which MATES-II will be used.

Various Issues:
The report discusses issues listed.

Comment Category #19: Overview Document

Questions were asked about the Overview Document.

Commentors:

EMA (Letter #8)

Response:

Since the release of the Draft Report, there has not been any noticeable interest (as expressed by requests from the public) for the Overview Document. Therefore, AQMD will not be providing a separate overview document with the release of the Final MATES-II Report. Staff intends, rather, to provide stand-alone copies of the Executive Summary to those who express interest in a condensed version of the report.

Comment Category #20: Suggestions to Change Language of the Text

Suggestions were made to change the language of the text.

Commentors:

Northrop Grumman (Letter #14)
City of Los Angeles (Letter #20)

Response:

Comments were incorporated as deemed appropriate.

Comment Category #21: Identification of Sites by Region

Questions were raised about the validity of identifying a region by the name of a specific city.

Commentors:

ATSTRG Committee

Response:

For the MATES-II fixed sites, locations were selected based on "neighborhood scale" guidance as developed by the U.S. EPA. As such, the fixed sites may represent conditions in areas that may include adjacent communities. Because the release of the draft report referred to specific locations, those will be retained, however, text has been added to clarify that these sites may represent more than just the community where the monitor was placed. For the microscale sites, on the other hand, site placement was very specific to localized conditions, and it is not expected that such sites would be representative of larger areas.

Comment Category #22: Vehicle Count vs. Elemental Carbon Measurements

Comments were received illustrating that truck counts conducted on freeways close to MATES-II sites do not correlate with measured elemental carbon concentrations at those sites.

Commentors:

California Trucking Assoc. (Letter #23)

Response:

Truck counts at a nearby freeway do not necessarily relate to elemental carbon measurements at a monitoring site. Other factors such as traffic data on all roads, proximity of the roads to the measuring site, level of congestion, meteorology, and emission factors need to be considered. These parameters can then be used as inputs to a point/line source air quality model. For the grid-based regional model used in the MATES-II study, many of these important elements were included as part of the model. Please also refer to the last part of comment category #5.