American
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HAZARDOUS AIR POLLUTANT EMISSIONS FROM GASOLINE LOADING OPERATIONS AT BULK GASOLINE TERMINALS

Health and Environmental Affairs Department
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American Petroleum Institute

American Petroleum Institute Environmental, Health, and Safety Mission and Guiding Principles

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The members of the American Petroleum Institute are dedicated to continuous efforts to improve the compatibility of our operations with the environment while economically developing energy resources and supplying high quality products and services to consumers. We recognize our responsibility to work with the public, the government, and others to develop and to use natural resources in an environmentally sound manner while protecting the health and safety of our employees and the public. To meet these responsibilities, API members pledge to manage our businesses according to the following principles using sound science to prioritize risks and to implement cost-effective management practices:

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- To extend knowledge by conducting or supporting research on the safety, health and environmental effects of our raw materials, products, processes and waste materials.
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- To promote these principles and practices by sharing experiences and offering assistance to others who produce, handle, use, transport or dispose of similar raw materials, petroleum products and wastes.

Hazardous Air Pollutant Emissions From Gasoline Loading Operations at Bulk Gasoline Terminals

Health and Environmental Affairs Department

API PUBLICATION NUMBER 347

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EXECUTIVE SUMMARY

This report presents hazardous air pollutant (HAP) and volatile organic compound (VOC) emission test results from gasoline loading operations at bulk gasoline terminals. These tests were conducted for the American Petroleum Institute (API) to provide more accurate HAP emission estimates from bulk gasoline terminals employing emissions control equipment. Current procedures typically assume that control efficiencies for HAPs are equal to the control efficiencies for total VOC.

For this study, API sponsored HAP emission testing at 33 bulk gasoline terminals around the United States. Each test measured emissions from facilities with a vapor control system. Emission tests from 23 carbon adsorption units (with VOC emission factors ranging from 0.7 to 70 milligrams of VOC/liter gasoline loaded), eight thermal oxidizers, and two refrigeration units were included.

Control efficiencies for eight HAP compounds were derived for carbon adsorption units and thermal oxidizers (no control efficiencies are reported from the refrigeration units due to the limited data collected). Table ES-1 summarizes the average control efficiencies found in this study. The results from the carbon adsorption units indicate that control efficiencies for HAPs average over 99% and are insensitive to the total VOC control efficiency of the treatment unit. This is observed even at VOC control efficiencies below 90%. These conclusions are illustrated in Figure ES-1. The limited data from the thermal oxidizer emission tests indicate that the control efficiencies for HAPs are similar to the control efficiencies for total VOCs.

Finally, the HAP control efficiencies presented in this report have been used to develop HAP emission factors. Derivation of these emission factors is dependent on facility operation parameters (e.g., vapor balancing, bottom loading) and gasoline speciation characterization (i.e., HAP content in gasoline). These HAP emission factors can be used to determine HAP emissions based on the volume of gasoline loaded at a facility.

TABLE ES-1. HAP CONTROL EFFICIENCIES (CE) FOR VAPOR CONTROL UNITS AT GASOLINE LOADING RACKS

	Carbon Adsorbers			Thermal Oxidizers		
HAP Compound	Average CE %	Min. CE %	Max. CE %	Average CE %	Min. CE %	Max. CE %
MTBE	99.65	98.49	100.0	99.79	99.63	99.96
Benzene	99.97	99.86	100.0	99.83	99.16	100.0
Toluene	99.93	99.62	100.0	98.86	96.42	100.0
Ethylbenzene	99.66	98.54	100.0	100.0	100.0	100.0
m,p-Xylene	99.55	97.98	100.0	99.21	96.06	100.0
o-Xylene	99.61	97.69	100.0	100.0	100.0	100.0
Xylene Average	99.58	na	na	99.60	na	na
Hexane	99.88	99.00	100.0	99.48	98.29	100.0
Isooctane	99.62	97.51	100.0	99.76	99.39	100.0
Total HAP	99.74	98.77	100.0	99.56	99.42	99.97
Total HAP w/o MTBE	99.82	99.02	100.0	99.52	99.32	100.0
Average HAP CE %	99.73	98.59	100.0	99.61	98.62	100.0
Total VOC	97.30	87.44	99.94	99.47	99.00	99.77

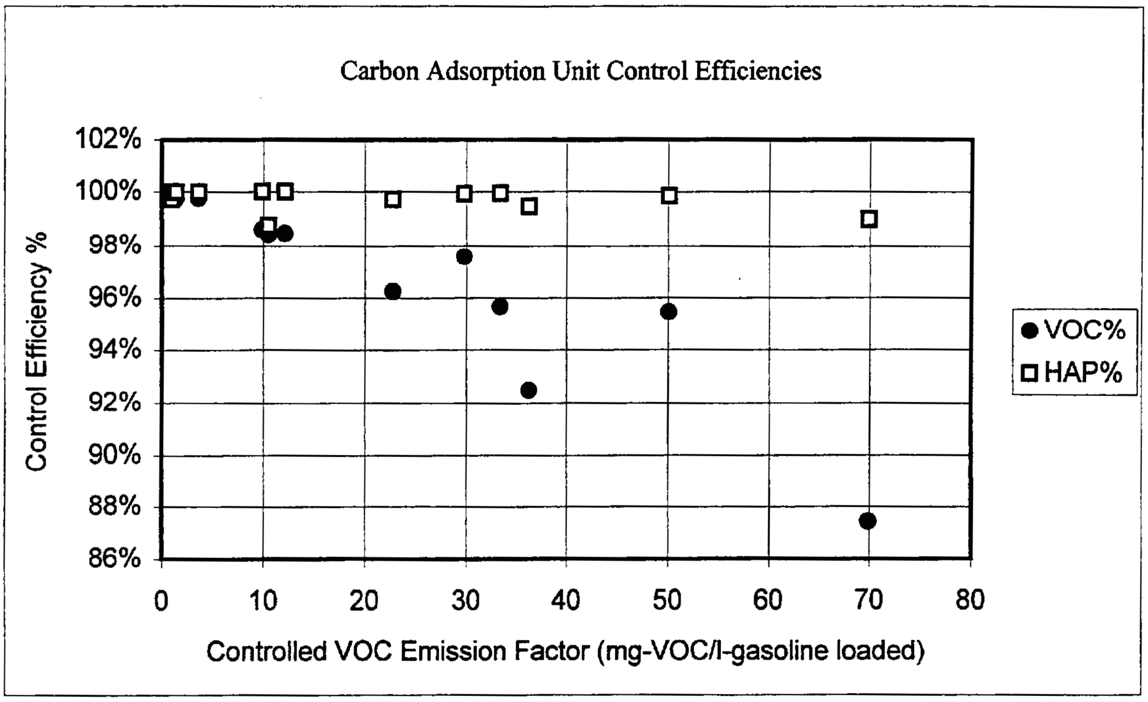

FIGURE ES-1. CARBON ADSORPTION UNIT CONTROL EFFICIENCIES

SECTION 1

INTRODUCTION

The American Petroleum Institute (API) has conducted this study to measure the controlled emission rate of volatile organic compounds (VOCs) and volatile organic hazardous air pollutants (HAPs) from gasoline loading operations at bulk gasoline terminals. The results of these emission tests have been used to develop new controlled emission factors for HAPs at bulk gasoline terminals.

In developing the emission factors presented in this report, API followed the most recent EPA procedures for preparing AP-42 emission factors (EPA, 1992). In preparing this report, API followed the suggestions for submitting emission factors to EPA as outlined in the draft report "Public Participation Procedures for EPA's Emissions Estimation Guidance Materials" (EPA, 1994).

During the development of the Gasoline Distribution National Emission Standards for Hazardous Air Pollutants (NESHAP), it was estimated that of the 1,024 bulk terminals, approximately 70 percent were controlling VOC emissions from the loading racks. Additionally, it was estimated that 63,520 megagrams (Mg) of VOC and 3,460 Mg of HAP are released from loading racks at bulk terminals on an annual basis.[2]

To estimate the HAP emissions from bulk terminals, it was previously assumed that the relative HAP and VOC compositions of the vapor stream after control are equal to the relative compositions prior to control. This study was launched to measure HAP emissions and test the validity of this assumption.

The objective of this study is to measure emissions from the loading of gasoline cargo tanks at loading facilities (i.e., bulk terminals) and present a method for determining emission factors for these sources. The emission factors apply to loading facilities which utilize carbon adsorption units or thermal oxidizers to reduce gasoline emissions.

Section 2 presents the test methods used for the study. Section 3 evaluates the quality of each of the 33 tests included in the study. Section 4 presents the results of the emission tests and summarizes the calculated control efficiencies for HAPs. Section 5 presents example calculations illustrating the development of emission factors using the test results and currently available bulk terminal emission information. A discussion of sensitive parameters that may impact these results is also presented in

Section 5. Section 6 lists the references used or referred to in this report. Appendix A contains the sampling and analytical protocols used in this study. Appendix B presents detailed information on the 20 data sets used to calculate the emission factors. Appendix C presents detailed information on the 13 data sets excluded from the emission factor calculations.

SECTION 2

TEST METHODS

For this study, API sponsored HAP emissions testing at 33 bulk gasoline terminals around the United States. Each test measured emissions from facilities with a vapor control system. Emission tests from 23 carbon adsorption, eight thermal oxidizers, and two refrigeration units were included. This section describes the sampling and analytical procedures used.

SAMPLING TECHNIQUES

Simultaneous with the VOC emissions testing, testing was performed for selected HAPs using a test protocol developed by API for this study.[3] Six gas samples were extracted (three inlet samples simultaneous with three outlet samples) at set two hour intervals during the first six hours of the VOC emissions test. EPA Method 18, Section 7.1 sampling procedures were followed. To prevent contamination, new Teflon® tubing and new Tedlar® bags were used for each test. After the initial sampling, all Tedlar® bag gas samples were sub-sampled into SUMMA® polished canisters following the general guidelines of EPA-600/4-89-017 Method TO-14. For more details refer to the API test protocol presented in Appendix A.

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ANALYTICAL TECHNIQUES

Analysis for selected HAPs was performed using a protocol developed by API for this study. This protocol followed the guidelines of EPA Methods 18, TO-3, and SW846-8020 and SW846-8015. Sample aliquots from the SUMMA® polished canisters were analyzed on a gas chromatograph (GC) with a photo ionization detector (PID) and a flame ionization detector (FID) in series. The GC was calibrated with a 5-level curve with quantification performed by the external standards technique. Standards were purchased as commercial gas standards or prepared by the static dilution technique by the laboratory. The method detection limit (MDL) was 10 parts per million by volume (ppmv) for inlet samples and 0.2 ppmv for outlet samples for all pollutants except for methanol. For methanol, the MDL was 100 ppmv for inlet samples and 2 ppmv for outlet samples. Samples exhibiting matrix interference on compound identification were confirmed by GC/MS. Table 2-1 presents a list of the HAP compounds measured in this study. For more details refer to the API analytical protocol presented in Appendix A.

TABLE 2-1. HAZARDOUS AIR POLLUTANTS MEASURED IN SAMPLES

CAS No.	Compound Name	Molecular Weight	Analysis Method
106-99-0	1,3-Butadiene	54.09	PID
1634-04-4	Methyl Tert-Butyl Ether	88.15	PID
71-43-2	Benzene	78.11	PID
108-88-3	Toluene	92.13	PID
100-41-4	Ethylbenzene	106.16	PID
108-38-3	m,p-xylene	106.16	PID
95-47-6	o-xylene	106.16	PID
98-82-8	Cumene	120.19	PID
91-20-3	Naphthalene	128.16	PID
67-56-1	Methanol	32.04	FID
110-54-3	Hexane	86.17	FID
540-84-1	Isooctane	114.22	FID

SECTION 3

EVALUATION OF DATA SETS

This study consisted of the evaluation of 33 emissions tests performed on gasoline loading racks at 29 bulk gasoline terminals. Two of the 29 bulk terminals had two separate loading racks accounting for two additional tests. At one of the bulk terminals, three separate tests were performed on the same vapor control system accounting for two additional tests. Each of the 33 tests measured emissions from a vapor control system. Of the 33 tests or data sets, 23 quantify emissions from carbon adsorber units (CAU), eight from thermal oxidizers (TO), and two from refrigeration systems. To preserve the anonymity of each terminal, a code was assigned to each data set as follows: C-1 through C-21C were assigned to terminals with carbon adsorbers, T-1 through T-8 to terminals with thermal oxidizers, and R-1 and R-2 to terminals with refrigeration systems. Table 3-1 provides a summary of the data sets evaluated in this study.

TABLE 3-1. SUMMARY OF DATA SETS

API CODE	Sampling Date	Vapor Control Unit Type	Vapor Control Unit Manufacturer	VOC Compliance Limit (mg/l)	Accountable Gasoline Loaded (gal)	Total Product Loaded (gal)
C-1	8/10/95	Carbon Adsorber	John Zink	INA	35,200	42,700
C-2	8/14/95	Carbon Adsorber	John Zink	INA	183,500	183,500
C-3	9/6/95	Carbon Adsorber	John Zink	INA	733,404	733,404
C-4	8/22/95	Carbon Adsorber	McGill	35	10,100	154,625
C-5	8/30/95	Carbon Adsorber	McGill	80	58,810	69,535
C-6	9/1/95	Carbon Adsorber	McGill	80	42,750	62,0505
C-7	9/15/95	Carbon Adsorber	INA	INA	INA	INA

TABLE 3-1. (Continued)

API CODE	Sampling Date	Vapor Control Unit Type	Vapor Control Unit Manufacturer	VOC Compliance Limit (mg/l)	Accountable Gasoline Loaded (gal)	Total Product Loaded (gal)
C-8	9/19/95	Carbon Adsorber	McGill	35	188,400	199,100
C-9	9/21/95	Carbon Adsorber	John Zink	35	132,500	154,398
C-10	9/29/95	Carbon Adsorber	McGill	80	130,940	180,375
C-11	10/10-10/11/95	Carbon Adsorber	McGill	INA	123,590	123,590
C-12	10/12/95	Carbon Adsorber	McGill	80	200,100	262,872
C-13	11/3/95	Carbon Adsorber	John Zink	35	116,050	201,850
C-14	8/17/95	Carbon Adsorber	John Zink	35	220,200	227,700
C-15	5/31/95	Carbon Adsorber	John Zink	35	180,455	209,633
C-16	5/22/95	Carbon Adsorber	John Zink	35	132,789	132,789
C-17	5/23/95	Carbon Adsorber	John Zink	35	93,529	93,529
C-18	6/2/95	Carbon Adsorber	John Zink	35	61,939	175,456
C-19	6/20/95	Carbon Adsorber	John Zink	35	328,495	328,495
C-20	6/22/95	Carbon Adsorber	John Zink	35	267,598	301,424
C-21A	7/24/97	Carbon Adsorber	McGill	80	154,590	208,250
C-21B	7/24/97	Carbon Adsorber	McGill	80	146,492	155,092
C-21C	7/25/97	Carbon Adsorber	McGill	80	161,650	185,550
T-1	8/16/95	Thermal Oxidizer	John Zink	35	222,211	237,213
T-2	10/31/95	Thermal Oxidizer	John Zink	INA	724,581	724,581

TABLE 3-1. (Concluded)

API CODE	Sampling Date	Vapor Control Unit Type	Vapor Control Unit Manufacturer	VOC Compliance Limit (mg/l)	Accountable Gasoline Loaded (gal)	Total Product Loaded (gal)
T-3	9/13/95	Thermal Oxidizer	John Zink	10	308,100	340,300
T-4	9/22/95	Thermal Oxidizer	John Zink	35	205,396	305,396
T-5	10/27/95	Thermal Oxidizer	NAO	INA	27,572	27,572
T-6	5/1/96	Thermal Oxidizer	John Zink	10	175,850	209,850
T-7	6/19/96	Thermal Oxidizer	John Zink	INA	244,874	285,874
T-8	11/10/95	Thermal Oxidizer	John Zink	35	94,860	156,340
R-1	10/18/95	Refrigeration	Edwards	INA	235,794	235,794
R-2	10/17/95	Refrigeration/TO	Edwards/Zink	10	909,201	909,201

INA Indicates that information was not available in the data sets.

SELECTION OF DATA SET LOCATIONS

API member companies volunteered their bulk terminals for participation in this study. Terminals in the following 18 states participated: Arizona, California, Illinois, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Texas, Virginia, and Wisconsin. Testing occurred between August 6, 1995 and July 26, 1997. In every case but two, the testing for selected HAPs was performed simultaneously with required VOC compliance testing.

EVALUATION PROCEDURES AND RESULTS

Each data set was assigned an overall data quality rating of A, B, C or D using the latest EPA guidance. This overall rating was based on a subjective evaluation of four separate criteria: 1) Source Operation, 2) Test Method and Sampling Procedures,

3) Sampling and Process Data, and 4) Analysis and Calculations. Each data set was assigned a rating (A through D) for each criterion. Two criteria—Test Method and Sampling Procedures, and Sampling and Process Data—were given more weight when the overall rating was assigned. Table 3-2 provides a summary of the overall quality ratings assigned to each data set as well as the quality ratings for each of the four criteria. The four criteria were evaluated as described below.

Source Operation ratings were assigned based on how well the source operation was documented and whether the source and control devices were operated within normal operating parameters.

The highest Source Operation rating assigned was a B due to the lack of documentation in all the reports on the operation of the vapor control system during the testing (e.g., operating temperature of the thermal oxidizer was not documented).

Test Method and Sampling Procedures ratings were assigned based on the accuracy of the test method and how well the field testing was documented. The highest Test Method and Sampling Procedures rating assigned was a B because the protocol failed to address proportional sampling and there was not sufficient field documentation in any of the reports on the HAP sampling (e.g., there was no documentation provided which indicated that HAP sampling was suspended when there was no product being loaded).

Sampling and Process Data ratings were assigned based on the variation in pollutant concentration between test run results. Since product loading varied significantly during the tests, run-by-run variations were expected. However, as a general rule, when the results of all three runs agreed within 50%, an A rating was assigned. When the individual test run results varied by more than 50% but less than an order of magnitude, a B or C rating was assigned. B ratings were assigned if there was a reasonable explanation of the variation, while C ratings were assigned when there was no reasonable explanation for the variation. When the individual test results varied by more than an order of magnitude, a C or D rating was assigned. Again, a C rating was assigned if an explanation was found, and a D rating was assigned when there was no reasonable explanation for the variation.

Analysis and Calculations ratings were assigned based on the level of documentation and quality of quality assurance (QA) data in the analytical reports and on how accountable product was calculated in the VOC compliance reports. The highest Analysis and Calculations rating assigned was a B because of the lack of traceable QA data in each of the analytical reports. A summary and discussion of the ratings assigned to each data set is presented in this section.

TABLE 3-2. SUMMARY OF DATA SET QUALITY RATINGS

API Code	Source Operation	Test Method and Sampling Procedures	Sampling and Process Data	Analysis and Calculations	Overall Rating	Used to Develop Factors
C-1	D	D	D	B	D	No
C-2	D	D	D	B	D	No
C-3	B	B	A	B	B	No
C-4	D	B	A	C	D	No
C-5	B	B	D	C	D	No
C-6	B	B	C	C	C	Yes
C-7	D	D	D	B	D	No
C-8	B	B	B	B	B	Yes
C-9	B	B	A	C	B	Yes
C-10	B	B	A	B	B	Yes
C-11	C	D	D	B	D	No
C-12	B	B	B	B	B	Yes
C-13	B	B	D	C	D	No
C-14	C	B	A	B	B	Yes
C-15	C	C	B	C	C	Yes
C-16	C	C	B	C	C	Yes
C-17	B	C	A	C	B	Yes
C-18	C	C	B	B	C	Yes
C-19	B	C	B	B	B	Yes
C-20	B	C	A	C	B	Yes
C-21A	B	B	B	C	B	Yes

TABLE 3-2. (Concluded)

API Code	Source Operation	Test Method and Sampling Procedures	Sampling and Process Data	Analysis and Calculations	Overall Rating	Used to Develop Factors
C-21B	B	B	B	C	B	Yes
C-21C	B	B	B	C	B	Yes
T-1	C	B	B	B	B	Yes
T-2	D	B	D	C	D	No
T-3	B	B	A	C	B	Yes
T-4	B	B	D	B	D	No
T-5	D	C	C	C	D	No
T-6	B	B	B	C	B	Yes
T-7	B	B	A	C	B	Yes
T-8	B	B	A	B	B	Yes
R-1	B	D	C	B	D	No
R-2	B	C	C	C	C	No

C-1: Reference C-1 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on August 10, 1995. The test was given an overall rating of D. Source Operation was given a D rating because the process stopped operation after the first run. Test Method and Sampling Procedures was given a D rating because no test report or documentation on the sampling procedures was available. Sampling and Process Data was given a D rating because very little process data and no sampling data were available. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

C-2: Reference C-2 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on August 14, 1995. The test was given an overall rating of D. Source Operation was given a D rating because no process operation or control system information was available. Test Method and Sampling Procedures was given a D rating because no test report or documentation on the sampling procedures was available. Sampling and Process Data was given a D rating because no process or sampling data were available. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

C-3: Reference C-3 is a source test performed on a carbon adsorption system at a large barge loading terminal on September 6, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the operation of the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. Although this data set was given an overall B rating, it was not used in developing the average emission factors presented in Section 4 because the process was barge loading instead of cargo tank loading.

C-4: Reference C-4 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on August 22, 1995. The test was given an overall rating of D. Source Operation was given a D rating due to the lack of documentation on the carbon adsorber and because of very low product loading during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a C rating because of the lack of traceable QA data in the analytical report and because of the way accountable product was calculated. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

C-5: Reference C-5 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on August 30, 1995. The test was given an overall rating of D. Source Operation was given a B rating due to the lack of documentation on the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a D rating because, for no apparent reason, the run-to-run HAP concentrations varied by an order of magnitude. Analysis and Calculations was given a C rating because no detailed analytical report was available. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

C-6: Reference C-6 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on September 1, 1995. The test was given an overall rating of C. Source Operation was given a B rating due to the lack of documentation on the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and

Process Data was given a C rating because run-to-run HAP concentrations varied by an order of magnitude. The variation may be due in part to the load swings during the testing. Analysis and Calculations was given a C rating because of the lack of traceable QA data in the analytical report and because of the way accountable product was calculated. This data set was used in developing the average emission factors presented in Section 4.

C-7: Reference C-7 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on September 15, 1995. The test was given an overall rating of D. Source Operation was given a D rating because no process operation or control device information was available. Test Method and Sampling Procedures was given a D rating because no test report or documentation on the sampling procedures was available. Sampling and Process Data was given a D rating because no process or sampling data were available. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

C-8: Reference C-8 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on September 19, 1995. The test was given an overall rating of B. Source Operation was given a B rating because there was no documentation on the operation of the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a B rating because run-to-run HAP concentrations varied significantly. The variation may be due in part to the load swings during the testing. Analysis and Calculations was given a B rating because of the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

C-9: Reference C-9 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on September 21, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the operation of the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a C rating because of the lack of traceable QA data in the analytical report and because the Relative Percent Difference (RPD) of the duplicate analyses was greater than 30%. This data set was used in developing the average emission factors presented in Section 4.

C-10: Reference C-10 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on September 29, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the operation of the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and

Calculations was given a B rating due to the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

C-11: Reference C-11 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on October 10 and 11, 1995. The test was given an overall rating of D. Source Operation was given a C rating due to the lack of documentation on the carbon adsorber and because many truck tanks leaked vapors during the testing. Test Method and Sampling Procedures was given a D rating because sampling was not performed on the inlet to the carbon adsorber. Sampling and Process Data was given a D rating because for no apparent reason the run-to-run HAP concentrations varied by an order of magnitude. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

C-12: Reference C-12 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on October 12, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the operation of the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a B rating because inlet HAP data were missing for run 3. The average inlet HAP data presented for C-12 are based on the average of runs 1 and 2. Analysis and Calculations was given a B rating because of the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

C-13: Reference C-13 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on November 3, 1995. The test was given an overall rating of D. Source Operation was given a B rating due to the lack of documentation on the operation of the carbon adsorber during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a D rating because for no apparent reason the run-to-run HAP concentrations varied by an order of magnitude. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and because the percent variation between duplicate analyses for some of the HAPs was greater than 30%. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

C-14: Reference C-14 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on August 17, 1995. The test was given an overall rating of B. Source Operation was given a C rating due to the lack of documentation on the carbon adsorber and because of low product loading during the first run. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

C-15: Reference C-15 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on May 31, 1995. The test was given an overall rating of C. Source Operation was given a C rating due to the lack of documentation on the carbon adsorber and because the vapor holding tank made it difficult to accurately apportion product to the individual runs. Test Method and Sampling Procedures was given a C rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a B rating because the run-to-run HAP concentration results varied more than 50% due to the use of a holding tank. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and a discrepancy with the accountable product loaded. This data set was used in developing the average emission factors presented in Section 4.

C-16: Reference C-16 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on May 22, 1995. The test was given an overall rating of C. Source Operation was given a C rating due to the lack of documentation on the carbon adsorber and because of low product loading during the third run. Test Method and Sampling Procedures was given a C rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a B rating because the run-to-run HAP results varied by more than 50%. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and the MTBE duplicate analysis varied by more than 30%. This data set was used in developing the average emission factors presented in Section 4.

C-17: Reference C-17 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on May 23, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the carbon adsorber. Test Method and Sampling Procedures was given a C rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report, duplicate analyses varied by more than 30%, and the compliance report contained a minor mistake. This data set was used in developing the average emission factors presented in Section 4.

C-18: Reference C-18 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on June 2, 1995. The test was given an overall rating of C. Source Operation was given a C rating due to the lack of documentation on the carbon adsorber and because about 25% of the potential gasoline vapor was not counted (current diesel loading with previous gasoline service). Test Method and Sampling Procedures was given a C rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a B rating because the results varied by more than 50% caused by variations in the product loading. Analysis and

Calculations was given a B rating due to the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

C-19: Reference C-19 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on June 20, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the carbon adsorber. Test Method and Sampling Procedures was given a C rating because of the lack of field documentation on the HAP sampling and the lack of inlet 5-minute VOC readings. Sampling and Process Data was given a B rating due to inability to compare run by run data. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

C-20: Reference C-20 is a source test performed on a carbon adsorption system at a bulk gasoline terminal on June 22, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the carbon adsorber. Test Method and Sampling Procedures was given a C rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and the way accountable product was calculated. This data set was used in developing the average emission factors presented in Section 4.

C-21A, C-21B, C-21C: References C-21A, C-21B, and C-21C are three separate source tests performed on a carbon adsorption system at a bulk gasoline terminal on July 24 and 25, 1997. Each of the three source tests was performed at a different vapor load condition on the carbon adsorber. The vapor load to the carbon adsorber was varied by controlling the amount of vapor exiting the vapor holding tank. Each test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the carbon adsorber. Test Method and Sampling Procedures was given a B rating because the HAP sampling protocol failed to address proportional sampling. Sampling and Process Data was given a B rating because of the difficulty in comparing run-by-run results due to the large product loading variations. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and the way accountable product was calculated due to the vapor holding tank. This data set was used in developing the average emission factors presented in Section 4.

T-1: Reference T-1 is a source test performed on a thermal oxidizer at a bulk gasoline terminal on August 16, 1995. The test was given an overall rating of B. Source Operation was given a C rating due to the lack of documentation on the thermal oxidizer and because of the significant swing in VOC loading from the holding bladder during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a B rating because it was difficult to compare run-to-run results due to load swings from the holding bladder. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

T-2: Reference T-2 is a source test performed on a refrigeration system in series with a thermal oxidizer at a bulk gasoline terminal on October 31, 1995. This test was given an overall rating of D. Source Operation was given a D rating because the process was operated differently for each of the three test runs. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a D rating because only one test run per condition was available. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and because the RPDs between duplicate analyses for some of the HAPs were greater than 30%. Since this data set was given an overall D rating and because two different control devices in series were used, it was not used in developing the average emission factors presented in Section 4.

T-3: Reference T-3 is a source test performed on a thermal oxidizer at a bulk gasoline terminal on September 13, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the thermal oxidizer during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and because the percent variation between duplicate analyses for some of the HAPs was greater than 30%. This data set was used in developing the average emission factors presented in Section 4.

T-4: Reference T-4 is a source test performed on a thermal oxidizer at a bulk gasoline terminal on September 22, 1995. The test was given an overall rating of D. Source Operation was given a B rating due to the lack of documentation on the thermal oxidizer during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a D rating because for no apparent reason HAP concentrations and control efficiencies varied by an order of magnitude from the other data sets. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

T-5: Reference T-5 is a source test performed on a thermal oxidizer at a bulk gasoline terminal on October 27, 1995. The test was given an overall rating of D. Source Operation was given a D rating because of the very low product loading during the testing. Test Method and Sampling Procedures was given a C rating because of the lack of field documentation on the HAP sampling and because the sampling protocol on the outlet was modified. Sampling and Process Data was given a C rating because no inlet flow rate data were available for run 1. The average inlet data presented for T-5 are based on the average of runs 2 and 3. The variation may be due in part to the load swings during the testing. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and because the RPDs between duplicate analyses for some of the HAPs were greater than 30%. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

T-6: Reference T-6 is a source test performed on a thermal oxidizer at a bulk gasoline terminal on May 1, 1996. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the thermal oxidizer during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given a B rating because run-to-run HAP concentrations varied significantly. The variation may be due in part to the load swings during the testing. Analysis and Calculations was given a C rating because a detailed analytical report was not available. This data set was used in developing the average emission factors presented in Section 4.

T-7: Reference T-7 is a source test performed on a thermal oxidizer at a bulk gasoline terminal on June 19, 1996. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the thermal oxidizer during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and because the percent variations between duplicate analyses for some of the HAPs was greater than 30%. This data set was used in developing the average emission factors presented in Section 4.

T-8: Reference T-8 is a source test performed on a thermal oxidizer at a bulk gasoline terminal on November 10, 1995. The test was given an overall rating of B. Source Operation was given a B rating due to the lack of documentation on the thermal oxidizer during the testing. Test Method and Sampling Procedures was given a B rating because of the lack of field documentation on the HAP sampling. Sampling and Process Data was given an A rating. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. This data set was used in developing the average emission factors presented in Section 4.

R-1: Reference R-1 is a source test performed on a refrigeration system at a bulk gasoline terminal on October 18, 1995. The test was given an overall rating of D. Source Operation was given a B rating due to the lack of documentation on the thermal oxidizer during the testing. Test Method and Sampling Procedures was given a D rating because sampling was not performed on the inlet to the refrigeration unit. Sampling and Process Data was given a C rating because for no apparent reason the run-to-run HAP concentrations varied significantly. Analysis and Calculations was given a B rating due to the lack of traceable QA data in the analytical report. Since this data set was given an overall D rating, it was not used in developing the average emission factors presented in Section 4.

R-2: Reference R-2 is a source test performed on a refrigeration system in series with a thermal oxidizer at a bulk gasoline terminal on October 17, 1995. The test was given an overall rating of C. Source Operation was given a B rating due to the lack of documentation on the thermal oxidizer during the 6 hour HAP test. Test Method and Sampling Procedures was given a C rating because of the lack of field documentation and because the HAP sampling appears to have continued after the rest of the sampling was completed. Sampling and Process Data was given a C rating because for no apparent reason the run-to-run HAP concentrations varied significantly. Analysis and Calculations was given a C rating due to the lack of traceable QA data in the analytical report and because the RPDs between duplicate analyses for some of the HAPs were greater than 30%. This data set was not used in developing the average emission factors presented in Section 4 because the process utilized two different control devices in series instead of one control device.

SECTION 4

EMISSION TEST RESULTS

This section summarizes the results of the emission testing and presents control efficiencies for VOCs and HAPs. The tests included in the analysis are shown in Table 4-1. Fifteen carbon adsorption units (CAU) and five thermal oxidizers (TO) were included in this evaluation. As discussed in Section 3, thirteen tests were eliminated from this evaluation.

The data included in this study were taken from VOC compliance test reports and data collected concurrently with the compliance tests following the Volatile Organic Hazardous Air Pollutant (VOHAP) test protocol. This protocol is provided in Appendix A.

The results for each of the 20 tests included in this evaluation are presented in Appendix B. The test data summarized in this appendix include (1) volume of products loaded, (2) vapor inlet and outlet volumes, and (3) inlet and outlet gas concentrations of VOCs and HAPs. For completeness, Appendix C contains the emission test results for the tests that were not included in the analysis.

Analysis of Non-Detects

Many of the analytical results for individual HAP concentrations yielded values that were below the minimum detection limit (MDL) of the test method used (i.e., non-detects). The minimum detection limit is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero. For this study the minimum detection limit for all the HAPs except methanol was 10 parts per million by volume (ppmv) at the inlet and 0.2 ppmv at the outlet. For methanol, the MDL was 100 ppmv at the inlet and 2.0 ppmv at the outlet.

Methanol and 1,3-butadiene were never detected at the inlets or the outlets. Cumene and naphthalene were detected in a few cases at the inlets but never detected at the outlets. Consequently, these four compounds were excluded from any further analysis and control efficiencies and emission factors are presented only for the remaining eight HAPs of those listed in Table 2-1.

TABLE 4-1. RATINGS SUMMARY OF DATA SETS USED TO DEVELOP FACTORS

API Code	Source Operation	Test Method and Sampling Procedures	Sampling and Process Data	Analysis and Calculation	Overall Rating
C-6	B	B	C	C	C
C-8	B	B	B	B	B
C-9	B	B	A	C	B
C-10	B	B	A	B	B
C-12	B	B	B	B	B
C-14	C	B	A	B	B
C-15	C	C	B	C	C
C-16	C	C	B	C	C
C-17	B	C	A	C	B
C-18	C	C	B	B	C
C-19	B	C	B	B	B
C-20	B	C	A	C	B
C-21A	B	B	B	C	B
C-21B	B	B	B	C	B
C-21C	B	B	B	C	B
T-1	C	B	B	B	B
T-3	B	B	A	C	B
T-6	B	B	B	C	B
T-7	B	B	A	C	B
T-8	B	B	A	B	B

Of the remaining eight HAPs, very few non-detects were reported on the inlet samples. For the outlet samples, however, a large number of non-detects were reported. These non-detects were treated as follows: Three samples were collected at each location. If non-detects were reported for a given HAP in all three samples, a concentration value of zero was used in the calculations. If concentrations for one or two of the samples were reported above the MDL, concentrations equal to one half of the MDL were used for the non-detects.

Calculation of Control Efficiencies

Control efficiencies were calculated for total VOC and for each of the individual HAPs for each of the tests conducted. The control efficiencies were based on the measured masses of each HAP during the tests. For each 2-hour run, and for each HAP, the total masses at the inlet and outlet of the control device were calculated as follows:

$$\text{mass}_i = \frac{(\text{HAP concentration}_i)(\text{MW}_i)(\text{Volume})}{24.06}$$

where:

mass_i	=	total mass of HAP_i over 2-hour run (mg)
HAP concentration_i	=	concentration of HAP_i measured in a sample (ppmv)
MW_i	=	molecular weight of HAP_i in g/g-mole (see Table 3-2)
Volume	=	total volume of vapor/air mixture over 2-hour run (m^3)
24.06	=	mole volume at standard cond., 68°F, 29.92"Hg (l/g-mole)

For data sets with no metered inlet volumes, the volumes were calculated using the outlet-to-inlet ratio of the measured VOC concentrations from the compliance test, as follows:

$$\text{Volume}_{\text{inlet}} = \text{Volume}_{\text{outlet}} \frac{1-\left(\text{VOC}_{\text{out}}/10^6\right)}{1-\left(\text{VOC}_{\text{inlet}}/10^6\right)}$$

where:

$\text{Volume}_{\text{inlet}}$	=	inlet volume (cubic meters)
$\text{Volume}_{\text{out}}$	=	outlet metered volume (cubic meters)
VOC_{out}	=	VOC concentration at outlet (ppmv)
$\text{VOC}_{\text{inlet}}$	=	VOC concentration at inlet (ppmv)

From the data described above, an inlet and an outlet 6-hour total mass in milligrams was calculated for each HAP by adding the three 2-hour run totals together.

The HAP control efficiency for each control device was calculated based on the total mass of each HAP measured simultaneously at the inlet (uncontrolled) and outlet (controlled). The HAP control efficiencies were calculated as follows:

$$CE\%_i = \frac{\text{inlet mass}_i - \text{outlet mass}_i}{\text{inlet mass}_i} \times 100$$

where:

$CE\%_i$	= control efficiency for HAP_i (%)
inlet $mass_i$	= total mass of HAP_i from inlet runs (mg)
outlet $mass_i$	= total mass of HAP_i from outlet runs (mg)

The control efficiencies for total HAPs were calculated by determining the total inlet HAP mass and the total outlet HAP mass and then using the equation above. Tables 4-2 and 4-3 present the HAP control efficiencies for carbon adsorber units (CAUs) and thermal oxidizers (TOs). Note that Table 4-2 contains the control efficiencies for each individual test (averaged over the entire 6-hour test) while Table 4-3 summarizes these results and shows the average and range of control efficiencies for each HAP. Control efficiencies for all the test results are listed in Appendices B and C.

Discussion of Control Efficiency Results

Figure 4-1 shows the total HAP control efficiencies and VOC control efficiencies as a function of the controlled VOC emissions (taken from the compliance test) for the carbon adsorption units. Note that a relatively broad range of values is observed for the VOC control efficiencies (from 87.44% to 99.94%) and a smaller range is seen for the total HAP control efficiencies (from 98.77% to 100.0%). These results indicate that carbon absorption units tend to control HAP emissions at a constant level, independent of the control efficiency for VOCs.

Figure 4-2 shows the total HAP control efficiencies and VOC control efficiencies as a function of controlled VOC emissions for the thermal oxidizers. Note that while a smaller range of controlled VOC emissions was included in the study for thermal oxidizers, a comparison of the control efficiencies reveals that the range of VOC removal efficiencies (99.00% to 99.77%) is similar to that for the total HAPs (99.42% to 99.97%)

TABLE 4-2. CONTROL EFFICIENCY SUMMARY

Test	MTBE	Benzene	Toluene	Ethyl-benzene	o,m-Xylene	p-Xylene	Hexane	Iso-Octane	Total HAP	Total HAP w/o MTBE	Total VOC
C-6	99.99	99.95	99.62	98.54	97.98	97.69	99.97	99.84	99.85	99.80	99.90
C-8	100.00	100.00	99.99	100.00	99.95	99.88	100.00	100.00	100.00	100.00	99.94
C-9	100.00	99.99	99.98	100.00	99.96	99.93	99.99	99.98	99.99	99.98	99.77
C-10	NA	100.00	100.00	100.00	100.00	100.00	100.00	99.99	100.00	100.00	98.63
C-12	100.00	99.98	99.97	100.00	99.91	100.00	99.98	99.91	99.97	99.97	99.77
C-14	98.65	99.86	99.91	99.84	99.81	99.73	99.00	97.51	98.77	99.02	98.44
C-15	99.78	99.99	99.96	99.86	99.83	99.80	99.97	99.97	99.94	99.96	95.68
C-16	99.99	99.97	99.85	99.57	99.55	99.44	99.99	99.99	99.93	99.92	97.57
C-17	100.00	100.00	99.99	100.00	99.95	100.00	100.00	100.00	100.00	100.00	98.48
C-18	99.88	99.96	99.88	99.64	99.59	99.39	99.95	99.75	99.85	99.84	95.47
C-19	99.99	99.96	99.97	99.85	99.85	99.88	99.95	99.96	99.98	99.96	99.83
C-20	99.58	99.89	99.86	99.87	99.87	99.81	99.90	99.46	99.73	99.81	99.90
C-21A	99.61	100.00	99.99	99.62	99.54	99.73	99.93	99.58	99.71	99.83	96.25
C-21B	99.17	99.99	99.99	99.42	99.28	99.73	99.85	99.40	99.45	99.73	92.52
C-21C	98.49	99.99	99.98	98.70	98.21	99.27	99.75	99.05	98.99	99.57	87.44

TABLE 4-2. (Concluded)

Test	MTBE	Benzene	Toluene	Ethyl-benzene	o,m-Xylene	p-Xylene	Hexane	Iso-Octane	Total HAP	Total HAP w/o MTBE	Total VOC
T-1	99.96	100.00	100.00	100.00	100.00	100.00	100.00	100.00	99.97	100.00	99.77
T-3	NA	99.16	99.08	100.00	100.00	100.00	99.56	99.41	99.42	99.42	99.50
T-6	NA	100.00	96.42	100.00	100.00	100.00	100.00	100.00	99.45	99.45	99.45
T-7	99.63	100.00	98.82	100.00	96.06	100.00	99.57	99.39	99.53	99.32	99.66
T-8	NA	100.00	100.00	100.00	100.00	100.00	98.29	100.00	99.44	99.44	99.00

TABLE 4-3. HAP CONTROL EFFICIENCIES FOR VAPOR CONTROL UNITS AT GASOLINE LOADING RACKS

	Carbon Adsorbers			Thermal Oxidizers		
HAP Compound	Average CE %	Min. CE %	Max. CE %	Average CE %	Min. CE %	Max. CE %
MTBE	99.65	98.49	100.0	99.79	99.63	99.96
Benzene	99.97	99.86	100.0	99.83	99.16	100.0
Toluene	99.93	99.62	100.0	98.86	96.42	100.0
Ethylbenzene	99.66	98.54	100.0	100.0	100.0	100.0
m,p-Xylene	99.55	97.98	100.0	99.21	96.06	100.0
o-Xylene	99.61	97.69	100.0	100.0	100.0	100.0
Xylene Average	99.58	na	na	99.60	na	na
Hexane	99.88	99.00	100.0	99.48	98.29	100.0
Isooctane	99.62	97.51	100.0	99.76	99.39	100.0
Total HAP	99.74	98.77	100.0	99.56	99.42	99.97
Total HAP w/o MTBE	99.82	99.02	100.0	99.52	99.32	100.0
Average HAP CE %	99.73	98.59	100.0	99.61	98.62	100.0
Total VOC	97.30	87.44	99.94	99.47	99.00	99.77

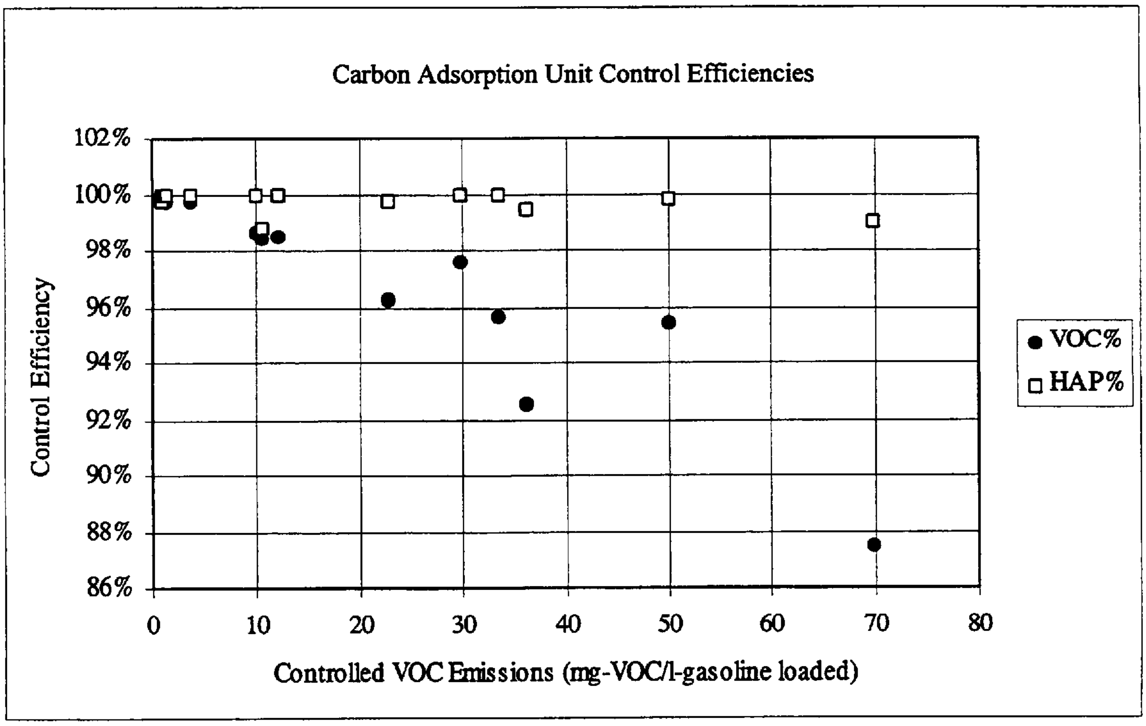

FIGURE 4-1. CARBON ADSORBER UNIT CONTROL EFFICIENCIES

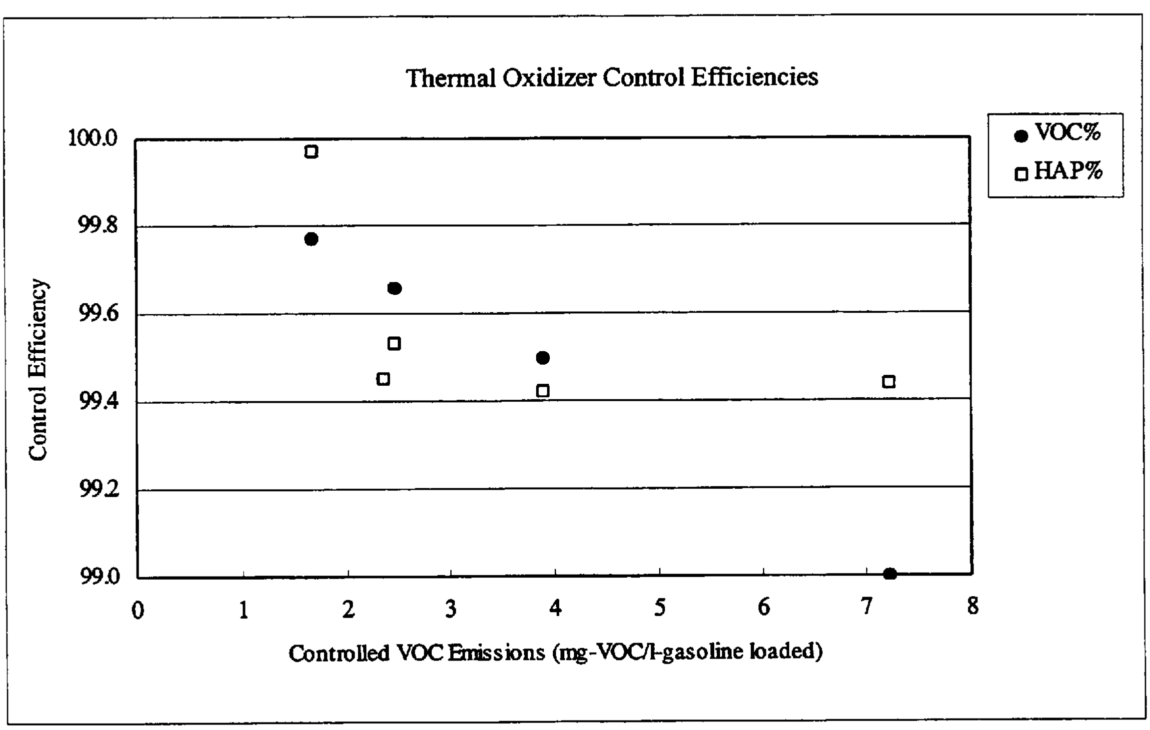

FIGURE 4-2. THERMAL OXIDIZER CONTROL EFFICIENCIES

SECTION 5

EXAMPLE EMISSION FACTOR CALCULATIONS

The control efficiency data collected can be used to derive emission factors for HAPs that allow HAP emission estimation based on volume of gasoline loaded at a facility. The emission factors are presented here as example calculations because it is possible that the user may choose to apply site-specific values for some of the parameters listed below. Although the example calculations listed below are given only for the carbon adsorption units, this approach may be applied to develop emission factors for thermal oxidizers as well. A discussion of parameters that may influence the emission factors is included at the end of this section.

Example Emission Factors

Controlled emission factors for HAPs may be calculated as follows:

$$EF_{HAP_i} = (EF_{VOC})(\text{HAP to VOC}\%_i)\left(1 - \frac{CE\%_i}{100}\right)$$

where:

EF_{HAPi}	=	controlled emission factor for HAP_i (mg-HAP_i/l-gasoline loaded)
EF_{VOC}	=	uncontrolled emission factor for VOC (mg-VOC/l-gasoline loaded)
$HAPtoVOC\%_i$	=	weight percent of HAP_i in uncontrolled gasoline vapor,
$CE\%_i$	=	control efficiency of HAP_i (percent) (from Table 4-3)

The first two terms in this expression represent the mass of a HAP that is fed to the control unit per liter of gasoline loaded. The last term accounts for the fraction of the vapor stream that is not controlled. Note that the overall efficiency of the treatment unit (with respect to VOCs) is not included in this expression. This is consistent with the finding that the HAP control efficiencies are independent of the VOC control efficiency.

Values for the uncontrolled emission factor for VOC (EF_{VOC}) and speciation of HAPs in uncontrolled gasoline vapors will vary with different gasolines. It is possible that some locations may have site-specific information on these values. For these sample calculations, values for these variables are taken from USEPA guidance. The uncontrolled VOC emission factors are available in AP-42 Table 5.2-5 and are presented in Table 5-1. The individual HAP content values of uncontrolled VOC emissions (HAP to VOC$\%_i$) are taken from the EPA publication *Gasoline Distribution Industry (Stage I) - Background Information for Proposed Standards* (EPA-453/R-94-002a) and are presented below in Table 5-2.

The vapor control unit HAP control efficiencies, CE$\%_i$, were developed in this study and are presented in Table 4-3. Note that since speciation data for the different xylene isomers are not provided in the EPA guidance, control efficiencies for m,p-xylene and o-xylene are averaged for the derivation of a mixed xylene emission factor.

EFs were calculated for carbon adsorption units at loading operations with submerged loading using dedicated normal service and vapor balance service. Tables 5-3 and 5-4 present the EFs for dedicated normal service and vapor balance service, respectively.

Use of Emission Factors

The EFs from Table 5-3 or 5-4 may be used to estimate the emissions of specific HAP compounds as follows:

$$E_{HAPi} = V_T \times EF_{HAPi}$$

where:

E_{HAPi} = controlled emissions (mg/time period) for HAP_i
EF_{HAPi} = emission factor (mg/liter) for HAP_i
V_T = volume of gasoline transferred (liter/time period)

HAP Emission Estimates - Comparison to Previous Approach

In the past, methods used to predict HAP emissions did not consider the fact that carbon adsorption units preferentially remove HAPs compared to total VOC. The results of this study indicate that HAP removal efficiencies average over 99% and will often be greater than VOC removal efficiencies. The impact of these different assumptions is best demonstrated through the evaluation of emissions from an example facility. Consider a gasoline bulk distribution terminal that annually loads 500,000,000 gallons of oxygenated gasoline using dedicated normal service. Also assume this facility controls emissions with a carbon adsorption unit that has a VOC emission limit of 80 mg-VOC/l gasoline transferred.

Previously, HAP emissions estimates assumed the carbon adsorption unit has equivalent HAP and VOC removal efficiencies. To determine HAP emissions, first the total VOC emission rate is calculated and then this value is multiplied by the HAP-to-VOC content of the uncontrolled vapor stream (as listed in Table 5-2).

TABLE 5-1. UNCONTROLLED VOC EMISSION FACTORS FOR TANK TRUCKS

Loading Operation	Emission Factor, mg-VOC/l-transferred gasoline
Submerged loading	
Dedicated normal service	590
Vapor balance service	980

Source: AP-42 Table 5.2-5

TABLE 5-2. UNCONTROLLED GASOLINE VAPOR HAP-TO-VOC CONTENT

	HAP-to-VOC WEIGHT % BY TYPE OF GASOLINE			
HAP	Normal	Reformulated	Oxygenated	Reformulated & Oxygenated
MTBE	0.0	8.7	11.9	11.9
Benzene	0.9	0.4	0.7	0.4
Toluene	1.3	1.1	1.1	1.1
Ethylbenzene	0.1	0.1	0.1	0.1
Xylenes	0.5	0.4	0.4	0.4
Hexane	1.6	1.4	1.4	1.4
Isooctane [a]	0.8	0.7	0.7	0.7
Total HAP [b]	na	12.9	16.3	16.0
Total HAP w/o MTBE[b]	4.8	na	na	na

[a] 2,2,4 Trimethylpentane

[b] The total HAP ratios shown are not simply sums of the individual HAPs but are the average of the total HAPs and therefore may not be equal to the sum of the individual averages.

Source: Gasoline Distribution Industry (Stage I) - Background Information for Proposed Standards (EPA-453/R-94-002a)

TABLE 5-3. HAP EFs FOR CARBON ADSORBER UNITS AT SUBMERGED LOADING OPERATIONS USING DEDICATED NORMAL SERVICE

	Control Effic. %	Emission Factor By Gasoline Type (EF)[a] (mg-HAP/l gasoline transferred)			
HAP Compound		Normal	Reformulated	Oxygenated	Reformulated/ Oxygenated
MTBE	99.652	na	0.179	0.245	0.245
Benzene	99.970	0.00161	0.000718	0.00126	0.000718
Toluene	99.930	0.00539	0.00456	0.00456	0.00456
Ethylbenzene	99.660	0.00201	0.00201	0.00201	0.00201
Xylenes [b]	99.585	0.0122	0.00979	0.00979	0.00979
Hexane	99.884	0.0110	0.00959	0.00959	0.00959
Isooctane [c]	99.626	0.0177	0.0155	0.0155	0.0155
Sum HAPs [d]	99.744	0.0499	0.221	0.288	0.287

[a] Calculated using the AP-42 uncontrolled VOC emission factor of 590 mg/l and vapor HAP to VOC content listed in Table 5-2

[b] Xylenes calculated using the average CE% of m,p-xylene and o-xylene

[c] 2,2,4 Trimethylpentane

[d] Sum of seven HAPs evaluated in this study

TABLE 5-4. HAP EFs FOR CARBON ADSORBER UNITS AT SUBMERGED LOADING OPERATIONS USING VAPOR BALANCE SERVICE

	Control Effic. %	Emission Factor By Gasoline Type (EF)[a] (mg-HAP/l gasoline transferred)			
HAP Compound		Normal	Reformulated	Oxygenated	Reformulated/ Oxygenated
MTBE	99.652	Na	0.297	0.406	0.406
Benzene	99.970	0.00268	0.00119	0.00209	0.00119
Toluene	99.930	0.00896	0.00758	0.00758	0.00758
Ethylbenzene	99.660	0.00333	0.00333	0.00333	0.00333
Xylenes [b]	99.585	0.0203	0.0163	0.0163	0.0163
Hexane	99.884	0.0182	0.0159	0.0159	0.0159
Isooctane [c]	99.626	0.0293	0.0257	0.0257	0.0257
Sum HAPs [d]	99.744	0.0828	0.367	0.477	0.476

[a] Calculated using the AP-42 uncontrolled VOC emission factor of 980 mg/l and vapor HAP to VOC content listed in Table 5-2

[b] Xylenes calculated using the average CE% of m,p-xylene and o-xylene

[c] 2,2,4 Trimethylpentane

[d] Sum of seven HAPs evaluated in this study

The total VOC emissions are determined using the equation below:

$$E_{VOC} = V_T \times VOC_{LIMIT}$$

where:

E_{VOC}	=	controlled VOC emissions (tons/year)
V_T	=	volume of gasoline transferred (liters/year)
VOC_{LIMIT}	=	Permitted VOC emissions limit (mg-VOC/1-gasoline loaded)

E_{VOC} = (500,000,000 gal/yr x 3.785 l/gal) x 80 mg/l x 1.1×10^{-9} tons/mg

E_{VOC} = 167 tons/yr.

The HAP emission rates are then determined by taking the product of the total VOC emission rate and the HAP-to-VOC content. These results are listed in Table 5-5.

The recommended approach described in this study uses new HAP emission factors to estimate HAP emissions. As stated above, the HAP emission rates are the product of the gasoline loading rate and the HAP emission factors presented in Table 5-3. These results are also listed in Table 5-5. This example illustrates that the previous method significantly over-estimates the HAP emissions.

Parameters Potentially Affecting Emission Factors

Several parameters were considered to determine if any further breakdown in the emission factors was warranted. Some of these parameters may impact the HAP emission estimates, but due to uncertainty in these parameters, they were not included in the analysis. Provided below is a brief discussion of the other parameters that were considered in the development of the emission factors.

VOC Compliance Limit. For this study, the current VOC compliance limit of the vapor processor was considered when developing the HAP emission factors. Three primary compliance limits affect loading racks depending on their location, the date of installation, or their potential to emit hazardous air pollutants. The current Control Techniques Guideline (CTG) level of compliance limit for ozone nonattainment areas is 80 mg VOC/liter (mg/l) of gasoline loaded. The current NSPS compliance limit is 35 mg/l (40 CFR 60, Subpart XX). Finally, the Gasoline Distribution (Stage I) NESHAP (40 CFR 63, Subpart R) requires a compliance limit of 10 mg/l. Prior to the Gasoline Distribution NESHAP, several states and local air pollution control agencies required vapor processors to meet a compliance limit of 10 mg/l. As shown in Table 3-1, the loading racks for seven data sets were required to meet a compliance limit of 80 mg/l; loading racks for 14 data sets were required to meet a compliance limit of 35 mg/l; and loading racks for three data sets were required to meet a compliance limit of 10 mg/l. The compliance limits of nine of the data sets were unknown. However, as discussed above the results for the carbon absorption units indicate HAP control efficiencies were insensitive to the VOC compliance limits.

TABLE 5-5. HAP EMISSION RATES FOR EXAMPLE CASE

	Previous Approach		Recommended Approach	
HAP	**HAP to VOC Content (%)** [b]	**Annual Emissions (TPY)**	**EF_i**	**Annual Emissions (TPY)**
MTBE	11.9	19.9	0.245	0.510
Benzene	0.7	1.17	0.00126	0.0026
Toluene	1.1	1.84	0.00456	0.0095
Ethylbenzene	0.1	0.17	0.00201	0.0042
Xylenes	0.4	0.67	0.00979	0.020
Hexane	1.4	2.34	0.00959	0.020
Isooctane [a]	0.7	1.17	0.0155	0.032
Total HAP	16.3	27.2	0.288	0.599
Total VOC	-	167	80	167

[a] 2,2,4 Trimethylpentane

[b] *Source: Gasoline Distribution Industry (Stage I) - Background Information for Proposed Standards (EPA-453/R-94-002a)*

Vapor Balancing (Stage I). As discussed in Section 5.2 of AP-42, one measure to control gasoline vapors during cargo tank transfer operations is referred to as "vapor balance service." Vapor balance service refers to cargo tanks which retrieve vapors displaced from storage tanks during the unloading of gasoline at service stations and bulk plants. Under vapor balance service, cargo tanks returning to the loading terminal contain vapor-laden air. The type of service for each cargo tank was not documented in the data sets. It is estimated, based on the locations of the facilities included in the study and the corresponding Stage I service station regulations, that approximately one half of cargo tanks in the study were under vapor balance service. Although not included in the analysis of the control efficiencies, the impact of vapor balancing was incorporated in the emission factor derivation by adjusting the uncontrolled VOC emission factor.

Loading Method. As currently described and illustrated in Section 5.2 of AP-42, there are two general methods for loading gasoline into a tank truck, splash and submerged fill. In splash loading, the loading rack nozzle is inserted in the top of the tank truck. During loading, there is significant turbulence and air/liquid contact resulting in increased vapor generation. In submerged fill, the nozzle is either extended to near the bottom of the tank truck (submerged fill-pipe method) or may attach to a permanent fill pipe located near the bottom of the cargo tank (bottom-fill). In submerged loading, most of the gasoline loading occurs below the surface of the gasoline resulting in less vapor generation as opposed to splash filling. As stated in the Gasoline Distribution Background Information Document, it was estimated that 94% of terminals use submerged loading with the remaining 6% using splash-fill. Although the loading method could not be documented for each data set, it was assumed for this study that all the data sets represented bottom-fill based on the prevalence of bottom loading in the industry. Although not included in the analysis of the control efficiencies, the impact of loading method may be incorporated in the emission factor derivation by selecting an appropriate uncontrolled VOC emission factor.

Switch Loading. As discussed in Section 5.2 of AP-42, the previous service of a cargo tank is an important factor in loading losses generated by cargo tanks. Switch loading refers to the situation where a cargo tank is loaded with a product which is different from the previous load. For example, a cargo tank previously hauling diesel fuel may load with gasoline at its next visit to a loading terminal. The frequency of switch loading for a particular cargo tank varies due to the type of cargo tank, the carrier owner, the products being transported, geographic location, and season of the year.

Since the emission factors (EFs) presented in this document are based on the amount of *gasoline loaded*, switch loading can potentially have two different (opposite) effects on cargo tank loading losses and ultimately the emission factors. Consider the example where a cargo tank previously hauling diesel fuel loads with gasoline during its next visit to a loading terminal. The empty cargo tank arrives at the loading terminal containing virtually vapor-free air because diesel fuel is a relatively nonvolatile liquid. If the cargo tank is then loaded with gasoline, the low concentration vapor is expelled to the control device. As a result, there is less mass of pollutant directed to the control device. However, when calculating the pollutant emission factor, the total amount of gasoline loaded is considered resulting in a lower emission factor than if gasoline was loaded exclusively.

On the other hand, consider the example where a cargo tank previously hauling gasoline loads with diesel fuel (or some other nonvolatile product) during its next visit to a loading terminal. The empty cargo tank arrives at the loading terminal containing fully or partially saturated vapors because gasoline is a volatile liquid. If the cargo tank is then loaded with diesel fuel (or some other low volatility product), the gasoline vapors (mg of VOC and HAP) are expelled to the control device. In this case the volume of diesel loaded would not be considered when determining emissions based on volume of gasoline loaded and a higher emission factor would result.

Although the previous loads for each cargo tank were normally documented in the data set, for the purposes of this study, switch loading was not considered when developing the HAP emission factors. Any data set that considered switch loading when determining the VOC emission factor was reevaluated to count only the volume of gasoline loaded during the test. As a result, the emission factors are shown as mass of pollutant per unit volume of gasoline loaded (does not account for previous load). This assumption is consistent with the "Test methods and procedures" section (60.503) of 40 CFR 60, Subpart XX - Standards of Performance for Bulk Gasoline Terminals.

Type of Gasoline Loaded

The HAP content of gasoline is another factor which influences the HAP emissions generated by gasoline loading of cargo tanks. In previous studies, the EPA determined that liquid gasoline composition can vary widely (EPA, 1994). As a result, the corresponding gasoline vapor composition can also vary widely. Nonetheless, the EPA suggested HAP-to-VOC ratios for gasoline vapor when developing the Gasoline Distribution (Stage I) NESHAP. In its analysis for developing the standard, EPA assumed an average HAP-to-VOC ratio of 4.8 percent for normal gasoline. During the development of the NESHAP, gasoline reformulated or oxygenated with methyl tert-butyl ether (MTBE) was assumed to have a HAP-to-VOC ratio ranging from 12.9 to 16.3 percent.

SECTION 6

REFERENCES

1. Accutest. October 1998. American Petroleum Institute's Publication 347. Hazardous Air Pollutant Emissions from Gasoline Loading Operations at Bulk Gasoline Terminals, *Appendix A: Air Analysis of Tedlar® Bag or SUMMA® Canister by TO-3*. Washington, DC.

2. American Petroleum Institute. October 1998. Hazardous Air Pollutant Emissions from Gasoline Loading Operations at Bulk Gasoline Terminals, *Appendix A: Protocol for HAP and Non-HAP Sampling and Analysis*. Publication Number 347. Washington, DC.

3. U.S. EPA. DRAFT May 6,1992. *Technical Procedures for Developing AP-42 Emission Factors and Preparing AP-42 Sections,* Office of Air Quality Planning and Standards. U.S. Environmental Protection Agency, Research Triangle Park, NC.

4. U.S. EPA:OAQPS. January 1994. *Gasoline Distribution Industry (Stage I) - Background Information for Proposed Standards.* EPA-453/R-94-002a. U.S. Environmental Protection Agency. p. 3-11, 3-16, 3-18, C-11, D-4.

5. U.S. EPA. DRAFT May 1994. *Public Participation Procedures for EPA's Emissions Estimation Guidance Materials.* U.S. Environmental Protection Agency.

APPENDIX A

SAMPLING & ANALYTICAL PROTOCOLS

- Test Method for HAP and non-HAP Analysis From Vent of Vapor Recovery/Combustor Units
- Air Analysis of Tedlar® Bag or Summa® Canister By TO-3

UPDATED TEST METHOD FOR HAP & NON-HAP ANALYSIS FROM INLET AND VENT OF VAPOR RECOVERY/COMBUSTOR UNITS

Revised 17 August 1995 to remove sorption tube options, specify summa canister sub-sampling

5.0. Test method for determination of volatile organic hazardous air pollutants (VOHAPS) in vapour recovery unit (VRU) and vapour combustion unit (VCU) inlet and vent streams

The method is intended as an additional procedure to be performed during standard vapour recovery unit (VRU) and vapour combustion unit (VCU) compliance tests, which are currently carried out in accordance with 40 CFR 60.503 of Sub-part XX, which refers to EPA Standard Reference Methods 2A, 2B, 21 and 25.

The method is designed to give an indication of eleven volatile organic hazardous air pollutants (VOHAPs) (i.e. Benzene, Toluene, 224-trimethylpentane, Cumene, Ethylbenzene, n-Hexane, Methanol, MTBE, Napthalene, m-Xylene and p-Xylene) in VRU and VCU inlet and vent streams, over the period of the compliance test, as required for phase II of the API project on VRU Performance Data Development. In addition to the HAP compounds seven non HAP compounds are also analysed these being: Methane, Ethane, Propane, i-Butane, n-Butane, n-Pentane and n-Heptane.

5.1 Principle and applicability

5.1.1 Principle

Gas samples are extracted from both inlet and vent streams of VRUs and VCUs at three set intervals throughout a standard six hour compliance test. Inlet and vent stream samples are captured over two hour periods into tedlar gas sample bags in accordance with EPA Standard Reference Method 18 (see Appendix A). All tedlar bag gas samples are sub-sampled on-site into SUMMA (R) polished canisters in accordance with EPA-600/4-89-017 Method TO-14. SUMMA (R) polished canister samples are analysed by gas chromatography in accordance with EPA-600/4-89-017 Method TO-14.

5.1.2 Applicability

The method is applicable during the compliance testing, in accordance with 40 CFR 60.503 of sub-part XX of any "continuous vapour processing system" as defined in 40 CFR 60.501 of sub-part XX.

5.2 Background data

In order that the VOHAP levels in the VRU or VCU inlet and vent streams, as determined by this method, can be put into context, it is necessary to record certain information pertaining to the vapour processing system under test, as well as to the operation of the loading terminal. The facts to be recorded for each test are listed in the attached table "VRU/VCU Background Information Form"

5.3.1.4 *Location of sampling point*

The samples of inlet vapour should be drawn from a sampling point in the vapour processing unit inlet line at least 0.5 metres upstream of the any recycle line (e.g. recycle from reabsorber in carbon adsorption VRUs). Where the inlet line is horizontal, the sampling point should be located above the midpoint of the line.

5.3.1.5 *Sampling method*

Samples should be obtained according to the method described in EPA Standard Reference Method 18, section 7.1 (integrated bag sampling). The bag inlet should be connected to the VRU/VCU inlet line sampling point using the teflon sampling line as described in EPA Standard Reference Method 18, section 7.2.1.2. Obersvations records shall note any visible condensation seen in the tedlar bags. If condensation is observed follow the nitrogen equal-volume dilution step specified in 5.3.2.5

5.3.2 Vent stream sampling

5.3.2.1 *Apparatus*

- The apparatus required is as described in EPA Standard Reference Method 18, section 7.2.1.2. In addition, the following will be required:

- Tedlar gas sampling bags and teflon tubing and as specified in section 5.3.1.1. (never use a piece of tubing which has previously been used for any sampling procedure).

  (For vent line from Vapor Combustor Units only, use heat traced teflon sampling tube, as described in EPA Standard Reference Method 18, section 7.1. The purpose of this is to maintain the hot vent sample above condensing temperature.)

5.3.2.2 *Preparation*

Tedlar gas sampling bags are to be prepared as described in section 5.3.1.

5.3.2.3 *Frequency of sampling*

Three tedlar bag samples should be obtained, each covering a 2 hour period of the compliance test, as described in section 5.3.1.3.

5.3.2.4 *Location of sampling point*

The samples of inlet vapour should be drawn from either:

i. a sampling point in the vent stack

ii. a point at least 2 pipe diameters upstream of the outlet, in the open vent.

For VCUs, the sampling point should be within the enclosed section of the stack, but well downstream of the combustion zone.

Analysis should be specifically for eleven HAPs and seven non HAPs:

HAP	Non-HAP
Benzene	Methane
Toluene	Ethane
224-trimethylpentane	Propane
Cumene	i-Butane
Ethylbenzene	n-Butane
n-Hexane	n-Pentane
Methanol	n-Heptane
MTBE	
Napthalene	
m-Xylene	
p-Xylene	

5.4.6 VCU vent stream sorption tube samples *(this option no longer applies)*

5.5 Reporting

5.5.1 Background data

The background data, gathered as specified in section 5.2, should be reported using the attached "VRU/VCU Background Information Form".

5.5.2 Inlet Samples

At the time of sampling, facts to be recorded including details of types and volumes of product loaded, together with previous cargo types, should be recorded in the attached are listed in attached "Loading Data Reporting Form". These data will later be used, together with the results of the central lab compositional analysis, using the "Sample Reporting Information Form".

Where any of the 11 HAPs or 7 non-HAPs is not detected in an inlet sample, but *is* detected in the corresponding (taken during the same time period) vent stream sample, then it should be reported as present at 50% of the lower limit of detection (LLD) in the results of that inlet sample.

5.5.3. Vent Samples *(see 5.5.2 Inlet samples)*

5.5.4 Vent SUMMA (R) canister sub-samples

At the time of sampling, the following facts should be recorded:

- Sample Code Number
- Sample date and time

This information should be reported on the tag provided with the SUMMA canister, plus the canister serial number should be noted on the Chain of Custody form.

PROCEDURE FOR SUBSAMPLING OF TEDLAR® BAG INTO EVACUATED 6 LITER SUMMA® CANISTER

⇒ Connect a short length (approx. 6") of 1/4" Teflon® tubing to Tedlar® bag fitting.

⇒ Install 1/4" female swagelok nut and ferrules on tube end to be connected to summa canister.

⇒ Remove 1/4" cap from summa canister sampling port and "loosely" tighten Teflon® tube to 1/4" male swagelok sampling port of summa canister.

Note: Record the summa canister serial # (A001, etc.) on the chain of custody that corresponds to the sampling point.

⇒ Apply slight pressure to Tedlar® bag to displace "dead air" volume from Teflon® tube with air sample contained in bag and then tighten fitting at summa canister port.

⇒ Begin sample transfer by slightly turning sampling knob on summa canister. Since canister is under vacuum, a hissing sound will be heard during sampling along with the Tedlar® bag visibly evacuating. The sampling valve can opened further for a faster draw rate as long as Tedlar® bag port remains unobstructed from the bag itself.

Note: A combination of the visible draw of the Tedlar® bag along with the simultaneous "hissing" of the summa canister verifies sample transfer.

⇒ When hissing stops the summa canister is filled. Prior to disconnecting tubing from canister close the sampling valve.

⇒ If there is insufficient volume in Tedlar® bag to fill the summa canister then turn sampling valve off prior to full evacuation (emptying) of bag. The pressure of the summa canister will be checked upon receipt by the laboratory to calculate the volume of air sampled.

⇒ After sampling, recap the sampling port of the SUMMA® canister and ship to laboratory.

VRU / VCU Background Information Form

API Study of HAP Removal Performance of Vapor Recovery & Vapor Combustor Units

Site Identification Information	
Name of distribution terminal	
Location of distribution terminal	
Site operation person contact name	
Site operator contact phone number	
Testing Organization Information	
Name of VRU/VCU Test organization	
Location of testing firm home office	
Sampling contact firm person name	
Sampling contact firm phone number	
Vapor Recovery/Combustion Unit Information	
VRU/VCU type (i.e. Recovery by *carbon adsorption* or *condensation*, combustion by *thermal oxidiser* etc.)	
VRU/VCU manufacturer (e.g. John Zink, Edwards etc.)	
Month/Year that VRU/VCU was initially commissioned	
Additional Data for Activated Carbon Units	
Regeneration vacuum (inches of mercury)	
Number of stages, with or w/o vapor holder	
Date of latest carbon charge or regeneration	
VRU/VCU design maximum vapour processing capacity (m^3/h @ hydrocarbon concentration % vol)	
Typical Annual Product Loading history	
Percent of volumes of product loaded (Total to 100%)	
normal gasoline amount loaded, percent	
reformulated gasoline with no oxygenate, percent	
oxygenated gasoline with Ethanol, percent	
oxygenated gasoline with MTBE, percent	
reformulated oxygenated gasoline with Ethanol, percent	
reformulated oxygenated gasoline with MTBE, percent	
diesel fuel, percent	

Sample Reporting Information Form

(Complete one form for each inlet and vent sample)

API Study of HAP Removal Performance of Vapor Recovery & Vapor Combustor Units

Completed By (Name/Company):	
	Date:
Sample Location (e.g. inlet line, vent line)	
Sample Code No. (e.g. INLET-1, VENT-3)	
Start Time/End Time sample was taken	
TOC in VRU/VCU inlet stream as indicated by continuous analyser	
Number of trucks loading at loading rack	
Products being loaded into each truck	
Type of previous cargo in each truck compartment being loaded	
Temperature in VRU/VCU inlet stream, °F	
TOC in VRU/VCU vent stream	

Air Analysis
of Tedlar® Bag or SUMMA® Canister by TO-3

1.0 *SCOPE AND APPLICATION*

⇒ This method is applicable to samples collected in Tedlar® bags or SUMMA® canisters on ambient and source air samples.

2.0 *METHOD REFERENCES*

2.1 USEPA METHOD TO-3, TO-12, and TO-13 "Methods for the Determination of Toxic Organic Compounds in Air", 1990

2.2 USEPA SW846 8020, 3rd edition, "Aromatic Volatile Organics by GC/PID "

2.3 USEPA SW846 8015, 3rd edition, "Non-Halogenated Volatile Organics by GC/FID "

2.4 USEPA METHOD 18, 40 CFR ,Part 60, App A "Measurement of Gaseous Organic Compound Emissions by Gas Chromatography." 1992

3.0 *METHOD SUMMARY*

3.1 An air sample collected in a SUMMA® passivated canister or Tedlar® bag is analyzed on a gas chromatograph (GC) with a photoionization detector (PID) and a flame ionization detector (FID) in series.

3.2 The GC is calibrated with a 5 level curve with quantitation performed by external standard technique. Standards are purchased as commercial gas standards or prepared by static dilution technique by the laboratory.

3.3 A typical sample volume of 0.5 cc is drawn out of a pressurized canister or Tedlar® bag utilizing a diaphram pump and measured with a loop injector and injected into the GC. The GC oven is temperature programmed to separate the compounds of interest with detection by PID/FID.

3.4 RDL (Reporting Detection Limit) - 0.1ppmv to 5ppmv

3.5 MDL (Method Detection Limit) is defined as the minimum concentration of a substance that can measured and reported with 99% confidence that the value is above zero. The MDL is calculated approximately annually.

4.0 *HOLDING TIME*

4.1 48-72 hours for Tedlar® bag

4.2 14 days for SUMMA® canister

5.0 *INTERFERENCE'S*

5.1 Most prominent on the flame ionization detector due to its non-selectivity. GC/MS confirmation should be performed when matrix interference effect is suspect.

6.0 *APPARATUS*

6.1 Hewlett Packard 5890 series II GC with FID and PID

6.2 Entech 7016CA loop injector.

6.3 PC based Hewlett Packard chemstation with enviroquant

6.4 Entech model 3000 SUMMA® canister cleaning system

6.5 30psig to 30" hg vac pressure gauges

6.6 0-60psig pressure gauge for standard pressurization

6.7 6 liter certified (see canister cleaning SOP) passivated SUMMA® canisters evacuated to under 0.05mm Hg

6.8 Hewlett Packard packed injection port externally mounted for adaptation to SUMMA® canister

6.9 0.1cc, 0.5cc, 1cc, 5cc, 10cc, 50cc gas tight syringes with point #5 style needles

6.10 Heating tape with thermostat control for valve assembly of SUMMA® canister

6.11 Heating band fixed at 100c to encompass diameter of SUMMA® canister

6.12 Various swagelok fittings

6.13 Syringe adapters for SUMMA® canisters

6.14 Entech model 4560SL Dynamic Standards Diluter equipped with a 5000 sccm (for dilution gas) and 50sccm (for standard) flow controllers.

7.0 *STANDARDS AND REAGENTS*

7.1 Neat Standards Certified @ > 99% purity;

- Methanol
- Methyl tert butyl ether
- N-hexane
- Isooctane
- Benzene
- Toluene
- Ethylbenzene
- m- xylene
- p - xylene
- o - xylene
- Cumene
- Naphthalene
- Nitrobenzene
- Tertiary Butyl Alcohol

7.2 Scott Speciality Gases "Scotty IV" standards. (Concentrations vary with lot)

Mix 1	n-Butane	1000 ppmv
	Ethane	975 ppmv
	Isobutane	1000 ppmv
	Methane	1860 ppmv
	n- Pentane	2000 ppmv
	Propane	944 ppmv
Mix 2	Heptane	1470 ppmv

7.3 External source Scotty IV certified 10ppmv BTEX standard for use as laboratory control sample (LCS)

7.4 Reagent grade organic free water

7.5 Zero grade gases

- Helium
- Hydrogen
- Zero air

8.0 *STANDARD PREPARATION*

The largest obstacle in preparing standards by the routine static dilution technique is to effectively vaporize neat compounds with higher boiling points of benzene. This was especially evident with a compound like naphthalene which is a solid at room temperature. A modified static dilution procedure utilizing a flash evaporation injection technique into a evacuated 6 liter SUMMA® passivated canister is effective.

8.1 *Static Dilution Cocktail Mix*

8.1.1. Equal weighing factors based on molecular weight and density is used for each compound. *Calculation*: the amount of each standard is determined with equal molar volumes which is (MW)/(density). Therefore n-Hexane at MW=86 and density = 0.660, The volume would be 130 UL. Volumes can be increased or decreased by the an equal factor applied to all compounds.

8.1.2. Equal weighing factors based on molecular weight and density was used for each compound with the exception of methanol which was made up 5 times more concentrated due to the lower sensitivity on the FID.

8.1.3. The tare weight of a 4 ml vial was recorded and the weight equivalent of 110ul of naphthalene (128mg) was transferred to the vial.

8.1.4. The following volumes of each solvent was transferred into the vial utilizing a 100ul syringe. If dedicated syringes are not available, rinsing should be performed with the solvent standard itself.

	Vol	MW	Density
• N-hexane	130ul	86	0.660
• Isooctane	165ul	114	0.6919
• Cumene	139ul	120	0.862
• MTBE	125ul	100	0.801
• Benzene	99ul	78	0.786
• Toluene	106ul	92	0.867
• M-xylene	122ul	106	0.87
• O-xylene	122ul	106	0.87
• P-xylene	122ul	106	0.87
• Ethylbenzene	122ul	106	0.87
• Methanol	202ul	32	0.791 (x 5)
• Naphthalene	110	128	1.162
• Nitrobenzene	139	123	1.196

The combination of these solvents effectively dissolved the naphthalene.

8.2 ***27200 mg/L Tertiary Butyl Alcohol standard (Not in vendor supplied cocktail)***

8.2.1 Weighed 0.272 g of TBA and dissolved in 10 ml DI water.

8.3 ***Standard SUMMA® canister configuration for standards***

8.3.1 A 6 liter evacuated SUMMA® canister (<0.050mm Hg) is equipped with a Hewlett Packard packed injection port wired externally to an unused injection port control of the a GC/MS that was available. This way the temperature can be controlled by the front GC/MS keyboard panel. **Note:** *An accurate determination of the volume of the SUMMA® canister can be determined by tare weighing the canister, filling it with water, and calculating the weight of water in grams. Assuming the specific gravity of water to be 1, then grams of water = ml volume.*

8.3.2 Helium or other dilution gas is plumbed to the carrier line of the injection module and set to about 60psi with an adjustable flow gauge which measured approximately 40ml/min.

8.3.3 The injection port is fitted with a 1/4" female swagelok connector and attached to the a SUMMA® canister 1/4" male sampling port.

8.3.4. The sampling valve of the SUMMA® canister is wrapped with a thermostat controlled heater tape. The temperature of the tape is adjusted to approximately 80 C.

8.3.5 The canister is wrapped with a heating band supplied with the Entech model 3000 canister cleaning apparatus which heats to 100c near the base. The injection port is heated to 80 C by the injection port control on the GC.

8.3.6 Turn on the dilution gas flow a well as the canister valve to start drawing under vacuum.

8.4 ***Standard introduction into canister***

8.4.1 Inject 200ul of reagent grade water through the septa of the injection module to secure any active sites.

8.4.2 The appropriate amount of standard cocktail mix and TBA aqueous standard is injected with the canister drawing dilution gas and remain heated for about 45minutes.

Note: (Inject any aqueous standards first)

⇒ 10 ppmv standard

- 20 ul of TBA standard (20 ul of 27200 mg/l = 0.544 mg = 0.544mg/18L (6liter can pressurized 3x) = 30.22mg/m3 = 10ppmv
- 12.5 ul of standard cocktail

⇒ 100 ppmv standard

- 200 ul of TBA standard (or 7ul of neat TBA)
- 60ul of cocktail standard

8.4.3 The canister is pressurized while still warm to about 20psig to enhance compound stability if dilution gas is a non standard gas. Once the canister is cooled the canister is pressurized to 29.4 psig or an equivalent final volume of 18liters. The canisters should be allowed to equilibrate overnight for maximum stability.

This pressurized canister allows for several standard aliquots to be injected along with compound stability.

8.4.4. Dilution with standard gas

If the gas standards (Mix1, Mix2) are to blended with the same static dilution standard, final pressures will determine the concentrations. If one mix is used to a final pressure of 29.4 psig, the concentration of the standard gas will remain the same. If two gas standards are used, the first gas is brought 7.65 psig (9 liters in a 6liter can) and the second gas mix is brought to 29.4 (additional 9 liters) with a 1:1 dilution performed. The static dilution standards will remain the same as long as the proper ul's of the cocktail mix is added and the final pressure is as calculated to obtain the final volume of gas. Lower volumes of gas standards (Mix1, Mix2) can be introduced by injecting volumes through the septa and calculating concentrations based on final canister volume.

8.5 ***Method blank***

8.5.1 A 6 liter evacuated canister is filled and pressurized to 30 psig with zero grade helium or nitrogen.

9.0 *ANALYSIS*

9.1 *GC Conditions*

9.1.1 Hewlett Packard 5980 gas chromatograph with photoionization detector and flame ionization detector in series with column and temperature program to separate benzene and iso-octane on the FID.

9.1.2 Column - 75 meter DB-624, 0.53mm id, 3.0 um film thickness.

9.1.3 Helium carrier gas at approx. 12psig column head pressure.

9.1.4 GC Temperatures:

GC Temperatures:	injection port	200 C
	detector	250 C
	oven	40 C held for 3min
		5 C /min to 90 C and held for 0.5min
		10 C /min to 175 C and held for 0.5 min
		15 C /min to 240 C and held for 1min

9.2 *Entech 7016 conditions*

valve	90 C
transfer line	90C
flush time	60 sec
equilibrium	5 sec
inject time	3 sec

9.3 *Calibration*

Initial

9.3.1 A 5 or 6 level calibration is performed utilizing selected 0.5, 1, 5, 10, 20, 50, 100 ppmv standards for all compounds with the exception of methanol (2, 4, 20, 40, 80, 200, 800) and the "Scotty IV" gas mixes by injecting the following volumes from the pressurized SUMMA® canister standards through a syringe adapter.

- ⇒ 0.5 ppmv standard: 0.025 cc of 10 ppmv
- ⇒ 1 ppmv standard: 0.05 cc of 10 ppmv by loop injection
- ⇒ 5 ppmv standard: 0.25 cc of 10 ppmv
- ⇒ 10 ppmv standard: 0.5 cc of 10 ppmv by loop injection
- ⇒ 20 ppmv standard: 0.1 cc of 100 ppmv
- ⇒ 50 ppmv standard: 0.25 cc of 100 ppmv by loop injection
- ⇒ 100 ppmv standard: 0.5 cc of 100 ppmv

Note: m and p-xylene coelute and are therefore twice the concentration.

9.3.2 Quantitation is performed against the external standard average response factor from the multilevel curve.

Response factor is defined as; peak area/ concentration

9.3.3 Percent Relative Standard Deviation (% RSD) is calculated for all calibration levels used.

$$\%RSD = \frac{SD}{RFav} \times 100$$

where: SD =Standard Deviation
RFav =Average response factor from initial calibration.

9.3.4 In order for the initial calibration to be valid, all compounds must have a percent relative deviation no greater than 30%.

9.3.5 The compounds of interest are calibrated from a one or both detectors as two detectors for certain compounds can assist in determining matrix interference.

	PID	FID	
n-Butane		X	
Ethane		X	
Isobutane		X	
Methane		X	
n- Pentane		X	
Propane		X	
Heptane		X	
Methanol		X	
Methyl tert butyl ether		X	X
N-hexane		X	
Isooctane		X (slight response on PID)	
Benzene	X	X	
Toluene	X	X	
Ethylbenzene	X	X	
m- xylene	X	X	
p - xylene	X	X	
o - xylene	X	X	
Cumene	X	X	
Naphthalene	X	X	
Nitrobenzene	X	X	
Tertiary Butyl Alcohol		X	

Continuing

9.3.6 Calibration is verified daily or every 24 hours by analyzing a 10 ppmv standard with the % deviation of response factor to be +/- 30% with the exception of naphthalene which is very unstable in whole air samples.

9.3.7 After a successful calibration, a method blank is injected and must be non-detect for all target compounds of interest.

9.3.8 Calibration is verified by injection of an external source standard (7.2) with a 60-140% recovery.

9.4 *Sample analysis - general*

9.4.1 A 0.5 cc sample aliquot by loop injection should be injected for all samples as this technique is the most accurate for retention time matching determinations.

9.4.2 Source influents may contain high concentrations exceeding calibration range and will have to be diluted by manually injecting smaller sample aliquots. This technique will result in a slight retention time shift. Manual injection of a standard can facilitate in retention time matching.

9.4.3 For manual injection a 1cc or 0.1cc syringe plunger is drawn out slowly at a consistent rate to fully fill the syringe volume without removing the plunger completely from the syringe barrel. The filled syringe is removed and the contents expelled. This is repeated three additional times with the last aliquot adjusted to volume and injected rapidly into the GC/MS and pressing the start button.

9.5 *Tedlar® bag sample analysis*

9.5.1 Sample must be injected within 48 hours of sample collection

9.5.2 The Tedlar® bag is attached to the sampling port using a 1" length of flexible Teflon® tubing with proper inside diameter to create a tight seal with the Tedlar® bag.

9.6 *SUMMA® canister sample analysis*

9.6.1 Canister pressure should be checked and recorded upon receipt by the laboratory as in section **10.2**

9.6.2 The canister may be pressurized upon receipt for screening purposes or if excessive vacuum remains at receipt (<10 " Hg). If the canister is pressurized, the sampling volume must be adjusted to compensate for the dilution. A 2-fold dilution of the SUMMA® canister would result in sampling 800 cc for a 0.2 ppbv detection limit.

9.6.3 Typically a two fold dilution is adequate which is calculated as psia final/psia received where psia = pounds per square inch absolute.

As an example a canister is received under slight vacuum at 5" Hg;

0.4912 x 5 = 2.456 psia(vac)

14.7 psia(ambient) - 2.456(vac) = 12.24 psia received

12.24 psia x 2 = 24.5 psia final for two fold dilution

24.5 psia(final) - 14.7 = 9.8 psig final

10.0 *SUMMA® CANISTER SHIPPING AND RECEIVING*

10.1 Canister Shipping

10.1.1 Record prepared certified SUMMA®canister (Refer to SOP) and vacuum in canister log book.

10.1.2 For integrated sampling, a canister must be equipped with a clean calibrated attached or detached flow controller.

10.1.3 The flow controller is calibrated by forcing zero grade nitrogen at 5-10psig through the flow controller and adjusting the flow control calibrator while measuring the flow in cc/min with a flow meter.

10.1.4 Ideally approximately some vacuum should remain in canister after sampling for more stability. Therefore measure the flow over the specified sampling period to fill the canister with about 5 liters of air. This would leave a vacuum of about 5" Hg.

10.1.5 For a 24 hour sample this would be 5000cc/ (60min)(24 hr) or 3.5cc/min.

10.1.6 A grab sample is a SUMMA® canister without any flow controller and takes about 20 seconds to fill.

10.2 Canister Receipt

10.2.1 Upon receipt of the canister, the pressure or vacuum should be checked to ensure proper sampling was performed. If excessive vacuum (>10" Hg) or absence of vacuum (0psig, 0"Hg) is measured the client should be notified to inquire about a shortened sampling or a lengthened sampling period.

10.2.2 The pressure or vacuum along with received date and lab sample # should be recorded in the canister log book.

10.2.3 Canister pressure should be checked and recorded upon receipt by the laboratory.

10.2.4 In order to draw sample out of a SUMMA® canister, the canister must be pressurized with helium or nitrogen.

11.0 DATA INTERPRETATION

11.1 *Compound identification*

11.1.1 Three injections of the 10 ppbv standard is injected with the standard deviation calculated.

11.1.2 The retention time window is calculated as +/- 3 times the standard deviation of the individual retention times of each component.

11.2 *Compound quantitation*

11.2.1 Once sample is analyzed and a compound is identified, quantitation based on compound response by peak area is calculated against the average response factor of the curve.

11.2.2 The PID is used for quantitation for all compounds with the exception of methanol, iso-octane, and hexane.

11.2.3 Concentration(C) =
$$\frac{\text{Peak area(A)} \times \text{Dil factor(D)}}{\text{Average response factor from initial cal}}$$

where dilution factor is;

1/ cc injected for Tedlar® bags

((1/cc injected) x pressure dilution factor) for SUMMA® canisters

11.2.4 A detection limit of 0.1 ppmv times dilution factor is reported. A 0.1 ppmv standard was previously analyzed to verify detector sensitivity.

11.2.5 Sample concentrations quantitating higher than the upper 100 ppmv cal standard times the dilution factor (50 for 0.01 cc and 25 for 0.02 cc based on a 0.5cc loop injection.) can be reported as estimated since a much lower injection volume is difficult to measure and may be inaccurate.

11.2.6 Mass spec confirmation is performed on at one sample from each site due to possible interference's on the FID identification due to the non specificity of the detector.

12.0 *QC REQUIREMENTS*

12.1 Method blank daily

12.2 Laboratory control samples (external source standards) every 20 samples

12.3 Matrix duplicates - 10% of samples analyzed

12.4 Mass spec confirmation is performed on at one sample from each site due to possible interference's on the fid identification due to the non specificity of the detector.

13.0 *APPARATUS CLEANING*

13.1 Sample syringes and canister syringe adapters are cleaned between use by baking at 50 C for 20 minutes. Higher temperatures can crack the barrel of the fixed needle syringe. The syringes and adapters are also flushed with the actual sample prior to final aliquot injection.

13.2 SUMMA® canisters are cleaned and certified (refer to SOP)

14.0 *SAFETY*

14.1 All standard preparation must be performed under a ventilation hood.

14.2 Releasing pressurized SUMMA® canisters must be performed under a ventilation hood.

SUMMA® Canister Cleaning

and Certification

SOP

1. Scope

1.1 This SOP describes a procedure for leak testing a cleaning apparatus, canister cleaning, leak testing canisters, and certifying preparation batches.

1.2 This procedure is applicable to canisters that have contained "live samples" along with newly purchased canisters to ensure that any canisters shipped by the laboratory adhere to the most sensitive sampling procedures.

2. Method Reference

2.1 Method TO-14, "Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using SUMMA® Passivated Canister Sampling and Gas Chromatographic Analysis", Revision 1.0, 6/88 from "EPA Methods for Determination of Toxic Organic Compounds in Air"

3. Apparatus and Materials

3.1 Entech Model 3000 Cleaning System - equipped with a controller, 1 "Alcatel model CFV 100" dewer/HV rough pump, and 1 "KNF model UN726.3" diaphram high vacuum pump.

3.3 Entech Humidification Chamber - containing organic free water

3.2 Entech 12-position manifold to simultaneously clean 8 ® canisters.

3.4 Entech 12-individual band heaters to heat canisters to 100c

3.5 Helium Leak Detector - Gow-Mac model 21-250 set at maximum sensitivity. Capable at measuring 0.0006cc/min of helium

3.6 Dedicated clean pressure gauge (0-30 PSIG)

3.7 Adjustable Pressure Flow Controller - For stand alone canister filling during the canister leak check.

3.8 Zero grade helium - To fill canisters and leak check cleaning system

3.9 Zero grade nitrogen - Humidified by humidification chamber to fill canisters during cleaning cycle.

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4. Summary

4.1 Eight SUMMA® canisters at ambient pressure are attached to the cleaning system with the sampling valves turned off. The system is pressurized with helium and all connections are checked for leaks with helium leak detector.

4.2 Canister sampling valves are opened and the canisters are heated with the heating bands. With the use of Zero grade nitrogen and the rough pump, the canisters are filled and evacuated for a minimum of 7 cycles for a specified amount of time.

4.3 The canisters are allowed to cool to room temperature and pressurized to approximately 30 psig. The pressure is checked after filling and again 24 hours later to certify leak free.

4.4 The canisters are then subjected to a final vacuum of under 0.050mm Hg.

4.5 The historically most contaminated SUMMA® canister out of each preparation batch (12 canisters) is analyzed for the target compounds of interest to certify contamination free at levels below the specified detection limits. At that point the remaining canisters in the batch are released for sampling.

5. Preparing Canister for Cleaning

5.1 Empty any pressurized canisters by opening the canister valves under a hood. Once canister reaches ambient pressure, close the valve.

6. Leak Testing Cleaning System

6.1 Turn on the helium leak detector for a warm up period while setting up system.

6.2 Connect up to 8 SUMMA® canisters to auto cleaning system while positioning the band heaters around the center or widest part of the SUMMA® canister. Tighten the ¼" stainless steel swagelock fittings while the controller is in the standby mode. Record canister serial number, date, and prep batch number in Prep Log book. Canister prep batches are numbered sequentially as CP0001, CP0002, etc.

Check all canisters to verify sampling valves are in the off position (clockwise).

6.3 Turn the nitrogen/ helium three way directional valve so that helium gas is traveling to the controller. Manually set the controller to the "Fill" position and allow the pressure reading on the controller to equilibrate at approximately 50 PSIA.

6.4 With the helium leak detector on "high sensitivity" setting, adjust the meter reading to approximately "0". Also select "Audio On" so that any leak can be heard in order to concentrate on properly positioning the probe tip. Position the probe tip on every connection and fitting on the auto sampler system for approximately 15 seconds allowing any possible helium leaks enough time to be detected. If any leaks are detected, tighten the fitting and repeat procedure until no leaks are detected. Often fixing one strong leak may build up pressure in other regions to a leaking point so the entire system must certified to be leak free before proceeding to the cleaning step.

6.5 Position the controller back into the standby mode and the directional valve back to nitrogen flow.

7. *Cleaning Procedure*

7.1 The controller setting for the cleaning procedure should be as follows;

Cycles: 7 times

Pump 1: 7 minutes

Pump 2: 0 minutes

Fill : 7 minutes

The number of cycles may be increased if a highly contaminated canister is connected. From historical analytical data on each SUMMA® canister the cycle time may be increased. Its better to go more cycles than to find out the entire batch is not certified clean and has to be rejected.

7.2 Check the humidifier chamber to verify the organic free water is just below but not covering the nitrogen feed port. If not add water to that level by removing screw cap to chamber while system is at ambient pressure. Momentarily set the controller to the fill position to see that the nitrogen is sweeping the surface of the water.

7.3 Open the canister valves and plug in the band heaters. Carefully feel each band heater to make sure each one is heating properly.

7.4 Set the controller to "Auto" and let the cycles proceed. When the procedure is finished, the controller will automatically be in the standby mode.

7.5 Unplug the band heaters and slide them down to the bottom of the canister. Close each canister valve and disconnect the swagelock fittings. Cap the ¼" canister sampling port with the ¼" swagelock nut attached to each canister hand tight.

7.6 Set the canisters aside and allow to cool for approximately 1 hour to ambient temperature. This is critical as a temperature change will effect the pressure reading when leak testing the canisters.

8. Leak Testing Canisters

8.1 Remove the cap from the SUMMA® canister. Turn on the helium line equipped with a pressure gauge by adjusting the pressure control knob until the flow is heard and any dead volume in the helium line is purged.

8.2 Connect the helium line to the canister sampling port as the slight helium flow is purging the open orifice free of any possible room air contaminants.

8.3 Tighten the connection with a wrench and adjust the flow knob until the head pressure reading is slightly above 30 PSIG on the gauge. Slowly open the canister sampling valve to fill with helium monitoring the gauge so that the pressure doesn't drop below 10 PSIG to ensure a controlled filling. The adjustable pressure knob may have to be increased to reach the 30 PSIG point.

8.4 Once the gauge pressure equilibrates to slightly over 30 PSIG turn the canister sampling valve off. Loosen the ¼" nut while still positive pressure and flow is coming out of the helium line then turn the helium completely off.

8.5 Attach the "clean canister only" pressure gauge to the canister and tighten with a wrench. Open the sampling valve and record the pressure in the log book to the nearest 0.5 PSIG.

8.6 Approximately 24 hours later by using the same dedicated clean pressure gauge check and record the pressure of each canister. A pressure change of not more than 1 PSIG should be noted. If a greater change is noted then the canister is suspect.

8.7 The helium leak detector can be used to isolate the leak to the valves, wields, etc. Possibly the on/off valve was not shut tight enough. If the valve was not completely shut the repressurizing and going through the leak test procedure can be repeated. If the leak is part of the wield or can't be determined then the canister must be rejected and sent out for repair.

8.8 Once the canisters have had their final pressure check, release the pressure away from you by pointing the sampling port under an exhaust hood and opening the valve.

8.9 Once the pressure is released, cap the port with the dedicated nut and prepare for final evacuation.

9. Final Canister Evacuation

9.1 Reattach the canisters at ambient pressure from the same cleaning lot to the auto sampler manifold.

9.2 Switch the controller manually to pump 2. Open each of the canisters to allow the evacuation to proceed. Let the system pump down to under 0.050 mm Hg which will take approximately 2 hours for eight canisters.

9.3 When the vacuum reaches below 0.050 on the digital readout, record the vacuum and close all the canister valves.

9.4 Momentarily press the fill control to equilibrate the system to slightly above ambient pressure (15 PSIA).

9.5 Set the controller back in the standby mode and remove the canisters and cap with the ¼" nut with a wrench. Do not over tighten since the nuts are soft brass and can be stripped. Slightly tightening the nut will cause a seal to protect the sampling port from outside contamination. The canister on/off valve is actually sealing the vacuum.

10. Canister Cleaning Certification

10.1 From historical analytical data, the most contaminated canister not only for target compounds but reviewing the non-targets and chromatogram should be selected for prep batch certification.

10.2 The selected canister should be filled with zero grade helium to atmospheric pressure or above depending on the analysis and how live samples are treated for this prep batch. If the canister is to be pressurized above ambient pressure, it should be pressurized to the same level as the live samples with a dilution factor taken into account. As an example, source sampling may be pressurized or diluted to 30 PSIG (45 PSIA) which is a dilution factor of 3, therefore the certification canister should be pressurized the same with the appropriate dilution factor used in the quantitation.

10.4 The canister selected should be marked in the log book with the analysis date and data file used for certification.

10.3 If after analysis, the SUMMA® canister is non detect or below the method detection limit for all analytes of interest, the remaining canisters in this prep batch are ready to be shipped for sampling.

11. Documentation Requirements

11.1 All new canisters should be assigned a serial number utilizing stick on label and a permanent engraving for tracking.

11.2 The canister serial numbers, prep batch lots, dates, pressures and vacuums should be recorded in the "Canister Cleaning and Certification Log" and the "SUMMA® Canister Sampling Pressure Log". This way a full audit trail of each canister can be determined.

12. Safety

12.1 Always wear safety glasses when filling, pressure checking, and emptying pressurized canisters.

12.2 Empty any pressurized canisters away from you under an exhaust hood.

APPENDIX B

RUN-BY-RUN EMISSION FACTORS FOR THE TWENTY DATA SETS USED TO CALCULATE OVERALL EMISSION FACTORS

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

						Loading Conditions				
API Code	PES Test Rating	Control Device	Control Level (mg/l)	Loading Method	Gasoline Loaded (liters)	Gasoline Loaded (gals)	Distillate Loaded (gals)	Other Loaded (gals)	Gas Volume Inlet m^3	Gas Volume Outlet m^3
C-6	C	CA	80	Bottom	113,739	30,050	2,800	0	165	106.00
C-6	C	CA	80	Bottom	29,145	7,700	7,500	9,000	123	79.30
C-6	C	CA	80	Bottom	18,925	5,000	0	0	63	29.80
C-6	**C**	**CA**	**80**	**Bottom**	**161,809**	**42,750**	**10,300**	**9,000**	**351**	**215.10**
C-8	B	CA	35	bottom	298,637	78,900	10,700		537	343.27
C-8	B	CA	35	bottom	262,301	69,300			477	300.79
C-8	B	CA	35	bottom	152,157	40,200			373	207.39
C-8	**B**	**CA**	**35**	**bottom**	**713,094**	**188,400**	**10,700**		**1,387**	**851.45**
C-9	B	CA	35	Bottom	251,324	66,400	7,200	198	489	342.02
C-9	B	CA	35	Bottom	127,176	33,600	14,500	0	382	275.92
C-9	B	CA	35	Bottom	123,013	32,500	0	0	340	222.48
C-9	**B**	**CA**	**35**	**Bottom**	**501,513**	**132,500**	**21,700**	**198**	**1,211**	**840.42**
C-10	B	CA	80	Bottom	218,584	57,750	15,000	8,500	275	184.00
C-10	B	CA	80	Bottom	116,389	30,750	11,235		254	149.60
C-10	B	CA	80	Bottom	160,635	42,440	14,700		258	144.50
C-10	**B**	**CA**	**80**	**Bottom**	**495,608**	**130,940**	**40,935**	**8,500**	**787**	**478.10**
C-12	B	CA	80	Bottom	364,496	96,300	19,000		346	217.10
C-12	B	CA	80	Bottom	282,361	74,600	21,272		356	231.50
C-12	B	CA	80	Bottom	110,522	29,200	22,500		346	242.30
C-12	**B**	**CA**	**80**	**Bottom**	**757,379**	**200,100**	**62,772**		**1,048**	**690.90**
C-14	B	CA	35	?	245,647	64,900			16	11.05
C-14	B	CA	35	?	261,165	69,000			158	102.25
C-14	B	CA	35	?	326,646	86,300			398	247.73
C-14	**B**	**CA**	**35**	**?**	**833,457**	**220,200**	**7,500**		**572**	**361.03**
T-1	B	TO	35	?	0					
T-1	B	TO	35	?	0					
T-1	B	TO	35	?	0					
T-1	**B**	**TO**	**35**	**?**	**841,069**	**222,211**	**15,002**		**829**	**33414.30**
T-3	B	TO	10?	Bottom	392,126	103,600	25,800	0	415	36027.46
T-3	B	TO	10?	Bottom	442,845	117,000	0	0	374	43729.65
T-3	B	TO	10?	Bottom	331,188	87,500	6,400	0	323	31260.35
T-3	**B**	**TO**	**10?**	**Bottom**	**1,166,159**	**308,100**	**32,200**		**1,112**	**111,017.46**
T-6	B	Flare	10	bottom	120,742	31,900	0		82	6388.60
T-6	B	Flare	10	bottom	292,581	77,300	15,000		287	40793.51
T-6	B	Flare	10	bottom	252,270	66,650	19,000		392	42649.56
T-6	**B**	**Flare**	**10**	**bottom**	**665,592**	**175,850**	**34,000**		**761**	**89,831.67**
T-7	B	TO	?	?	295,987	78,200	13,000	2,600	266	11904.00
T-7	B	TO	?	?	336,865	89,000	10,000	2,600	363	17738.86
T-7	B	TO	?	?	293,996	77,674	4,300	8,500	311	18249.99
T-7	**B**	**TO**	**?**	**?**	**926,848**	**244,874**	**27,300**	**13,700**	**939**	**47,893**
T-8	B	TO	35	?	67,373	17,800	8,000	11,080	148	14247.47
T-8	B	TO	35	?	146,101	38,600	25,800		174	26802.67
T-8	B	TO	35	?	145,571	38,460	16,600		263	21436.65
T-8	**B**	**TO**	**35**	**?**	**359,045**	**94,860**	**50,400**	**11,080**	**584**	**62,486.79**

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#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

						Loading Conditions				
API Code	PES Test Rating	Control Device	Control Level (mg/l)	Loading Method	Gasoline Loaded (liters)	Gasoline Loaded (gals)	Distillate Loaded (gals)	Other Loaded (gals)	Gas Volume Inlet m^3	Gas Volume Outlet m^3
C-15	C	CA	35	Bottom	315,499	83,355	0		297.48	200.86
C-15	C	CA	35	Bottom	226,343	59,800	7,200		364.63	262.85
C-15	C	CA	35	Bottom	141,181	37,300	22,300		286.55	209.32
C-15 Avg	**C**	**CA**	**35**	**Bottom**	**683,022**	**180,455**	**29,500**		**948.66**	**673.03**
C-16	C	CA	35	Bottom	234,534	61,964	0		354.79	241.43
C-16	C	CA	35	Bottom	234,564	61,972	0		378.13	234.16
C-16	C	CA	35	Bottom	33,509	8,853	0		187.69	116.20
C-16 Avg	**C**	**CA**	**35**	**Bottom**	**502,606**	**132,789**	**0**		**920.61**	**591.79**
C-17	B	CA	35	Bottom	225,260	59,514	0	0	295.74	215.96
C-17	B	CA	35	Bottom	64,387	17,011	0	0	124.33	82.21
C-17	B	CA	35	Bottom	64,360	17,004	0	0	94.91	64.98
C-17 Avg	**B**	**CA**	**35**	**Bottom**	**354,007**	**93,529**	**0**		**514.98**	**363.15**
C-18	C	CA	35	Bottom	84,379	22,293	10,056		153.89	109.08
C-18	C	CA	35	Bottom	55,481	14,658	33,406		215.40	176.79
C-18	C	CA	35	Bottom	94,580	24,988	36,871		276.12	224.48
C-18 Avg	**C**	**CA**	**35**	**Bottom**	**234,439**	**61,939**	**80,333**		**645.41**	**510.35**
									1314.081	
C-19	B	CA	35		412,747	109,048			*438.027*	266.70
C-19	B	CA	35		418,988	110,697			*438.027*	292.90
C-19	B	CA	35		411,619	108,750			*438.027*	267.18
C-19 Avg	**B**	**CA**	**35**		**1,243,354**	**328,495**			***1,314.08***	**826.78**
C-20	B	CA	35	Bottom	322,815	85,288	5,000		357.6	187.63
C-20	B	CA	35	Bottom	427,345	112,905	21,851		342.09	190.73
C-20	B	CA	35	Bottom	262,698	69,405	6,975		458.03	248.81
C-20 Avg	**B**	**CA**	**35**	**Bottom**	**1,012,858**	**267,598**	**33,826**		**1,157.7**	**627.17**
						154,950				
C-21A	B	CA	80	Bottom	161,006	*42,537.8*	0		198.4	164.40
C-21A	B	CA	80	Bottom	158,977	*42,001.8*	22,700		195.9	159.90
C-21A	B	CA	80	Bottom	266,503	*70,410.4*	30,600		328.4	282.10
C-21A Av	**B**	**CA**	**80**	**Bottom**	**586,486**	**154,950**			**722.7**	**606.40**
						146,492				
C-21B	B	CA	80	Bottom	194,359	*51,349.9*	8,600		195	155.30
C-21B	B	CA	80	Bottom	75,950	*20,066.0*			76.2	64.20
C-21B	B	CA	80	Bottom	284,163	*75,076.2*			285.1	226.70
C-21B Av	**B**	**CA**	**80**	**Bottom**	**554,472**	**146,492**			**556.3**	**446.20**
						161,650				
C-21C	B	CA	80	Bottom	0	*0.0*	7,600		0	0.00
C-21C	B	CA	80	Bottom	229,532	*60,642.6*	0		253.9	179.00
C-21C	B	CA	80	Bottom	382,313	*101,007.4*	15,800		422.9	332.00
C-21C Av	**B**	**CA**	**80**	**Bottom**	**611,845**	**161,650**			**676.8**	**511.00**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		1,3 Butadiene			
API Code	ND	Inlet (ppm)	ND	Outlet (ppm)	Control Eff.
C-6	ND	0	ND	0	#DIV/0!
C-6	ND	0	ND	0	#DIV/0!
C-6	ND	0	ND	0	#DIV/0!
C-6					
C-8		—		—	
C-8		—		—	
C-8		—		—	
C-8					
C-9		—		—	
C-9		—		—	
C-9		—		—	
C-9					
C-10		—		—	
C-10		—		—	
C-10		—		—	
C-10					
C-12		—		—	
C-12		—		—	
C-12		No Inlet		—	
C-12					
C-14	ND	0	ND	0	#DIV/0!
C-14	ND	0	ND	0	#DIV/0!
C-14	ND	0	ND	0	#DIV/0!
C-14					
T-1	ND	0	ND	0	#DIV/0!
T-1	ND	0	ND	0	#DIV/0!
T-1	ND	0	ND	0	#DIV/0!
T-1					
T-3	ND	0	ND	0	#DIV/0!
T-3	ND	0	ND	0	#DIV/0!
T-3	ND	0	ND	0	#DIV/0!
T-3					
T-6		—		—	
T-6		—		—	
T-6		—		—	
T-6					
T-7		—		—	
T-7		—		—	
T-7		—		—	
T-7					
T-8		—		—	
T-8		—		—	
T-8		—		—	
T-8					

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		1,3 Butadiene			
API Code	**ND**	**Inlet (ppm)**	**ND**	**Outlet (ppm)**	**Control Eff.**
C-15		—		—	
C-15		—		—	
C-15		—		—	
C-15 Avg					
C-16		—		—	
C-16		—		—	
C-16		—		—	
C-16 Avg					
C-17		—		—	
C-17		—		—	
C-17		—		—	
C-17 Avg					
C-18		—		—	
C-18		—		—	
C-18		—		—	
C-18 Avg					
C-19		—		—	
C-19		—		—	
C-19		—		—	
C-19 Avg					
C-20		—		—	
C-20		—		—	
C-20		—		—	
C-20 Avg					
C-21A		—		—	
C-21A		—		—	
C-21A		—		—	
C-21A Av					
C-21B		—		—	
C-21B		—		—	
C-21B		—		—	
C-21B Av					
C-21C		—		—	
C-21C		—		—	
C-21C		—		—	
C-21C Av					

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		MTBE									
API Code	ND	Inlet (ppm)	Inlet mg MTBE	Uncontrolled MTBE EF (mg/l)	Uncontrolled MTBE EF (lbs/1000 gals)	ND	Outlet (ppm)	Outlet mg MTBE	Controlled MTBE EF (mg/l)	Controlled MTBE EF (lbs/10^3 gal)	Control Eff.
C-6		2,300	1,389,048	12.21	1.02E-01		0.70	271.85	2.39E-03	1.99E-05	99.98%
C-6		2,000	897,987	30.81	2.57E-01	ND	0.10	29.05	9.97E-04	8.32E-06	100.00%
C-6		2,200	510,457	26.97	2.25E-01		0.60	65.51	3.46E-03	2.89E-05	99.99%
C-6		**2,167**	**2,797,491**	**17.29**	**1.44E-01**		**0.47**	**366.41**	**2.26E-03**	**1.89E-05**	**99.99%**
C-8	*	26,000	51,124,297	171.19	1.43E+00	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-8	*	31,000	54,135,573	206.39	1.72E+00	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-8	*	32,000	43,753,582	287.56	2.40E+00	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-8		**29,667**	**149,013,451**	**208.97**	**1.74E+00**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**100.00%**
C-9	*	20,000	35,832,717	142.58	1.19E+00	ND	0.10	125.31	4.99E-04	4.16E-06	100.00%
C-9	*	20,000	28,020,194	220.33	1.84E+00		2.00	2,021.81	1.59E-02	1.33E-04	99.99%
C-9	*	23,000	28,610,185	232.58	1.94E+00		1.40	1,141.16	9.28E-03	7.74E-05	100.00%
C-9		**21,000**	**92,463,096**	**184.37**	**1.54E+00**		**1.17**	**3,288.27**	**6.56E-03**	**5.47E-05**	**100.00%**
C-10	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
C-10		**0**	**0**	**0.00**	**0.00E+00**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-12		160	202,790	0.56	4.64E-03	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-12		290	378,448	1.34	1.12E-02	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!	ND	0.00	0.00	0.00E+00	0.00E+00	#VALUE!
C-12		**225**	**581,239**	**0.77**	**6.40E-03**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**100.00%**
C-14	*	20,000	1,176,066	4.79	4.00E-02	*	400.00	16,193.81	6.59E-02	5.50E-04	98.62%
C-14	*	22,000	12,743,281	48.79	4.07E-01	*	400.00	149,847.67	5.74E-01	4.79E-03	98.82%
C-14	*	23,000	33,523,709	102.63	8.56E-01	*	490.00	444,735.07	1.36E+00	1.14E-02	98.67%
C-14		**21,667**	**45,404,578**	**54.48**	**4.55E-01**		**430.00**	**610,776.55**	**7.33E-01**	**6.11E-03**	**98.65%**
T-1	*	24,000	0	#DIV/0!	#DIV/0!	ND	0.10	0.00	#DIV/0!	#DIV/0!	#DIV/0!
T-1	*	20,000	0	#DIV/0!	#DIV/0!		0.50	0.00	#DIV/0!	#DIV/0!	#DIV/0!
T-1	*	19,000	0	#DIV/0!	#DIV/0!	ND	0.10	0.00	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**21,000**	**63,771,579**	**75.82**	**6.33E-01**		**0.23**	**28,565.11**	**3.40E-02**	**2.83E-04**	**99.96%**
T-3	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-3	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-3	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-3		**0**	**0**	**0.00**	**0.00E+00**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-6	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-6	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-6	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-6		**0**	**0**	**0.00**	**0.00E+00**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-7		15,800	15,371,067	51.93	4.33E-01	ND	0.10	4,361.34	1.47E-02	1.23E-04	99.97%
T-7		13,600	18,084,848	53.69	4.48E-01		0.63	40,944.25	1.22E-01	1.01E-03	99.77%
T-7		18,100	20,595,268	70.05	5.85E-01		2.30	153,786.13	5.23E-01	4.36E-03	99.25%
T-7		**15,833**	**54,051,183**	**58.32**	**4.87E-01**		**1.01**	**199,091.72**	**2.15E-01**	**1.79E-03**	**99.63%**
T-8	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
T-8		**0**	**0**	**0.00**	**0.00E+00**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		MTBE									
API Code	**ND**	**Inlet (ppm)**	**Inlet mg MTBE**	**Uncontrolled MTBE EF (mg/l)**	**Uncontrolled MTBE EF (lbs/1000 gals)**	**ND**	**Outlet (ppm)**	**Outlet mg MTBE**	**Controlled MTBE EF (mg/l)**	**Controlled MTBE EF (lbs/10^3 gal)**	**Control Eff.**
C-15		590	643,038	2.04	1.70E-02		1.90	1,398.21	4.43E-03	3.70E-05	99.78%
C-15		600	801,549	3.54	2.96E-02		1.90	1,829.74	8.08E-03	6.75E-05	99.77%
C-15		610	640,408	4.54	3.79E-02		1.80	1,380.42	9.78E-03	8.16E-05	99.78%
C-15 Avg		**600**	**2,084,996**	**3.05**	**2.55E-02**		**1.87**	**4,608.37**	**6.75E-03**	**5.63E-05**	**99.78%**
C-16		960	1,247,870	5.32	4.44E-02		0.20	176.91	7.54E-04	6.29E-06	99.99%
C-16		1,200	1,662,452	7.09	5.91E-02	ND	0.05	42.90	1.83E-04	1.53E-06	100.00%
C-16		1,700	1,169,006	34.89	2.91E-01	ND	0.05	21.29	6.35E-04	5.30E-06	100.00%
C-16 Avg		**1,287**	**4,079,328**	**8.12**	**6.77E-02**		**0.10**	**241.09**	**4.80E-04**	**4.00E-06**	**99.99%**
C-17		240	260,045	1.15	9.63E-03	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-17		230	104,768	1.63	1.36E-02	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-17		420	146,045	2.27	1.89E-02	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-17 Avg		**297**	**510,859**	**1.44**	**1.20E-02**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**100.00%**
C-18		1,300	732,960	8.69	7.25E-02		3.10	1,238.89	1.47E-02	1.23E-04	99.83%
C-18		1,500	1,183,760	21.34	1.78E-01		3.10	2,007.92	3.62E-02	3.02E-04	99.83%
C-18		2,200	2,225,601	23.53	1.96E-01		2.30	1,891.61	2.00E-02	1.67E-04	99.92%
C-18 Avg		**1,667**	**4,142,321**	**17.67**	**1.47E-01**		**2.83**	**5,138.42**	**2.19E-02**	**1.83E-04**	**99.88%**
C-19		38,000	60,983,335	147.75	1.23E+00		0.20	195.42	4.73E-04	3.95E-06	100.00%
C-19		37,000	59,378,510	141.72	1.18E+00	ND	0.05	53.66	1.28E-04	1.07E-06	100.00%
C-19		41,000	65,797,809	159.85	1.33E+00		14.00	13,704.36	3.33E-02	2.78E-04	99.98%
C-19 Avg		**38,667**	**186,159,654**	**149.72**	**1.25E+00**		**4.75**	**13,953.44**	**1.12E-02**	**9.36E-05**	**99.99%**
C-20		8,100	10,612,293	32.87	2.74E-01		48.00	32,996.68	1.02E-01	8.53E-04	99.69%
C-20		5,000	6,266,674	14.66	1.22E-01		48.00	33,541.84	7.85E-02	6.55E-04	99.46%
C-20		6,900	11,578,964	44.08	3.68E-01		58.00	52,871.61	2.01E-01	1.68E-03	99.54%
C-20 Avg		**6,667**	**28,457,931**	**28.10**	**2.34E-01**		**51.33**	**119,410.13**	**1.18E-01**	**9.84E-04**	**99.58%**
C-21A		11,200	8,141,162	50.56	4.22E-01		0.71	427.65	2.66E-03	2.22E-05	99.99%
C-21A		14,300	10,263,540	64.56	5.39E-01		4	2,343.34	1.47E-02	1.23E-04	99.98%
C-21A		11,400	13,716,228	51.47	4.29E-01		120	124,025.51	4.65E-01	3.88E-03	99.10%
C-21A Av		**12,300**	**32,120,929**	**54.77**	**4.57E-01**		**41.57**	**126,796.50**	**2.16E-01**	**1.80E-03**	**99.61%**
C-21B		17,000	12,145,355	62.49	5.21E-01		62.60	35,618.24	1.83E-01	1.53E-03	99.71%
C-21B		16,200	4,522,689	59.55	4.97E-01		40.30	9,479.09	1.25E-01	1.04E-03	99.79%
C-21B		11,100	11,594,363	40.80	3.40E-01		229.00	190,201.39	6.69E-01	5.59E-03	98.36%
C-21B Av		**14,767**	**28,262,407**	**50.97**	**4.25E-01**		**110.63**	**235,298.73**	**4.24E-01**	**3.54E-03**	**99.17%**
C-21C											
C-21C		20500	19,069,673	83.08	6.93E-01		37.70	24,724.13	1.08E-01	8.99E-04	99.87%
C-21C		19300	29,903,477	78.22	6.53E-01		588.00	715,224.04	1.87E+00	1.56E-02	97.61%
C-21C Av		**19900**	**48,973,150**	**80.04**	**6.68E-01**		**312.85**	**739,948.17**	**1.21E+00**	**1.01E-02**	**98.49%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Benzene									
API Code	ND	Inlet (ppm)	Inlet mg Benzene	Uncontrolled BZ EF (mg/l)	Uncontrolled BZ EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet mg Benzene	Controlled BZ EF (mg/l)	Controlled BZ EF (lbs/10^3 gal)	Control Eff.
C-6		900	481,633	4.23E+00	3.53E-02		1.7	585	5.14E-03	4.29E-05	99.88%
C-6		1300	517,211	1.77E+01	1.48E-01	ND	0.1	26	8.83E-04	7.37E-06	100.00%
C-6		1900	390,638	2.06E+01	1.72E-01		0.3	29	1.53E-03	1.28E-05	99.99%
C-6		**1366.67**	**1,389,481**	**8.59E+00**	**7.17E-02**		**0.70**	**640**	**3.95E-03**	**3.30E-05**	**99.95%**
C-8		860	1,498,431	5.02E+00	4.19E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		1200	1,856,892	7.08E+00	5.91E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		1300	1,575,039	1.04E+01	8.64E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		**1120.00**	**4,930,362**	**6.91E+00**	**5.77E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-9		950	1,508,196	6.00E+00	5.01E-02	ND	0.1	111	4.42E-04	3.69E-06	99.99%
C-9		860	1,067,638	8.39E+00	7.01E-02		0.3	269	2.11E-03	1.76E-05	99.97%
C-9		1200	1,322,691	1.08E+01	8.97E-02	ND	0.1	72	5.87E-04	4.90E-06	99.99%
C-9		**1003.33**	**3,898,524**	**7.77E+00**	**6.49E-02**		**0.17**	**452**	**9.01E-04**	**7.52E-06**	**99.99%**
C-10		1200	1,070,984	4.90E+00	4.09E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		1700	1,400,003	1.20E+01	1.00E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		1900	1,592,528	9.91E+00	8.27E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		**1600.00**	**4,063,515**	**8.20E+00**	**6.84E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-12		900	1,010,775	2.77E+00	2.31E-02	ND	0.1	70	1.93E-04	1.61E-06	99.99%
C-12		950	1,098,541	3.89E+00	3.25E-02	ND	0.1	75	2.66E-04	2.22E-06	99.99%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!		0.3	236	2.14E-03	1.78E-05	#VALUE!
C-12		**925.00**	**2,109,316**	**2.79E+00**	**2.32E-02**		**0.17**	**382**	**5.04E-04**	**4.20E-06**	**99.98%**
C-14		950	49,501	2.02E-01	1.68E-03		1.9	68	2.77E-04	2.32E-06	99.86%
C-14		1100	564,593	2.16E+00	1.80E-02		1.9	631	2.41E-03	2.02E-05	99.89%
C-14		1000	1,291,542	3.95E+00	3.30E-02		2.5	2,011	6.16E-03	5.14E-05	99.84%
C-14		**1016.67**	**1,905,636**	**2.29E+00**	**1.91E-02**		**2.10**	**2,709**	**3.25E-03**	**2.71E-05**	**99.86%**
T-1		1200	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		980	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		1200	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**1126.67**	**3,031,710**	**3.60E+00**	**3.01E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3		1500	2,020,619	5.15E+00	4.30E-02	ND	0.1	11,696	2.98E-02	2.49E-04	99.42%
T-3		1500	1,820,793	4.11E+00	3.43E-02	ND	0.1	14,197	3.21E-02	2.68E-04	99.22%
T-3		1600	1,677,525	5.07E+00	4.23E-02		0.2	20,297	6.13E-02	5.11E-04	98.79%
T-3		**1533.33**	**5,518,937**	**4.73E+00**	**3.95E-02**		**0.13**	**46,190**	**3.96E-02**	**3.31E-04**	**99.16%**
T-6		194	51,720	4.28E-01	3.57E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		696	647,760	2.21E+00	1.85E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		759	966,064	3.83E+00	3.20E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**549.67**	**1,665,545**	**2.50E+00**	**2.09E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		590	508,608	1.72E+00	1.43E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		580	683,421	2.03E+00	1.69E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		763	769,304	2.62E+00	2.18E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		**644.33**	**1,961,333**	**2.12E+00**	**1.77E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-8		340	162,859	2.42E+00	2.02E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		650	366,260	2.51E+00	2.09E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		530	452,052	3.11E+00	2.59E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		**506.67**	**981,171**	**2.73E+00**	**2.28E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Benzene									
API Code	**ND**	**Inlet (ppm)**	**Inlet mg Benzene**	**Uncontrolled BZ EF (mg/l)**	**Uncontrolled BZ EF (lbs/10^3 gal)**	**ND**	**Outlet (ppm)**	**Outlet mg Benzene**	**Controlled BZ EF (mg/l)**	**Controlled BZ EF (lbs/10^3 gal)**	**Control Eff.**
C-15		540.00	521,510	1.65E+00	1.38E-02		0.20	130	4.13E-04	3.45E-06	99.97%
C-15		1200.00	1,420,511	6.28E+00	5.24E-02		0.20	171	7.54E-04	6.29E-06	99.99%
C-15		1200.00	1,116,330	7.91E+00	6.60E-02		0.20	136	9.63E-04	8.03E-06	99.99%
C-15 Avg		**980.00**	**3,058,351**	**4.48E+00**	**3.74E-02**		**0.20**	**437**	**6.40E-04**	**5.34E-06**	**99.99%**
C-16		570.00	656,534	2.80E+00	2.34E-02		1.00	784	3.34E-03	2.79E-05	99.88%
C-16		1100.00	1,350,345	5.76E+00	4.80E-02	ND	0.05	38	1.62E-04	1.35E-06	100.00%
C-16		910.00	554,490	1.65E+01	1.38E-01	ND	0.05	19	5.63E-04	4.70E-06	100.00%
C-16 Avg		**860.00**	**2,561,369**	**5.10E+00**	**4.25E-02**		**0.37**	**841**	**1.67E-03**	**1.40E-05**	**99.97%**
C-17		910.00	873,700	3.88E+00	3.24E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		1200.00	484,360	7.52E+00	6.28E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		1400.00	431,371	6.70E+00	5.59E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17 Avg		**1170.00**	**1,789,431**	**5.05E+00**	**4.22E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-18		1400.00	699,438	8.29E+00	6.92E-02		0.30	106	1.26E-03	1.05E-05	99.98%
C-18		980.00	685,303	1.24E+01	1.03E-01		0.70	402	7.24E-03	6.04E-05	99.94%
C-18		760.00	681,275	7.20E+00	6.01E-02		0.30	219	2.31E-03	1.93E-05	99.97%
C-18 Avg		**1046.67**	**2,066,017**	**8.81E+00**	**7.35E-02**		**0.43**	**727**	**3.10E-03**	**2.59E-05**	**99.96%**
C-19		1600.00	2,275,264	5.51E+00	4.60E-02		0.50	433	1.05E-03	8.75E-06	99.98%
C-19		1700.00	2,417,468	5.77E+00	4.81E-02		0.80	761	1.82E-03	1.52E-05	99.97%
C-19		1700.00	2,417,468	5.87E+00	4.90E-02		1.50	1,301	3.16E-03	2.64E-05	99.95%
C-19 Avg		**1666.67**	**7,110,201**	**5.72E+00**	**4.77E-02**		**0.93**	**2,495**	**2.01E-03**	**1.67E-05**	**99.96%**
C-20		2400.00	2,786,248	8.63E+00	7.20E-02		4.70	2,863	8.87E-03	7.40E-05	99.90%
C-20		2100.00	2,332,226	5.46E+00	4.55E-02		4.90	3,034	7.10E-03	5.92E-05	99.87%
C-20		2700.00	4,014,844	1.53E+01	1.28E-01		4.80	3,877	1.48E-02	1.23E-04	99.90%
C-20 Avg		**2400.00**	**9,133,319**	**9.02E+00**	**7.52E-02**		**4.80**	**9,774**	**9.65E-03**	**8.05E-05**	**99.89%**
C-21A		1,040	669,863	4.16E+00	3.47E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21A		1,740	1,106,610	6.96E+00	5.81E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21A		1,340	1,428,627	5.36E+00	4.47E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21A Av		**1,373**	**3,205,101**	**5.46E+00**	**4.56E-02**	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-21B		1,740	1,101,526	5.67E+00	4.73E-02	ND	0.10	50	2.59E-04	2.16E-06	100.00%
C-21B		1,780	440,338	5.80E+00	4.84E-02	ND	0.15	31	4.12E-04	3.43E-06	99.99%
C-21B		1,510	1,397,607	4.92E+00	4.10E-02	J	0.18	132	4.66E-04	3.89E-06	99.99%
C-21B Av		**1,677**	**2,939,471**	**5.30E+00**	**4.42E-02**		**0.14**	**214**	**3.86E-04**	**3.22E-06**	**99.99%**
C-21C											
C-21C		2640.00	2,176,094	9.48E+00	7.91E-02	ND	0.10	58	2.53E-04	2.11E-06	100.00%
C-21C		2100.00	2,883,155	7.54E+00	6.29E-02		0.25	269	7.05E-04	5.88E-06	99.99%
C-21C Av		**2370.00**	**5,059,249**	**8.27E+00**	**6.90E-02**		**0.18**	**328**	**5.35E-04**	**4.47E-06**	**99.99%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Toluene									
API Code	ND	Inlet (ppm)	Inlet mg Toluene	Uncontrolled Toluene EF (mg/l)	Uncontrolled Toluene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet mg Toluene	Controlled Toluene EF (mg/l)	Controlled Toluene EF (lbs/10^3 gal)	Control Eff.
C-6		520	328,225	2.89E+00	2.41E-02		10	4,059	3.57E-02	2.98E-04	98.76%
C-6		1000	469,266	1.61E+01	1.34E-01		0.5	152	5.21E-03	4.35E-05	99.97%
C-6		1400	339,502	1.79E+01	1.50E-01		0.6	68	3.62E-03	3.02E-05	99.98%
C-6		**973.33**	**1,136,993**	**7.03E+00**	**5.86E-02**		**3.70**	**4,279**	**2.64E-02**	**2.21E-04**	**99.62%**
C-8		820	1,685,181	5.64E+00	4.71E-02		0.2	263	8.80E-04	7.35E-06	99.98%
C-8		1600	2,920,248	1.11E+01	9.29E-02	ND	0.1	115	4.39E-04	3.66E-06	100.00%
C-8		2000	2,858,067	1.88E+01	1.57E-01	ND	0.25	199	1.30E-03	1.09E-05	99.99%
C-8		**1473.33**	**7,463,496**	**1.05E+01**	**8.73E-02**		**0.18**	**577**	**8.09E-04**	**6.75E-06**	**99.99%**
C-9		1900	3,557,805	1.42E+01	1.18E-01	ND	0.1	131	5.21E-04	4.35E-06	100.00%
C-9		1500	2,196,399	1.73E+01	1.44E-01		1	1,057	8.31E-03	6.93E-05	99.95%
C-9		2800	3,640,237	2.96E+01	2.47E-01		0.3	256	2.08E-03	1.73E-05	99.99%
C-9		**2066.67**	**9,394,440**	**1.87E+01**	**1.56E-01**		**0.47**	**1,443**	**2.88E-03**	**2.40E-05**	**99.98%**
C-10		1000	1,052,679	4.82E+00	4.02E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		1100	1,068,482	9.18E+00	7.66E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		2000	1,977,234	1.23E+01	1.03E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		**1366.67**	**4,098,395**	**8.27E+00**	**6.90E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-12		1300	1,722,065	4.72E+00	3.94E-02	ND	0.1	83	2.28E-04	1.90E-06	100.00%
C-12		1700	2,318,655	8.21E+00	6.85E-02		0.2	177	6.28E-04	5.24E-06	99.99%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!		1.1	1,021	9.23E-03	7.71E-05	#VALUE!
C-12		**1500.00**	**4,040,720**	**5.34E+00**	**4.45E-02**		**0.47**	**1,281**	**1.69E-03**	**1.41E-05**	**99.97%**
C-14		2000	122,917	5.00E-01	4.18E-03		2.5	106	4.31E-04	3.59E-06	99.91%
C-14		2200	1,331,864	5.10E+00	4.26E-02		2.5	979	3.75E-03	3.13E-05	99.93%
C-14		2300	3,503,731	1.07E+01	8.95E-02		3.7	3,510	1.07E-02	8.97E-05	99.90%
C-14		**2166.67**	**4,958,512**	**5.95E+00**	**4.96E-02**		**2.90**	**4,594**	**5.51E-03**	**4.60E-05**	**99.91%**
T-1		2500	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		2000	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		2400	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**2300.00**	**7,299,859**	**8.68E+00**	**7.24E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3		1700	2,701,074	6.89E+00	5.75E-02	ND	0.1	13,796	3.52E-02	2.94E-04	99.49%
T-3		1800	2,577,130	5.82E+00	4.86E-02	ND	0.1	16,745	3.78E-02	3.16E-04	99.35%
T-3		1600	1,978,625	5.97E+00	4.99E-02		0.3	35,910	1.08E-01	9.05E-04	98.19%
T-3		**1700.00**	**7,256,828**	**6.22E+00**	**5.19E-02**		**0.17**	**66,451**	**5.70E-02**	**4.75E-04**	**99.08%**
T-6		151	47,482	3.93E-01	3.28E-03	ND	0.1	2,446	2.03E-02	1.69E-04	94.85%
T-6		623	683,892	2.34E+00	1.95E-02		0.35	54,672	1.87E-01	1.56E-03	92.01%
T-6		881	1,322,618	5.24E+00	4.37E-02	ND	0.1	16,331	6.47E-02	5.40E-04	98.77%
T-6		**551.67**	**2,053,992**	**3.09E+00**	**2.58E-02**		**0.18**	**73,450**	**1.10E-01**	**9.21E-04**	**96.42%**
T-7		784	797,153	2.69E+00	2.25E-02	ND	0.1	4,558	1.54E-02	1.29E-04	99.43%
T-7		968	1,345,334	3.99E+00	3.33E-02	ND	0.1	6,793	2.02E-02	1.68E-04	99.50%
T-7		1040	1,236,804	4.21E+00	3.51E-02		0.41	28,652	9.75E-02	8.13E-04	97.68%
T-7		**930.67**	**3,379,291**	**3.65E+00**	**3.04E-02**		**0.20**	**40,003**	**4.32E-02**	**3.60E-04**	**98.82%**
T-8		580	327,684	4.86E+00	4.06E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		690	458,584	3.14E+00	2.62E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		590	593,552	4.08E+00	3.40E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		**620.00**	**1,379,821**	**3.84E+00**	**3.21E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Toluene									
API Code	ND	Inlet (ppm)	Inlet mg Toluene	Uncontrolled Toluene EF (mg/l)	Uncontrolled Toluene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet mg Toluene	Controlled Toluene EF (mg/l)	Controlled Toluene EF (lbs/10^3 gal)	Control Eff.
C-15		1000.00	1,139,104	3.61E+00	3.01E-02		0.80	615	1.95E-03	1.63E-05	99.95%
C-15		1500.00	2,094,349	9.25E+00	7.72E-02		0.80	805	3.56E-03	2.97E-05	99.96%
C-15		1500.00	1,645,876	1.17E+01	9.73E-02		0.80	641	4.54E-03	3.79E-05	99.96%
C-15 Avg		**1333.33**	**4,879,329**	**7.14E+00**	**5.96E-02**		**0.80**	**2,062**	**3.02E-03**	**2.52E-05**	**99.96%**
C-16		790.00	1,073,257	4.58E+00	3.82E-02		7.10	6,564	2.80E-02	2.34E-04	99.39%
C-16		1600.00	2,316,683	9.88E+00	8.24E-02	ND	0.05	45	1.91E-04	1.59E-06	100.00%
C-16		1700.00	1,221,787	3.65E+01	3.04E-01		0.40	178	5.31E-03	4.43E-05	99.99%
C-16 Avg		**1363.33**	**4,611,727**	**9.18E+00**	**7.66E-02**		**2.52**	**6,787**	**1.35E-02**	**1.13E-04**	**99.85%**
C-17		920.00	1,041,846	4.63E+00	3.86E-02	ND	0.05	41	1.84E-04	1.53E-06	100.00%
C-17		1100.00	523,690	8.13E+00	6.79E-02		0.30	94	1.47E-03	1.22E-05	99.98%
C-17		1700.00	617,826	9.60E+00	8.01E-02		0.30	75	1.16E-03	9.68E-06	99.99%
C-17 Avg		**1240.00**	**2,183,362**	**6.17E+00**	**5.15E-02**		**0.22**	**210**	**5.94E-04**	**4.96E-06**	**99.99%**
C-18		1900.00	1,119,617	1.33E+01	1.11E-01		1.80	752	8.91E-03	7.44E-05	99.93%
C-18		1900.00	1,567,129	2.82E+01	2.36E-01		4.20	2,843	5.12E-02	4.28E-04	99.82%
C-18		1400.00	1,480,237	1.57E+01	1.31E-01		1.80	1,547	1.64E-02	1.37E-04	99.90%
C-18 Avg		**1733.33**	**4,166,983**	**1.78E+01**	**1.48E-01**		**2.60**	**5,142**	**2.19E-02**	**1.83E-04**	**99.88%**
C-19		2700.00	4,528,664	1.10E+01	9.16E-02		0.90	919	2.23E-03	1.86E-05	99.98%
C-19		3300.00	5,535,034	1.32E+01	1.10E-01		1.10	1,234	2.94E-03	2.46E-05	99.98%
C-19		2700.00	4,528,664	1.10E+01	9.18E-02		2.60	2,660	6.46E-03	5.39E-05	99.94%
C-19 Avg		**2900.00**	**14,592,362**	**1.17E+01**	**9.79E-02**		**1.53**	**4,813**	**3.87E-03**	**3.23E-05**	**99.97%**
C-20		3,000	4,107,941	1.27E+01	1.06E-01		8.90	6,394	1.98E-02	1.65E-04	99.84%
C-20		2,900	3,798,777	8.89E+00	7.42E-02		8.20	5,989	1.40E-02	1.17E-04	99.84%
C-20		3,700	6,489,348	2.47E+01	2.06E-01		8.10	7,717	2.94E-02	2.45E-04	99.88%
C-20 Avg		**3,200**	**14,396,067**	**1.42E+01**	**1.19E-01**		**8.40**	**20,100**	**1.98E-02**	**1.66E-04**	**99.86%**
C-21A		1,990	1,511,820	9.39E+00	7.84E-02	ND	0.10	63	3.91E-04	3.26E-06	100.00%
C-21A		2,490	1,867,838	1.17E+01	9.80E-02	ND	0.10	61	3.85E-04	3.21E-06	100.00%
C-21A		3,090	3,885,680	1.46E+01	1.22E-01		0.43	464	1.74E-03	1.45E-05	99.99%
C-21A Av		**2,523**	**7,265,339**	**1.24E+01**	**1.03E-01**		**0.21**	**589**	**1.00E-03**	**8.38E-06**	**99.99%**
C-21B		3,730	2,785,152	1.43E+01	1.20E-01		0.31	184	9.48E-04	7.91E-06	99.99%
C-21B		3,910	1,140,873	1.50E+01	1.25E-01	ND	0.15	37	4.86E-04	4.05E-06	100.00%
C-21B		3,910	4,268,541	1.50E+01	1.25E-01		0.80	694	2.44E-03	2.04E-05	99.98%
C-21B Av		**3,850**	**8,194,565**	**1.48E+01**	**1.23E-01**		**0.42**	**916**	**1.65E-03**	**1.38E-05**	**99.99%**
C-21C											
C-21C		4140.00	4,025,024	1.75E+01	1.46E-01	ND	0.10	69	2.99E-04	2.49E-06	100.00%
C-21C		4030.00	6,526,017	1.71E+01	1.42E-01		1.30	1,653	4.32E-03	3.61E-05	99.97%
C-21C Av		**4085.00**	**10,551,041**	**1.72E+01**	**1.44E-01**		**0.70**	**1,721**	**2.81E-03**	**2.35E-05**	**99.98%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Ethylbenzene									
API Code	ND	Inlet (ppm)	Inlet mg Ethylb.	Uncontrolled Ethylb. EF (mg/l)	Uncontrolled Ethylb. EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet mg Ethylb.	Controlled Ethylb. EF (mg/l)	Controlled Ethylb. EF (lbs/10^3 gal)	Control Eff.
C-6		34	24,729	2.17E-01	1.81E-03		2.1	982	8.64E-03	7.21E-05	96.03%
C-6		53	28,659	9.83E-01	8.21E-03	ND	0.1	35	1.20E-03	1.00E-05	99.88%
C-6		62	17,325	9.15E-01	7.64E-03	ND	0.1	13	6.95E-04	5.80E-06	99.92%
C-6		**49.67**	**70,712**	**4.37E-01**	**3.65E-03**		**0.77**	**1,030**	**6.37E-03**	**5.31E-05**	**98.54%**
C-8		35	82,882	2.78E-01	2.32E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		84	176,660	6.74E-01	5.62E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		150	246,998	1.62E+00	1.35E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		**89.67**	**506,540**	**7.10E-01**	**5.93E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-9		130	280,499	1.12E+00	9.31E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-9		100	168,725	1.33E+00	1.11E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-9		190	284,633	2.31E+00	1.93E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-9		**140.00**	**733,857**	**1.46E+00**	**1.22E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-10		41	49,732	2.28E-01	1.90E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		33	36,936	3.17E-01	2.65E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		74	84,298	5.25E-01	4.38E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		**49.33**	**170,967**	**3.45E-01**	**2.88E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-12		71	108,374	2.97E-01	2.48E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-12		76	119,443	4.23E-01	3.53E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-12		**73.50**	**227,817**	**3.01E-01**	**2.51E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-14		170	12,039	4.90E-02	4.09E-04		0.3	15	5.95E-05	4.97E-07	99.88%
C-14		170	118,589	4.54E-01	3.79E-03		0.4	180	6.91E-04	5.77E-06	99.85%
C-14		190	333,516	1.02E+00	8.52E-03		0.5	547	1.67E-03	1.40E-05	99.84%
C-14		**176.67**	**464,144**	**5.57E-01**	**4.65E-03**		**0.40**	**742**	**8.90E-04**	**7.42E-06**	**99.84%**
T-1		170	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		190	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		170	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**176.67**	**646,102**	**7.68E-01**	**6.41E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3		140	256,316	6.54E-01	5.45E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		180	296,959	6.71E-01	5.60E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		140	199,495	6.02E-01	5.03E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		**153.33**	**752,769**	**6.46E-01**	**5.39E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-6		9.7	3,515	2.91E-02	2.43E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		44.7	56,541	1.93E-01	1.61E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		78.2	135,277	5.36E-01	4.47E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**44.20**	**195,333**	**2.93E-01**	**2.45E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		42	49,208	1.66E-01	1.39E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		59.1	94,646	2.81E-01	2.34E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		65	89,072	3.03E-01	2.53E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		**55.37**	**232,926**	**2.51E-01**	**2.10E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-8		64	41,665	6.18E-01	5.16E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		61	46,715	3.20E-01	2.67E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		49	56,802	3.90E-01	3.26E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		**58.00**	**145,182**	**4.04E-01**	**3.37E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Ethylbenzene									
API Code	ND	Inlet (ppm)	Inlet mg Ethylb.	Uncontrolled Ethylb. EF (mg/l)	Uncontrolled Ethylb. EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet mg Ethylb.	Controlled Ethylb. EF (mg/l)	Controlled Ethylb. EF (lbs/10^3 gal)	Control Eff.
C-15		110.00	144,383	4.58E-01	3.82E-03		0.20	177	5.62E-04	4.69E-06	99.88%
C-15		98.00	157,668	6.97E-01	5.81E-03		0.20	232	1.02E-03	8.55E-06	99.85%
C-15		100.00	126,435	8.96E-01	7.47E-03		0.20	185	1.31E-03	1.09E-05	99.85%
C-15 Avg		**102.67**	**428,485**	**6.27E-01**	**5.23E-03**		**0.20**	**594**	**8.70E-04**	**7.26E-06**	**99.86%**
C-16		48.00	75,141	3.20E-01	2.67E-03		0.90	959	4.09E-03	3.41E-05	98.72%
C-16		64.00	106,779	4.55E-01	3.80E-03	ND	0.05	52	2.20E-04	1.84E-06	99.95%
C-16		71.00	58,798	1.75E+00	1.46E-02	ND	0.05	26	7.65E-04	6.38E-06	99.96%
C-16 Avg		**61.00**	**240,719**	**4.79E-01**	**4.00E-03**		**0.33**	**1,036**	**2.06E-03**	**1.72E-05**	**99.57%**
C-17		57.00	74,379	3.30E-01	2.76E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		61.00	33,463	5.20E-01	4.34E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		110.00	46,065	7.16E-01	5.97E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17 Avg		**76.00**	**153,907**	**4.35E-01**	**3.63E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-18		130.00	88,271	1.05E+00	8.73E-03		0.40	193	2.28E-03	1.90E-05	99.78%
C-18		180.00	171,074	3.08E+00	2.57E-02		1.00	780	1.41E-02	1.17E-04	99.54%
C-18		120.00	146,199	1.55E+00	1.29E-02		0.50	495	5.24E-03	4.37E-05	99.66%
C-18 Avg		**143.33**	**405,544**	**1.73E+00**	**1.44E-02**		**0.63**	**1,468**	**6.26E-03**	**5.22E-05**	**99.64%**
C-19		170.00	328,560	7.96E-01	6.64E-03		0.40	471	1.14E-03	9.52E-06	99.86%
C-19		240.00	463,850	1.11E+00	9.24E-03		0.50	646	1.54E-03	1.29E-05	99.86%
C-19		170.00	328,560	7.98E-01	6.66E-03		0.50	589	1.43E-03	1.19E-05	99.82%
C-19 Avg		**193.33**	**1,120,970**	**9.02E-01**	**7.52E-03**		**0.47**	**1,706**	**1.37E-03**	**1.15E-05**	**99.85%**
C-20		180.00	284,011	8.80E-01	7.34E-03		0.80	662	2.05E-03	1.71E-05	99.77%
C-20		190.00	286,787	6.71E-01	5.60E-03		0.60	505	1.18E-03	9.86E-06	99.82%
C-20		270.00	545,661	2.08E+00	1.73E-02		0.30	329	1.25E-03	1.05E-05	99.94%
C-20 Avg		**213.33**	**1,116,459**	**1.10E+00**	**9.20E-03**		**0.57**	**1,497**	**1.48E-03**	**1.23E-05**	**99.87%**
C-21A		63.9	55,938	3.47E-01	2.90E-03	ND	0.10	73	4.51E-04	3.76E-06	99.87%
C-21A		55.3	47,800	3.01E-01	2.51E-03	ND	0.10	71	4.44E-04	3.70E-06	99.85%
C-21A		71.6	103,748	3.89E-01	3.25E-03		0.52	647	2.43E-03	2.03E-05	99.38%
C-21A Av		**63.60**	**207,486**	**3.54E-01**	**2.95E-03**		**0.24**	**790**	**1.35E-03**	**1.12E-05**	**99.62%**
C-21B		82.20	70,725	3.64E-01	3.04E-03		0.39	267	1.37E-03	1.15E-05	99.62%
C-21B		93.10	31,302	4.12E-01	3.44E-03	ND	0.15	42	5.59E-04	4.67E-06	99.86%
C-21B		78.50	98,749	3.48E-01	2.90E-03		0.86	860	3.03E-03	2.53E-05	99.13%
C-21B Av		**84.60**	**200,776**	**3.62E-01**	**3.02E-03**		**0.47**	**1,170**	**2.11E-03**	**1.76E-05**	**99.42%**
C-21C											
C-21C		43.60	48,844	2.13E-01	1.78E-03	ND	0.10	79	3.44E-04	2.87E-06	99.84%
C-21C		73.40	136,962	3.58E-01	2.99E-03		1.60	2,344	6.13E-03	5.12E-05	98.29%
C-21C Av		**58.50**	**185,806**	**3.04E-01**	**2.53E-03**		**0.85**	**2,423**	**3.96E-03**	**3.30E-05**	**98.70%**

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— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		m,p-xylene									
API Code	**ND**	**Inlet (ppm)**	**Inlet m,p xylene (mg)**	**Uncontrolled m,p xylene EF (mg/l)**	**Uncontrolled m,p xylene EF (lbs/10^3 gal)**	**ND**	**Outlet (ppm)**	**Outlet m,p xylene (mg)**	**Controlled m,p xylene EF (mg/l)**	**Controlled m,p xylene EF (lbs/10^3 gal)**	**Control Eff.**
C-6		94	68,368	6.01E-01	5.02E-03		7.9	3,695	3.25E-02	2.71E-04	94.60%
C-6		140	75,702	2.60E+00	2.17E-02		0.4	140	4.80E-03	4.01E-05	99.82%
C-6		170	47,503	2.51E+00	2.09E-02		0.3	39	2.08E-03	1.74E-05	99.92%
C-6		**134.67**	**191,574**	**1.18E+00**	**9.88E-03**		**2.87**	**3,874**	**2.39E-02**	**2.00E-04**	**97.98%**
C-8		120	284,167	9.52E-01	7.94E-03		0.4	606	2.03E-03	1.69E-05	99.79%
C-8		300	630,930	2.41E+00	2.01E-02	ND	0.1	133	5.06E-04	4.22E-06	99.98%
C-8		600	987,992	6.49E+00	5.42E-02	ND	0.3	275	1.80E-03	1.51E-05	99.97%
C-8		**340.00**	**1,903,089**	**2.67E+00**	**2.23E-02**		**0.27**	**1,013**	**1.42E-03**	**1.19E-05**	**99.95%**
C-9		350	755,190	3.00E+00	2.51E-02	ND	0.1	151	6.00E-04	5.01E-06	99.98%
C-9		270	455,558	3.58E+00	2.99E-02		0.5	609	4.79E-03	3.99E-05	99.87%
C-9		510	764,014	6.21E+00	5.18E-02	ND	0.1	98	7.98E-04	6.66E-06	99.99%
C-9		**376.67**	**1,974,763**	**3.94E+00**	**3.29E-02**		**0.23**	**858**	**1.71E-03**	**1.43E-05**	**99.96%**
C-10		140	169,818	7.77E-01	6.48E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		110	123,120	1.06E+00	8.83E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		260	296,184	1.84E+00	1.54E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		**170.00**	**589,121**	**1.19E+00**	**9.92E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-12		220	335,806	9.21E-01	7.69E-03	ND	0.1	96	2.63E-04	2.19E-06	99.97%
C-12		250	392,905	1.39E+00	1.16E-02	ND	0.1	102	3.62E-04	3.02E-06	99.97%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!		0.4	428	3.87E-03	3.23E-05	#VALUE!
C-12		**235.00**	**728,711**	**9.62E-01**	**8.03E-03**		**0.20**	**626**	**8.26E-04**	**6.89E-06**	**99.91%**
C-14		500	35,409	1.44E-01	1.20E-03		1.3	63	2.58E-04	2.15E-06	99.82%
C-14		470	327,865	1.26E+00	1.05E-02		1.2	541	2.07E-03	1.73E-05	99.83%
C-14		520	912,780	2.79E+00	2.33E-02		1.7	1,858	5.69E-03	4.75E-05	99.80%
C-14		**496.67**	**1,276,054**	**1.53E+00**	**1.28E-02**		**1.40**	**2,463**	**2.96E-03**	**2.47E-05**	**99.81%**
T-1		500	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		550	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		470	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**506.67**	**1,852,972**	**2.20E+00**	**1.84E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3		420	768,947	1.96E+00	1.64E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		550	907,374	2.05E+00	1.71E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		420	598,484	1.81E+00	1.51E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		**463.33**	**2,274,805**	**1.95E+00**	**1.63E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-6		30.8	11,160	9.24E-02	7.71E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		141	178,352	6.10E-01	5.09E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		254	439,392	1.74E+00	1.45E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**141.93**	**628,904**	**9.45E-01**	**7.88E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		137	160,511	5.42E-01	4.53E-03	ND	0.1	5,252	1.77E-02	1.48E-04	96.73%
T-7		207	331,501	9.84E-01	8.21E-03	ND	0.1	7,827	2.32E-02	1.94E-04	97.64%
T-7		226	309,696	1.05E+00	8.79E-03		0.23	18,521	6.30E-02	5.26E-04	94.02%
T-7		**190.00**	**801,709**	**8.65E-01**	**7.22E-03**		**0.14**	**31,600**	**3.41E-02**	**2.84E-04**	**96.06%**
T-8		190	123,692	1.84E+00	1.53E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		170	130,190	8.91E-01	7.44E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		150	173,883	1.19E+00	9.97E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		**170.00**	**427,765**	**1.19E+00**	**9.94E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		m,p-xylene									
API Code	**ND**	**Inlet (ppm)**	**Inlet m,p xylene (mg)**	**Uncontrolled m,p xylene EF (mg/l)**	**Uncontrolled m,p xylene EF (lbs/10^3 gal)**	**ND**	**Outlet (ppm)**	**Outlet m,p xylene (mg)**	**Controlled m,p xylene EF (mg/l)**	**Controlled m,p xylene EF (lbs/10^3 gal)**	**Control Eff.**
C-15		360.00	472,526	1.50E+00	1.25E-02		0.80	709	2.25E-03	1.88E-05	99.85%
C-15		310.00	498,746	2.20E+00	1.84E-02		0.80	928	4.10E-03	3.42E-05	99.81%
C-15		320.00	404,590	2.87E+00	2.39E-02		0.80	739	5.23E-03	4.37E-05	99.82%
C-15 Avg		**330.00**	**1,375,862**	**2.01E+00**	**1.68E-02**		**0.80**	**2,376**	**3.48E-03**	**2.90E-05**	**99.83%**
C-16		160.00	250,471	1.07E+00	8.91E-03		3.00	3,196	1.36E-02	1.14E-04	98.72%
C-16		190.00	317,001	1.35E+00	1.13E-02	ND	0.05	52	2.20E-04	1.84E-06	99.98%
C-16		200.00	165,629	4.94E+00	4.12E-02		0.10	51	1.53E-03	1.28E-05	99.97%
C-16 Avg		**183.33**	**733,100**	**1.46E+00**	**1.22E-02**		**1.05**	**3,299**	**6.56E-03**	**5.48E-05**	**99.55%**
C-17		170.00	221,832	9.85E-01	8.22E-03	ND	0.05	48	2.12E-04	1.76E-06	99.98%
C-17		180.00	98,745	1.53E+00	1.28E-02		0.30	109	1.69E-03	1.41E-05	99.89%
C-17		340.00	142,382	2.21E+00	1.85E-02		0.20	57	8.91E-04	7.43E-06	99.96%
C-17 Avg		**230.00**	**462,959**	**1.31E+00**	**1.09E-02**		**0.18**	**214**	**6.04E-04**	**5.04E-06**	**99.95%**
C-18		420.00	285,184	3.38E+00	2.82E-02		1.60	770	9.13E-03	7.62E-05	99.73%
C-18		620.00	589,254	1.06E+01	8.86E-02		3.70	2,886	5.20E-02	4.34E-04	99.51%
C-18		400.00	487,330	5.15E+00	4.30E-02		1.90	1,882	1.99E-02	1.66E-04	99.61%
C-18 Avg		**480.00**	**1,361,768**	**5.81E+00**	**4.85E-02**		**2.40**	**5,538**	**2.36E-02**	**1.97E-04**	**99.59%**
C-19		380.00	734,429	1.78E+00	1.48E-02		0.90	1,059	2.57E-03	2.14E-05	99.86%
C-19		560.00	1,082,316	2.58E+00	2.16E-02		1.20	1,551	3.70E-03	3.09E-05	99.86%
C-19		370.00	715,102	1.74E+00	1.45E-02		1.00	1,179	2.86E-03	2.39E-05	99.84%
C-19 Avg		**436.67**	**2,531,847**	**2.04E+00**	**1.70E-02**		**1.03**	**3,789**	**3.05E-03**	**2.54E-05**	**99.85%**
C-20		500.00	788,920	2.44E+00	2.04E-02		2.40	1,987	6.15E-03	5.14E-05	99.75%
C-20		570.00	860,361	2.01E+00	1.68E-02		1.70	1,431	3.35E-03	2.79E-05	99.83%
C-20		830.00	1,677,403	6.39E+00	5.33E-02		0.80	878	3.34E-03	2.79E-05	99.95%
C-20 Avg		**633.33**	**3,326,683**	**3.28E+00**	**2.74E-02**		**1.63**	**4,296**	**4.24E-03**	**3.54E-05**	**99.87%**
C-21A		198.00	173,329	1.08E+00	8.98E-03	ND	0.10	73	4.51E-04	3.76E-06	99.96%
C-21A		186.00	160,773	1.01E+00	8.44E-03		0.40	282	1.78E-03	1.48E-05	99.82%
C-21A		230.00	333,270	1.25E+00	1.04E-02		2.20	2,738	1.03E-02	8.57E-05	99.18%
C-21A Av		**204.67**	**667,372**	**1.14E+00**	**9.50E-03**		**0.90**	**3,093**	**5.27E-03**	**4.40E-05**	**99.54%**
C-21B		267.00	229,727	1.18E+00	9.86E-03		1.50	1,028	5.29E-03	4.41E-05	99.55%
C-21B		309.00	103,891	1.37E+00	1.14E-02		1.10	312	4.10E-03	3.42E-05	99.70%
C-21B		261.00	328,324	1.16E+00	9.64E-03		3.40	3,401	1.20E-02	9.99E-05	98.96%
C-21B Av		**279.00**	**661,942**	**1.19E+00**	**9.96E-03**		**2.00**	**4,740**	**8.55E-03**	**7.13E-05**	**99.28%**
C-21C											
C-21C		132.00	147,877	6.44E-01	5.38E-03		0.82	648	2.82E-03	2.35E-05	99.56%
C-21C		239.00	445,965	1.17E+00	9.73E-03		6.80	9,961	2.61E-02	2.17E-04	97.77%
C-21C Av		**185.50**	**593,843**	**9.71E-01**	**8.10E-03**		**3.81**	**10,609**	**1.73E-02**	**1.45E-04**	**98.21%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		o-xylene									
API Code	ND	Inlet (ppm)	Inlet o-xylene (mg)	Uncontrolled o-xylene EF (mg/l)	Uncontrolled o-xylene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet o-xylene (mg)	Controlled o-xylene EF (mg/l)	Controlled o-xylene EF (lbs/10^3 gal)	Control Eff.
C-6		31	22,547	1.98E-01	1.65E-03		2.8	1309.5714	1.15E-02	9.61E-05	94.19%
C-6		40	21,629	7.42E-01	6.19E-03	ND	0.1	34.9895594	1.20E-03	1.00E-05	99.84%
C-6		52	14,530	7.68E-01	6.41E-03	ND	0.1	13.1486617	6.95E-04	5.80E-06	99.91%
C-6		**41.00**	**58,707**	**3.63E-01**	**3.03E-03**		**1.00**	**1357.70963**	**8.39E-03**	**7.00E-05**	**97.69%**
C-8		35	82,882	2.78E-01	2.32E-03		0.2	302.922221	1.01E-03	8.46E-06	99.63%
C-8		88	185,073	7.06E-01	5.89E-03	ND	0.1	132.717649	5.06E-04	4.22E-06	99.93%
C-8		200	329,331	2.16E+00	1.81E-02	ND	0.3	274.520229	1.80E-03	1.51E-05	99.92%
C-8		**107.67**	**597,285**	**8.38E-01**	**6.99E-03**		**0.20**	**710.1601**	**9.96E-04**	**8.31E-06**	**99.88%**
C-9		120	258,922	1.03E+00	8.60E-03	ND	0.1	150.909573	6.00E-04	5.01E-06	99.94%
C-9		97	163,663	1.29E+00	1.07E-02		0.2	243.488505	1.91E-03	1.60E-05	99.85%
C-9		180	269,652	2.19E+00	1.83E-02	ND	0.1	98.1649077	7.98E-04	6.66E-06	99.96%
C-9		**132.33**	**692,238**	**1.38E+00**	**1.15E-02**		**0.13**	**492.562986**	**9.82E-04**	**8.20E-06**	**99.93%**
C-10		43	52,158	2.39E-01	1.99E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		33	36,936	3.17E-01	2.65E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		78	88,855	5.53E-01	4.62E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		**51.33**	**177,949**	**3.59E-01**	**3.00E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-12		67	102,268	2.81E-01	2.34E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-12		72	113,156	4.01E-01	3.34E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-12		**69.50**	**215,425**	**2.84E-01**	**2.37E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-14		170	12,039	4.90E-02	4.09E-04		0.5	24.3779717	9.92E-05	8.28E-07	99.80%
C-14		150	104,638	4.01E-01	3.34E-03		0.5	225.578969	8.64E-04	7.21E-06	99.78%
C-14		170	298,409	9.14E-01	7.62E-03		0.8	874.447774	2.68E-03	2.23E-05	99.71%
C-14		**163.33**	**415,086**	**4.98E-01**	**4.16E-03**		**0.60**	**1124.40471**	**1.35E-03**	**1.13E-05**	**99.73%**
T-1		160	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		190	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		150	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**166.67**	**609,530**	**7.25E-01**	**6.05E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3		140	256,316	6.54E-01	5.45E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		200	329,954	7.45E-01	6.22E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		150	213,744	6.45E-01	5.39E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		**163.33**	**800,014**	**6.86E-01**	**5.72E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-6		9.6	3,478	2.88E-02	2.40E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		44.2	55,909	1.91E-01	1.59E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		81.9	141,678	5.62E-01	4.69E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**45.23**	**201,065**	**3.02E-01**	**2.52E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		42.1	49,325	1.67E-01	1.39E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		55.5	88,881	2.64E-01	2.20E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		65.8	90,168	3.07E-01	2.56E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		**54.47**	**228,374**	**2.46E-01**	**2.06E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-8		64	41,665	6.18E-01	5.16E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		57	43,652	2.99E-01	2.49E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		53	61,439	4.22E-01	3.52E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		**58.00**	**146,755**	**4.09E-01**	**3.41E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**

*= Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		o-xylene									
API Code	**ND**	**Inlet (ppm)**	**Inlet o-xylene (mg)**	**Uncontrolled o-xylene EF (mg/l)**	**Uncontrolled o-xylene EF (lbs/10^3 gal)**	**ND**	**Outlet (ppm)**	**Outlet o-xylene (mg)**	**Controlled o-xylene EF (mg/l)**	**Controlled o-xylene EF (lbs/10^3 gal)**	**Control Eff.**
C-15		120.00	157,509	4.99E-01	4.17E-03		0.30	265.876529	8.43E-04	7.03E-06	99.83%
C-15		97.00	156,059	6.89E-01	5.75E-03		0.30	347.93212	1.54E-03	1.28E-05	99.78%
C-15		99.00	125,170	8.87E-01	7.40E-03		0.30	277.074953	1.96E-03	1.64E-05	99.78%
C-15 Avg		**105.33**	**438,738**	**6.42E-01**	**5.36E-03**		**0.30**	**890.883601**	**1.30E-03**	**1.09E-05**	**99.80%**
C-16		55.00	86,099	3.67E-01	3.06E-03		1.10	1171.78843	5.00E-03	4.17E-05	98.64%
C-16		53.00	88,426	3.77E-01	3.15E-03	ND	0.05	51.6592386	2.20E-04	1.84E-06	99.94%
C-16		61.00	50,517	1.51E+00	1.26E-02	ND	0.05	25.635478	7.65E-04	6.38E-06	99.95%
C-16 Avg		**56.33**	**225,043**	**4.48E-01**	**3.74E-03**		**0.40**	**1249.08315**	**2.49E-03**	**2.07E-05**	**99.44%**
C-17		50.00	65,245	2.90E-01	2.42E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		52.00	28,526	4.43E-01	3.70E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		98.00	41,040	6.38E-01	5.32E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17 Avg		**66.67**	**134,811**	**3.81E-01**	**3.18E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-18		120.00	81,481	9.66E-01	8.06E-03		0.80	385.035172	4.56E-03	3.81E-05	99.53%
C-18		200.00	190,082	3.43E+00	2.86E-02		1.70	1326.08665	2.39E-02	1.99E-04	99.30%
C-18		130.00	158,382	1.67E+00	1.40E-02		0.90	891.426314	9.43E-03	7.86E-05	99.44%
C-18 Avg		**150.00**	**429,945**	**1.83E+00**	**1.53E-02**		**1.13**	**2602.54814**	**1.11E-02**	**9.26E-05**	**99.39%**
C-19		100.00	193,271	4.68E-01	3.91E-03		0.20	235.352219	5.70E-04	4.76E-06	99.88%
C-19		160.00	309,233	7.38E-01	6.16E-03		0.30	387.709027	9.25E-04	7.72E-06	99.87%
C-19		100.00	193,271	4.70E-01	3.92E-03		0.20	235.7758	5.73E-04	4.78E-06	99.88%
C-19 Avg		**120.00**	**695,775**	**5.60E-01**	**4.67E-03**		**0.23**	**858.837047**	**6.91E-04**	**5.76E-06**	**99.88%**
C-20		160.00	252,454	7.82E-01	6.53E-03		1.10	910.668366	2.82E-03	2.35E-05	99.64%
C-20		180.00	271,693	6.36E-01	5.31E-03		0.80	673.246776	1.58E-03	1.31E-05	99.75%
C-20		270.00	545,661	2.08E+00	1.73E-02		0.40	439.130002	1.67E-03	1.39E-05	99.92%
C-20 Avg		**203.33**	**1,069,808**	**1.06E+00**	**8.81E-03**		**0.77**	**2023.04514**	**2.00E-03**	**1.67E-05**	**99.81%**
C-21A		56.60	49,548	3.08E-01	2.57E-03	ND	0.10	72.5382544	4.51E-04	3.76E-06	99.85%
C-21A		55.50	47,973	3.02E-01	2.52E-03	ND	0.10	70.5527182	4.44E-04	3.70E-06	99.85%
C-21A		68.80	99,691	3.74E-01	3.12E-03		0.31	385.860273	1.45E-03	1.21E-05	99.61%
C-21A Av		**60.30**	**197,211**	**3.36E-01**	**2.81E-03**		**0.17**	**528.951245**	**9.02E-04**	**7.53E-06**	**99.73%**
C-21B		83.10	71,499	3.68E-01	3.07E-03	ND	0.10	68.523059	3.53E-04	2.94E-06	99.90%
C-21B		95.90	32,243	4.25E-01	3.54E-03	ND	0.15	42.4904738	5.59E-04	4.67E-06	99.87%
C-21B		84.00	105,668	3.72E-01	3.10E-03		0.46	460.123737	1.62E-03	1.35E-05	99.56%
C-21B Av		**87.67**	**209,410**	**3.78E-01**	**3.15E-03**		**0.24**	**571.13727**	**1.03E-03**	**8.60E-06**	**99.73%**
C-21C											
C-21C		37.40	41,899	1.83E-01	1.52E-03	ND	0.10	78.9802161	3.44E-04	2.87E-06	99.81%
C-21C		72.20	134,723	3.52E-01	2.94E-03		0.83	1215.8541	3.18E-03	2.65E-05	99.10%
C-21C Av		**54.80**	**176,621**	**2.89E-01**	**2.41E-03**		**0.47**	**1294.83431**	**2.12E-03**	**1.77E-05**	**99.27%**

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— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Cumene									
API Code	ND	Inlet (ppm)	Inlet Cumene (mg)	Uncontrolled Cumene EF (mg/l)	Uncontrolled Cumene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Cumene (mg)	Controlled Cumene EF (mg/l)	Controlled Cumene EF (lbs/10^3 gal)	Control Eff.
C-6	ND	0	0	0.00E+00	0.00E+00		0	0	0.00E+00	0.00E+00	#DIV/0!
C-6	ND	0	0	0.00E+00	0.00E+00		0	0	0.00E+00	0.00E+00	#DIV/0!
C-6	ND	0	0	0.00E+00	0.00E+00		0	0	0.00E+00	0.00E+00	#DIV/0!
C-6		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-8		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-12	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-12	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-12		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-14	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-14	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-14	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-14		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-1	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-3		12	24,873	6.34E-02	5.29E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3	ND	5	9,339	2.11E-02	1.76E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3	ND	5	8,066	2.44E-02	2.03E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		**7.33**	**42,279**	**3.63E-02**	**3.03E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-6		0.47	193	1.60E-03	1.33E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		1.4	2,005	6.85E-03	5.72E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		2.7	5,288	2.10E-02	1.75E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**1.52**	**7,486**	**1.12E-02**	**9.38E-05**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		1.2	1,592	5.38E-03	4.49E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		1.6	2,901	8.61E-03	7.19E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		1.9	2,948	1.00E-02	8.37E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		**1.57**	**7,440**	**8.03E-03**	**6.70E-05**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Cumene									
API Code	ND	Inlet (ppm)	Inlet Cumene (mg)	Uncontrolled Cumene EF (mg/l)	Uncontrolled Cumene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Cumene (mg)	Controlled Cumene EF (mg/l)	Controlled Cumene EF (lbs/10^3 gal)	Control Eff.
C-15		5.80	8,619	2.73E-02	2.28E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-15	ND	2.50	4,554	2.01E-02	1.68E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-15	ND	2.50	3,579	2.53E-02	2.12E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-15 Avg		**3.60**	**16,751**	**2.45E-02**	**2.05E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-18		5.40	4,151	4.92E-02	4.11E-04		0.10	54	6.46E-04	5.39E-06	98.69%
C-18		6.40	6,886	1.24E-01	1.04E-03		0.10	88	1.59E-03	1.33E-05	98.72%
C-18		5.10	7,035	7.44E-02	6.21E-04	ND	0.05	56	5.93E-04	4.95E-06	99.20%
C-18 Avg		**5.63**	**18,072**	**7.71E-02**	**6.43E-04**		**0.08**	**199**	**8.48E-04**	**7.08E-06**	**98.90%**
C-19	ND	2.50	5,470	1.33E-02	1.11E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-19		5.80	12,691	3.03E-02	2.53E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-19	ND	2.50	5,470	1.33E-02	1.11E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-19 Avg		**3.60**	**23,632**	**1.90E-02**	**1.59E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-21A			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21A			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21A			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21A Av		**#DIV/0!**	**0**	**0.00E+00**	**0.00E+00**		**######**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-21B			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21B			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21B			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21B Av		**#DIV/0!**	**0**	**0.00E+00**	**0.00E+00**		**######**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-21C											
C-21C			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21C			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21C Av		**#DIV/0!**	**0**	**0.00E+00**	**0.00E+00**		**######**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

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— means that the compound sample was not analyzed for the compound
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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Naphthalene									
API Code	ND	Inlet (ppm)	Inlet Naphthalene (mg)	Uncontrolled Naphthalene EF (mg/l)	Uncontrolled Naphthalene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Naphthalene (mg)	Controlled Naphthalene EF (mg/l)	Controlled Naphthalene EF (lbs/10^3 gal)	Control Eff.
C-6		15	13,171	1.16E-01	9.66E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-6	ND	5	3,264	1.12E-01	9.34E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-6	ND	5	1,687	8.91E-02	7.44E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-6		**8.33**	**18,121**	**1.12E-01**	**9.35E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-8	ND	5	14,294	4.79E-02	3.99E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		12	30,467	1.16E-01	9.69E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		12	23,855	1.57E-01	1.31E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		**9.67**	**68,616**	**9.62E-02**	**8.03E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-12	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-12	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-12		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-14		14	1,197	4.87E-03	4.07E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
C-14	ND	5	4,211	1.61E-02	1.35E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-14	ND	5	10,596	3.24E-02	2.71E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-14		**8.00**	**16,003**	**1.92E-02**	**1.60E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-1	ND	5	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		11	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	ND	5	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**7.00**	**30,906**	**3.67E-02**	**3.07E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3	ND	5	11,051	2.82E-02	2.35E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		13	25,892	5.85E-02	4.88E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		12	20,643	6.23E-02	5.20E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-3		**10.00**	**57,586**	**4.94E-02**	**4.12E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-6	ND	5	2,187	1.81E-02	1.51E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		0.23	351	1.20E-03	1.00E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		0.41	856	3.39E-03	2.83E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**1.88**	**3,395**	**5.10E-03**	**4.26E-05**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		0.22	311	1.05E-03	8.77E-06	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		0.25	483	1.43E-03	1.20E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		0.31	513	1.74E-03	1.46E-05	ND	0	0	0.00E+00	0.00E+00	100.00%
T-7		**0.26**	**1,307**	**1.41E-03**	**1.18E-05**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Naphthalene									
API Code	ND	Inlet (ppm)	Inlet Naphthalene (mg)	Uncontrolled Naphthalene EF (mg/l)	Uncontrolled Naphthalene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Naphthalene (mg)	Controlled Naphthalene EF (mg/l)	Controlled Naphthalene EF (lbs/10^3 gal)	Control Eff.
C-15	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-15	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-15	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-15 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-18	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-18	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-18	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-18 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-19	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-19	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-19	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-19 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-21A	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21A	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21A	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21A Av	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-21B	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21B	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21B	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21B Av	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-21C											
C-21C	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21C	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-21C Av	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Methanol									
API Code	**ND**	**Inlet (ppm)**	**Inlet Methanol (mg)**	**Uncontrolled Methanol EF (mg/l)**	**Uncontrolled Methanol EF (lbs/10^3 gal)**	**ND**	**Outlet (ppm)**	**Outlet Methanol (mg)**	**Controlled Methanol EF (mg/l)**	**Controlled Methanol EF (lbs/10^3 gal)**	**Control Eff.**
C-6	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-6	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-6	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-6		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-8		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-9		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-10		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-12	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-12	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-12		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-14	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-14	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-14	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-14		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-1	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-3	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-3	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-3	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-3		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-6	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-6	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-6	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-6		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-7	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-7	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-7	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-7		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-8		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Methanol									
API Code	ND	Inlet (ppm)	Inlet Methanol (mg)	Uncontrolled Methanol EF (mg/l)	Uncontrolled Methanol EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Methanol (mg)	Controlled Methanol EF (mg/l)	Controlled Methanol EF (lbs/10^3 gal)	Control Eff.
C-15	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-15	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-15	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-15 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-16 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-17 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-18	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-18	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-18	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-18 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-19	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-19	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-19	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-19 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
C-20 Avg		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-21A		733.00	193,661	1.20E+00	1.00E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21A		676.00	176,351	1.11E+00	9.26E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21A		875.00	382,656	1.44E+00	1.20E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21A Av		**761.33**	**752,668**	**1.28E+00**	**1.07E-02**	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-21B		1030.00	267,466	1.38E+00	1.15E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21B		947.00	96,095	1.27E+00	1.06E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21B		968.00	367,510	1.29E+00	1.08E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21B Av		**981.67**	**731,072**	**1.32E+00**	**1.10E-02**	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-21C											
C-21C		1010.00	341,492	1.49E+00	1.24E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21C		849.00	478,126	1.25E+00	1.04E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-21C Av		**929.50**	**819,618**	**1.34E+00**	**1.12E-02**	**ND**	**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Hexane									
API Code	ND	Inlet (ppm)	Inlet Hexane (mg)	Uncontrolled Hexane EF (mg/l)	Uncontrolled Hexane EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Hexane (mg)	Controlled Hexane EF (mg/l)	Controlled Hexane EF (lbs/10^3 gal)	Control Eff.
C-6		1600	944,589	8.30E+00	6.93E-02		1.2	456	4.01E-03	3.34E-05	99.95%
C-6		1900	833,926	2.86E+01	2.39E-01		0.7	199	6.82E-03	5.69E-05	99.98%
C-6		3200	725,805	3.84E+01	3.20E-01		1.3	139	7.33E-03	6.12E-05	99.98%
C-6		**2233.33**	**2,504,320**	**1.55E+01**	**1.29E-01**		**1.07**	**793**	**4.90E-03**	**4.09E-05**	**99.97%**
C-8		4400	8,457,470	2.83E+01	2.36E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		6300	10,754,627	4.10E+01	3.42E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		6200	8,286,843	5.45E+01	4.54E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		**5633.33**	**27,498,940**	**3.86E+01**	**3.22E-01**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-9		2900	5,079,039	2.02E+01	1.69E-01	ND	0.1	122	4.87E-04	4.07E-06	100.00%
C-9		2300	3,149,943	2.48E+01	2.07E-01		0.7	692	5.44E-03	4.54E-05	99.98%
C-9		3500	4,255,932	3.46E+01	2.89E-01		0.4	319	2.59E-03	2.16E-05	99.99%
C-9		**2900.00**	**12,484,914**	**2.49E+01**	**2.08E-01**		**0.40**	**1,133**	**2.26E-03**	**1.89E-05**	**99.99%**
C-10		2300	2,264,534	1.04E+01	8.64E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		3400	3,088,933	2.65E+01	2.21E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		3400	3,143,851	1.96E+01	1.63E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-10		**3033.33**	**8,497,318**	**1.71E+01**	**1.43E-01**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-12		2000	2,477,943	6.80E+00	5.67E-02		0.2	156	4.27E-04	3.56E-06	99.99%
C-12		2200	2,806,499	9.94E+00	8.29E-02		0.4	332	1.17E-03	9.80E-06	99.99%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!		0.6	521	4.71E-03	3.93E-05	#VALUE!
C-12		**2100.00**	**5,284,442**	**6.98E+00**	**5.82E-02**		**0.40**	**1,008**	**1.33E-03**	**1.11E-05**	**99.98%**
C-14		3100	178,196	7.25E-01	6.05E-03		43	1,702	6.93E-03	5.78E-05	99.05%
C-14		3600	2,038,425	7.81E+00	6.51E-02		46	16,845	6.45E-02	5.38E-04	99.17%
C-14		3300	4,701,884	1.44E+01	1.20E-01		57	50,572	1.55E-01	1.29E-03	98.92%
C-14		**3333.33**	**6,918,505**	**8.30E+00**	**6.93E-02**		**48.67**	**69,120**	**8.29E-02**	**6.92E-04**	**99.00%**
T-1		3900	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		3300	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		3700	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**3633.33**	**10,785,664**	**1.28E+01**	**1.07E-01**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3		3500	5,201,284	1.33E+01	1.11E-01	ND	0.1	12,903	3.29E-02	2.75E-04	99.75%
T-3		3500	4,686,912	1.06E+01	8.83E-02	ND	0.1	15,662	3.54E-02	2.95E-04	99.67%
T-3		3600	4,163,907	1.26E+01	1.05E-01		0.3	33,587	1.01E-01	8.46E-04	99.19%
T-3		**3533.33**	**14,052,104**	**1.20E+01**	**1.01E-01**		**0.17**	**62,152**	**5.33E-02**	**4.45E-04**	**99.56%**
T-6		428	125,878	1.04E+00	8.70E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		1530	1,570,891	5.37E+00	4.48E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		1850	2,597,678	1.03E+01	8.59E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**1269.33**	**4,294,447**	**6.45E+00**	**5.38E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		2400	2,282,401	7.71E+00	6.43E-02	ND	0.1	4,263	1.44E-02	1.20E-04	99.81%
T-7		1800	2,339,819	6.95E+00	5.80E-02	ND	0.1	6,353	1.89E-02	1.57E-04	99.73%
T-7		2690	2,992,092	1.02E+01	8.49E-02		0.34	22,223	7.56E-02	6.31E-04	99.26%
T-7		**2296.67**	**7,614,312**	**8.22E+00**	**6.86E-02**		**0.18**	**32,839**	**3.54E-02**	**2.96E-04**	**99.57%**
T-8		740	391,034	5.80E+00	4.84E-02	ND	0.1	5,103	7.57E-02	6.32E-04	98.70%
T-8		1400	870,268	5.96E+00	4.97E-02	ND	0.1	9,599	6.57E-02	5.48E-04	98.90%
T-8		1000	940,940	6.46E+00	5.39E-02		0.3	23,032	1.58E-01	1.32E-03	97.55%
T-8		**1046.67**	**2,202,242**	**6.13E+00**	**5.12E-02**		**0.17**	**37,734**	**1.05E-01**	**8.77E-04**	**98.29%**

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— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Hexane									
API Code	**ND**	**Inlet (ppm)**	**Inlet Hexane (mg)**	**Uncontrolled Hexane EF (mg/l)**	**Uncontrolled Hexane EF (lbs/10^3 gal)**	**ND**	**Outlet (ppm)**	**Outlet Hexane (mg)**	**Controlled Hexane EF (mg/l)**	**Controlled Hexane EF (lbs/10^3 gal)**	**Control Eff.**
C-15		1300.00	1,385,038	4.39E+00	3.66E-02		1.00	719	2.28E-03	1.90E-05	99.95%
C-15		2900.00	3,787,136	1.67E+01	1.40E-01		1.00	941	4.16E-03	3.47E-05	99.98%
C-15		2900.00	2,976,178	2.11E+01	1.76E-01		1.00	750	5.31E-03	4.43E-05	99.97%
C-15 Avg		**2366.67**	**8,148,351**	**1.19E+01**	**9.95E-02**		**1.00**	**2,410**	**3.53E-03**	**2.94E-05**	**99.97%**
C-16		910.00	1,156,307	4.93E+00	4.11E-02		0.30	259	1.11E-03	9.23E-06	99.98%
C-16		1800.00	2,437,665	1.04E+01	8.67E-02	ND	0.05	42	1.79E-04	1.49E-06	100.00%
C-16		1500.00	1,008,307	3.01E+01	2.51E-01	ND	0.05	21	6.21E-04	5.18E-06	100.00%
C-16 Avg		**1403.33**	**4,602,280**	**9.16E+00**	**7.64E-02**		**0.13**	**322**	**6.41E-04**	**5.35E-06**	**99.99%**
C-17		1400.00	1,482,855	6.58E+00	5.49E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		1800.00	801,510	1.24E+01	1.04E-01	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		2200.00	747,817	1.16E+01	9.70E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17 Avg		**1800.00**	**3,032,181**	**8.57E+00**	**7.15E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-18		2800.00	1,543,224	1.83E+01	1.53E-01		1.30	508	6.02E-03	5.02E-05	99.97%
C-18		1800.00	1,388,605	2.50E+01	2.09E-01		1.30	823	1.48E-02	1.24E-04	99.94%
C-18		1600.00	1,582,262	1.67E+01	1.40E-01		1.10	884	9.35E-03	7.80E-05	99.94%
C-18 Avg		**2066.67**	**4,514,090**	**1.93E+01**	**1.61E-01**		**1.23**	**2,215**	**9.45E-03**	**7.89E-05**	**99.95%**
C-19		3600.00	5,647,599	1.37E+01	1.14E-01		0.80	764	1.85E-03	1.54E-05	99.99%
C-19		3400.00	5,333,843	1.27E+01	1.06E-01		1.10	1,154	2.75E-03	2.30E-05	99.98%
C-19		3800.00	5,961,354	1.45E+01	1.21E-01		2.10	2,009	4.88E-03	4.07E-05	99.97%
C-19 Avg		**3600.00**	**16,942,797**	**1.36E+01**	**1.14E-01**		**1.33**	**3,928**	**3.16E-03**	**2.64E-05**	**99.98%**
C-20		4000.00	5,122,925	1.59E+01	1.32E-01		7.10	4,771	1.48E-02	1.23E-04	99.91%
C-20		3400.00	4,165,621	9.75E+00	8.13E-02		7.20	4,918	1.15E-02	9.60E-05	99.88%
C-20		4600.00	7,545,921	2.87E+01	2.40E-01		8.60	7,663	2.92E-02	2.43E-04	99.90%
C-20 Avg		**4000.00**	**16,834,466**	**1.66E+01**	**1.39E-01**		**7.63**	**17,353**	**1.71E-02**	**1.43E-04**	**99.90%**
C-21A		2,280	1,620,082	1.01E+01	8.40E-02		0.39	230	1.43E-03	1.19E-05	99.99%
C-21A		3,530	2,476,678	1.56E+01	1.30E-01		0.56	321	2.02E-03	1.68E-05	99.99%
C-21A		2,460	2,893,335	1.09E+01	9.06E-02		4.30	4,344	1.63E-02	1.36E-04	99.85%
C-21A Av		**2,756.7**	**6,990,095**	**1.19E+01**	**9.95E-02**		**1.75**	**4,895**	**8.35E-03**	**6.96E-05**	**99.93%**
C-21B		3610.00	2,521,171	1.30E+01	1.08E-01		2.60	1,446	7.44E-03	6.21E-05	99.94%
C-21B		3510.00	957,905	1.26E+01	1.05E-01		1.90	437	5.75E-03	4.80E-05	99.95%
C-21B		2610.00	2,665,006	9.38E+00	7.83E-02		9.20	7,470	2.63E-02	2.19E-04	99.72%
C-21B Av		**3243.33**	**6,144,082**	**1.11E+01**	**9.25E-02**		**4.57**	**9,353**	**1.69E-02**	**1.41E-04**	**99.85%**
C-21C											
C-21C		4880.00	4,437,547	1.93E+01	1.61E-01		1.90	1,218	5.31E-03	4.43E-05	99.97%
C-21C		4070.00	6,164,425	1.61E+01	1.35E-01		21.20	25,208	6.59E-02	5.50E-04	99.59%
C-21C Av		**4475.00**	**10,601,972**	**1.73E+01**	**1.45E-01**		**11.55**	**26,426**	**4.32E-02**	**3.60E-04**	**99.75%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Isooctane									
API Code	ND	Inlet (ppm)	Inlet Isooctane (mg)	Uncontrolled Isooctane EF (mg/l)	Uncontrolled Isooctane EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Isooctane (mg)	Controlled Isooctane EF (mg/l)	Controlled Isooctane EF (lbs/10^3 gal)	Control Eff.
C-6		1100	860,799	7.57E+00	6.32E-02		5	2,516	2.21E-02	1.85E-04	99.71%
C-6		1700	989,028	3.39E+01	2.83E-01		2.9	1,092	3.75E-02	3.13E-04	99.89%
C-6		2500	751,616	3.97E+01	3.31E-01		4.6	651	3.44E-02	2.87E-04	99.91%
C-6		**1766.67**	**2,601,444**	**1.61E+01**	**1.34E-01**		**4.17**	**4,259**	**2.63E-02**	**2.20E-04**	**99.84%**
C-8		1800	4,586,130	1.54E+01	1.28E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		3200	7,240,872	2.76E+01	2.30E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		3600	6,378,021	4.19E+01	3.50E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
C-8		**2866.67**	**18,205,023**	**2.55E+01**	**2.13E-01**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-9		2100	4,875,160	1.94E+01	1.62E-01		0.2	325	1.29E-03	1.08E-05	99.99%
C-9		1900	3,449,170	2.71E+01	2.26E-01		1.1	1,441	1.13E-02	9.45E-05	99.96%
C-9		2700	4,351,875	3.54E+01	2.95E-01		0.5	528	4.29E-03	3.58E-05	99.99%
C-9		**2233.33**	**12,676,205**	**2.53E+01**	**2.11E-01**		**0.60**	**2,294**	**4.57E-03**	**3.82E-05**	**99.98%**
C-10		900	1,174,572	5.37E+00	4.48E-02	ND	0.1	87	4.00E-04	3.33E-06	99.99%
C-10		940	1,131,992	9.73E+00	8.12E-02	ND	0.1	71	6.10E-04	5.09E-06	99.99%
C-10		1500	1,838,486	1.14E+01	9.55E-02		0.2	137	8.54E-04	7.13E-06	99.99%
C-10		**1113.33**	**4,145,050**	**8.36E+00**	**6.98E-02**		**0.13**	**296**	**5.96E-04**	**4.98E-06**	**99.99%**
C-12		360	591,221	1.62E+00	1.35E-02		0.2	206	5.66E-04	4.72E-06	99.97%
C-12		300	507,282	1.80E+00	1.50E-02		0.3	330	1.17E-03	9.74E-06	99.94%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!		0.4	460	4.16E-03	3.47E-05	#VALUE!
C-12		**330.00**	**1,098,503**	**1.45E+00**	**1.21E-02**		**0.30**	**996**	**1.31E-03**	**1.10E-05**	**99.91%**
C-14		1700	129,530	5.27E-01	4.40E-03		59	3,095	1.26E-02	1.05E-04	97.61%
C-14		1900	1,426,041	5.46E+00	4.56E-02		61	29,610	1.13E-01	9.46E-04	97.92%
C-14		1800	3,399,512	1.04E+01	8.68E-02		77	90,556	2.77E-01	2.31E-03	97.34%
C-14		**1800.00**	**4,955,083**	**5.95E+00**	**4.96E-02**		**65.67**	**123,261**	**1.48E-01**	**1.23E-03**	**97.51%**
T-1		2200	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		2100	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		2100	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**2133.33**	**8,394,338**	**9.98E+00**	**8.33E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3		2000	3,939,659	1.00E+01	8.38E-02	ND	0.1	17,103	4.36E-02	3.64E-04	99.57%
T-3		2300	4,082,561	9.22E+00	7.69E-02	ND	0.1	20,760	4.69E-02	3.91E-04	99.49%
T-3		2200	3,372,930	1.02E+01	8.50E-02		0.2	29,680	8.96E-02	7.48E-04	99.12%
T-3		**2166.67**	**11,395,149**	**9.77E+00**	**8.15E-02**		**0.13**	**67,544**	**5.79E-02**	**4.83E-04**	**99.41%**
T-6		336	130,988	1.08E+00	9.05E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		1250	1,701,182	5.81E+00	4.85E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		1320	2,456,822	9.74E+00	8.13E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-6		**968.67**	**4,288,991**	**6.44E+00**	**5.38E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-7		2420	3,050,578	1.03E+01	8.60E-02	ND	0.1	5,651	1.91E-02	1.59E-04	99.81%
T-7		2000	3,446,083	1.02E+01	8.54E-02	ND	0.1	8,421	2.50E-02	2.09E-04	99.76%
T-7		3160	4,659,033	1.58E+01	1.32E-01		0.62	53,716	1.83E-01	1.52E-03	98.85%
T-7		**2526.67**	**11,155,695**	**1.20E+01**	**1.00E-01**		**0.27**	**67,788**	**7.31E-02**	**6.10E-04**	**99.39%**
T-8		430	301,188	4.47E+00	3.73E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		670	552,060	3.78E+00	3.15E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		530	661,034	4.54E+00	3.79E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
T-8		**543.33**	**1,514,281**	**4.22E+00**	**3.52E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**

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— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		Isooctane									
API Code	ND	Inlet (ppm)	Inlet Isooctane (mg)	Uncontrolled Isooctane EF (mg/l)	Uncontrolled Isooctane EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Isooctane (mg)	Controlled Isooctane EF (mg/l)	Controlled Isooctane EF (lbs/10^3 gal)	Control Eff.
C-15		1000.00	1,412,226	4.48E+00	3.74E-02		0.60	572	1.81E-03	1.51E-05	99.96%
C-15		1800.00	3,115,813	1.38E+01	1.15E-01		0.70	873	3.86E-03	3.22E-05	99.97%
C-15		1800.00	2,448,609	1.73E+01	1.45E-01		0.70	696	4.93E-03	4.11E-05	99.97%
C-15 Avg		**1533.33**	**6,976,649**	**1.02E+01**	**8.52E-02**		**0.67**	**2,141**	**3.13E-03**	**2.62E-05**	**99.97%**
C-16		490.00	825,304	3.52E+00	2.94E-02		0.20	229	9.77E-04	8.16E-06	99.97%
C-16		1200.00	2,154,115	9.18E+00	7.66E-02	ND	0.05	56	2.37E-04	1.98E-06	100.00%
C-16		980.00	873,200	2.61E+01	2.17E-01	ND	0.05	28	8.23E-04	6.87E-06	100.00%
C-16 Avg		**890.00**	**3,852,619**	**7.67E+00**	**6.40E-02**		**0.10**	**312**	**6.22E-04**	**5.19E-06**	**99.99%**
C-17		600.00	842,380	3.74E+00	3.12E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		790.00	466,283	7.24E+00	6.04E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17		1100.00	495,623	7.70E+00	6.43E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
C-17 Avg		**830.00**	**1,804,285**	**5.10E+00**	**4.25E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-18		1100.00	803,618	9.52E+00	7.95E-02		5.10	2,641	3.13E-02	2.61E-04	99.67%
C-18		1000.00	1,022,568	1.84E+01	1.54E-01		5.00	4,196	7.56E-02	6.31E-04	99.59%
C-18		1200.00	1,572,989	1.66E+01	1.39E-01		1.70	1,812	1.92E-02	1.60E-04	99.88%
C-18 Avg		**1100.00**	**3,399,175**	**1.45E+01**	**1.21E-01**		**3.93**	**8,649**	**3.69E-02**	**3.08E-04**	**99.75%**
C-19		2300.00	4,782,723	1.16E+01	9.67E-02		0.90	1,139	2.76E-03	2.30E-05	99.98%
C-19		2300.00	4,782,723	1.14E+01	9.53E-02		1.10	1,530	3.65E-03	3.05E-05	99.97%
C-19		2400.00	4,990,668	1.21E+01	1.01E-01		2.00	2,537	6.16E-03	5.14E-05	99.95%
C-19 Avg		**2333.33**	**14,556,114**	**1.17E+01**	**9.77E-02**		**1.33**	**5,206**	**4.19E-03**	**3.49E-05**	**99.96%**
C-20		1600.00	2,716,214	8.41E+00	7.02E-02		15.00	13,361	4.14E-02	3.45E-04	99.51%
C-20		1500.00	2,436,005	5.70E+00	4.76E-02		15.00	13,582	3.18E-02	2.65E-04	99.44%
C-20		1700.00	3,696,489	1.41E+01	1.17E-01		18.00	21,261	8.09E-02	6.75E-04	99.42%
C-20 Avg		**1600.00**	**8,848,708**	**8.74E+00**	**7.29E-02**		**16.00**	**48,204**	**4.76E-02**	**3.97E-04**	**99.46%**
C-21A		1770.00	1,667,099	1.04E+01	8.64E-02		0.37	289	1.79E-03	1.50E-05	99.98%
C-21A		3090.00	2,873,687	1.81E+01	1.51E-01		1.50	1,139	7.16E-03	5.98E-05	99.96%
C-21A		2660.00	4,146,974	1.56E+01	1.30E-01		26.50	35,489	1.33E-01	1.11E-03	99.14%
C-21A Av		**2506.67**	**8,687,760**	**1.48E+01**	**1.24E-01**		**9.46**	**36,917**	**6.29E-02**	**5.25E-04**	**99.58%**
C-21B		3,090	2,860,485	1.47E+01	1.23E-01		11.90	8,773	4.51E-02	3.77E-04	99.69%
C-21B		3,450	1,248,017	1.64E+01	1.37E-01		7.10	2,164	2.85E-02	2.38E-04	99.83%
C-21B		4,100	5,549,165	1.95E+01	1.63E-01		43.70	47,030	1.66E-01	1.38E-03	99.15%
C-21B Av		**3,547**	**9,657,667**	**1.74E+01**	**1.45E-01**		**20.90**	**57,968**	**1.05E-01**	**8.72E-04**	**99.40%**
C-21C											
C-21C		5400.00	6,508,831	2.84E+01	2.37E-01		6.30	5,354	2.33E-02	1.95E-04	99.92%
C-21C		3990.00	8,010,454	2.10E+01	1.75E-01		83.80	132,077	3.45E-01	2.88E-03	98.35%
C-21C Av		**4695.00**	**14,519,285**	**2.37E+01**	**1.98E-01**		**45.05**	**137,431**	**2.25E-01**	**1.87E-03**	**99.05%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	Total HAP with MTBE (excluding cumene, naphthalene, & methanol)						
API Code	Inlet Total HAP (mg)	Uncontrolled Total HAP EF (mg/l)	Uncontrolled Total HAP EF (lbs/10^3 gal)	Outlet Total HAP (mg)	Controlled Total HAP EF (mg/l)	Controlled Total HAP EF (lbs/10^3 gal)	Control Eff.
C-6	4,119,938	36.22	0.30	13,874	0.12	0.00	99.66%
C-6	3,833,407	131.53	1.10	1,707	0.06	0.00	99.96%
C-6	2,797,376	147.81	1.23	1,018	0.05	0.00	99.96%
C-6	**10,750,722**	**66.44**	**0.55**	**16,599**	**0.10**	**0.00**	**99.85%**
C-8	67,801,440	227.04	1.89	1,172	0.00	0.00	100.00%
C-8	77,900,875	296.99	2.48	381	0.00	0.00	100.00%
C-8	64,415,872	423.35	3.53	748	0.00	0.00	100.00%
C-8	**210,118,187**	**294.66**	**2.46**	**2,300**	**0.00**	**0.00**	**100.00%**
C-9	52,147,528	207.49	1.73	1,116	0.00	0.00	100.00%
C-9	38,671,290	304.08	2.54	6,332	0.05	0.00	99.98%
C-9	43,499,219	353.62	2.95	2,512	0.02	0.00	99.99%
C-9	**134,318,037**	**267.83**	**2.23**	**9,960**	**0.02**	**0.00**	**99.99%**
C-10	5,834,477	26.69	0.22	87	0.00	0.00	100.00%
C-10	6,886,402	59.17	0.49	71	0.00	0.00	100.00%
C-10	9,021,437	56.16	0.47	137	0.00	0.00	100.00%
C-10	**21,742,317**	**43.87**	**0.37**	**296**	**0.00**	**0.00**	**100.00%**
C-12	6,551,242	17.97	0.15	611	0.00	0.00	99.99%
C-12	7,734,929	27.39	0.23	1,016	0.00	0.00	99.99%
C-12	#VALUE!	#VALUE!	#VALUE!	2,665	0.02	0.00	#VALUE!
C-12	**14,286,171**	**18.86**	**0.16**	**4,292**	**0.01**	**0.00**	**99.97%**
C-14	1,715,696	6.98	0.06	21,267	0.09	0.00	98.76%
C-14	18,655,297	71.43	0.60	198,860	0.76	0.01	98.93%
C-14	47,965,083	146.84	1.23	594,663	1.82	0.02	98.76%
C-14	**66,297,598**	**79.55**	**0.66**	**814,790**	**0.98**	**0.01**	**98.77%**
T-1	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	**96,391,754**	**114.61**	**0.96**	**28,565**	**0.03**	**0.00**	**99.97%**
T-3	15,144,215	38.62	0.32	55,498	0.14	0.00	99.63%
T-3	14,701,682	33.20	0.28	67,363	0.15	0.00	99.54%
T-3	12,204,710	36.85	0.31	119,475	0.36	0.00	99.02%
T-3	**42,050,607**	**36.06**	**0.30**	**242,336**	**0.21**	**0.00**	**99.42%**
T-6	374,221	3.10	0.03	2,446	0.02	0.00	99.35%
T-6	4,894,528	16.73	0.14	54,672	0.19	0.00	98.88%
T-6	8,059,529	31.95	0.27	16,331	0.06	0.00	99.80%
T-6	**13,328,279**	**20.02**	**0.17**	**73,450**	**0.11**	**0.00**	**99.45%**
T-7	22,268,852	75.24	0.63	24,087	0.08	0.00	99.89%
T-7	26,414,533	78.41	0.65	70,338	0.21	0.00	99.73%
T-7	30,741,437	104.56	0.87	276,897	0.94	0.01	99.10%
T-7	**79,424,822**	**85.69**	**0.72**	**371,322**	**0.40**	**0.00**	**99.53%**
T-8	1,389,785	20.63	0.17	5,103	0.08	0.00	99.63%
T-8	2,467,730	16.89	0.14	9,599	0.07	0.00	99.61%
T-8	2,939,702	20.19	0.17	23,032	0.16	0.00	99.22%
T-8	**6,797,217**	**18.93**	**0.16**	**37,734**	**0.11**	**0.00**	**99.44%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	Total HAP with MTBE (excluding cumene, naphthalene, & methanol)						
API Code	Inlet Total HAP (mg)	Uncontrolled Total HAP EF (mg/l)	Uncontrolled Total HAP EF (lbs/10^3 gal)	Outlet Total HAP (mg)	Controlled Total HAP EF (mg/l)	Controlled Total HAP EF (lbs/10^3 gal)	Control Eff.
C-15	5,875,333	18.62	0.16	4,588	0.0145	0.00	99.92%
C-15	12,031,832	53.16	0.44	6,128	0.0271	0.00	99.95%
C-15	9,483,597	67.17	0.56	4,803	0.0340	0.00	99.95%
C-15 Avg	**27,390,761**	**40.10**	**0.33**	**15,519**	**0.0227**	**0.00**	**99.94%**
C-16	5,370,984	22.90	0.19	13,339	0.0569	0.00	99.75%
C-16	10,433,467	44.48	0.37	378	0.0016	0.00	100.00%
C-16	5,101,734	152.25	1.27	369	0.0110	0.00	99.99%
C-16 Avg	**20,906,184**	**41.60**	**0.35**	**14,087**	**0.0280**	**0.00**	**99.93%**
C-17	4,862,281	21.59	0.18	89	0.00	0.00	100.00%
C-17	2,541,345	39.47	0.33	203	0.00	0.00	99.99%
C-17	2,668,169	41.46	0.35	132	0.00	0.00	100.00%
C-17 Avg	**10,071,795**	**28.45**	**0.24**	**424**	**0.00**	**0.00**	**100.00%**
C-18	5,353,793	63.45	0.53	6,593	0.08	0.00	99.88%
C-18	6,797,775	122.53	1.02	15,265	0.28	0.00	99.78%
C-18	8,334,275	88.12	0.74	9,622	0.10	0.00	99.88%
C-18 Avg	**20,485,843**	**87.38**	**0.73**	**31,480**	**0.13**	**0.00**	**99.85%**
C-19	79,473,846	192.55	1.61	5,216	0.01	0.00	99.99%
C-19	79,302,979	189.27	1.58	7,316	0.02	0.00	99.99%
C-19	84,932,896	206.34	1.72	24,216	0.06	0.00	99.97%
C-19 Avg	**243,709,721**	**196.01**	**1.64**	**36,748**	**0.03**	**0.00**	**99.98%**
C-20	26,671,006	82.62	0.69	63,946	0.20	0.00	99.76%
C-20	20,418,144	47.78	0.40	63,674	0.15	0.00	99.69%
C-20	36,094,291	137.40	1.15	95,037	0.36	0.00	99.74%
C-20 Avg	**83,183,440**	**82.13**	**0.69**	**222,657**	**0.22**	**0.00**	**99.73%**
C-21A	13,888,842	86.26	0.72	1,227	0.01	0.00	99.99%
C-21A	18,844,898	118.54	0.99	4,287	0.03	0.00	99.98%
C-21A	26,607,554	99.84	0.83	168,095	0.63	0.01	99.37%
C-21A Av	**59,341,294**	**101.18**	**0.84**	**173,609**	**0.30**	**0.00**	**99.71%**
C-21B	21,785,640	112.09	0.94	47,436	0.24	0.00	99.78%
C-21B	8,477,258	111.62	0.93	12,545	0.17	0.00	99.85%
C-21B	26,007,422	91.52	0.76	250,250	0.88	0.01	99.04%
C-21B Av	**56,270,320**	**101.48**	**0.85**	**310,230**	**0.56**	**0.00**	**99.45%**
C-21C	0			0			
C-21C	36,455,790	158.83	1.33	32,228	0.14	0.00	99.91%
C-21C	54,205,176	141.78	1.18	887,952	2.32	0.02	98.36%
C-21C Av	**90,660,967**	**148.18**	**1.24**	**920,180**	**1.50**	**0.01**	**98.99%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	Total HAP without MTBE (excluding cumene, naphthalene, & methanol)						
API Code	Inlet Total HAP (mg)	Uncontrolled Total HAP EF (mg/l)	Uncontrolled Total HAP EF (lbs/10^3 gal)	Outlet Total HAP (mg)	Controlled Total HAP EF (mg/l)	Controlled Total HAP EF (lbs/10^3 gal)	Control Eff.
C-6	2,730,891	2.40E+01	2.00E-01	13,602	1.20E-01	9.98E-04	99.50%
C-6	2,935,420	1.01E+02	8.40E-01	1,678	5.76E-02	4.80E-04	99.94%
C-6	2,286,920	1.21E+02	1.01E+00	953	5.03E-02	4.20E-04	99.96%
C-6	**7,953,231**	**4.92E+01**	**4.10E-01**	**16,233**	**1.00E-01**	**8.37E-04**	**99.80%**
C-8	16,677,143	5.58E+01	4.66E-01	1,172	3.92E-03	3.27E-05	99.99%
C-8	23,765,302	9.06E+01	7.56E-01	381	1.45E-03	1.21E-05	100.00%
C-8	20,662,291	1.36E+02	1.13E+00	748	4.91E-03	4.10E-05	100.00%
C-8	**61,104,736**	**8.57E+01**	**7.15E-01**	**2,300**	**3.23E-03**	**2.69E-05**	**100.00%**
C-9	16,314,811	6.49E+01	5.42E-01	991	3.94E-03	3.29E-05	99.99%
C-9	10,651,096	8.38E+01	6.99E-01	4,310	3.39E-02	2.83E-04	99.96%
C-9	14,889,034	1.21E+02	1.01E+00	1,371	1.11E-02	9.30E-05	99.99%
C-9	**41,854,941**	**8.35E+01**	**6.96E-01**	**6,672**	**1.33E-02**	**1.11E-04**	**99.98%**
C-10	5,834,477	2.67E+01	2.23E-01	87	4.00E-04	3.33E-06	100.00%
C-10	6,886,402	5.92E+01	4.94E-01	71	6.10E-04	5.09E-06	100.00%
C-10	9,021,437	5.62E+01	4.69E-01	137	8.54E-04	7.13E-06	100.00%
C-10	**21,742,317**	**4.39E+01**	**3.66E-01**	**296**	**5.96E-04**	**4.98E-06**	**100.00%**
C-12	6,348,452	1.74E+01	1.45E-01	611	1.68E-03	1.40E-05	99.99%
C-12	7,356,481	2.61E+01	2.17E-01	1,016	3.60E-03	3.00E-05	99.99%
C-12	#VALUE!	#VALUE!	#VALUE!	2,665	2.41E-02	2.01E-04	#VALUE!
C-12	**13,704,933**	**1.81E+01**	**1.51E-01**	**4,292**	**5.67E-03**	**4.73E-05**	**99.97%**
C-14	539,629	2.20E+00	1.83E-02	5,073	2.07E-02	1.72E-04	99.06%
C-14	5,912,016	2.26E+01	1.89E-01	49,012	1.88E-01	1.57E-03	99.17%
C-14	14,441,375	4.42E+01	3.69E-01	149,928	4.59E-01	3.83E-03	98.96%
C-14	**20,893,020**	**2.51E+01**	**2.09E-01**	**204,013**	**2.45E-01**	**2.04E-03**	**99.02%**
T-1	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1	**32,620,175**	**3.88E+01**	**3.24E-01**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-3	15,144,215	3.86E+01	3.22E-01	55,498	1.42E-01	1.18E-03	99.63%
T-3	14,701,682	3.32E+01	2.77E-01	67,363	1.52E-01	1.27E-03	99.54%
T-3	12,204,710	3.69E+01	3.08E-01	119,475	3.61E-01	3.01E-03	99.02%
T-3	**42,050,607**	**3.61E+01**	**3.01E-01**	**242,336**	**2.08E-01**	**1.73E-03**	**99.42%**
T-6	374,221	3.10E+00	2.59E-02	2,446	2.03E-02	1.69E-04	99.35%
T-6	4,894,528	1.67E+01	1.40E-01	54,672	1.87E-01	1.56E-03	98.88%
T-6	8,059,529	3.19E+01	2.67E-01	16,331	6.47E-02	5.40E-04	99.80%
T-6	**13,328,279**	**2.00E+01**	**1.67E-01**	**73,450**	**1.10E-01**	**9.21E-04**	**99.45%**
T-7	6,897,785	2.33E+01	1.94E-01	19,725	6.66E-02	5.56E-04	99.71%
T-7	8,329,685	2.47E+01	2.06E-01	29,394	8.73E-02	7.28E-04	99.65%
T-7	10,146,169	3.45E+01	2.88E-01	123,111	4.19E-01	3.49E-03	98.79%
T-7	**25,373,638**	**2.74E+01**	**2.28E-01**	**172,230**	**1.86E-01**	**1.55E-03**	**99.32%**
T-8	1,389,785	2.06E+01	1.72E-01	5,103	7.57E-02	6.32E-04	99.63%
T-8	2,467,730	1.69E+01	1.41E-01	9,599	6.57E-02	5.48E-04	99.61%
T-8	2,939,702	2.02E+01	1.69E-01	23,032	1.58E-01	1.32E-03	99.22%
T-8	**6,797,217**	**1.89E+01**	**1.58E-01**	**37,734**	**1.05E-01**	**8.77E-04**	**99.44%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	Total HAP without MTBE (excluding cumene, naphthalene, & methanol)						
API Code	Inlet Total HAP (mg)	Uncontrolled Total HAP EF (mg/l)	Uncontrolled Total HAP EF (lbs/10^3 gal)	Outlet Total HAP (mg)	Controlled Total HAP EF (mg/l)	Controlled Total HAP EF (lbs/10^3 gal)	Control Eff.
C-15	5,232,295	1.66E+01	1.38E-01	3,189	1.01E-02	8.44E-05	99.94%
C-15	11,230,283	4.96E+01	4.14E-01	4,298	1.90E-02	1.58E-04	99.96%
C-15	8,843,188	6.26E+01	5.23E-01	3,423	2.42E-02	2.02E-04	99.96%
C-15 Avg	**25,305,766**	**3.70E+01**	**3.09E-01**	**10,911**	**1.60E-02**	**1.33E-04**	**99.96%**
C-16	4,123,114	1.76E+01	1.47E-01	13,163	5.61E-02	4.68E-04	99.68%
C-16	8,771,015	3.74E+01	3.12E-01	335	1.43E-03	1.19E-05	100.00%
C-16	3,932,728	1.17E+02	9.79E-01	348	1.04E-02	8.66E-05	99.99%
C-16 Avg	**16,826,857**	**3.35E+01**	**2.79E-01**	**13,846**	**2.75E-02**	**2.30E-04**	**99.92%**
C-17	4,602,236	2.04E+01	1.70E-01	89	3.95E-04	3.30E-06	100.00%
C-17	2,436,577	3.78E+01	3.16E-01	203	3.16E-03	2.63E-05	99.99%
C-17	2,522,124	3.92E+01	3.27E-01	132	2.05E-03	1.71E-05	99.99%
C-17 Avg	**9,560,936**	**2.70E+01**	**2.25E-01**	**424**	**1.20E-03**	**1.00E-05**	**100.00%**
C-18	4,620,833	5.48E+01	4.57E-01	5,355	6.35E-02	5.30E-04	99.88%
C-18	5,614,015	1.01E+02	8.44E-01	13,257	2.39E-01	1.99E-03	99.76%
C-18	6,108,674	6.46E+01	5.39E-01	7,730	8.17E-02	6.82E-04	99.87%
C-18 Avg	**16,343,522**	**6.97E+01**	**5.82E-01**	**26,342**	**1.12E-01**	**9.38E-04**	**99.84%**
C-19	18,490,511	4.48E+01	3.74E-01	5,021	1.22E-02	1.02E-04	99.97%
C-19	19,924,468	4.76E+01	3.97E-01	7,263	1.73E-02	1.45E-04	99.96%
C-19	19,135,088	4.65E+01	3.88E-01	10,511	2.55E-02	2.13E-04	99.95%
C-19 Avg	**57,550,066**	**4.63E+01**	**3.86E-01**	**22,795**	**1.83E-02**	**1.53E-04**	**99.96%**
C-20	16,058,713	4.97E+01	4.15E-01	30,949	9.59E-02	8.00E-04	99.81%
C-20	14,151,470	3.31E+01	2.76E-01	30,132	7.05E-02	5.88E-04	99.79%
C-20	24,515,327	9.33E+01	7.79E-01	42,166	1.61E-01	1.34E-03	99.83%
C-20 Avg	**54,725,510**	**5.40E+01**	**4.51E-01**	**103,247**	**1.02E-01**	**8.51E-04**	**99.81%**
C-21A	5,747,680	3.57E+01	2.98E-01	799	4.96E-03	4.14E-05	99.99%
C-21A	8,581,359	5.40E+01	4.50E-01	1,944	1.22E-02	1.02E-04	99.98%
C-21A	12,891,326	4.84E+01	4.04E-01	44,070	1.65E-01	1.38E-03	99.66%
C-21A Av	**27,220,365**	**4.64E+01**	**3.87E-01**	**46,812**	**7.98E-02**	**6.66E-04**	**99.83%**
C-21B	9,640,284	4.96E+01	4.14E-01	11,818	6.08E-02	5.07E-04	99.88%
C-21B	3,954,569	5.21E+01	4.34E-01	3,065	4.04E-02	3.37E-04	99.92%
C-21B	14,413,059	5.07E+01	4.23E-01	60,048	2.11E-01	1.76E-03	99.58%
C-21B Av	**28,007,913**	**5.05E+01**	**4.21E-01**	**74,932**	**1.35E-01**	**1.13E-03**	**99.73%**
C-21C							
C-21C	17,386,117	7.57E+01	6.32E-01	7,504	3.27E-02	2.73E-04	99.96%
C-21C	24,301,700	6.36E+01	5.30E-01	172,728	4.52E-01	3.77E-03	99.29%
C-21C Av	**41,687,816**	**6.81E+01**	**5.69E-01**	**180,232**	**2.95E-01**	**2.46E-03**	**99.57%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	VOC (taken directly from Data Sets)						
API Code	Inlet VOC (mg)	Uncontrolled VOC EF (mg/l)	Uncontrolled VOC EF (lbs/10^3 gal)	Outlet VOC (mg)	Controlled VOC EF (mg/l)	Controlled VOC EF (lbs/10^3 gal)	Control Eff.
C-6			0.00			0.00	#DIV/0!
C-6			0.00			0.00	#DIV/0!
C-6			0.00			0.00	#DIV/0!
C-6		**690.00**	**5.76**		**0.69**	**0.01**	**99.90%**
C-8			0.00			0.00	#DIV/0!
C-8			0.00			0.00	#DIV/0!
C-8			0.00			0.00	#DIV/0!
C-8	**1,167,532,000**	**1,637.28**	**13.66**	**670,320**	**0.94**	**0.01**	**99.94%**
C-9			0.00			0.00	#DIV/0!
C-9			0.00			0.00	#DIV/0!
C-9			0.00			0.00	#DIV/0!
C-9	**809,727,000**	**1,614.57**	**13.47**	**1,828,152**	**3.65**	**0.03**	**99.77%**
C-10			0.00			0.00	#DIV/0!
C-10			0.00			0.00	#DIV/0!
C-10			0.00			0.00	#DIV/0!
C-10		**721.90**	**6.02**		**9.89**	**0.08**	**98.63%**
C-12			0.00			0.00	#DIV/0!
C-12			0.00			0.00	#DIV/0!
C-12			0.00			0.00	#DIV/0!
C-12		**626.09**	**5.22**		**1.44**	**0.01**	**99.77%**
C-14			0.00			0.00	#DIV/0!
C-14			0.00			0.00	#DIV/0!
C-14			0.00			0.00	#DIV/0!
C-14	**558,660,991**	**670.29**	**5.59**	**8,737,198**	**10.48**	**0.09**	**98.44%**
T-1							#DIV/0!
T-1							#DIV/0!
T-1							#DIV/0!
T-1	**608,591,025**	**723.59**	**6.04**	**1,405,797**	**1.67**	**0.01**	**99.77%**
T-3			0.00			0.00	#DIV/0!
T-3			0.00			0.00	#DIV/0!
T-3			0.00			0.00	#DIV/0!
T-3	**899,504,000**	**771.34**	**6.44**	**4,542,042**	**3.89**	**0.03**	**99.50%**
T-6			0.00			0.00	#DIV/0!
T-6			0.00			0.00	#DIV/0!
T-6			0.00			0.00	#DIV/0!
T-6	**285,770,000**	**429.35**	**3.58**	**1,575,622**	**2.37**	**0.02**	**99.45%**
T-7			0.00			0.00	#DIV/0!
T-7			0.00			0.00	#DIV/0!
T-7			0.00			0.00	#DIV/0!
T-7	**668,815,000**	**721.60**	**6.02**	**2,279,264**	**2.46**	**0.02**	**99.66%**
T-8			0.00			0.00	#DIV/0!
T-8			0.00			0.00	#DIV/0!
T-8			0.00			0.00	#DIV/0!
T-8	**258,183,500**	**719.08**	**6.00**	**2,590,947**	**7.22**	**0.06**	**99.00%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	VOC (taken directly from Data Sets)						
API Code	Inlet VOC (mg)	Uncontrolled VOC EF (mg/l)	Uncontrolled VOC EF (lbs/10^3 gal)	Outlet VOC (mg)	Controlled VOC EF (mg/l)	Controlled VOC EF (lbs/10^3 gal)	Control Eff.
C-15	185,528,376	588.05	4.91	7,712,482	24.45	0.20	95.84%
C-15	195,736,929	864.78	7.22	9,199,819	40.65	0.34	95.30%
C-15	147,456,391	1,044.45	8.72	5,915,624	41.90	0.35	95.99%
C-15 Avg	**528,721,696**	**774.09**	**6.46**	**22,827,925**	**33.42**	**0.28**	**95.68%**
C-16	215,543,026	919.03	7.67	7,781,173	33.18	0.28	96.39%
C-16	269,626,868	1,149.48	9.59	5,762,036	24.56	0.20	97.86%
C-16	132,475,659	3,953.48	32.99	1,442,918	43.06	0.36	98.91%
C-16 Avg	**617,645,553**	**1,228.89**	**10.25**	**14,986,127**	**29.82**	**0.25**	**97.57%**
C-17	148,728,419	660.25	5.51	2,507,423	11.13	0.09	98.31%
C-17	77,890,706	1,209.73	10.09	696,278	10.81	0.09	99.11%
C-17	55,929,166	869.00	7.25	1,086,048	16.87	0.14	98.06%
C-17 Avg	**282,548,291**	**798.14**	**6.66**	**4,289,749**	**12.12**	**0.10**	**98.48%**
C-18	84,689,728	1,003.68	8.38	2,554,894	30.28	0.25	96.98%
C-18	74,621,452	1,345.00	11.22	3,854,301	69.47	0.58	94.83%
C-18	99,994,832	1,057.26	8.82	5,339,688	56.46	0.47	94.66%
C-18 Avg	**259,306,012**	**1,106.07**	**9.23**	**11,748,883**	**50.11**	**0.42**	**95.47%**
	894,621,203						
C-19	*298,207,068*	722.49	6.03	407,820	0.99	0.01	99.86%
C-19	*298,207,068*	711.73	5.94	484,207	1.16	0.01	99.84%
C-19	*298,207,068*	724.47	6.05	634,758	1.54	0.01	99.79%
C-19 Avg	***894,621,203***	**719.52**	**6.00**	**1,526,785**	**1.23**	**0.01**	**99.83%**
C-20	311,829,742	965.97	8.06	314,431	0.97	0.01	99.90%
C-20	277,800,582	650.06	5.42	385,586	0.90	0.01	99.86%
C-20	383,731,290	1,460.73	12.19	277,086	1.05	0.01	99.93%
C-20 Avg	**973,361,614**	**961.00**	**8.02**	**977,103**	**0.96**	**0.01**	**99.90%**
C-21A	101,745,391	631.94	5.27	26,658	0.17	0.00	99.97%
C-21A	96,039,688	604.11	5.04	1,584,601	9.97	0.08	98.35%
C-21A	158,575,509	595.02	4.97	11,760,700	44.13	0.37	92.58%
C-21A Av	**356,360,588**	**607.62**	**5.07**	**13,371,959**	**22.80**	**0.19**	**96.25%**
C-21B	95,448,390	491.09	4.10	2,534,002	13.04	0.11	97.35%
C-21B	35,860,571	472.16	3.94	857,092	11.29	0.09	97.61%
C-21B	137,655,576	484.42	4.04	16,731,166	58.88	0.49	87.85%
C-21B Av	**268,964,537**	**485.08**	**4.05**	**20,122,260**	**36.29**	**0.30**	**92.52%**
C-21C							
C-21C	127,546,349	555.68	4.64	3,378,458	14.72	0.12	97.35%
C-21C	213,106,791	557.41	4.65	39,399,507	103.06	0.86	81.51%
C-21C Av	**340,653,140**	**556.76**	**4.65**	**42,777,964**	**69.92**	**0.58**	**87.44%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		TPH									
API Code	**ND**	**Inlet (ppm)**	**Inlet TPH (mg)**	**Uncontrolled TPH EF (mg/l)**	**Uncontrolled TPH EF (lbs/10^3 gal)**	**ND**	**Outlet (ppm)**	**Outlet TPH (mg)**	**Controlled TPH EF (mg/l)**	**Controlled TPH EF (lbs/10^3 gal)**	**Control Eff.**
C-6		230000	123,083,959	1.08E+03	9.03E+00		300	103,238	9.08E-01	7.57E-03	99.92%
C-6		190000	75,592,365	2.59E+03	2.16E+01		210	54,063	1.86E+00	1.55E-02	99.93%
C-6		310000	63,735,617	3.37E+03	2.81E+01		120	11,609	6.13E-01	5.12E-03	99.98%
C-6		**243333.33**	**262,411,941**	**1.62E+03**	**1.35E+01**		**210.00**	**168,910**	**1.04E+00**	**8.71E-03**	**99.94%**
C-8		230000	400,743,197	1.34E+03	1.12E+01		390	434,622	1.46E+00	1.21E-02	99.89%
C-8		280000	433,274,764	1.65E+03	1.38E+01		400	390,602	1.49E+00	1.24E-02	99.91%
C-8		280000	339,239,163	2.23E+03	1.86E+01		220	148,123	9.73E-01	8.12E-03	99.96%
C-8		**263333.33**	**1,173,257,124**	**1.65E+03**	**1.37E+01**		**336.67**	**973,346**	**1.36E+00**	**1.14E-02**	**99.92%**
C-9		190000	301,639,121	1.20E+03	1.00E+01		2100	2,331,749	9.28E+00	7.74E-02	99.23%
C-9		180000	223,459,059	1.76E+03	1.47E+01		800	716,612	5.63E+00	4.70E-02	99.68%
C-9		240000	264,538,199	2.15E+03	1.79E+01		1800	1,300,093	1.06E+01	8.82E-02	99.51%
C-9		**203333.33**	**789,636,379**	**1.57E+03**	**1.31E+01**		**1566.67**	**4,348,454**	**8.67E+00**	**7.24E-02**	**99.45%**
C-10		210000	187,422,121	8.57E+02	7.15E+00		2700	1,612,845	7.38E+00	6.16E-02	99.14%
C-10		270000	222,353,458	1.91E+03	1.59E+01		2500	1,214,179	1.04E+01	8.70E-02	99.45%
C-10		280000	234,688,410	1.46E+03	1.22E+01		7700	3,612,182	2.25E+01	1.88E-01	98.46%
C-10		**253333.33**	**644,463,989**	**1.30E+03**	**1.09E+01**		**4300.00**	**6,439,205**	**1.30E+01**	**1.08E-01**	**99.00%**
C-12		210000	235,847,399	6.47E+02	5.40E+00		910	641,375	1.76E+00	1.47E-02	99.73%
C-12		250000	289,089,785	1.02E+03	8.54E+00		1300	977,024	3.46E+00	2.89E-02	99.66%
C-12		No Inlet	#VALUE!	#VALUE!	#VALUE!		1500	1,179,928	1.07E+01	8.91E-02	#VALUE!
C-12		**230000.00**	**524,937,184**	**6.93E+02**	**5.78E+00**		**1236.67**	**2,798,328**	**3.69E+00**	**3.08E-02**	**99.47%**
C-14		190000	9,900,102	4.03E+01	3.36E-01		13000	466,355	1.90E+00	1.58E-02	95.29%
C-14		220000	112,918,621	4.32E+02	3.61E+00		13000	4,315,366	1.65E+01	1.38E-01	96.18%
C-14		200000	258,308,406	7.91E+02	6.60E+00		16000	12,867,957	3.94E+01	3.29E-01	95.02%
C-14		**203333.33**	**381,127,129**	**4.57E+02**	**3.82E+00**		**14000.00**	**17,649,678**	**2.12E+01**	**1.77E-01**	**95.37%**
T-1		250000	0	#DIV/0!	#DIV/0!		5.9	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		210000	0	#DIV/0!	#DIV/0!		11	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		240000	0	#DIV/0!	#DIV/0!		3.2	0	#DIV/0!	#DIV/0!	#DIV/0!
T-1		**233333.33**	**627,868,914**	**7.47E+02**	**6.23E+00**		**6.70**	**726,805**	**8.64E-01**	**7.21E-03**	**99.88%**
T-3		200000	269,415,818	6.87E+02	5.73E+00		49	5,731,136	1.46E+01	1.22E-01	97.87%
T-3		210000	254,911,018	5.76E+02	4.80E+00		52	7,382,277	1.67E+01	1.39E-01	97.10%
T-3		240000	251,628,783	7.60E+02	6.34E+00		32	3,247,542	9.81E+00	8.18E-02	98.71%
T-3		**216666.67**	**775,955,619**	**6.65E+02**	**5.55E+00**		**44.33**	**16,360,956**	**1.40E+01**	**1.17E-01**	**97.89%**
T-6		Not Rep.	#VALUE!	#VALUE!	#VALUE!	ND	1	20,740	1.72E-01	1.43E-03	#VALUE!
T-6		89700	83,482,922	2.85E+02	2.38E+00		4	529,739	1.81E+00	1.51E-02	99.37%
T-6		104000	132,372,419	5.25E+02	4.38E+00		4.2	581,534	2.31E+00	1.92E-02	99.56%
T-6		**96850.00**	**215,855,341**	**3.24E+02**	**2.71E+00**		**3.07**	**1,132,013**	**1.70E+00**	**1.42E-02**	**99.48%**
T-7		133000	114,652,333	3.87E+02	3.23E+00	ND	1	38,646	1.31E-01	1.09E-03	99.97%
T-7		112000	131,970,938	3.92E+02	3.27E+00		8.7	501,021	1.49E+00	1.24E-02	99.62%
T-7		167000	168,379,671	5.73E+02	4.78E+00		31.1	1,842,613	6.27E+00	5.23E-02	98.91%
T-7		**137333.33**	**415,002,942**	**4.48E+02**	**3.74E+00**		**13.60**	**2,382,280**	**2.57E+00**	**2.14E-02**	**99.43%**
T-8		55000	26,344,849	3.91E+02	3.26E+00		10	462,539	6.87E+00	5.73E-02	98.24%
T-8		140000	78,886,695	5.40E+02	4.51E+00		9.6	835,334	5.72E+00	4.77E-02	98.94%
T-8		100000	85,292,802	5.86E+02	4.89E+00		32	2,226,988	1.53E+01	1.28E-01	97.39%
T-8		**98333.33**	**190,524,345**	**5.31E+02**	**4.43E+00**		**17.20**	**3,524,862**	**9.82E+00**	**8.19E-02**	**98.15%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

		TPH									
API Code	ND	Inlet (ppm)	Inlet TPH (mg)	Uncontrolled TPH EF (mg/l)	Uncontrolled TPH EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet TPH (mg)	Controlled TPH EF (mg/l)	Controlled TPH EF (lbs/10^3 gal)	Control Eff.
C-15		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-15			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-15			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-15 Avg		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-16		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-16			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-16			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-16 Avg		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-17		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-17			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-17			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-17 Avg		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-18		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-18			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-18			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-18 Avg		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-19		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-19			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-19			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-19 Avg		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-20		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-20			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-20			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-20 Avg		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-21A		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-21A			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21A			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21A Av		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-21B		#N/A	#N/A	#N/A	#N/A		#N/A	#N/A	#N/A	#N/A	#N/A
C-21B			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21B			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21B Av		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**
C-21C			0	#DIV/0!	#DIV/0!		#N/A	#N/A	#N/A	#N/A	#N/A
C-21C		#N/A	#N/A	#N/A	#N/A			0	0.00E+00	0.00E+00	#N/A
C-21C			0	0.00E+00	0.00E+00			0	0.00E+00	0.00E+00	#DIV/0!
C-21C Av		**#N/A**	**#N/A**	**#N/A**	**#N/A**		**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	Comments			
API Code				
C-6				
C-6				
C-6				
C-6				
C-8	Some Inlet and Outlet samples			
C-8	have been mislabeled.			
C-8	Run 3 outlet has different MDL than			
C-8	*Runs 1 and 2 (diff dil. factor)*			
C-9				
C-9				
C-9				
C-9				
C-10				
C-10				
C-10				
C-10				
C-12	Report shows 191,100 gals of acc. prod.			
C-12				
C-12	No analysis for Run 3 inlet sample			
C-12				
C-14	Run 1 and 2 outlet very close			
C-14				
C-14	Run 3 missing last hour of flow info.			
C-14				
T-1	Vapors were stored in a vapor bladder			
T-1	before sent to TO. Used average ppm			
T-1	and total inlet/outlet volumes for calcs.			
T-1				
T-3				
T-3				
T-3				
T-3				
T-6				
T-6				
T-6				
T-6				
T-7	Cannot relate loading data to the			
T-7	analytical data.			
T-7				
T-7				
T-8	19% of gasoline loaded was discounted			
T-8	because of leakers			
T-8				
T-8				

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#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS INCLUDED

	Comments			
API Code				
C-15	Inlet sampling skipped 0825&1035 readings			
C-15	No truck bill data to confirm loading vols.			
C-15	loading vols & thruput to VRU not equal due to bladder			
C-15 Avg	18495 gals subtracted for postrun bladder vol.			
	but off by ~8000 gals			
C-16				
C-16				
C-16				
C-16 Avg				
C-17				
C-17				
C-17				
C-17 Avg				
C-18	~ 20,000 gallons loaded after HAP			
C-18	test ended			
C-18				
C-18 Avg				
C-19	All (both) run 1 samples in Tedlar bags			
C-19	inlet-2 in SUMMA; outlet-2 in Tedlar			
C-19	inlet-3 in Tedlar; oulet-3 in SUMMA			
C-19 Avg	Ea. inlet run vol. = 1/3 of calc'd tot inlet vol			
	(calc'd from outlet vol.)			
C-20				
C-20				
C-20				
C-20 Avg	two trucks ignored w/no explanation			
C-21A	inlet vols = turbine meter vols.			
C-21A	and used to prorate the total accountable			
C-21A	gasoline to each run.			
C-21A Av				
C-21B	math error in totaling gas loading vol			
C-21B				
C-21B				
C-21B Av				
C-21C	note how using the run totals gives a grossly diff EF			
C-21C	from that calc'd using avg of runs 2&3			
C-21C				
C-21C Av				

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#DIV/0! and #VALUE - are the result of missing data

APPENDIX C

RUN-BY-RUN EMISSION FACTORS FOR THE THIRTEEN DATA SETS EXCLUDED FROM THE OVERALL AVERAGE EMISSION FACTOR CALCULATION

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

API Code	PES Test Rating	Control Device	Control Level (mg/l)	Loading Method	Gasoline Loaded (liters)	Loading Conditions Gasoline Loaded (gals)	Distillate Loaded (gals)	Other Loaded (gals)	Gas Volume Inlet m^3	Gas Volume Outlet m^3
C-1	D	TO			133,232	35,200	7,500		No Data	No Data
C-1	D	TO			0	0	0		No Data	No Data
C-1	D	TO			0	0	0		No Data	No Data
C-1	**D**	**TO**			**133,232**	**35,200**	**7,500**			**?**
C-2	D	CA			0				No Data	No Data
C-2	D	CA			0				No Data	No Data
C-2	D	CA			0				No Data	No Data
C-2	D	CA			0				No Data	No Data
C-2	D	CA			0				No Data	No Data
C-2	D	CA			0				No Data	No Data
C-2	D	CA			0				No Data	No Data
C-2	D	CA			0				No Data	No Data
C-3	B	CA			1,882,682	497,406			1,847	1474.71
C-3	B	CA			468,485	123,774			745	649.97
C-3	B	CA			424,768	112,224			620	543.15
C-3	**B**	**CA**			**2,775,934**	**733,404**			**3,212**	**2667.83**
C-4	C	CA	35	bottom	5,678	1,500	22,200	22,925	206	137.20
C-4	C	CA	35	bottom	0	0	37,900	8,000	188	120.10
C-4	C	CA	35	bottom	32,551	8,600	37,700	15,800	223	143.70
C-4	**C**	**CA**	**35**	**bottom**	**38,229**	**10,100**	**97,800**	**46,725**	**617**	**401.00**
C-5	D	CA	80	Bottom	28,047	7,410	5,625		136	85.20
C-5	D	CA	80	Bottom	160,484	42,400	5,100		246	183.30
C-5	D	CA	80	Bottom	34,065	9,000			105	65.80
C-5	**D**	**CA**	**80**	**Bottom**	**222,596**	**58,810**	**10,725**		**487**	**334.30**
C-7	D	?			0					
C-7	D	?			0					
C-7	D	?			0					
C-7	**D**	**?**			**0**					
C-11	D	CA	?	?	92,736	24,501	0	0	No Data	99.71
C-11	D	CA	?	?	205,896	54,398	0	0	No Data	208.81
C-11	D	CA	?	?	169,155	44,691	0	0	No Data	157.31
C-11	**D**	**CA**	**?**	**?**	**467,788**	**123,590**				**465.83**
C-13	D	CA	35	bottom	198,713	52,500	20,500		421	316.22
C-13	D	CA	35	bottom	64,345	17,000	44,800		371	298.29
C-13	D	CA	35	bottom	176,192	46,550	20,500		367	258.11
C-13	**D**	**CA**	**35**	**bottom**	**439,249**	**116,050**	**85,800**		**1,159**	**872.62**
R-1	D	REF(2)	?	?	628,704	166,104			Not Record	237.94
R-1	D	REF(2)	?	?	147,225	38,897			Not Record	187.93
R-1	D	REF(2)	?	?	116,552	30,793			Not Record	108.41
R-1	**D**	**REF(2)**	**?**	**?**	**892,480**	**235,794**				**534.28**
R-2	C	REF/TO	10?	?	1,524,204	402,696			1,420	31281.40
R-2	C	REF/TO	10?	?	1,022,147	270,052			951	20977.60
R-2	C	REF/TO	10?	?	894,975	236,453			869	18367.60
R-2	**C**	**REF/T**	**10?**	**?**	**3,441,326**	**909,201**			**3,241**	**70626.60**
T-2	D	TO			1,095,099	289,326			1886	51586.00
T-2	D	TO			671,168	177,323			431	27367.00
T-2	D	TO			976,273	257932			779	86508
T-2	**D**	**TO**			**2,742,539**	**724,581**			**3096**	**165461.00**
T-4	B	TO	35	Bottom	299,394	79,100	0	0	283	54463.71
T-4	B	TO	35	Bottom	189,250	50,000	0	0	182	30604.16
T-4	B	TO	35	Bottom	288,780	76,296	0	0	276	30587.34
T-4	**B**	**TO**	**35**	**Bottom**	**777,424**	**205,396**			**741**	**115,655.21**
T-5	C	TO			26,469	6,993			—	—
T-5	C	TO			55,560	14,679			326.27	15956.00
T-5	C	TO			22,332	5,900			422.7	20925.00
T-5	**C**	**TO**			**104,360**	**27,572**			**748.97**	**36881.00**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

		MTBE									
API Code	ND	Inlet (ppm)	Inlet mg MTBE	Uncontrolled MTBE EF (mg/l)	Uncontrolled MTBE EF (lbs/1000 gals)	ND	Outlet (ppm)	Outlet mg MTBE	Controlled MTBE EF (mg/l)	Controlled MTBE EF ($lbs/10^3$ gal)	Control Eff.
C-1		900	#VALUE!	#VALUE!	#VALUE!		2.90	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		380	#VALUE!	#VALUE!	#VALUE!		0.30	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		310	#VALUE!	#VALUE!	#VALUE!	ND	0.10	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**530**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**1.10**	**#VALUE!**	**#VALUE!**	**#VALUE!**	
C-2	*	46,000	#VALUE!	#VALUE!	#VALUE!		16.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	*	34,000	#VALUE!	#VALUE!	#VALUE!		19.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!		20.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!		14.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	*	42,000	#VALUE!	#VALUE!	#VALUE!		15.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	*	40,000	#VALUE!	#VALUE!	#VALUE!		16.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	*	35,000	#VALUE!	#VALUE!	#VALUE!						#VALUE!
C-2		36,000	#VALUE!	#VALUE!	#VALUE!						#VALUE!
C-3		8,900	60,236,006	31.99	2.67E-01	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-3		8,000	21,834,391	46.61	3.89E-01	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-3		7,800	17,719,613	41.72	3.48E-01	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-3		**8,233**	**99,790,010**	**35.95**	**3.00E-01**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4		790	595,661	104.92	8.75E-01		0.50	251.33	4.43E-02	3.69E-04	99.96%
C-4		830	570,811	#DIV/0!	#DIV/0!		1.00	440.02	#DIV/0!	#DIV/0!	99.92%
C-4		4,700	3,843,945	118.09	9.85E-01		1.30	684.43	2.10E-02	1.75E-04	99.98%
C-4		**2,107**	**5,010,416**	**131.06**	**1.09E+00**		**0.93**	**1,375.78**	**3.60E-02**	**3.00E-04**	**99.97%**
C-5	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
C-5	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
C-5	ND	0	0	0.00	0.00E+00	ND	0.00	0.00	0.00E+00	0.00E+00	#DIV/0!
C-5		**0**	**0**	**0.00**	**0.00E+00**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-7		330	0	#DIV/0!	#DIV/0!	ND	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!
C-7		290	0	#DIV/0!	#DIV/0!	ND	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!
C-7		360	0	#DIV/0!	#DIV/0!	ND	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**327**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0.00**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		88	#VALUE!	#VALUE!	#VALUE!		0.30	109.59	1.18E-03	9.86E-06	#VALUE!
C-11		59	#VALUE!	#VALUE!	#VALUE!		6.40	4,896.19	2.38E-02	1.98E-04	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0.10	57.63	3.41E-04	2.84E-06	#VALUE!
C-11			**#VALUE!**					**5,063.42**	**1.08E-02**	**9.03E-05**	**#VALUE!**
C-13		110	169,862	0.85	7.13E-03	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-13	ND	5	6,799	0.11	8.82E-04	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-13		120	161,147	0.91	7.63E-03	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
C-13		**78**	**337,809**	**0.77**	**6.42E-03**		**0.00**	**0.00**	**0.00E+00**	**0.00E+00**	**100.00%**
R-1		29,000	#VALUE!	#VALUE!	#VALUE!		6.10	5,317.70	8.46E-03	7.06E-05	#VALUE!
R-1		32,000	#VALUE!	#VALUE!	#VALUE!		6.90	4,750.86	3.23E-02	2.69E-04	#VALUE!
R-1		26,000	#VALUE!	#VALUE!	#VALUE!		5.60	2,224.25	1.91E-02	1.59E-04	#VALUE!
R-1		**29,000**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**6.20**	**12,292.81**	**1.38E-02**	**1.15E-04**	**#VALUE!**
R-2		9,900	51,508,727	33.79	2.82E-01		0.40	45,842.98	3.01E-02	2.51E-04	99.91%
R-2	*	23,000	80,171,069	78.43	6.54E-01		0.20	15,371.37	1.50E-02	1.25E-04	99.98%
R-2	*	22,000	70,067,892	78.29	6.53E-01	ND	0.10	6,729.44	7.52E-03	6.27E-05	99.99%
R-2		**18,300**	**201,747,689**	**58.62**	**4.89E-01**		**0.23**	**67,943.79**	**1.97E-02**	**1.65E-04**	**99.97%**
T-2		76	525,148	0.48	4.00E-03	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
T-2		69	108,956	0.16	1.35E-03	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
T-2		850	2,425,957	2.48	2.07E-02	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
T-2			**2,534,913**	**0.92**	**7.71E-03**			**0.00**	**0.00E+00**	**0.00E+00**	**100.00%**
T-4	*	29,000	30,053,533	100.38	8.38E-01		6.50	1,297,021.79	4.33E+00	3.61E-02	95.68%
T-4	*	25,000	16,687,197	88.18	7.36E-01		0.70	78,488.35	4.15E-01	3.46E-03	99.53%
T-4	*	22,000	22,273,857	77.13	6.44E-01		5.20	582,735.86	2.02E+00	1.68E-02	97.38%
T-4		**25,333**	**69,014,587**	**88.77**	**7.41E-01**		**4.13**	**1,958,246.00**	**2.52E+00**	**2.10E-02**	**97.16%**
T-5		200	#VALUE!	#VALUE!	#VALUE!	ND	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		250	298,844	5.38	4.49E-02	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
T-5		260	402,654	18.03	1.50E-01	ND	0.00	0.00	0.00E+00	0.00E+00	100.00%
T-5			**701,498**	**6.72**	**5.61E-02**			**0.00**	**0.00E+00**	**0.00E+00**	**100.00%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

				Benzene							
API Code	ND	Inlet (ppm)	Inlet mg Benzene	Uncontrolled BZ EF (mg/l)	Uncontrolled BZ EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet mg Benzene	Controlled BZ EF (mg/l)	Controlled BZ EF (lbs/10^3 gal)	Control Eff.
C-1		1100	#VALUE!	#VALUE!	#VALUE!		1.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		640	#VALUE!	#VALUE!	#VALUE!		0.8	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		480	#VALUE!	#VALUE!	#VALUE!		0.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**740.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.77**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2		2500	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		1300	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		1800	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		1600	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		1400	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		1500	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		1100	6,596,950	3.50E+00	2.92E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		600	1,451,064	3.10E+00	2.58E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		520	1,046,760	2.46E+00	2.06E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		**740.00**	**9,094,774**	**3.28E+00**	**2.73E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4		910	607,992	1.07E+02	8.94E-01		0.7	312	5.49E-02	4.58E-04	99.95%
C-4		1200	731,273	#DIV/0!	#DIV/0!		1.6	624	#DIV/0!	#DIV/0!	99.91%
C-4		1000	724,709	2.23E+01	1.86E-01		2	933	2.87E-02	2.39E-04	99.87%
C-4		**1036.67**	**2,063,974**	**5.40E+01**	**4.51E-01**		**1.43**	**1,869**	**4.89E-02**	**4.08E-04**	**99.91%**
C-5		1600	705,029	2.51E+01	2.10E-01		0.2	55	1.97E-03	1.65E-05	99.99%
C-5		1600	1,276,771	7.96E+00	6.64E-02		37	22,018	1.37E-01	1.14E-03	98.28%
C-5		1600	547,588	1.61E+01	1.34E-01		1.3	278	8.15E-03	6.80E-05	99.95%
C-5		**1600.00**	**2,529,387**	**1.14E+01**	**9.48E-02**		**12.83**	**22,351**	**1.00E-01**	**8.38E-04**	**99.12%**
C-7		1600	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		1500	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		1200	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**1433.33**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		900	#VALUE!	#VALUE!	#VALUE!	ND	0.1	32	3.49E-04	2.91E-06	#VALUE!
C-11		680	#VALUE!	#VALUE!	#VALUE!		150	101,684	4.94E-01	4.12E-03	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0.1	51	3.02E-04	2.52E-06	#VALUE!
C-11			**#VALUE!**					**101,768**	**2.18E-01**	**1.82E-03**	**#VALUE!**
C-13		1100	1,505,154	7.57E+00	6.32E-02		0.8	821	4.13E-03	3.45E-05	99.95%
C-13		33	39,764	6.18E-01	5.16E-03		0.9	872	1.35E-02	1.13E-04	97.81%
C-13		1100	1,308,938	7.43E+00	6.20E-02		1.3	1,089	6.18E-03	5.16E-05	99.92%
C-13		**744.33**	**2,853,856**	**6.50E+00**	**5.42E-02**		**1.00**	**2,782**	**6.33E-03**	**5.29E-05**	**99.90%**
R-1		1400	#VALUE!	#VALUE!	#VALUE!	ND	0.1	77	1.23E-04	1.03E-06	#VALUE!
R-1		1500	#VALUE!	#VALUE!	#VALUE!		0.3	183	1.24E-03	1.04E-05	#VALUE!
R-1		890	#VALUE!	#VALUE!	#VALUE!	ND	0.1	35	3.02E-04	2.52E-06	#VALUE!
R-1		**1263.33**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.17**	**295**	**3.31E-04**	**2.76E-06**	**#VALUE!**
R-2		520	2,397,360	1.57E+00	1.31E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		1200	3,706,427	3.63E+00	3.03E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		1300	3,668,800	4.10E+00	3.42E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**1006.67**	**9,772,587**	**2.84E+00**	**2.37E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2		77.00	471,458	4.31E-01	3.59E-03	ND	0.10	16,747	1.53E-02	1.28E-04	96.45%
T-2		89.00	124,531	1.86E-01	1.55E-03	ND	0.10	8,885	1.32E-02	1.10E-04	92.87%
T-2		3100	7,839,894	8.03E+00	6.70E-02		0.5	140,423	1.44E-01	1.20E-03	98.21%
T-2			**7,964,425**	**2.90E+00**	**2.42E-02**			**166,055**	**6.05E-02**	**5.05E-04**	**97.92%**
T-4		1200	1,101,953	3.68E+00	3.07E-02		0.7	123,770	4.13E-01	3.45E-03	88.77%
T-4		1100	650,609	3.44E+00	2.87E-02	ND	0.1	9,936	5.25E-02	4.38E-04	98.47%
T-4		950	852,277	2.95E+00	2.46E-02		0.5	49,650	1.72E-01	1.43E-03	94.17%
T-4		**1083.33**	**2,604,839**	**3.35E+00**	**2.80E-02**		**0.43**	**183,356**	**2.36E-01**	**1.97E-03**	**92.96%**
T-5		1300.00	#VALUE!	#VALUE!	#VALUE!	ND	0.10	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		1400.00	1,482,915	2.67E+01	2.23E-01		0.30	15,540	2.80E-01	2.33E-03	98.95%
T-5		1600.00	2,195,651	9.83E+01	8.20E-01		0.30	20,380	9.13E-01	7.62E-03	99.07%
T-5			**3,678,565**	**3.52E+01**	**2.94E-01**			**35,920**	**3.44E-01**	**2.87E-03**	**99.02%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

		Toluene									
API Code	ND	Inlet (ppm)	Inlet mg Toluene	Uncontrolled Toluene EF (mg/l)	Uncontrolled Toluene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet mg Toluene	Controlled Toluene EF (mg/l)	Controlled Toluene EF (lbs/10^3 gal)	Control Eff.
C-1		2700	#VALUE!	#VALUE!	#VALUE!		5.7	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		1300	#VALUE!	#VALUE!	#VALUE!		4	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		860	#VALUE!	#VALUE!	#VALUE!		2.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**1620.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**3.97**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2		4600	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		2400	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!		0.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		3400	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		3400	#VALUE!	#VALUE!	#VALUE!		0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		2900	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		2600	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		1700	12,025,242	6.39E+00	5.33E-02	ND	0.1	565	3.00E-04	2.50E-06	100.00%
C-3		1300	3,708,286	7.92E+00	6.61E-02	ND	0.1	249	5.31E-04	4.43E-06	99.99%
C-3		1000	2,374,315	5.59E+00	4.66E-02		0.2	416	9.79E-04	8.17E-06	99.98%
C-3		**1333.33**	**18,107,843**	**6.52E+00**	**5.44E-02**		**0.13**	**1,230**	**4.43E-04**	**3.70E-06**	**99.99%**
C-4		1000	788,045	1.39E+02	1.16E+00		1.2	630	1.11E-01	9.27E-04	99.92%
C-4		1400	1,006,285	#DIV/0!	#DIV/0!		3	1,380	#DIV/0!	#DIV/0!	99.86%
C-4		1100	940,266	2.89E+01	2.41E-01		4	2,201	6.76E-02	5.64E-04	99.77%
C-4		**1166.67**	**2,734,595**	**7.15E+01**	**5.97E-01**		**2.73**	**4,211**	**1.10E-01**	**9.19E-04**	**99.85%**
C-5		2000	1,039,468	3.71E+01	3.09E-01		2.4	783	2.79E-02	2.33E-04	99.92%
C-5		1500	1,411,818	8.80E+00	7.34E-02		130	91,245	5.69E-01	4.74E-03	93.54%
C-5		1600	645,875	1.90E+01	1.58E-01		5.2	1,310	3.85E-02	3.21E-04	99.80%
C-5		**1700.00**	**3,097,161**	**1.39E+01**	**1.16E-01**		**45.87**	**93,339**	**4.19E-01**	**3.50E-03**	**96.99%**
C-7		2100	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		2300	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		1700	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**2033.33**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		1200	#VALUE!	#VALUE!	#VALUE!		5.4	2,062	2.22E-02	1.86E-04	#VALUE!
C-11		930	#VALUE!	#VALUE!	#VALUE!		160	127,931	6.21E-01	5.18E-03	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!		1.8	1,084	6.41E-03	5.35E-05	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**131,077**	**2.80E-01**	**2.34E-03**	**#VALUE!**
C-13		820	1,323,416	6.66E+00	5.56E-02	ND	0.1	121	6.09E-04	5.08E-06	99.99%
C-13		31	44,058	6.85E-01	5.71E-03	ND	0.1	114	1.78E-03	1.48E-05	99.74%
C-13		930	1,305,280	7.41E+00	6.18E-02		0.5	494	2.80E-03	2.34E-05	99.96%
C-13		**593.67**	**2,672,755**	**6.08E+00**	**5.08E-02**		**0.23**	**729**	**1.66E-03**	**1.39E-05**	**99.97%**
R-1		3100	#VALUE!	#VALUE!	#VALUE!	ND	0.1	91	1.45E-04	1.21E-06	#VALUE!
R-1		4100	#VALUE!	#VALUE!	#VALUE!		0.4	288	1.96E-03	1.63E-05	#VALUE!
R-1		1700	#VALUE!	#VALUE!	#VALUE!		0.3	125	1.07E-03	8.92E-06	#VALUE!
R-1		**2966.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.27**	**503**	**5.64E-04**	**4.71E-06**	**#VALUE!**
R-2		790	4,295,873	2.82E+00	2.35E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		2000	7,286,158	7.13E+00	5.95E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		3200	10,651,852	1.19E+01	9.93E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**1996.67**	**22,233,883**	**6.46E+00**	**5.39E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2		57.00	411,644	3.76E-01	3.14E-03	ND	0.10	19,753	1.80E-02	1.51E-04	95.20%
T-2		71.00	117,177	1.75E-01	1.46E-03	ND	0.10	10,479	1.56E-02	1.30E-04	91.06%
T-2		3700	11,036,837	1.13E+01	9.43E-02		0.5	165,627	1.70E-01	1.42E-03	98.50%
T-2			**11,565,658**	**4.22E+00**	**3.52E-02**			**195,860**	**7.14E-02**	**5.96E-04**	**98.31%**
T-4		1700	1,841,303	6.15E+00	5.13E-02		2.2	458,813	1.53E+00	1.28E-02	75.08%
T-4		1700	1,185,963	6.27E+00	5.23E-02		0.3	35,157	1.86E-01	1.55E-03	97.04%
T-4		1900	2,010,505	6.96E+00	5.81E-02		2.2	257,674	8.92E-01	7.45E-03	87.18%
T-4		**1766.67**	**5,037,770**	**6.48E+00**	**5.41E-02**		**1.57**	**751,643**	**9.67E-01**	**8.07E-03**	**85.08%**
T-5		740.00	#VALUE!	#VALUE!	#VALUE!	ND	0.10	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		970.00	1,211,865	2.18E+01	1.82E-01		0.30	18,330	3.30E-01	2.75E-03	98.49%
T-5		1500.00	2,427,890	1.09E+02	9.07E-01		0.30	24,038	1.08E+00	8.98E-03	99.01%
T-5			**3,639,755**	**3.49E+01**	**2.91E-01**			**42,367**	**4.06E-01**	**3.39E-03**	**98.84%**

*** = Estimated Value, Exceeds Linear Calibration Range**
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

					Ethylbenzene						
API Code	ND	Inlet (ppm)	Inlet mg Ethylb.	Uncontrolled Ethylb. EF (mg/l)	Uncontrolled Ethylb. EF ($lbs/10^3$ gal)	ND	Outlet (ppm)	Outlet mg Ethylb.	Controlled Ethylb. EF (mg/l)	Controlled Ethylb. EF ($lbs/10^3$ gal)	Control Eff.
C-1		130	#VALUE!	#VALUE!	#VALUE!		0.7	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		89	#VALUE!	#VALUE!	#VALUE!		0.5	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		50	#VALUE!	#VALUE!	#VALUE!		0.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**89.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.50**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2		280	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		140	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		230	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		230	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		200	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		220.00	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		130	1,059,615	5.63E-01	4.70E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		210	690,254	1.47E+00	1.23E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		140	383,024	9.02E-01	7.52E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		**160.00**	**2,132,893**	**7.68E-01**	**6.41E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4		86	78,092	1.38E+01	1.15E-01	ND	0.1	61	1.07E-02	8.90E-05	99.92%
C-4		110	91,106	#DIV/0!	#DIV/0!		0.4	212	#DIV/0!	#DIV/0!	99.77%
C-4		92	90,616	2.78E+00	2.32E-02		0.4	254	7.79E-03	6.50E-05	99.72%
C-4		**96.00**	**259,814**	**6.80E+00**	**5.67E-02**		**0.30**	**526**	**1.38E-02**	**1.15E-04**	**99.80%**
C-5		130	77,855	2.78E+00	2.32E-02		0.7	263	9.38E-03	7.83E-05	99.66%
C-5		84	91,102	5.68E-01	4.74E-03		18	14,558	9.07E-02	7.57E-04	84.02%
C-5		97	45,119	1.32E+00	1.11E-02		0.8	232	6.82E-03	5.69E-05	99.49%
C-5		**103.67**	**214,075**	**9.62E-01**	**8.03E-03**		**6.50**	**15,053**	**6.76E-02**	**5.64E-04**	**92.97%**
C-7		110	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		200	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		93	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**134.33**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		110	#VALUE!	#VALUE!	#VALUE!		1.2	528	5.69E-03	4.75E-05	#VALUE!
C-11		67	#VALUE!	#VALUE!	#VALUE!		8.9	8,200	3.98E-02	3.32E-04	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!		0.3	208	1.23E-03	1.03E-05	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**8,936**	**1.91E-02**	**1.59E-04**	**#VALUE!**
C-13		10	18,597	9.36E-02	7.81E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13	ND	5	8,188	1.27E-01	1.06E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		19	30,728	1.74E-01	1.46E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		**11.33**	**57,513**	**1.31E-01**	**1.09E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
R-1		200	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		370	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		120	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		**230.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
R-2		33	206,775	1.36E-01	1.13E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		130	545,722	5.34E-01	4.46E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		280	1,073,972	1.20E+00	1.00E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**147.67**	**1,826,470**	**5.31E-01**	**4.43E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2	ND	5.00	41,608	3.80E-02	3.17E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2	ND	5.00	9,509	1.42E-02	1.18E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2		200	687,437	7.04E-01	5.88E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2			**738,553**	**2.69E-01**	**2.25E-03**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-4		85	106,085	3.54E-01	2.96E-03	ND	0.1	24,031	8.03E-02	6.70E-04	77.35%
T-4		100	80,386	4.25E-01	3.54E-03	ND	0.1	13,503	7.14E-02	5.95E-04	83.20%
T-4		130	158,509	5.49E-01	4.58E-03		0.3	40,488	1.40E-01	1.17E-03	74.46%
T-4		**105.00**	**344,981**	**4.44E-01**	**3.70E-03**		**0.17**	**78,023**	**1.00E-01**	**8.37E-04**	**77.38%**
T-5		52.00	#VALUE!	#VALUE!	#VALUE!	ND	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		75.00	107,970	1.94E+00	1.62E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5		160.00	298,413	1.34E+01	1.12E-01	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5			**406,383**	**3.89E+00**	**3.25E-02**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

		m,p-xylene									
API Code	ND	Inlet (ppm)	Inlet m,p xylene (mg)	Uncontrolled m,p xylene EF (mg/l)	Uncontrolled m,p xylene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet m,p xylene (mg)	Controlled m,p xylene EF (mg/l)	Controlled m,p xylene EF (lbs/10^3 gal)	Control Eff.
C-1		350	#VALUE!	#VALUE!	#VALUE!		2.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		260	#VALUE!	#VALUE!	#VALUE!		1.7	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		130	#VALUE!	#VALUE!	#VALUE!		1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**246.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**1.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2		760	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		420	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		680	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		720	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		660	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		400	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		470	3,830,916	2.03E+00	1.70E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		820	2,695,278	5.75E+00	4.80E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		480	1,313,226	3.09E+00	2.58E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		**590.00**	**7,839,420**	**2.82E+00**	**2.36E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4		240	217,932	3.84E+01	3.20E-01		0.4	242	4.27E-02	3.56E-04	99.89%
C-4		300	248,470	#DIV/0!	#DIV/0!		1.2	636	#DIV/0!	#DIV/0!	99.74%
C-4		270	265,939	8.17E+00	6.82E-02		1.2	761	2.34E-02	1.95E-04	99.71%
C-4		**270.00**	**732,341**	**1.92E+01**	**1.60E-01**		**0.93**	**1,639**	**4.29E-02**	**3.58E-04**	**99.78%**
C-5		440	263,508	9.40E+00	7.84E-02		3.3	1,241	4.42E-02	3.69E-04	99.53%
C-5		280	303,672	1.89E+00	1.58E-02		72	58,232	3.63E-01	3.03E-03	80.82%
C-5		320	148,846	4.37E+00	3.65E-02		3.4	987	2.90E-02	2.42E-04	99.34%
C-5		**346.67**	**716,027**	**3.22E+00**	**2.68E-02**		**26.23**	**60,459**	**2.72E-01**	**2.27E-03**	**91.56%**
C-7		350	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		680	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		320	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**450.00**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		480	#VALUE!	#VALUE!	#VALUE!		5	2,200	2.37E-02	1.98E-04	#VALUE!
C-11		320	#VALUE!	#VALUE!	#VALUE!		42	38,696	1.88E-01	1.57E-03	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!		0.9	625	3.69E-03	3.08E-05	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**41,520**	**8.88E-02**	**7.41E-04**	**#VALUE!**
C-13		23	42,773	2.15E-01	1.80E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13	ND	5	8,188	1.27E-01	1.06E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		50	80,863	4.59E-01	3.83E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		**26.00**	**131,825**	**3.00E-01**	**2.50E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
R-1		590	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		1200	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		360	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		**716.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
R-2		100	626,591	4.11E-01	3.43E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		400	1,679,146	1.64E+00	1.37E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		870	3,336,985	3.73E+00	3.11E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**456.67**	**5,642,722**	**1.64E+00**	**1.37E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2		21.00	174,754	1.60E-01	1.33E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2		23.00	43,739	6.52E-02	5.44E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2		610	2,096,682	2.15E+00	1.79E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2			**2,315,175**	**8.44E-01**	**7.04E-03**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-4		230	287,054	9.59E-01	8.00E-03		0.6	144,186	4.82E-01	4.02E-03	49.77%
T-4		290	233,120	1.23E+00	1.03E-02	ND	0.1	13,503	7.14E-02	5.95E-04	94.21%
T-4		390	475,528	1.65E+00	1.37E-02		0.9	121,465	4.21E-01	3.51E-03	74.46%
T-4		**303.33**	**995,702**	**1.28E+00**	**1.07E-02**		**0.53**	**279,154**	**3.59E-01**	**3.00E-03**	**71.96%**
T-5		120.00	#VALUE!	#VALUE!	#VALUE!	ND	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		170.00	244,732	4.40E+00	3.68E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5		380.00	708,731	3.17E+01	2.65E-01	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5			**953,463**	**9.14E+00**	**7.62E-02**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**

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--- means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

	o-xylene										
API Code	ND	Inlet (ppm)	Inlet o-xylene (mg)	Uncontrolled o-xylene EF (mg/l)	Uncontrolled o-xylene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet o-xylene (mg)	Controlled o-xylene EF (mg/l)	Controlled o-xylene EF (lbs/10^3 gal)	Control Eff.
C-1		120	#VALUE!	#VALUE!	#VALUE!		0.9	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		85	#VALUE!	#VALUE!	#VALUE!		0.6	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		42	#VALUE!	#VALUE!	#VALUE!		0.4	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**82.33**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.63**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2		250	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		130	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		230	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		240	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		230	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		130	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		150	1,222,633	6.49E-01	5.42E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		300	986,077	2.10E+00	1.76E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		170	465,101	1.09E+00	9.14E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		**206.67**	**2,673,811**	**9.63E-01**	**8.04E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4		80	72,644	1.28E+01	1.07E-01	ND	0.1	60.5367914	1.07E-02	8.90E-05	99.92%
C-4		95	78,682	#DIV/0!	#DIV/0!		0.4	211.967016	#DIV/0!	#DIV/0!	99.73%
C-4		88	86,676	2.66E+00	2.22E-02		0.5	317.02394	9.74E-03	8.13E-05	99.63%
C-4		**87.67**	**238,003**	**6.23E+00**	**5.20E-02**		**0.33**	**589.527747**	**1.54E-02**	**1.29E-04**	**99.75%**
C-5		120	71,866	2.56E+00	2.14E-02		1.3	488.706633	1.74E-02	1.45E-04	99.32%
C-5		79	85,679	5.34E-01	4.45E-03		23	18601.8264	1.16E-01	9.67E-04	78.29%
C-5		90	41,863	1.23E+00	1.03E-02		1.2	348.395411	1.02E-02	8.53E-05	99.17%
C-5		**96.33**	**199,408**	**8.96E-01**	**7.48E-03**		**8.50**	**19438.9285**	**8.73E-02**	**7.29E-04**	**90.25%**
C-7		110	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		240	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		100	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**150.00**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		150	#VALUE!	#VALUE!	#VALUE!		0.4	175.980276	1.90E-03	1.58E-05	#VALUE!
C-11		94	#VALUE!	#VALUE!	#VALUE!		12	11055.9948	5.37E-02	4.48E-04	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0.1	69.4099318	4.10E-04	3.42E-06	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**11301.385**	**2.42E-02**	**2.02E-04**	**#VALUE!**
C-13	ND	5	9,298	4.68E-02	3.90E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13	ND	5	8,188	1.27E-01	1.06E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		15	24,259	1.38E-01	1.15E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		**8.33**	**41,746**	**9.50E-02**	**7.93E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
R-1		180	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		360	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		120	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		**220.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
R-2		29	181,711	1.19E-01	9.95E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		130	545,722	5.34E-01	4.46E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		290	1,112,328	1.24E+00	1.04E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**149.67**	**1,839,762**	**5.35E-01**	**4.46E-03**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2	ND	5.00	41,608	3.80E-02	3.17E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2	ND	5.00	9,509	1.42E-02	1.18E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2		170	584,321	5.99E-01	4.99E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2			**635,438**	**2.32E-01**	**1.93E-03**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-4		81	101,093	3.38E-01	2.82E-03		0.3	72093.1104	2.41E-01	2.01E-03	28.69%
T-4		100	80,386	4.25E-01	3.54E-03	ND	0.1	13503.4814	7.14E-02	5.95E-04	83.20%
T-4		130	158,509	5.49E-01	4.58E-03		0.3	40488.1797	1.40E-01	1.17E-03	74.46%
T-4		**103.67**	**339,989**	**4.37E-01**	**3.65E-03**		**0.23**	**126084.772**	**1.62E-01**	**1.35E-03**	**62.91%**
T-5		41.00	#VALUE!	#VALUE!	#VALUE!	ND	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		58.00	83,497	1.50E+00	1.25E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5		130.00	242,460	1.09E+01	9.06E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5			**325,957**	**3.12E+00**	**2.61E-02**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

					Cumene						
API Code	ND	Inlet (ppm)	Inlet Cumene (mg)	Uncontrolled Cumene EF (mg/l)	Uncontrolled Cumene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Cumene (mg)	Controlled Cumene EF (mg/l)	Controlled Cumene EF (lbs/10^3 gal)	Control Eff.
C-1		15	#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**8.33**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.03**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		11	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	2.5	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		16	147,650	7.84E-02	6.54E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		32	119,082	2.54E-01	2.12E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3	ND	5	15,487	3.65E-02	3.04E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		**17.67**	**282,219**	**1.02E-01**	**8.48E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-4	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-4		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0.1	43	1.52E-03	1.27E-05	#DIV/0!
C-5	ND	0	0	0.00E+00	0.00E+00		0.7	641	3.99E-03	3.33E-05	#DIV/0!
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0.1	33	9.65E-04	8.05E-06	#DIV/0!
C-5		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.30**	**716**	**3.22E-03**	**2.69E-05**	**#DIV/0!**
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0.1	50	5.37E-04	4.48E-06	#VALUE!
C-11	ND	0	#VALUE!	#VALUE!	#VALUE!		0.2	209	1.01E-03	8.45E-06	#VALUE!
C-11	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0.1	79	4.65E-04	3.88E-06	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**337**	**7.20E-04**	**6.01E-06**	**#VALUE!**
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
R-1	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		10	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		**6.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
R-2	ND	5	35,470	2.33E-02	1.94E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2	ND	5	23,763	2.32E-02	1.94E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		14	60,795	6.79E-02	5.67E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**8.00**	**120,029**	**3.49E-02**	**2.91E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-2	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-2	ND	0	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-2			**0**	**0.00E+00**	**0.00E+00**			**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-4		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-5	ND	0.00	#VALUE!	#VALUE!	#VALUE!	ND	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-5	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-5			**0**	**0.00E+00**	**0.00E+00**			**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

					Naphthalene						
API Code	ND	Inlet (ppm)	Inlet Naphthalene (mg)	Uncontrolled Naphthalene EF (mg/l)	Uncontrolled Naphthalene EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Naphthalene (mg)	Controlled Naphthalene EF (mg/l)	Controlled Naphthalene EF (lbs/10^3 gal)	Control Eff.
C-1		84	#VALUE!	#VALUE!	#VALUE!		0.4	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		30	#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**39.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.20**	**#VALUE!**	#VALUE!	**#VALUE!**	#VALUE!
C-2		35	#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		18	#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!		0.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	5	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		10	98,400	5.23E-02	4.36E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3	ND	5	19,840	4.24E-02	3.53E-04	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		47	155,234	3.65E-01	3.05E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		**20.67**	**273,475**	**9.85E-02**	**8.22E-04**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4	ND	0	0	0.00E+00	0.00E+00	ND	0.1	73	1.29E-02	1.07E-04	#DIV/0!
C-4	ND	0	0	#DIV/0!	#DIV/0!		0.7	448	#DIV/0!	#DIV/0!	#DIV/0!
C-4	ND	0	0	0.00E+00	0.00E+00		0.8	612	1.88E-02	1.57E-04	#DIV/0!
C-4		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.53**	**1,133**	**2.96E-02**	**2.47E-04**	**#DIV/0!**
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-5		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-11	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-11	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
R-1	ND	5	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		29	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		17	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		**17.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
R-2	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
R-2	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
R-2	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
R-2		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-2	ND	5.00	50,231	4.59E-02	3.83E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2	ND	5.00	11,479	1.71E-02	1.43E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2		28	116,186	1.19E-01	9.93E-04	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-2			**177,895**	**6.49E-02**	**5.41E-04**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
T-4		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-5	ND	5.00	#VALUE!	#VALUE!	#VALUE!	ND	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5	ND	5.00	8,690	1.56E-01	1.31E-03	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5		16.00	36,025	1.61E+00	1.35E-02	ND	0.00	0	0.00E+00	0.00E+00	100.00%
T-5			**44,715**	**4.28E-01**	**3.58E-03**			**0**	**0.00E+00**	**0.00E+00**	**100.00%**

* = Estimated Value, Exceeds Linear Calibration Range
--- means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

		Methanol									
API Code	ND	Inlet (ppm)	Inlet Methanol (mg)	Uncontrolled Methanol EF (mg/l)	Uncontrolled Methanol EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Methanol (mg)	Controlled Methanol EF (mg/l)	Controlled Methanol EF (lbs/10^3 gal)	Control Eff.
C-1	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**0.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	0	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	ND	0	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-3	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-3	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-3		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-4	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-4	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-4		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-5	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-5		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	ND	0	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11	ND	50	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-11		380	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-11	ND	50	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
C-13		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
R-1	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1	ND	0	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		**0.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
R-2	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
R-2	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
R-2	ND	0	0	0.00E+00	0.00E+00	ND	0	0	0.00E+00	0.00E+00	#DIV/0!
R-2		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-2	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-2	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-2	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-2			**0**	**0.00E+00**	**0.00E+00**			**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**
T-4	ND	0	0	0.00E+00	0.00E+00		3.1	224,836	7.51E-01	6.27E-03	#DIV/0!
T-4	ND	0	0	0.00E+00	0.00E+00	ND	1	40,755	2.15E-01	1.80E-03	#DIV/0!
T-4	ND	0	0	0.00E+00	0.00E+00	ND	1	40,732	1.41E-01	1.18E-03	#DIV/0!
T-4		**0.00**	**0**	**0.00E+00**	**0.00E+00**		**1.70**	**306,323**	**3.94E-01**	**3.29E-03**	**#DIV/0!**
T-5	ND	0.00	#VALUE!	#VALUE!	#VALUE!	ND	0.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-5	ND	0.00	0	0.00E+00	0.00E+00	ND	0.00	0	0.00E+00	0.00E+00	#DIV/0!
T-5			**0**	**0.00E+00**	**0.00E+00**			**0**	**0.00E+00**	**0.00E+00**	**#DIV/0!**

* = Estimated Value, Exceeds Linear Calibration Range
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

		Hexane									
API Code	ND	Inlet (ppm)	Inlet Hexane (mg)	Uncontrolled Hexane EF (mg/l)	Uncontrolled Hexane EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Hexane (mg)	Controlled Hexane EF (mg/l)	Controlled Hexane EF (lbs/10^3 gal)	Control Eff.
C-1		2100	#VALUE!	#VALUE!	#VALUE!		0.8	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		1200	#VALUE!	#VALUE!	#VALUE!		0.4	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		920	#VALUE!	#VALUE!	#VALUE!		0.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**1406.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.43**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2		9600	#VALUE!	#VALUE!	#VALUE!		1.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		4100	#VALUE!	#VALUE!	#VALUE!		1.5	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!		1.6	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!		1.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		6100	#VALUE!	#VALUE!	#VALUE!		1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		4900	#VALUE!	#VALUE!	#VALUE!		1.1	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		4000	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		4600	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		3100	20,509,810	1.09E+01	9.09E-02	ND	0.1	528	2.81E-04	2.34E-06	100.00%
C-3		1900	5,069,189	1.08E+01	9.03E-02	ND	0.1	233	4.97E-04	4.15E-06	100.00%
C-3		1800	3,997,292	9.41E+00	7.85E-02		0.2	389	9.16E-04	7.64E-06	99.99%
C-3		**2266.67**	**29,576,291**	**1.07E+01**	**8.89E-02**		**0.13**	**1,150**	**4.14E-04**	**3.46E-06**	**100.00%**
C-4		2600	1,916,369	3.38E+02	2.82E+00		2.1	1,032	1.82E-01	1.52E-03	99.95%
C-4		3200	2,151,285	#DIV/0!	#DIV/0!		4.4	1,893	#DIV/0!	#DIV/0!	99.91%
C-4		2700	2,158,623	6.63E+01	5.53E-01		5.3	2,728	8.38E-02	6.99E-04	99.87%
C-4		**2833.33**	**6,226,277**	**1.63E+02**	**1.36E+00**		**3.93**	**5,652**	**1.48E-01**	**1.23E-03**	**99.91%**
C-5		3100	1,506,947	5.37E+01	4.48E-01	ND	0.1	31	1.09E-03	9.08E-06	100.00%
C-5		3500	3,081,133	1.92E+01	1.60E-01		17	11,160	6.95E-02	5.80E-04	99.64%
C-5		3200	1,208,185	3.55E+01	2.96E-01		0.5	118	3.46E-03	2.89E-05	99.99%
C-5		**3266.67**	**5,796,265**	**2.60E+01**	**2.17E-01**		**5.87**	**11,309**	**5.08E-02**	**4.24E-04**	**99.80%**
C-7		3300	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		2600	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		2300	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**2733.33**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		1300	#VALUE!	#VALUE!	#VALUE!		3.8	1,357	1.46E-02	1.22E-04	#VALUE!
C-11		910	#VALUE!	#VALUE!	#VALUE!		220	164,526	7.99E-01	6.67E-03	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!		1.2	676	4.00E-03	3.34E-05	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**166,559**	**3.56E-01**	**2.97E-03**	**#VALUE!**
C-13		970	1,464,230	7.37E+00	6.15E-02	ND	0.1	113	5.70E-04	4.76E-06	99.99%
C-13		27	35,891	5.58E-01	4.65E-03	ND	0.1	107	1.66E-03	1.39E-05	99.70%
C-13		990	1,299,604	7.38E+00	6.15E-02		0.2	185	1.05E-03	8.76E-06	99.99%
C-13		**662.33**	**2,799,725**	**6.37E+00**	**5.32E-02**		**0.13**	**405**	**9.22E-04**	**7.69E-06**	**99.99%**
R-1		3500	#VALUE!	#VALUE!	#VALUE!	ND	0.1	85	1.36E-04	1.13E-06	#VALUE!
R-1		3900	#VALUE!	#VALUE!	#VALUE!		0.4	269	1.83E-03	1.53E-05	#VALUE!
R-1		2600	#VALUE!	#VALUE!	#VALUE!	ND	0.1	39	3.33E-04	2.78E-06	#VALUE!
R-1		**3333.33**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.20**	**393**	**4.41E-04**	**3.68E-06**	**#VALUE!**
R-2		1500	7,629,053	5.01E+00	4.18E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		3100	10,562,952	1.03E+01	8.62E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		3600	11,208,117	1.25E+01	1.05E-01	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**2733.33**	**29,400,122**	**8.54E+00**	**7.13E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2		150.00	1,013,196	9.25E-01	7.72E-03	ND	0.10	18,475	1.69E-02	1.41E-04	98.18%
T-2		170.00	262,414	3.91E-01	3.26E-03	ND	0.10	9,801	1.46E-02	1.22E-04	96.26%
T-2		6000	16,739,758	1.71E+01	1.43E-01		0.5	154,913	1.59E-01	1.32E-03	99.07%
T-2			**18,015,368**	**6.57E+00**	**5.48E-02**			**183,189**	**6.68E-02**	**5.57E-04**	**98.98%**
T-4		3200	3,241,763	1.08E+01	9.04E-02		1.3	253,578	8.47E-01	7.07E-03	92.18%
T-4		3000	1,957,485	1.03E+01	8.63E-02	ND	0.1	10,961	5.79E-02	4.83E-04	99.44%
T-4		2900	2,870,150	9.94E+00	8.29E-02		1	109,547	3.79E-01	3.17E-03	96.18%
T-4		**3033.33**	**8,069,398**	**1.04E+01**	**8.66E-02**		**0.80**	**374,086**	**4.81E-01**	**4.02E-03**	**95.36%**
T-5		2600.00	#VALUE!	#VALUE!	#VALUE!	ND	0.10	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		2300.00	2,687,605	4.84E+01	4.04E-01		0.20	11,429	2.06E-01	1.72E-03	99.57%
T-5		2500.00	3,784,711	1.69E+02	1.41E+00		0.40	29,977	1.34E+00	1.12E-02	99.21%
T-5			**6,472,316**	**6.20E+01**	**5.18E-01**			**41,406**	**3.97E-01**	**3.31E-03**	**99.36%**

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— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

API Code	ND	Inlet (ppm)	Inlet Isooctane (mg)	Uncontrolled Isooctane EF (mg/l)	Uncontrolled Isooctane EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet Isooctane (mg)	Controlled Isooctane EF (mg/l)	Controlled Isooctane EF (lbs/10^3 gal)	Control Eff.
					Isooctane						
C-1		2500	#VALUE!	#VALUE!	#VALUE!		1.2	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		1200	#VALUE!	#VALUE!	#VALUE!		0.8	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		860	#VALUE!	#VALUE!	#VALUE!		0.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1		**1520.00**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.77**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2		4500	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		2600	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2			#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		3500	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		3400	#VALUE!	#VALUE!	#VALUE!	ND	0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		3000	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2		2900	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3		520	4,560,257	2.42E+00	2.02E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		390	1,379,226	2.94E+00	2.46E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		370	1,089,134	2.56E+00	2.14E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-3		**426.67**	**7,028,617**	**2.53E+00**	**2.11E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
C-4		1200	1,172,393	2.06E+02	1.72E+00		1.2	782	1.38E-01	1.15E-03	99.93%
C-4		1600	1,425,785	#DIV/0!	#DIV/0!		2.9	1,653	#DIV/0!	#DIV/0!	99.88%
C-4		1400	1,483,635	4.56E+01	3.80E-01		3.5	2,388	7.34E-02	6.12E-04	99.84%
C-4		**1400.00**	**4,081,813**	**1.07E+02**	**8.91E-01**		**2.53**	**4,823**	**1.26E-01**	**1.05E-03**	**99.88%**
C-5		880	567,029	2.02E+01	1.69E-01	ND	0.1	40	1.44E-03	1.20E-05	99.99%
C-5		1000	1,166,886	7.27E+00	6.07E-02		9.3	8,093	5.04E-02	4.21E-04	99.31%
C-5		950	475,437	1.40E+01	1.16E-01		0.3	94	2.75E-03	2.30E-05	99.98%
C-5		**943.33**	**2,209,352**	**9.93E+00**	**8.28E-02**		**3.23**	**8,227**	**3.70E-02**	**3.08E-04**	**99.63%**
C-7		1800	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		1200	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		1400	0	#DIV/0!	#DIV/0!	ND	0	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7		**1466.67**	**0**	**#DIV/0!**	**#DIV/0!**		**0.00**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11		120	#VALUE!	#VALUE!	#VALUE!		1.2	568	6.13E-03	5.11E-05	#VALUE!
C-11		49	#VALUE!	#VALUE!	#VALUE!		5.4	5,353	2.60E-02	2.17E-04	#VALUE!
C-11	ND	5	#VALUE!	#VALUE!	#VALUE!		0.3	224	1.32E-03	1.11E-05	#VALUE!
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**6,145**	**1.31E-02**	**1.10E-04**	**#VALUE!**
C-13		400	800,357	4.03E+00	3.36E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		14	24,668	3.83E-01	3.20E-03	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		330	574,217	3.26E+00	2.72E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
C-13		**248.00**	**1,399,242**	**3.19E+00**	**2.66E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
R-1		2200	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		2600	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		1400	#VALUE!	#VALUE!	#VALUE!	ND	0	0	0.00E+00	0.00E+00	#VALUE!
R-1		**2066.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**#VALUE!**
R-2		810	5,460,727	3.58E+00	2.99E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		1500	6,774,870	6.63E+00	5.53E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		2100	8,666,336	9.68E+00	8.08E-02	ND	0	0	0.00E+00	0.00E+00	100.00%
R-2		**1470.00**	**20,901,932**	**6.07E+00**	**5.07E-02**		**0.00**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2		22.00	196,975	1.80E-01	1.50E-03	ND	0.10	24,489	2.24E-02	1.87E-04	87.57%
T-2		34.00	69,567	1.04E-01	8.65E-04	ND	0.10	12,992	1.94E-02	1.62E-04	81.32%
T-2		2600	9,615,178	9.85E+00	8.22E-02		0.3	123,204	1.26E-01	1.05E-03	98.72%
T-2			**9,881,720**	**3.60E+00**	**3.01E-02**			**160,685**	**5.86E-02**	**4.89E-04**	**98.37%**
T-4		2500	3,357,047	1.12E+01	9.36E-02		1.7	439,544	1.47E+00	1.23E-02	86.91%
T-4		2300	1,989,258	1.05E+01	8.77E-02		0.2	29,057	1.54E-01	1.28E-03	98.54%
T-4		2000	2,623,751	9.09E+00	7.58E-02		1.9	275,894	9.55E-01	7.97E-03	89.48%
T-4		**2266.67**	**7,970,055**	**1.03E+01**	**8.55E-02**		**1.27**	**744,495**	**9.58E-01**	**7.99E-03**	**90.66%**
T-5		840.00	#VALUE!	#VALUE!	#VALUE!	ND	0.10	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5		750.00	1,161,676	2.09E+01	1.74E-01	ND	0.10	7,575	1.36E-01	1.14E-03	99.35%
T-5		1100.00	2,207,351	9.88E+01	8.25E-01		0.20	19,867	8.90E-01	7.42E-03	99.10%
T-5			**3,369,027**	**3.23E+01**	**2.69E-01**			**27,442**	**2.63E-01**	**2.19E-03**	**99.19%**

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— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

API Code	Inlet Total HAP (mg)	Uncontrolled Total HAP EF (mg/l)	Uncontrolled Total HAP EF (lbs/10^3 gal)	Outlet Total HAP (mg)	Controlled Total HAP EF (mg/l)	Controlled Total HAP EF (lbs/10^3 gal)	Control Eff.
	Total HAP with MTBE (excluding cumene, naphthalene, & methanol)						
	below In & Out eq. need fixingto exclude cumene, naphthalene & methanol						
C-1	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-3	110,287,478	58.58	0.49	1,093	0.00	0.00	100.00%
C-3	37,952,688	81.01	0.68	482	0.00	0.00	100.00%
C-3	28,559,187	67.23	0.56	805	0.00	0.00	100.00%
C-3	**176,799,353**	**63.69**	**0.53**	**2,380**	**0.00**	**0.00**	**100.00%**
C-4	5,449,129	959.78	8.01	3,443	0.61	0.01	99.94%
C-4	6,303,696	#DIV/0!	#DIV/0!	7,497	#DIV/0!	#DIV/0!	99.88%
C-4	9,594,409	294.75	2.46	10,878	0.33	0.00	99.89%
C-4	**21,347,233**	**558.41**	**4.66**	**21,818**	**0.57**	**0.00**	**99.90%**
C-5	4,231,701	150.88	1.26	2,944	0.10	0.00	99.93%
C-5	7,417,060	46.22	0.39	224,549	1.40	0.01	96.97%
C-5	3,112,914	91.38	0.76	3,400	0.10	0.00	99.89%
C-5	**14,761,675**	**66.32**	**0.55**	**230,893**	**1.04**	**0.01**	**98.44%**
C-7	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	**0**	**#DIV/0!**	**#DIV/0!**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11	#VALUE!	#VALUE!	#VALUE!	7,082	0.08	0.00	#VALUE!
C-11	#VALUE!	#VALUE!	#VALUE!	462,551	2.25	0.02	#VALUE!
C-11	#VALUE!	#VALUE!	#VALUE!	3,074	0.02	0.00	#VALUE!
C-11	**#VALUE!**	**#VALUE!**	**#VALUE!**	**472,707**	**1.01**	**0.01**	**#VALUE!**
C-13	5,333,688	26.84	0.22	1,056	0.01	0.00	99.98%
C-13	175,746	2.73	0.02	1,093	0.02	0.00	99.38%
C-13	4,785,036	27.16	0.23	1,768	0.01	0.00	99.96%
C-13	**10,294,470**	**23.44**	**0.20**	**3,917**	**0.01**	**0.00**	**99.96%**
R-1	#VALUE!	#VALUE!	#VALUE!	5,571	0.01	0.00	#VALUE!
R-1	#VALUE!	#VALUE!	#VALUE!	5,491	0.04	0.00	#VALUE!
R-1	#VALUE!	#VALUE!	#VALUE!	2,423	0.02	0.00	#VALUE!
R-1	**#VALUE!**	**#VALUE!**	**#VALUE!**	**13,485**	**0.02**	**0.00**	**#VALUE!**
R-2	72,342,289	47.46	0.40	45,843	0.03	0.00	99.94%
R-2	111,295,830	108.88	0.91	15,371	0.02	0.00	99.99%
R-2	109,847,077	122.74	1.02	6,729	0.01	0.00	99.99%
R-2	**293,485,195**	**85.28**	**0.71**	**67,944**	**0.02**	**0.00**	**99.98%**
T-2	2,926,622	2.67	0.02	79,465	0.07	0.00	97.28%
T-2	756,880	1.13	0.01	42,157	0.06	0.00	94.43%
T-2	51,142,249	52.39	0.44	584,166	0.60	0.00	98.86%
T-2	**53,829,145**	**19.63**	**0.16**	**705,789**	**0.26**	**0.00**	**98.69%**
T-4	40,089,831	133.90	1.12	3,037,873	10.15	0.08	92.42%
T-4	22,864,405	120.82	1.01	244,864	1.29	0.01	98.93%
T-4	31,423,085	108.81	0.91	1,518,674	5.26	0.04	95.17%
T-4	**94,377,321**	**121.40**	**1.01**	**4,801,411**	**6.18**	**0.05**	**94.91%**
T-5	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5	7,287,793	131.17	1.09	52,874	0.95	0.01	99.27%
T-5	12,303,886	550.97	4.60	94,262	4.22	0.04	99.23%
T-5	**19,591,680**	**187.73**	**1.57**	**147,135**	**1.41**	**0.01**	**99.25%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

	Total HAP without MTBE (excluding cumene, naphthalene, & methanol)						
API Code	Inlet Total HAP (mg)	Uncontrolled Total HAP EF (mg/l)	Uncontrolled Total HAP EF (lbs/10^3 gal)	Outlet Total HAP (mg)	Controlled Total HAP EF (mg/l)	Controlled Total HAP EF (lbs/10^3 gal)	Control Eff.
C-1	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-1	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
C-2	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
C-3	50,051,472	2.66E+01	2.22E-01	1,093	5.80E-04	4.84E-06	100.00%
C-3	16,118,297	3.44E+01	2.87E-01	482	1.03E-03	8.58E-06	100.00%
C-3	10,839,574	2.55E+01	2.13E-01	805	1.90E-03	1.58E-05	99.99%
C-3	**77,009,344**	**2.77E+01**	**2.31E-01**	**2,380**	**8.57E-04**	**7.15E-06**	**100.00%**
C-4	4,853,468	8.55E+02	7.13E+00	3,192	5.62E-01	4.69E-03	99.93%
C-4	5,732,885	#DIV/0!	#DIV/0!	7,057	#DIV/0!	#DIV/0!	99.88%
C-4	5,750,464	1.77E+02	1.47E+00	10,193	3.13E-01	2.61E-03	99.82%
C-4	**16,336,817**	**4.27E+02**	**3.57E+00**	**20,442**	**5.35E-01**	**4.46E-03**	**99.87%**
C-5	4,231,701	1.51E+02	1.26E+00	2,944	1.05E-01	8.76E-04	99.93%
C-5	7,417,060	4.62E+01	3.86E-01	224,549	1.40E+00	1.17E-02	96.97%
C-5	3,112,914	9.14E+01	7.63E-01	3,400	9.98E-02	8.33E-04	99.89%
C-5	**14,761,675**	**6.63E+01**	**5.53E-01**	**230,893**	**1.04E+00**	**8.66E-03**	**98.44%**
C-7	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	0	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!
C-7	**0**	**#DIV/0!**	**#DIV/0!**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**
C-11	#VALUE!	#VALUE!	#VALUE!	6,973	7.52E-02	6.27E-04	#VALUE!
C-11	#VALUE!	#VALUE!	#VALUE!	457,655	2.22E+00	1.85E-02	#VALUE!
C-11	#VALUE!	#VALUE!	#VALUE!	3,016	1.78E-02	1.49E-04	#VALUE!
C-11	**#VALUE!**	**#VALUE!**	**#VALUE!**	**467,644**	**1.00E+00**	**8.34E-03**	**#VALUE!**
C-13	5,163,826	2.60E+01	2.17E-01	1,056	5.31E-03	4.43E-05	99.98%
C-13	168,946	2.63E+00	2.19E-02	1,093	1.70E-02	1.42E-04	99.35%
C-13	4,623,889	2.62E+01	2.19E-01	1,768	1.00E-02	8.38E-05	99.96%
C-13	**9,956,661**	**2.27E+01**	**1.89E-01**	**3,917**	**8.92E-03**	**7.44E-05**	**99.96%**
R-1	#VALUE!	#VALUE!	#VALUE!	254	4.03E-04	3.37E-06	#VALUE!
R-1	#VALUE!	#VALUE!	#VALUE!	740	5.03E-03	4.19E-05	#VALUE!
R-1	#VALUE!	#VALUE!	#VALUE!	199	1.70E-03	1.42E-05	#VALUE!
R-1	**#VALUE!**	**#VALUE!**	**#VALUE!**	**1,192**	**1.34E-03**	**1.11E-05**	**#VALUE!**
R-2	20,833,562	1.37E+01	1.14E-01	0	0.00E+00	0.00E+00	100.00%
R-2	31,124,760	3.05E+01	2.54E-01	0	0.00E+00	0.00E+00	100.00%
R-2	39,779,185	4.44E+01	3.71E-01	0	0.00E+00	0.00E+00	100.00%
R-2	**91,737,507**	**2.67E+01**	**2.22E-01**	**0**	**0.00E+00**	**0.00E+00**	**100.00%**
T-2	2,401,474	2.19E+00	1.83E-02	79,465	7.26E-02	6.06E-04	96.69%
T-2	647,924	9.65E-01	8.06E-03	42,157	6.28E-02	5.24E-04	93.49%
T-2	48,716,293	4.99E+01	4.16E-01	584,166	5.98E-01	4.99E-03	98.80%
T-2	**51,294,232**	**1.87E+01**	**1.56E-01**	**705,789**	**2.57E-01**	**2.15E-03**	**98.62%**
T-4	10,036,298	3.35E+01	2.80E-01	1,740,851	5.81E+00	4.85E-02	82.65%
T-4	6,177,208	3.26E+01	2.72E-01	166,375	8.79E-01	7.34E-03	97.31%
T-4	9,149,228	3.17E+01	2.64E-01	935,938	3.24E+00	2.70E-02	89.77%
T-4	**25,362,734**	**3.26E+01**	**2.72E-01**	**2,843,165**	**3.66E+00**	**3.05E-02**	**88.79%**
T-5	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
T-5	6,988,950	1.26E+02	1.05E+00	52,874	9.52E-01	7.94E-03	99.24%
T-5	11,901,232	5.33E+02	4.45E+00	94,262	4.22E+00	3.52E-02	99.21%
T-5	**18,890,182**	**1.81E+02**	**1.51E+00**	**147,135**	**1.41E+00**	**1.18E-02**	**99.22%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

	VOC (taken directly from Data Sets)						
API Code	Inlet VOC (mg)	Uncontrolled VOC EF (mg/l)	Uncontrolled VOC EF (lbs/10^3 gal)	Outlet VOC (mg)	Controlled VOC EF (mg/l)	Controlled VOC EF (lbs/10^3 gal)	Control Eff.
C-1							#DIV/0!
C-1							#DIV/0!
C-1							#DIV/0!
C-1			**0.00**			**0.00**	**#DIV/0!**
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-2			#DIV/0!			#DIV/0!	#DIV/0!
C-3			0.00			0.00	#DIV/0!
C-3			0.00			0.00	#DIV/0!
C-3			0.00			0.00	#DIV/0!
C-3	**1,200,000,000**	**432.29**	**3.61**	**12,100,000**	**4.36**	**0.04**	**98.99%**
C-4			0.00			0.00	#DIV/0!
C-4			#DIV/0!			#DIV/0!	#DIV/0!
C-4			0.00			0.00	#DIV/0!
C-4		**672.00**	**5.61**		**16.80**	**0.14**	**97.50%**
C-5			0.00			0.00	#DIV/0!
C-5			0.00			0.00	#DIV/0!
C-5			0.00			0.00	#DIV/0!
C-5		**646.15**	**5.39**		**0.84**	**0.01**	**99.87%**
C-7			#DIV/0!			#DIV/0!	#DIV/0!
C-7			#DIV/0!			#DIV/0!	#DIV/0!
C-7			#DIV/0!			#DIV/0!	#DIV/0!
C-7			**#DIV/0!**			**#DIV/0!**	**#DIV/0!**
C-11			0.00			0.00	#DIV/0!
C-11			0.00			0.00	#DIV/0!
C-11			0.00			0.00	#DIV/0!
C-11			**0.00**			**0.00**	**#DIV/0!**
C-13			0.00			0.00	#DIV/0!
C-13			0.00			0.00	#DIV/0!
C-13			0.00			0.00	#DIV/0!
C-13	**666,862,000**	**1,518.19**	**12.67**	**344,794**	**0.78**	**0.01**	**99.95%**
R-1			0.00			0.00	#DIV/0!
R-1			0.00			0.00	#DIV/0!
R-1			0.00			0.00	#DIV/0!
R-1			**0.00**	**13,893,462**	**15.57**	**0.13**	**#DIV/0!**
R-2			0.00			0.00	#DIV/0!
R-2			0.00			0.00	#DIV/0!
R-2			0.00			0.00	#DIV/0!
R-2			**0.00**	**3,440,480**	**1.00**	**0.01**	**#DIV/0!**
T-2	333,279,788	304.34	2.54	371,490	0.34	0.00	99.89%
T-2	92,218,127	137.40	1.15	564,720	12.05	0.01	99.39%
T-2	489,877,200	501.78	4.19	13,380,905	0.05	0.11	97.27%
T-2	**915,375,116**	**333.77**	**2.79**	**14,317,115**	**5.22**	**0.04**	**98.44%**
T-4			0.00			0.00	#DIV/0!
T-4			0.00			0.00	#DIV/0!
T-4			0.00			0.00	#DIV/0!
T-4	**643,123,000**	**827.25**	**6.90**	**5,958,089**	**7.66**	**0.06**	**99.07%**
T-5			0.00			0.00	#DIV/0!
T-5			0.00			0.00	#DIV/0!
T-5			0.00			0.00	#DIV/0!
T-5	**295,232,659**	**519.88**	**4.34**	**2,054,763**	**3.62**	**0.03**	**99.30%**

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RUN-BY-RUN EMISSION FACTORS FOR DATA SETS EXCLUDED

API Code	ND	Inlet (ppm)	Inlet TPH (mg)	Uncontrolled TPH EF (mg/l)	Uncontrolled TPH EF (lbs/10^3 gal)	ND	Outlet (ppm)	Outlet TPH (mg)	Controlled TPH EF (mg/l)	Controlled TPH EF (lbs/10^3 gal)	Control Eff.	Comments
		TPH										
C-1		200000	#VALUE!	#VALUE!	#VALUE!		113	#VALUE!	#VALUE!	#VALUE!	#VALUE!	Test was aborted
C-1		90000	#VALUE!	#VALUE!	#VALUE!		65	#VALUE!	#VALUE!	#VALUE!	#VALUE!	No loading data for Run 2
C-1		72000	#VALUE!	#VALUE!	#VALUE!		42	#VALUE!	#VALUE!	#VALUE!	#VALUE!	No loading data for Run 3
C-1		**120666.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**73.33**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	
C-2		350000	#VALUE!	#VALUE!	#VALUE!		3600	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-2		270000	#VALUE!	#VALUE!	#VALUE!		4300	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-2			#VALUE!	#VALUE!	#VALUE!		4800	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-2			#VALUE!	#VALUE!	#VALUE!		3100	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-2		330000	#VALUE!	#VALUE!	#VALUE!		3100	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-2		310000	#VALUE!	#VALUE!	#VALUE!		2800	#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-2		270000	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-2		310000	#VALUE!	#VALUE!	#VALUE!			#VALUE!	#VALUE!	#VALUE!	#VALUE!	
C-3		160000	959,556,307	5.10E+02	4.25E+00		980	4,691,846	2.49E+00	2.08E-02	99.51%	Barge loading
C-3		110000	266,028,462	5.68E+02	4.74E+00		490	1,033,952	2.21E+00	1.84E-02	99.61%	
C-3		120000	241,560,093	5.69E+02	4.75E+00		380	670,061	1.58E+00	1.32E-02	99.72%	
C-3		**130000.00**	**1,467,144,861**	**5.29E+02**	**4.41E+00**		**616.67**	**6,395,859**	**2.30E+00**	**1.92E-02**	**99.56%**	
C-4		200000	133,624,589	2.35E+04	1.96E+02		2300	1,024,455	1.80E+02	1.51E+00	99.23%	Not enough gasoline loading
C-4		240000	146,254,644	#DIV/0!	#DIV/0!		2000	779,801	#DIV/0!	#DIV/0!	99.47%	
C-4		210000	152,188,862	4.68E+03	3.90E+01		2600	1,212,945	3.73E+01	3.11E-01	99.20%	
C-4		**216666.67**	**432,068,095**	**1.13E+04**	**9.43E+01**		**2300.00**	**3,017,202**	**7.89E+01**	**6.59E-01**	**99.30%**	
C-5		220000	96,941,457	3.46E+03	2.88E+01		65	17,979	6.41E-01	5.35E-03	99.98%	Inlet and Outlets were not collected simultaneously
C-5		260000	207,475,224	1.29E+03	1.08E+01		950	565,324	3.52E+00	2.94E-02	99.73%	
C-5		210000	71,870,939	2.11E+03	1.76E+01		310	66,221	1.94E+00	1.62E-02	99.91%	
C-5		**230000.00**	**376,287,620**	**1.69E+03**	**1.41E+01**		**441.67**	**649,524**	**2.92E+00**	**2.43E-02**	**99.83%**	
C-7		200000	0	#DIV/0!	#DIV/0!		1600	0	#DIV/0!	#DIV/0!	#DIV/0!	
C-7		150000	0	#DIV/0!	#DIV/0!		1800	0	#DIV/0!	#DIV/0!	#DIV/0!	
C-7		140000	0	#DIV/0!	#DIV/0!		2100	0	#DIV/0!	#DIV/0!	#DIV/0!	
C-7		**163333.33**	**0**	**#DIV/0!**	**#DIV/0!**		**1833.33**	**0**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	
C-11		74000	#VALUE!	#VALUE!	#VALUE!		32000	10,358,568	1.12E+02	9.32E-01	#VALUE!	Reg, Mid- and Premium grade gasoline
C-11		35000	#VALUE!	#VALUE!	#VALUE!		8400	5,694,316	2.77E+01	2.31E-01	#VALUE!	
C-11		4500	#VALUE!	#VALUE!	#VALUE!		10000	5,107,017	3.02E+01	2.52E-01	#VALUE!	See TPH Control Eff. - Bad Run 3 inlet
C-11			**#VALUE!**	**#VALUE!**	**#VALUE!**			**21,159,902**	**4.52E+01**	**3.77E-01**	**#VALUE!**	
C-13		140000	191,565,044	9.64E+02	8.04E+00		110	112,926	5.68E-01	4.74E-03	99.94%	
C-13		4900	5,904,308	9.18E+01	7.66E-01		140	135,574	2.11E+00	1.76E-02	97.70%	
C-13		190000	226,089,270	1.28E+03	1.07E+01		260	217,866	1.24E+00	1.03E-02	99.90%	
C-13		**111633.33**	**423,558,623**	**9.64E+02**	**8.05E+00**		**170.00**	**466,366**	**1.06E+00**	**8.86E-03**	**99.89%**	
R-1		220000	#VALUE!	#VALUE!	#VALUE!		14000	10,814,502	1.72E+01	1.44E-01	#VALUE!	Assumed gasoline distribution for runs.
R-1		260000	#VALUE!	#VALUE!	#VALUE!		16000	9,761,737	6.63E+01	5.53E-01	#VALUE!	
R-1		230000	#VALUE!	#VALUE!	#VALUE!		17000	5,983,142	5.13E+01	4.28E-01	#VALUE!	
R-1		**236666.67**	**#VALUE!**	**#VALUE!**	**#VALUE!**		**15666.67**	**26,559,380**	**2.98E+01**	**2.48E-01**	**#VALUE!**	
R-2		70000	322,721,562	2.12E+02	1.77E+00		14	1,421,757	9.33E-01	7.78E-03	99.56%	Low inject
R-2		210000	648,624,661	6.35E+02	5.30E+00		12	817,237	8.00E-01	6.67E-03	99.87%	Tested in 'Polish Mode' -vapors first
R-2		200000	564,430,781	6.31E+02	5.26E+00		9	536,668	6.00E-01	5.00E-03	99.90%	went to a REF device. Inlet conc. is
R-2		**160000.00**	**1,535,777,004**	**4.46E+02**	**3.72E+00**		**11.67**	**2,775,662**	**8.07E-01**	**6.73E-03**	**99.82%**	high if already controlled
T-2		66000.00	404,107,247	3.69E+02	3.08E+00		2.50	418,681	3.82E-01	3.19E-03	99.90%	Polish Mode
T-2		87000.00	121,732,779	1.81E+02	1.51E+00		10.00	888,461	1.32E+00	1.10E-02	99.27%	Direct Mode
T-2		270000	682,829,439	6.99E+02	5.84E+00		53	14,884,805	1.52E+01	1.27E-01	97.82%	Direct mode
T-2			**1,208,669,465**	**4.41E+02**	**3.68E+00**			**16,191,947**	**5.90E+00**	**4.93E-02**	**98.66%**	No analysis for Run 4
T-4		280000	257,122,384	8.59E+02	7.17E+00		89	15,736,504	5.26E+01	4.39E-01	93.88%	
T-4		240000	141,951,162	7.50E+02	6.26E+00		32	3,179,373	1.68E+01	1.40E-01	97.76%	
T-4		200000	179,426,697	6.21E+02	5.18E+00		75	7,447,560	2.58E+01	2.15E-01	95.85%	
T-4		**240000.00**	**578,500,244**	**7.44E+02**	**6.21E+00**		**65.33**	**26,363,436**	**3.39E+01**	**2.83E-01**	**95.44%**	
T-5		140000.00	#VALUE!	#VALUE!	#VALUE!		15.00	#VALUE!	#VALUE!	#VALUE!	#VALUE!	No Flow data for Run 1
T-5		120000.00	127,106,981	2.29E+03	1.91E+01		20.00	1,036,013	1.86E+01	1.56E-01	99.18%	
T-5		130000.00	178,396,617	7.99E+03	6.67E+01		29.00	1,970,037	8.82E+01	7.36E-01	98.90%	
T-5			**305,503,598**	**2.93E+03**	**2.44E+01**			**3,006,050**	**2.88E+01**	**2.40E-01**	**99.02%**	

*** = Estimated Value, Exceeds Linear Calibration Range**
— means that the compound sample was not analyzed for the compound
#DIV/0! and #VALUE - are the result of missing data

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