Fugitive Hydrocarbon Emissions from Oil and Gas Production Operations

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Fugitive Hydrocarbon Emissions from Oil and Gas Production Operations

Health and Environmental Sciences Department

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PREFACE

This report presents final results of an API/GRI study entitled "Fugitive Hydrocarbon Emissions from Oil and Gas Production Operations". The data collection efforts and development of correlation equations and emission factors for fugitive hydrocarbon emissions from oil and gas production operations described in this report include onshore light crude facilities, onshore heavy crude facilities, onshore gas production facilities, and offshore oil and gas facilities. A gas processing plant correlation equation is included, but emission factors for gas processing plants are not. Emission factors for gas processing plants will be determined in 1994 and reported in a separate report after more field data are collected in a joint research effort with the EPA. The statistical analysis of the data gathered in this study was conducted in accordance with the US EPA Protocol for Equipment Leak Emission Estimates (EPA-453/R-93-026, June 1993) to facilitate acceptance by the EPA. The American Petroleum Institute does not necessarily endorse the EPA protocol as the best method for analyzing the data in this study. There may be other methods of statistical analysis that are more appropriate. In this study, as in the EPA protocol, the common convention of reporting emission factors to three significant figures has been followed, even though it may not be warranted given the inherent variation in the precision and accuracy of emissions measurements.

ABSTRACT

In 1980, the American Petroleum Institute published emission factors for fugitive hydrocarbon emissions from onshore and offshore petroleum production sites. The new emission factors developed from this joint study by API and the Gas Research Institute replace the existing 1980 API factors. More than 180,000 components were screened using EPA Method 21 guidelines and over 700 leaks were speciated to determine new emission rates of total hydrocarbons, volatile organic compounds, and individual air toxics (i.e., benzene, toluene, ethyl benzene, and xylenes).

The new study has also produced emission correlation equations that can be used to predict mass emission rates from individual instrument screening values. These equations allow operators to more accurately quantify actual emissions from their site rather than relying on generalized emission factors. This greatly improves assessment of control technologies and selection of equipment to lower fugitive hydrocarbon emissions. As the new leak definition imposed by the Clean Air Act Amendments of 1990 becomes effective, results of this study will be indispensable to operators.

Results of the study are summarized in easy-to-read graphics and easy-to-use factors. A workbook presented at the end of the report allows site operators to tailor the new factors and equations to their individual use.

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EXECUTIVE SUMMARY

INTRODUCTION

The American Petroleum Institute (API) and the Gas Research Institute (GRI) conducted an extensive field study of fugitive hydrocarbon emissions from petroleum production operations. Data were collected from 184,035 components at 20 different sites and used to develop new emission factors and correlation equations. This report contains new emission factors for light crude production sites, heavy crude production sites, gas production sites, and Gulf of Mexico (Gulf) offshore petroleum production operations that supersede those published by API in "Fugitive Hydrocarbon Emissions from Petroleum Production Operations, Volumes I and II," (1980). Emission factors for gas processing plants will be published in a separate report after the collection of additional field data. This report also contains emission correlation equations that can be used to calculate fugitive emissions from individual instrument screening values (ISV) obtained with portable hydrocarbon monitoring instruments at all types of petroleum production facilities.

OBJECTIVES

Objectives of the study were:

1. Development of correlation equations relating instrument screening values to mass emission rates;
2. Development of emission factors;
3. Development of profiles of speciated hydrocarbon emissions including air toxics;
4. Assessment of regional differences in fugitive emissions; and,
5. Assessment of control efficiency of Inspection and Maintenance programs.

STUDY GUIDELINES AND PROCEDURES

The following types of petroleum production facilities were visited:

Onshore light crude production
Onshore heavy crude production
Onshore natural gas production
Onshore natural gas processing plants
Gulf of Mexico offshore platforms

At the beginning of each site visit, monitoring personnel met with representatives of the operating company to become oriented with the facility lay-out and safety requirements. Monitoring and sample collection activities started immediately after the orientation meetings. The following precautions were taken to assure that monitoring data and hydrocarbon samples were representative of the normal operating condition of each facility:

- Monitoring work was conducted without petroleum company supervision;
- Components that gave elevated screening values were recorded on confidential field data sheets (these were not shown to oil company personnel until the end of the visit);
- No identification markers were attached to emitting components during the time between screening and hydrocarbon collection;
- Collection of fugitive hydrocarbon emission samples occurred as soon after detection as possible to minimize the possibility of changes due to maintenance activities.

During the first days of each visit, all components were counted, logged, and screened with portable hydrocarbon monitoring instruments equipped with flame ionization detectors. All elevated readings (10 parts-per-million by volume, methane equivalence [ppmv] or more) were recorded; descriptive information about each component that gave an elevated reading was also recorded. [NOTE: Components with ISVs of 10 ppmv or more are referred to in this report as "emitters."]

Approximately 15 percent of the emitters were enclosed in polyethylene tents to collect samples of the fugitive hydrocarbons. [NOTE: This procedure is referred to herein as "bagging".] All of the collected samples were speciated into C1 through C6+ fractions. Approximately 25 percent of the samples were also analyzed for air toxics. Mass emission rates were calculated for all the bagged emitters.

Table ES-1 shows the number of components screened, the number of emitters found, and the number of samples collected at each of the five types of petroleum production facilities. The table also shows the number of samples speciated into C1 through C6+ fractions, and the number analyzed for aromatic air toxics.

Table ES-1. NUMBER OF COMPONENTS SCREENED, EMITTERS FOUND, AND SAMPLES COLLECTED AND ANALYZED FOR THE API/GRI STUDY

FACILITY TYPE	COMPONENTS SCREENED	EMITTERS FOUND*	EMITTERS SAMPLED	ANALYZED C1 -C6+	ANALYZED Air Toxics
Onshore Lt. Crude	48,652	991	165	165	43
Onshore Hvy Crude	13,756	62	30	30	4
Onshore Natural Gas	40,178	1,513	92	92	43
Onshore Gas Plant	35,764	1,615	175	175	40
Offshore Oil/Gas	45,685	615	243	243	38
TOTAL	**184,035**	**4,796**	**705**	**705**	**168**

*NOTE: Emitter = ISV $\geq$10 ppmv

During the inventory task, components were grouped as follows:

1. Connections (CN)
2. Valves (VL)
3. Open Ended Lines (OEL)
4. Compressor Seals (CS)
5. Pump Seals (PS)
6. Pressure Relief Valves (PRV)
7. Dump Lever Arms (DLA)
8. Polished Rod Pumps (ROD)
9. Miscellaneous (MISC)

During data analysis, component types 4 through 9 were combined into a single "Others" category.

Correlation equations were developed from speciation data to show the relationship between ISVs and mass emission rates. A separate correlation equation was sought for each of four component types (CN, VL, OEL, Other) at each of the five types of facility, however, several of the sub-sets of data were found to be statistically identical and were therefore combined by type of facility. "Default zero" emission rates were defined for components with ISVs below 10 ppmv.

Emission factors were developed using the correlation equations and all 184,035 ISVs. This was done by calculating an emission rate for each ISV using the appropriate correlation equation, then adding all calculated emission rates for each facility type/component type combination to give the total expected emission rates. "Average" emission factors (average emissions per installed components) were derived by dividing total emissions by the total number of components. "Leak/No Leak" and "Stratified" emission factors were developed by grouping the data according to ISVs. Speciated weight fractions (C1 through C6+, and air toxics) of fugitive emission were also developed.

RESULTS

Correlation equations were developed for all five types of petroleum production facilities; emission factors were developed for four of the five types of facilities. Additional data are being collected for gas plants after which those emission factors will be calculated and presented in a separate report. Statistical evaluation showed that because many of the correlation equations were statistically equivalent; only eight equations were needed to predict emissions from the five types of facilities.

Emission factors were developed for the same categories as the correlation equations (except gas processing plants). Speciation factors were developed for each site type. The five types of facilities were defined as follows:

- Onshore light crude production sites. This group included onshore production sites that produced only oil and sites that produced oil mixed with gas. Oil produced at these sites had an API gravity of 20 or more.
- Onshore heavy crude production sites. Sites that produced oil with an API gravity less than 20 were designated as heavy crude sites. Thermally enhanced oil recovery sites were included in this category.
- Onshore gas production sites. This category included sites that produced dry natural gas, natural gas liquids, condensate, or a very minor amount of light oil along with the produced gas. Equipment located along-side the wells or at gathering stations were included in this category. Co-located gas plants were counted in the Onshore gas processing plant category.
- Onshore gas processing plants. Onshore plants that process natural gas and/or natural gas liquids were included in this category. Wells located adjacent to the gas plant were counted in the Onshore gas production category instead of this category.
- Offshore oil and gas production platforms. All offshore operations were included in this category.

No evidence of statistical differences among different regions of the country was found except for offshore platforms. Comparison of the data produced by this study of Gulf platforms with study data published by the US Minerals Management Service (MMS) in "Fugitive Hydrocarbon Emissions From Pacific OCS Facilities, Volumes 1 and 2," (November 1992), indicated that Pacific platforms have a lower leak frequency than Gulf platforms. Offshore platforms in either area have lower leak frequencies than onshore facilities.

Ninety percent of fugitive hydrocarbon emissions observed in this study came from components that had large leaks (usually less than one percent of the total installed components). This suggests that an inspection and maintenance program that can reduce the number of large leaks may be effective in reducing total fugitive hydrocarbon emissions.

Correlation Equations

Correlations between ISVs and mass emission rates were calculated from laboratory analyses for ISVs above 10 ppmv. Correlation equations were developed by regressing the natural logarithm of total hydrocarbon emissions (ln THC) on the natural logarithm of the instrument screening values (ln ISV). A simple linear regression (least squares fit) was then calculated and converted from log space to arithmetic space using a scale bias correction factor. Table ES-2 gives the correlation equations for all types of sites.

Table ES-2. CORRELATION EQUATIONS

FACILITY	COMPONENT TYPE	CORRELATION EQUATION
Onshore Light Crude	CN, VL, OEL	THC(lb/day) = 8.61×10^{-5}(ISV ppmv)$^{0.83}$
Onshore Light Crude	Other	THC(lb/day) = 1.24×10^{-3}(ISV ppmv)$^{0.61}$
Onshore Heavy Crude	All	THC(lb/day) = 3.29×10^{-5}(ISV ppmv)$^{0.89}$
Onshore Gas Production	CN, OEL	THC(lb/day) = 8.04×10^{-6}(ISV ppmv)$^{1.02}$
Onshore Gas Production	VL, Other	THC(lb/day) = 9.79×10^{-5}(ISV ppmv)$^{0.96}$
Onshore Gas Plant	All	THC(lb/day) = 1.79×10^{-4}(ISV ppmv)$^{0.87}$
Offshore Oil & Gas	CN, OEL	THC(lb/day) = 1.04×10^{-5}(ISV ppmv)$^{0.99}$
Offshore Oil & Gas	VL, Other	THC(lb/day) = 3.30×10^{-4}(ISV ppmv)$^{0.87}$

NOTE: All correlation equations and emission factors presented in this report are based on ISVs obtained within 1 cm of the component surfaces.

Default Zero Emission Factors

The correlation equations predict emission rates from 0.00008 to 0.00505 lb/day for components with ISVs of 10 ppmv depending on the facility type and component type. In this report, all components with screening values below 10 ppmv have been assumed to leak at rates that produce ISVs of 5 ppmv. Table ES-3 gives the THC default zeros.

Table ES-3. DEFAULT ZERO THC EMISSION FACTORS

FACILITY TYPE	COMPONENT TYPE	DEFAULT ZERO
Onshore Light Crude	CN, VL, OEL	0.00033 lb/day-component
Onshore Light Crude	Other	0.00331 lb/day-component
Onshore Heavy Crude	All	0.00014 lb/day-component
Onshore Gas Production	CN, OEL	0.00004 lb/day-component
Onshore Gas Production	VL, Other	0.00046 lb/day-component
Onshore Gas Plant	All	0.00073 lb/day-component
Offshore Oil & Gas	CN, OEL	0.00005 lb/day-component
Offshore Oil & Gas	VL, Other	0.00134 lb/day-component

Average Emission Factors

Average emission factors are used to predict fugitive hydrocarbon emissions when the only information available about a site is the number of components installed. Average factors for four types of sites (excluding gas plants) were developed by dividing total emissions by the total number of installed components. Average emission factors for individual component types were developed by dividing the component type's contribution to total emissions by the number of those components. Table ES-4 gives the overall average THC emission factors for each facility type; Table ES-5 gives component specific average THC emission factors for each facility type/component type combination.

Table ES-4. AVERAGE THC EMISSION FACTORS
(Overall)

Onshore Light Crude	All	0.0085 lb/day-component
Onshore Heavy Crude	All	0.0002 lb/day-component
Onshore Gas Production	All	0.0233 lb/day-component
Offshore Oil & Gas	All	0.0055 lb/day-component

Table ES-5
AVERAGE THC EMISSION FACTORS
(Component specific)
[lb/day-component]

	CONNECTIONS	VALVES	OPEN-ENDED	OTHERS
Onshore Light Crude	0.0041	0.0197	0.0351	0.0991
Onshore Heavy Crude	0.0001	0.0002	0.0010	0.0007
Onshore Gas Production	0.0038	0.1063	0.0107	0.2870
Offshore Oil & Gas	0.0006	0.0217	0.0099	0.1036

Leak/No Leak Emission Factors

Another method of calculating fugitive hydrocarbon emissions is to screen components and determine the number above and below a leak definition (in ppmv). "Leak/No Leak" THC emission factors are given in Table ES-6.

Table ES-6. "LEAK/NO-LEAK" THC EMISSION FACTORS
(Pounds/Day-Component)

FACILITY TYPE	COMP. TYPE	No Leak <10,000 ppmv	Leak ≥10,000 ppmv
Onshore Light Crude	CN, VL, OEL	0.00060	0.91
Onshore Light Crude	Other	0.01660	0.878
Onshore Heavy Crude	All	0.00016	0.119
Onshore Gas Production	CN, OEL	0.00021	0.380
Onshore Gas Production	VL, Other	0.00546	2.45
Gulf Offshore Oil & Gas	CN, OEL	0.00012	0.183
Gulf Offshore Oil & Gas	VL, Other	0.00267	2.22

Stratified Emission Factors

Stratified THC emission factors given in Table ES-7 show the emission rates for components with ISVs below 10 ppmv; from 10 to 9,999 ppmv; from 10,000 to 99,999; and equal to or greater than 100,000 ppmv.

Table ES-7. "STRATIFIED" THC EMISSION FACTORS
(Pounds/Day-Component)

		INSTRUMENT SCREENING RANGE			
FACILITY TYPE	COMPONENT TYPE	<10 ppmv	10 to 9,999	10,000 to 99,999	≥ 100,000 ppmv
Onshore Light Crude	CN, VL, OEL	0.00033	0.0274	0.395	1.22
Onshore Light Crude	Other	0.00331	0.0610	0.365	1.39
Onshore Heavy Crude	All	0.00014	0.0046	0.119	na
Onshore Gas Production	CN, OEL	0.00004	0.0112	0.126	1.01
Onshore Gas Production	VL, Other	0.00046	0.0871	0.756	6.18
Offshore Oil & Gas	CN, OEL	0.00005	0.0099	0.097	0.927
Offshore Oil & Gas	VL, Other	0.00134	0.1187	1.071	7.39

Speciated Hydrocarbon Factors

Tables ES-2 through ES-7 present correlation equations and emission factors for calculating THC (all hydrocarbon species combined). Emission rates for individual hydrocarbon species can be calculated by multiplying THC emissions by the weight fractions given in Table ES-8.

Table ES-8
SPECIATED FUGITIVE EMISSION FACTORS
(Weight Fraction of THC emissions in each category)

	METHANE	NMHC	VOC	C6+	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES
Onshore Light Crude	0.613	0.387	0.292	0.02430	0.00027	0.00075	0.00017	0.00036
Onshore Heavy Crude	0.942	0.058	0.030	0.00752	0.00935	0.00344	0.00051	0.00372
Onshore Gas Production	0.920	0.080	0.035	0.00338	0.00023	0.00039	0.00002	0.00010
Offshore Oil & Gas	0.791	0.210	0.110	0.00673	0.00133	0.00089	0.00016	0.00027

NOTES:
1. Emission factor = Speciated Emissions/Total Emissions
2. NMHC = Non-methane hydrocarbon
3. VOC = Propane and heavier hydrocarbon
4. Many hydrocarbons are included in more than one group, for example, C6+ is also included in the NMHC and VOC groups.

SUMMARY/CONCLUSIONS

Accuracy of Screening and Bagging Techniques

Instrument screening values are influenced by such things as wind speed and direction, instrument dynamics (calibration, battery charge, flow rate), and sampling protocols. As a result, there is a wide variation in ISVs found for each mass emission rate. Statistical analysis of the relationship between ISVs and mass emission rates yields a "regression correlation coefficient" (r) which indicates how closely the two variables are related. A coefficient of 1.00 indicates perfect correlation. Regression correlation coefficients for the various equations developed from API/GRI data ranged from 0.56 to 0.86; a single equation developed by combining all the data into one set had a correlation coefficient of 0.71. This compares favorably with the four equations published by the EPA in "Protocols for Equipment Leak Emission Estimates" (June 1993) that ranged from 0.45 to 0.87, and with the regression correlation coefficient published with the MMS Pacific OCS platform data which is 0.79.

Speciated Emissions and Air Toxics

Methane was the major fugitive hydrocarbon at all types of petroleum production sites. Hexane was found in levels of 2 percent by weight or less, while benzene and toluene were found at levels below 1 weight percent. Concentrations of xylenes and ethyl-benzene were usually near the laboratory method detection limits.

Regional Differences in Emissions

No apparent regional differences have been found except for offshore platforms.

Inspection and Maintenance

More than 90 percent of the total emissions came from components with ISVs of 10,000 ppmv or more. Inspection and Maintenance (I&M) practices that are effective in reducing the number of ISVs at 10,000 ppmv or more could significantly reduce fugitive hydrocarbon emissions.

SECTION 1
STUDY METHODOLOGY

INTRODUCTION

In 1980, the American Petroleum Institute (API) published "Fugitive Hydrocarbon Emissions from Petroleum Production Operations, Volumes I and II" that contained fugitive hydrocarbon emission factors for onshore and offshore petroleum production operations. Separate emission factors were given for various types of connections, valves, open-ended lines (drains and sample connections), pressure relief valves, pump and compressor seals, hatches, diaphragms, meters, sight glasses, and pits at each of three strata of facilities: 1) Onshore producing operations, 2) Offshore producing operations, and 3) Gas plant operations. Approximately 150 different emission factors were given for each stratum. Speciation information for the factors was presented as average weight percents of C1, C2, C3, C4, C5, and C6+ hydrocarbon for each stream type. The report did not contain information on air toxics emissions. The effectiveness of inspection and maintenance programs was investigated, but results were inconclusive.

Changes in petroleum production facility equipment and operations since the factors were published, as well as changes in the regulatory environment, have resulted in significant reductions of fugitive hydrocarbons emissions. As a result, the 1980 API factors overpredict emissions from modern facilities.

Objectives

Beginning in 1990, API and the Gas Research Institute (GRI) conducted a study to:

1. Develop correlation equations relating instrument screening values (ISVs) to mass emission rates;
2. Develop new fugitive hydrocarbon emission factors;
3. Develop profiles of speciated hydrocarbon emissions including air toxics;
4. Assess regional differences in fugitive emissions;
5. Assess control efficiency of Inspection and Maintenance programs.

Scope

This report presents data collected at four light crude production sites, four heavy crude production sites, four gas production sites, four gas processing plants, and four Gulf of Mexico platforms. Correlation equations were developed from data collected at all five types of facilities. Fugitive hydrocarbon emission factors and air toxics weight fractions were developed from data at four types of sites. A separate report on fugitive hydrocarbon emission factors and air toxics weight fractions for gas plants will be published after more field data are collected in a joint research effort with the EPA.

The 1980 emission factors for connections, valves, and open-ended lines are directly superseded by the new emission factors developed in this study. The limited number of uncontrolled pressure relief valves, pump seals, compressor seals, and other components found during the study did not provide enough data to allow development of new factors for these components as separate types. Instead these and other miscellaneous components were grouped into one category called "Others". The study produced two types of emission factors: 1) emission factors for use with component counts and, 2) emission factors for use with ISVs. Separate correlation equations were developed for connections, valves, open-ended lines, and other components. Emissions were speciated according to hydrocarbon length (number of carbon atoms) and type (aromatic and nonaromatic hydrocarbons).

DESCRIPTION OF METHODOLOGY

Sixteen onshore sites and four offshore sites were visited in the contiguous United States. A total of 184,035 components was screened according to US EPA Method 21 guidelines using portable monitoring instruments. A total of 4,796 components gave ISVs of 10 parts-per-million by volume methane equivalence (ppmv) or more. These components are referred to in this report as "emitters". Mass emission rates from approximately 15 percent of the emitters were quantified by enclosing the components in polyethylene tents or bags ("bagging") and collecting samples of the escaping hydrocarbons in Tedlar sample bags. Mass emission rates from the bagged emitters were used to develop correlation equations; correlation equations were used to develop emission factors. The five types of petroleum production facilities visited were:

- <u>Onshore light crude production sites.</u> This group included onshore production sites that produced only oil and sites that produced oil mixed with gas. Oil produced at these sites had an API gravity of 20 or more.

- <u>Onshore heavy crude production sites.</u> Sites that produced oil with an API gravity less than 20 were designated as heavy crude sites. Thermally enhanced oil recovery sites were included in this category.

- <u>Onshore gas production sites.</u> This category included sites that produced dry natural gas, natural gas liquids, condensate, or a very minor amount of light oil along with the produced gas. Equipment located beside the wells or at gathering stations were included in this category. Co-located gas plants were counted in the Onshore gas processing plant category.

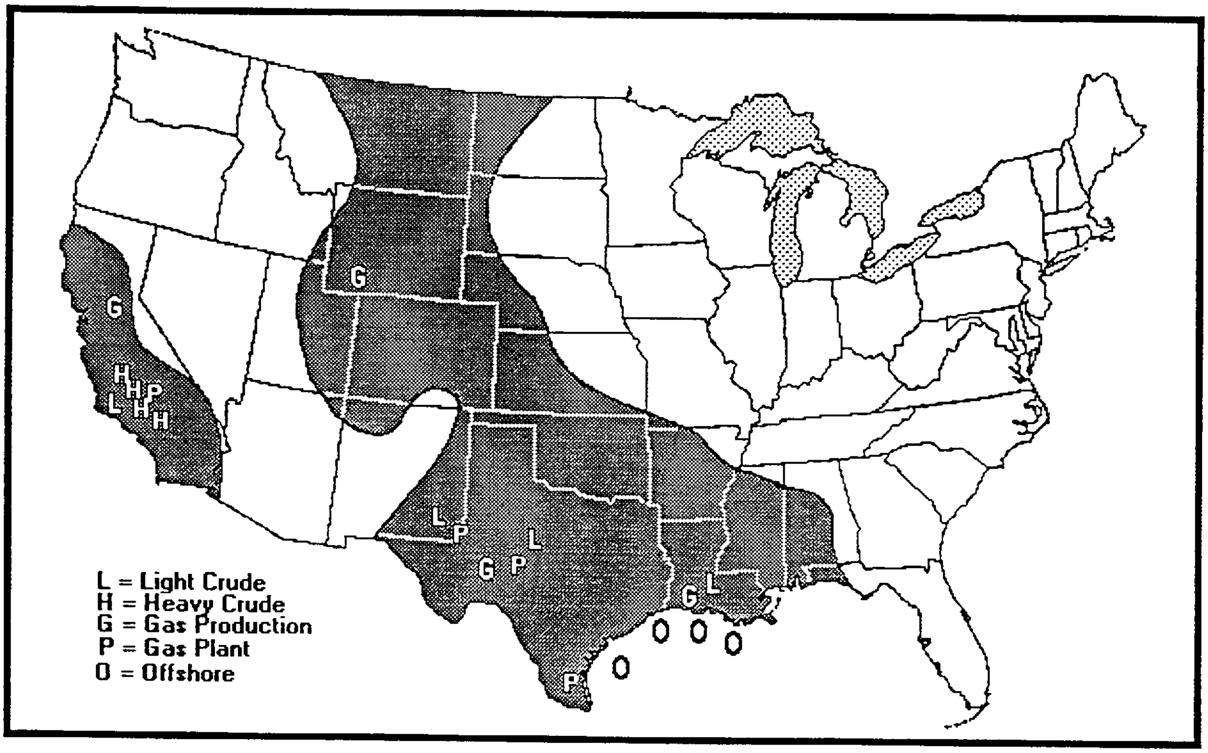
- <u>Onshore gas processing plants.</u> Onshore plants that process natural gas and/or natural gas liquids were included in this category. Wells located next to the gas plant were counted in the Onshore gas production category instead of this category.

- Offshore oil and gas production platforms. All offshore operations were included in this category.

Study Sites Selection

Figure 1-1 shows the approximate location of the sites visited. The figure also shows the two major regions of petroleum production in the contiguous United States. These regions account for more than 90 percent of total oil and gas production in the lower 48 states. Four of the onshore sites were light crude production fields, four were heavy crude production fields, four were dry gas production fields, and four were gas plants.

Figure 1-1. 1993 API/GRI STUDY SITES



NOTE: Darkened areas are regions of major oil and gas production.

Table 1-1 lists the number of components screened at each site, the number of emitters found, and the number of samples collected. Site numbers are assigned by facility type and number of components screened.

Table 1-1. SITES INCLUDED IN THE 1993 API/GRI STUDY

FACILITY TYPE	SITE NO.	COMPONENTS SCREENED	EMITTERS FOUND	SAMPLES COLLECTED
Light Crude	1	27,155	522	43
Light Crude	2	14,620	290	39
Light Crude	3	4,095	84	58
Light Crude	4	2,782	95	28
Heavy Crude	5	6,362	19	9
Heavy Crude	6	2,799	21	9
Heavy Crude	7	2,696	8	6
Heavy Crude	8	1,899	14	8
Gas Production	9	14,066	324	23
Gas Production	10	9,374	316	36
Gas Production	11	9,094	628	22
Gas Production	12	7,644	245	36
Gas Plant	13	11,235	416	61
Gas Plant	14	10,673	616	30
Gas Plant	15	7,786	303	42
Gas Plant	16	6,070	280	34
Offshore Platform	17	15,734	218	76
Offshore Platform	18	10,967	145	56
Offshore Platform	19	10,271	93	61
Offshore Platform	20	8,713	159	59
TOTALS		184,035	4,796	736

Screening Procedures

Components were screened using commercially available portable monitoring instruments that met the following requirements of EPA Method 21 -- "Determination of Volatile Organic Compounds Leaks":

1. The instruments had flame ionization detectors (FID);
2. The instruments responded to hydrocarbons in concentrations between 1 and 10,000 ppmv in air and the instrument scale was readable within 2.5 percent; dilution techniques were employed when needed to extend the instrument range above 10,000 ppmv.
3. The probe tips did not exceed 0.25 inches in outside diameter;
4. The instruments contained electrically driven pumps that sampled between 0.1 and 3.0 liters per minute;
5. The instruments were intrinsically safe;
6. The instruments responded to hydrocarbons within 5 seconds.

At the beginning of each day, all instruments were calibrated near zero, at mid-range, and near their upper measurement limits with zero air and certified mixtures of methane-in-air. Calibrations were checked throughout the day.

The instruments had response factors between 0.5 and 1.5 for methane, ethane, propane, butane, pentane, hexane, benzene, toluene, ethyl-benzene, and xylenes, which were the major hydrocarbons found in petroleum production fugitive emissions. [NOTE: Field measurements were not corrected for variability of instrument response to different hydrocarbons (response factors)].

Each site was subdivided into small geographic sub-areas containing from 50 to 200 equipment components. All valves, connections, pump seals, compressor seals, pressure relief devices, open-ended lines, meters, sight glasses, hatches, and vents in each sub-area were inventoried and screened. "Protocols for Equipment Leak Emission Estimates" (June 1993) recommends the following, "hold the probe tip just over (a dirty) surface to avoid scooping up contaminants". The API/GRI study was conducted with the inlet probe of the monitoring instrument held within 1 cm of all points of possible emissions to prevent contamination and assure consistent screening values throughout the study. This was consistent with petroleum industry practice.

The EPA protocol says that two additional methods of protecting against contamination are using flexible plastic tubing as an expendable extension to the probe tip and packing the tubing with untreated fiberglass. Plastic tubing without fiberglass packing was sometimes used during the API/GRI study. The instruments had internal dust filters which were cleaned on a regular basis.

Each component was screened by moving the instrument probe along all areas of possible leakage while observing the instrument readout. When an increased reading was observed, the probe was moved slowly across the area until the maximum meter reading was obtained. The probe inlet was held at the point of highest reading for at least 10 seconds (twice the instrument response time). The maximum reading was recorded as the ISV.

The stems of valves were screened at the opening between the stems and packing nuts, and all other points of possible emissions. Body seals and plugs were also screened. Emissions from any of these areas were recorded as "Valve emissions". The connections between valve bodies and process piping were counted as "Connections". The ends of valves open to atmosphere, or connected to short pieces of pipe which in turn were open to atmosphere were counted as "Open-Ended Lines".

Flanges, threaded connections, and tubing fittings were screened at all possible points of emissions. Emissions from these components were recorded as "Connection" emissions.

Many pump seals and compressor seals had been enclosed and routed to flare headers or vapor recovery systems. These components were not counted or screened. Accessible pump and compressor seals were screened with traverses at the outer circumference surfaces of the shafts and seal interfaces. Emissions from these areas were recorded as "Compressor Seal" or "Pump Seal" emissions. Plugs, flanges, threaded connections, and valves on pumps and compressors were also screened. Emissions from these components were recorded as emissions from connections, valves, or open-ended lines, not as compressor or pump emissions.

Pressure relief valves (PRV) connected to flare headers were not counted or screened. PRVs that vented to atmosphere were screened by holding the sampling probe at the center of the exhaust areas.

Other sources such as process drains, degassing vents, access doors and hatches, were screened at all openings and other points of possible emission. If the openings were less than one inch diameter, a single reading was taken. Larger openings were screened around the entire perimeter.

The types and numbers of components screened in each sub-area were recorded on field data sheets. All ISVs of 10 ppmv or more were recorded on the field data sheets along with descriptions of the sizes and types of components giving elevated readings.

Bagging Procedures

EPA Protocol guidelines for the "Vacuum Method" were followed with some additional procedures to improve collection. Each component was re-screened immediately before bagging to locate the point of highest emissions. A sampling tube was then attached to the component with the tube inlet placed within 1 cm of the point of highest emissions. The other end of the tube was attached to a rotameter which in turn was connected to an electrically driven sampling pump capable of drawing between 1.5 and 20 liter per minute. A second tube (ambient air supply tube) was attached to the opposite side of the component. The component and tubes were then enclosed in a tight-fitting 4 mil thick polyethylene bag, the edges of the bag being heat-sealed and/or taped to prevent uncontrolled entry of air into the bag.

When the pump was started, the bag collapsed, thus preventing loss of hydrocarbon. The reduced pressure inside of the bag caused ambient air to be drawn in through the ambient air supply tube. The flow rate of ambient air into the bag was monitored with a second rotameter attached to the inlet side of the ambient air supply tube. If the flow through the two rotameters (bag inlet and bag outlet) was not comparable, the bag was resealed. [NOTE: Concentrations of hydrocarbon in the ambient air were usually less than 5 ppmv. At a typical sampling rate of 3 liters per minute, the additional hydrocarbon drawn into the bag with the ambient air was less than 0.00000003 lb/minute (0.00004 lb/day) which had a negligible effect on the development of correlation equations and subsequent development of emission factors.]

When a controlled flow rate through the bag was achieved, the pump outlet was measured with the hydrocarbon monitoring instrument until a constant reading was recorded for three consecutive 30-second periods. A Tedlar sample bag was then attached to the pump outlet and filled and emptied three times. The Tedlar sample bag was then filled for the fourth time and sent to an off-site laboratory for analysis.

After the Tedlar sample bag had been filled for the final time, the pump outlet was again measured with the portable hydrocarbon monitoring instrument until a constant reading is recorded for three consecutive 30-second periods. The polyethylene bag is then completely removed from the component and the component is re-screened with the portable monitoring instrument to give a "post-bagging" reading.

The pre-bagging and post-bagging screening values are recorded on the field data sheets with their times of measurement. Instrument readings of the pump outlet before and after sample collection are also recorded with their exact times of measurement. The field data sheets also contain sample identification numbers, component types and locations, pump identification numbers, pump flow rates, dates, and names of field personnel conducting sample collections.

Chain of custody forms are prepared which included sample identification numbers, dates and times of sample collection, readings of the pump outlet (in ppmv) just before filling the bags, and signatures of field technicians transporting the samples. The forms are signed and dated by the receiving laboratories, and the laboratory identification numbers are recorded beside the field identification numbers.

The program design includes a feed-back mechanism to adjust the number and types of components selected for mass emissions quantification. Information obtained at the first sites showed that approximately 80 percent of the components are connections, 17 percent are valves, 2 percent are open-ended lines and the remaining 1 percent is composed of uncontrolled compressor seals, uncontrolled pump seals, polished rod stuffing boxes, dump lever arm seals, hatches, vents, uncontrolled pressure relief devices, and other components. The information also showed that more than 90 percent of the fugitive emissions comes from connections, valves and open-ended lines with ISVs of 10,000 ppmv or more. As a result, bagging at later study sites was directed mainly at large emitters in these three types of components.

Laboratory Procedures

Gas chromatography (GC) is used to separate the hydrocarbons by species. Aromatic hydrocarbons are quantified using photo-ionization detectors or by mass spectroscopy (MS); nonaromatic hydrocarbons are quantified using flame ionization detectors. Concentrations of the following hydrocarbon species are reported in ppmv to three significant digits:

Methane (C1)
Hydrocarbons containing two carbon atoms per molecule (C2)
Hydrocarbons containing three carbon atoms per molecule (C3)
Hydrocarbons containing four carbon atoms per molecule (C4)
Hydrocarbons containing five carbon atoms per molecule (C5)
Hydrocarbons containing six or more carbon atoms (C6+)
Benzene
Toluene
Ethyl-benzene
meta and para Xylenes
ortho Xylene

Speciated laboratory analyses in parts per million by volume are converted to mass emission rates using the following molecular weight assumptions:

CHEMICAL SPECIES	ASSUMED MOLECULAR WEIGHT
C1	16
C2	30
C3	44
C4	58
C5	72
C6+	86
Benzene	78
Toluene	92
Ethyl-benzene	106
Xylenes	106

Quality Assurance/Quality Control Procedures

Approximately 15 percent of the analyses were replicated in the laboratory to assess precision. Field blanks and bags filled with calibration gases of known concentrations were given coded identification numbers and sent to the laboratory to assess accuracy. Duplicate samples of fugitive emissions were collected from several of the components. Some of the duplicate samples were given coded identification numbers and sent to the same laboratory to assess precision of the analyses; others were sent to a second laboratory for comparison analysis.

API conducted an independent audit of the field contractor and laboratories used in the program to examine site sample collection forms, chain of custody forms and sample identity designations, laboratory data (GC, GC/MS tracings), calibration records and reported values. In general, the API auditor found the data to be well organized and trackable. The few discrepancies found in the data were discussed and resolved.

DATA MANAGEMENT

Actual ISVs of 10 ppmv or more were recorded for 4,796 components. Seven-hundred and thirty-six (736) samples of fugitive hydrocarbon were collected and analyzed. Correlation equations were developed from the bagging data and ISVs; emission factors were developed from the correlation equations, ISVs, and component inventories. Appendix A contains detailed descriptions of methods used to develop correlation equations and emission factors.

Development of Correlation Equations

Because fugitive emission concentrations tend to be log-normally distributed, model equations have been derived over the past several years by regressing the natural logarithm of total hydrocarbon emissions, (ln(THC)), on the natural logarithm of the ISV, (ln(ISV)). The model equations have been typically of the form:

$$\ln(THC) = \alpha + \beta \cdot \ln(ISV) \qquad [\textit{Equation for log space}] \qquad \text{Eq. 1-1}$$

or

$$THC = e^{\alpha} (ISV)^{\beta} \qquad [\textit{Equation for arithmetic space}] \qquad \text{Eq. 1-2}$$

where α and β denote respectively the intercept and slope of the regression model on the log-log scale. This model equation form was used to develop correlation equations for the API/GRI data.

A general Analysis of Variance model was used to allow different intercepts and slopes for each facility type/component type combination. Through a series of iterations, terms that were not statistically significant were excluded from the model until only significant terms remained.

Linear regressions calculated in log space are biased low because of the relationship between actual numbers and their logarithms. When making the transformation of equations from log space to arithmetic space, intercepts have to be adjusted to produce unbiased predictions. Adjustments were made using the following scale bias correction factor (SBCF):

$$SBCF = 1 + \frac{(m-1)^1 \cdot T}{m^1 \cdot 1!} + \frac{(m-1)^3 \cdot T^2}{m^2 \cdot 2! \cdot (m+1)} + \frac{(m-1)^5 \cdot T^3}{m^3 \cdot 3! \cdot (m+1) \cdot (m+3)} + \ldots \quad \text{Eq. 1-3}$$

Where:

$T = 0.5 \cdot$(mean square error of the regression)
m = number of data pairs

Correlation equations developed from the new data are given in Sections 2 and 3 of this report.

Development of Emission Factors

Five ISV ranges were defined to account for the distribution of the number of components and their emission contributions:

≥100,000 ppmv
10,000 to 99,999 ppmv
1,000 to 9,999 ppmv
10 to 999 ppmv
<10 ppmv

Bagged hydrocarbon emissions were then modeled to verify that average emissions in each range were homogeneous across the facility type/component type categories chosen during correlation equation development. The screening value of each component was entered into the appropriate correlation equation and estimated emissions were obtained.

The lower useful limit of the hydrocarbon monitoring instrument is considered to be 10 ppmv. Ambient levels of methane in the atmosphere are approximately 2 ppmv or more. Further, difficulties with equipment calibration, battery fade-out, and other operator induced variables make readings of less than 10 ppmv highly unrepeatable. For these reasons, ISVs of less than 10 ppmv were entered into the equations as 5 ppmv. The total of the estimated THC emissions was then calculated for each of the five ranges. Finally, the average emissions were computed as total emissions divided by total number of components. Average emission factors for specific component types were developed by dividing the component type's contribution to total emissions by the number of those components.

"Leak/No-Leak" emission factors were calculated for each site. Stratified emission factors were developed for four ranges: ISVs below 10 ppmv; from 10 to 9,999 ppmv; from 10,000 to 99,999; and equal to or greater than 100,000 ppmv.

SECTION 2
ONSHORE RESULTS AND ANALYSIS

DATA COLLECTION

A total of 138,350 components at 16 onshore sites was inventoried and screened using portable hydrocarbon analyzers. The sites were divided into sub-areas. Inventories were prepared by counting the connections (CN), valves (VL), open-ended lines (OEL), compressor seals (CS), pump seals (PS), pressure relief valves (PRV) and miscellaneous components (Misc) contained in each sub-area. All components in each sub-area were screened according to EPA Method 21 guidelines. Two sites contained thousands of wells; at these sites it was necessary to select a limited number of the sub-areas for screening.

Full descriptions of 4,181 onshore components found to have instrument screening values (ISV) of 10 parts per million by volume (ppmv) methane equivalence or more were recorded on field data sheets. These components are referred to as "emitters" in this report. Samples of fugitive hydrocarbons from 473 emitters were collected and speciated for nonaromatic hydrocarbons. A total of 144 samples that had high total hydrocarbon content was also analyzed to determine benzene, toluene, xylenes, and ethyl-benzene concentrations.

Appendix B of this report contains inventory and screening data for all sites. Appendix C lists the location, component type, and ISV for each emitter. Appendix D contains nonaromatic speciation data. Appendix E contains aromatic speciation data.

Table 2-1 contains a summary of the number and types of components screened at each onshore site and the number of emitters found. In the table, ISVs are grouped into one of six ranges: 10 to 99; 100 to 499; 500 to 999; 1,000 to 9,999; 10,000 to 99,999 and $\geq$100,000 ppmv.

Table 2-1. COMPONENTS SCREENED AND EMITTERS FOUND AT ONSHORE SITES

SITE	COMPONENTS SCREENED								EMITTERS BY SCREENING RANGE (ppmv)						
	CN	VL	OEL	CS	PS	PRV	Misc	ALL	10 to 99	100 499	500 999	1,000 9,999	10,000 99,999	100k plus	ALL
1	20767	6121	143	6	11	0	107	27155	84	78	30	83	76	171	522
2	12041	2010	378	1	6	14	170	14620	39	59	28	56	49	59	290
3	3040	867	87	4	4	18	75	4095	13	12	8	24	18	9	84
4	2155	520	85	2	2	4	14	2782	25	18	2	15	20	15	95
5	5282	890	127	0	0	2	61	6362	11	5	1	2	0	0	19
6	2208	446	106	0	0	0	39	2799	13	4	0	2	2	0	21
7	2127	407	110	0	0	8	44	2696	5	0	1	2	0	0	8
8	1433	330	96	0	0	3	37	1899	12	2	0	0	0	0	14
9	11990	1815	215	8	8	6	24	14066	29	58	21	90	82	44	324
10	7171	1758	344	1	0	45	55	9374	49	71	26	54	86	30	316
11	7324	1238	269	25	2	208	28	9094	22	61	9	218	231	87	628
12	6027	1248	223	15	0	112	19	7644	49	36	14	58	55	33	245
13	8463	2427	278	14	21	32	0	11235	29	89	25	107	56	110	416
14	8110	2141	229	29	44	74	46	10673	54	81	28	167	207	79	616
15	6310	1296	71	20	26	28	35	7786	12	34	17	80	97	63	303
16	4781	1127	86	26	15	31	4	6070	9	36	12	57	115	51	280
	109229	24641	2847	151	139	585	758	138350	455	644	222	1015	1094	751	4181

NOTE: CN = Connection; VL = Valve; OEL = Open-Ended Line; CS = Compressor Seal; PS = Pump Seal; PRV = Pressure Relief Valves; Misc = Miscellaneous.

Approximately 10 percent of the emitters in each range were bagged to collect fugitive hydrocarbons for analysis. Extra samples were collected from three categories: 500 to 999 ppmv; 1,000 to 9,999 ppmv; and ≥100,000 ppmv. The number of emitters found and samples collected are shown in Table 2-2.

Table 2-2. ONSHORE EMITTERS BY SCREENING RANGE (ppmv)

	Below 10	10 to 99	100 to 499	500 to 999	1,000 to 9,999	10,000 to 99,999	100,000 plus
Emitters	NA	455	644	222	1015	1094	751
Samples	25	47	65	32	119	71	113

NA: This study classified components with ISV below 10 ppmv as non-emitters.

The distribution of all emitters found at onshore sites, arranged by emission rate, is shown in Figure 2-1. The contribution of each group of emitters to total emissions (as determined from laboratory analyses) is shown in Figure 2-2. About 85 percent of total mass emissions came from individual emissions of 1 lb/day or more (0.18 tons/yr); twelve percent came from individual emissions between 0.125 and 0.999 lb/day (0.02 to 0.18 tons/yr); while about three percent came from emitters with rates of 0.1249 lb/day or less (0.02 tons/yr or less).

Figure 2-1. DISTRIBUTION OF ONSHORE EMITTERS
[Based on Laboratory Analyses]
(From 138,350 Components Screened)

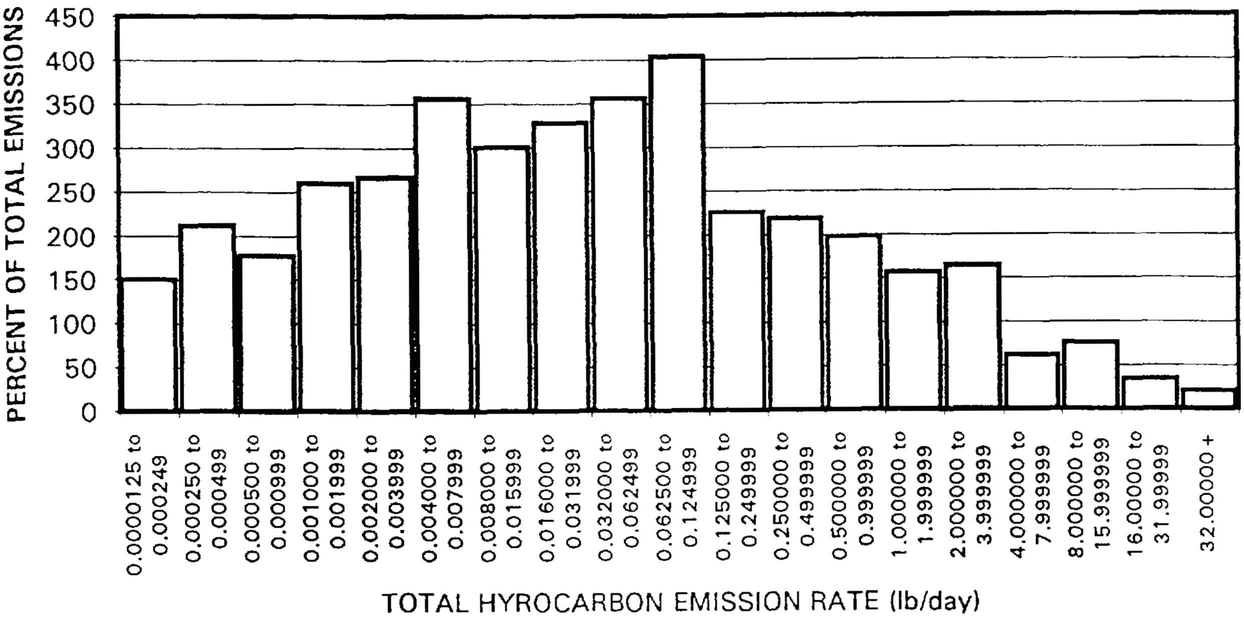
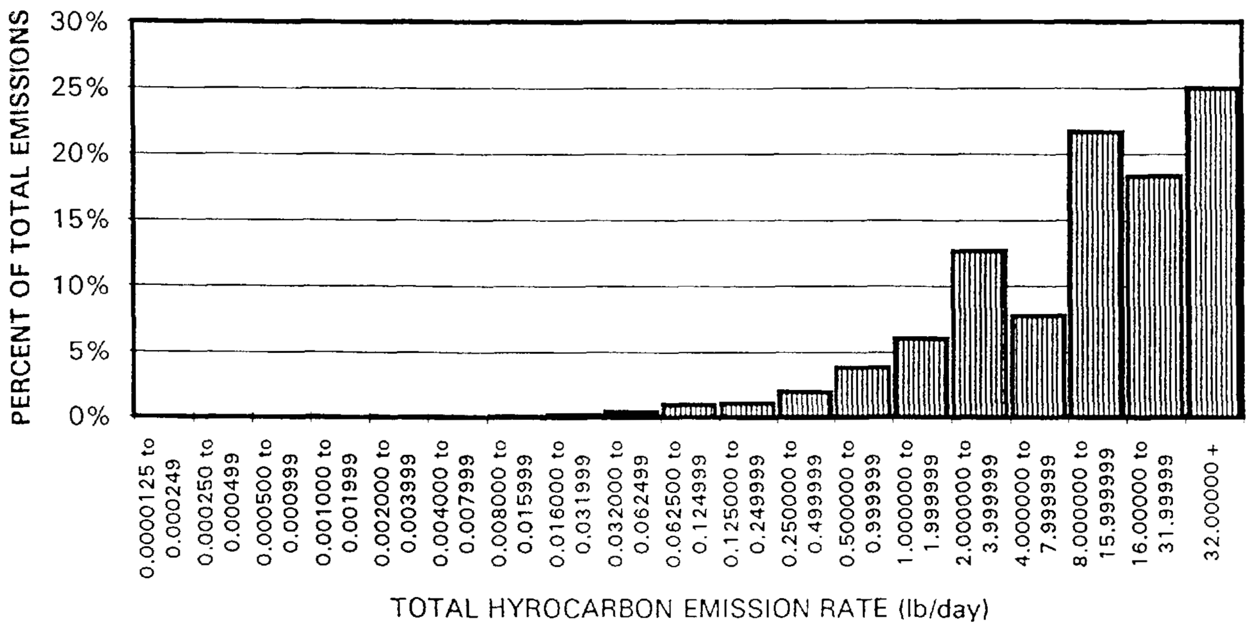


Figure 2-2. PERCENT OF TOTAL EMISSIONS BY RANGE
[Based on Laboratory Analyses]



The contributions of five ISV emitter ranges to total emissions are shown in Table 2-3. Approximately 93 percent of all emissions came from leaks that equal or exceed 10,000 ppmv. The remaining 7 percent came mostly from the 1,000 to 9,999 ppmv ISV range; only 0.7 percent came from emitters with ISV from 10 to 999 ppmv and 1.8 percent came from ISV <10 ppmv. The data in Table 2-3 suggests that all emitters with ISVs from 10 to 9,999 ppmv can be combined into a single group without compromising the ability to predict emissions.

Table 2-3. CONTRIBUTION OF EACH SCREENING RANGE TO TOTAL EMISSIONS

	<10 ppmv	10 to 999 ppmv	1,000 to 9,999	10,000 to 99,999	100,000 plus
Components in Range	134,169	1,321	1,015	1,094	751
Average Rate (lbs/day-component)	0.00043	0.0174	0.146	0.601	3.21
Total Emissions (lbs/day)	58	23	148	657	2,414
Percent of Total	1.8%	0.7%	4.5%	19.9%	73.1%

QUALITY ASSURANCE/QUALITY CONTROL

Samples were speciated into six nonaromantic groups (C1, C2, C3, C4, C5, and C6+); some were also speciated into four aromatic types (benzene, toluene, ethyl-benzene, and xylenes). Approximately 15 percent of the samples were analyzed twice to evaluate laboratory precision. Table 2-4 shows the variation in results from the first and second analyses for nonaromatic hydrocarbons. (NOTE: The methane concentration was often so much higher than the concentration of other hydrocarbons that two separate runs were needed for each analysis: a diluted run to quantify methane and a more concentrated run to quantify the remaining nonaromatic hydrocarbons. Usually only the "methane run" or "nonmethane run" was repeated as a quality assurance check; therefore many of the analyses shown in Table 2-4 have "na" indicating the species that were not analyzed twice.)

Figure 2-3 graphically shows methane concentrations from Table 2-4. Samples that had the same or nearly the same concentration in both analyses fall on the diagonal line across the figure. Data points below the diagonal indicate second analyses with lower methane content than the corresponding first analyses; data points above the diagonal indicate second analyses with higher methane content than the corresponding first analyses. The figure shows that first and second analyses for methane had good agreement for the entire range from 3 to nearly 1,000,000 ppmv in the sample bag. The correlation equation of the least squares linear regression of natural log(second Methane concentration) versus natural log(first Methane concentration) is 0.99983 indicating a very high correlation. Figures 2-4 through 2-8 graphically show the correlation of repeated analyses for other nonaromatic species.

Table 2-5 and Figures 2-9 through 2-13 show similar information for aromatic hydrocarbon content of samples. Table 2-6 contains the coefficients of correlation (r) for all sets of data.

Table 2-4
FIRST AND SECOND ANALYSES FOR NON-AROMATIC HYDROCARBONS (ppmv)

Sample	1st C1	2nd C1	Diff.	1st C2	2nd C2	Diff.	1st C3	2nd C3	Diff.	1st C4	2nd C4	Diff.	1st C5	2nd C5	Diff.	1st C6+	2nd C6+	Diff.
1	7	8	7%	1	1	0%	3	3	-9%	3	3	-6%	5	5	-2%	11	12	3%
2	2,275	2,390	5%	240	250	4%	355	357	1%	225	224	0%	74	71	-4%	30	17	-45%
3	69	72	5%	9	10	1%	8	8	1%	6	7	17%	6	5	-6%	6	4	-20%
4	70	72	3%	22	22	-2%	35	36	1%	14	13	-3%	7	6	-10%	4	4	-4%
5	4,488	4,633	3%	411	na		103	na		3	na		2	na		3	na	
6	89,800	92,600	3%	14,300	na		14,000	na		6,240	na		2,100	na		1,290	na	
7	3	3	3%	238	238	0%	30,100	31,200	4%	344	329	-4%	12	12	1%	4	4	8%
8	449	461	3%	39	39	0%	78	77	-1%	50	48	-3%	13	11	-19%	11	11	-4%
9	5,012	5,137	2%	456	na		191	na		66	na		32	na		26	na	
10	306	313	2%	45	46	2%	56	56	1%	21	21	-2%	14	11	-19%	15	15	1%
11	26,800	27,300	2%	50	49	-1%	1	2	6%	1	1	0%	1	1	0%	1	1	0%
12	21,900	22,300	2%	2,070	na		634	na		375	na		122	na		52	na	
13	4,400	4,480	2%	9	na		1	na		1	na		1	na		1	na	
14	498	507	2%	66	67	3%	129	132	2%	111	113	2%	56	58	3%	19	20	4%
15	303,000	307,000	1%	18,100	18,300	1%	6,740	7,100	5%	3,690	3,900	6%	1,460	1,520	4%	847	752	-11%
16	5	5	1%	2	1	-33%	7	7	-2%	9	8	-6%	3	3	5%	5	5	-3%
17	6,760	6,820	1%	954	na		241	na		101	na		32	na		19	na	
18	29,514	29,769	1%	3,109	na		5,290	na		3,536	na		1,490	na		805	na	
19	270	272	1%	28	28	-1%	36	38	3%	19	19	1%	7	7	-6%	9	14	60%
20	540,000	544,000	1%	16,500	na		308	na		20	na		28	na		4	na	
21	2,159	2,174	1%	254	257	1%	360	366	2%	196	198	1%	66	66	1%	28	30	7%
22	7,440	7,490	1%	336	328	-2%	141	137	-3%	87	85	-2%	36	35	-3%	21	21	-3%
23	551	554	1%	2,720	2,530	-7%	462	464	0%	71	71	0%	9	10	10%	1	1	47%
24	188,000	189,000	1%	54,600	na		27,800	na		8,220	na		1,840	na		274	na	
25	256,000	257,000	0%	54,400	na		37,500	na		11,000	na		2,640	na		445	na	
26	815,000	818,000	0%	59,800	na		15,700	na		3,970	na		1,180	na		274	na	
27	3	3	0%	1	1	15%	1	1	-8%	12	12	-2%	702	698	-1%	318	316	-1%
28	576,000	578,000	0%	966	na		31	na		4	na		2	na		1	na	
29	30	30	0%	3	3	-16%	10	5	-53%	4	3	-8%	4	3	-17%	8	8	5%
30	341,000	342,000	0%	21,000	na		5,550	na		2,240	na		1,100	na		554	na	
31	963,000	964,000	0%	1,740	na		44	na		8	na		9	na		4	na	
32	114	114	0%	10	10	1%	3	5	42%	1	1	9%	0.1	0.1	0.0	0.02	0.02	0%
33	375,000	375,000	0%	8,090	7,900	-2%	352	357	1%	44	44	0%	11	11	2%	3	3	-3%
34	1,710	1,710	0%	87	86	-1%	39	38	-4%	19	18	-5%	8	7	-6%	7	6	-5%
35	180	180	0%	27	26	-2%	11	11	-2%	21	21	-1%	32	31	-1%	50	46	-9%
36	10,100	10,100	0%	1,030	1,030	0%	328	323	-2%	46	44	-3%	5	5	1%	2	2	-13%
37	20,924	20,924	0%	1,785	1,785	0%	374	374	0%	1	na		3	na		7	na	
38	134,000	134,000	0%	3,450	3,260	-6%	64	na		1	na		0.1	na		0.4	na	

Table 2-4 (Continued)
FIRST AND SECOND ANALYSES FOR NON-AROMATIC HYDROCARBONS (ppmv)

Sample	1st C1	2nd C1	Diff.	1st C2	2nd C2	Diff.	1st C3	2nd C3	Diff.	1st C4	2nd C4	Diff.	1st C5	2nd C5	Diff.	1st C6+	2nd C6+	Diff.
39	2,220	2,220	0%	5	na		1	na		1	na		1	na		1	na	
40	267,000	267,000	0%	587	na		20	na		6	na		5	na		2	na	
41	865,000	864,000	0%	102,000	na		2,690	na		39	na		1	na		1	na	
42	82	82	0%	83	83	0%	117	117	0%	117	118	1%	68	69	3%	70	72	3%
43	36,500	36,400	0%	8,900	9,400	6%	3,930	4,070	4%	890	882	-1%	173	174	1%	30	31	4%
44	68,300	68,100	0%	645	na		30	na		2	na		0.02	na		na	na	
45	274,000	273,000	0%	56,500	na		37,000	na		12,000	na		2,500	na		411	na	
46	2,540	2,530	0%	98	99	1%	43	43	0%	26	26	-1%	8	9	14%	2	3	46%
47	23,500	23,400	0%	6,230	5,990	-4%	3,470	3,440	-1%	1,590	1,600	1%	656	634	-3%	244	234	-4%
48	41,700	41,500	0%	10,100	9,910	-2%	6,100	6,100	0%	2,860	2,900	1%	1,070	1,060	-1%	378	360	-5%
49	165	164	-1%	14	14	0%	4	4	-1%	2	2	-1%	1	1	-37%	0.2	0.04	-75%
50	4,770	4,740	-1%	49	48	-2%	3	2	-5%	0.1	na		ND	na		0.03	na	
51	146	145	-1%	2,700	2,740	1%	988	995	1%	145	148	2%	15	15	3%	12	10	-18%
52	42,800	42,500	-1%	287	na		8	na		1	na		0.4	na		ND	na	
53	2,600	2,580	-1%	94	na		3	na		0.3	na		1	na		2	na	
54	12,300	12,200	-1%	1,220	na		42	na		2	na		0.4	na		0.4	na	
55	245	243	-1%	30	29	-2%	56	58	3%	34	36	4%	12	12	0%	11	11	4%
56	242	240	-1%	27	27	-1%	43	44	2%	24	25	4%	6	7	9%	ND	ND	
57	113	112	-1%	3	3	-1%	1	1	-11%	2	2	8%	2	2	7%	1	1	8%
58	497	492	-1%	118	117	-1%	140	141	1%	89	90	1%	46	46	-1%	20	20	1%
59	6,820	6,750	-1%	419	na		132	na		52	na		11	na		5	na	
60	2,860	2,830	-1%	424	na		281	na		114	na		61	na		46	na	
61	17,900	17,700	-1%	174	na		80	na		38	na		31	na		15	na	
62	59,700	59,000	-1%	7,480	na		14,200	na		3,870	na		1,630	na		592	na	
63	32,700	32,300	-1%	13,600	na		24,500	na		9,410	na		2,090	na		376	na	
64	324	320	-1%	36	36	1%	34	27	-21%	12	12	3%	4	4	4%	3	3	1%
65	4,480	4,420	-1%	341	350	3%	21	21	2%	5	5	1%	0.2	0.1	-53%	0.02	ND	
66	21,900	21,600	-1%	669	na		20	na		1	na		1	na		1	na	
67	41,500	40,900	-1%	3,780	na		367	na		31	na		3	na		1	na	
68	73,100	72,000	-2%	510	508	0%	12	12	-1%	0.1	0.1	-2%	1	1	-4%	1	1	-10%
69	860	847	-2%	89	87	-3%	137	133	-3%	70	68	-3%	13	13	-1%	7	8	4%
70	262	258	-2%	111	115	4%	327	338	3%	413	420	2%	380	384	1%	440	455	3%
71	5	5	-2%	2	2	-19%	18	16	-7%	307	254	-17%	1,300	1,300	0%	334	336	1%
72	8	8	-2%	1	1	-21%	22	21	-1%	1,490	1,490	0%	9	8	-14%	3	3	-8%
73	152	149	-2%	65	64	-1%	232	232	0%	318	317	0%	296	290	-2%	360	359	0%
74	1,430	1,400	-2%	64	63	-2%	22	21	-3%	11	11	-3%	4	4	-7%	2	2	-22%
75	37	37	-2%	10	10	-2%	12	12	-2%	20	20	-2%	26	23	-9%	31	29	-4%
76	94,036	91,707	-2%	10,447	9,963	-5%	17,492	16,364	-6%	12,811	11,381	-11%	4,742	4,138	-13%	1,793	na	

Table 2-4 (Continued)
FIRST AND SECOND ANALYSES FOR NON-AROMATIC HYDROCARBONS (ppmv)

Sample	1st C1	2nd C1	Diff.	1st C2	2nd C2	Diff.	1st C3	2nd C3	Diff.	1st C4	2nd C4	Diff.	1st C5	2nd C5	Diff.	1st C6+	2nd C6+	Diff.
77	405	393	-3%	25	25	0%	42	42	-1%	31	31	1%	13	15	14%	9	10	15%
78	97	95	-3%	70	69	-2%	100	94	-6%	80	78	-3%	39	38	-2%	14	14	2%
79	1,640	1,590	-3%	177	179	1%	92	93	1%	41	42	1%	15	16	2%	8	8	1%
80	5	5	-4%	0.4	1	150%	36	36	1%	857	866	1%	1	2	47%	2	3	7%
81	7,220	6,920	-4%	240	na		77	na		38	na		16	na		10	na	
82	29	28	-4%	2	1	-12%	2	2	-5%	1	1	-2%	0.04	0.03	-25%	0.03	na	
83	64	61	-5%	20	20	-1%	26	25	-3%	27	27	-1%	18	17	-2%	22	22	-2%
84	6,350	6,010	-5%	1,030	977	-5%	453	na		212	na		64	na		21	na	
85	53	50	-6%	24	23	-3%	104	102	-2%	175	174	-1%	183	184	1%	230	224	-3%
86	4,500	4,240	-6%	160	160	0%	51	51	-1%	25	25	0%	9	11	20%	4	6	39%
87	13	12	-7%	57	57	-1%	295	292	-1%	364	360	-1%	203	202	0%	91	92	0%
88	15,900	14,700	-8%	154	na		7	na		0.04	na		ND	na		1	na	
89	3,088	2,853	-8%	253	na		85	na		1	na		5	na		8	na	
90	281	251	-11%	24	24	0%	8	8	0%	4	4	0%	2	1	-26%	2	1	-12%
91	60	50	-17%	25	25	-1%	38	38	0%	33	33	1%	16	17	5%	18	19	6%
92	4	3	-21%	42	41	-1%	77	76	-2%	37	36	-1%	11	11	-2%	6	5	-2%
93	29	22	-23%	7	7	-2%	13	13	6%	22	24	8%	34	37	9%	51	56	9%
94	4	3	-25%	11	11	3%	75	73	-2%	187	185	-1%	95	93	-1%	11	15	37%
95	193	129	-33%	7	6	-26%	0.2	0.2	-30%	ND	ND		0.3	0.3	0.1	0.3	0.3	-9%
96	531,000	na		873	877	0%	22	22	0%	4	4	-3%	2	1	-32%	1	1	1%
97	369,000	na		667	672	1%	14	16	15%	3	4	22%	3	3	-4%	1	1	0%
98	275,000	na		490	500	2%	10	10	-1%	1	2	15%	2	2	33%	1	1	0%
99	250,000	na		113,000	102,000	-10%	41,800	37,600	-10%	13,100	12,500	-5%	3,670	3,580	-2%	1,960	na	
100	36,823	na		3,561	3,268	-8%	4,489	4,045	-10%	2,928	2,545	-13%	1,534	1,268	-17%	1,279	1,025	-20%
101	28,600	na		3,830	3,700	-3%	5,050	4,880	-3%	1,870	1,790	-4%	621	598	-4%	169	165	-2%
102	19,600	na		1,200	1,280	7%	375	402	7%	154	164	6%	69	74	6%	39	41	5%
103	12,700	na		5,370	5,400	1%	4,920	4,390	-11%	3,500	3,500	0%	1,680	1,690	1%	518	528	2%
104	8,367	na		711	738	4%	1,028	1,035	1%	571	574	1%	231	225	-3%	113	101	-11%
105	3,806	na		321	305	-5%	619	592	-4%	494	389	-21%	100	88	-12%	67	na	
106	2,880	na		322	321	0%	93	93	0%	26	26	0%	8	9	0%	6	6	-2%
107	2,220	na		109	110	1%	17	17	0%	3	3	1%	1	1	-41%	15	14	-9%
108	1,530	na		307	307	0%	473	472	0%	357	356	0%	150	150	0%	66	66	0%
109	1,330	na		59	59	-1%	26	26	0%	17	17	-2%	9	8	-12%	6	5	-17%

ND = Not detected
na = Not analyzed

Figure 2-3. COMPARISON OF REPEAT ANALYSES AT LABORATORY C1

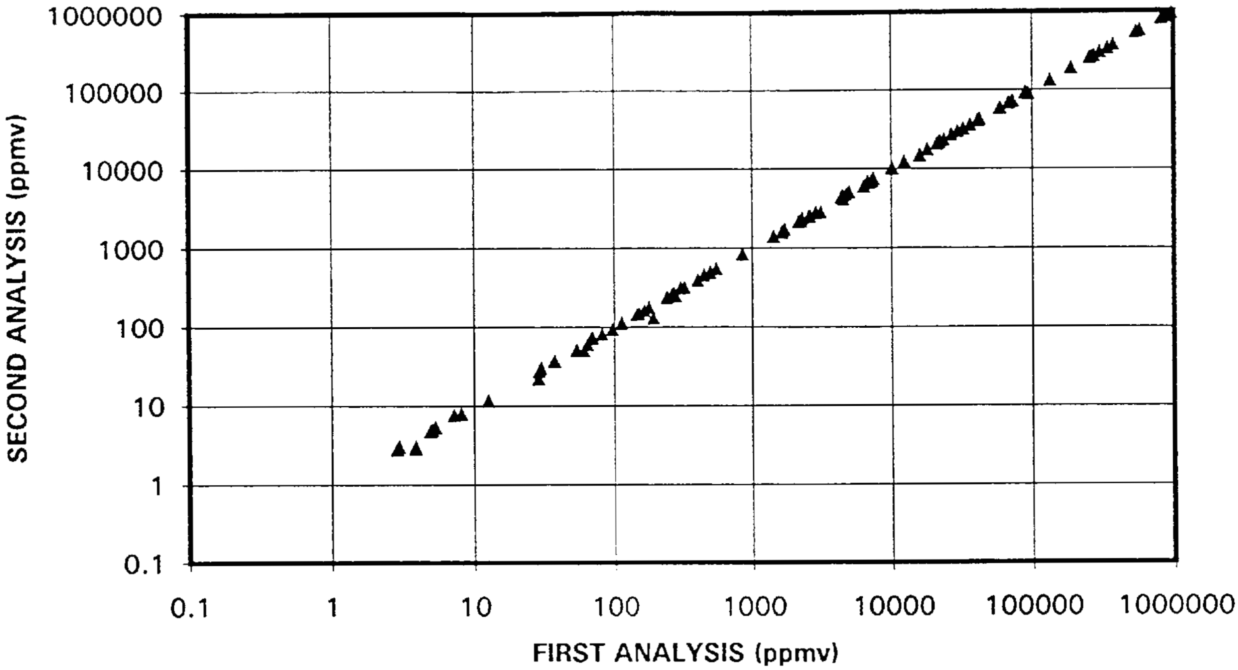


Figure 2-4. COMPARISON OF REPEAT ANALYSES AT LABORATORY C2

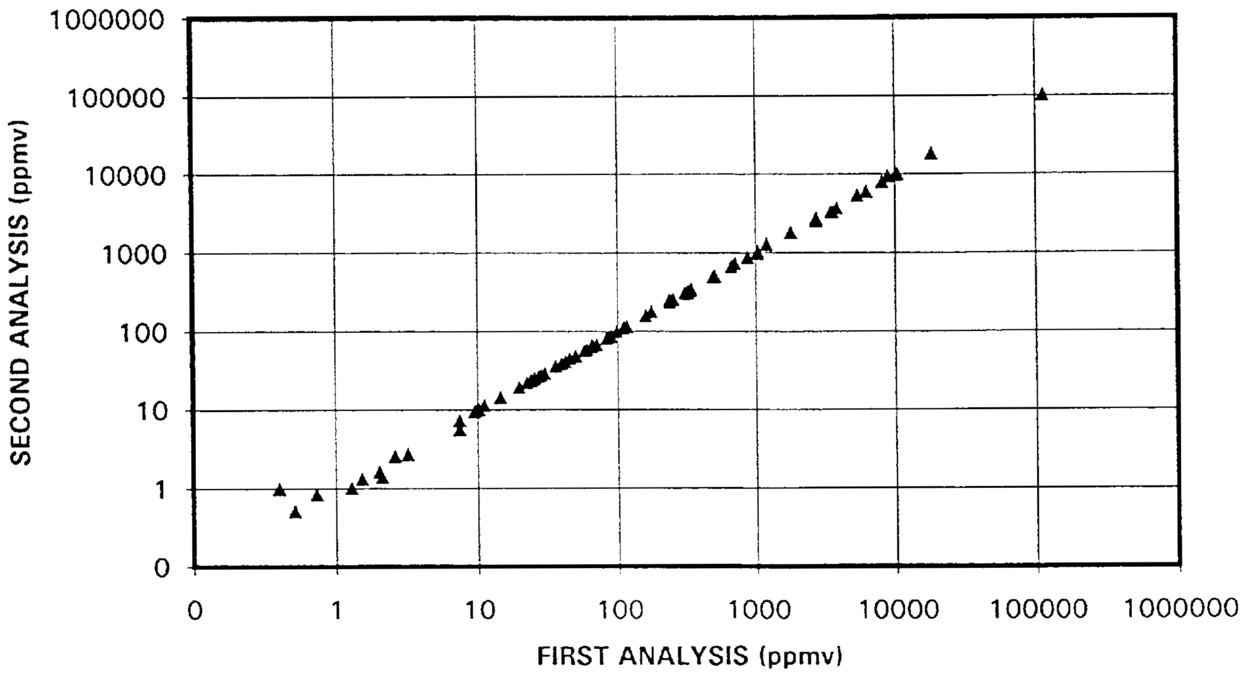


Figure 2-5. COMPARISON OF REPEAT ANALYSES AT LABORATORY C3

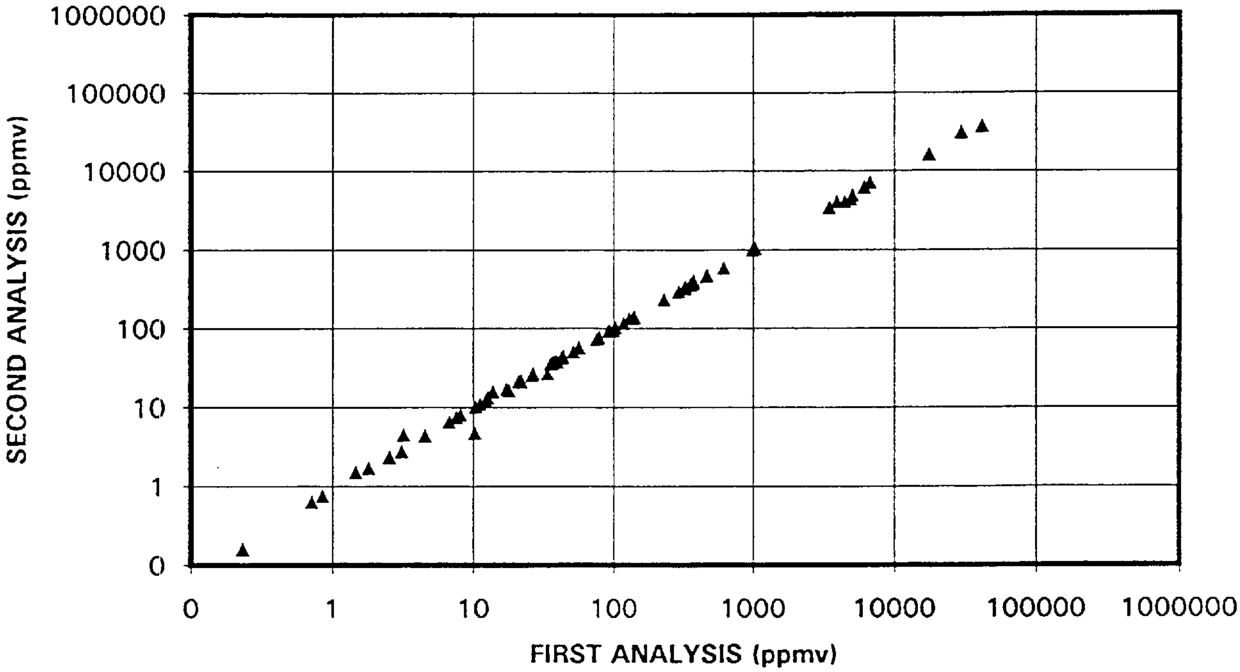


Figure 2-6. COMPARISON OF REPEAT ANALYSES AT LABORATORY C4

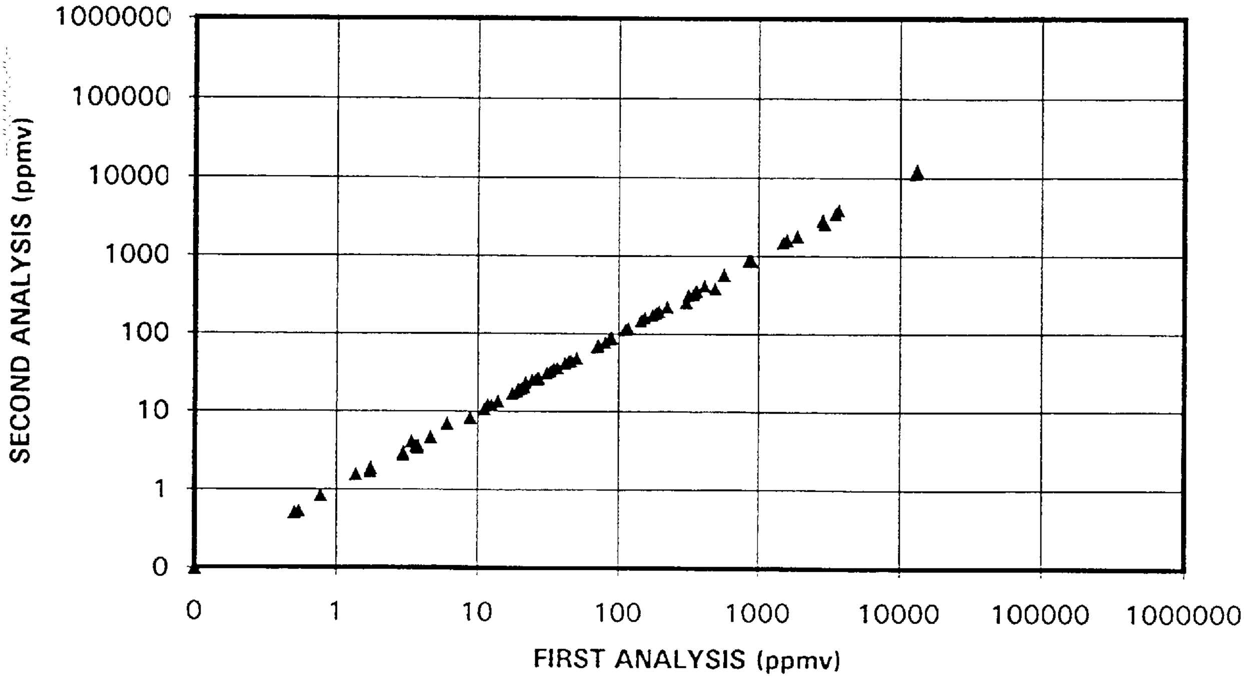


Figure 2-7. COMPARISON OF REPEAT ANALYSES AT LABORATORY C-5

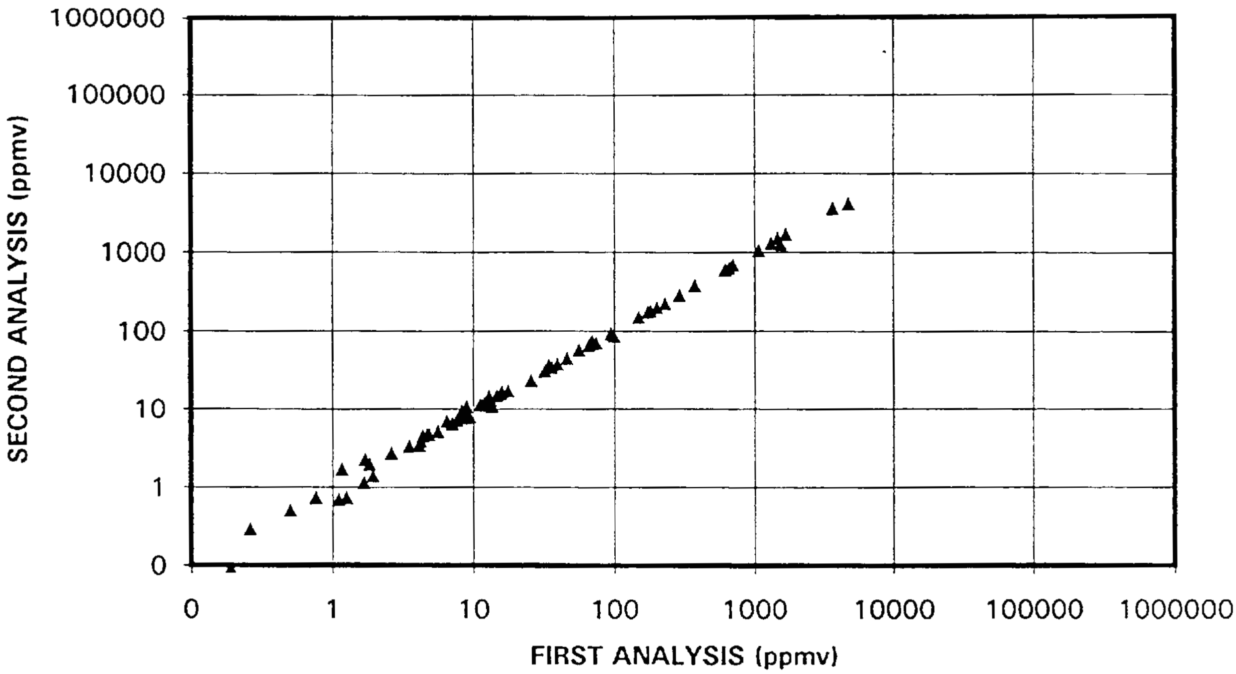


Figure 2-8. COMPARISON OF REPEAT ANALYSES AT LABORATORY C6+

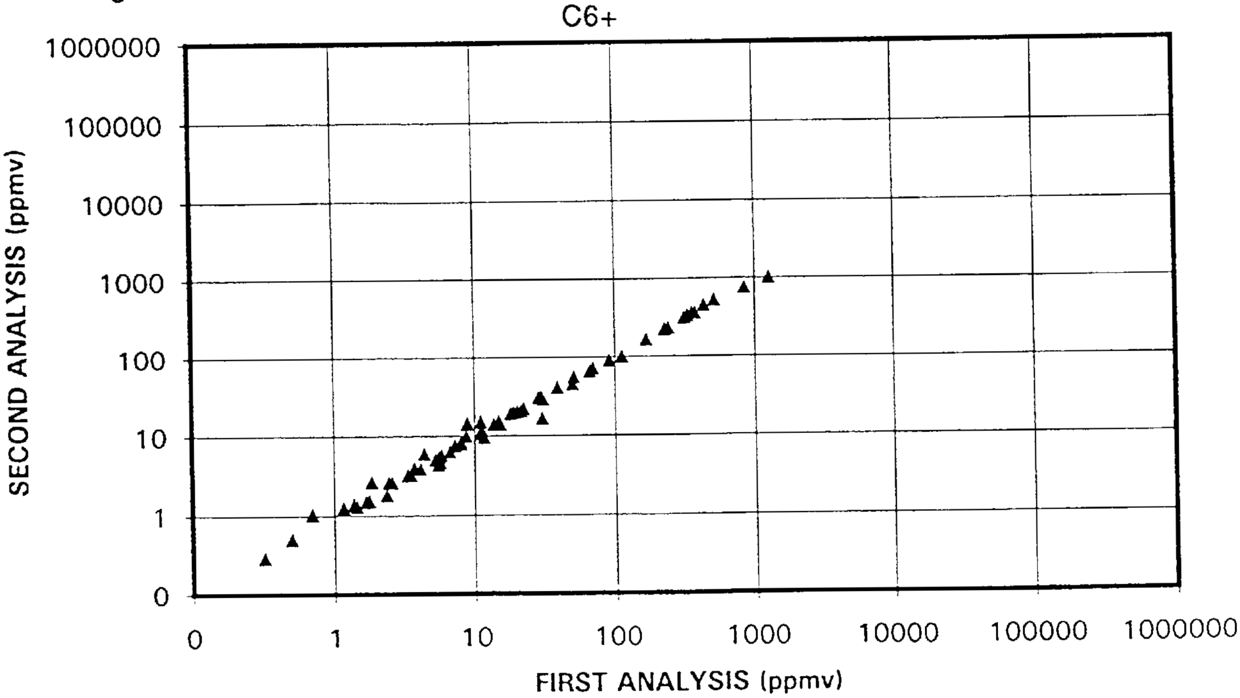


Table 2-5
FIRST AND SECOND ANALYSES FOR AROMATIC HYDROCARBONS (ppmv)

Sample	Benzene 1	Benzene 2	Diff.	Toluene 1	Toluene 2	Diff.	E-Ben1	E-Ben2	Diff.	m+p Xyl1	m+p Xyl2	Diff.	o Xyl1	o Xyl2	Diff.
A	0.039	0.028	28%	0.075	0.075	0%	0.020	0.020	0%	0.020	0.020	0%	0.020	0.020	0%
B	0.399	0.354	11%	0.544	0.542	0%	0.142	0.157	-11%	0.154	0.181	-18%	0.083	0.080	4%
C	0.128	0.114	11%	0.779	0.712	9%	0.217	0.182	16%	0.325	0.250	23%	5.400	5.160	4%
D	0.231	0.210	9%	0.085	0.095	-12%	0.065	0.065	0%	0.065	0.065	0%	0.065	0.065	0%
E	17.600	16.100	9%	1.520	1.490	2%	0.244	0.240	2%	0.250	0.235	6%	0.095	0.109	-15%
F	5.390	5.030	7%	5.960	5.580	6%	0.144	0.097	32%	0.207	0.145	30%	0.065	0.065	0%
G	3.190	3.030	5%	1.590	1.540	3%	0.055	0.055	0%	0.103	0.092	11%	0.055	0.055	0%
H	80.000	76.800	4%	4.370	4.340	1%	0.095	0.118	-24%	0.904	0.757	16%	0.500	0.500	0%
I	0.180	0.173	4%	0.302	0.318	-5%	0.055	0.055	0%	0.117	0.133	-14%	0.055	0.055	0%
J	1.810	1.750	3%	1.760	1.720	2%	0.055	0.055	0%	0.217	0.231	-6%	0.055	0.055	0%
K	1.750	1.700	3%	4.240	4.280	-1%	0.205	0.178	13%	1.140	1.230	-8%	0.362	0.367	-1%
L	2.400	2.340	3%	1.040	0.998	4%	0.055	0.055	0%	ND	ND		0.055	0.055	0%
M	12.200	11.900	2%	4.220	4.680	-11%	0.060	0.060	0%	0.096	0.075	22%	0.050	0.050	0%
N	4.970	4.870	2%	7.360	7.220	2%	0.200	0.138	31%	1.040	0.990	5%	ND	ND	
O	2.140	2.110	1%	0.307	0.305	1%	0.020	0.020	0%	ND	ND		0.020	0.020	0%
P	4.360	4.310	1%	8.540	8.440	1%	ND	ND		ND	ND		ND	ND	
Q	1.870	1.860	1%	4.080	4.080	0%	0.306	0.271	11%	0.710	0.654	8%	0.347	0.322	7%
R	42.500	42.300	0%	16.200	16.600	-2%	0.905	0.830	8%	0.963	0.973	-1%	0.430	0.324	25%
S	0.534	0.532	0%	1.840	1.810	2%	0.072	0.077	-7%	0.619	0.566	9%	0.167	0.142	15%
T	0.065	0.065	0%	0.107	0.093	13%	0.065	0.065	0%	0.065	0.065	0%	0.065	0.065	0%
U	0.035	0.035	0%	na	na		na	na		na	na		na	na	
V	0.035	0.035	0%	na	na		na	na		na	na		na	na	
W	0.248	0.249	0%	0.741	0.725	2%	0.023	0.025	-10%	0.097	0.102	-5%	0.035	0.042	-19%
X	5.690	5.730	-1%	0.424	0.430	-1%	0.050	0.050	0%	0.080	0.080	0%	0.050	0.050	0%
Y	2.240	2.270	-1%	6.500	6.540	-1%	0.408	0.420	-3%	2.240	2.020	10%	0.586	0.590	-1%
Z	5.400	5.500	-2%	14.100	14.700	-4%	1.090	1.180	-8%	1.660	1.710	-3%	ND	ND	
AA	0.477	0.486	-2%	1.060	1.060	0%	0.189	0.190	-1%	0.268	0.274	-2%	0.135	0.141	-4%
BB	7.130	7.280	-2%	5.330	5.320	0%	0.656	0.548	16%	1.210	1.060	12%	0.350	0.474	-35%
CC	3.360	3.440	-2%	10.500	11.000	-5%	0.703	0.723	-3%	2.730	2.940	-8%	1.140	1.050	8%

ND = Not detected. na = Not analyzed.

Figure 2-9. COMPARISON OF REPEAT ANALYSES AT LABORATORY (Benzene)

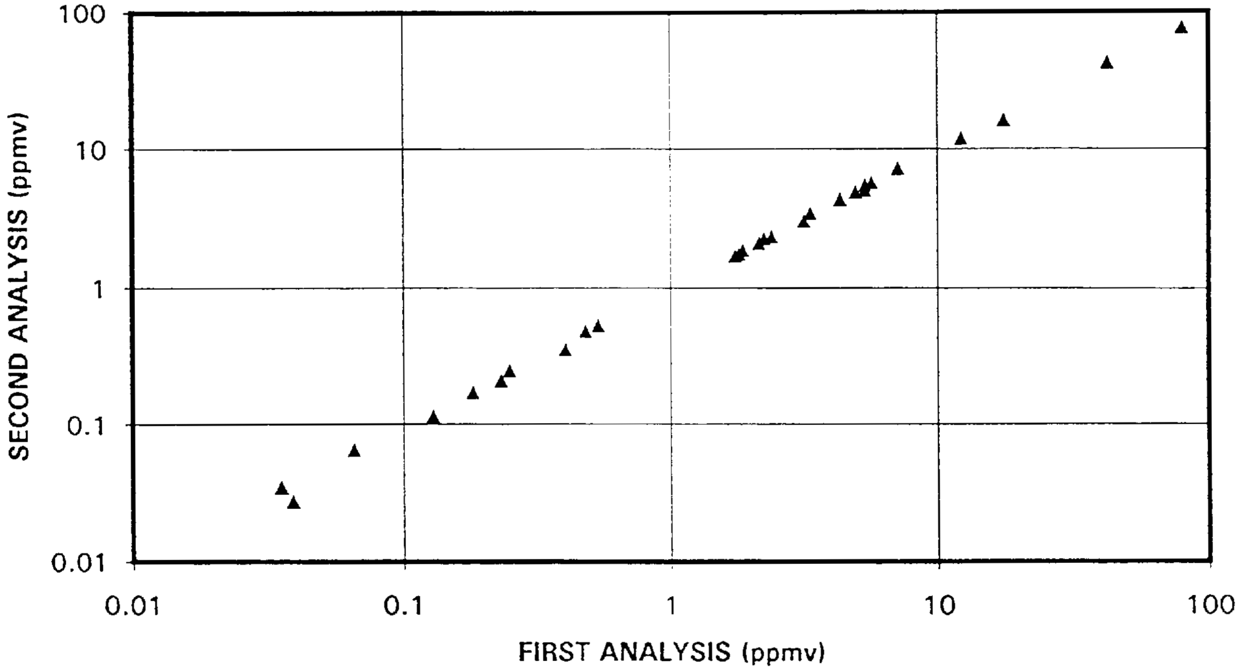


Figure 2-10. COMPARISON OF REPEAT ANALYSES AT LABORATORY (Toluene)

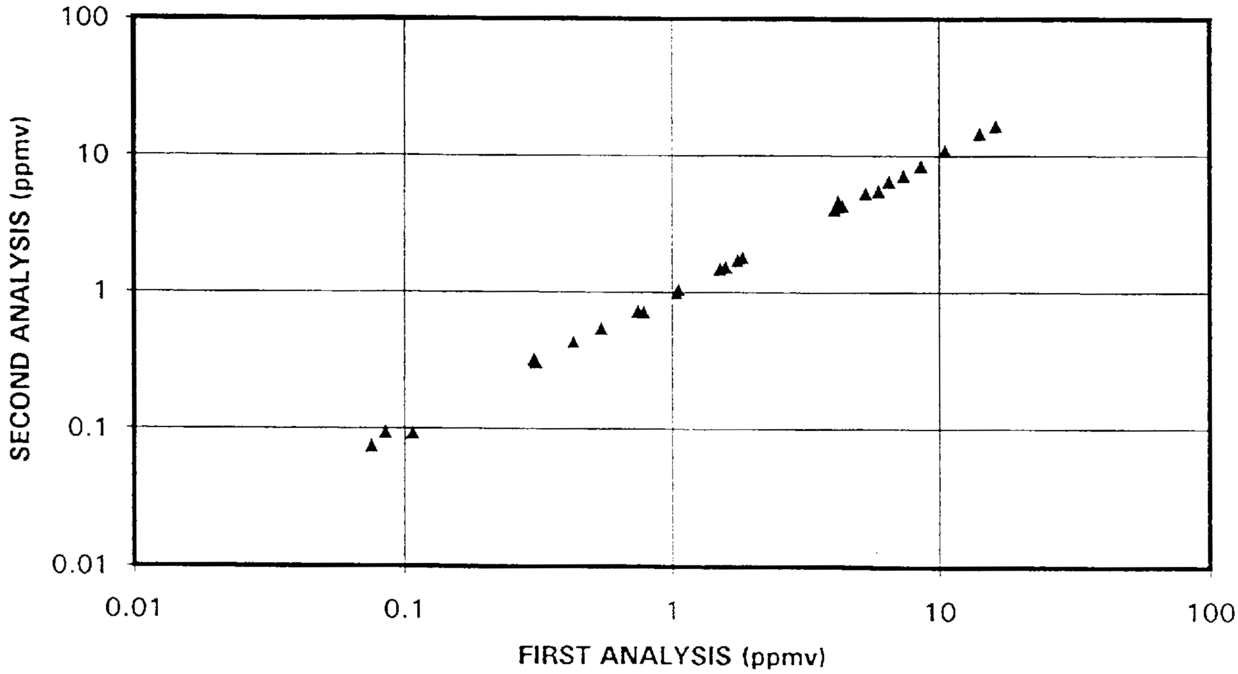


Figure 2-11. COMPARISON OF REPEAT ANALYSES AT LABORATORY
(Ethyl Benzene)

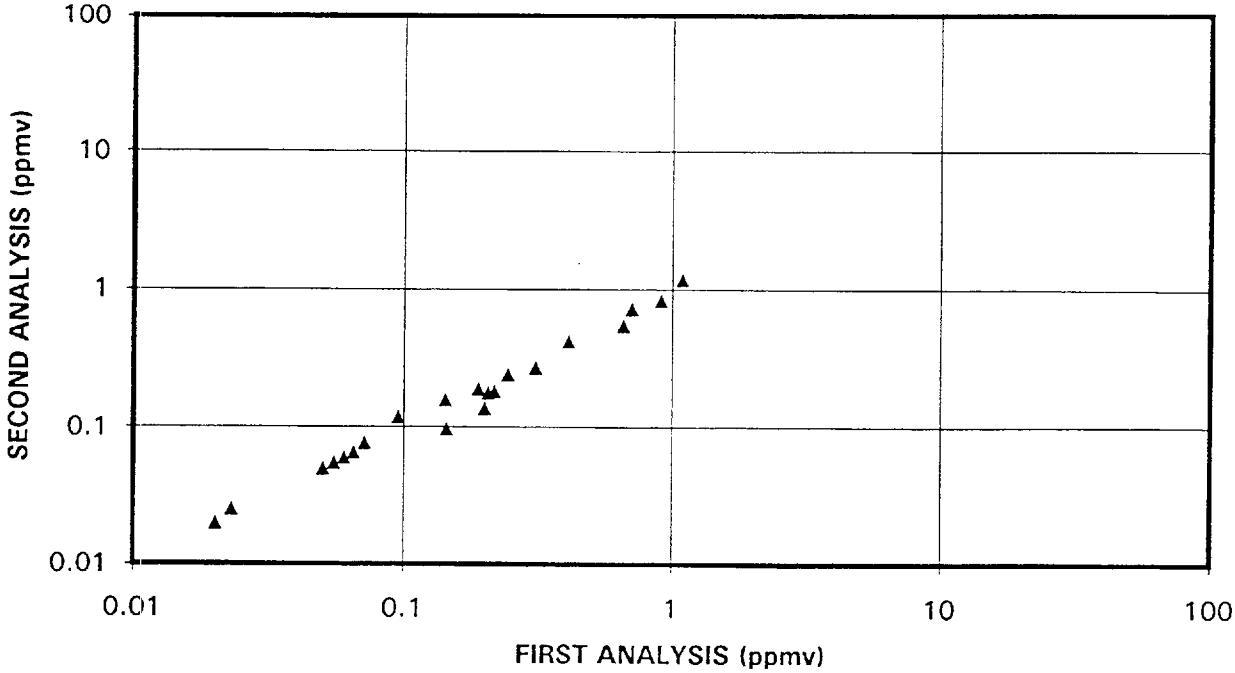


Figure 2-12. COMPARISON OF REPEAT ANALYSES AT LABORATORY
(m + p Xylene)

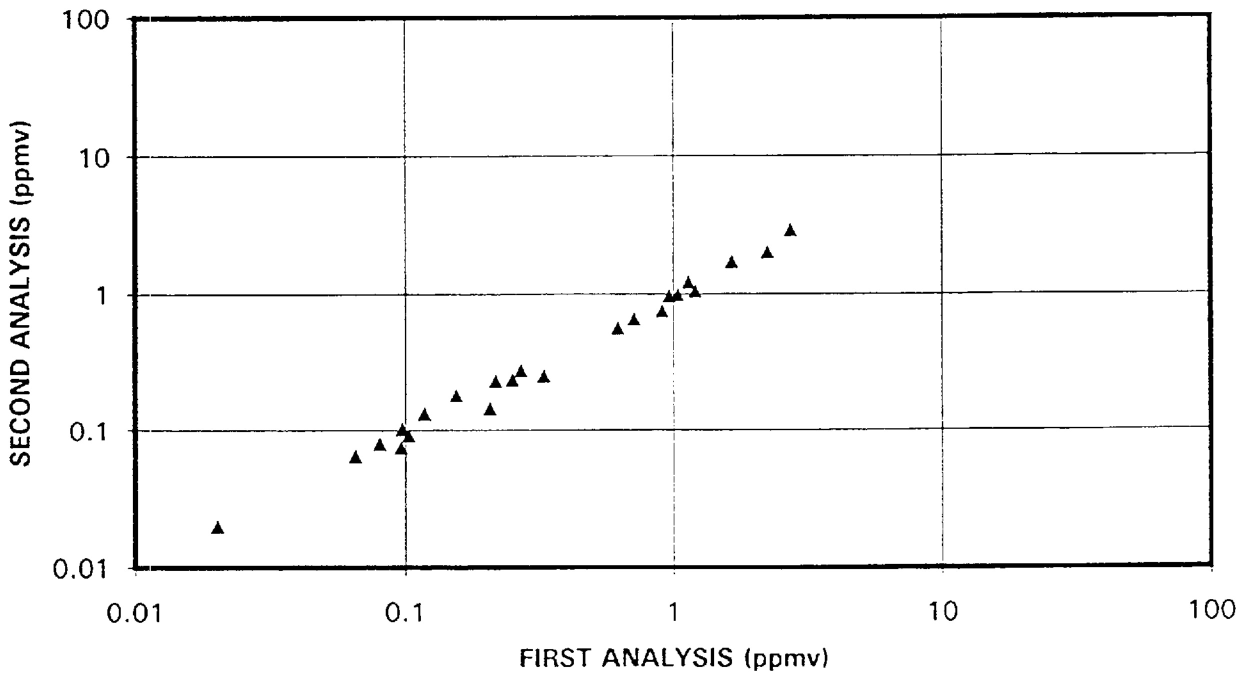


Figure 2-13. COMPARISON OF REPEAT ANALYSES AT LABORATORY
(o Xylene)

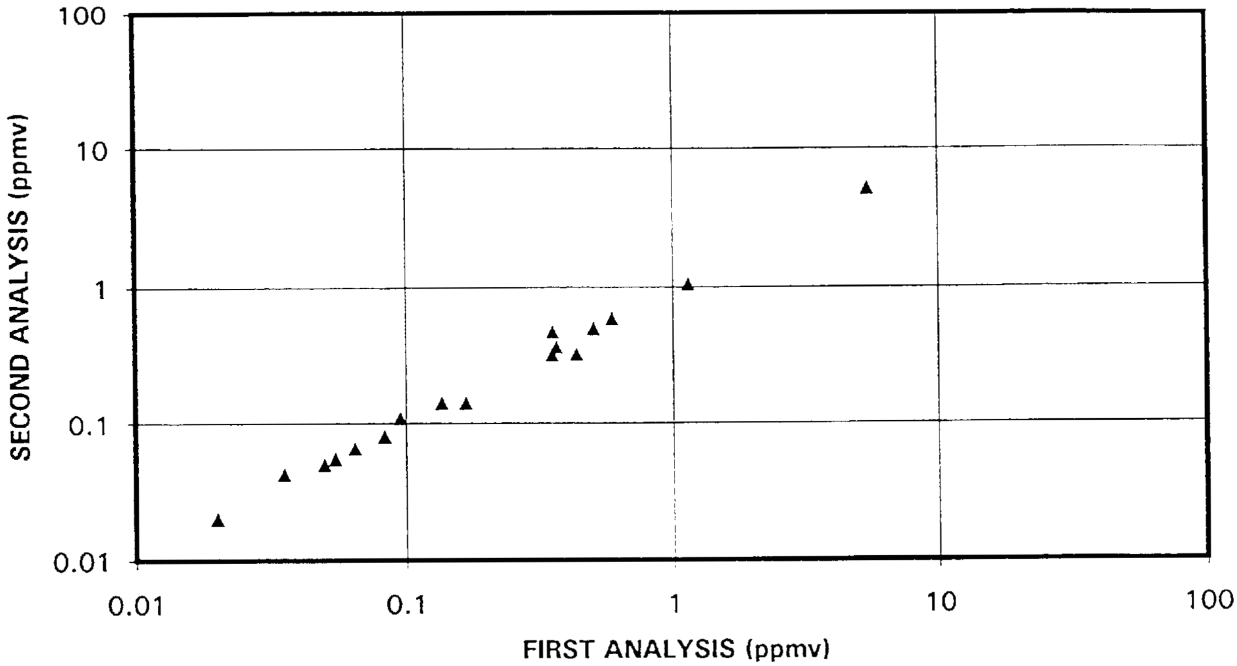
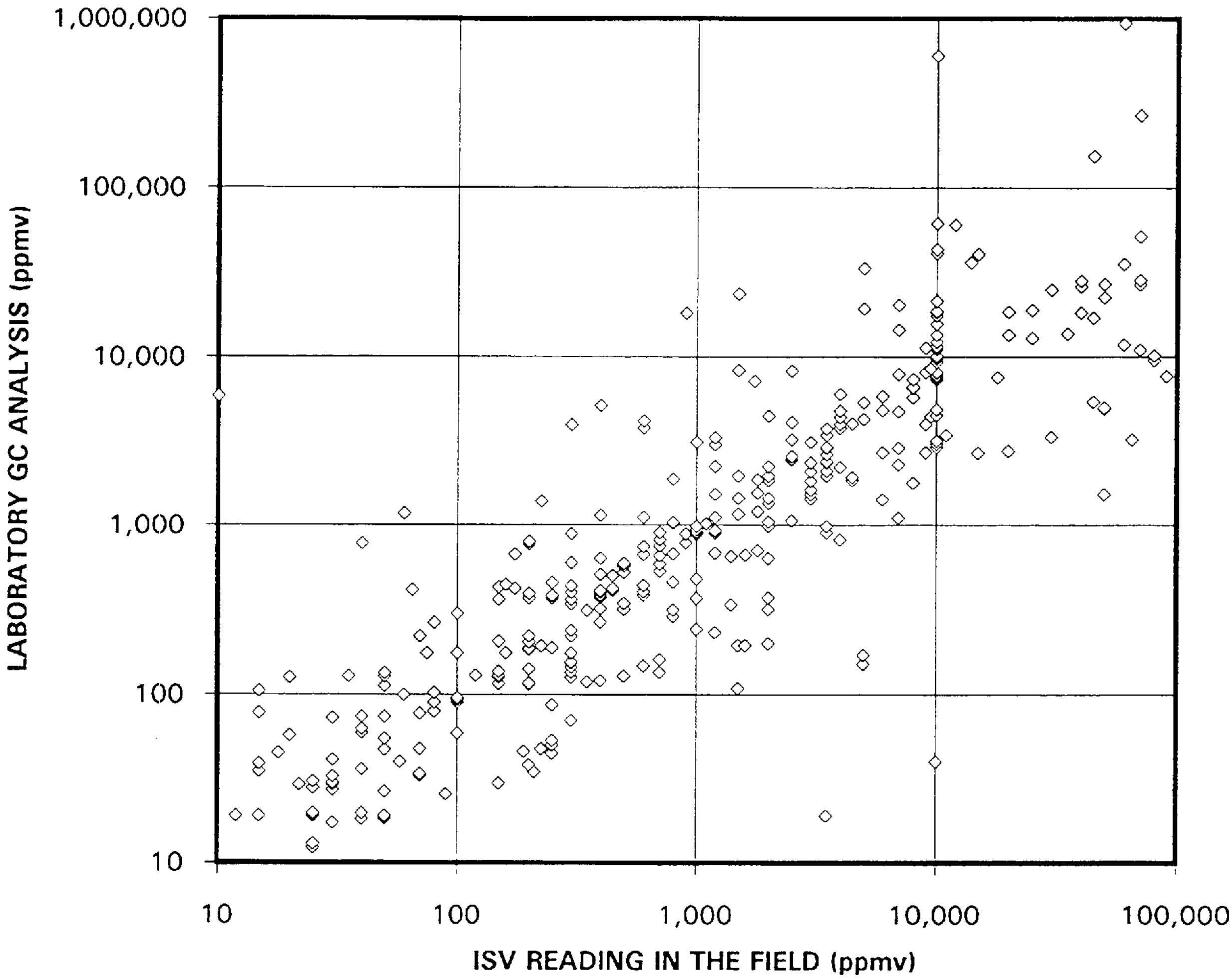


Table 2-6. CORRELATION OF REPEATED LABORATORY ANALYSES

CHEMICAL SPECIES	COEFFICIENT OF CORRELATION (r)
Methane	0.99983
C2 hydrocarbons	0.99880
C3 hydrocarbons	0.99803
C4 hydrocarbons	0.99971
C5 hydrocarbons	0.99645
C6+ hydrocarbons	0.99485
Benzene	0.99950
Toluene	0.99927
Ethyl Benzene	0.99947
m+p Xylenes	0.99545
o Xylene	0.99692

Monitoring instruments were calibrated daily with certified concentrations of methane in air. During sample collection, the pump outlet was measured with the monitoring instrument just before filling the sample bag to give "as filled" ISVs. As an additional check on accuracy of the field crew, bagging techniques, and sample collection procedures, the "as filled" ISVs of the sample bags were compared with the "as analyzed" concentrations (see Figure 2-14). The coefficient of correlation for these data is: $r = 0.86$. This indicates that calibration procedures, bagging procedures, and sampling procedures produced acceptable results.

Figure 2-14. COMPARISON OF ONSHORE SAMPLE BAGS AS COLLECTED AND AS ANALYZED (Total Hydrocarbons)



CORRELATION EQUATIONS

Correlation equations were developed to predict mass emission rates for ISVs above 10 ppmv. World-wide background levels of methane approach 2 ppmv in open areas; localized areas such as swamps, highways, farms, and industrial sites often have background concentrations exceeding 5 ppmv. Therefore, it is inadvisable to attempt to measure ISVs less than 10 ppmv and/or use correlation equations to predict emissions from these extremely small sources. Sources with ISVs less than 10 ppmv were assumed to have ISVs of 5 ppmv.

All measured ISVs were used to produce the correlation equations that were developed by regressing the natural logarithm of total hydrocarbon emissions on the natural logarithm of ISV. The analysis began with a general Analysis of Variance (ANOVA) model that allowed for four types of components with the possibility of different intercepts and different slopes for each component type. Terms not statistically significant were excluded sequentially from the model until all terms left in the model were significant. The resulting correlation equations are shown in Table 2-7.

Table 2-7. CORRELATION EQUATIONS

FACILITY TYPE	COMPONENT TYPE	CORRELATION EQUATION
Onshore Light Crude	CN, VL, OEL	THC(lb/day) = 8.61×10^{-5}(ISV ppmv)$^{0.83}$
Onshore Light Crude	Other	THC(lb/day) = 1.24×10^{-3}(ISV ppmv)$^{0.61}$
Onshore Heavy Crude	All	THC(lb/day) = 3.29×10^{-5}(ISV ppmv)$^{0.89}$
Onshore Gas Production	CN, OEL	THC(lb/day) = 8.04×10^{-6}(ISV ppmv)$^{1.02}$
Onshore Gas Production	VL, Other	THC(lb/day) = 9.79×10^{-5}(ISV ppmv)$^{0.96}$
Onshore Gas Plant	All	THC(lb/day) = 1.79×10^{-4}(ISV ppmv)$^{0.87}$

Figures 2-15 through 2-20 show the total hydrocarbon (THC) emissions data and correlation equations in log-log plots for each facility type/component type combination. Note that most individual data points fall below the correlation lines. This is due to the nature of log-log plots.

Figure 2-15. LIGHT CRUDE PRODUCTION CORRELATION (CN,VL, OEL)

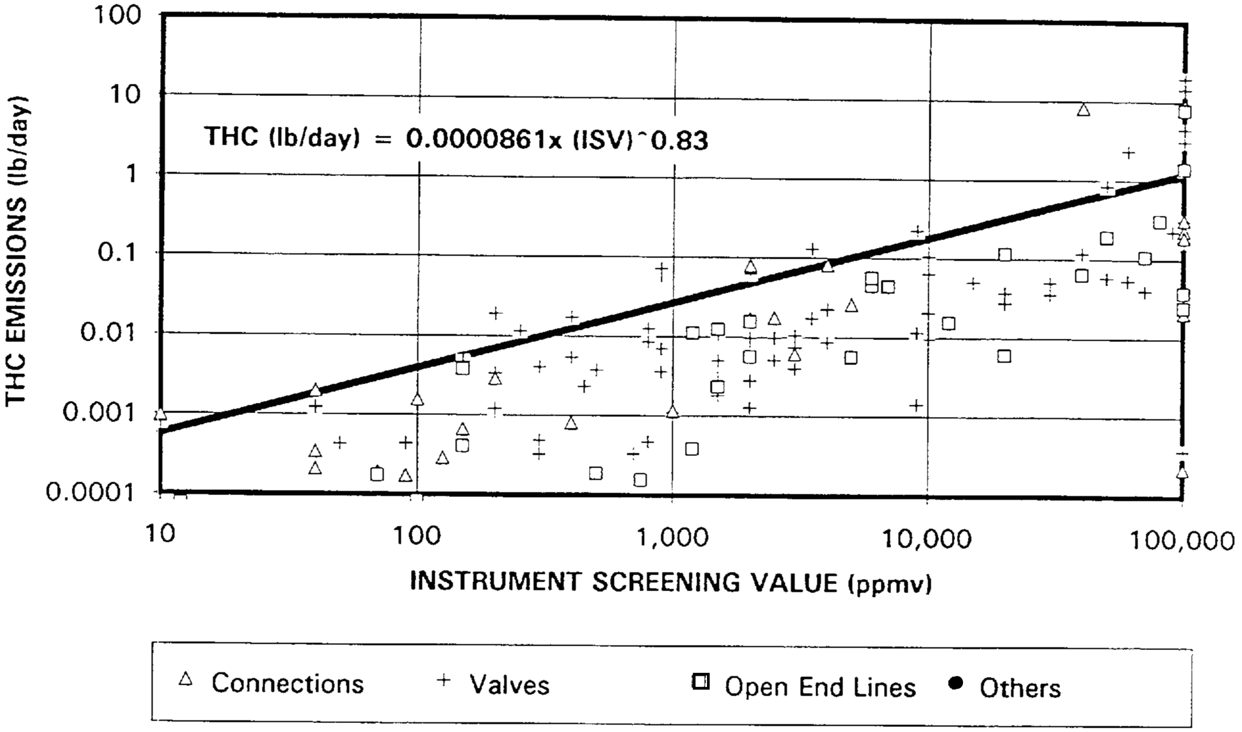


Figure 2-16. LIGHT CRUDE PRODUCTION CORRELATION (Others)

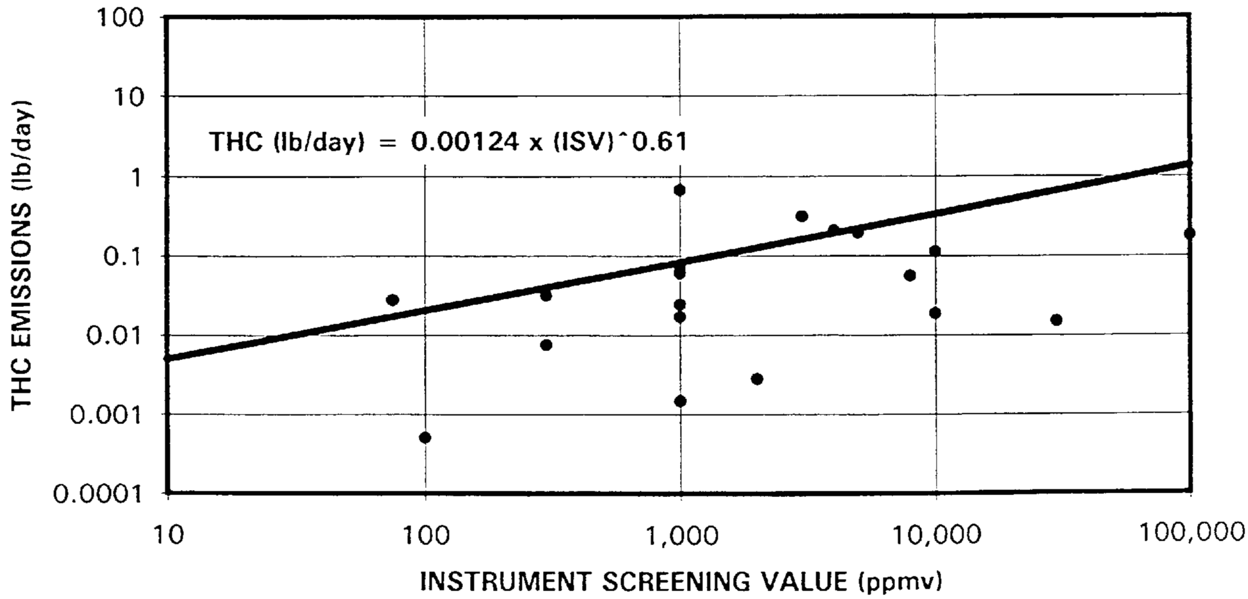


Figure 2-17. HEAVY CRUDE PRODUCTION CORRELATION (CN, VL, OEL, Others)

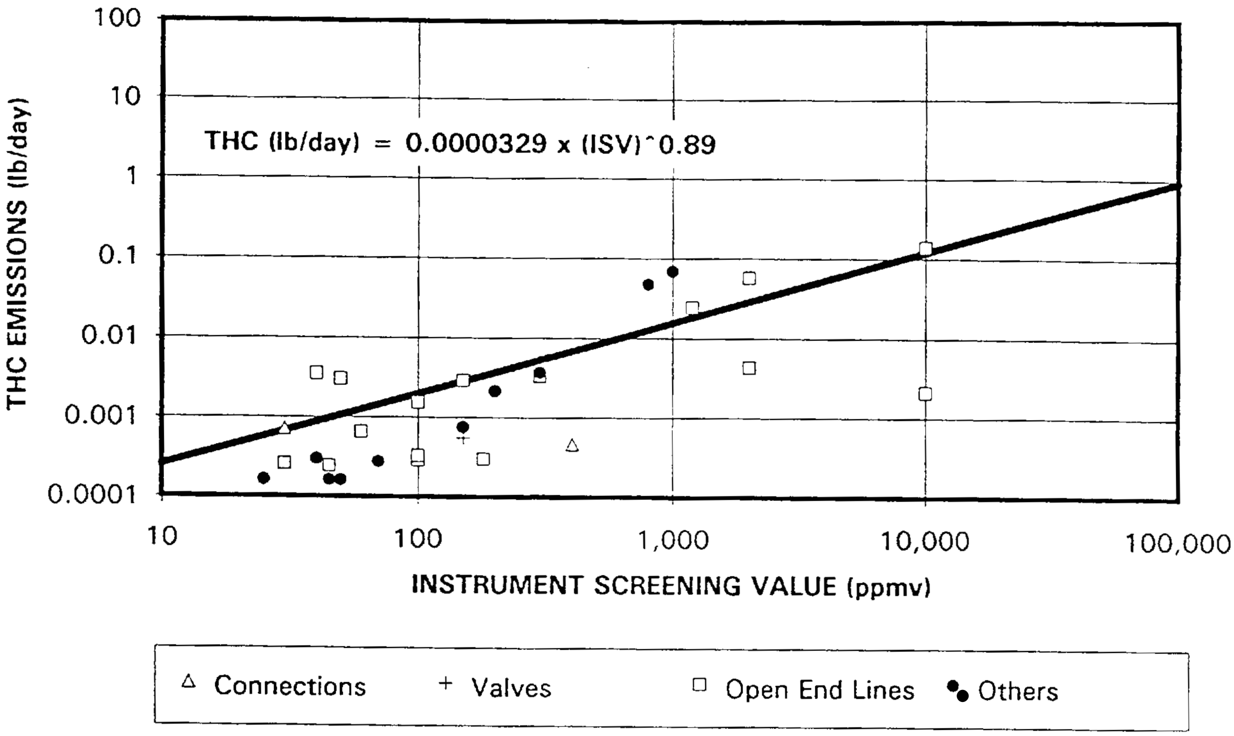


Figure 2-18. NATURAL GAS PRODUCTION CORRELATION (CN, OEL)

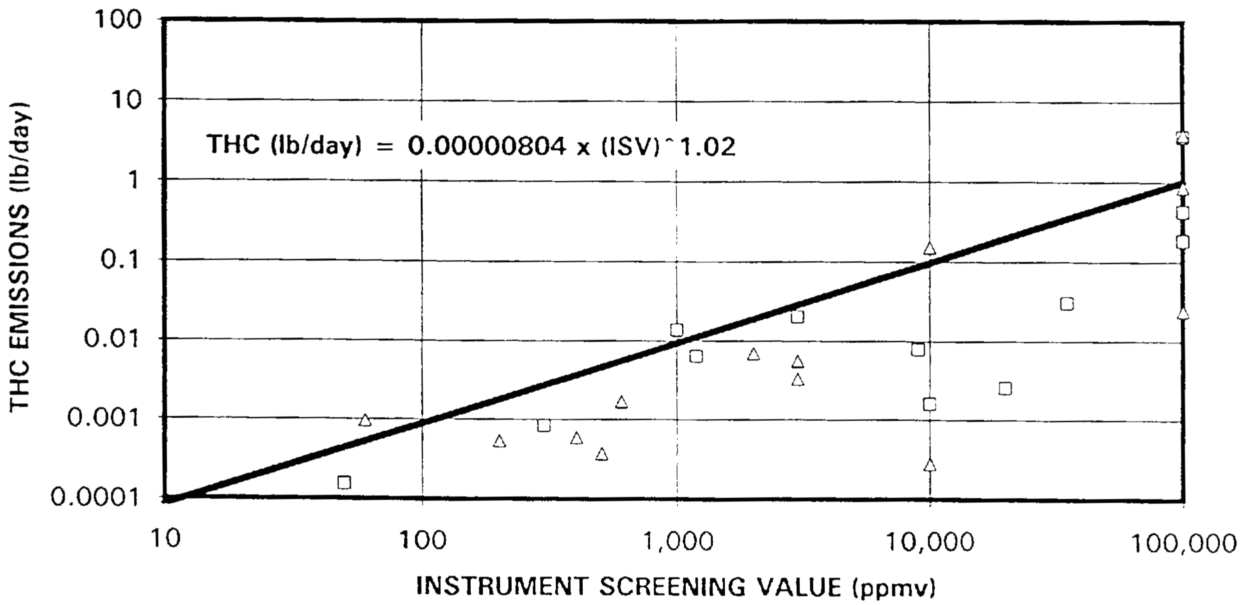


Figure 2-19. NATURAL GAS PRODUCTION CORRELATION (VL, Others)

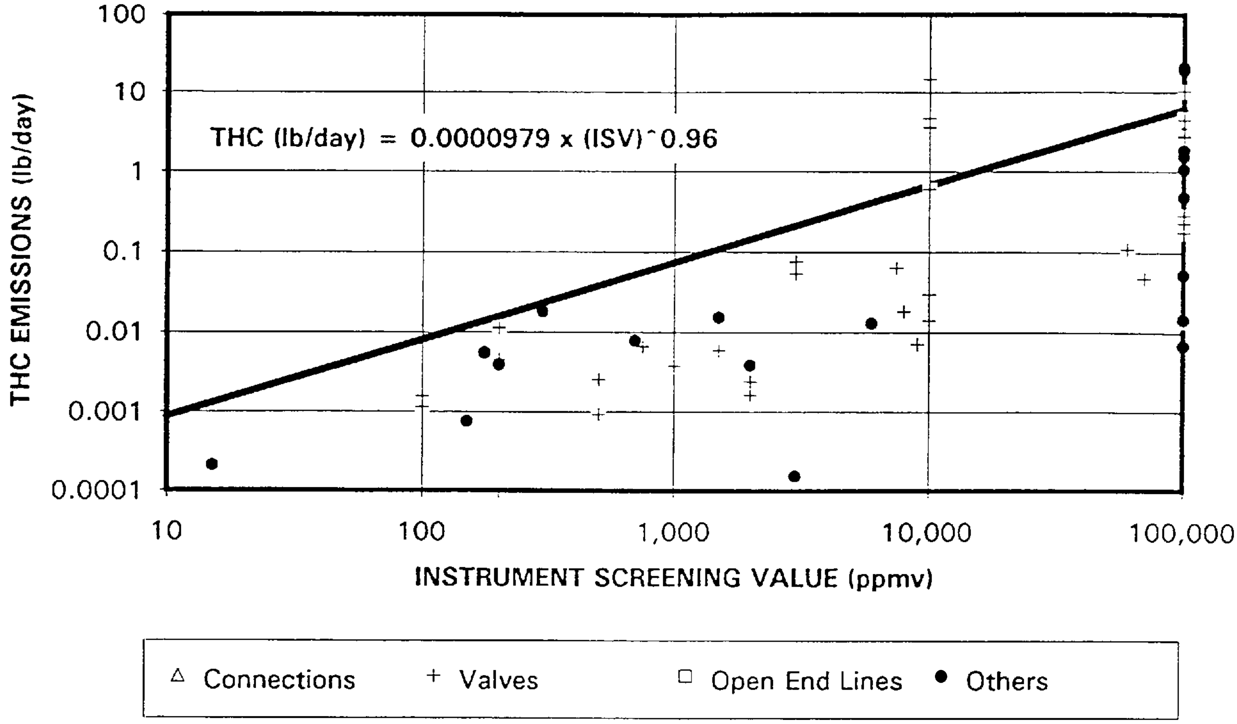
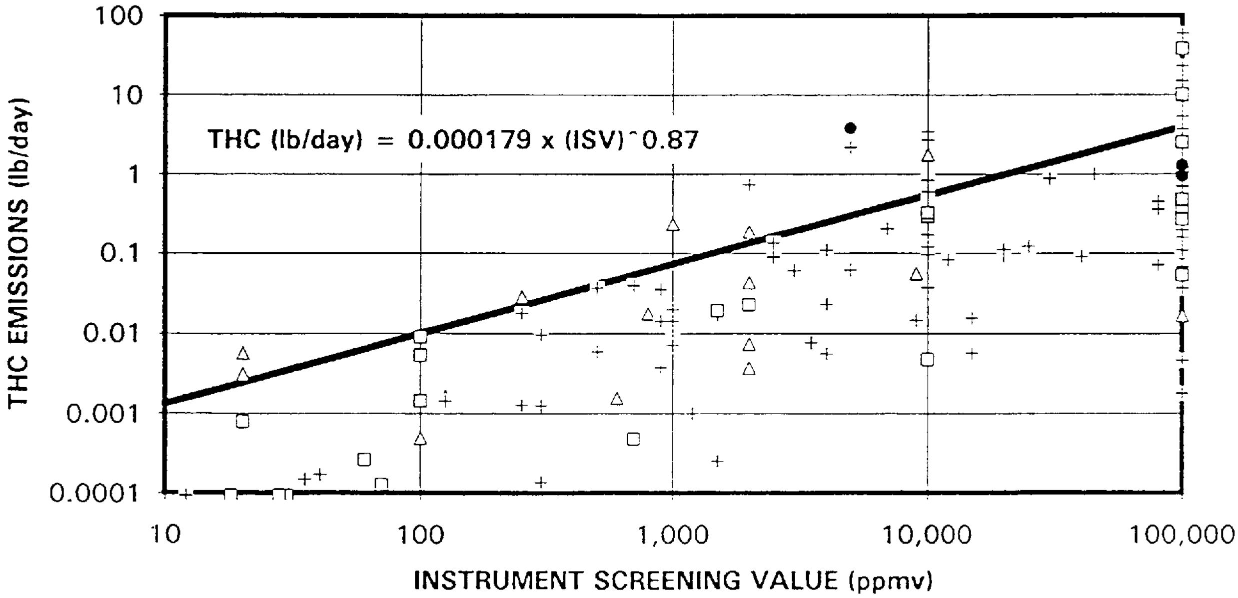


Figure 2-20. NATURAL GAS PROCESSING CORRELATION (CN, VL, OEL, Others)



Components with ISVs less than 10 ppmv were assumed to emit hydrocarbons at "default zero" rates that result in ISVs of 5 ppmv. Table 2-8 gives default zeros for use with each correlation equation.

Table 2-8. DEFAULT ZERO THC EMISSION FACTORS

FACILITY TYPE	COMPONENT TYPE	DEFAULT ZERO
Onshore Light Crude	CN, VL, OEL	0.00033 lb/day-component
Onshore Light Crude	Other	0.00331 lb/day-component
Onshore Heavy Crude	All	0.00014 lb/day-component
Onshore Gas Production	CN, OEL	0.00004 lb/day-component
Onshore Gas Production	VL, Other	0.00046 lb/day-component
Onshore Gas Plant	All	0.00073 lb/day-component

EMISSION FACTORS

Three types of THC emission factors were developed: Average emission factors, Leak/No Leak emission factors, and Speciated emission factors. Each type of emission factor is discussed below.

Average Emission Factors

Average THC emission factors are used to predict fugitive hydrocarbon emissions when the only information available about a site is the number of components installed. Average THC emission factors were developed by dividing total emissions by the total number of installed components. Average THC emission factors for individual component types were developed by dividing the component type's contribution to total emissions by the number of those components. Table 2-9 gives the overall average emission factor; Table 2-10 gives component specific average emission factors.

Table 2-9. AVERAGE THC EMISSION FACTORS
(Overall)

FACILITY TYPE	COMPONENT TYPE	AVERAGE EMISSION FACTOR
Onshore Light Crude	All	0.0085 lb/day-component
Onshore Heavy Crude	All	0.0002 lb/day-component
Onshore Gas Production	All	0.0233 lb/day-component

Table 2-10. AVERAGE THC EMISSION FACTORS
(Component specific)
[lb/day-component]

FACILITY TYPE	CONNECTIONS	VALVES	OPEN-ENDED	OTHERS
Onshore Light Crude	0.0041	0.0197	0.0351	0.0991
Onshore Heavy Crude	0.0001	0.0002	0.0010	0.0007
Onshore Gas Production	0.0038	0.1063	0.0107	0.2870

Leak/No Leak Emission Factors

Another method of calculating fugitive hydrocarbon emissions is to screen components and determine the number above and below a leak definition (in ppmv). Table 2-11 gives the average THC emission rates for all components above and below the leak definition.

Table 2-11. LEAK/NO-LEAK THC EMISSION FACTORS (Pounds/Day-Component)

FACILITY TYPE	COMP. TYPE	No Leak <10,000 ppmv	Leak ≥10,000 ppmv
Onshore Light Crude	CN, VL, OEL	0.00060	0.91
Onshore Light Crude	Other	0.01660	0.878
Onshore Heavy Crude	All	0.00016	0.119
Onshore Gas Production	CN, OEL	0.00021	0.380
Onshore Gas Production	VL, Other	0.00546	2.45

Stratified Emission Factors

Stratified THC emission factors given in Table 2-12 show the emission rates for components with ISVs below 10 ppmv, from 10 to 9,999 ppmv, from 10,000 to 99,999, and equal to or greater than 100,000 ppmv.

Table 2-12. STRATIFIED THC EMISSION FACTORS (Pounds/Day-Component)

FACILITY TYPE	COMPONENT TYPE	INSTRUMENT SCREENING RANGE <10 ppmv	10 to 9,999	10,000 to 99,999	≥ 100,000 ppmv
Onshore Light Crude	CN, VL, OEL	0.00033	0.0274	0.395	1.22
Onshore Light Crude	Other	0.00331	0.0610	0.365	1.39
Onshore Heavy Crude	All	0.00014	0.0046	0.119	na
Onshore Gas Production	CN, OEL	0.00004	0.0112	0.126	1.01
Onshore Gas Production	VL, Other	0.00046	0.0871	0.756	6.18

SPECIATION OF EMISSIONS

Bagged samples were speciated by gas chromatography into six nonaromatic groups:

C1 (methane)
C2 (hydrocarbons with two carbons)
C3 (hydrocarbons with three carbons)
C4 (hydrocarbons with four carbons)
C5 (hydrocarbons with five carbons)
C6+ (hydrocarbons with six or more carbons)

Large leaks were also speciated into four aromatic groups: benzene, toluene, ethyl-benzene, and xylenes. Attempts to speciate small leaks into aromatic groups were unsuccessful since the aromatic concentrations inside the sample bags were usually below the detection limit of approximately 50 parts-per-billion.

Figures 2-21 through 2-29 show nonaromatic speciation results for four individual light crude production sites, combined results for the four heavy crude sites, and individual results for four gas production sites arranged according to methane content.

Figures 2-30 through 2-32 show aromatic speciation results combined by facility type.

Figure 2-21. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Light Crude #1)

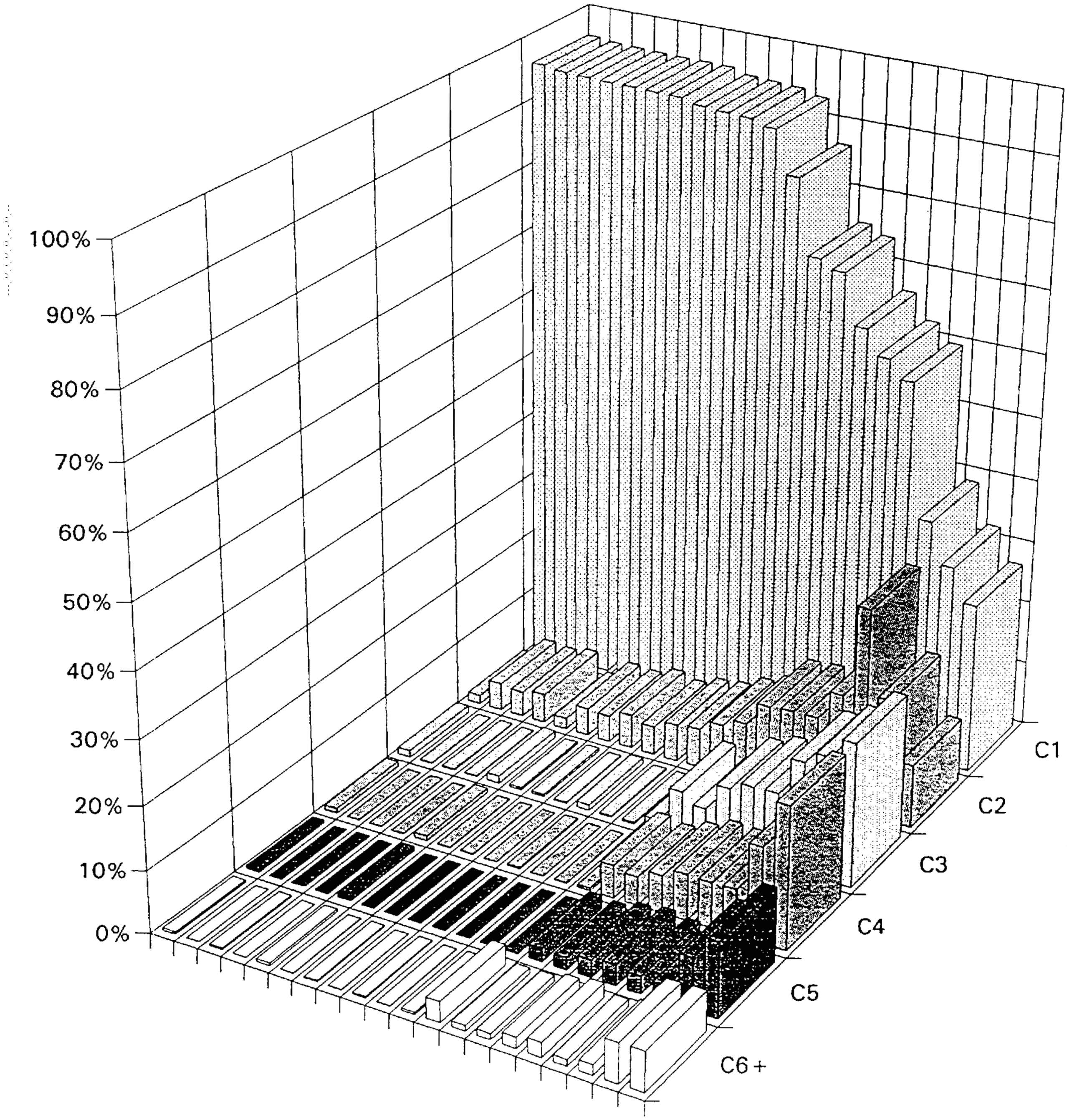


Figure 2-22. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Light Crude #2)

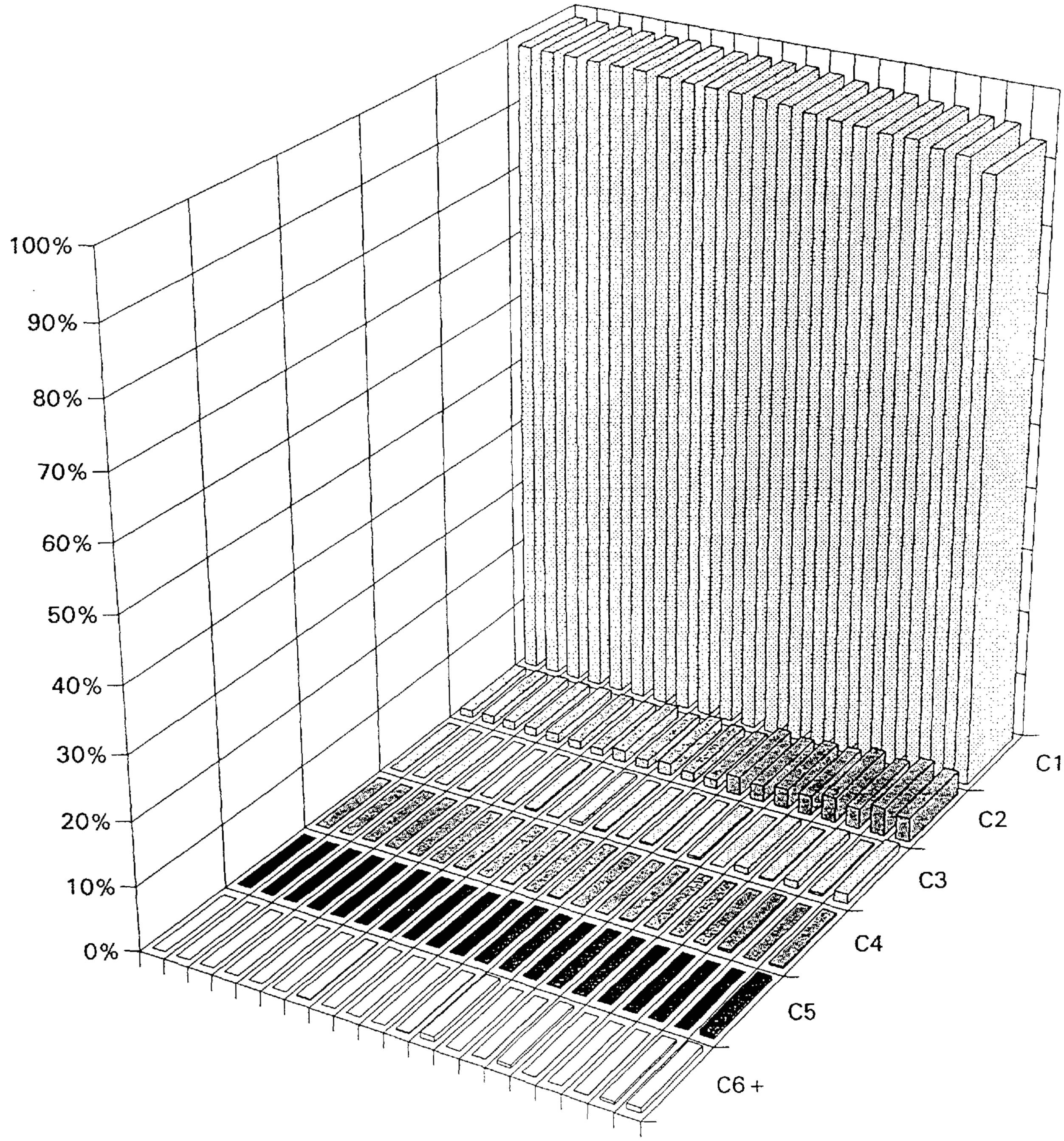


Figure 2-23. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Light Crude #3)

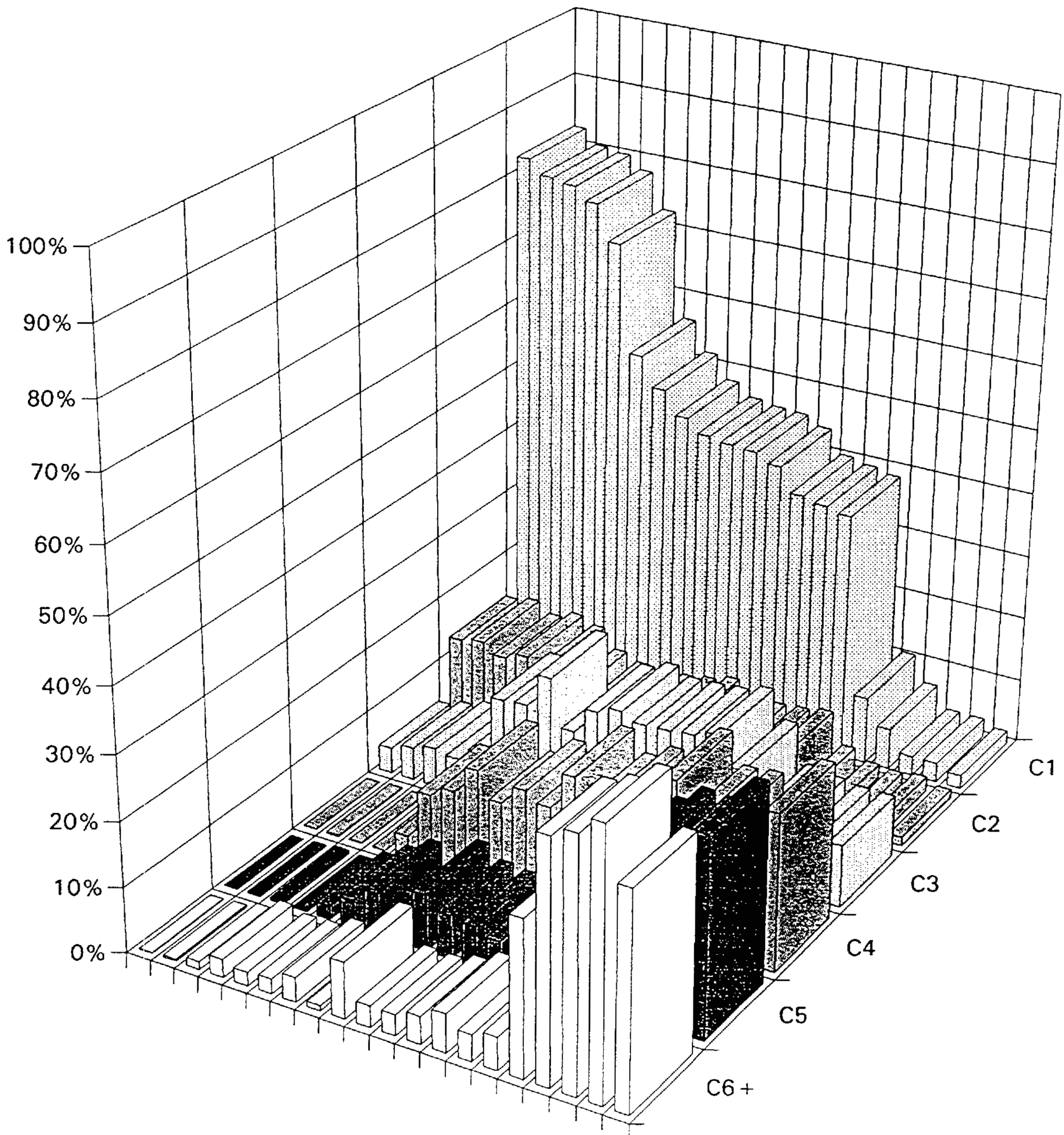


Figure 2-24. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Light Crude #4)

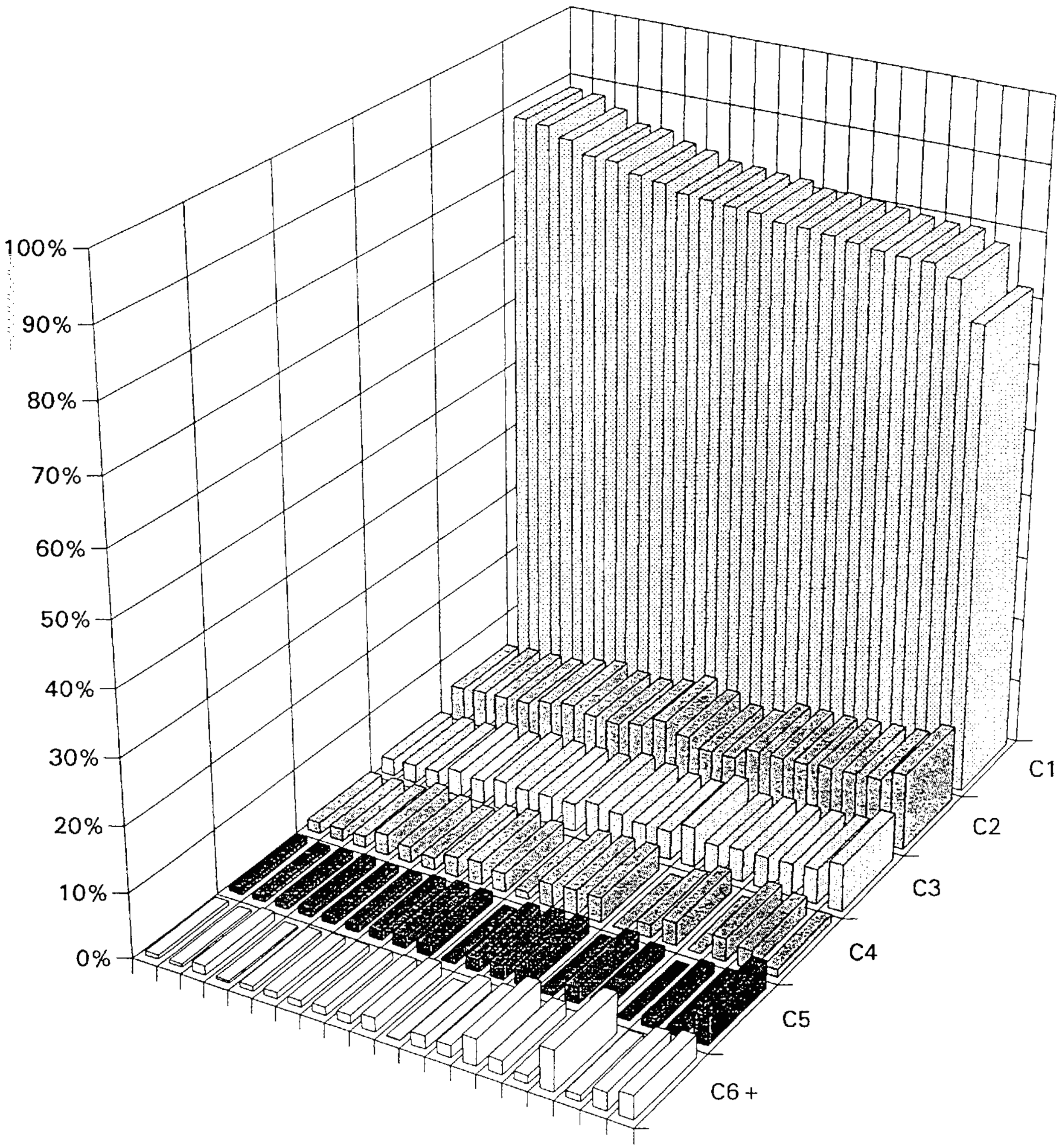


Figure 2-25. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Heavy Crude #5, #6, #7, #8,)

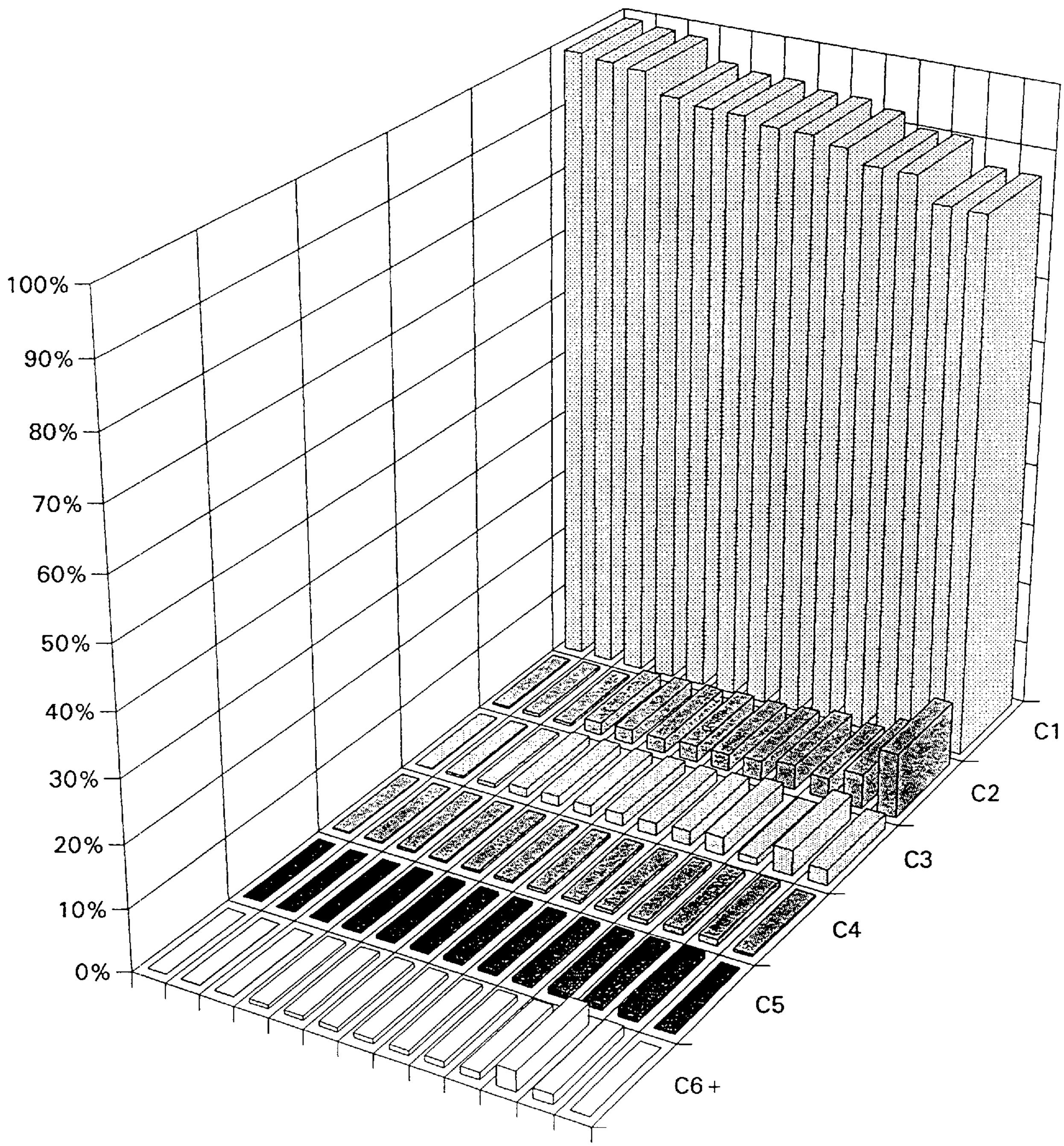


Figure 2-26. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Gas Production #9)

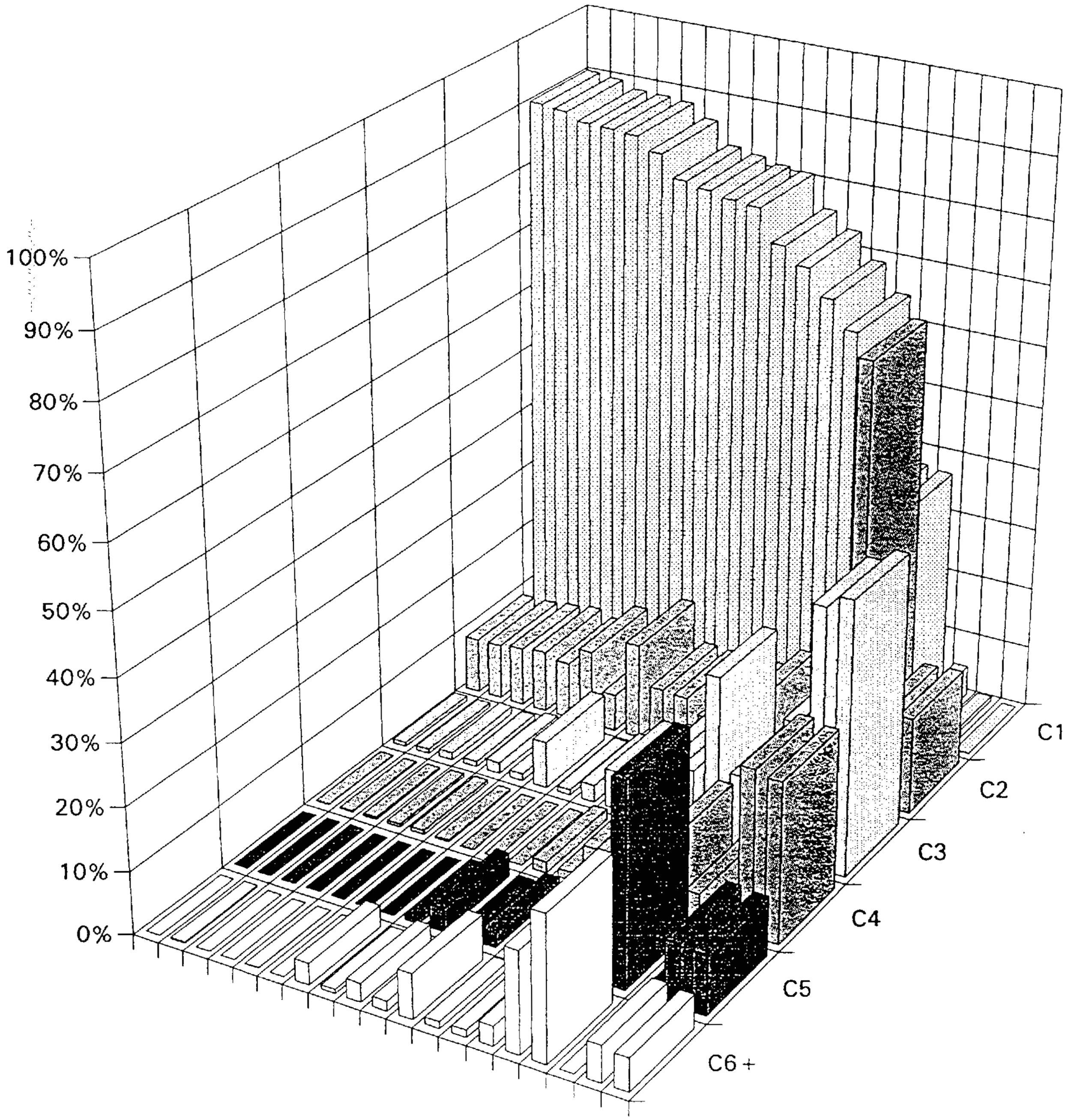


Figure 2-27. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Gas Production #10)

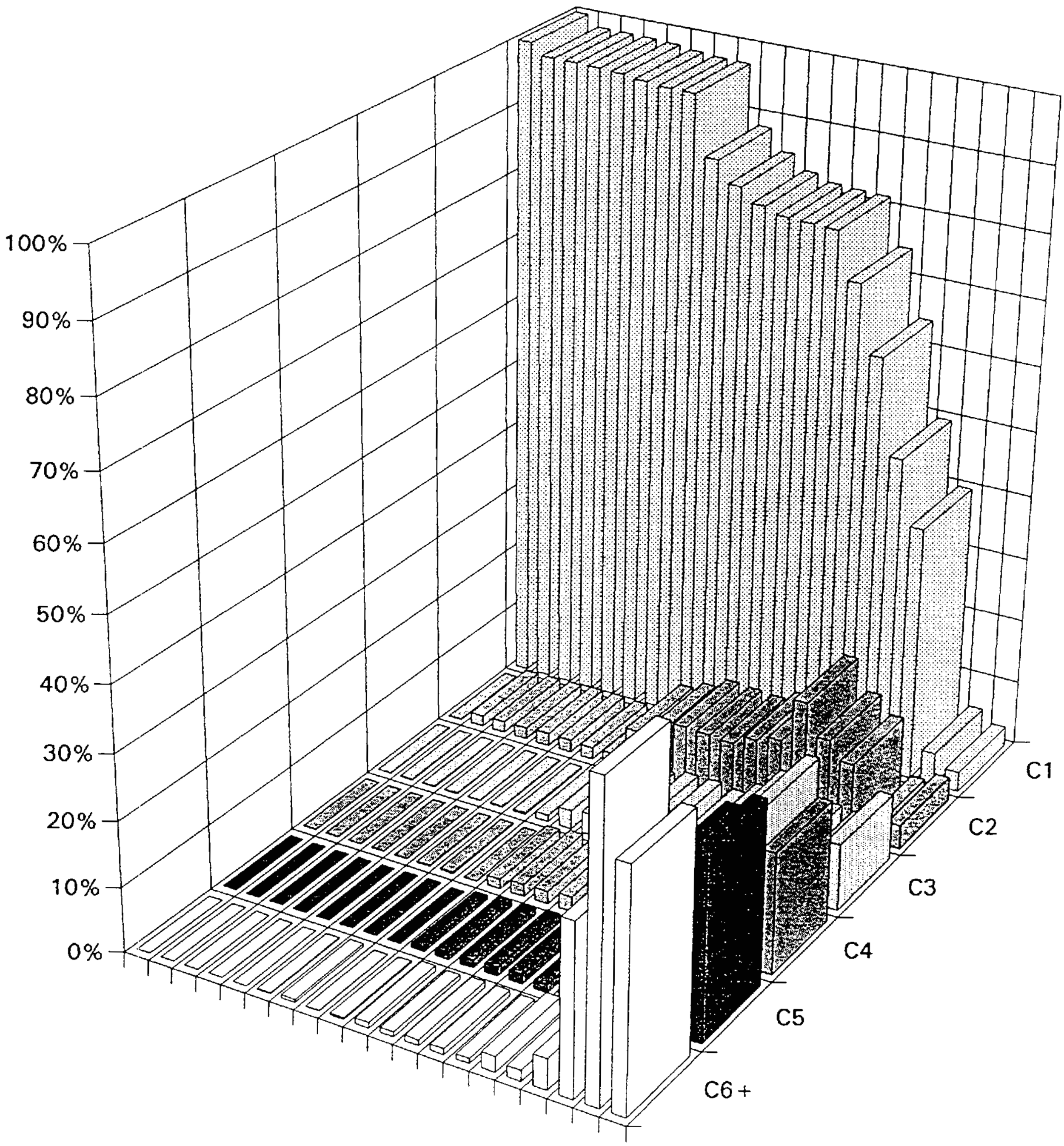


Figure 2-28. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Gas Production #11)

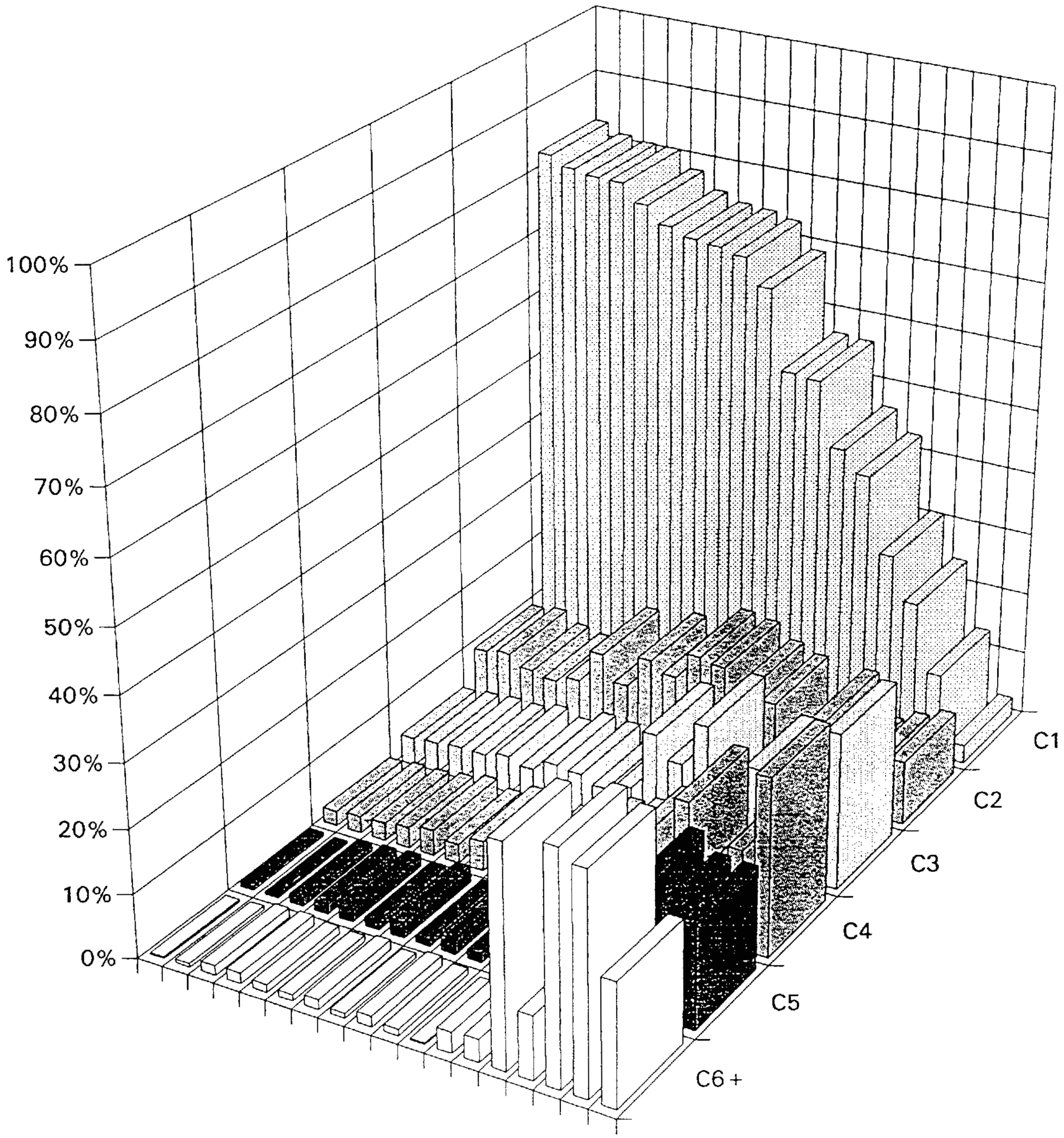


Figure 2-29. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Gas Production #12)

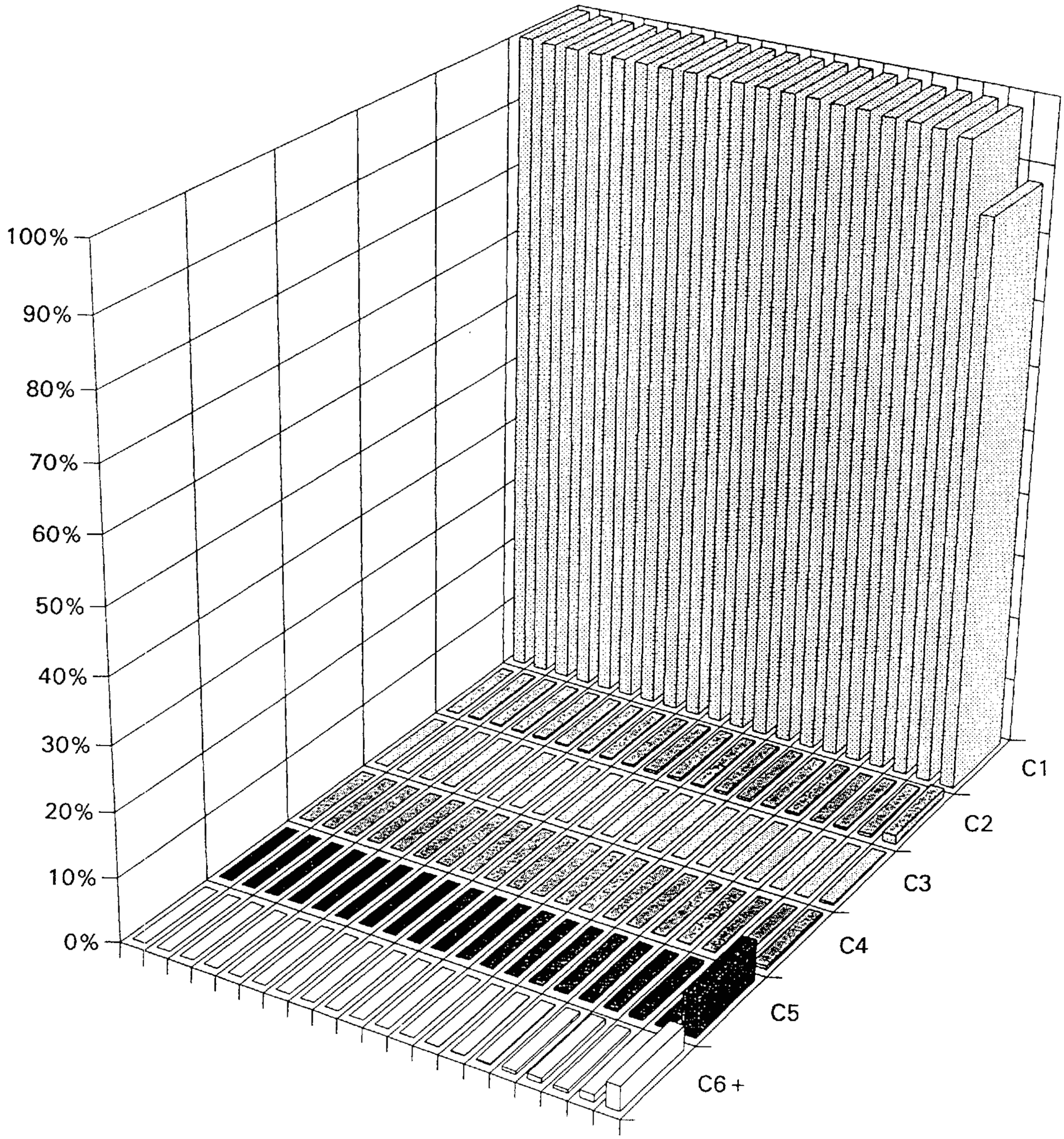


Figure 2-30. WEIGHT PERCENT AIR TOXICS IN LIGHT CRUDE EMISSIONS

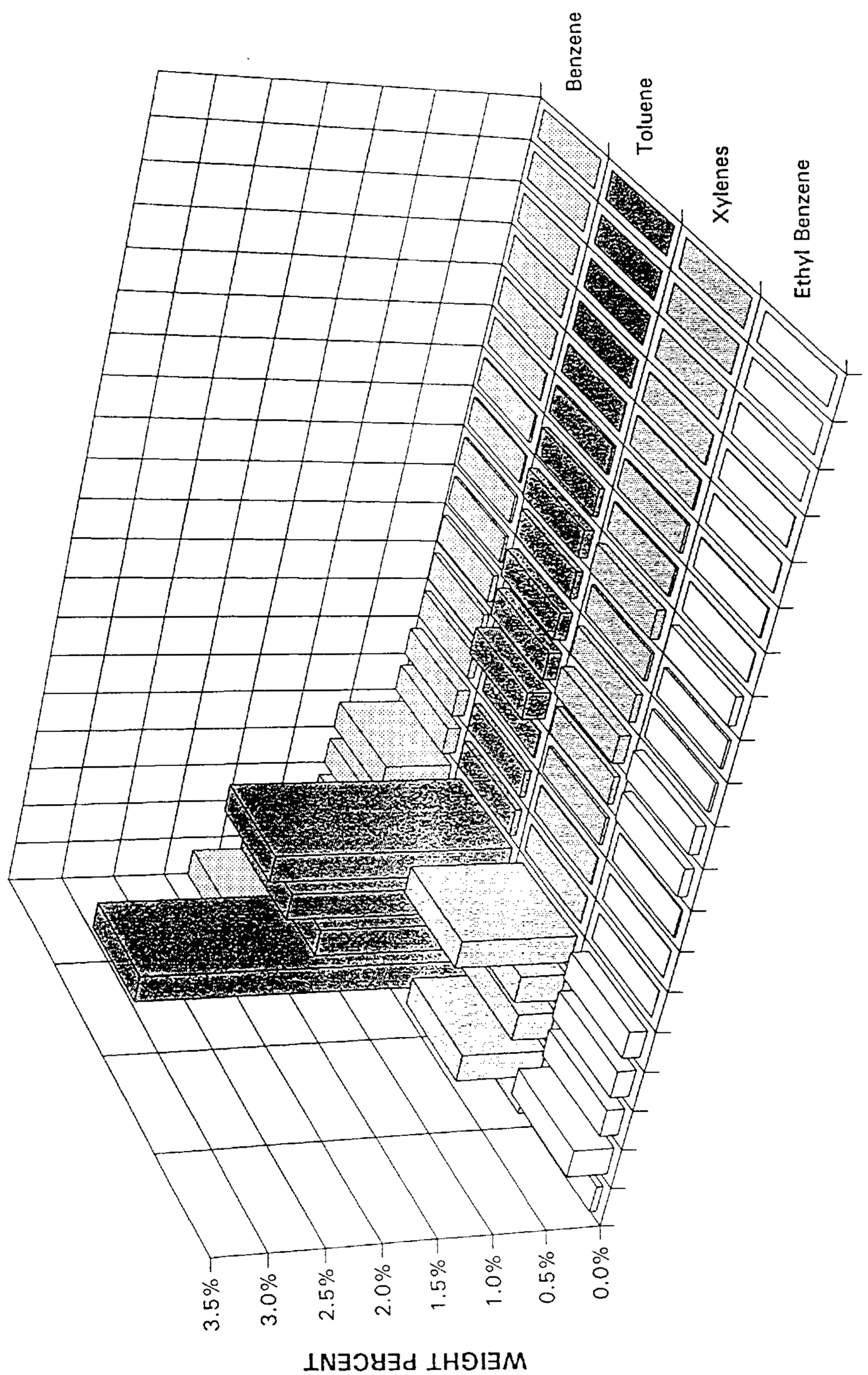


Figure 2-31. WEIGHT PERCENT AIR TOXICS IN HEAVY CRUDE EMISSIONS

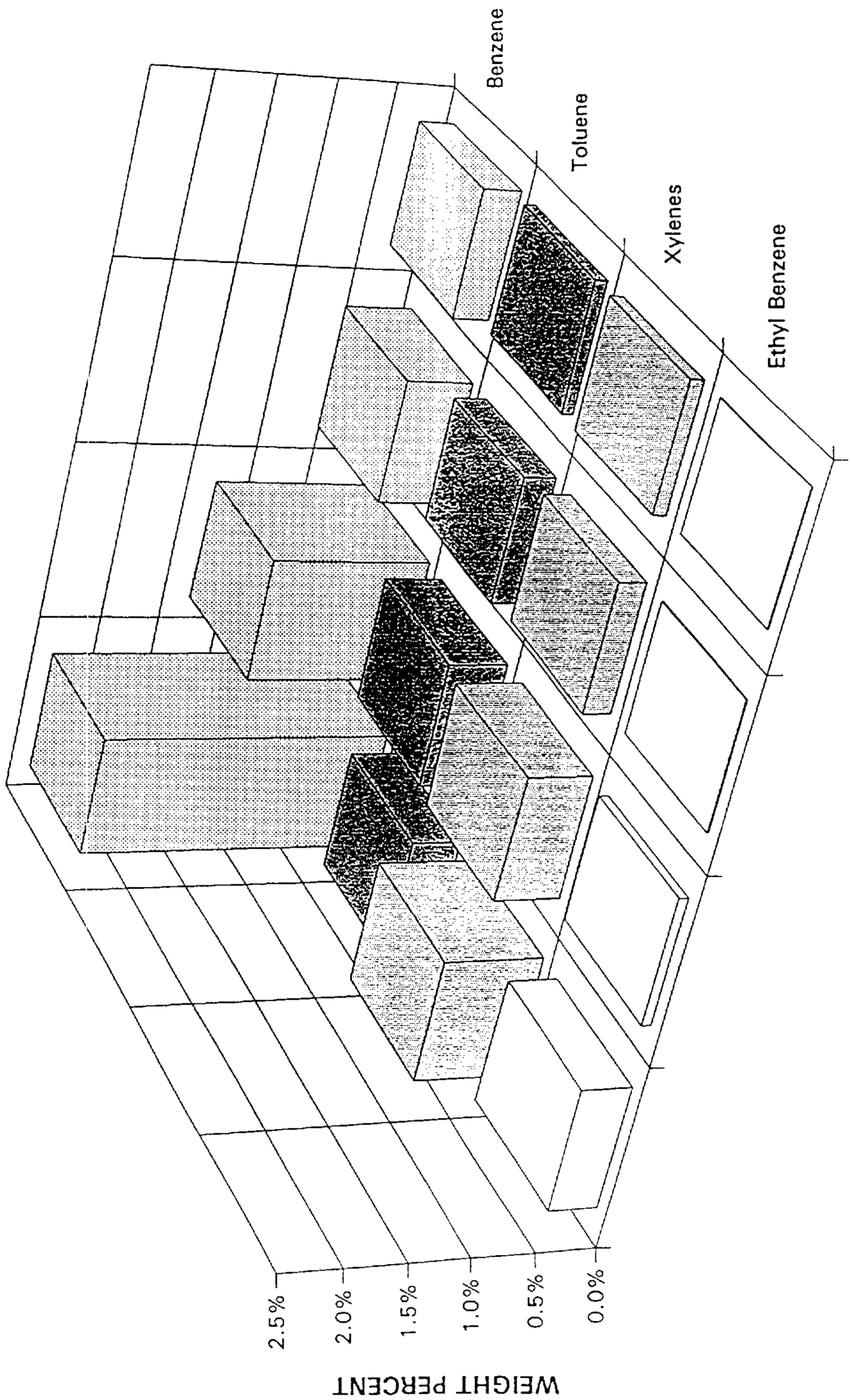
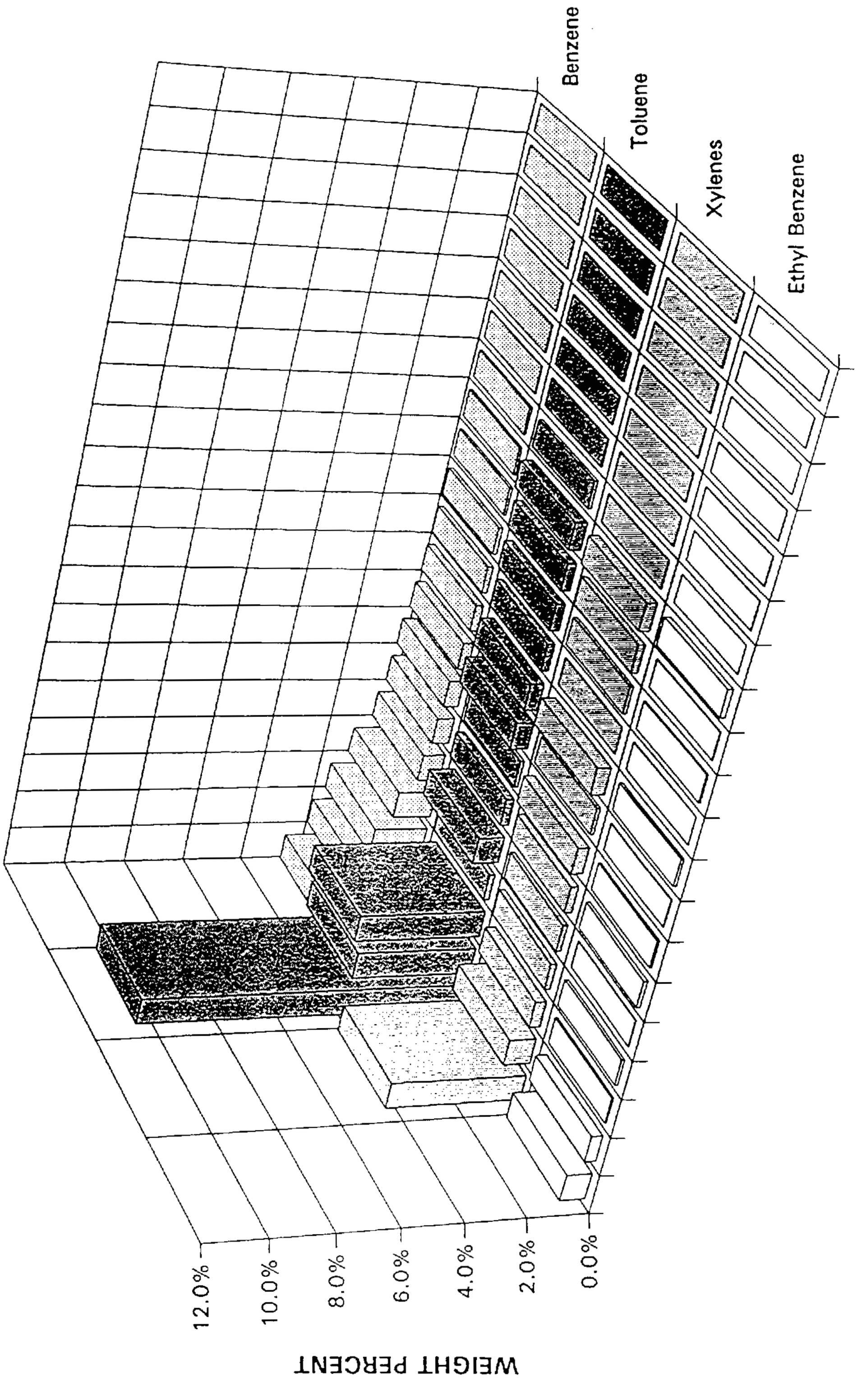


Figure 2-32. WEIGHT PERCENT AIR TOXICS IN GAS PRODUCTION EMISSIONS



Speciation factors were calculated for each facility type by combining the total weight of each of the species (methane, ethane, C3, C4, C5, C6+) for all mass emissions rates and dividing by the total emissions. Speciation factors (fraction by weight) are shown in Table 2-13. These weight fractions can be used to convert THC correlation equations and emission factors from Tables 2-7 through 2-12 into speciated emissions.

Table 2-13. WEIGHT FRACTION OF EMISSIONS BY NUMBER OF CARBONS (For use with THC emission factors)

	C1	C2	C3	C4	C5	C6+	Benzene	Toluene	Ethyl-Benzene	Xylenes
Light Crude	0.613	0.095	0.129	0.099	0.039	0.024	0.00027	0.00075	0.00017	0.00036
Heavy Crude	0.942	0.027	0.013	0.006	0.004	0.008	0.00935	0.00344	0.00051	0.00372
Gas Prod.	0.920	0.045	0.018	0.009	0.005	0.003	0.00023	0.00039	0.00002	0.00010

[NOTE: Total hydrocarbon emission numbers used in this report refer to the total of C1 through C6+ hydrocarbons plus benzene, toluene, xylenes, and ethyl-benzene. Nonaromatic hydrocarbons heavier than hexane were below detection limits.]

REGIONAL DIFFERENCES IN FUGITIVE EMISSIONS

Production sites were tested in four regions of the country. Table 2-14 shows the average emission rate for emitters with screening values of 100,000 ppmv or more; no obvious trends are evident.

Table 2-14. AVERAGE EMISSION RATE OF COMPONENTS WITH ISVs OF ≥100,000 PPMV (By region)

	WEST COAST	ROCKY MTS.	MID-CONTINENT	GULF COAST
Light Crude Production	4.2 lb/day	0.4 lb/day	2.9 lb/day	7.4 lb/day
Gas Production	0.5 lb/day	2.5 lb/day	7.7 lb/day	0.1 lb/day

CONTROL EFFICIENCY OF INSPECTION AND MAINTENANCE PROGRAMS

Ninety percent of fugitive hydrocarbon emissions observed onshore came from components that had ISVs of 10,000 ppmv or more (usually less than one percent of the total installed components). This suggests that inspection and maintenance activities that can reduce the number of large leaks may be effective in reducing total fugitive hydrocarbon emissions.

SECTION 3
OFFSHORE RESULTS AND ANALYSIS

DATA COLLECTION

A total of 45,685 equipment components was inventoried and screened using portable hydrocarbon analyzers at four Gulf of Mexico (Gulf) offshore platforms. The platforms were completely divided into sub-areas, and inventories were prepared by counting the connections (CN), valves (VL), open-ended lines (OEL), compressor seals (CS), pump seals (PS), pressure relief valves (PRV) and miscellaneous components (Misc) contained in each sub-area. All components in each sub-area were inventoried and screened according to EPA Method 21 guidelines.

Full descriptions of 615 components found to have ISV of 10 ppmv or more were recorded on field data sheets. These components are referred to as "emitters" in this report. Samples of fugitive hydrocarbon emissions from 241 emitters were collected and speciated for nonaromatic hydrocarbons. A total of 38 samples with high total hydrocarbon content was analyzed to determine benzene, toluene, xylenes, and ethyl-benzene concentrations.

Appendix B of this report contains inventory and screening data for all sites. Appendix C lists the location, component type, and ISV for each emitter found. Appendix D contains nonaromatic speciation data. Appendix E contains aromatic speciation data.

Table 3-1 contains a summary of the number and types of components screened at each offshore platform and the number of emitters found. In the table ISVs are grouped into one of six ranges: 10 to 99; 100 to 499; 500 to 999; 1,000 to 9,999; 10,000 to 99,999; and ≥100,000 ppmv.

Table 3-1. COMPONENTS SCREENED AND EMITTERS FOUND AT OFFSHORE PLATFORMS

SITE	COMPONENTS SCREENED								EMITTERS BY SCREENING RANGE (ppmv)						
	CN	VL	OEL	CS	PS	PRV	Misc	ALL	10 to 99	100 499	500 999	1,000 9,999	10,000 99,999	100 k plus	ALL
17	12927	2327	407	6	17	37	13	15734	34	44	15	48	77	0	218
18	8028	2405	487	3	7	23	14	10967	27	22	9	17	38	32	145
19	7287	2705	205	4	21	35	14	10271	16	19	6	27	25	0	93
20	7044	1391	204	0	22	26	26	8713	21	26	11	30	71	0	159
	35286	8828	1303	13	67	121	67	45685	98	111	41	122	211	32	615

NOTE: CN = Connection; VL = Valve; OEL = Open-Ended Line; CS = Compressor Seal; PS = Pump Seal; PRV = Pressure Relief Valves; Misc = Miscellaneous.

Approximately 40 percent of the emitters were bagged to collect fugitive hydrocarbons for analysis. The number of emitters found and samples collected are shown in Table 3-2. Many of the emitters in the 10,000 to 99,999 ppmv range were found to emit at levels above 100,000 ppmv on the days that bagging occurred. This resulted in more bags being collected for the 100,000 plus range than were originally identified.

Table 3-2. OFFSHORE EMITTERS BY SCREENING RANGE (ppmv)

	10 to 99	100 to 499	500 to 999	1000 to 9,999	10,000 to 99,999	100,000 plus
Emitters	98	111	41	122	211	32
Samples	11	38	11	66	60	55

NOTE: This study classified components with ISV below 10 ppmv as non-emitters.

Figure 3-1 shows a profile of the actual mass emission rates from all emitters found at offshore platforms during the study. The number of emitters decreases with increasing emission rate.

The relative contribution of each of the eighteen mass emission rate ranges to total emissions is shown in Figure 3-2. Over 79 percent of total mass emissions observed during the API/GRI study came from individual emissions of 1 lb/day or more (0.18 tons/year); eighteen percent came from individual emissions between 0.125 and 0.999 lb/day (0.02 and 0.18 tons/year); while about three percent came from emitters with rates of 0.1249 lb/day or less (0.02 tons/year or less).

The contribution of each ISV emitter range to total emissions (as determined by laboratory analyses) is shown in Table 3-3. Approximately 89 percent of all emissions came from leaks that equal or exceed 10,000 ppmv. Less than five percent came from the 1,000 to 9,999 ppmv ISV range; and only 1.0 percent came from emitters with ISVs from 10 to 999 ppmv. The data in Table 3-3 suggests that all emitters with ISVs from 10 to 9,999 ppmv can be combined into a single group without compromising the ability to predict emissions.

Table 3-3. CONTRIBUTION OF EACH SCREENING RANGE TO TOTAL EMISSIONS

	<10 ppmv	10 to 999 ppmv	1,000 to 9,999	10,000 to 99,999	100,000 plus
Emitters	45,070	250	122	211	32
Average Rate (lbs/emitter-day)	0.00031	0.0094	0.102	0.429	4.16
Total Emissions (lbs/day)	13.8	2.4	12.4	91	133
Percent of Total	5.4%	1.0%	4.9%	36.0%	52.7%

Figure 3-1. DISTRIBUTION OF OFFSHORE EMITTERS
[Based on Laboratory Analyses]
(From 45,685 Components Screened)

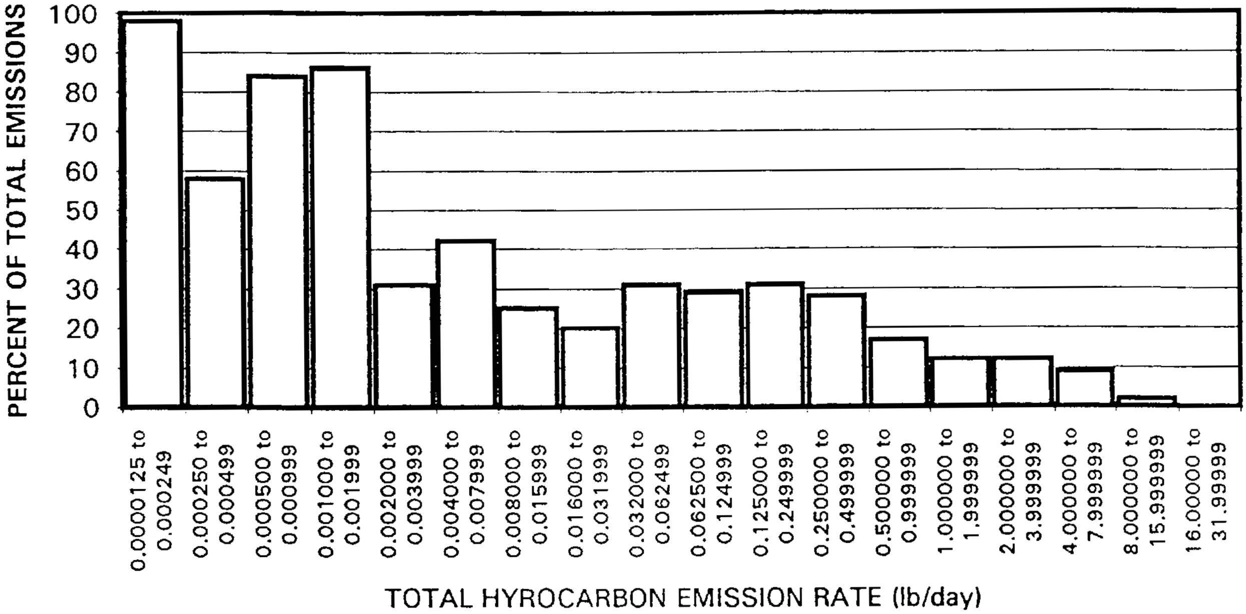
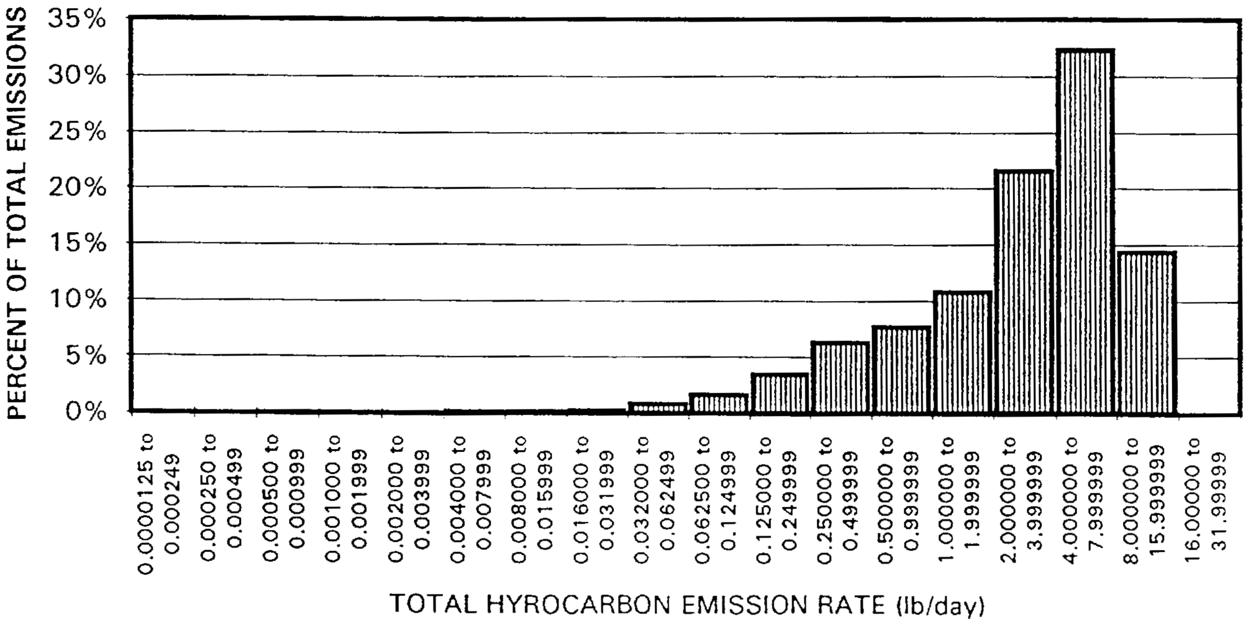


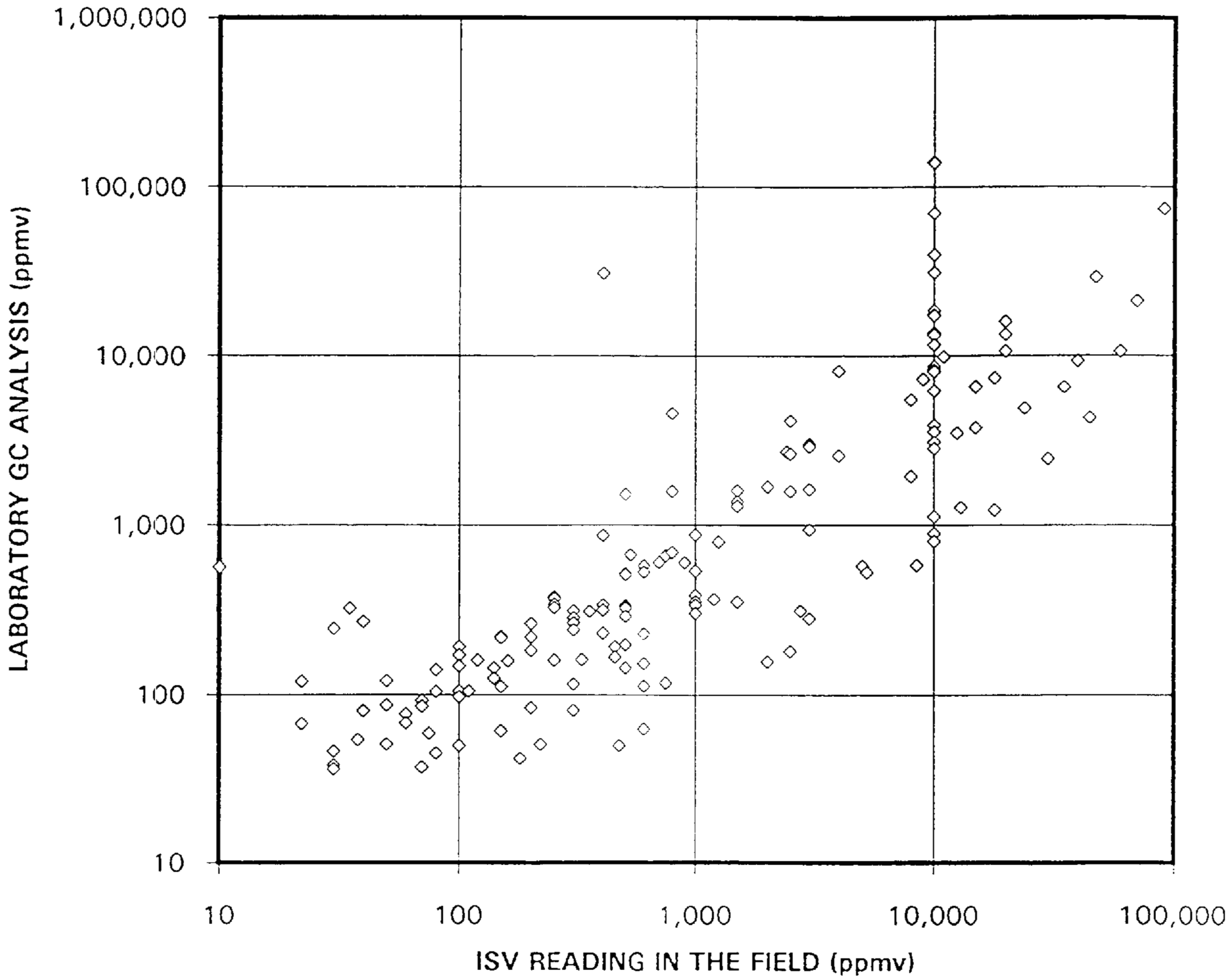
Figure 3-2. PERCENT OF TOTAL EMISSIONS BY RANGE
[Based on Laboratory Analyses]



QUALITY ASSURANCE/QUALITY CONTROL

Monitoring instruments were calibrated daily with certified concentrations of methane in air. As an additional check on accuracy of the field crew, bagging techniques, and sample collection procedures, the ISV readings of the sample bags in the field were compared with the laboratory GC analyses (see Figure 3-3). The coefficient of correlation for these data (without the values at Field ISV = 10,000 and Field ISV = 100,000) is: r = 0.80. This indicates that calibration procedures, bagging procedures, and sampling procedures produced acceptable results.

Figure 3-3. COMPARISON OF OFFSHORE SAMPLE BAGS AS COLLECTED AND AS ANALYZED (Total Hydrocarbons)



CORRELATION EQUATIONS

Correlation equations were developed to predict mass emission rates for ISVs above 10 ppmv. World-wide background levels of methane approach 2 ppmv in open areas; localized areas such as swamps, highways, farms, and industrial sites often have background concentrations exceeding 5 ppmv. Therefore, it is inadvisable to attempt to measure ISVs less than 10 ppmv and/or use correlation equations to predict emissions from these extremely small sources. Sources with ISVs less than 10 ppmv were assumed to average 5 ppmv.

All measured ISVs were included in the correlation equations shown in this section. Equations were developed by regressing the natural logarithm of total hydrocarbon emissions on the natural logarithm of ISV. The analysis began with a general Analysis of Variance (ANOVA) model that allowed for four types of components (Connections, Valves, Open-ended lines, and Others) with the possibility of different intercepts and different slopes for each component. Terms that were not statistically significant were excluded sequentially from the model until all terms left in the model were significant. The resulting two correlation equations for offshore facilities are shown in Table 3-4.

Table 3-4. CORRELATION EQUATIONS

FACILITY TYPE	COMPONENT TYPE	CORRELATION EQUATION
Offshore Oil & Gas	CN, OEL	THC(lb/day) = 1.04×10^{-5}(ISV ppmv)$^{0.99}$
Offshore Oil & Gas	VL, Other	THC(lb/day) = 3.30×10^{-4}(ISV ppmv)$^{0.87}$

Figures 3-4 and 3-5 show the total hydrocarbon (THC) emissions data and correlation equations.

Components with ISVs less than 10 ppmv were assumed to emit hydrocarbons at "default zero" rates that produce ISVs of 5 ppmv. Table 3-5 gives the default zeros used in this report for offshore platforms.

Table 3-5. DEFAULT ZERO THC EMISSION FACTORS

FACILITY TYPE	COMPONENT TYPE	DEFAULT ZERO
Offshore Oil & Gas	CN, OEL	0.00005 lb/day-component
Offshore Oil & Gas	VL, Other	0.00134 lb/day-component

Figure 3-4.OFFSHORE PRODUCTION CORRELATION
(CN, OEL)

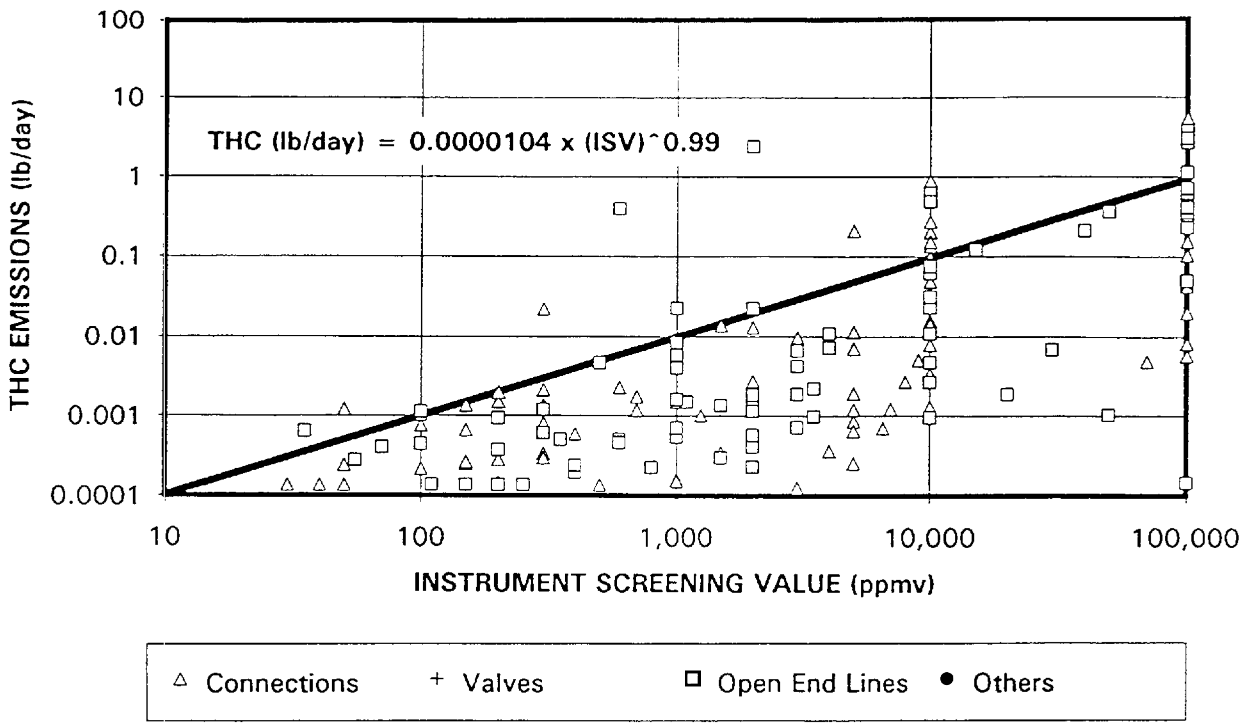
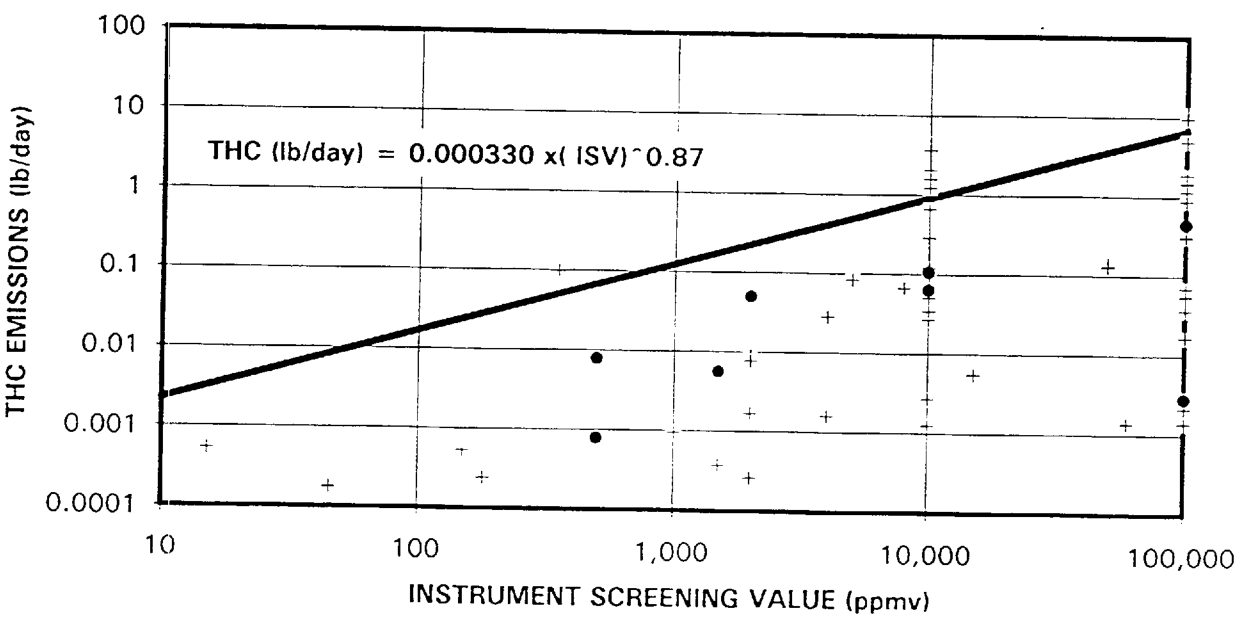


Figure 3-5. OFFSHORE PRODUCTION CORRELATION
(VL, Others)



EMISSION FACTORS

Three types of THC emission factors were developed: Average emission factors, Leak/No Leak emissions factors, and Speciated emission factors. Each type of emission factor is discussed below.

Average Emission Factors

Average emission factors are used to predict fugitive hydrocarbon emissions when the only information available about a site is the number of components installed. Average THC factors for offshore platforms were developed by dividing total emissions by the total number of installed components. Average THC emission factors for individual component types were developed by dividing the component type's contribution to total emissions by the number of those components. Table 3-6 gives the overall average emission factors for offshore platforms; Table 3-7 gives component specific average emission factors for offshore platforms.

Table 3-6. AVERAGE THC EMISSION FACTORS
(Overall)

FACILITY TYPE	COMPONENT TYPE	AVERAGE EMISSION FACTOR
Offshore Oil & Gas	All	0.0055 lb/day-component

Table 3-7. AVERAGE THC EMISSION FACTORS
(Component specific)
[lb/day-component]

FACILITY TYPE	CONNECTIONS	VALVES	OPEN-ENDED	OTHERS
Offshore Oil & Gas	0.0006	0.0217	0.0099	0.1036

Leak/No Leak Emission Factors

Another method of calculating fugitive THC emissions is to screen components and determine the number above and below a leak definition (in ppmv). Table 3-8 shows the "Leak/No Leak" THC emission factors.

Table 3-8. LEAK/NO-LEAK THC EMISSION FACTORS
(Pounds/Day-Component)

FACILITY TYPE	COMP. TYPE	No Leak <10,000 ppmv	Leak ≥10,000 ppmv
Offshore Oil & Gas	CN, OEL	0.00012	0.183
Offshore Oil & Gas	VL, Other	0.00267	2.22

Stratified Emission Factors

Stratified THC emission factors given in Table 3-9 show the emission rates for components with ISVs below 10 ppmv, from 10 to 9,999 ppmv, from 10,000 to 99,999, and equal to or greater than 100,000 ppmv.

Table 3-9. STRATIFIED THC EMISSION FACTORS
(Pounds/Day-Component)

FACILITY TYPE	COMPONENT TYPE	INSTRUMENT SCREENING RANGE <10 ppmv	10 to 9,999	10,000 to 99,999	≥ 100,000 ppmv
Offshore Oil & Gas	CN, OEL	0.00005	0.0099	0.097	0.927
Offshore Oil & Gas	VL, Other	0.00134	0.1187	1.071	7.39

SPECIATION OF EMISSIONS

Bagged samples were speciated by gas chromatography into six nonaromatic groups:

- C1 (methane)
- C2 (ethane)
- C3 (hydrocarbons with three carbons)
- C4 (hydrocarbons with four carbons)
- C5 (hydrocarbons with five carbons)
- C6+ (hydrocarbons with six or more carbons)

Large leaks were also speciated into four aromatic groups: benzene, toluene, ethyl-benzene, and xylenes. Attempts to speciate small leaks into aromatic groups were unsuccessful since the aromatic concentrations inside the sample bags were usually below the detection limit of approximately 50 parts-per-billion.

Figure 3-6 shows nonaromatic speciation results for samples collected at Site 17. The samples are arranged according to methane content. Most of the samples have high methane concentrations; non-methane concentrations in the samples are correspondingly low. Figure 3-7 shows nonaromatic speciation results for samples collected at Site 18. Figures 3-8 and 9, respectively, show nonaromatic speciation results for samples collected at Site 19 and Site 20. All four platforms have similar results.

Figure 3-10 shows aromatic speciation results from 30 samples. One sample had an aromatic fraction that exceeded 2 percent; Most of the other samples had benzene, toluene, and/or xylene concentration of less than two-tenths of one percent. Speciation factors were calculated by combining the total weight of each of the species (methane, C2, C3, C4, C5, and C6+) for all mass emission rates and dividing by the total emissions. Speciation factors (fraction by weight) are shown in Table 3-10. The table also contains air toxic emission factors. These factors can be used to convert THC emission factors from Tables 3-4 through 3-9 into speciated emissions.

Table 3-10. WEIGHT FRACTION OF EMISSIONS BY NUMBER OF CARBONS
(For use with THC emission factors)

C1	C2	C3	C4	C5	C6+	Benzene	Toluene	Ethyl-Benzene	Xylenes
0.791	0.099	0.054	0.032	0.016	0.0067	0.00133	0.00089	0.00016	0.00027

Figure 3-6. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Offshore #17)

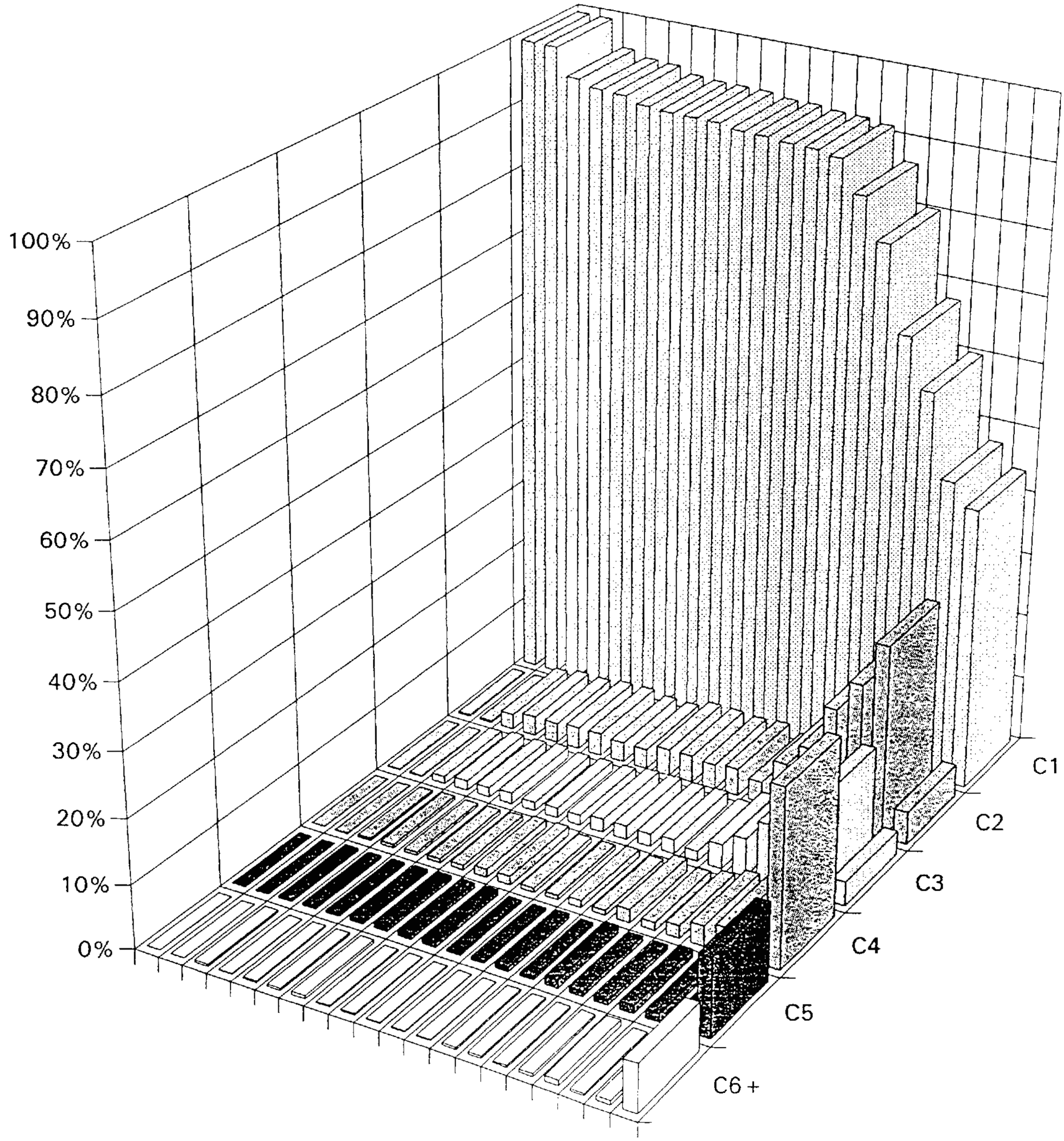


Figure 3-7. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Offshore #18)

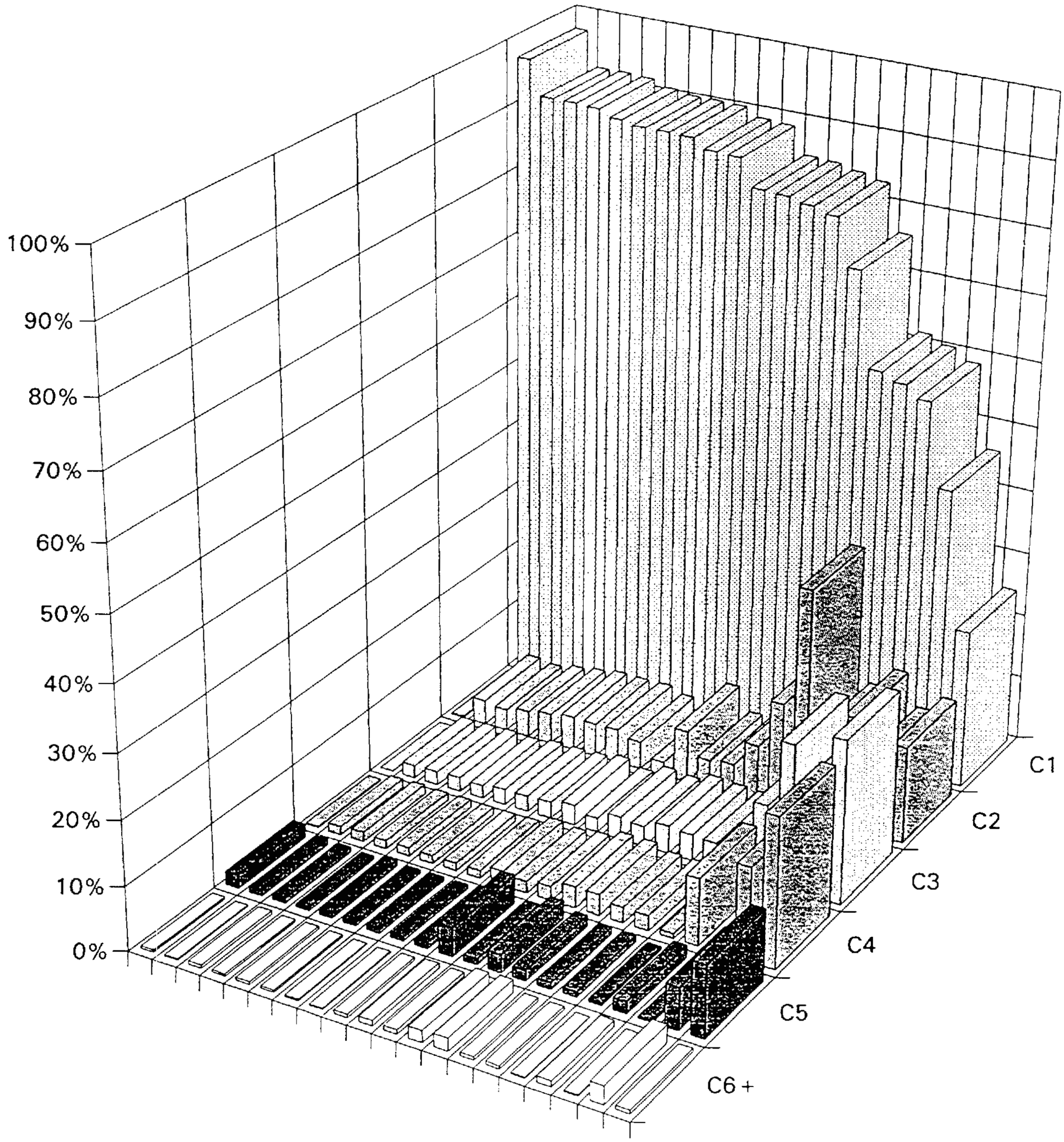


Figure 3-8. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Offshore #19)

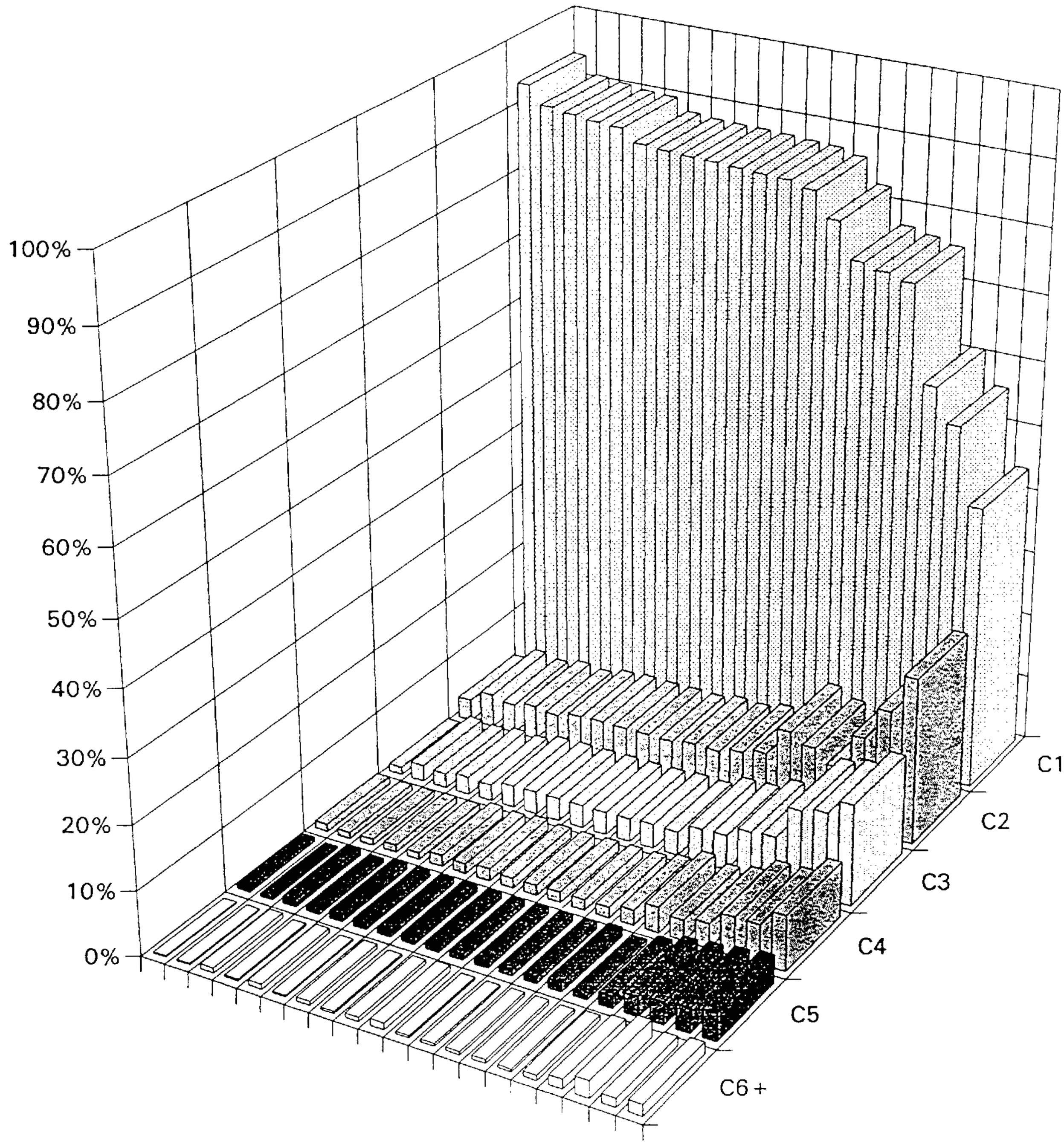


Figure 3-9. WEIGHT PERCENT HYDROCARBONS IN SAMPLES
(Offshore #20)

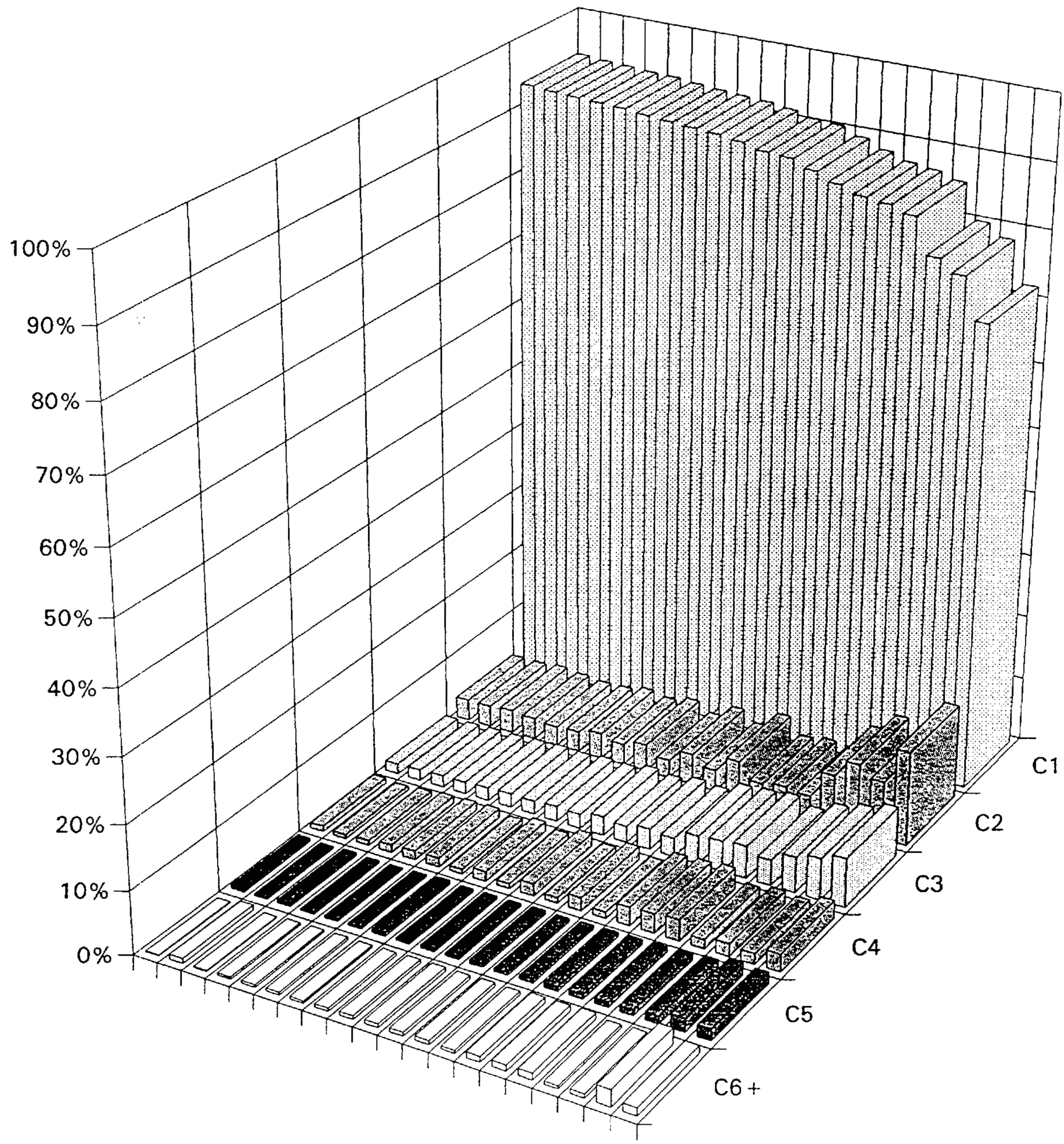
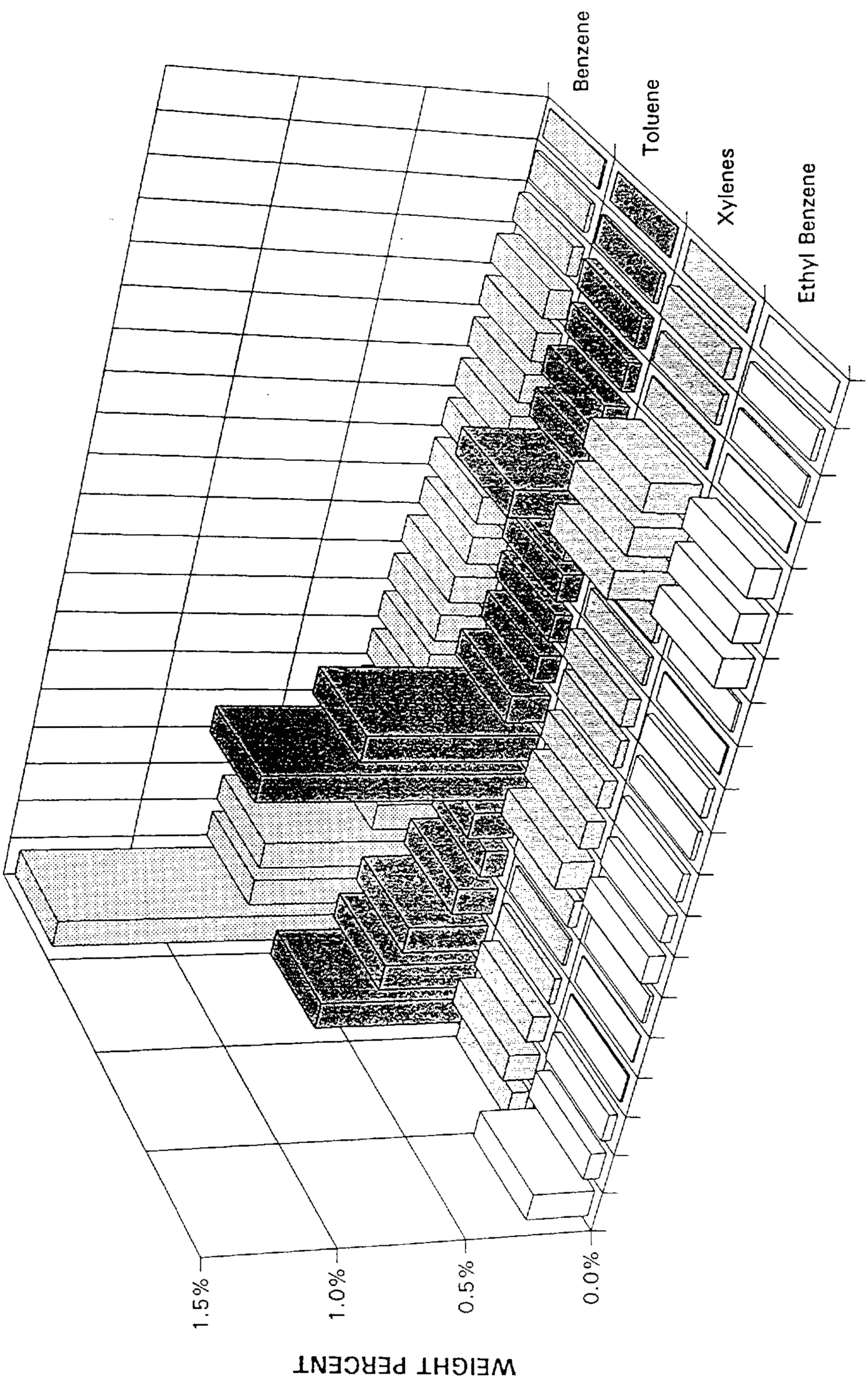


Figure 3-10. WEIGHT PERCENT AIR TOXICS IN GULF OFFSHORE EMISSIONS



REGIONAL DIFFERENCES IN FUGITIVE EMISSIONS

The US Minerals Management Service (MMS) conducted a fugitive hydrocarbon monitoring study of seven Pacific OCS platforms and published the results of the study in November 1992 (OCS Report; MMS 92-0043). Approximately 89,000 components were screened using EPA Method 21 guidelines to locate emissions. A total of 211 components with ISV of 500 ppmv or more and 84 components with ISV below 500 ppmv were bagged to determine fugitive hydrocarbon emission rates. Table 3-11 gives the number of components installed on each Pacific OCS platform and the average emission rate per component reported by the MMS.

Table 3-11. NUMBER OF COMPONENTS INSTALLED ON PACIFIC OCS PLATFORMS MONITORED BY THE MMS, AND THE AVERAGE LEAK RATES

PLATFORM NUMBER	NUMBER OF COMPONENTS	AVERAGE EMISSION RATE (lb/component-day)
1	16,966	0.00247
2	17,905	0.00347
3	24,721	0.00565
4	11,932	0.00351
5	11,217	0.00375
6	16,065	0.00619
7	13,647	0.00430

These average emission rates are very similar to the rate (0.0055 lb/component-day) found during the API/GRI study in the Gulf of Mexico.

MMS published a single correlation equation for predicting fugitive hydrocarbons as a function of ISV: THC (lb/day) = $1.82 \times 10^{-5}(\text{ISV})^{0.781}$. Table 3-12 compares predicted emissions derived with this equation to predictions by the two API/GRI offshore equations.

Table 3-12. FUGITIVE HYDROCARBON EMISSIONS PREDICTED BY MMS AND API/GRI CORRELATION EQUATIONS

	MMS EQUATION THC (lb/day) = $1.82 \times 10^{-5}(\text{ISV})^{0.781}$	API/GRI EQUATION THC (lb/day) = $1.04 \times 10^{-5}(\text{ISV})^{0.99}$	API/GRI EQUATION THC (lb/day) = $3.30 \times 10^{-4}(\text{ISV})^{0.87}$
ISV	All Components	CN, OEL	VL, Others
10	0.0001	0.0001	0.0024
100	0.0007	0.0010	0.0181
1,000	0.004	0.010	0.134
10,000	0.024	0.095	0.997
100,000	0.15	0.93	7.39

The API/GRI equations predict higher emissions than the MMS equation. Figures 3-11 and 3-12, respectively, show the MMS data and API/GRI correlation equations for connections and open-ended lines, and valves and others.

The MMS study found that fugitive hydrocarbon emissions from Pacific OCS platforms are approximately 64 wt.% methane, 4 wt.% ethane, and less than 1 wt.% benzene and other aromatics. This is similar to the speciation found in Gulf of Mexico fugitive emissions.

Data presented in the MMS report was used to estimate the emission rates of all components with ISVs of 500 ppmv or more. Figure 3-13 shows a possible distribution of those emitters. The distribution is very similar to the one developed for Gulf of Mexico platforms (see Figure 3-1). The "percent of total emission" for Pacific OCS components in each range is shown in Figure 3-14; this is very similar to the percentages calculated for Gulf of Mexico platforms (see Figure 3-2).

CONTROL EFFICIENCY OF INSPECTION AND MAINTENANCE PROGRAMS

The Gulf platforms are located more than 3 miles offshore and are not subject to the jurisdiction of local air control agencies. All platforms had similar operator initiated inspection and maintenance programs.

Figure 3-11. MMS CONNECTION AND OPEN-ENDED LINE DATA WITH API/GRI OFFSHORE EQUATION

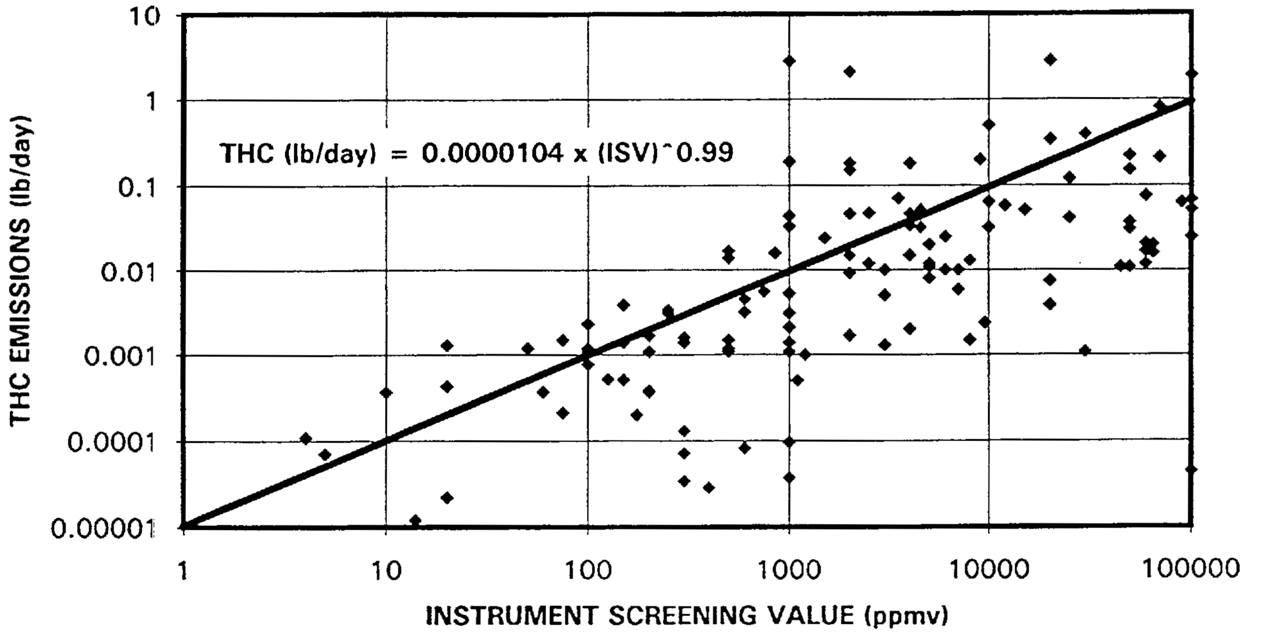


Figure 3-12. MMS VALVE AND "OTHER" DATA WITH API/GRI OFFSHORE EQUATION

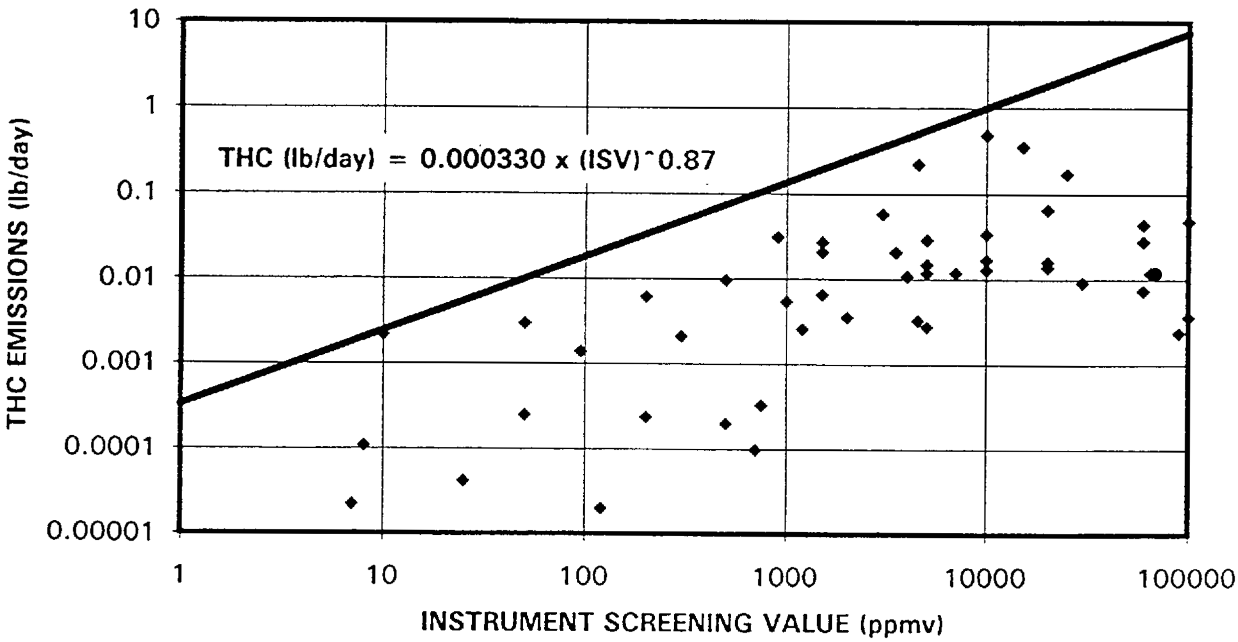


Figure 3-13. DISTRIBUTION OF PACIFIC OCS EMITTERS
(Per 45,000 Components Screened)

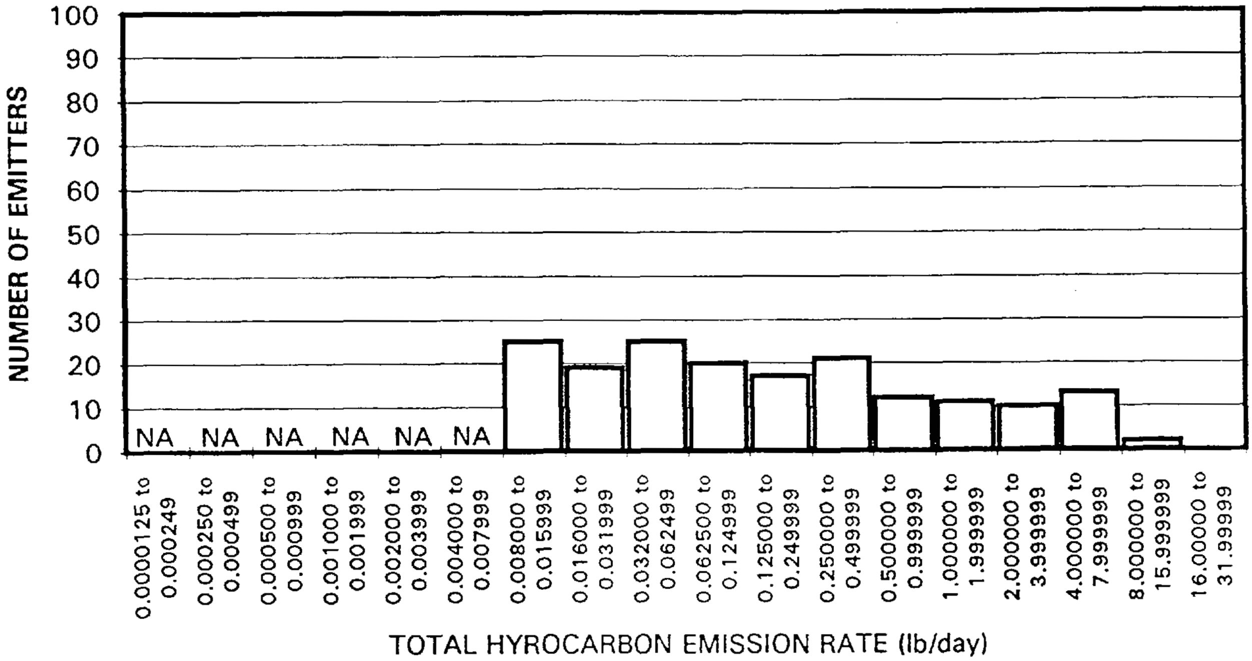
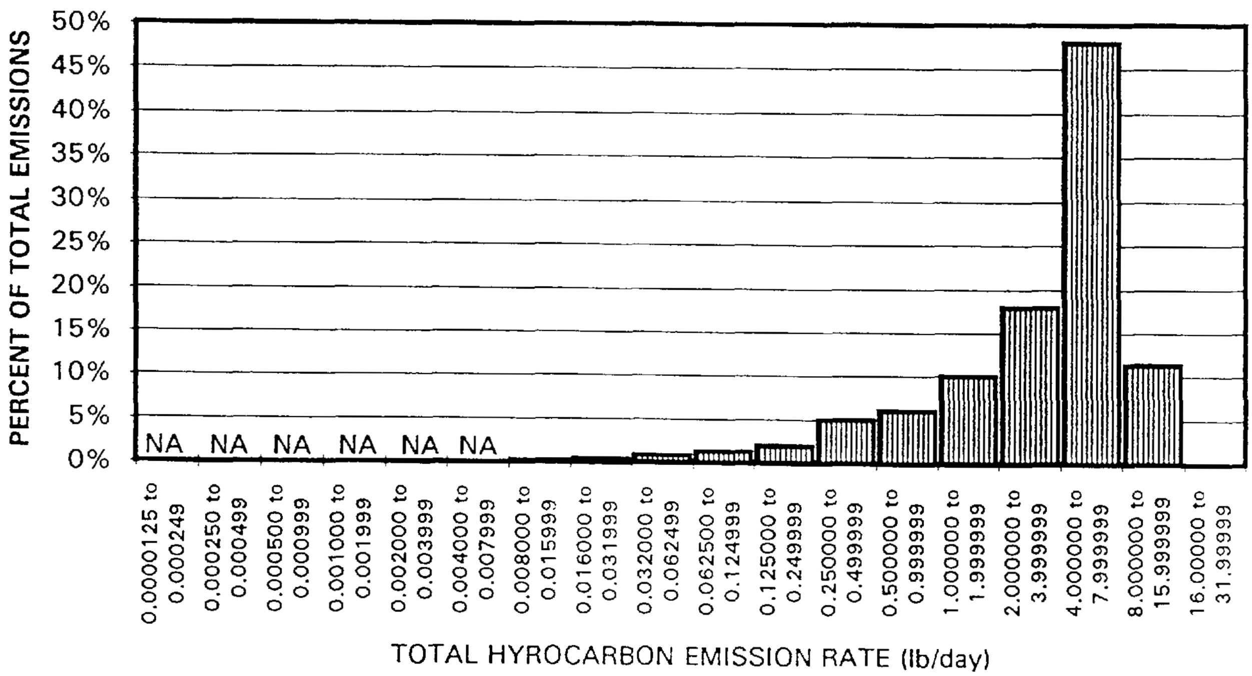


Figure 3-14. PERCENT OF TOTAL EMISSIONS BY RANGE
(Pacific OCS Platform)



WORKBOOK

for

CALCULATING FUGITIVE HYDROCARBON EMISSIONS

from

OIL AND GAS PRODUCTION OPERATIONS

This workbook contains three methods for estimating fugitive hydrocarbon emissions from petroleum production facilities. The simplest method (Method One) requires that the number of equipment components (connections, valves, open-ended lines, and others) at a facility be counted or estimated. A more sophisticated method (Method Two) requires screening of all equipment components with a portable hydrocarbon monitoring instrument. The most sophisticated method (Method Three) requires screening of all components and collection of hydrocarbon samples from large leaks.

METHOD ONE -- COMPONENT COUNT

Background

Emission factors contained in this workbook were developed by counting and screening 184,000 components at 20 onshore and offshore petroleum production sites selected at random from the West Coast to the Gulf of Mexico. Additional information collected by the US Minerals Management Service was used in the option section of this method.

Description of Method

The number of equipment components at a site is determined by counting or estimating. The total number of components is then multiplied by the appropriate emission factor from Table 1 to calculate total hydrocarbon (THC) emissions. Table 1 contains emission factors for five types of petroleum production facilities. The component count or estimate can also be divided according to component type (Connections, Valves, Open-Ended Lines, Others) and multiplied by the emission factors from Table 2 to calculate THC emissions from each type of component. Emission rates of individual hydrocarbon species can be calculated using the THC emission rates (from either Table 1 or Table 2) and the speciation factors in Table 3. Definitions for the five types of petroleum production facilities and four component types are given below.

Definitions

The five types of petroleum production facilities are:

- Onshore light crude production sites. This group includes onshore production sites that produce only oil and sites that produce oil mixed with gas. Oil produced at these sites typically has an API gravity of 20 or more. Components on wellheads, field separators, stock tanks, production field compressors, and other co-located equipment are counted in this category.
- Onshore heavy crude production sites. Sites that produce oil with an API gravity less than 20 should use "Heavy Crude" emission factors. Thermally enhanced oil recovery sites are included in this category. All production equipment at the well site is counted in this category.
- Onshore gas production sites. This category is for sites that produce dry natural gas (no co-produced oil). Sites that produce natural gas liquids, condensate, or a very minor amount of light oil along with the gas should also be included in this category. Equipment located beside the wells or at gathering stations is included in this category. Co-located gas plants are counted in the Onshore gas processing plant category.
- Onshore gas processing plants. Onshore plants that process natural gas and/or natural gas liquids are included in this category. If wells are located next to the gas plant, the wells and associated equipment are counted in the Onshore gas production category instead of this category.
- Offshore oil and gas production platforms. All offshore operations are included in this category.

The four types of equipment components are:

- Connections. Bolted flanges, threaded connections, and tubing fittings are included in this group. Each connection of hydrocarbon processing lines to a valve is considered a connection and should be counted in this group; however, the body flange and bonnet of a valve, and plugs threaded directly into the valve body are considered part of the valve and should not be included in this group. A piece of pipe with one end connected to a valve and the second end open to atmosphere is considered an "open-ended line" not a connection.
- Valves. Valves that have visible actuators are included in this category. Check valves are not counted as valves. Pressure relief valves are not included in this category. Each valve is counted only once regardless of the number of body flanges, bonnet flanges, or plugs that are a part of the valve. Each connection of a valve to a hydrocarbon processing line is considered a "connection" and is included in that group.
- Open-Ended Lines. The end of any valve that can be opened to the atmosphere (sample connection, drains, bleed valves, etc.) is counted as an open-ended line. The open end of a pressure relief valve is not counted in this category. If a short piece of pipe is attached to the end of a valve, but no pressure build-up can occur in the pipe, the system is counted as an open-ended line and not a connection.
- Others. This category includes all other components such as pump seals, compressor seals, pressure relief valves, hatches, dump lever arms, polished rod stuffing boxes, instruments, sight glasses, etc.

Table 1. AVERAGE EMISSION FACTORS
(All components combined)

FACILITY TYPE	COMPONENT TYPE	EMISSION FACTOR
Onshore Light Crude	All	0.0085 lb/day-component
Onshore Heavy Crude	All	0.0002 lb/day-component
Onshore Gas Production	All	0.0233 lb/day-component
Offshore Oil & Gas	All	0.0055 lb/day-component

Table 2. AVERAGE EMISSION FACTORS
(Component specific)
[lb/day-component]

	Connection	Valves	Open-Ended	Others
Light Crude	0.0041	0.0197	0.0351	0.0991
Heavy Crude	0.0001	0.0002	0.0010	0.0007
Gas Production	0.0038	0.1063	0.0107	0.2870
Offshore Gas/Oil	0.0006	0.0217	0.0099	0.1036

Table 3. SPECIATED FUGITIVE EMISSION FACTORS
(Weight Fraction of THC emissions in each category)

	Methane	NMHC	VOC	C6+	Benzene	Toluene	Ethyl-Benzene	Xylenes
Light Crude	0.613	0.387	0.292	0.02430	0.00027	0.00075	0.00017	0.00036
Heavy Crude	0.942	0.058	0.030	0.00752	0.00935	0.00344	0.00051	0.00372
Gas Production	0.920	0.080	0.035	0.00338	0.00023	0.00039	0.00002	0.00010
Offshore Gas/Oil	0.791	0.210	0.110	0.00673	0.00133	0.00089	0.00016	0.00027

NOTES:
1. Emission factor = Speciated Emissions/Total Emissions
2. NMHC = Non-methane hydrocarbon
3. VOC = Propane and heavier hydrocarbon
4. Many hydrocarbons are included in more than one group, for example, C6+ is also included in the NMHC and VOC groups.

Example Calculations

Total hydrocarbon emissions (THC) for a hypothetical onshore gas production site with the following component inventory:

Connections	7700
Valves	1425
Open-ended lines	242
Pressure Relief Valves	86
Pump Seals	2
Compressor Seals	10
Hatches	11
Miscellaneous	24
TOTAL	**9500**

Using Table 1:

9500 components **x** 0.0233 lb/day-components

= 221 lb/day THC emissions.

Using Table 2:

7700 (CN) **x** 0.0038 lb/day-components

+ 1425 (VL) **x** 0.1063 lb/day component

+ 242 (OEL) **x** 0.0107 lb/day component

+ 133 (Others) **x** 0.287 lb/day component

= 221 lb/day THC emissions.

Using Table 3:

221 lb/day THC emissions **x**

0.920 Methane	=	**203 lb/day**
0.080 NMHC	=	**18 lb/day**
0.035 VOC	=	**8 lb/day**
0.00338 C6+	=	**0.7 lb/day**
0.00023 Benzene	=	**0.05 lb/day**
0.00039 Toluene	=	**0.09 lb/day**
0.00002 Ethyl-Benzene	=	**0.004 lb/day**
0.00010 Xylenes	=	**0.02 lb/day**

Options to Method One

The total number of components at a site can be obtained by counting the number of valves and using Table 4 to estimate the other components. Table 4 was developed from 470,000 components inventoried at a total of 48 sites in three separate studies by API (1980), API/GRI (1993) and the US Minerals Management Service (1989).

Table 4. PERCENTAGE OF TOTAL COMPONENTS BY TYPE

	Connection	Valves	Open-Ends	Others
Light Crude	78.5%	18.5%	2%	1%
Heavy Crude	80%	15%	3.5%	1.5%
Gas Production	81%	15%	2.5%	1.5%
Gas Plant	76.5%	19%	2.5%	2%
Pacific Offshore	81.5%	14%	2.5%	2%
Gulf Offshore	80.5%	15%	2.5%	2%

NOTE: "Gulf" is Gulf of Mexico

Example Calculations

The hypothetical onshore gas production site in the example above had 1425 valves; the estimated total number of components is then:

1425 valves/0.15 = 9,500 total components.

Interpretation of Results

Method One is built on the assumption that the average leak rate of a group of components at one site is the same as the average leak rate of a second group of similar components at another site. A number of factors such as facility age, equipment condition, inspection and maintenance programs, and petroleum product characteristics could cause this assumption to be incorrect.

Emission factors were developed from facilities of all ages and conditions, and with a variety of inspection and maintenance programs and product characteristics. The factors are intended to predict fugitive emissions from "average" facilities across the nation that are maintained with normal "good housekeeping" practices. The factors do not include data from equipment with unusually high or low emissions. Emissions from facilities that are known to have unusually high or low potential to emit should not be calculated using this method unless a mechanism is developed for increasing or decreasing the predicted values. The other two methods presented in this workbook are more appropriate for calculating emissions from facilities that are not average.

METHOD TWO -- COMPONENT SCREENING

Background

Method Two is based on data collected during instrument screening of 184,000 components at 20 onshore and offshore sites selected at random from the West Coast to the Gulf of Mexico. The components were screened with a portable hydrocarbon monitoring instrument that contained a flame ionization detector.

Description of Method

To use the tables presented in this method, all components must be screened using a portable hydrocarbon monitor according to EPA Reference Method 21 guidelines. The amount of information that needs to be recorded for each component depends on which table will be used to calculate the emissions. Table 5 presents emission factors for components with instrument screening values (ISV) in two categories: less than 10,000 ppmv, and equal to or greater than 10,000 ppmv. To use the table, the facility type, component type, and ISV range must be recorded for each component screened.

[NOTE: Definitions of facility types and component types are given in Method One.]

Table 5. EMISSION FACTORS DIVIDED AT 10,000 PPMV (Pounds/Day-Component)

FACILITY TYPE	COMP. TYPE	<10,000	≥10,000
Onshore Light Crude	CN, VL, OEL	0.00060	0.91
Onshore Light Crude	Other	0.01660	0.878
Onshore Heavy Crude	All	0.00016	0.119
Onshore Gas Production	CN, OEL	0.00021	0.380
Onshore Gas Production	VL, Other	0.00546	2.45
Offshore Oil & Gas	CN, OEL	0.00012	0.183
Offshore Oil & Gas	VL, Other	0.00267	2.22

Table 6 contains emission factors stratified into four screening ranges: less than 10 ppmv; 10 to 9,999 ppmv; 10,000 to 99,999 ppmv, and 100,000 ppmv. To use Table 6, the facility type, component type, and ISV range must be recorded for each component screened. The emission factors given for 100,000 ppmv are used for all components with screening values at or above 100,000 ppmv. [NOTE: No data is available for heavy crude production components screening at or above 100,000 ppmv.]

Table 6. STRATIFIED EMISSION FACTORS
(Pounds/Day-Component)

FACILITY TYPE	COMPONENT TYPE	INSTRUMENT SCREENING RANGE <10 ppmv	10 to 9,999	10,000 to 99,999	≥ 100,000 ppmv
Onshore Light Crude	CN, VL, OEL	0.00033	0.0274	0.395	1.22
Onshore Light Crude	Other	0.00331	0.0610	0.365	1.39
Onshore Heavy Crude	All	0.00014	0.0046	0.119	na
Onshore Gas Production	CN, OEL	0.00004	0.0112	0.126	1.01
Onshore Gas Production	VL, Other	0.00046	0.0871	0.756	6.18
Offshore Oil & Gas	CN, OEL	0.00005	0.0099	0.097	0.927
Offshore Oil & Gas	VL, Other	0.00134	0.1187	1.071	7.39

Table 7 contains correlation equations that convert individual ISV readings to mass emission rates in pounds per day. To use Table 7, each ISVs of 10 ppmv or more must be recorded and not grouped into ranges. Readings of 100,000 ppmv or more are assumed to be exactly 100,000 ppmv when calculating the mass emission rate. Components with ISV below 10 ppmv are assumed to emit at the rates shown in Table 8.

Table 7. CORRELATION EQUATIONS

FACILITY TYPE	COMPONENT TYPE	CORRELATION EQUATION
Onshore Light Crude	CN, VL, OEL	$THC(lb/day) = 8.61 \times 10^{-5}(ISV\ ppmv)^{0.83}$
Onshore Light Crude	Other	$THC(lb/day) = 1.24 \times 10^{-3}(ISV\ ppmv)^{0.61}$
Onshore Heavy Crude	All	$THC(lb/day) = 3.29 \times 10^{-5}(ISV\ ppmv)^{0.89}$
Onshore Gas Production	CN, OEL	$THC(lb/day) = 8.04 \times 10^{-6}(ISV\ ppmv)^{1.02}$
Onshore Gas Production	VL, Other	$THC(lb/day) = 9.79 \times 10^{-5}(ISV\ ppmv)^{0.96}$
Onshore Gas Plant	All	$THC(lb/day) = 1.79 \times 10^{-4}(ISV\ ppmv)^{0.87}$
Offshore Oil & Gas	CN, OEL	$THC(lb/day) = 1.04 \times 10^{-5}(ISV\ ppmv)^{0.99}$
Offshore Oil & Gas	VL, Other	$THC(lb/day) = 3.30 \times 10^{-4}(ISV\ ppmv)^{0.87}$

Table 8. EMISSION FACTORS FOR ISVs BELOW 10 PPMV

FACILITY TYPE	COMPONENT TYPE	DEFAULT ZERO
Onshore Light Crude	CN, VL, OEL	0.00033 lb/day-component
Onshore Light Crude	Other	0.00331 lb/day-component
Onshore Heavy Crude	All	0.00014 lb/day-component
Onshore Gas Production	CN, OEL	0.00004 lb/day-component
Onshore Gas Production	VL, Other	0.00046 lb/day-component
Onshore Gas Plant	All	0.00073 lb/day-component
Offshore Oil & Gas	CN, OEL	0.00005 lb/day-component
Offshore Oil & Gas	VL, Other	0.00134 lb/day-component

Screening Methodology

Method Two emission factors are based on screening values obtained at an instrument sampling rate of 1,000 cc/minute with the sampling probe held within 1 centimeter of the point of emissions. Higher instrument flow rates will result in lower ISVs and must be corrected to the equivalent of 1,000 cc/minute before use; likewise ISVs obtained at instrument flow rates below 1,000 cc/minute must be adjusted to avoid over prediction of emissions. All screening should be conducted according to EPA Reference Method 21.

Example Calculations

A hypothetical onshore light crude production site was found to have the following inventory and emitting components (ISV $\geq$10 ppmv):

Connections (CN)	2,355
Valves (VL)	555
Open-ended lines (OEL)	60
Polished Rod Stuffing Boxes (PRSB)	22
Dump Lever Arms (DLA)	8
TOTAL	3,000

Emitter Range	For CN,VL,OEL	For Others
100,000 ppmv	9 @ 100,000	2 @ 100,000
10,000 to 99,999 ppmv	1 @ 80,000 5 @ 50,000 1 @ 25,000 7 @ 10,000	1 @ 10,000
10 to 9,999 ppmv	2 @ 9,000 4 @ 8,000 4 @ 6,000 3 @ 5,000 4 @ 6,000 9 @ 3,000 25 @ 2,000 16 @ 1,000 19 @ 500 21 @ 200 21 @ 100 75 @ 10	
Less than 10 ppmv	2,747 @ 5	27 @ 5

Using Table 5:

	CN,VL,OEL	Others
10,000 ppmv or more	23	3
Less than 10, 000 ppmv	2,947	27

23 (CN,VL,OEL) **x** 0.91 lb/day-component

+ 2,947 (CN,VL,OEL) **x** 0.0006 lb/day-component

+ 3 (Others) **x** 0.878 lb/day-component

+ 27 (Others) **x** 0.0166 lb/day-component

= 26 lb/day THC emissions

Using Table 6:

	CN,VL,OEL	Others
100,000 ppmv	9	2
10,000 to 99,999 ppmv	14	1
10 to 9,999 ppmv	200	0
Less than 10 ppmv	2,747	27

9 (CN,VL,OEL) **x** 1.22 lb/day-component

+ 14 (CN,VL,OEL) **x** 0.395 lb/day-component

+ 200 (CN,VL,OEL) **x** 0.0274 lb/day-component

+ 2,747 (CN,VL,OEL) **x** 0.00033 lb/day-component

+ 2 (Other) **x** 1.39 lb/day-component

+ 1 (Other) **x** 0.365 lb/day-component

+ 0 (Other) **x** 0.0610 lb/day-component

+ 27 (Other) **x** 0.00331 lb/day-component

= 26 lb/day THC emissions

Using Tables 7 and 8

Type	Number	ISV	lb/day Each	lb/day Total
cn/vl/oel	9@	100,000	1.2162	10.9458
cn/vl/oel	1@	80,000	1.0106	1.0106
cn/vl/oel	5@	50000	0.6841	3.4207
cn/vl/oel	1@	25,000	0.3849	0.3849
cn/vl/oel	7@	10,000	0.1799	1.2592
cn/vl/oel	2@	9,000	0.1648	0.3297
cn/vl/oel	4@	8,000	0.1495	0.5979
cn/vl/oel	4@	6,000	0.1177	0.4709
cn/vl/oel	3@	5,000	0.1012	0.3036
cn/vl/oel	1@	4,000	0.0841	0.0841
cn/vl/oel	9@	3,000	0.0662	0.5960
cn/vl/oel	25@	2,000	0.0473	1.1825
cn/vl/oel	16@	1,000	0.0266	0.4257
cn/vl/oel	19@	500	0.0150	0.2844
cn/vl/oel	21@	200	0.0070	0.1469
cn/vl/oel	21@	100	0.0039	0.0826
cn/vl/oel	75@	10	0.0006	0.0437
cn/vl/oel	2748@	5	0.0003	0.8995
others	2@	100,000	1.3913	2.7826
others	1@	10,000	0.3415	0.3415
others	27@	5	0.0033	0.0894
TOTAL				26 pounds

Emission factors in Tables 5 through 8 give total hydrocarbon (THC) emissions. Emission rates of individual hydrocarbon species can be calculated using the THC emission rate and the factors in Table 3 (see Method One).

Using Table 3:

26 lb/day THC emissions **x**

0.613 Methane	=	**16 lb/day**
0.387 NMHC	=	**10 lb/day**
0.292 VOC	=	**8 lb/day**
0.02430 C6+	=	**0.6 lb/day**
0.00027 Benzene	=	**0.007 lb/day**
0.00075 Toluene	=	**0.020 lb/day**
0.00017 Ethyl-Benzene	=	**0.004 lb/day**
0.00036 Xylenes	=	**0.009 lb/day**

[NOTE: Many hydrocarbons are included in more than one group, for example, C6+ is also included in the NMHC and VOC groups.]

Options to Method Two

An approximate facility emission rate can be developed by screening a representative subset of all the types of components, assuming the unscreened components have the same average screening values as the ones that were screened. A second option for obtaining an estimate of facility emissions with a minimum of screening is to screen all the valves and use their emissions to estimate total emissions. Table 4 in Method One shows that valves constitute from 15 to 20 percent of the total components at a site; however, as shown in Table 9 (below), valves are usually responsible for about half the fugitive hydrocarbon emissions. A third option is to measure only a representative portion of the valves. This further reduces the amount of screening needed to obtain an estimate of total facility emissions, but the user must be aware that estimations made from only a few data points may not be as accurate as estimations made from many data points.

Table 9. PERCENTAGE OF FACILITY EMISSIONS BY COMPONENT TYPE

	Connection	Valves	Open-Ends	Others
Light Crude	38%	43%	8%	12%
Heavy Crude	51%	19%	23%	7%
Gas Production	13%	68%	1%	18%
Gulf Offshore	8%	54%	4%	34%

NOTES: "Gulf" is Gulf of Mexico

Example Calculation

One thousand valves were screened at a hypothetical gas production site and calculated to have a combined emission rate of 105 lb/day THC using Tables 7 and 8. The plant is known to have a total 4,174 valves. THC and benzene emissions for the entire gas plant were calculated in three steps:

Step One -- THC emissions from valves;

4,174 valves **x** 105 lb THC/1,000 valves

= 438 lb/day THC from valves;

Step Two -- THC emissions from entire plant;

Table 9 states that valves at gas production sites contribute 68% of the total fugitive hydrocarbon emissions; therefore total emissions are estimated to be:

438/0.68 = **644 lb/day THC emissions;**

Step Three -- Benzene emissions from entire site;

Table 3 shows that gas production emissions contain 0.00023 lbs of benzene per pound of THC; therefore:

644 **x** 0.00023 = **0.15 lb/day benzene.**

Interpretation of Results

Method Two is based on the assumption that the relationship between ISVs and hydrocarbon emission rates at any individual site is the same as the relationship found at sites used to develop the correlations presented in this workbook.

If the user of this workbook has reason to believe that the assumption may not be true for the site in question, Method Three should be used instead of Method Two.

METHOD THREE -- COLLECTION OF HYDROCARBON SAMPLES

Background

Approximately ninety percent of the fugitive hydrocarbon emissions used to develop emission factors for Methods One and Two came from the one percent of the components with ISV of 10,000 ppmv or more. The most intensive method of calculating emission rates for a site is using emissions factors or correlation equations from Method Two to predict emissions for components with ISV less than 10,000 ppmv, and collecting hydrocarbon samples from a representative number of components with ISV of 10,000 ppmv or more.

Overview of Method

All components are monitored using a portable hydrocarbon monitoring instrument. Twenty components (or ten percent of the components, whichever is greater) with ISV of 10,000 ppmv are enclosed in polyethylene bags and samples of hydrocarbon collected and analyzed to determine mass emission rates. The unsampled components with ISVs of 10,000 ppmv or more are assume to leak at the same rate as the average of the bagged components.

Details of Method

The monitoring instrument is used to locate the exact point of emission from the component. A 1/4 inch flexible plastic tube (sample tube) is then attached to the component with the open end of the tube within 1 centimeter of the exact point of emission (referred to here as the front of the component). A second flexible plastic tube (referred to here as the air supply tube) is attached to the "back" of the component with the open end toward the point of highest emission.

The component and tubes are enclosed in a polyethylene bag and all bag openings are heat-sealed or taped to prevent uncontrolled entry of air. The second end of the sample tube is attached to a flow metering device (typically a rotameter) which in turn is connected to a variable rate sampling pump. The second end of the air supply tube is connected to another metering device. The pump is started while observing the plastic bag; the pump rate is adjusted until the bag collapses onto the component. The flow rates through the two metering devices are compared. If the difference between the two metering devices is greater than 10%, the bag must be resealed and/or the pump flow rate must be increased.

The portable monitoring instrument is used to measure the ISV of the pump outlet until a constant reading has been recorded for three consecutive 30 second periods. The pump ISV and flow rate are recorded, and the pump outlet is connected to an inert sampling bag. When the sampling bag is full, its hydrocarbon content is determined using techniques such as gas chromatography or mass spectroscopy. Mass emission rate from the component is calculated using pump flow rate and chemical analysis of pump exhaust.

Speciated mass emission rates can be estimated using Table 3 or by using speciated data from the laboratory analyses if available.

Example Calculations

All the components on a hypothetical offshore platform were screened with the following results:

SCREENING RESULTS
(Number of components in each screening range)

Component Type	<10,000 ppmv	≥10,000 ppmv
Connections	9,677	22
Valves	1,760	14
Open-Ended Lines	302	14
Others	201	10
TOTAL	**11,940**	**60**

Emissions were first estimated using Table 5 to determine relative contribution of each group of components:

CONTRIBUTION OF EACH GROUP TO TOTAL EMISSIONS
(Calculated using factors from Table 6)

Component Type	<10,000 ppmv	≥10,000 ppmv
Connections	1.16 lb/day	4.03 lb/day
Valves	4.70 lb/day	31.08 lb/day
Open-Ended Lines	0.04 lb/day	2.56 lb/day
Others	0.54 lb/day	22.20 lb/day
TOTAL	**6.44 lb/day**	**59.87 lb/day**

Based on this calculation it was decided to bag some of the components with ISV of 10,000 ppmv or greater to more accurately determine total fugitive hydrocarbon emissions from the platform. The following bagging results were obtained:

BAGGING RESULTS FOR HYPOTHETICAL PLATFORM (lb/day)

Connection	0.488	Valve	0.108	Open-Ended	0.200
Connection	0.233	Valve	0.001	Open-Ended	0.356
Connection	0.006	Valve	0.702	Open-Ended	0.038
Connection	0.054	Valve	0.014	Open-Ended	1.001
Connection	0.003	Valve	0.040	**Average**	**0.399**
Connection	0.203	Valve	0.021		
Connection	0.110	Valve	0.273	Other	0.072
Connection	2.116	Valve	0.152	Other	0.078
Average	**0.390**	**Average**	**0.164**	Other	0.275
				Other	0.017
				Other	0.050
				Average	**0.098**

Final platform emissions were calculated using Table 5 factors for components with screening values below 10,000 ppmv and average bagging results for components with screening values of 10,000 ppmv or more.

FINAL CALCULATION OF THC EMISSION RATE

COMPONENT	NUMBER	AVERAGE RATE (lb/day-component)	TOTAL RATE (lb/day)
Connections ≥10,000	22	0.390	8.58
Valves ≥10,000 ppmv	14	0.164	2.30
Open-Ended ≥10,000	14	0.399	5.59
Others ≥10,000 ppmv	10	0.098	0.98
All <10,000 ppmv	11,940	(see Table 5)	6.58
TOTAL	**12,000**		**24.03**

An emission rate of VOC was also desired for the platform. The calculated emission rate (using Table 3) is:

24.03 lb THC/day **x** 0.110 **= 2.64 lb/day**

Interpretation of Results

Although Method Three is more labor intensive than Methods One or Two, it may predict the same total fugitive hydrocarbon emission rate as either of those methods. Alternatively, Method Three may predict either higher or lower emissions than would be predicted by Methods One and Two depending on the average leak rate of the large emitters found at the site being tested in relation to the emitters used to develop the emission factors contained in this workbook.

For some example calculations given in this workbook, the methods for estimating emissions yield the same estimate for total hydrocarbon emissions. The examples were purposely designed to give the same estimate, so as not to imply that increased effort in calculating emission estimates will necessarily result in lower predicted emissions.

APPENDICES

APPENDIX A: STATISTICAL ANALYSIS OF DATA

The two main objectives of this appendix are:

(1) to develop model equations that estimate total hydrocarbon fugitive emissions from instrument screening values in oil and gas production facilities;

(2) to develop emission factors for total hydrocarbon and speciated fugitive emissions.

The outline of this appendix is as follows:

Section 1 - Model Equations
Defines eight groups that require (based on statistical tests) different model equations.

Section 2 - Total Hydrocarbon Emission Factors
Provides several sets of emission factors for total hydrocarbon based on two different methods. The recommended set is shown in a separate table.

Section 3 - Speciated Fugitive Emission Factors
Provides factors for speciated fugitive emissions.

1. MODEL EQUATIONS

Over the past several years, model equations for predicting fugitive emission concentrations have been derived by regressing the natural logarithm[1] of total hydrocarbon emissions (ln(THC)) on the natural logarithm of the Instrument Screening Value (ln(ISV)). This approach has led to normally distributed residuals, an important assumption in regression analysis not satisfied when both variables are kept in their original scale.

The model equations have been typically of the form

$$\ln(THC) = \alpha + \beta \ln(ISV)$$

or

$$THC = e^{\alpha} (ISV)^{\beta}$$

where α and β denote respectively the intercept and slope of the regression model on the log-log scale.

In this study and for the same reason mentioned above, the same model equation form is used, with total hydrocarbon concentrations in pounds per day (lb/day) measured by "bagging" the component, and screening values in parts per million by volume (ppmv) measured by using portable monitoring instruments. Moreover, five facility types were considered (natural gas processing, natural gas production, heavy crude oil production, light crude oil production and offshore oil and gas production), and more than a dozen component types (valves, open-ended lines, connections, polished rods, pressure relief valves, etc). Because some of the component types included very few data points, they were categorized into four classes: valves, connections, open-ended lines and others. Nonetheless, the number of possible combinations of facility and component types was still quite large, and therefore needed to be reduced by identifying combinations with similar intercepts and slopes so that they can be grouped into one regression model.

This was accomplished by first considering the most general Analysis Of Variance (ANOVA) model, i.e. a model that allows for different intercepts and different slopes for each of the facility type/component type combinations. The higher order terms that were not statistically significant were excluded sequentially (one at a time) from the model until all terms left in the model were significant. Table 1 below lists the eight different groups that were statistically determined to need different equations.

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[1] The natural and base 10 logarithms would lead to the same model equations for the original (arithmetic) scale.

The complete data base contained 705 pairs of bagging/screening values. Five of them were excluded because they were considered as statistical outliers[2].

Table 2 presents the model equations for each of the eight groups. These equations were developed according to EPA's methodology as described in EPA's "Protocol for Equipment Leak Emission Estimates" (June 1993).

TABLE 1 - AGGREGATION INTO 8 GROUPS

FACILITY TYPE	COMPONENT TYPE[a]	ISV RANGE (ppmv)	N	AVG. THC EMISSION (lb/day-emitter)
Natural Gas Processing	CN,VL,OEL,Other	1–100,000	174	1.85
Natural Gas Production	CN,OEL	10–100,000	29	0.32
Natural Gas Production	VL,Other	1–100,000	63	1.55
Heavy Crude Oil Production	CN,VL,OEL,Other	25–10,000	30	0.012
Light Crude Oil Production	CN,VL,OEL	1–100,000	141	0.57
Light Crude Oil Production	Other	1–100,000	22	0.096
Offshore Oil & Gas Production	CN,OEL	30–100,000	169	0.22
Offshore Oil & Gas Production	VL,Other	15–100,000	72	1.03

[a] CN = Connection, VL = Valve, OEL = Open-Ended Line.

[2] Observations with studentized residuals greater than 3 in absolute value were considered to be statistical outliers.

TABLE 2 - MODEL EQUATIONS FOR ESTIMATING TOTAL HYDROCARBON FROM SCREENING VALUES

FACILITY TYPE	COMPONENT TYPE[a]	REGRESSION SLOPE ($\hat{\beta}$)	REGRESSION INTERCEPT ($\hat{\alpha}$)	SBCF	MODEL EQUATION
Natural Gas Processing	CN,VL,OEL,Other	0.87	−10.214	4.89	$THC(lb/day) = 1.79x10^{-4} (SV\ ppmv)^{0.87}$
Natural Gas Production	CN,OEL	1.02	−13.391	5.26	$THC(lb/day) = 8.04x10^{-6} (SV\ ppmv)^{1.02}$
Natural Gas Production	VL,Other	0.96	−11.474	9.41	$THC(lb/day) = 9.79x10^{-5} (SV\ ppmv)^{0.96}$
Heavy Crude Oil Production	CN,VL,OEL,Other	0.89	−11.156	2.30	$THC(lb/day) = 3.29x10^{-5} (SV\ ppmv)^{0.89}$
Light Crude Oil Production	CN,VL,OEL	0.83	−10.949	4.90	$THC(lb/day) = 8.61x10^{-5} (SV\ ppmv)^{0.83}$
Light Crude Oil Production	Other	0.61	−8.061	3.92	$THC(lb/day) = 1.24x10^{-3} (SV\ ppmv)^{0.61}$
Offshore Oil & Gas Production	CN,OEL	0.99	−13.101	5.09	$THC(lb/day) = 1.04x10^{-5} (SV\ ppmv)^{0.99}$
Offshore Oil & Gas Production	VL,Other	0.87	−11.139	22.67	$THC(lb/day) = 3.30x10^{-4} (SV\ ppmv)^{0.87}$

[a] CN = Connection, VL = Valve, OEL = Open-Ended Line.

2. TOTAL HYDROCARBON EMISSION FACTORS

First, five Instrument Screening Value (ISV) ranges were defined to account for the distribution of the number of components and their emission contributions:

100,000 ppmv[3]
10,000 – 99,999 ppmv
1,000 – 9,999 ppmv
10 – 999 ppmv
< 10 ppmv.

Bagged hydrocarbon emissions were then modeled to determine whether average emissions in each range are homogeneous across facility types and component types. It was found that the same 8 groups of facility/component types that were formed to develop the model equations could also be considered here as needing different emission factors. This should not be too surprising since essentially the term for actual screening value was replaced in the model by a class variable for the 5 screening value ranges.

Once the ISV ranges and individual groups were determined, the next step was to calculate emission factors. Two methods were considered:

- The first method is based on bagging analyses. The bagged components were divided into the 5 ranges according to their screening values. Then for each range, the average hydrocarbon emission was calculated based on the bagging results. In a few cases, there were no bagged components in the <10 ppmv range. In those cases, the overall average emission of all bagged components (from all facility types) with ISV < 10 ppmv was calculated. The result, 0.00037 lb/day-component, was used.

- The second method is based on the model equations presented in Table 2. The screening value from each screened component (bagged and not bagged) was entered in the appropriate model equation to obtain the corresponding estimated emission. ISVs categorized as less than 10 ppmv (i.e. with no actual value) were entered in the equation as 5 ppmv. The total of the estimated total hydrocarbon emissions was then calculated for each of the 5 ranges. Finally, the average emissions were computed as: total HC emission / total number of components.

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[3] The data base used for this study did not contain ISVs strictly greater than 100,000 ppmv, only ISVs equal to 100,000 ppmv.

The advantage of the first method is that the bagged emissions are more accurate than those obtained from the model equations. With the second method however, model equation averages are based on hundreds of estimated emissions (compared to only a few bagged emissions in some cases). So unless the model equations are grossly biased, averages based on the second method are expected to be more reliable and stable.

Another advantage of the second method over the first is that the first may lead to a lower emission factor for a higher screening value range. For example, Table 8 shows that the emission factor based on bagged components for the 10,000–99,999 ppmv range is 0.0492 lb/day-component, whereas it is equal to 0.142 lb/day-component for the 1,000–9,999 ppmv range. This anomaly cannot happen using the model equations.

Tables 3-10 give emission factors calculated based on each of the two methods described above and for each of the 8 groups of facility/component types. The top part of each page shows the calculation steps that led to the THC averages. It also indicates the contribution of each range to the total emission. The bottom part of each page provides emission factors for different stratification scenarios.

One question of interest is whether the two methods led to similar emission factors and consequently to similar total HC emissions. For the following groups the two methods were fairly close in terms of total HC (bottom line of top table):

- Natural Gas Production Facilities - CN, OEL[4] (Table 4)
- Natural Gas Production Facilities - VL, Other (Table 5)

For the following groups, the first method (based on bagged components) led to higher total HC emission estimates:

- Heavy Crude Oil Production Facilities - CN, VL, OEL, Other (Table 6)
- Light Crude Oil Production Facilities - CN, VL, OEL (Table 7)
- Offshore Oil & Gas Production Facilities - CN, OEL (Table 9)

For the following groups, the second method (based on model equations) led to higher total HC emission estimates:

- Light Crude Oil Production Facilities - Other (Table 8)
- Offshore Oil & Gas Production Facilities - VL, Other (Table 10)

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[4] CN = Connection, VL = Valve, OEL = Open-Ended Line.

One reason the method based on the model equations is believed to be more appropriate is that it is based on hundreds of ISVs. Estimated emissions for individual components may not be accurate; but overall, the average THC emissions are expected to be reasonably reliable, or at least more reliable than averages based on only a few bagged components. Another reason the second method is recommended is that whether one chooses to use the model equations directly or the emission factors derived from the model equations to estimate total emissions, one should obtain roughly similar results.

Finally, of the different sets of emission factors (or stratification scenarios), the one based on 4 ISV ranges is recommended for the following reasons:

- The 100,000 ppmv components need to be identified separately since they contribute the majority of total emissions.
- The number of components in the 10,000 to 99,999 ppmv range should also be determined since they too contribute a considerable portion of total emissions.
- The number of components below 10 ppmv represent the non-emitters. Their number should also be known separately.
- The 4th range (10 - 9,999 ppmv) is automatically determined since it is the remaining interval.

Table 11 shows the emission factors based on the recommended method for these 4 ranges.

TABLE 3 - TOTAL HYDROCARBON EMISSION FACTORS FOR:
NATURAL GAS PROCESSING FACILITIES – CN,VL,OEL,Other

EMISSION FACTORS FOR NATURAL GAS PROCESSING FACILITIES

WILL BE PUBLISHED IN A SEPARATE REPORT

TABLE 4 - TOTAL HYDROCARBON EMISSION FACTORS FOR: NATURAL GAS PRODUCTION FACILITIES – CN,OEL

ISV RANGE (PPMV)	TOTAL # OF COMP.	BASED ON BAGGED COMPONENTS				BASED ON MODEL EQUATION		
		# OF BAGGED COMP.	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL
100,000	96	6	1.53	146.63	86.1	1.01	97.17	72.5
10,000-99,999	238	5	0.0379	9.02	5.3	0.126	29.91	22.3
1,000-9,999	259	7	0.0092	2.38	1.4	0.0201	5.21	3.9
10-999	242	11	0.00048	0.12	0.1	0.00169	0.41	0.3
<10	32,728	0	0.00037	12.11	7.1	0.00004	1.36	1.0
TOTAL	33,563	29		170.26	100.0		134.05	100.0

ISV RANGE (PPMV)	AVERAGE THC (lb/day-component)	
	BASED ON BAGGED COMP.	BASED ON MODEL EQUATION
100,000	1.53	1.01
10,000-99,999	0.0379	0.126
10-9,999	0.0050	0.0112
<10	0.00037	0.00004

10,000-100,000	0.466	0.380
10-9,999	0.0050	0.0112
<10	0.00037	0.00004

10,000-100,000	0.466	0.380
<10,000	0.00044	0.00021

10-100,000	0.189	0.159
<10	0.00037	0.00004

TABLE 5 - TOTAL HYDROCARBON EMISSION FACTORS FOR: NATURAL GAS PRODUCTION FACILITIES – VL,Other

ISV RANGE (PPMV)	TOTAL # OF COMP.	BASED ON BAGGED COMPONENTS				BASED ON MODEL EQUATION		
		# OF BAGGED COMP.	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL
100,000	98	19	3.85	377.64	36.5	6.18	605.35	75.4
10,000-99,999	216	8	3.02	653.26	63.1	0.756	163.36	20.3
1,000-9,999	161	14	0.0197	3.17	0.3	0.177	28.46	3.5
10-999	203	17	0.00698	1.42	0.1	0.0160	3.24	0.4
<10	5,937	5	0.00007	0.41	0.0	0.00046	2.73	0.3
TOTAL	6,615	63		1035.89	100.0		803.13	100.0

ISV RANGE (PPMV)	AVERAGE THC (lb/day-component)	
	BASED ON BAGGED COMP.	BASED ON MODEL EQUATION
100,000	3.85	6.18
10,000-99,999	3.02	0.756
10-9,999	0.0126	0.0871
<10	0.00007	0.00046

10,000-100,000	3.28	2.45
10-9,999	0.0126	0.0871
<10	0.00007	0.00046

10,000-100,000	3.28	2.45
<10,000	0.00079	0.00546

10-100,000	1.53	1.18
<10	0.00007	0.00046

TABLE 6 - TOTAL HYDROCARBON EMISSION FACTORS FOR: HEAVY CRUDE OIL PRODUCTION FACILITIES – CN,VL,OEL,Other

ISV RANGE (PPMV)	TOTAL # OF COMP.	BASED ON BAGGED COMPONENTS				BASED ON MODEL EQUATION		
		# OF BAGGED COMP.	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL
100,000	0	0	–	0	0.0	–	0	0.0
10,000-99,999	2	2	0.0711	0.14	2.5	0.119	0.24	10.0
1,000-9,999	6	4	0.0387	0.23	4.1	0.0323	0.19	8.1
10-999	54	24	0.00308	0.17	3.0	0.00147	0.08	3.3
<10	13,694	0	0.00037	5.07	90.4	0.00014	1.89	78.7
TOTAL	13,756	30		5.61	100.0		2.40	100.0

ISV RANGE (PPMV)	AVERAGE THC (lb/day-component)	
	BASED ON BAGGED COMP.	BASED ON MODEL EQUATION
100,000	–	–
10,000-99,999	0.0711	0.119
10-9,999	0.00665	0.0046
<10	0.00037	0.00014

10,000-100,000	0.0711	0.119
10-9,999	0.00665	0.0046
<10	0.00037	0.00014

10,000-100,000	0.0711	0.119
<10,000	0.00040	0.00016

10-100,000	0.00872	0.00826
<10	0.00037	0.00014

TABLE 7 - TOTAL HYDROCARBON EMISSION FACTORS FOR:
LIGHT CRUDE OIL PRODUCTION FACILITIES – CN,VL,OEL

ISV RANGE (PPMV)	TOTAL # OF COMP.	BASED ON BAGGED COMPONENTS				BASED ON MODEL EQUATION		
		# OF BAGGED COMP.	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL
100,000	233	21	3.14	730.83	86.1	1.22	283.37	77.0
10,000-99,999	142	25	0.534	75.84	8.9	0.395	56.09	15.2
1,000-9,999	158	45	0.0234	3.69	0.4	0.0693	10.95	3.0
10-999	325	46	0.00557	1.81	0.2	0.00701	2.28	0.6
<10	47,356	6	0.00077	36.23	4.3	0.00033	15.51	4.2
TOTAL	48,214	143		848.40	100.0		368.20	100.0

ISV RANGE (PPMV)	AVERAGE THC (lb/day-component)	
	BASED ON BAGGED COMP.	BASED ON MODEL EQUATION
100,000	3.14	1.22
10,000-99,999	0.534	0.395
10-9,999	0.0114	0.0274
<10	0.00077	0.00033

10,000-100,000	2.15	0.91
10-9,999	0.0114	0.0274
<10	0.00077	0.00033

10,000-100,000	2.15	0.91
<10,000	0.00087	0.00060

10-100,000	0.947	0.411
<10	0.00077	0.00033

TABLE 8 - TOTAL HYDROCARBON EMISSION FACTORS FOR: LIGHT CRUDE OIL PRODUCTION FACILITIES – Other

ISV RANGE (PPMV)	TOTAL # OF COMP.	BASED ON BAGGED COMPONENTS				BASED ON MODEL EQUATION		
		# OF BAGGED COMP.	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL
100,000	21	1	0.183	3.83	42.7	1.39	29.22	67.3
10,000-99,999	21	3	0.0492	1.03	11.5	0.365	7.66	17.6
1,000-9,999	20	12	0.142	2.85	31.7	0.177	3.54	8.1
10-999	71	4	0.0168	1.19	13.3	0.0284	2.02	4.6
<10	305	2	0.00022	0.07	0.8	0.00331	1.01	2.3
TOTAL	438	22		8.97	100.0		43.44	100.0

ISV RANGE (PPMV)	AVERAGE THC (lb/day-component)	
	BASED ON BAGGED COMP.	BASED ON MODEL EQUATION
100,000	0.183	1.39
10,000-99,999	0.0492	0.365
10-9,999	0.0444	0.0610
<10	0.00022	0.00331

10,000-100,000	0.116	0.878
10-9,999	0.0444	0.0610
<10	0.00022	0.00331

10,000-100,000	0.116	0.878
<10,000	0.0104	0.0166

10-100,000	0.0670	0.319
<10	0.00022	0.00331

TABLE 9 - TOTAL HYDROCARBON EMISSION FACTORS FOR: OFFSHORE OIL & GAS PRODUCTION FACILITIES – CN,OEL

ISV RANGE (PPMV)	TOTAL # OF COMP.	BASED ON BAGGED COMPONENTS				BASED ON MODEL EQUATION		
		# OF BAGGED COMP.	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL
100,000	16	31	1.036	16.57	29.9	0.927	14.83	45.2
10,000-99,999	139	34	0.138	19.22	34.7	0.097	13.46	41.0
1,000-9,999	90	54	0.0521	4.69	8.5	0.0258	2.32	7.1
10-999	180	52	0.00878	1.58	2.8	0.00197	0.35	1.1
<10	36,164	0	0.00037	13.38	24.1	0.00005	1.85	5.6
TOTAL	36,589	171		55.44	100.0		32.82	100.0

ISV RANGE (PPMV)	AVERAGE THC (lb/day-component)	
	BASED ON BAGGED COMP.	BASED ON MODEL EQUATION
100,000	1.036	0.927
10,000-99,999	0.138	0.097
10-9,999	0.0232	0.0099
<10	0.00037	0.00005

10,000-100,000	0.231	0.183
10-9,999	0.0232	0.0099
<10	0.00037	0.00005

10,000-100,000	0.231	0.183
<10,000	0.00054	0.00012

10-100,000	0.0990	0.0729
<10	0.00037	0.00005

TABLE 10 - TOTAL HYDROCARBON EMISSION FACTORS FOR: OFFSHORE OIL & GAS PRODUCTION FACILITIES – VL,Other

ISV RANGE (PPMV)	TOTAL # OF COMP.	BASED ON BAGGED COMPONENTS				BASED ON MODEL EQUATION		
		# OF BAGGED COMP.	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL	AVG. THC (lb/day-comp.)	TOTAL THC (lb/day)	% OF GRAND TOTAL
100,000	16	24	2.25	36.05	37.7	7.39	118.20	53.9
10,000-99,999	72	26	0.760	54.73	57.3	1.071	77.13	35.2
1,000-9,999	32	12	0.0211	0.67	0.7	0.316	10.11	4.6
10-999	70	10	0.0110	0.77	0.8	0.0285	1.99	0.9
<10	8,906	0	0.00037	3.30	3.4	0.00134	11.92	5.4
TOTAL	9,096	72		95.52	100.0		219.36	100.0

ISV RANGE (PPMV)	AVERAGE THC (lb/day-component)	
	BASED ON BAGGED COMP.	BASED ON MODEL EQUATION
100,000	2.25	7.39
10,000-99,999	0.760	1.071
10-9,999	0.0142	0.1187
<10	0.00037	0.00134

10,000-100,000	1.032	2.220
10-9,999	0.0142	0.1187
<10	0.00037	0.00134

10,000-100,000	1.032	2.220
<10,000	0.00053	0.00267

10-100,000	0.485	1.092
<10	0.00037	0.00134

TABLE 11 - RECOMMENDED TOTAL HYDROCARBON EMISSION FACTORS (BASED ON MODEL EQUATIONS)

FACILITY TYPE	COMPONENT TYPE[a]	EMISSION FACTORS (lb/day-component) FOR THE FOLLOWING 4 ISV RANGES (ppmv)			
		100,000	10,000–99,999	10–9,999	<10
Natural Gas Processing	CN,VL,OEL,Other	TBD	TBD	TBD	TBD
Natural Gas Production	CN,OEL	1.01	0.126	0.0112	0.00004
Natural Gas Production	VL,Other	6.18	0.756	0.0871	0.00046
Heavy Crude Oil Production	CN,VL,OEL,Other	NA[b]	0.119	0.0046	0.00014
Light Crude Oil Production	CN,VL,OEL	1.22	0.395	0.0274	0.00033
Light Crude Oil Production	Other	1.39	0.365	0.0610	0.00331
Offshore Oil & Gas Product.	CN,OEL	0.927	0.097	0.0099	0.00005
Offshore Oil & Gas Product.	VL,Other	7.39	1.071	0.1187	0.00134

[a] CN = Connection, VL = Valve, OEL = Open-Ended Line.

[b] Not Applicable (see Table 6).

TBD = TO BE DETERMINED

3. SPECIATED FUGITIVE EMISSION FACTORS

As with the development of the model equations and the calculation of THC emission factors, the first step is to form groups of facility/component types that may be viewed as having similar characteristics. In this case, the fraction of speciated emissions to THC was calculated and modeled to determine whether different facility types or component types should be considered separately. It was found that in most cases, component types did not affect the fraction of speciated emissions, but facility types did. Consequently, for each of the 5 facility types and each of the species listed in Table 12, the fractions of total speciated emissions to THC emissions were calculated. The number of components that were bagged and speciated is also shown. For heavy crude oil production sites, that number was in some cases quite low (N=4), and as a result, the corresponding emission factors are not as reliable as for the sites with a larger number of components (N≥30).

What follows is an example of how to use Table 12 to estimate total speciated fugitive emissions:

$$\text{Estimated total methane fugitive emissions in a light crude oil production facility (lb/day)} = 0.613 \times \text{Estimated total HC fugitive emissions (lb/day)}$$

TABLE 12 - SPECIATED FUGITIVE EMISSION FACTORS

	Light Crude Oil Production		Heavy Crude Oil Production		Natural Gas Production		Natural Gas Processing		Offshore Oil & Gas Production	
	N	Fraction[a]	N	Fraction[a]	N	Fraction[a]	N	Fraction[a]	N	Fraction[a]
Methane	165	0.613	30	0.942	92	0.920	175	TBD	243	0.791
NMHC	165	0.387	30	0.058	92	0.080	175	TBD	243	0.210
VOC	165	0.292	30	0.0299	92	0.0347	175	TBD	243	0.110
Hexane[b]	165	0.0243	30	0.00752	92	0.00338	175	TBD	243	0.00673
Benzene	43	0.000269	4	0.00935	43	0.000231	38	TBD	37	0.00133
Toluene	43	0.000750	4	0.00344	43	0.000391	40	TBD	38	0.000888
Ethyl-Benzene	43	0.000165	4	0.000505	43	0.0000174	37	TBD	37	0.000158
Xylene	42	0.000357	4	0.00372	43	0.0000968	39	TBD	37	0.000269

[a] $Fraction = \dfrac{\sum \text{Speciated Emissions (lb/day)}}{\sum \text{Total HC Emissions (lb/day)}}$

[b] In most cases, the majority of the C6+ emissions were n-hexane.

APPENDIX B
FIELD INVENTORY SHEET DATA

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Well	A	46	14	0	0	0	0	1	61	2	0	0	0	0	0	2
1	Well	B	44	13	0	0	0	0	1	58	0	1	0	0	0	0	1
1	Well	C	28	9	0	0	0	0	0	37	0	0	0	1	0	0	1
1	Well	D	29	10	1	0	0	0	0	40	0	0	0	0	0	0	0
1	Well	E	24	8	3	0	0	0	0	35	0	1	0	0	0	0	1
1	Well	F	45	14	0	0	0	0	1	60	3	1	0	0	1	0	5
1	Well	G	51	15	0	0	0	0	1	67	2	0	0	0	0	0	2
1	Well	H	52	17	0	0	0	0	1	70	0	0	0	1	0	0	1
1	Well	I	46	13	0	0	0	0	1	60	0	1	0	0	0	0	1
1	Well	J	63	16	0	0	0	0	1	80	0	3	1	0	1	3	8
1	Well	J	38	11	0	0	0	0	0	49	0	0	0	1	0	0	1
1	Well	K	59	16	0	0	0	0	1	76	0	0	0	0	0	0	0
1	Well	L	45	12	0	0	0	0	1	58	0	0	0	0	0	0	0
1	Well	M	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
1	Well	N	28	11	0	0	0	0	0	39	0	0	0	0	0	0	0
1	Well	O	24	8	0	0	0	0	0	32	0	0	0	0	0	0	0
1	Well	P	24	8	0	0	0	0	0	32	0	0	1	0	0	0	1
1	Well	Q	43	13	0	0	0	0	1	57	0	0	0	0	0	0	0
1	Well	R	48	15	0	0	0	0	1	64	0	1	0	0	0	0	1
1	Well	S	48	15	0	0	0	0	1	64	1	0	0	0	0	0	1
1	Well	T	42	13	0	0	0	0	1	56	0	0	0	0	0	0	0
1	Well	U	44	14	0	0	0	0	0	58	0	0	0	0	0	0	0
1	Well	V	33	11	0	0	0	0	0	44	0	0	0	0	0	0	0
1	Well	W	43	11	0	0	0	0	1	55	0	0	1	0	0	0	1
1	Well	X	54	16	0	0	0	0	0	70	0	0	0	0	0	0	0
1	Well	Y	28	9	0	0	0	0	0	37	0	1	0	0	1	0	2
1	Well	Z	21	8	0	0	0	0	0	29	0	0	0	0	0	1	1
1	Well	AA	29	9	0	0	0	0	0	38	1	0	0	0	0	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Well	AB	32	9	0	0	0	0	0	41	0	0	0	0	0	0	0
1	Well	AC	33	9	0	0	0	0	0	42	1	0	0	0	0	0	1
1	Well	AD	30	10	0	0	0	0	0	40	0	0	0	0	0	0	0
1	Well	AE	36	11	0	0	0	0	0	47	0	0	0	0	0	0	0
1	Well	AF	37	12	0	0	0	0	0	49	0	0	0	0	0	0	0
1	Well	AG	31	11	0	0	0	0	0	42	0	0	0	0	0	0	0
1	Well	AH	21	7	0	0	0	0	0	28	0	0	0	0	0	0	0
1	Well	AI	24	9	0	0	0	0	0	33	0	1	0	0	0	0	1
1	Well	AK	25	9	0	0	0	0	0	34	0	0	1	0	0	0	1
1	Well	AL	31	10	0	0	0	0	0	41	0	0	0	0	0	1	1
1	Well	AM	35	12	0	0	0	0	0	47	1	0	0	0	0	0	1
1	Well	AN	44	14	0	0	0	0	1	59	0	0	0	0	0	0	0
1	Well	AO	42	12	0	0	0	0	1	55	0	1	0	0	0	0	1
1	Well	AP	45	14	0	0	0	0	1	60	0	0	0	0	0	0	0
1	Well	AQ	24	7	0	0	0	0	0	31	0	0	0	0	0	0	0
1	Well	AR	27	9	0	0	0	0	0	36	0	0	0	0	0	0	0
1	Well	AS	31	9	1	0	0	0	0	41	2	0	0	1	0	1	4
1	Well	AT	26	8	0	0	0	0	0	34	0	0	0	1	0	0	1
1	Well	AU	18	9	3	0	0	0	0	30	1	0	0	0	0	0	1
1	Well	AV	29	11	1	0	0	0	0	41	0	0	0	0	0	0	0
1	Well	AW	49	15	0	0	0	0	1	65	0	1	1	0	0	0	2
1	Well	AX	34	11	0	0	0	0	0	45	1	0	0	0	0	0	1
1	Well	AY	47	13	0	0	0	0	1	61	0	0	1	0	0	0	1
1	Well	AZ	49	15	1	0	0	0	1	66	1	0	0	0	0	0	1
1	Well	BA	61	17	0	0	0	0	1	79	0	0	1	0	0	0	1
1	Well	BB	45	13	0	0	0	0	1	59	1	1	0	1	0	0	3
1	Well	BC	53	14	0	0	0	0	1	68	1	0	0	0	0	0	1
1	Well	BD	51	15	0	0	0	0	1	67	1	1	0	0	0	0	2

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Well	BE	39	12	0	0	0	0	1	52	0	0	0	0	0	0	0
1	Well	BF	46	13	0	0	0	0	1	60	0	1	0	0	0	0	1
1	Well	BG	18	6	0	0	0	0	0	24	0	0	0	0	0	0	0
1	Well	BH	24	7	0	0	0	0	0	31	0	0	1	0	0	0	1
1	Well	BI	26	10	0	0	0	0	0	36	2	0	0	0	1	0	3
1	Well	BJ	40	12	0	0	0	0	1	53	0	1	0	0	0	0	1
1	Well	BK	19	6	0	0	0	0	0	25	0	0	0	0	0	0	0
1	Well	BL	27	9	0	0	0	0	0	36	0	0	0	0	0	0	0
1	Well	BM	26	9	0	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	BN	30	9	0	0	0	0	0	39	0	0	0	1	0	0	1
1	Well	BO	32	11	0	0	0	0	0	43	0	0	0	0	0	0	0
1	Well	BP	30	11	0	0	0	0	0	41	1	0	0	0	0	0	1
1	Well	BQ	30	9	0	0	0	0	0	39	0	0	0	0	0	0	0
1	Well	BR	25	9	0	0	0	0	0	34	1	0	0	0	0	0	1
1	Well	BS	23	8	0	0	0	0	0	31	0	1	0	0	0	0	1
1	Well	BT	30	10	0	0	0	0	0	40	2	0	0	0	0	0	2
1	Well	BU	25	8	0	0	0	0	0	33	0	0	0	0	0	0	0
1	Well	BV	27	9	0	0	0	0	0	36	0	0	1	1	0	0	2
1	Well	BW	24	8	0	0	0	0	0	32	0	0	0	1	0	0	1
1	Well	BX	38	13	2	0	0	0	1	54	0	0	0	0	0	0	0
1	Well	BY	41	13	1	0	0	0	1	56	1	0	0	1	0	0	2
1	Well	BZ	26	9	0	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	CA	25	8	0	0	0	0	0	33	1	1	0	0	0	0	2
1	Well	CB	20	7	0	0	0	0	0	27	0	0	0	1	0	0	1
1	Well	CC	29	10	0	0	0	0	0	39	0	0	0	0	0	0	0
1	Well	CD	37	9	0	0	0	0	1	47	0	1	0	0	0	0	1
1	Well	CE	26	8	0	0	0	0	0	34	0	0	0	1	0	0	1
1	Well	CF	44	12	0	0	0	0	1	57	0	1	0	1	0	0	2

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Well	CG	33	11	0	0	0	0	0	44	0	0	0	0	0	0	0
1	Well	CH	27	9	0	0	0	0	0	36	0	1	0	0	0	1	2
1	Well	CI	33	11	0	0	0	0	0	44	0	0	0	0	0	0	0
1	Well	CJ	21	9	1	0	0	0	0	31	0	1	0	0	0	1	2
1	Well	CK	23	8	0	0	0	0	0	31	0	0	0	1	0	0	1
1	Well	CL	34	10	0	0	0	0	0	44	0	1	0	0	0	0	1
1	Well	CM	31	10	1	0	0	0	0	42	1	0	0	1	0	0	2
1	Well	CN	41	13	1	0	0	0	1	56	0	0	0	0	0	0	0
1	Well	CO	48	14	0	0	0	0	1	63	1	0	0	0	0	0	1
1	Well	CP	47	14	0	0	0	0	1	62	0	5	0	0	1	0	6
1	Well	CQ	48	15	1	0	0	0	1	65	0	0	0	0	0	0	0
1	Well	CR	48	14	0	0	0	0	1	63	4	0	0	0	0	0	4
1	Well	CS	46	15	1	0	0	0	1	63	0	0	0	0	0	0	0
1	Well	CT	42	12	0	0	0	0	1	55	0	1	0	0	0	0	1
1	Well	CU	38	11	0	0	0	0	1	50	1	0	0	1	0	0	2
1	Well	CV	24	8	0	0	0	0	0	32	0	0	1	1	0	0	2
1	Well	CW	24	8	0	0	0	0	0	32	0	0	1	0	0	0	1
1	Well	CX	22	7	0	0	0	0	0	29	0	0	0	0	0	0	0
1	Well	CY	36	11	0	0	0	0	0	47	0	0	0	0	0	0	0
1	Well	CZ	33	11	0	0	0	0	0	44	0	0	0	0	0	0	0
1	Well	DA	21	7	0	0	0	0	0	28	0	0	0	0	0	0	0
1	Well	DB	23	7	0	0	0	0	0	30	0	0	0	0	0	0	0
1	Well	DC	38	12	0	0	0	0	1	51	1	2	1	0	0	0	4
1	Well	DD	24	8	0	0	0	0	0	32	0	0	0	0	0	0	0
1	Well	DE	41	13	1	0	0	0	1	56	0	0	0	0	0	0	0
1	Well	DF	25	9	0	0	0	0	0	34	1	0	0	1	0	0	2
1	Well	DG	33	10	0	0	0	0	0	43	0	0	0	0	0	1	1
1	Well	DH	24	8	0	0	0	0	0	32	0	0	0	1	0	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Well	DI	40	12	0	0	0	0	1	53	0	0	0	0	0	0	0
1	Well	DJ	24	8	0	0	0	0	0	32	0	0	0	0	0	0	0
1	Well	DK	36	12	1	0	0	0	1	50	0	0	0	0	0	0	0
1	Well	DL	29	10	0	0	0	0	0	39	0	0	0	1	0	0	1
1	Well	DM	24	8	0	0	0	0	0	32	0	0	0	1	0	0	1
1	Well	DN	25	9	0	0	0	0	0	34	0	0	0	0	1	0	1
1	Well	DO	26	9	0	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	DP	47	15	0	0	0	0	1	63	0	0	0	0	0	0	0
1	Well	DQ	25	9	1	0	0	0	0	35	0	0	0	0	0	2	2
1	Well	DR	23	8	0	0	0	0	0	31	0	0	0	0	0	0	0
1	Well	DS	26	9	0	0	0	0	0	35	0	1	0	0	0	0	1
1	Well	DT	22	8	0	0	0	0	0	30	0	0	0	0	0	0	0
1	Well	DU	38	11	1	0	0	0	1	51	0	0	0	0	0	0	0
1	Well	DV	32	10	0	0	0	0	0	42	1	0	0	0	0	0	1
1	Well	DW	26	9	0	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	DX	32	9	1	0	0	0	0	42	0	0	0	0	1	0	1
1	Well	DY	34	11	0	0	0	0	0	45	0	0	0	0	0	0	0
1	Well	DZ	26	9	0	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	EA	29	10	0	0	0	0	0	39	0	0	0	0	0	0	0
1	Well	EB	30	11	0	0	0	0	0	41	0	0	0	0	0	0	0
1	Well	EC	40	12	0	0	0	0	1	53	0	0	0	0	1	0	1
1	Well	ED	31	10	0	0	0	0	0	41	0	0	0	0	0	0	0
1	Well	EE	25	10	2	0	0	0	0	37	0	0	1	0	0	0	1
1	Well	EF	25	9	1	0	0	0	0	35	0	0	0	1	0	0	1
1	Well	EG	43	13	0	0	0	0	1	57	0	0	0	0	0	0	0
1	Well	EH	47	15	0	0	0	0	1	63	0	0	0	0	0	1	1
1	Well	EI	27	9	0	0	0	0	0	36	1	0	0	0	0	0	1
1	Well	EJ	22	7	0	0	0	0	0	29	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Well	EK	25	9	1	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	EL	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
1	Well	EM	22	7	0	0	0	0	0	29	0	0	0	0	0	0	0
1	Well	EN	24	8	0	0	0	0	0	32	0	0	0	0	0	0	0
1	Well	EO	25	8	0	0	0	0	0	33	0	0	0	0	0	0	0
1	Well	EP	30	10	0	0	0	0	0	40	0	0	0	1	0	0	1
1	Well	EQ	32	11	0	0	0	0	0	43	0	1	0	0	1	1	3
1	Well	ER	26	11	2	0	0	0	0	39	0	0	0	0	0	1	1
1	Well	ES	28	10	0	0	0	0	0	38	0	1	0	0	0	0	1
1	Well	ET	43	14	0	0	0	0	0	57	1	0	0	0	0	1	2
1	Well	EU	28	8	0	0	0	0	0	36	1	0	0	0	0	0	1
1	Well	EV	52	16	2	0	0	0	1	71	0	0	0	0	0	0	0
1	Well	EW	30	10	0	0	0	0	0	40	0	0	0	0	0	0	0
1	Well	EX	24	8	0	0	0	0	0	32	1	0	0	0	0	0	1
1	Well	EY	48	14	0	0	0	0	1	63	0	1	0	0	0	0	1
1	Well	EZ	33	11	0	0	0	0	0	44	0	0	1	0	0	0	1
1	Well	FA	47	16	1	0	0	0	0	64	0	0	0	1	0	0	1
1	Well	FB	31	10	0	0	0	0	0	41	0	0	0	0	0	0	0
1	Well	FC	37	14	0	0	0	0	1	52	1	0	0	1	0	1	3
1	Well	FD	35	12	0	0	0	0	0	47	0	0	0	0	1	0	1
1	Well	FE	25	9	0	0	0	0	0	34	0	0	0	0	0	0	0
1	Well	FF	19	9	4	0	0	0	0	32	0	1	0	0	0	0	1
1	Well	FG	28	10	0	0	0	0	0	38	0	1	0	0	0	0	1
1	Well	FH	30	10	0	0	0	0	0	40	0	0	0	1	0	0	1
1	Well	FI	26	9	0	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	FJ	42	13	2	0	0	0	1	58	0	0	0	1	0	0	1
1	Well	FK	13	3	0	0	1	0	0	17	0	0	0	0	0	0	0
1	Well	FL	25	9	0	0	0	0	0	34	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Well	FM	30	11	0	0	0	0	0	41	1	1	0	0	0	0	2
1	Well	FN	32	12	2	0	0	0	1	47	0	0	1	0	0	1	2
1	Well	FO	33	12	0	0	0	0	0	45	0	0	0	0	0	0	0
1	Well	FP	45	14	3	0	0	0	0	62	0	0	1	0	0	0	1
1	Well	FQ	46	13	1	0	0	0	1	61	0	0	0	0	0	0	0
1	Well	FR	28	9	0	0	0	0	0	37	0	0	0	0	0	1	1
1	Well	FS	33	11	0	0	0	0	0	44	0	0	0	0	0	1	1
1	Well	FT	26	11	3	0	0	0	0	40	0	0	0	0	0	0	0
1	Well	FU	65	18	1	0	0	0	1	85	0	0	0	0	1	4	5
1	Well	FV	26	9	0	0	0	0	0	35	0	0	0	0	0	0	0
1	Well	FW	40	11	0	0	0	0	1	52	1	0	0	0	1	0	2
1	Well	FX	26	9	0	0	0	0	0	35	0	1	0	0	0	0	1
1	Well	FY	22	9	2	0	0	0	0	33	0	0	0	0	0	1	1
1	Well	FZ	46	14	2	0	0	0	1	63	0	1	0	0	0	0	1
1	Well	GA	40	16	7	0	0	0	0	63	0	0	0	0	0	2	2
1	Well	GB	47	14	0	0	0	0	1	62	1	0	0	0	0	0	1
1	Well	GC	46	13	0	0	0	0	1	60	0	0	0	0	0	0	0
1	Well	GD	44	13	0	0	0	0	1	58	1	0	0	0	0	0	1
1	Well	GE	44	13	0	0	0	0	1	58	0	1	0	0	0	0	1
1	Well	GF	34	13	2	0	0	0	1	50	0	0	1	0	0	0	1
1	Header	A	836	225	0	0	0	0	0	1061	0	1	0	2	1	6	10
1	Header	B	1366	450	0	0	0	0	0	1816	1	5	0	5	3	2	16
1	Header	C	1138	375	0	0	0	0	0	1513	3	3	1	7	6	3	23
1	Header	D	653	200	0	0	0	0	0	853	0	0	0	2	8	9	19
1	Header	E	1221	329	0	0	0	0	0	1550	0	0	0	3	1	11	15
1	Header	F	943	269	14	0	0	0	0	1226	0	0	0	1	0	5	6
1	Header	G	943	269	14	0	0	0	0	1226	0	0	0	3	0	8	11
1	Header	H	1117	335	8	0	0	0	0	1460	0	0	1	1	0	5	7

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Heater	A	101	26	0	0	0	0	2	129	1	1	0	0	0	1	3
1	Heater	B	104	29	3	0	0	0	2	138	0	1	0	0	0	0	1
1	Heater	C	105	29	2	0	0	0	2	138	1	0	0	0	0	0	1
1	Heater	D	222	69	3	0	0	0	2	296	1	0	2	0	4	4	11
1	Heater	E	91	24	0	0	0	0	0	115	0	0	0	0	0	1	1
1	Heater	F	91	24	0	0	0	0	0	115	0	0	0	1	0	1	2
1	Heater	G	142	40	0	0	0	0	2	184	1	0	1	0	1	3	6
1	Heater	H	87	24	2	0	0	0	0	113	3	0	0	1	1	1	6
1	Heater	I	198	68	0	0	0	0	2	268	2	6	0	1	1	3	13
1	Heater	J	91	24	0	0	0	0	0	115	0	1	0	0	0	2	3
1	Heater	K	104	27	0	0	0	0	2	133	7	0	0	2	2	0	11
1	Heater	L	62	16	0	0	0	0	2	80	1	0	0	1	2	0	4
1	Heater	M	75	20	0	0	0	0	2	97	1	7	5	3	0	0	16
1	Heater	N	87	22	0	0	0	0	0	109	0	0	0	0	1	3	4
1	Heater	O	169	51	1	0	0	0	2	223	0	2	0	2	3	3	10
1	Heater	P	168	47	3	0	0	0	2	220	0	1	1	1	3	2	8
1	Heater	Q	118	29	0	0	0	0	0	147	0	0	0	0	1	0	1
1	Heater	R	98	25	0	0	0	0	0	123	1	0	0	0	1	1	3
1	Heater	S	158	42	4	0	0	0	2	206	1	1	0	1	1	1	5
1	Heater	T	82	4	4	0	0	0	2	92	1	1	0	0	0	4	6
1	Heater	U	98	25	0	0	0	0	0	123	0	0	0	0	0	1	1
1	Heater	V	91	23	2	0	0	0	0	116	0	0	0	0	1	4	5
1	Heater	W	194	56	4	0	0	0	2	256	0	0	0	2	2	1	5
1	Separator	A	85	26	1	0	0	0	1	113	2	0	1	0	0	0	3
1	Separator	B	114	27	0	0	0	0	1	142	0	0	0	0	0	1	1
1	Separator	C	44	15	0	0	0	0	1	60	0	0	0	0	1	2	3
1	Separator	D	87	26	0	0	0	0	1	114	0	0	0	0	0	2	2
1	Separator	E	95	28	0	0	0	0	1	124	0	1	0	1	0	4	6

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Separator	F	96	29	3	0	2	0	1	131	2	2	0	0	2	1	7
1	Separator	G	144	38	0	0	0	0	1	183	1	0	0	0	1	1	3
1	Separator	H	28	8	0	0	0	0	1	37	0	0	0	0	0	0	0
1	Separator	I	114	31	0	0	0	0	1	146	0	0	0	1	0	0	1
1	Separator	J	101	27	0	0	0	0	0	128	0	0	0	1	0	0	1
1	Separator	K	119	30	0	0	0	0	1	150	0	0	0	1	0	1	2
1	Separator	L	127	36	0	0	0	0	1	164	0	0	0	0	0	2	2
1	Separator	M	128	33	0	0	0	0	1	162	0	1	0	1	0	1	3
1	Separator	N	88	23	0	0	0	0	1	112	0	0	0	1	0	0	1
1	Separator	O	88	23	0	0	0	0	1	112	0	0	0	1	1	0	2
1	Separator	P	128	33	0	0	0	0	1	162	1	0	0	1	0	0	2
1	Separator	Q	113	31	0	0	0	0	1	145	2	0	1	1	2	3	9
1	Separator	R	131	32	0	0	0	0	1	164	0	0	0	1	0	2	3
1	Meter	A	47	14	0	0	0	0	0	61	1	0	0	0	0	1	2
1	Meter	B	27	9	0	0	0	0	0	36	0	0	0	0	0	0	0
1	Meter	C	61	17	0	0	0	0	0	78	0	0	0	1	0	0	1
1	Meter	D	32	10	0	0	0	0	0	42	0	0	0	0	0	0	0
1	Meter	E	51	14	0	0	0	0	0	65	1	0	0	0	1	1	3
1	Meter	F	42	12	0	0	0	0	0	54	0	0	0	0	2	0	2
1	Meter	G	32	11	2	0	0	0	0	45	0	0	0	0	0	0	0
1	Instruments	A	64	17	1	0	0	0	0	82	0	0	0	2	0	2	4
1	Water	A	112	34	0	3	0	0	0	149	0	0	0	0	0	0	0
1	Instruments	B	57	12	0	1	0	0	0	70	1	1	0	1	0	5	8
1	Instruments	C	50	14	2	1	0	0	0	67	1	0	0	0	2	4	7
1	Instruments	D	82	17	1	1	0	0	0	101	0	0	0	1	4	5	10
1	Instruments	E	69	16	2	0	0	0	0	87	0	0	0	0	0	3	3
1	Instruments	F	73	15	2	0	0	0	0	90	0	0	0	1	2	5	8
1	Instruments	G	73	15	2	0	0	0	0	90	0	0	0	1	0	5	6

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
1	Instruments	H	107	23	2	0	0	0	0	132	0	0	0	0	2	6	8
1	Tank	A	98	21	0	0	0	0	0	119	0	0	0	0	0	0	0
1	Tank	B	136	29	0	0	0	0	0	165	0	0	0	0	0	0	0
1	Sales	A	117	25	0	0	2	0	0	144	0	1	0	0	1	1	3
1	Sales	B	51	13	0	0	1	0	0	65	0	0	0	0	0	0	0
1	Sales	C	73	17	0	0	1	0	0	91	0	0	0	0	0	0	0
1	Sales	D	211	52	0	0	4	0	0	267	1	1	0	0	0	2	4
			20767	**6121**	**143**	**6**	**11**	**0**	**107**	**27155**	**84**	**78**	**30**	**83**	**76**	**171**	**522**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
2	Well	A	49	6	3	0	0	0	1	59	0	1	0	0	0	0	1
2	Well	B	37	5	2	0	0	0	1	45	1	0	0	0	0	2	3
2	Well	C	46	8	3	0	0	0	1	58	1	0	0	0	0	0	1
2	Well	D	46	7	2	0	0	0	1	56	0	1	0	0	0	0	1
2	Well	E	26	6	2	0	0	0	1	35	0	1	0	0	0	0	1
2	Well	F	57	9	2	0	0	0	1	69	1	0	0	0	0	0	1
2	Well	G	43	7	3	0	0	0	1	54	1	0	0	0	0	1	2
2	Well	H	47	6	2	0	0	0	1	56	0	1	0	1	0	0	2
2	Well	I	57	7	2	0	0	0	1	67	0	0	1	0	0	0	1
2	Well	J	119	18	5	0	0	0	5	147	0	2	1	1	3	2	9
2	Well	K	61	9	3	0	0	0	1	74	0	1	0	1	0	0	2
2	Well	L	57	10	3	0	0	0	1	71	1	0	0	1	0	0	2
2	Well	M	69	10	3	0	0	0	1	83	0	0	0	1	0	0	1
2	Well	N	63	11	4	0	0	0	1	79	0	2	0	2	0	0	4
2	Well	O	74	10	1	0	0	0	1	86	0	0	0	1	0	0	1
2	Well	P	42	6	2	0	0	0	1	51	1	0	0	0	0	2	3
2	Well	Q	86	13	4	0	0	0	1	104	0	0	0	1	0	1	2
2	Well	R	47	8	2	0	0	0	1	58	1	0	0	0	0	0	1
2	Well	S	28	7	2	0	0	0	1	38	0	0	1	0	1	0	2
2	Well	T	49	8	2	0	0	0	1	60	0	0	1	0	0	0	1
2	Well	U	56	8	2	0	0	0	1	67	0	1	0	2	0	0	3
2	Well	V	40	10	2	0	0	0	0	52	0	0	0	0	0	0	0
2	Well	W	166	26	5	0	0	0	2	199	2	0	0	0	0	0	2
2	Well	X	63	12	1	0	1	0	0	77	0	0	0	1	0	0	1
2	Well	Y	70	12	2	0	0	0	0	84	3	3	1	0	1	0	8
2	Well	Z	129	25	5	0	0	0	2	161	3	3	0	0	1	2	9
2	Well	AA	126	23	4	0	0	0	2	155	0	1	2	1	1	3	8
2	Well	AB	64	12	2	0	0	0	0	78	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
2	Well	AC	115	22	5	0	0	0	2	144	0	0	1	1	0	5	7
2	Well	AD	104	12	4	0	0	0	2	122	0	1	0	0	0	1	2
2	Well	AE	120	19	5	0	0	0	0	144	0	0	0	3	0	2	5
2	Well	AF	129	25	6	0	0	0	1	161	0	4	0	3	0	3	10
2	Well	AG	144	23	3	0	0	0	2	172	0	0	0	2	2	8	12
2	Well	AH	137	23	8	0	0	0	2	170	0	1	0	2	3	2	8
2	Well	AI	109	22	6	0	0	0	3	140	0	0	0	0	3	0	3
2	Well	AJ	95	25	2	0	0	0	0	122	0	1	0	0	0	0	1
2	Well	AK	84	17	2	0	0	0	0	103	0	0	0	1	0	1	2
2	Header	A	253	56	1	0	0	0	0	310	0	0	0	0	0	0	0
2	Header	B	188	41	0	0	0	0	0	229	0	0	0	0	0	0	0
2	Header	C	308	64	3	0	0	0	0	375	0	0	0	0	0	0	0
2	Header	D	77	12	0	0	0	0	0	89	0	0	0	0	0	0	0
2	Header	E	405	71	4	0	0	1	0	481	2	0	1	0	1	0	4
2	Header	F	68	17	0	0	0	0	0	85	0	0	0	0	0	0	0
2	Heater	A	198	30	4	0	0	0	3	235	2	0	0	1	0	0	3
2	Heater	B	52	6	3	0	0	1	5	67	1	2	1	2	1	0	7
2	Heater	C	85	13	2	0	0	1	3	104	0	1	1	0	2	0	4
2	Heater	D	218	36	8	0	0	0	6	268	0	1	0	0	0	2	3
2	Heater	E	270	39	9	0	0	1	7	326	2	4	0	3	1	0	10
2	Heater	F	103	8	1	0	0	1	4	117	0	1	0	0	0	1	2
2	Heater	G	317	43	2	0	0	2	6	370	1	2	1	2	2	3	11
2	Heater	H	233	34	4	0	0	1	3	275	3	0	1	0	1	2	7
2	Heater	I	196	19	6	0	0	0	3	224	0	1	0	1	0	0	2
2	Heater	J	45	5	2	0	1	0	0	53	0	0	0	0	0	0	0
2	Heater	K	190	23	1	0	0	0	4	218	0	0	1	1	0	0	2
2	Separator	A	154	18	2	0	0	1	4	179	0	0	0	0	0	0	0
2	Separator	B	305	52	14	0	0	0	6	377	1	0	0	0	0	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
2	Separator	C	163	30	11	0	0	0	1	205	0	0	0	0	0	0	0
2	Separator	D	303	48	9	0	0	2	4	366	0	0	1	1	0	0	2
2	Separator	E	228	37	10	0	0	1	6	282	2	0	1	0	0	0	3
2	Separator	F	269	47	10	0	0	0	1	327	1	1	0	2	1	0	5
2	Separator	G	126	15	3	0	1	0	0	145	0	0	0	0	0	0	0
2	Separator	H	114	14	2	0	0	1	5	136	0	2	1	2	1	1	7
2	Separator	I	185	32	9	0	0	0	1	227	0	1	0	1	1	0	3
2	Separator	J	247	41	8	0	0	0	2	298	1	0	2	1	0	0	4
2	Separator	K	62	8	3	0	0	0	1	74	0	0	0	0	0	0	0
2	Separator	L	372	57	15	0	0	0	2	446	0	1	1	0	0	0	2
2	Separator	M	99	11	2	0	0	0	4	116	1	1	0	0	0	0	2
2	Meter	A	192	37	3	0	0	0	1	233	0	0	0	0	1	0	1
2	Meter	B	152	27	9	0	0	0	0	188	0	0	0	0	0	1	1
2	Meter	C	93	27	4	0	0	0	0	124	0	0	3	3	4	3	13
2	Compressor	A	325	72	2	1	0	0	0	400	1	5	1	3	6	0	16
2	Scrubber	A	232	39	7	0	0	0	10	288	0	2	0	1	1	2	6
2	Scrubber	B	83	13	2	0	1	0	0	99	0	0	0	0	0	0	0
2	Scrubber	C	169	26	5	0	0	1	4	205	0	1	0	0	2	0	3
2	Scrubber	D	107	15	6	0	0	0	2	130	0	0	0	0	0	2	2
2	Scrubber	E	118	19	3	0	0	0	3	143	0	0	1	0	0	1	2
2	Scrubber	F	134	17	4	0	0	0	0	155	0	0	0	0	0	0	0
2	Scrubber	G	143	18	2	0	0	0	2	165	0	0	0	3	1	0	4
2	Tank	A	110	25	7	0	0	0	0	142	1	1	0	0	1	0	3
2	Tank	B	47	10	2	0	0	0	0	59	0	0	0	0	0	0	0
2	Tank	C	73	9	0	0	1	0	0	83	0	0	0	0	0	0	0
2	Tank	D	0	0	1	0	0	0	0	1	0	1	0	0	0	0	1
2	Tank	E	52	8	1	0	0	0	1	62	0	1	0	0	0	0	1
2	Tank	F	62	8	3	0	1	0	2	76	0	0	0	0	0	1	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
2	Tank	G	33	5	1	0	0	0	1	40	0	0	0	1	0	0	1
2	Tank	H	40	6	1	0	0	0	2	49	0	0	0	0	0	0	0
2	Tank	I	76	11	3	0	0	0	2	92	0	0	0	0	0	0	0
2	Tank	J	190	22	9	0	0	0	7	228	0	3	2	2	3	3	13
2	Tank	K	149	29	7	0	0	0	4	189	0	2	0	1	1	1	5
2	Tank	L	148	38	3	0	0	0	1	190	2	0	0	0	2	1	5
2	Tank	M	60	11	4	0	0	0	1	76	1	0	0	0	0	0	1
2	Tank	N	108	14	2	0	0	0	2	126	0	1	0	0	0	0	1
2	Tank	O	48	7	2	0	0	0	1	58	0	0	1	0	0	0	1
2	Sales	A	221	45	12	0	0	0	0	278	2	0	0	0	0	0	2
2	Sales	B	54	10	2	0	0	0	0	66	0	0	0	0	1	0	1
2	Sales	C	135	28	7	0	0	0	0	170	0	0	0	0	0	0	0
			12041	2010	378	1	6	14	170	14620	39	59	28	56	49	59	290

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
3	Well	A	69	18	2	0	0	1	0	90	1	0	0	0	0	0	1
3	Well	B	25	7	0	0	0	0	0	32	0	0	0	0	1	0	1
3	Header	A	56	20	3	0	0	0	0	79	0	0	0	0	0	0	0
3	Header	B	62	31	0	0	0	0	0	93	0	0	0	0	0	0	0
3	Header	C	218	76	16	0	0	1	0	311	1	0	0	1	4	2	8
3	Header	D	151	37	5	0	0	0	0	193	1	1	1	1	1	1	6
3	Separator	A	61	18	1	0	0	1	1	82	1	0	0	0	0	0	1
3	Separator	B	121	37	2	0	0	1	0	161	0	0	0	0	0	0	0
3	Separator	C	31	9	0	0	0	1	1	42	0	0	0	0	0	0	0
3	Separator	D	40	11	0	0	0	1	1	53	0	0	1	0	0	1	2
3	Separator	E	47	14	0	0	0	1	1	63	1	1	1	1	0	0	4
3	Separator	F	102	30	6	0	0	1	1	140	0	0	0	0	0	0	0
3	Separator	G	116	39	6	0	0	1	2	164	0	0	0	0	0	0	0
3	Separator	H	39	12	1	0	0	1	1	54	0	0	0	0	0	0	0
3	Separator	I	31	10	0	0	0	1	1	43	0	0	0	0	0	0	0
3	Separator	J	103	33	1	0	0	1	0	138	0	0	0	0	0	0	0
3	Separator	K	31	10	0	0	0	1	1	43	0	0	0	0	0	0	0
3	Separator	L	33	10	0	0	0	1	1	45	1	0	0	0	0	0	1
3	Separator	M	65	16	0	0	0	1	1	83	0	1	0	0	0	1	2
3	Meter	A	97	24	2	0	0	0	0	123	0	1	0	3	1	0	5
3	Meter	B	70	15	3	0	0	0	0	88	0	0	0	0	0	0	0
3	Chiller	A	43	14	0	0	0	0	4	61	0	2	2	2	0	0	6
3	Chiller	B	145	36	2	0	0	0	6	189	0	0	0	0	0	0	0
3	Dehydrator	A	83	17	0	0	0	0	4	104	2	0	1	1	0	0	4
3	Dehydrator	B	67	19	0	0	0	0	2	88	0	0	0	0	0	0	0
3	Sulfur	A	81	31	8	0	0	0	0	120	0	0	0	0	0	1	1
3	Sulfur	B	136	37	6	0	0	0	0	179	0	0	0	3	0	0	3
3	Compressor	A	115	16	0	3	0	0	0	134	1	0	0	0	0	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
3	Compressor	B	128	29	1	0	1	0	0	159	0	1	0	0	0	0	1
3	Scrubber	A	92	25	3	0	0	0	0	120	1	1	1	8	1	0	12
3	Water	A	56	17	7	0	0	1	0	81	0	1	0	1	0	0	2
3	Water	B	1	0	0	0	0	0	4	5	0	1	0	0	0	0	1
3	Water	C	7	3	2	0	0	0	1	13	0	0	0	0	0	0	0
3	Water	D	12	1	0	0	0	0	16	29	1	0	0	0	3	0	4
3	Water	E	21	2	0	0	0	0	16	39	0	2	1	1	6	0	10
3	Tank	A	124	39	3	0	0	0	3	169	1	0	0	0	0	1	2
3	Tank	B	38	7	0	0	0	0	1	46	0	0	0	0	0	0	0
3	Tank	C	68	22	1	0	1	2	2	96	0	0	0	0	0	0	0
3	Tank	D	67	20	1	1	0	0	0	89	0	0	0	1	0	0	1
3	Sales	A	74	20	0	0	2	0	3	99	1	0	0	0	0	0	1
3	Flare	A	114	35	5	0	0	0	1	155	0	0	0	1	1	2	4
			3040	867	87	4	4	18	75	4095	13	12	8	24	18	9	84

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
4	Well	A	55	16	1	0	0	0	1	73	0	0	0	0	0	1	1
4	Well	B	14	5	3	0	0	0	0	22	0	0	0	0	0	0	0
4	Well	C	57	17	1	0	0	0	1	76	1	0	0	0	0	0	1
4	Well	D	32	9	0	0	0	0	0	41	0	0	0	0	0	0	0
4	Well	E	57	17	3	0	0	0	1	78	3	0	0	0	1	0	4
4	Well	F	49	12	3	0	0	0	0	64	0	0	0	0	2	0	2
4	Well	G	61	20	7	0	0	0	0	88	1	0	0	0	0	0	1
4	Well	H	53	16	4	0	0	0	1	74	1	1	0	2	2	0	6
4	Well	I	33	11	2	0	0	0	0	46	0	0	0	0	0	0	0
4	Well	J	57	15	4	0	0	0	0	76	1	0	0	1	0	0	2
4	Well	K	44	11	2	0	0	0	1	58	0	0	0	0	0	0	0
4	Well	L	50	14	4	0	0	0	1	69	0	2	0	0	0	1	3
4	Well	M	34	10	3	0	0	0	1	48	0	0	0	0	0	0	0
4	Well	N	134	36	11	0	0	1	0	182	0	1	0	0	3	0	4
4	Header	A	66	10	0	0	0	0	0	76	0	0	1	1	1	1	4
4	Header	B	253	56	4	0	0	0	0	313	3	6	0	1	0	2	12
4	Header	C	250	59	4	0	0	0	0	313	12	2	0	0	0	1	15
4	Separator	A	46	10	2	0	0	0	0	58	0	0	0	0	0	0	0
4	Separator	B	116	28	0	0	0	0	0	144	0	0	0	0	0	0	0
4	Separator	C	65	16	1	0	0	0	0	82	0	1	0	0	0	0	1
4	Compressor	A	63	10	6	1	0	1	0	81	0	2	0	4	1	6	13
4	Compressor	B	40	3	1	1	0	0	1	46	1	2	0	6	0	0	9
4	Compressor	C	27	8	1	0	0	0	1	37	0	0	0	0	0	1	1
4	Dehydrator	A	162	33	0	0	0	0	2	197	0	1	1	0	6	2	10
4	Scrubber	A	87	19	6	0	0	0	0	112	0	0	0	0	0	0	0
4	Scrubber	B	75	19	0	0	0	0	1	95	1	0	0	0	0	0	1
4	Tank	A	26	6	2	0	0	0	0	34	0	0	0	0	0	0	0
4	Tank	B	41	8	0	0	0	0	1	50	0	0	0	0	1	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
4	Tank	C	16	3	1	0	1	0	1	22	1	0	0	0	0	0	1
4	Sales	A	36	9	0	0	0	2	0	47	0	0	0	0	3	0	3
4	Sales	B	56	14	9	0	1	0	0	80	0	0	0	0	0	0	0
			2155	520	85	2	2	4	14	2782	25	18	2	15	20	15	95

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
5	Well	A	56	11	2	0	0	0	1	70	0	0	0	1	0	0	1
5	Well	B	61	9	0	0	0	0	1	71	1	1	0	0	0	0	2
5	Well	C	60	9	1	0	0	0	1	71	1	0	0	0	0	0	1
5	Well	D	73	10	3	0	0	0	1	87	0	0	1	0	0	0	1
5	Well	E	62	10	3	0	0	0	1	76	0	1	0	0	0	0	1
5	Well	F	54	8	2	0	0	0	1	65	1	0	0	0	0	0	1
5	Well	G	46	8	2	0	0	0	1	57	0	0	0	0	0	0	0
5	Well	H	64	11	1	0	0	0	1	77	1	0	0	0	0	0	1
5	Well	I	80	12	3	0	0	0	1	96	0	0	0	0	0	0	0
5	Well	J	64	10	3	0	0	0	1	78	0	0	0	0	0	0	0
5	Well	K	75	12	5	0	0	0	1	93	0	0	0	0	0	0	0
5	Well	L	65	10	3	0	0	0	1	79	0	0	0	0	0	0	0
5	Well	M	72	10	3	0	0	0	1	86	0	0	0	0	0	0	0
5	Well	N	70	10	2	0	0	0	1	83	0	1	0	0	0	0	1
5	Well	O	63	9	0	0	0	0	0	72	0	0	0	0	0	0	0
5	Well	P	60	9	2	0	0	0	0	71	0	0	0	0	0	0	0
5	Well	Q	61	9	1	0	0	0	1	72	0	0	0	0	0	0	0
5	Well	R	62	9	2	0	0	0	1	74	0	0	0	0	0	0	0
5	Well	S	62	9	2	0	0	0	1	74	0	0	0	0	0	0	0
5	Well	T	63	9	1	0	0	0	1	74	1	0	0	0	0	0	1
5	Well	U	63	9	1	0	0	0	1	74	0	0	0	0	0	0	0
5	Well	V	63	9	1	0	0	0	1	74	0	0	0	0	0	0	0
5	Well	W	63	9	1	0	0	0	1	74	0	0	0	0	0	0	0
5	Well	X	60	9	1	0	0	0	1	71	1	0	0	0	0	0	1
5	Well	Y	59	9	2	0	0	0	1	71	0	0	0	0	0	0	0
5	Well	Z	71	9	1	0	0	0	1	82	0	0	0	0	0	0	0
5	Well	AA	65	9	1	0	0	0	1	76	0	0	0	0	0	0	0
5	Well	AB	66	9	0	0	0	0	1	76	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
5	Well	AC	64	10	0	0	0	0	1	75	1	0	0	0	0	0	1
5	Well	AD	82	9	0	0	0	0	1	92	0	0	0	0	0	0	0
5	Well	AE	69	9	1	0	0	0	1	80	0	0	0	0	0	0	0
5	Well	AF	55	7	0	0	0	0	1	63	0	1	0	0	0	0	1
5	Well	AG	66	9	0	0	0	0	1	76	0	0	0	1	0	0	1
5	Well	AH	61	9	1	0	0	0	1	72	1	0	0	0	0	0	1
5	Well	AI	63	9	1	0	0	0	1	74	0	0	0	0	0	0	0
5	Well	AJ	61	9	1	0	0	1	1	73	0	0	0	0	0	0	0
5	Well	AK	59	9	2	0	0	0	1	71	0	0	0	0	0	0	0
5	Well	AL	69	11	2	0	0	0	1	83	1	0	0	0	0	0	1
5	Well	AM	62	10	2	0	0	0	1	75	0	0	0	0	0	0	0
5	Well	AN	61	9	2	0	0	0	1	73	0	1	0	0	0	0	1
5	Well	AO	63	9	0	0	0	0	1	73	0	0	0	0	0	0	0
5	Well	AP	54	10	2	0	0	0	1	67	0	0	0	0	0	0	0
5	Well	AQ	56	9	2	0	0	0	1	68	0	0	0	0	0	0	0
5	Well	AR	63	9	2	0	0	0	1	75	0	0	0	0	0	0	0
5	Well	AS	63	9	2	0	0	0	1	75	1	0	0	0	0	0	1
5	Well	AT	54	10	2	0	0	0	1	67	0	0	0	0	0	0	0
5	Well	AU	49	8	2	0	0	0	1	60	0	0	0	0	0	0	0
5	Well	AV	67	10	3	0	0	0	1	81	0	0	0	0	0	0	0
5	Well	AW	64	10	3	0	0	0	1	78	0	0	0	0	0	0	0
5	Well	AX	65	10	3	0	0	0	1	79	0	0	0	0	0	0	0
5	Well	AY	59	10	2	0	0	0	1	72	0	0	0	0	0	0	0
5	Well	AZ	65	10	3	0	0	0	1	79	0	0	0	0	0	0	0
5	Well	BA	67	10	3	0	0	0	1	81	0	0	0	0	0	0	0
5	Well	BB	74	10	2	0	0	0	1	87	0	0	0	0	0	0	0
5	Well	BC	70	10	3	0	0	0	1	84	0	0	0	0	0	0	0
5	Well	BD	73	10	3	0	0	0	1	87	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
5	Well	BE	64	10	3	0	0	0	1	78	0	0	0	0	0	0	0
5	Well	BF	69	10	3	0	0	0	1	83	0	0	0	0	0	0	0
5	Well	BG	63	8	2	0	0	0	1	74	0	0	0	0	0	0	0
5	Well	BH	58	8	2	0	0	0	1	69	0	0	0	0	0	0	0
5	Well	BI	54	8	2	0	0	0	1	65	0	0	0	0	0	0	0
5	Well	BJ	57	8	2	0	0	0	1	68	0	0	0	0	0	0	0
5	Header	A	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	B	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	C	18	6	1	0	0	0	0	25	0	0	0	0	0	0	0
5	Header	D	18	6	1	0	0	0	0	25	0	0	0	0	0	0	0
5	Header	E	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
5	Header	F	18	6	1	0	0	0	0	25	0	0	0	0	0	0	0
5	Header	G	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
5	Header	H	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
5	Header	I	18	6	1	0	0	0	0	25	0	0	0	0	0	0	0
5	Header	J	18	6	1	0	0	0	0	25	0	0	0	0	0	0	0
5	Header	K	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	L	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	M	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	N	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	O	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	P	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	Q	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	R	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	S	30	6	0	0	0	0	0	36	1	0	0	0	0	0	1
5	Header	T	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	U	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	V	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
5	Header	W	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	X	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	Y	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	Z	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AA	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AB	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AC	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AD	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AE	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AF	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AG	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AH	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AI	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AJ	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AK	30	6	0	0	0	0	0	36	0	0	0	0	0	0	0
5	Header	AL	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
5	Header	AM	18	6	1	0	0	0	0	25	0	0	0	0	0	0	0
5	Header	AN	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
5	Header	AO	18	6	1	0	0	0	0	25	0	0	0	0	0	0	0
5	Header	AP	20	6	0	0	0	0	0	26	0	0	0	0	0	0	0
5	Header	AQ	30	6	0	0	0	0	1	37	0	0	0	0	0	0	0
5	Separator	A	89	28	5	0	0	0	0	122	0	0	0	0	0	0	0
5	Separator	B	27	5	0	0	0	0	0	32	0	0	0	0	0	0	0
5	Separator	C	94	17	3	0	0	1	0	115	0	0	0	0	0	0	0
			5282	890	127	0	0	2	61	6362	11	5	1	2	0	0	19

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
6	Well	A	50	10	4	0	0	0	1	65	0	0	0	0	1	0	1
6	Well	B	52	10	3	0	0	0	1	66	0	0	0	0	0	0	0
6	Well	C	51	9	3	0	0	0	1	64	0	0	0	0	0	0	0
6	Well	D	49	9	3	0	0	0	1	62	0	0	0	2	0	0	2
6	Well	E	40	8	2	0	0	0	1	51	0	1	0	0	0	0	1
6	Well	F	54	11	0	0	0	0	0	65	2	0	0	0	0	0	2
6	Well	G	53	11	3	0	0	0	1	68	0	1	0	0	0	0	1
6	Well	H	34	9	2	0	0	0	1	46	2	1	0	0	0	0	3
6	Well	I	54	9	2	0	0	0	1	66	1	0	0	0	1	0	2
6	Well	J	51	9	3	0	0	0	1	64	0	1	0	0	0	0	1
6	Well	K	51	9	2	0	0	0	1	63	1	0	0	0	0	0	1
6	Well	L	51	9	3	0	0	0	1	64	1	0	0	0	0	0	1
6	Well	M	47	9	2	0	0	0	1	59	1	0	0	0	0	0	1
6	Well	N	37	6	1	0	0	0	1	45	2	0	0	0	0	0	2
6	Well	O	49	9	3	0	0	0	1	62	1	0	0	0	0	0	1
6	Well	P	32	8	3	0	0	0	1	44	2	0	0	0	0	0	2
6	Well	Q	58	10	2	0	0	0	1	71	0	0	0	0	0	0	0
6	Well	R	33	8	2	0	0	0	1	44	0	0	0	0	0	0	0
6	Well	S	56	12	3	0	0	0	1	72	0	0	0	0	0	0	0
6	Well	T	43	8	3	0	0	0	1	55	0	0	0	0	0	0	0
6	Well	U	55	12	3	0	0	0	1	71	0	0	0	0	0	0	0
6	Well	V	57	11	2	0	0	0	1	71	0	0	0	0	0	0	0
6	Well	W	51	9	3	0	0	0	1	64	0	0	0	0	0	0	0
6	Well	X	43	8	2	0	0	0	1	54	0	0	0	0	0	0	0
6	Well	Y	54	10	2	0	0	0	1	67	0	0	0	0	0	0	0
6	Well	Z	35	7	1	0	0	0	1	44	0	0	0	0	0	0	0
6	Well	AA	57	10	3	0	0	0	1	71	0	0	0	0	0	0	0
6	Well	AB	36	8	2	0	0	0	1	47	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
6	Well	AC	57	11	2	0	0	0	1	71	0	0	0	0	0	0	0
6	Well	AD	49	9	2	0	0	0	1	61	0	0	0	0	0	0	0
6	Well	AE	49	9	4	0	0	0	1	63	0	0	0	0	0	0	0
6	Well	AF	48	9	4	0	0	0	1	62	0	0	0	0	0	0	0
6	Well	AG	49	9	3	0	0	0	1	62	0	0	0	0	0	0	0
6	Well	AH	48	10	4	0	0	0	1	63	0	0	0	0	0	0	0
6	Well	AI	48	9	3	0	0	0	1	61	0	0	0	0	0	0	0
6	Well	AJ	48	9	2	0	0	0	1	60	0	0	0	0	0	0	0
6	Well	AK	52	10	3	0	0	0	1	66	0	0	0	0	0	0	0
6	Well	AL	36	7	1	0	0	0	1	45	0	0	0	0	0	0	0
6	Well	AM	34	10	3	0	0	0	1	48	0	0	0	0	0	0	0
6	Well	AN	41	6	1	0	0	0	1	49	0	0	0	0	0	0	0
6	Header	A	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	B	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	C	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	D	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	E	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	F	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	G	28	8	2	0	0	0	0	38	0	0	0	0	0	0	0
6	Header	H	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	I	26	7	2	0	0	0	0	35	0	0	0	0	0	0	0
6	Header	J	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	K	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	L	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	M	28	7	1	0	0	0	0	36	0	0	0	0	0	0	0
6	Header	N	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	O	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	P	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
6	Header	Q	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	R	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
6	Header	S	26	6	1	0	0	0	0	33	0	0	0	0	0	0	0
6	Header	T	28	7	1	0	0	0	0	36	0	0	0	0	0	0	0
			2208	446	106	0	0	0	39	2799	13	4	0	2	2	0	21

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
7	Well	A	35	7	2	0	0	0	1	45	0	0	1	0	0	0	1
7	Well	B	31	7	1	0	0	0	1	40	0	0	0	1	0	0	1
7	Well	C	32	7	3	0	0	0	1	43	0	0	0	1	0	0	1
7	Well	D	33	7	2	0	0	0	1	43	1	0	0	0	0	0	1
7	Well	E	31	7	3	0	0	0	1	42	1	0	0	0	0	0	1
7	Well	F	31	7	3	0	0	0	1	42	1	0	0	0	0	0	1
7	Well	G	34	7	3	0	0	0	1	45	0	0	0	0	0	0	0
7	Well	H	28	6	1	0	0	0	1	36	1	0	0	0	0	0	1
7	Well	I	38	8	1	0	0	0	1	48	0	0	0	0	0	0	0
7	Well	J	37	8	4	0	0	0	1	50	1	0	0	0	0	0	1
7	Well	K	31	8	3	0	0	0	1	43	0	0	0	0	0	0	0
7	Well	L	33	9	3	0	0	0	1	46	0	0	0	0	0	0	0
7	Well	M	40	9	2	0	0	0	1	52	0	0	0	0	0	0	0
7	Well	N	29	7	3	0	0	0	1	40	0	0	0	0	0	0	0
7	Well	O	30	7	2	0	0	0	1	40	0	0	0	0	0	0	0
7	Well	P	33	7	2	0	0	0	1	43	0	0	0	0	0	0	0
7	Well	Q	32	7	2	0	0	0	1	42	0	0	0	0	0	0	0
7	Well	R	39	7	1	0	0	0	1	48	0	0	0	0	0	0	0
7	Well	S	41	8	1	0	0	0	1	51	0	0	0	0	0	0	0
7	Well	T	32	7	2	0	0	0	1	42	0	0	0	0	0	0	0
7	Well	U	34	7	3	0	0	0	1	45	0	0	0	0	0	0	0
7	Well	V	41	8	1	0	0	0	1	51	0	0	0	0	0	0	0
7	Well	W	27	7	3	0	0	0	1	38	0	0	0	0	0	0	0
7	Well	X	36	7	2	0	0	0	1	46	0	0	0	0	0	0	0
7	Well	Y	33	6	1	0	0	0	1	41	0	0	0	0	0	0	0
7	Well	Z	32	7	1	0	0	0	1	41	0	0	0	0	0	0	0
7	Well	AA	30	7	3	0	0	0	1	41	0	0	0	0	0	0	0
7	Well	AB	34	8	1	0	0	0	1	44	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
7	Well	AC	40	9	3	0	0	0	1	53	0	0	0	0	0	0	0
7	Well	AD	33	8	2	0	0	0	1	44	0	0	0	0	0	0	0
7	Well	AE	35	8	1	0	0	0	3	47	0	0	0	0	0	0	0
7	Well	AF	32	8	3	0	0	0	1	44	0	0	0	0	0	0	0
7	Well	AG	39	9	4	0	0	0	1	53	0	0	0	0	0	0	0
7	Well	AH	36	8	3	0	0	0	1	48	0	0	0	0	0	0	0
7	Well	AI	33	8	2	0	0	0	1	44	0	0	0	0	0	0	0
7	Well	AJ	31	7	2	0	0	0	1	41	0	0	0	0	0	0	0
7	Well	AK	39	9	5	0	0	0	1	54	0	0	0	0	0	0	0
7	Well	AL	43	9	3	0	0	0	1	56	0	0	0	0	0	0	0
7	Well	AM	33	8	2	0	0	0	1	44	0	0	0	0	0	0	0
7	Well	AN	33	8	2	0	0	0	1	44	0	0	0	0	0	0	0
7	Well	AO	33	8	2	0	0	0	1	44	0	0	0	0	0	0	0
7	Well	AP	43	9	3	0	0	0	1	56	0	0	0	0	0	0	0
7	Header	A	270	42	7	0	0	4	0	323	0	0	0	0	0	0	0
7	Header	B	417	45	7	0	0	4	0	473	0	0	0	0	0	0	0
			2127	**407**	**110**	**0**	**0**	**8**	**44**	**2696**	**5**	**0**	**1**	**2**	**0**	**0**	**8**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
8	Well	A	32	8	2	0	0	0	1	43	0	0	0	0	0	0	0
8	Well	B	33	9	4	0	0	0	1	47	0	0	0	0	0	0	0
8	Well	C	31	8	4	0	0	0	1	44	0	0	0	0	0	0	0
8	Well	D	30	7	2	0	0	0	1	40	1	0	0	0	0	0	1
8	Well	E	42	11	4	0	0	0	0	57	0	0	0	0	0	0	0
8	Well	F	35	8	2	0	0	0	1	46	0	0	0	0	0	0	0
8	Well	G	40	8	2	0	0	0	1	51	0	0	0	0	0	0	0
8	Well	H	34	7	1	0	0	0	1	43	1	0	0	0	0	0	1
8	Well	I	32	8	3	0	0	0	1	44	0	0	0	0	0	0	0
8	Well	J	32	8	3	0	0	0	1	44	0	0	0	0	0	0	0
8	Well	K	32	7	2	0	0	0	1	42	0	0	0	0	0	0	0
8	Well	L	34	7	3	0	0	0	1	45	0	0	0	0	0	0	0
8	Well	M	29	8	3	0	0	0	1	41	0	0	0	0	0	0	0
8	Well	N	31	8	3	0	0	0	1	43	0	0	0	0	0	0	0
8	Well	O	31	8	3	0	0	0	1	43	2	0	0	0	0	0	2
8	Well	P	31	7	3	0	0	0	1	42	1	0	0	0	0	0	1
8	Well	Q	31	7	3	0	0	0	1	42	0	0	0	0	0	0	0
8	Well	R	14	3	1	0	0	0	0	18	0	0	0	0	0	0	0
8	Well	S	35	8	2	0	0	0	1	46	0	0	0	0	0	0	0
8	Well	T	21	4	2	0	0	0	0	27	0	0	0	0	0	0	0
8	Well	U	26	7	2	0	0	0	1	36	0	0	0	0	0	0	0
8	Well	V	35	9	2	0	0	0	1	47	1	0	0	0	0	0	1
8	Well	W	31	7	2	0	0	0	1	41	0	0	0	0	0	0	0
8	Well	X	31	7	2	0	0	0	1	41	0	0	0	0	0	0	0
8	Well	Y	30	6	2	0	0	0	1	39	1	0	0	0	0	0	1
8	Well	Z	40	8	2	0	0	0	1	51	0	0	0	0	0	0	0
8	Well	AA	30	7	2	0	0	0	1	40	0	0	0	0	0	0	0
8	Well	AB	33	7	2	0	0	0	1	43	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
8	Well	AC	38	8	1	0	0	0	1	48	1	0	0	0	0	0	1
8	Well	AD	40	8	1	0	0	0	1	50	0	0	0	0	0	0	0
8	Well	AE	35	7	2	0	0	0	1	45	1	0	0	0	0	0	1
8	Well	AF	31	7	1	0	0	0	1	40	1	0	0	0	0	0	1
8	Well	AG	32	8	3	0	0	0	1	44	0	0	0	0	0	0	0
8	Well	AH	38	8	2	0	0	0	1	49	1	0	0	0	0	0	1
8	Well	AI	31	7	3	0	0	0	1	42	1	0	0	0	0	0	1
8	Well	AJ	32	8	1	0	0	0	1	42	0	0	0	0	0	0	0
8	Well	AK	32	7	3	0	0	0	1	43	0	0	0	0	0	0	0
8	Well	AL	31	7	3	0	0	0	1	42	1	1	0	0	0	0	2
8	Well	AM	32	8	3	0	0	0	1	44	0	0	0	0	0	0	0
8	Header	A	110	18	2	0	0	1	1	132	0	0	0	0	0	0	0
8	Header	B	23	9	0	0	0	1	0	33	0	0	0	0	0	0	0
8	Header	C	19	8	1	0	0	1	0	29	0	0	0	0	0	0	0
8	Separator	A	10	2	1	0	0	0	0	13	0	0	0	0	0	0	0
8	Separator	B	13	3	1	0	0	0	0	17	0	0	0	0	0	0	0
			1433	**330**	**96**	**0**	**0**	**3**	**37**	**1899**	**13**	**1**	**0**	**0**	**0**	**0**	**14**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
9	Well	A	122	31	5	0	0	0	0	158	2	1	1	2	0	1	7
9	Heater	A	364	46	4	0	0	0	2	416	0	1	0	1	0	1	3
9	Heater	B	261	33	7	0	0	0	2	303	1	1	1	1	1	0	5
9	Heater	C	255	33	4	0	0	0	2	294	1	0	0	0	0	0	1
9	Heater	D	307	48	5	0	0	0	2	362	1	1	0	0	1	0	3
9	Heater	E	240	30	4	0	0	0	2	276	1	0	0	0	1	0	2
9	Heater	F	329	45	4	0	0	0	2	380	1	2	1	2	5	1	12
9	Heater	G	207	22	4	0	0	1	1	235	2	3	3	1	1	1	11
9	Separator	A	225	31	5	0	0	0	0	261	1	0	0	1	0	0	2
9	Separator	B	233	40	5	0	0	0	0	278	1	0	0	2	0	0	3
9	Separator	C	315	42	6	0	0	0	0	363	0	0	0	0	1	0	1
9	Separator	D	237	35	4	0	0	0	0	276	0	5	0	1	4	0	10
9	Separator	E	241	43	7	0	0	0	0	291	0	0	0	2	0	0	2
9	Separator	F	252	33	3	0	0	0	0	288	0	0	0	2	0	0	2
9	Separator	G	302	47	5	0	0	0	0	354	0	0	0	1	0	0	1
9	Separator	H	251	37	3	0	0	0	0	291	0	0	0	2	1	0	3
9	Separator	I	284	41	4	0	0	0	0	329	0	1	1	1	3	0	6
9	Separator	J	248	39	6	0	0	0	0	293	1	1	0	1	1	0	4
9	Separator	K	254	42	5	0	0	0	0	301	0	1	0	2	1	0	4
9	Separator	L	244	32	3	0	0	0	0	279	0	1	1	3	1	0	6
9	Separator	M	227	40	3	0	0	0	0	270	1	0	0	1	2	0	4
9	Separator	N	326	51	2	0	0	0	0	379	0	1	0	1	0	0	2
9	Separator	O	185	4	2	0	0	0	1	192	0	0	0	1	3	0	4
9	Separator	P	128	24	4	0	0	0	0	156	0	0	1	0	0	0	1
9	Separator	Q	244	39	3	0	0	0	0	286	1	2	0	1	1	2	7
9	Separator	R	214	34	3	0	0	0	0	251	0	0	0	2	1	1	4
9	Filter	A	122	19	3	0	0	0	0	144	1	0	1	0	0	0	2
9	Compressor	A	413	48	15	2	0	0	2	480	1	4	4	4	4	4	21

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
9	Compressor	B	206	22	2	0	0	1	3	234	5	4	2	4	1	2	18
9	Compressor	C	520	85	9	2	0	0	0	616	0	0	0	4	4	1	9
9	Compressor	D	423	52	5	2	0	0	0	482	0	0	1	11	1	9	22
9	Compressor	E	530	62	4	2	0	0	0	598	0	0	0	6	8	5	19
9	Compressor	F	89	9	4	0	1	0	0	103	1	0	0	0	1	0	2
9	Compressor	G	270	58	6	0	0	1	0	335	0	1	0	6	3	0	10
9	Compressor	H	87	19	1	0	0	0	0	107	0	0	0	2	1	0	3
9	Dehydrator	A	147	24	0	0	0	0	0	171	0	0	0	0	2	0	2
9	Dehydrator	B	47	15	2	0	0	0	0	64	0	0	0	0	0	0	0
9	Dehydrator	C	45	15	2	0	0	0	0	62	0	2	0	0	0	0	2
9	Dehydrator	D	29	6	1	0	0	0	0	36	0	1	1	0	0	0	2
9	Dehydrator	E	157	39	3	0	0	0	0	199	0	1	0	0	1	0	2
9	Dehydrator	F	140	21	6	0	0	0	0	167	0	0	1	2	4	0	7
9	Dehydrator	G	63	20	0	0	0	0	0	83	1	6	1	1	1	0	10
9	Dehydrator	H	129	21	1	0	0	0	0	151	0	1	0	3	3	0	7
9	Dehydrator	I	314	60	4	0	0	0	0	378	0	4	0	2	5	0	11
9	Dehydrator	J	51	12	1	0	0	0	0	64	0	0	0	0	0	0	0
9	Dehydrator	K	114	21	2	0	0	0	0	137	0	1	0	1	2	0	4
9	Dehydrator	L	67	10	1	0	0	0	0	78	0	2	0	2	5	0	9
9	Dehydrator	M	415	70	9	0	0	0	0	494	0	1	1	3	2	0	7
9	Scrubber	A	207	31	2	0	0	0	0	240	0	5	0	4	0	0	9
9	V. Recovery	A	78	10	3	0	2	0	0	93	0	0	0	0	0	0	0
9	Tank	A	116	10	0	0	1	0	1	128	2	1	0	0	0	1	4
9	Tank	B	68	6	0	0	0	0	1	75	0	0	0	0	1	0	1
9	Tank	C	92	11	1	0	0	0	1	105	0	1	0	1	1	1	4
9	Tank	D	73	14	2	0	0	1	0	90	0	0	0	0	2	10	12
9	Tank	E	72	16	1	0	0	1	0	90	0	0	0	1	2	3	6
9	Tank	F	72	16	1	0	0	1	0	90	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
9	Load	A	89	18	8	0	0	0	1	116	4	2	0	1	0	0	7
9	Load	B	172	21	3	0	1	0	1	198	0	0	0	0	0	0	0
9	Load	C	78	12	3	0	3	0	0	96	0	0	0	1	0	1	2
			11990	**1815**	**215**	**8**	**8**	**6**	**24**	**14066**	**29**	**58**	**21**	**90**	**82**	**44**	**324**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000 +	ALL
10	Well	A	20	8	4	0	0	0	0	32	0	0	0	0	0	0	0
10	Well	B	30	11	3	0	0	0	0	44	0	0	0	0	0	0	0
10	Well	C	29	7	0	0	0	0	0	36	0	0	0	0	0	0	0
10	Well	D	79	18	1	0	0	1	0	99	0	0	0	0	1	1	2
10	Well	E	24	9	1	0	0	0	0	34	0	0	0	0	0	0	0
10	Well	F	30	12	4	0	0	0	0	46	0	0	0	0	0	0	0
10	Well	G	14	4	2	0	0	0	0	20	1	0	1	0	0	0	2
10	Well	H	20	8	4	0	0	0	0	32	0	0	0	0	1	0	1
10	Well	I	59	15	1	0	0	1	0	76	0	0	0	0	1	1	2
10	Well	J	29	11	3	0	0	0	0	43	0	0	0	0	0	0	0
10	Well	K	21	9	5	0	0	0	0	35	0	0	0	0	0	0	0
10	Well	L	25	11	5	0	0	0	0	41	0	0	0	0	0	0	0
10	Well	M	31	11	3	0	0	0	0	45	0	0	0	0	0	0	0
10	Well	N	21	9	5	0	0	0	0	35	0	0	0	0	0	0	0
10	Well	O	25	10	4	0	0	0	0	39	0	0	0	0	0	0	0
10	Well	P	21	10	6	0	0	0	0	37	0	1	0	0	0	0	1
10	Well	Q	26	11	5	0	0	0	0	42	0	0	0	0	0	0	0
10	Well	R	25	10	4	0	0	0	0	39	0	0	0	1	0	0	1
10	Well	S	42	12	3	0	0	0	0	57	0	0	2	1	0	0	3
10	Well	T	28	11	4	0	0	0	0	43	0	0	0	0	0	0	0
10	Well	U	28	12	3	0	0	0	0	43	0	1	0	0	0	0	1
10	Well	V	22	10	4	0	0	0	0	36	0	0	1	1	1	0	3
10	Well	W	24	9	2	0	0	0	0	35	0	0	0	0	0	0	0
10	Well	X	63	12	0	0	0	1	0	76	1	0	0	1	0	1	3
10	Well	Y	25	10	4	0	0	0	0	39	0	0	0	0	0	0	0
10	Well	Z	26	9	3	0	0	0	0	38	0	0	0	0	0	0	0
10	Well	AA	24	9	5	0	0	0	0	38	0	0	0	0	0	0	0
10	Well	AB	85	21	0	0	0	1	0	107	0	0	0	1	2	1	4

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
10	Well	AC	44	13	2	0	0	0	0	59	0	0	0	0	0	0	0
10	Well	AD	78	17	0	0	0	1	0	96	0	0	0	0	1	1	2
10	Well	AE	23	9	4	0	0	0	0	36	0	0	0	2	0	0	2
10	Well	AF	30	13	3	0	0	0	0	46	0	0	0	0	0	0	0
10	Well	AG	27	11	3	0	0	0	0	41	0	0	0	0	1	0	1
10	Well	AH	43	14	4	0	0	0	0	61	0	0	0	0	1	0	1
10	Well	AI	22	10	5	0	0	0	0	37	0	0	0	0	0	0	0
10	Well	AJ	29	10	3	0	0	0	0	42	0	0	0	0	0	0	0
10	Well	AK	31	12	3	0	0	0	0	46	0	0	0	1	0	0	1
10	Well	AL	77	19	0	0	0	1	0	97	0	0	0	0	0	1	1
10	Well	AM	23	9	4	0	0	0	0	36	0	0	1	0	0	0	1
10	Well	AN	23	9	4	0	0	0	0	36	0	0	0	0	0	0	0
10	Well	AO	33	9	0	0	0	0	0	42	0	2	0	0	0	0	2
10	Header	A	139	38	4	0	0	0	2	183	0	5	1	2	2	0	10
10	Header	B	139	38	4	0	0	0	2	183	2	4	0	3	3	1	13
10	Header	C	139	38	4	0	0	0	2	183	0	4	1	2	3	0	10
10	Header	D	101	27	3	0	0	0	1	132	0	0	1	0	0	0	1
10	Header	E	101	27	3	0	0	0	1	132	0	1	0	1	1	0	3
10	Header	F	101	27	3	0	0	0	1	132	0	0	0	0	0	0	0
10	Header	G	101	27	3	0	0	0	1	132	2	1	1	0	0	0	4
10	Header	H	88	21	5	0	0	0	1	115	1	0	1	1	0	0	3
10	Header	I	88	21	5	0	0	0	1	115	1	0	0	0	1	0	2
10	Header	J	88	21	5	0	0	0	1	115	4	1	0	0	0	1	6
10	Header	K	88	21	5	0	0	0	1	115	5	2	0	1	0	0	8
10	Header	L	88	21	5	0	0	0	1	115	1	1	0	0	1	0	3
10	Header	M	105	20	4	0	0	0	1	130	2	7	0	0	1	2	12
10	Header	N	105	20	4	0	0	0	1	130	1	1	0	2	3	0	7
10	Heater	A	57	10	3	0	0	1	1	72	1	1	0	0	1	0	3

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
10	Heater	AA	59	12	3	0	0	1	1	76	0	0	0	0	0	2	2
10	Heater	AC	59	11	1	0	0	1	1	73	0	0	0	0	2	0	2
10	Heater	AE	51	8	1	0	0	1	1	62	0	0	0	0	0	0	0
10	Heater	AF	70	10	2	0	0	1	1	84	0	0	0	1	1	0	2
10	Heater	AG	56	7	2	0	0	1	1	67	0	0	1	1	0	1	3
10	Heater	AH	64	12	2	0	0	1	0	79	0	0	0	0	1	1	2
10	Heater	AI	50	11	2	0	0	1	1	65	2	1	1	0	1	0	5
10	Heater	AJ	59	10	2	0	0	1	1	73	0	0	0	0	0	0	0
10	Heater	AM	68	10	5	0	0	1	1	85	0	5	0	3	2	0	10
10	Heater	AN	62	10	2	0	0	1	0	75	0	2	0	0	1	0	3
10	Heater	AO	48	8	1	0	0	1	0	58	1	0	0	0	1	0	2
10	Heater	B	75	11	3	0	0	1	1	91	1	3	1	0	0	2	7
10	Heater	E	67	9	2	0	0	1	1	80	2	0	0	3	0	0	5
10	Heater	F	57	12	2	0	0	1	1	73	0	0	0	0	3	0	3
10	Heater	G	52	18	4	0	0	0	1	75	1	1	0	2	0	0	4
10	Heater	H	61	9	1	0	0	1	1	73	1	0	0	0	1	0	2
10	Heater	J	59	10	1	0	0	1	1	72	1	1	1	2	1	1	7
10	Heater	K	59	14	3	0	0	1	1	78	1	5	0	3	0	1	10
10	Heater	L	51	7	1	0	0	1	1	61	0	1	0	1	1	0	3
10	Heater	M	60	13	2	0	0	1	1	77	1	0	0	1	1	1	4
10	Heater	N	60	10	2	0	0	1	1	74	0	0	0	1	2	1	4
10	Heater	O	65	12	3	0	0	1	1	82	1	1	0	1	1	0	4
10	Heater	P	46	8	2	0	0	1	1	58	0	0	1	0	2	0	3
10	Heater	Q	67	12	2	0	0	0	2	83	0	0	0	0	0	1	1
10	Heater	R	64	7	1	0	0	1	1	74	0	0	0	1	1	2	4
10	Heater	S	71	12	1	0	0	1	1	86	1	0	0	0	0	0	1
10	Heater	T	56	9	2	0	0	1	1	69	0	0	0	0	2	0	2
10	Heater	U	35	5	2	0	0	1	1	44	0	0	1	0	0	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
10	Heater	V	59	7	1	0	0	1	0	68	2	0	0	0	1	0	3
10	Heater	W	64	11	2	0	0	1	0	78	0	0	1	0	1	0	2
10	Heater	Y	66	12	2	0	0	1	1	82	0	0	0	2	1	1	4
10	Heater	Z	67	12	1	0	0	1	1	82	0	1	0	0	0	2	3
10	Separator	A	104	24	4	0	0	0	0	132	0	1	0	1	2	0	4
10	Separator	B	168	45	4	0	0	0	0	217	0	0	0	0	1	0	1
10	Separator	C	128	33	1	0	0	0	1	163	1	3	1	0	4	0	9
10	Separator	D	84	27	3	0	0	0	1	115	0	0	0	2	1	0	3
10	Separator	E	84	27	3	0	0	0	1	115	0	1	1	0	2	0	4
10	Separator	F	84	27	3	0	0	0	1	115	0	1	1	0	1	0	3
10	Separator	G	126	24	7	0	0	0	1	158	0	0	2	1	2	1	6
10	Separator	H	126	24	7	0	0	0	1	158	0	1	0	0	6	0	7
10	Separator	I	88	25	5	0	0	0	1	119	0	1	0	1	3	1	6
10	Separator	J	91	26	6	0	0	0	1	124	0	0	0	0	2	0	2
10	Separator	K	57	14	3	0	0	1	0	75	0	1	1	0	0	0	2
10	Meter	A	59	15	3	0	0	0	0	77	0	0	0	0	0	0	0
10	Compressor	A	83	24	8	0	0	2	0	117	0	0	0	0	0	0	0
10	Compressor	B	85	11	2	1	0	1	0	100	0	1	0	0	1	0	2
10	Compressor	C	100	31	5	0	0	0	0	136	1	0	0	0	0	0	1
10	Condensate	A	93	28	6	0	0	2	0	129	5	4	1	0	2	0	12
10	Dehydrator	A	197	57	9	0	0	1	0	264	1	0	1	4	1	1	8
10	Dehydrator	B	231	48	5	0	0	0	1	285	1	2	0	2	1	1	7
10	Dehydrator	C	146	39	8	0	0	1	0	194	2	1	1	0	0	0	4
10	Dehydrator	D	164	34	3	0	0	0	0	201	1	1	0	1	5	0	8
10	Dehydrator	E	59	15	3	0	0	0	0	77	0	0	0	0	0	0	0
			7171	1758	344	1	0	45	55	9374	49	71	26	54	86	30	316

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
11	Well	A	39	9	1	0	0	0	0	49	2	1	0	0	3	0	6
11	Well	B	49	10	1	0	0	0	0	60	0	0	0	0	1	0	1
11	Well	C	61	15	1	0	0	0	0	77	2	3	0	2	1	0	8
11	Well	D	48	11	1	0	0	0	0	60	0	0	1	1	0	0	2
11	Well	E	42	11	1	0	0	0	0	54	1	1	0	1	0	0	3
11	Well	F	48	11	1	0	0	0	4	64	1	0	0	0	0	0	1
11	Well	G	37	11	1	0	0	0	0	49	1	1	0	0	0	1	3
11	Well	H	46	10	1	0	0	1	0	58	0	1	0	1	0	0	2
11	Well	I	56	12	1	0	0	0	0	69	1	2	0	1	0	0	4
11	Well	J	47	11	1	0	0	0	0	59	0	0	0	0	0	0	0
11	Well	K	46	10	1	0	0	0	0	57	0	1	0	1	0	0	2
11	Well	L	31	8	2	0	0	0	0	41	1	0	0	0	0	0	1
11	Well	M	39	10	1	0	0	0	0	50	0	0	0	0	0	0	0
11	Well	N	47	11	1	0	0	0	0	59	0	0	0	0	0	0	0
11	Separator	A	164	26	12	0	0	6	0	208	0	3	0	12	12	8	35
11	Separator	B	164	28	7	0	0	5	0	204	0	2	0	8	7	4	21
11	Separator	C	208	40	7	1	0	6	0	262	0	1	0	7	7	2	17
11	Separator	D	200	34	9	1	0	0	0	244	0	1	0	6	6	2	15
11	Separator	E	178	26	11	1	0	7	0	223	0	1	0	5	5	2	13
11	Separator	F	172	30	8	1	0	5	0	216	0	0	0	3	2	1	6
11	Separator	G	194	35	4	0	1	5	0	239	0	3	0	10	10	6	29
11	Separator	H	209	35	6	1	0	7	0	258	0	0	0	7	7	2	16
11	Separator	I	192	31	7	1	0	10	0	241	0	3	0	6	4	1	14
11	Separator	J	186	32	7	1	0	6	0	232	0	1	0	7	7	2	17
11	Separator	K	207	38	4	1	0	8	0	258	0	0	0	4	4	1	9
11	Separator	L	220	46	7	0	1	4	0	278	0	1	0	8	8	1	18
11	Separator	M	211	43	4	0	0	7	0	265	0	1	0	6	5	2	14
11	Separator	N	182	33	8	1	0	6	0	230	0	1	0	5	6	0	12

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
11	Dehydrator	A	197	35	10	2	0	1	0	245	0	0	0	2	3	0	5
11	Dehydrator	B	128	22	5	1	0	9	0	165	0	0	0	1	2	0	3
11	Dehydrator	C	138	27	7	1	0	6	0	179	0	1	0	3	4	2	10
11	Dehydrator	D	120	17	3	1	0	4	0	145	2	0	0	0	1	0	3
11	Dehydrator	E	180	24	7	1	0	9	0	221	0	2	0	9	10	3	24
11	Dehydrator	F	155	19	7	1	0	12	0	194	0	3	0	21	23	8	55
11	Dehydrator	G	168	28	7	1	0	8	13	225	0	1	0	4	4	1	10
11	Dehydrator	H	315	65	1	0	0	8	0	389	1	1	0	0	4	0	6
11	Dehydrator	I	148	24	9	1	0	7	0	189	0	0	1	0	0	1	2
11	Dehydrator	J	211	35	4	1	0	2	0	253	0	0	0	0	1	0	1
11	Dehydrator	K	160	24	5	1	0	5	0	195	0	1	0	6	5	3	15
11	Tank	A	26	3	1	0	0	0	0	30	0	0	0	1	0	0	1
11	Tank	B	22	3	1	0	0	0	0	26	0	0	0	0	1	0	1
11	Tank	C	21	3	1	0	0	0	0	25	0	0	0	0	0	0	0
11	Tank	D	27	3	1	0	0	0	0	31	1	0	0	0	0	0	1
11	Tank	E	26	3	1	0	0	0	0	30	0	0	0	0	1	0	1
11	Tank	F	30	3	1	0	0	0	1	35	0	0	0	0	0	0	0
11	Tank	G	26	3	1	0	0	0	0	30	1	0	0	0	0	0	1
11	Tank	H	30	3	1	0	0	0	2	36	0	0	0	1	0	0	1
11	Tank	I	26	2	1	0	0	0	0	29	0	0	1	0	0	0	1
11	Tank	J	28	3	1	0	0	0	0	32	0	1	0	0	1	0	2
11	Tank	K	27	3	1	0	0	0	0	31	1	0	0	1	1	0	3
11	Tank	L	23	3	1	0	0	0	0	27	0	0	0	0	0	0	0
11	Tank	M	24	3	1	0	0	0	0	28	0	0	0	0	0	0	0
11	Tank	N	30	3	1	0	0	0	0	34	0	0	0	0	0	0	0
11	Tank	P	60	9	4	0	0	0	0	73	0	0	0	2	1	0	3
11	Tank	Q	68	9	2	0	0	0	0	79	1	3	0	0	2	0	6
11	Tank	R	94	9	2	0	0	0	0	105	1	2	0	1	1	0	5

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
11	Tank	S	44	9	1	0	0	0	2	56	1	0	1	0	1	0	3
11	Tank	T	68	8	4	0	0	0	0	80	0	0	0	2	0	0	2
11	Tank	U	69	8	4	0	0	0	4	85	0	1	1	0	0	0	2
11	Tank	V	76	12	2	0	0	0	0	90	1	1	0	0	0	0	2
11	Tank	W	69	8	4	0	0	0	2	83	1	0	1	1	2	0	5
11	Tank	X	79	9	2	0	0	0	0	90	1	1	0	1	1	0	4
11	Tank	Y	76	8	2	0	0	0	0	86	0	0	1	1	2	0	4
11	Tank	Z	72	9	2	0	0	0	0	83	0	0	0	2	0	1	3
11	Tank	AA	73	12	3	0	0	0	0	88	0	0	0	0	1	1	2
11	Tank	AB	55	8	3	0	0	0	0	66	0	0	0	0	1	0	1
11	Tank	AC	88	9	2	0	0	0	0	99	1	0	0	0	0	1	2
11	Tank	AD	11	2	2	0	0	0	0	15	0	0	2	0	0	0	2
11	Sales	A	157	26	6	1	0	6	0	196	0	2	0	7	8	4	21
11	Sales	B	151	40	10	2	0	6	0	209	0	4	0	14	16	8	42
11	Sales	C	203	29	10	1	0	22	0	265	0	3	0	13	14	6	36
11	Sales	D	202	26	9	1	0	20	0	258	0	6	0	24	25	13	68
			7324	**1238**	**269**	**25**	**2**	**208**	**28**	**9094**	**22**	**61**	**9**	**218**	**231**	**87**	**628**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
12	Well	A	42	14	2	0	0	0	0	58	0	0	0	0	0	0	0
12	Well	B	27	6	0	0	0	0	0	33	0	0	0	0	1	0	1
12	Well	C	25	8	0	0	0	0	0	33	0	1	0	0	0	0	1
12	Well	D	29	4	0	0	0	2	1	36	2	1	0	0	0	0	3
12	Well	E	35	11	4	0	0	0	0	50	0	0	1	0	0	0	1
12	Well	F	41	11	1	0	0	0	0	53	0	1	0	0	0	0	1
12	Well	G	16	7	1	0	0	0	0	24	0	0	0	1	0	0	1
12	Well	H	44	15	2	0	0	0	0	61	0	0	0	0	0	0	0
12	Well	I	188	34	10	1	0	5	0	238	2	0	0	1	2	1	6
12	Well	J	30	10	1	0	0	0	0	41	0	0	0	0	0	0	0
12	Well	K	20	5	0	0	0	0	0	25	0	0	0	1	0	0	1
12	Well	L	35	12	2	0	0	0	0	49	1	0	0	0	0	0	1
12	Well	M	21	7	0	0	0	0	0	28	0	0	0	0	1	0	1
12	Well	N	30	6	2	0	0	0	0	38	0	0	0	0	3	1	4
12	Well	O	24	8	2	0	0	0	0	34	0	1	0	0	0	0	1
12	Well	P	26	7	0	0	0	0	0	33	0	0	0	0	0	0	0
12	Well	Q	42	10	1	0	0	0	0	53	0	0	0	1	1	0	2
12	Well	R	25	7	2	0	0	0	0	34	0	0	0	0	0	0	0
12	Well	S	34	10	2	0	0	0	0	46	1	0	0	2	1	1	5
12	Well	T	55	18	0	0	0	0	0	73	0	0	0	1	1	1	3
12	Well	U	31	9	3	0	0	0	0	43	0	0	0	0	1	0	1
12	Well	V	23	7	0	0	0	0	0	30	1	0	0	1	0	0	2
12	Well	W	30	12	3	0	0	0	0	45	0	0	0	1	0	0	1
12	Well	X	36	13	3	0	0	0	0	52	1	0	0	3	1	0	5
12	Well	Y	36	12	0	0	0	0	0	48	2	1	0	2	0	0	5
12	Well	Z	33	11	2	0	0	0	0	46	0	0	0	0	0	0	0
12	Well	AA	29	10	0	0	0	0	0	39	0	0	0	0	1	0	1
12	Heater	A	110	25	9	0	0	0	0	144	1	0	0	0	0	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
12	Heater	B	58	9	0	0	0	0	0	67	0	0	0	0	0	0	0
12	Heater	C	92	18	3	0	0	2	0	115	1	0	0	1	1	1	4
12	Heater	D	107	16	2	0	0	2	0	127	2	5	0	1	1	0	9
12	Heater	E	121	25	9	0	0	3	1	159	0	0	0	0	1	0	1
12	Heater	F	108	20	5	0	0	2	0	135	0	1	2	1	3	3	10
12	Heater	G	120	23	7	0	0	2	0	152	0	3	0	3	5	1	12
12	Heater	H	130	27	0	0	0	2	0	159	4	2	0	2	1	1	10
12	Heater	I	114	25	5	0	0	2	0	146	0	3	0	4	1	1	9
12	Heater	J	46	11	0	0	0	0	2	59	0	2	1	0	0	0	3
12	Separator	C	76	15	5	0	0	2	1	99	0	1	0	0	1	0	2
12	Separator	D	104	25	4	0	0	2	1	136	1	1	1	1	1	0	5
12	Separator	E	179	40	10	0	0	4	0	233	0	0	0	0	0	0	0
12	Separator	F	66	12	3	0	0	1	0	82	0	0	0	0	0	2	2
12	Separator	G	106	25	5	0	0	2	1	139	1	2	0	0	3	0	6
12	Separator	H	61	13	4	0	0	2	0	80	0	0	0	0	0	1	1
12	Separator	I	97	24	9	0	0	2	0	132	1	1	0	0	1	0	3
12	Separator	J	205	47	19	0	0	6	0	277	3	2	0	1	0	1	7
12	Separator	K	109	22	5	0	0	1	0	137	0	0	1	1	1	0	3
12	Separator	L	62	15	5	0	0	2	1	85	1	0	0	0	1	0	2
12	Separator	M	181	39	16	0	0	2	0	238	1	0	1	2	3	4	11
12	Separator	N	177	28	0	0	0	3	0	208	3	1	1	7	1	0	13
12	Separator	O	156	30	8	0	0	3	2	199	0	0	0	1	0	0	1
12	Separator	P	74	16	0	0	0	1	0	91	2	0	0	2	1	0	5
12	Separator	Q	92	25	0	0	0	1	1	119	2	0	2	1	1	0	6
12	Separator	R	84	17	0	0	0	2	0	103	1	2	2	1	1	0	7
12	Separator	U	85	15	6	0	0	0	0	106	0	0	0	0	0	1	1
12	Separator	W	59	14	5	0	0	3	0	81	0	0	0	0	1	1	2
12	Separator	X	181	34	7	0	0	2	0	224	4	0	0	1	1	2	8

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
12	Separator	A	48	6	0	0	0	1	0	55	0	1	0	1	0	0	2
12	Separator	B	34	6	0	0	0	1	0	41	1	0	0	1	1	0	3
12	Separator	T	68	12	0	0	0	1	1	82	1	0	0	3	1	0	5
12	Separator	S	21	5	0	0	0	1	0	27	0	0	0	0	0	0	0
12	Separator	V	44	9	0	0	0	2	0	55	1	0	0	0	2	0	3
12	Meter	A	76	14	2	0	0	2	0	94	0	0	0	0	0	0	0
12	Meter	B	49	9	0	0	0	2	0	60	0	0	0	1	0	0	1
12	Meter	C	24	5	1	0	0	1	0	31	0	0	0	0	0	0	0
12	Meter	D	74	19	0	0	0	1	1	95	0	0	0	0	0	0	0
12	Meter	E	46	8	0	0	0	2	0	56	1	0	0	0	0	1	2
12	Meter	G	59	14	0	0	0	3	0	76	1	0	1	0	1	0	3
12	Meter	F	31	6	0	0	0	1	0	38	1	0	0	0	0	0	1
12	Compressor	B	189	31	3	1	0	0	0	224	0	0	0	2	0	1	3
12	Compressor	C	171	25	5	1	0	5	0	207	3	0	1	0	1	1	6
12	Compressor	D	157	32	6	1	0	4	0	200	0	0	0	1	0	3	4
12	Compressor	F	212	30	6	3	0	5	2	258	2	2	0	0	1	2	7
12	Compressor	G	212	30	6	3	0	5	2	258	0	0	0	5	2	0	7
12	Compressor	A	159	14	0	2	0	5	1	181	0	0	0	0	2	0	2
12	Compressor	E	154	18	0	3	0	5	1	181	0	2	0	0	0	2	4
12	Scrubber	A	32	16	0	0	0	2	0	50	0	0	0	0	1	0	1
			6027	**1248**	**223**	**15**	**0**	**112**	**19**	**7644**	**49**	**36**	**14**	**58**	**55**	**33**	**245**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
13	Header	A	167	36	4	0	0	0	0	207	2	0	0	1	0	1	4
13	Scrubber	A	106	33	1	0	0	1	0	141	0	0	1	0	0	0	1
13	Scrubber	B	107	27	3	0	0	0	0	137	0	1	0	5	0	2	8
13	Scrubber	C	99	32	1	0	0	0	0	132	0	4	1	2	0	2	9
13	Scrubber	D	69	22	4	0	0	0	0	95	3	2	0	1	1	0	7
13	Dehydrator	A	87	33	2	0	0	0	0	122	0	2	1	0	0	1	4
13	Dehydrator	B	62	25	4	0	0	0	0	91	0	1	0	0	0	0	1
13	Dehydrator	C	321	56	4	1	2	0	0	384	1	1	0	0	0	0	2
13	Compression	A	110	36	1	0	0	0	0	147	0	1	0	0	0	0	1
13	Compression	B	278	75	12	0	0	2	0	367	1	3	0	1	1	2	8
13	Compression	C	175	55	3	0	0	0	0	233	0	0	0	1	0	0	1
13	Compression	D	98	37	4	0	0	0	0	139	0	0	0	0	0	0	0
13	Compression	E	86	12	4	0	0	0	0	102	0	0	0	6	4	4	14
13	Compression	F	86	12	4	4	0	0	0	106	0	0	0	3	0	4	7
13	Compression	G	63	24	0	0	0	0	0	87	0	0	0	0	0	0	0
13	Compression	H	43	17	0	0	0	0	0	60	0	0	0	0	0	0	0
13	Compression	I	75	13	0	2	0	0	0	90	0	0	0	2	1	2	5
13	Compression	J	74	13	1	2	0	0	0	90	0	0	0	0	1	2	3
13	Compression	K	73	13	2	2	0	0	0	90	0	0	0	2	0	3	5
13	Compression	L	147	48	0	0	0	3	0	198	0	0	1	0	1	0	2
13	Compression	M	99	38	0	0	0	1	0	138	0	1	0	2	0	1	4
13	Sulfur	A	150	49	6	0	0	0	0	205	2	6	2	1	0	0	11
13	Sulfur	B	283	81	4	0	2	0	0	370	0	3	0	7	1	0	11
13	Sulfur	C	365	128	15	0	2	0	0	510	4	1	1	1	0	3	10
13	Sulfur	D	299	88	4	0	0	1	0	392	0	5	1	2	0	5	13
13	Sulfur	E	469	155	12	0	4	0	0	640	0	2	0	3	3	2	10
13	Fractionation	A	64	19	6	0	0	0	0	89	0	0	0	0	1	0	1
13	Fractionation	B	83	25	4	0	0	0	0	112	0	3	0	1	0	3	7

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000 +	ALL
13	Fractionation	C	95	23	5	0	0	0	0	123	1	2	1	1	1	2	8
13	Fractionation	D	95	34	7	0	2	3	0	141	0	1	0	0	3	4	8
13	Fractionation	E	154	51	9	0	1	1	0	216	0	0	0	4	1	3	8
13	Fractionation	F	164	51	4	0	1	0	0	220	0	0	1	3	2	2	8
13	Fractionation	G	160	47	5	0	0	0	0	212	1	1	0	0	0	1	3
13	Fractionation	H	113	29	0	0	0	0	0	142	0	1	2	1	0	0	4
13	Fractionation	I	35	9	0	0	0	2	0	46	0	0	0	1	1	0	2
13	Fractionation	J	120	37	0	0	0	0	0	157	0	0	1	3	1	0	5
13	Meter	A	224	74	13	0	0	2	0	313	1	0	0	3	2	1	7
13	Tank	A	121	35	0	0	0	1	0	157	0	0	0	2	0	5	7
13	Tank	B	62	10	0	0	2	1	0	75	0	0	0	0	0	0	0
13	Tank	C	50	18	4	0	0	0	0	72	0	1	0	0	0	1	2
13	Tank	D	101	38	3	0	0	0	0	142	0	2	1	2	3	2	10
13	Tank	E	38	14	2	0	0	0	0	54	0	1	1	2	1	0	5
13	Tank	F	46	18	4	0	0	0	0	68	0	0	0	0	0	1	1
13	Tank	G	67	23	6	0	0	0	0	96	0	2	0	0	1	1	4
13	Tank	H	65	26	12	0	0	0	0	103	1	2	0	0	3	1	7
13	Tank	I	105	38	2	0	0	0	0	145	1	3	2	1	1	4	12
13	Tank	J	103	37	4	0	0	0	0	144	0	3	1	1	2	2	9
13	Tank	K	98	29	1	0	0	0	0	128	0	6	2	5	1	4	18
13	Tank	L	227	70	17	0	0	1	0	315	4	1	0	1	0	0	6
13	Tank	M	103	33	7	0	0	1	0	144	4	1	0	0	0	0	5
13	Tank	N	272	71	18	0	2	0	0	363	1	12	0	14	3	5	35
13	Tank	O	76	12	2	0	0	0	0	90	0	0	0	2	0	0	2
13	Tank	P	61	12	2	3	0	3	0	81	0	1	0	1	3	2	7
13	Tank	Q	68	22	0	0	2	1	0	93	0	0	1	1	1	2	5
13	Tank	R	170	27	5	0	1	0	0	203	0	1	0	3	2	1	7
13	Sales	A	106	26	1	0	0	1	0	134	0	0	0	2	1	2	5

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
13	Sales	B	135	40	5	0	0	0	0	180	0	2	1	3	3	9	18
13	Sales	C	96	22	7	0	0	0	0	125	0	1	0	0	0	1	2
13	Sales	D	61	18	3	0	0	1	0	83	1	0	0	0	1	6	8
13	Load	A	132	38	11	0	0	1	0	182	0	0	0	2	1	0	3
13	Load	B	186	51	1	0	0	0	0	238	0	0	1	4	2	6	13
13	Load	C	169	33	2	0	0	3	0	207	0	1	1	2	1	3	8
13	Load	D	137	36	4	0	0	0	0	177	1	2	1	0	0	0	4
13	Load	E	122	30	4	0	0	1	0	157	0	4	0	1	1	1	7
13	Load	F	43	12	2	0	0	0	0	57	0	1	0	1	0	0	2
13	Load	G	145	31	1	0	0	1	0	178	0	1	0	0	0	1	2
			8463	**2427**	**278**	**14**	**21**	**32**	**0**	**11235**	**29**	**89**	**25**	**107**	**56**	**110**	**416**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
14	Header	A	272	76	12	0	0	0	0	360	2	1	0	1	6	0	10
14	Header	B	143	52	7	0	0	0	0	202	0	2	0	1	2	0	5
14	Header	C	139	48	2	0	0	0	0	189	4	2	0	1	1	0	8
14	Scrubber	A	101	26	2	0	0	0	0	129	4	0	0	2	2	0	8
14	Dehydrator	A	23	6	0	0	0	0	0	29	1	1	0	0	3	0	5
14	Dehydrator	B	252	66	7	0	0	0	0	325	0	2	0	2	1	0	5
14	Dehydrator	C	149	34	2	0	1	2	0	188	1	1	0	4	10	4	20
14	Dehydrator	D	76	19	0	0	0	0	0	95	0	4	1	1	0	1	7
14	Dehydrator	E	120	22	0	0	0	1	0	143	0	2	1	0	2	2	7
14	Dehydrator	F	102	31	0	0	0	0	0	133	0	0	1	4	4	0	9
14	Dehydrator	G	92	19	1	0	0	0	0	112	0	1	1	2	0	0	4
14	Compression	A	204	112	20	0	0	0	0	336	0	0	0	8	13	5	26
14	Compression	B	0	0	0	0	0	32	0	32	0	0	0	2	0	0	2
14	Compression	C	80	40	0	0	0	0	0	120	0	2	3	12	3	1	21
14	Compression	D	184	35	0	5	0	0	0	224	0	0	3	7	2	4	16
14	Compression	E	149	22	10	4	0	0	0	185	0	0	0	5	1	0	6
14	Compression	F	135	20	2	4	0	1	0	162	0	0	0	1	3	1	5
14	Compression	G	144	21	2	4	0	1	0	172	0	0	0	0	3	4	7
14	Compression	H	131	22	2	4	0	1	0	160	0	0	0	1	3	2	6
14	Compression	I	141	35	6	0	0	0	3	185	0	1	0	2	3	0	6
14	Compression	J	135	32	6	0	0	0	3	176	1	0	0	2	1	0	4
14	Compression	K	55	19	4	0	0	1	2	81	0	0	0	0	1	0	1
14	Compression	L	70	17	5	0	0	0	1	93	0	2	0	0	0	0	2
14	Compression	M	66	18	3	0	0	1	2	90	0	1	0	2	0	0	3
14	Compression	N	120	27	2	0	2	1	0	152	4	0	0	0	0	0	4
14	Compression	O	168	31	0	0	2	1	0	202	4	0	0	0	0	0	4
14	Compression	P	41	9	1	0	3	1	0	55	0	3	1	2	0	0	6
14	Compression	Q	114	30	5	0	0	0	1	150	0	0	1	1	0	0	2

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
14	Compression	R	146	44	10	0	0	0	1	201	0	0	1	1	1	0	3
14	Compression	S	119	22	0	4	0	0	0	145	0	0	0	5	6	1	12
14	Compression	T	140	23	0	4	0	0	0	167	0	3	0	5	2	0	10
14	Compression	U	23	6	1	0	0	0	0	30	0	0	0	1	1	0	2
14	Compression	V	65	21	4	0	0	0	0	90	2	2	0	1	2	0	7
14	Sulfur	A	41	13	3	0	0	0	0	57	0	0	0	0	0	0	0
14	Fractionation	A	95	26	1	0	0	0	0	122	0	2	0	1	5	0	8
14	Fractionation	B	33	12	0	0	0	0	0	45	0	0	0	1	0	0	1
14	Fractionation	C	86	20	0	0	0	0	0	106	0	0	0	2	1	0	3
14	Fractionation	D	59	19	0	0	0	0	0	78	1	0	0	4	5	0	10
14	Fractionation	E	95	30	0	0	0	0	0	125	0	0	0	4	0	0	4
14	Fractionation	F	160	40	3	0	2	4	4	213	2	3	0	2	4	0	11
14	Fractionation	G	98	25	1	0	1	0	0	125	3	1	0	3	3	0	10
14	Fractionation	H	211	58	2	0	0	1	4	276	0	0	1	4	5	0	10
14	Fractionation	I	141	38	1	0	0	0	0	180	1	2	0	4	2	9	18
14	Fractionation	J	100	25	1	0	0	0	0	126	0	3	0	2	1	2	8
14	Fractionation	K	43	20	4	0	0	0	0	67	0	0	0	0	0	0	0
14	Fractionation	L	58	12	0	0	0	1	0	71	0	1	2	1	2	0	6
14	Fractionation	M	83	26	0	0	0	0	0	109	0	1	0	1	3	0	5
14	Fractionation	N	72	22	1	0	0	0	0	95	0	3	0	0	1	1	5
14	Fractionation	O	66	24	2	0	0	0	0	92	0	1	0	1	3	0	5
14	Fractionation	P	94	27	0	0	0	0	0	121	0	2	1	1	1	0	5
14	Fractionation	Q	88	28	1	0	0	0	0	117	0	1	1	2	1	0	5
14	Tank	A	126	35	7	0	0	2	0	170	0	0	0	0	8	0	8
14	Tank	B	61	16	5	0	1	0	0	83	0	0	2	0	0	0	2
14	Tank	C	88	18	1	0	0	0	3	110	0	0	0	2	1	0	3
14	Tank	D	77	14	5	0	1	0	0	97	0	0	1	1	1	0	3
14	Tank	E	22	5	0	0	0	0	1	28	0	0	0	1	0	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
14	Tank	F	55	15	2	0	1	0	0	73	0	2	0	3	1	0	6
14	Tank	G	64	12	0	0	0	0	2	78	0	0	0	1	1	0	2
14	Tank	H	74	14	1	0	2	0	0	91	0	0	0	0	0	0	0
14	Tank	I	107	19	6	0	3	0	2	137	2	1	0	0	0	0	3
14	Tank	J	183	62	6	0	0	1	3	255	0	0	0	1	3	0	4
14	Tank	K	98	33	4	0	0	2	5	142	1	0	0	1	8	0	10
14	Tank	L	58	17	4	0	0	2	1	82	1	0	0	1	8	0	10
14	Tank	M	79	27	4	0	0	2	5	117	0	3	0	1	6	0	10
14	Tank	N	44	15	5	0	0	2	1	67	0	1	0	0	6	0	7
14	Tank	O	48	15	2	0	0	1	0	66	1	0	0	0	3	0	4
14	Tank	P	75	20	2	0	0	1	0	98	0	0	0	0	3	1	4
14	Tank	Q	50	18	4	0	0	1	0	73	0	0	0	1	5	0	6
14	Tank	R	44	14	1	0	1	0	0	60	1	0	1	3	0	0	5
14	Sales	A	40	11	0	0	5	1	1	58	2	4	0	6	1	0	13
14	Sales	B	70	18	5	0	0	0	0	93	1	0	0	1	0	0	2
14	Sales	C	39	10	0	0	5	1	1	56	0	3	1	5	4	0	13
14	Sales	D	32	7	0	0	0	0	0	39	0	0	0	1	1	1	3
14	Sales	E	54	14	0	0	3	1	0	72	0	0	0	8	9	4	21
14	Sales	F	206	55	9	0	0	4	0	274	4	2	4	3	3	3	19
14	Sales	G	165	33	0	0	6	1	0	205	1	1	0	4	5	4	15
14	Sales	H	39	15	1	0	0	0	0	55	0	0	1	2	2	1	6
14	Sales	I	108	26	0	0	3	0	0	137	5	4	0	3	1	12	25
14	Sales	J	45	12	1	0	0	0	0	58	0	0	0	0	2	3	5
14	Sales	K	80	13	0	0	2	0	0	95	2	3	0	0	1	0	6
14	Sales	L	77	21	0	0	0	0	0	98	0	0	0	5	2	4	11
14	Sales	M	35	13	2	0	0	3	0	53	0	1	0	1	2	5	9
14	Sales	N	16	5	0	0	0	0	0	21	0	1	0	0	2	3	6
14	Load	A	36	8	4	0	0	0	0	48	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
14	Load	B	105	20	6	0	0	0	0	131	2	4	0	1	3	0	10
14	Load	C	88	21	6	0	0	0	0	115	1	1	0	2	2	1	7
			8110	**2141**	**229**	**29**	**44**	**74**	**46**	**10673**	**54**	**81**	**28**	**167**	**207**	**79**	**616**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
15	Header	A	150	28	2	0	0	0	0	180	2	1	0	1	3	4	11
15	Header	B	87	14	1	0	0	0	0	102	0	1	0	2	1	1	5
15	Header	C	102	18	2	0	0	0	2	124	0	1	0	1	2	1	5
15	Dehydrator	A	82	17	2	0	0	2	0	103	0	0	0	1	4	6	11
15	Compression	A	199	41	3	3	0	1	1	248	0	4	1	10	0	0	15
15	Compression	B	120	12	6	1	0	0	3	142	0	0	0	6	0	0	6
15	Compression	C	132	19	4	1	0	1	3	160	0	0	1	2	1	0	4
15	Compression	D	144	25	0	1	0	0	1	171	0	2	2	3	2	0	9
15	Compression	E	133	16	1	1	0	0	1	152	0	1	2	6	6	0	15
15	Compression	F	123	20	2	1	0	0	1	147	0	1	1	7	4	0	13
15	Compression	G	133	29	4	1	0	0	1	168	0	0	0	9	6	0	15
15	Compression	H	168	35	0	1	0	0	1	205	0	1	0	3	11	0	15
15	Compression	I	238	42	2	0	0	7	0	289	0	0	0	0	0	2	2
15	Compression	J	85	4	1	2	0	1	1	94	0	1	0	0	3	0	4
15	Compression	K	77	4	0	2	0	0	1	84	0	0	0	0	4	1	5
15	Compression	L	81	4	0	2	0	0	1	88	0	5	1	1	3	0	10
15	Compression	M	99	7	0	3	0	0	3	112	0	0	0	0	1	0	1
15	Sulfur	A	122	30	3	0	0	0	0	155	0	0	0	0	0	0	0
15	Sulfur	B	323	84	1	0	4	0	2	414	1	1	0	0	0	0	2
15	Sulfur	C	153	24	0	0	0	0	0	177	0	0	0	0	0	0	0
15	Sulfur	D	41	9	1	0	0	0	0	51	0	0	0	0	0	0	0
15	Fractionation	A	94	26	1	0	0	0	1	122	2	1	1	2	0	0	6
15	Fractionation	B	96	21	0	0	1	0	0	118	0	0	0	0	0	3	3
15	Fractionation	C	52	17	0	0	0	0	0	69	1	1	1	1	1	0	5
15	Fractionation	D	53	18	3	0	2	0	0	76	1	0	0	0	0	0	1
15	Fractionation	E	72	17	0	0	0	1	1	91	0	0	0	0	0	0	0
15	Fractionation	F	59	13	1	0	0	0	0	73	0	0	0	0	0	0	0
15	Fractionation	G	78	21	0	0	0	0	2	101	0	1	1	0	4	0	6

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
15	Fractionation	H	39	14	0	0	0	0	0	53	0	0	1	0	0	0	1
15	Fractionation	I	219	59	0	0	0	0	0	278	0	1	2	3	3	2	11
15	Fractionation	J	25	10	0	0	0	0	0	35	0	0	0	0	0	1	1
15	Fractionation	K	15	6	0	0	0	0	0	21	0	0	0	0	0	0	0
15	Fractionation	L	72	19	4	0	0	0	0	95	0	1	0	4	1	5	11
15	Fractionation	M	70	22	0	0	2	2	0	96	0	0	2	2	2	0	6
15	Fractionation	N	140	46	0	0	0	0	0	186	0	1	1	2	5	5	14
15	Fractionation	O	24	2	2	0	0	2	2	32	0	0	0	0	0	0	0
15	Fractionation	P	32	2	2	0	0	2	2	40	0	0	0	0	0	0	0
15	Fractionation	Q	181	36	1	0	0	0	0	218	0	0	0	1	0	1	2
15	Fractionation	R	251	61	1	0	4	1	1	319	0	0	0	0	1	0	1
15	Meter	A	16	3	0	0	0	0	0	19	0	0	0	0	0	0	0
15	Meter	B	137	25	0	0	0	0	0	162	0	0	0	0	4	2	6
15	Meter	C	143	27	0	0	0	0	0	170	0	0	0	0	3	5	8
15	Meter	D	127	24	1	0	0	0	0	152	0	0	0	0	0	0	0
15	Meter	E	149	23	1	0	0	0	0	173	0	1	0	0	0	1	2
15	Tank	A	55	16	1	0	0	0	0	72	0	2	0	5	6	0	13
15	Tank	B	60	12	0	0	4	1	0	77	2	1	0	0	0	1	4
15	Tank	C	44	10	1	0	1	1	0	57	0	0	0	0	0	1	1
15	Tank	D	105	26	2	0	0	2	0	135	0	0	0	0	2	2	4
15	Tank	E	35	5	1	0	1	1	0	43	0	0	0	2	0	3	5
15	Tank	F	80	15	0	0	0	1	0	96	0	0	0	2	1	0	3
15	Tank	G	107	23	0	0	2	0	0	132	0	1	0	0	5	10	16
15	Tank	H	24	6	0	0	1	1	0	32	0	0	0	0	1	0	1
15	Tank	I	120	32	2	0	0	0	0	154	0	1	0	1	4	2	8
15	Tank	J	75	13	0	0	4	1	0	93	1	0	0	0	1	1	3
15	Tank	K	97	25	1	0	0	0	0	123	0	2	0	1	0	0	3
15	Tank	L	133	29	4	1	0	0	1	168	2	1	0	2	0	0	5

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
15	Tank	M	98	24	0	0	0	0	2	124	0	0	0	0	2	1	3
15	Sales	A	182	33	3	0	0	0	1	219	0	0	0	0	0	2	2
15	Sales	B	159	33	4	0	0	0	0	196	0	0	0	0	0	0	0
			6310	1296	71	20	26	28	35	7786	12	34	17	80	97	63	303

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000 +	ALL
16	Header	A	73	16	1	0	0	0	0	90	0	1	0	0	0	0	1
16	Header	B	142	52	0	0	0	0	0	194	0	0	0	0	0	0	0
16	Header	C	131	40	2	0	1	0	0	174	0	0	0	0	1	0	1
16	Separator	A	51	15	1	0	0	1	0	68	0	0	0	0	0	0	0
16	Separator	B	50	18	2	0	0	1	0	71	0	1	0	0	1	0	2
16	Separator	C	40	14	12	0	2	2	2	72	0	0	0	0	4	0	4
16	Separator	D	76	27	2	0	0	0	0	105	0	0	0	0	0	0	0
16	Separator	E	25	10	0	0	0	0	0	35	0	0	0	0	0	0	0
16	Scrubber	A	33	12	1	0	0	0	0	46	0	2	0	0	0	0	2
16	Scrubber	B	15	7	0	0	0	0	0	22	0	0	0	0	0	0	0
16	Scrubber	C	55	17	0	0	0	0	0	72	0	0	0	0	0	0	0
16	Scrubber	D	72	21	0	0	0	0	0	93	0	0	0	0	0	0	0
16	Scrubber	E	51	16	0	0	0	0	0	67	0	0	0	0	0	0	0
16	Scrubber	F	48	13	0	0	0	0	0	61	0	0	0	0	1	0	1
16	Dehydrator	A	61	13	2	0	0	0	0	76	0	0	0	0	7	0	7
16	Dehydrator	B	71	18	5	0	0	2	0	96	0	0	3	1	5	0	9
16	Compression	A	178	42	8	0	0	0	0	228	1	1	1	0	3	0	6
16	Compression	B	349	86	0	0	0	12	0	447	2	3	0	1	6	0	12
16	Compression	C	199	41	3	0	0	2	1	246	0	0	0	2	3	0	5
16	Compression	D	131	5	0	4	0	0	0	140	0	0	0	5	5	10	20
16	Compression	E	29	11	1	0	0	0	1	42	1	0	0	1	2	0	4
16	Compression	F	132	7	0	4	0	0	0	143	0	0	0	5	5	10	20
16	Compression	G	105	5	0	4	0	0	0	114	0	0	0	5	5	10	20
16	Compression	H	182	15	0	4	0	0	0	201	0	1	0	6	7	9	23
16	Compression	I	174	13	0	4	0	0	0	191	0	0	1	1	0	1	3
16	Compression	J	163	12	0	4	0	0	0	179	1	4	1	6	4	6	22
16	Sulfur	A	114	29	1	2	0	0	0	146	0	1	0	0	1	0	2
16	Sulfur	B	12	5	0	0	0	0	0	17	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
16	Fractionation	A	73	17	3	0	0	0	0	93	1	1	0	1	1	0	4
16	Fractionation	B	186	53	0	0	0	2	0	241	0	0	1	2	4	0	7
16	Fractionation	C	33	6	0	0	3	1	0	43	0	1	0	0	1	0	2
16	Fractionation	D	60	15	6	0	0	0	0	81	0	0	0	0	7	1	8
16	Fractionation	E	14	4	0	0	0	0	0	18	0	0	0	0	0	0	0
16	Fractionation	F	18	4	0	0	0	0	0	22	0	0	0	0	0	0	0
16	Fractionation	G	17	6	0	0	0	0	0	23	0	0	0	0	0	0	0
16	Fractionation	H	15	4	0	0	0	0	0	19	0	2	0	0	0	0	2
16	Fractionation	I	15	4	0	0	0	0	0	19	0	0	0	0	0	0	0
16	Fractionation	J	56	10	0	0	0	0	0	66	0	0	0	1	0	0	1
16	Fractionation	K	13	2	0	0	0	0	0	15	0	2	0	0	0	0	2
16	Fractionation	L	110	31	4	0	0	1	0	146	0	6	1	3	4	1	15
16	Fractionation	M	44	11	0	0	3	1	0	59	0	0	0	0	0	0	0
16	Fractionation	N	110	29	7	0	0	0	0	146	0	0	0	1	5	0	6
16	Fractionation	O	91	18	0	0	0	0	0	109	0	0	0	0	0	0	0
16	Fractionation	O	28	7	0	0	0	0	0	35	0	1	0	0	0	0	1
16	Fractionation	P	24	6	3	0	0	0	0	33	0	0	1	0	1	0	2
16	Fractionation	Q	67	24	8	0	2	0	0	101	0	0	0	1	2	0	3
16	Fractionation	R	36	13	2	0	0	0	0	51	0	2	0	1	4	1	8
16	Fractionation	S	18	5	0	0	0	0	0	23	0	0	0	0	2	0	2
16	Fractionation	T	31	9	0	0	0	0	0	40	0	2	0	1	1	0	4
16	Fractionation	U	11	4	0	0	0	0	0	15	0	1	0	0	0	0	1
16	Fractionation	V	10	4	0	0	0	0	0	14	0	0	1	0	0	0	1
16	Fractionation	W	29	9	0	0	0	0	0	38	0	0	0	1	2	0	3
16	Fractionation	X	37	12	0	0	0	1	0	50	0	0	0	0	1	0	1
16	Fractionation	Y	29	9	0	0	0	1	0	39	0	0	0	0	0	0	0
16	Fractionation	Z	14	2	0	0	0	0	0	16	0	0	0	0	0	0	0
16	Fractionation	AA	37	14	0	0	0	0	0	51	0	0	0	0	1	0	1

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
16	Fractionation	AB	15	5	0	0	0	0	0	20	0	0	0	0	0	0	0
16	Fractionation	AC	12	3	0	0	0	0	0	15	0	0	0	0	0	0	0
16	Fractionation	AD	29	9	4	0	0	0	0	42	0	0	0	0	1	0	1
16	Fractionation	AE	24	11	0	0	0	0	0	35	0	0	0	0	0	0	0
16	Fractionation	AF	20	5	1	0	0	0	0	26	0	0	0	1	0	0	1
16	Fractionation	AG	9	3	0	0	0	0	0	12	0	1	0	0	0	0	1
16	Fractionation	AH	19	5	0	0	0	0	0	24	0	0	0	0	0	0	0
16	Fractionation	AI	18	4	0	0	0	1	0	23	0	0	0	0	0	0	0
16	Fractionation	AJ	15	3	0	0	0	0	0	18	0	0	0	1	0	0	1
16	Meter	A	142	28	0	0	2	2	0	174	0	1	1	0	5	0	7
16	Tank	A	38	9	1	0	0	0	0	48	0	0	0	0	2	1	3
16	Tank	B	39	11	0	0	0	1	0	51	2	2	0	0	1	0	5
16	Sales	A	192	48	5	0	0	0	0	245	1	0	0	3	5	1	10
16	Flare	A	221	71	1	0	2	0	0	295	0	0	1	7	5	0	13
			4781	1127	86	26	15	31	4	6070	9	36	12	57	115	51	280

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
17	Well	A	54	16	3	0	0	0	0	73	0	0	0	0	0	0	0
17	Well	B	47	11	1	0	0	0	0	59	0	0	0	0	0	0	0
17	Well	C	74	18	3	0	0	0	0	95	4	0	0	0	1	0	5
17	Well	D	69	17	3	0	0	0	0	89	0	0	0	0	0	0	0
17	Well	E	77	19	3	0	0	0	0	99	0	0	0	0	0	0	0
17	Well	F	78	20	4	0	0	0	0	102	0	0	0	0	0	0	0
17	Well	G	42	9	1	0	0	0	0	52	0	0	0	0	0	0	0
17	Well	H	54	12	4	0	0	0	0	70	0	0	0	0	0	0	0
17	Well	I	25	5	0	0	0	0	0	30	0	0	0	0	0	0	0
17	Well	J	116	26	6	0	0	0	0	148	0	2	0	0	0	0	2
17	Well	K	106	21	2	0	0	0	0	129	0	0	0	0	0	0	0
17	Well	L	67	14	3	0	0	0	0	84	0	0	0	0	0	0	0
17	Well	M	54	12	0	0	0	0	0	66	6	0	0	0	0	0	6
17	Well	N	86	22	7	0	0	0	0	115	0	0	0	2	2	0	4
17	Well	O	90	21	3	0	0	0	0	114	0	0	0	0	1	0	1
17	Well	P	51	13	1	0	0	0	0	65	0	0	0	0	0	0	0
17	Well	Q	85	19	2	0	0	0	0	106	0	2	0	0	0	0	2
17	Well	R	89	20	1	0	0	0	0	110	5	7	1	7	0	0	20
17	Well	S	102	19	0	0	0	0	0	121	0	0	0	0	0	0	0
17	Well	T	112	22	3	0	0	0	0	137	0	0	0	0	0	0	0
17	Well	U	124	30	2	0	0	0	0	156	0	0	0	0	0	0	0
17	Header	A	153	19	5	0	0	0	0	177	0	0	0	0	0	0	0
17	Header	B	61	15	2	0	0	0	0	78	2	4	0	0	1	0	7
17	Header	C	197	54	18	0	0	0	0	269	0	1	0	0	2	0	3
17	Header	D	216	46	6	0	0	0	0	268	0	2	1	0	1	0	4
17	Header	E	400	98	0	0	0	0	0	498	3	2	0	1	1	0	7
17	Header	F	205	45	0	0	0	0	0	250	0	0	0	0	0	0	0
17	Heater	A	333	79	5	0	0	3	0	420	0	3	2	1	4	0	10

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000 +	ALL
17	Separator	A	519	115	19	0	0	1	1	655	0	0	1	0	2	0	3
17	Separator	B	451	101	34	0	0	1	0	587	0	0	3	2	1	0	6
17	Separator	C	404	77	19	0	0	0	0	500	6	6	1	5	2	0	20
17	Separator	D	483	110	25	0	0	1	0	619	0	0	0	0	2	0	2
17	Separator	E	343	82	2	0	0	1	0	428	0	1	1	2	0	0	4
17	Meter	A	194	39	12	0	0	0	0	245	0	1	0	3	1	0	5
17	Meter	B	267	57	14	0	2	1	2	343	0	0	0	0	0	0	0
17	Filter	A	290	41	11	0	0	1	0	343	0	0	0	0	1	0	1
17	Filter	B	434	51	6	0	0	1	0	492	0	0	0	1	3	0	4
17	Filter	C	293	26	8	0	0	1	0	328	0	1	1	2	1	0	5
17	Filter	D	382	52	7	0	0	1	0	442	0	0	0	2	2	0	4
17	Compressor	A	712	82	20	2	0	5	0	821	0	1	0	1	14	0	16
17	Compressor	B	765	78	22	2	0	4	0	871	0	0	1	7	19	0	27
17	Compressor	C	769	103	29	2	0	4	0	907	0	0	0	5	12	0	17
17	Scrubber	A	279	49	5	0	0	1	0	334	0	0	0	2	0	0	2
17	Scrubber	B	389	72	13	0	0	1	0	475	0	1	0	0	0	0	1
17	Water	A	115	26	11	0	0	0	0	152	0	0	1	0	0	0	1
17	Water	B	525	82	7	0	6	4	2	626	7	5	0	1	0	0	13
17	Water	C	421	60	15	0	2	3	6	507	0	2	1	0	1	0	4
17	Tank	A	210	33	2	0	0	0	1	246	0	0	0	1	0	0	1
17	Tank	B	265	44	8	0	0	0	1	318	0	0	0	0	0	0	0
17	Tank	C	104	14	0	0	3	1	0	122	0	1	0	0	0	0	1
17	Tank	D	104	14	0	0	3	1	0	122	1	2	0	0	0	0	3
17	Sales	A	251	41	7	0	0	0	0	299	0	0	1	0	2	0	3
17	Sales	B	39	8	1	0	0	0	0	48	0	0	0	0	0	0	0
17	Flare	A	426	93	13	0	0	0	0	532	0	0	0	1	0	0	1
17	Flare	B	326	55	9	0	1	1	0	392	0	0	0	2	1	0	3
			12927	2327	407	6	17	37	13	15734	34	44	15	48	77	0	218

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
18	Well	A	330	89	69	0	0	0	0	488	0	1	0	1	0	8	10
18	Well	B	582	147	53	0	0	0	0	782	0	0	0	0	0	2	2
18	Well	C	555	183	75	0	0	0	0	813	0	2	0	0	4	0	6
18	Well	D	410	139	60	0	0	0	0	609	0	0	1	2	2	3	8
18	Header	A	267	55	23	0	0	0	0	345	2	0	0	0	0	0	2
18	Header	B	456	128	11	0	0	6	0	601	6	0	0	1	0	0	7
18	Header	C	303	113	19	0	0	0	0	435	2	1	0	1	0	0	4
18	Header	D	95	33	3	0	0	1	0	132	0	0	0	0	0	0	0
18	Heater	A	126	20	1	0	0	0	0	147	0	0	0	0	0	0	0
18	Separator	A	123	41	4	0	0	0	0	168	0	0	0	0	0	0	0
18	Separator	B	328	113	8	0	0	0	0	449	2	2	0	0	3	1	8
18	Separator	C	238	71	9	0	0	0	2	320	2	1	0	1	1	0	5
18	Separator	D	313	120	5	0	0	0	0	438	0	0	0	1	2	0	3
18	Separator	E	337	100	24	0	0	2	0	463	0	1	0	0	2	0	3
18	Separator	F	125	22	3	0	0	2	0	152	0	0	0	0	0	1	1
18	Separator	G	296	88	16	0	0	2	0	402	1	0	0	0	0	0	1
18	Separator	H	318	86	10	0	0	0	0	414	1	0	0	0	1	0	2
18	Meter	A	345	121	11	0	4	4	2	487	0	0	0	0	0	0	0
18	Compressor	A	351	119	6	1	0	0	0	477	0	4	2	1	1	6	14
18	Dehydrator	A	161	56	2	0	0	0	0	219	0	0	0	0	3	0	3
18	Dehydrator	B	109	23	0	0	0	0	0	132	0	0	0	0	1	0	1
18	Dehydrator	C	334	96	15	0	3	0	0	448	0	0	0	0	0	2	2
18	Scrubber	A	72	23	3	0	0	0	0	98	0	0	0	0	0	0	0
18	Instrument	A	355	130	8	0	0	6	0	499	0	0	1	0	4	2	7
18	Instrument	B	230	49	7	0	0	0	0	286	0	5	0	2	2	3	12
18	V Recovery	A	180	37	11	2	0	0	0	230	1	0	5	6	1	4	17
18	Water	A	180	57	12	0	0	0	0	249	2	1	0	1	1	0	5
18	Water	B	237	64	15	0	0	0	10	326	0	0	0	0	10	0	10

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
18	Water	C	131	45	4	0	0	0	0	180	7	4	0	0	0	0	11
18	Sales	A	141	37	0	0	0	0	0	178	1	0	0	0	0	0	1
			8028	2405	487	3	7	23	14	10967	27	22	9	17	38	32	145

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
19	Well	A	125	54	4	0	0	0	0	183	2	0	0	0	0	0	2
19	Well	B	142	62	5	0	0	0	0	209	1	1	0	5	2	0	9
19	Well	C	137	57	8	0	0	0	0	202	0	0	1	0	1	0	2
19	Well	D	133	56	4	0	0	0	0	193	1	2	0	1	1	0	5
19	Well	E	148	58	3	0	0	0	0	209	1	0	0	0	2	0	3
19	Header	A	261	85	2	0	0	0	0	348	0	0	0	0	0	0	0
19	Header	B	242	85	2	0	0	0	0	329	0	1	0	0	0	0	1
19	Header	C	171	71	3	0	0	0	0	245	1	1	1	0	1	0	4
19	Heater	A	172	75	15	0	0	1	0	263	0	0	0	0	0	0	0
19	Heater	B	252	103	2	0	0	1	0	358	0	0	0	0	0	0	0
19	Heater	C	77	51	1	0	0	2	0	131	0	1	0	1	0	0	2
19	Heater	D	111	32	1	0	0	0	0	144	0	0	0	0	0	0	0
19	Heater	E	48	25	2	0	0	1	0	76	0	0	0	0	0	0	0
19	Heater	F	112	44	6	0	2	0	0	164	0	0	0	0	0	0	0
19	Separator	A	260	114	5	0	0	1	0	380	1	4	0	1	0	0	6
19	Separator	B	231	74	6	0	0	1	0	312	0	0	0	0	0	0	0
19	Separator	C	214	74	1	0	0	1	0	290	0	0	0	0	0	0	0
19	Separator	D	229	77	3	0	0	1	0	310	1	1	0	0	1	0	3
19	Compressor	A	102	28	0	0	0	1	0	131	1	1	0	1	1	0	4
19	Compressor	B	148	72	3	0	0	1	0	224	1	0	2	3	5	0	11
19	Compressor	C	168	62	11	2	0	1	0	244	0	0	0	1	2	0	3
19	Compressor	D	191	64	9	2	0	2	0	268	0	1	0	5	4	0	10
19	Dehydration	A	226	95	5	0	0	0	0	326	0	0	0	0	0	0	0
19	Dehydration	B	12	2	0	0	0	0	0	14	0	0	0	0	0	0	0
19	Dehydration	C	130	57	7	0	0	0	0	194	0	1	0	0	0	0	1
19	Dehydration	D	50	16	0	0	0	1	0	67	0	0	0	0	0	0	0
19	Dehydration	E	51	19	0	0	0	1	0	71	0	0	0	0	0	0	0
19	Dehydration	F	30	19	5	0	0	0	0	54	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
19	Dehydration	G	148	55	2	0	0	3	0	208	0	0	0	0	0	0	0
19	Dehydration	H	88	22	6	0	6	0	0	122	0	0	0	0	0	0	0
19	Scrubber	A	76	23	7	0	0	1	0	107	0	0	0	0	0	0	0
19	Scrubber	B	98	29	2	0	1	1	0	131	0	0	0	0	0	0	0
19	Scrubber	C	126	38	4	0	0	1	0	169	0	0	0	0	1	0	1
19	Instrument	A	325	111	3	0	0	4	0	443	5	1	1	4	2	0	13
19	V Recovery	A	138	44	5	0	0	1	0	188	0	0	0	0	0	0	0
19	V Recovery	B	149	44	3	0	0	1	0	197	0	0	0	1	0	0	1
19	Water	A	268	92	15	0	1	1	8	385	0	0	1	2	1	0	4
19	Water	B	205	55	11	0	0	0	0	271	0	0	0	0	0	0	0
19	Tank	A	246	97	4	0	0	0	0	347	0	0	0	0	0	0	0
19	Tank	B	166	68	2	0	0	1	0	237	0	0	0	0	0	0	0
19	Tank	C	128	65	1	0	0	1	0	195	0	0	0	0	0	0	0
19	Tank	D	62	25	2	0	0	0	0	89	0	0	0	0	0	0	0
19	Tank	E	47	15	5	0	1	0	1	69	0	0	0	0	0	0	0
19	Tank	F	58	17	2	0	2	0	0	79	0	0	0	0	0	0	0
19	Tank	G	97	27	0	0	3	0	0	127	0	0	0	0	0	0	0
19	Tank	H	219	81	6	0	3	0	3	312	0	0	0	0	0	0	0
19	Tank	I	46	9	0	0	1	1	0	57	0	0	0	0	0	0	0
19	Sales	A	205	69	12	0	1	3	2	292	0	0	0	0	0	0	0
19	Sales	B	219	88	0	0	0	0	0	307	1	4	0	2	1	0	8
			7287	**2705**	**205**	**4**	**21**	**35**	**14**	**10271**	**16**	**19**	**6**	**27**	**25**	**0**	**93**

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv) 10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
20	Well	A	134	48	9	0	0	0	0	191	0	0	1	0	3	0	4
20	Well	B	90	24	6	0	0	0	0	120	0	0	0	0	0	0	0
20	Well	C	82	24	3	0	0	0	0	109	0	3	0	0	2	0	5
20	Well	D	85	22	10	0	0	0	0	117	0	3	0	1	0	0	4
20	Well	E	97	28	6	0	0	0	0	131	1	4	1	3	3	0	12
20	Header	A	528	118	36	0	0	2	0	684	2	2	1	3	6	0	14
20	Heater	A	540	82	15	0	0	1	0	638	0	1	2	8	5	0	16
20	Heater	B	183	5	0	0	0	0	1	189	0	0	0	0	2	0	2
20	Heater	C	182	5	0	0	0	0	0	187	0	0	0	0	2	0	2
20	Heater	D	26	8	3	0	0	0	0	37	0	0	0	0	0	0	0
20	Heater	E	66	25	4	0	0	2	0	97	0	2	1	0	0	0	3
20	Separator	A	203	50	5	0	0	2	0	260	2	1	0	0	1	0	4
20	Separator	B	203	56	5	0	0	0	0	264	0	1	0	0	2	0	3
20	Separator	C	375	76	15	0	0	3	2	471	0	1	0	1	11	0	13
20	Meter	A	574	84	5	0	0	8	0	671	0	2	1	3	10	0	16
20	Filter	A	188	40	7	0	0	2	0	237	2	1	0	0	2	0	5
20	Dehydration	A	158	42	9	0	0	0	0	209	3	0	0	0	2	0	5
20	Dehydration	B	408	11	0	0	0	0	3	422	0	0	0	0	4	0	4
20	Dehydration	C	444	75	12	0	6	2	0	539	0	0	0	0	0	0	0
20	Scrubber	A	199	39	9	0	0	1	0	248	0	0	0	1	2	0	3
20	Scrubber	B	207	44	0	0	2	0	0	253	2	2	2	0	4	0	10
20	Water	A	177	38	6	0	4	0	2	227	0	1	0	3	1	0	5
20	Water	B	385	72	10	0	0	0	0	467	1	0	0	0	3	0	4
20	Water	C	275	76	8	0	4	0	14	377	0	1	0	5	4	0	10
20	Tank	A	70	12	0	0	0	1	0	83	0	0	0	0	0	0	0
20	Tank	B	244	58	7	0	0	0	0	309	1	1	1	2	0	0	5
20	Tank	C	157	42	2	0	0	0	0	201	4	0	0	0	0	0	4
20	Tank	D	132	25	0	0	0	0	0	157	0	0	0	0	0	0	0

SITE	AREA	SUB AREA	CN	VL	O.E.L	CS	PS	PRV	OTH	ALL	EMITTERS BY SCREENING RANGE (ppmv)						
											10 to 99	100 to 499	500 to 999	1,000 to 9999	10,000 to 99999	100,000+	ALL
20	Tank	E	297	84	12	0	6	2	4	405	0	0	1	0	0	0	1
20	Sales	A	335	78	0	0	0	0	0	413	3	0	0	0	2	0	5
			7044	1391	204	0	22	26	26	8713	21	26	11	30	71	0	159

APPENDIX C
EMITTER DATA

SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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1	Valve	750

SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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SITE	TYPE	PPMV
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1	Valve	20
1	Valve	20
1	Valve	20
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	100,000
1	OpenEnd	80,000
1	OpenEnd	70,000
1	OpenEnd	15,000
1	OpenEnd	9,500
1	OpenEnd	7,000
1	OpenEnd	2,000
1	OpenEnd	1,500
1	OpenEnd	300
1	OpenEnd	200
1	OpenEnd	100
1	OpenEnd	60
1	OpenEnd	35
1	OpenEnd	30
1	OpenEnd	25
1	OpenEnd	20
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000

SITE	TYPE	PPMV
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	100,000
1	DumpArm	25,000
1	DumpArm	15,000
1	DumpArm	10,000
1	DumpArm	10,000
1	DumpArm	9,000
1	DumpArm	9,000
1	DumpArm	9,000
1	DumpArm	8,000
1	DumpArm	5,000
1	DumpArm	1,700
1	DumpArm	900
1	DumpArm	500
1	DumpArm	500
1	DumpArm	300
1	PolishedRod	2,000
1	PolishedRod	1,500
1	PolishedRod	750
1	PolishedRod	750
1	PolishedRod	700
1	PolishedRod	500
1	PolishedRod	400
1	PolishedRod	300
1	PolishedRod	300
1	PolishedRod	275
1	PolishedRod	175
1	PolishedRod	175
1	PolishedRod	150

SITE	TYPE	PPMV
1	PolishedRod	150
1	PolishedRod	125
1	PolishedRod	125
1	PolishedRod	125
1	PolishedRod	125
1	PolishedRod	100
1	PolishedRod	100
1	PolishedRod	100
1	PolishedRod	70
1	PolishedRod	70
1	PolishedRod	60
1	PolishedRod	50
1	PolishedRod	50
1	PolishedRod	50
1	PolishedRod	40
1	PolishedRod	40
1	PolishedRod	40
1	PolishedRod	20

SITE	TYPE	PPMV
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	100,000
2	Connection	70,000
2	Connection	50,000
2	Connection	30,000
2	Connection	20,000
2	Connection	20,000
2	Connection	20,000
2	Connection	20,000
2	Connection	15,000
2	Connection	10,000
2	Connection	10,000
2	Connection	10,000
2	Connection	10,000
2	Connection	10,000
2	Connection	10,000
2	Connection	10,000
2	Connection	10,000
2	Connection	9,000
2	Connection	8,000
2	Connection	8,000
2	Connection	5,000
2	Connection	3,000
2	Connection	2,500

SITE	TYPE	PPMV
2	Connection	2,500
2	Connection	2,500
2	Connection	2,000
2	Connection	2,000
2	Connection	1,500
2	Connection	1,200
2	Connection	1,000
2	Connection	1,000
2	Connection	900
2	Connection	800
2	Connection	800
2	Connection	700
2	Connection	700
2	Connection	700
2	Connection	700
2	Connection	700
2	Connection	700
2	Connection	600
2	Connection	500
2	Connection	500
2	Connection	400
2	Connection	400
2	Connection	400
2	Connection	300
2	Connection	300
2	Connection	300
2	Connection	300
2	Connection	300
2	Connection	300
2	Connection	200
2	Connection	200
2	Connection	200
2	Connection	200
2	Connection	200
2	Connection	200
2	Connection	200

SITE	TYPE	PPMV
2	Connection	200
2	Connection	200
2	Connection	150
2	Connection	150
2	Connection	150
2	Connection	150
2	Connection	100
2	Connection	80
2	Connection	70
2	Connection	70
2	Connection	60
2	Connection	60
2	Connection	50
2	Connection	40
2	Connection	20
2	Connection	20
2	Connection	20
2	Connection	20
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000

SITE	TYPE	PPMV
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	100,000
2	Valve	90,000
2	Valve	90,000
2	Valve	80,000
2	Valve	70,000
2	Valve	60,000
2	Valve	40,000
2	Valve	30,000
2	Valve	20,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000

SITE	TYPE	PPMV
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	10,000
2	Valve	9,000
2	Valve	7,000
2	Valve	5,000
2	Valve	5,000
2	Valve	5,000
2	Valve	4,000
2	Valve	4,000
2	Valve	3,500
2	Valve	3,000
2	Valve	3,000
2	Valve	3,000
2	Valve	3,000
2	Valve	2,500
2	Valve	2,000
2	Valve	2,000
2	Valve	2,000
2	Valve	2,000
2	Valve	2,000
2	Valve	2,000
2	Valve	2,000
2	Valve	2,000
2	Valve	1,500
2	Valve	1,200
2	Valve	1,000
2	Valve	1,000
2	Valve	1,000
2	Valve	1,000
2	Valve	1,000
2	Valve	900

SITE	TYPE	PPMV
2	Valve	750
2	Valve	700
2	Valve	700
2	Valve	700
2	Valve	700
2	Valve	700
2	Valve	700
2	Valve	700
2	Valve	700
2	Valve	500
2	Valve	500
2	Valve	500
2	Valve	400
2	Valve	400
2	Valve	300
2	Valve	300
2	Valve	250
2	Valve	250
2	Valve	200
2	Valve	200
2	Valve	200
2	Valve	150
2	Valve	150
2	Valve	125
2	Valve	125
2	Valve	100
2	Valve	100
2	Valve	100
2	Valve	100
2	Valve	100
2	Valve	100
2	Valve	100
2	Valve	70
2	Valve	70
2	Valve	60
2	Valve	50

SITE	TYPE	PPMV
2	Valve	50
2	Valve	50
2	Valve	40
2	Valve	40
2	Valve	40
2	Valve	30
2	Valve	30
2	Valve	20
2	Valve	20
2	Valve	20
2	Valve	20
2	Valve	15
2	OpenEnd	100,000
2	OpenEnd	100,000
2	OpenEnd	100,000
2	OpenEnd	100,000
2	OpenEnd	100,000
2	OpenEnd	15,000
2	OpenEnd	10,000
2	OpenEnd	10,000
2	OpenEnd	10,000
2	OpenEnd	6,000
2	OpenEnd	2,000
2	OpenEnd	2,000
2	OpenEnd	1,200
2	OpenEnd	1,000
2	OpenEnd	1,000
2	OpenEnd	700
2	OpenEnd	300
2	OpenEnd	300
2	OpenEnd	300
2	OpenEnd	200
2	OpenEnd	70
2	OpenEnd	60
2	OpenEnd	40
2	OpenEnd	10

SITE	TYPE	PPMV
2	Hatch	100,000
2	Hatch	100,000
2	Hatch	15,000
2	Hatch	2,500
2	Hatch	2,000
2	Hatch	700
2	Hatch	300
2	Hatch	200
2	Hatch	100
2	Instrument	100,000
2	Instrument	3,000
2	PolishedRod	100,000
2	PolishedRod	100,000
2	PolishedRod	10,000
2	PolishedRod	2,000
2	PolishedRod	1,500
2	PolishedRod	500
2	PolishedRod	400
2	PolishedRod	300
2	PolishedRod	175
2	PolishedRod	150
2	PolishedRod	150
2	PolishedRod	70
2	PolishedRod	70
2	PolishedRod	70
2	PolishedRod	30
2	PolishedRod	20
2	PolishedRod	20
2	PressureRelie	1,000
2	PumpSeal	1,000
2	Vent	10,000
2	Vent	5,000
2	Vent	300
2	Vent	200
2	Vent	100
2	Vent	100

SITE	TYPE	PPMV
2	Vent	80
2	Vent	30

SITE	TYPE	PPMV

SITE	TYPE	PPMV
3	Connection	100,000
3	Connection	100,000
3	Connection	100,000
3	Connection	10,000
3	Connection	10,000
3	Connection	9,000
3	Connection	8,000
3	Connection	8,000
3	Connection	6,000
3	Connection	5,000
3	Connection	4,000
3	Connection	2,000
3	Connection	1,500
3	Connection	1,500
3	Connection	600
3	Connection	300
3	Connection	150
3	Connection	100
3	Connection	50
3	Connection	25
3	Connection	20
3	Valve	100,000
3	Valve	100,000
3	Valve	100,000
3	Valve	100,000
3	Valve	100,000
3	Valve	70,000
3	Valve	40,000
3	Valve	40,000
3	Valve	30,000
3	Valve	10,000
3	Valve	9,000
3	Valve	8,000
3	Valve	4,000
3	Valve	3,000
3	Valve	2,000

SITE	TYPE	PPMV
3	Valve	2,000
3	Valve	2,000
3	Valve	1,500
3	Valve	1,200
3	Valve	1,000
3	Valve	1,000
3	Valve	1,000
3	Valve	800
3	Valve	800
3	Valve	800
3	Valve	600
3	Valve	500
3	Valve	400
3	Valve	300
3	Valve	200
3	Valve	150
3	Valve	100
3	Valve	100
3	Valve	40
3	Valve	30
3	Valve	30
3	Valve	25
3	Valve	20
3	OpenEnd	100,000
3	OpenEnd	20,000
3	OpenEnd	3,000
3	OpenEnd	1,500
3	Compressor	35
3	DumpArm	500
3	DumpArm	200
3	DumpArm	40
3	DumpArm	16
3	Hatch	12,000
3	Hatch	10,000
3	Hatch	10,000
3	Hatch	10,000

SITE	TYPE	PPMV
3	Hatch	10,000
3	Hatch	10,000
3	Hatch	10,000
3	Hatch	10,000
3	Hatch	10,000
3	Hatch	7,000
3	Hatch	500
3	Hatch	300
3	Hatch	300
3	Hatch	50
3	Hatch	20
3	PolishedRod	10,000

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV
4	Connection	100,000
4	Connection	100,000
4	Connection	100,000
4	Connection	100,000
4	Connection	10,000
4	Connection	10,000
4	Connection	10,000
4	Connection	10,000
4	Connection	10,000
4	Connection	5,000
4	Connection	4,000
4	Connection	3,000
4	Connection	1,000
4	Connection	200
4	Connection	200
4	Connection	200
4	Connection	100
4	Connection	100
4	Connection	50
4	Connection	50
4	Connection	40
4	Connection	30
4	Connection	20
4	Connection	20
4	Connection	20
4	Valve	100,000
4	Valve	100,000
4	Valve	100,000
4	Valve	100,000
4	Valve	100,000
4	Valve	100,000
4	Valve	100,000
4	Valve	10,000
4	Valve	10,000
4	Valve	10,000
4	Valve	10,000

SITE	TYPE	PPMV
4	Valve	10,000
4	Valve	10,000
4	Valve	10,000
4	Valve	9,000
4	Valve	1,500
4	Valve	1,000
4	Valve	1,000
4	Valve	1,000
4	Valve	1,000
4	Valve	500
4	Valve	500
4	Valve	300
4	Valve	300
4	Valve	200
4	Valve	150
4	Valve	100
4	Valve	100
4	Valve	100
4	Valve	50
4	Valve	30
4	Valve	30
4	Valve	30
4	Valve	20
4	Valve	15
4	Valve	10
4	Valve	10
4	Valve	10
4	OpenEnd	10,000
4	OpenEnd	10,000
4	OpenEnd	10,000
4	OpenEnd	10,000
4	OpenEnd	7,000
4	OpenEnd	3,000
4	OpenEnd	300
4	OpenEnd	300
4	OpenEnd	100

SITE	TYPE	PPMV
4	OpenEnd	100
4	OpenEnd	50
4	OpenEnd	50
4	OpenEnd	30
4	OpenEnd	30
4	OpenEnd	20
4	Hatch	10,000
4	Hatch	10
4	Instrument	100,000
4	Instrument	10,000
4	Instrument	50
4	Meter	100
4	PolishedRod	4,000
4	PolishedRod	300
4	PolishedRod	10
4	PolishedRod	10
4	PressureRelie	10,000
4	PressureRelie	1,000
4	Vent	100,000
4	Vent	100,000
4	Vent	100,000
4	Vent	10,000
4	Vent	1,000

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
5	Connection	200												
5	Valve	5,000												
5	OpenEnd	500												
5	OpenEnd	300												
5	OpenEnd	200												
5	OpenEnd	200												
5	OpenEnd	75												
5	OpenEnd	30												
5	OpenEnd	20												
5	OpenEnd	20												
5	OpenEnd	20												
5	PolishedRod	2,000												
5	PolishedRod	100												
5	PolishedRod	50												
5	PolishedRod	50												
5	PolishedRod	45												
5	PolishedRod	30												
5	PolishedRod	20												
5	PolishedRod	10												

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
6	Connection	50												
6	Connection	50												
6	Connection	10												
6	Valve	50												
6	OpenEnd	10,000												
6	OpenEnd	10,000												
6	OpenEnd	2,500												
6	OpenEnd	300												
6	OpenEnd	10												
6	OpenEnd	10												
6	PolishedRod	1,500												
6	PolishedRod	100												
6	PolishedRod	100												
6	PolishedRod	100												
6	PolishedRod	70												
6	PolishedRod	40												
6	PolishedRod	30												
6	PolishedRod	20												
6	PolishedRod	20												
6	PolishedRod	10												
6	PolishedRod	10												

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
7	OpenEnd	2,000												
7	OpenEnd	1,000												
7	OpenEnd	500												
7	PolishedRod	70												
7	PolishedRod	40												
7	PolishedRod	25												
7	PolishedRod	20												
7	PolishedRod	20												

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
8	OpenEnd	100												
8	OpenEnd	100												
8	OpenEnd	30												
8	PolishedRod	75												
8	PolishedRod	50												
8	PolishedRod	50												
8	PolishedRod	50												
8	PolishedRod	50												
8	PolishedRod	40												
8	PolishedRod	20												
8	PolishedRod	10												
8	PolishedRod	10												
8	PolishedRod	10												
8	PolishedRod	10												

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
9	Connection	100,000	9	Connection	15,000	9	Connection	10,000	9	Connection	3,000	9	Connection	500
9	Connection	100,000	9	Connection	15,000	9	Connection	10,000	9	Connection	2,500	9	Connection	500
9	Connection	100,000	9	Connection	12,000	9	Connection	9,000	9	Connection	2,000	9	Connection	500
9	Connection	100,000	9	Connection	12,000	9	Connection	8,000	9	Connection	2,000	9	Connection	400
9	Connection	100,000	9	Connection	10,000	9	Connection	7,000	9	Connection	2,000	9	Connection	300
9	Connection	100,000	9	Connection	10,000	9	Connection	7,000	9	Connection	2,000	9	Connection	300
9	Connection	100,000	9	Connection	10,000	9	Connection	7,000	9	Connection	2,000	9	Connection	300
9	Connection	100,000	9	Connection	10,000	9	Connection	7,000	9	Connection	2,000	9	Connection	300
9	Connection	100,000	9	Connection	10,000	9	Connection	7,000	9	Connection	2,000	9	Connection	300
9	Connection	100,000	9	Connection	10,000	9	Connection	6,000	9	Connection	2,000	9	Connection	300
9	Connection	100,000	9	Connection	10,000	9	Connection	6,000	9	Connection	2,000	9	Connection	300
9	Connection	100,000	9	Connection	10,000	9	Connection	6,000	9	Connection	2,000	9	Connection	250
9	Connection	100,000	9	Connection	10,000	9	Connection	5,000	9	Connection	2,000	9	Connection	200
9	Connection	100,000	9	Connection	10,000	9	Connection	5,000	9	Connection	2,000	9	Connection	200
9	Connection	100,000	9	Connection	10,000	9	Connection	5,000	9	Connection	2,000	9	Connection	200
9	Connection	100,000	9	Connection	10,000	9	Connection	5,000	9	Connection	2,000	9	Connection	200
9	Connection	100,000	9	Connection	10,000	9	Connection	5,000	9	Connection	1,500	9	Connection	200
9	Connection	100,000	9	Connection	10,000	9	Connection	4,000	9	Connection	1,500	9	Connection	200
9	Connection	100,000	9	Connection	10,000	9	Connection	4,000	9	Connection	1,200	9	Connection	150
9	Connection	100,000	9	Connection	10,000	9	Connection	4,000	9	Connection	1,000	9	Connection	150
9	Connection	90,000	9	Connection	10,000	9	Connection	4,000	9	Connection	1,000	9	Connection	150
9	Connection	90,000	9	Connection	10,000	9	Connection	4,000	9	Connection	1,000	9	Connection	150
9	Connection	90,000	9	Connection	10,000	9	Connection	4,000	9	Connection	1,000	9	Connection	100
9	Connection	70,000	9	Connection	10,000	9	Connection	4,000	9	Connection	1,000	9	Connection	100
9	Connection	70,000	9	Connection	10,000	9	Connection	4,000	9	Connection	800	9	Connection	100
9	Connection	70,000	9	Connection	10,000	9	Connection	4,000	9	Connection	700	9	Connection	100
9	Connection	50,000	9	Connection	10,000	9	Connection	4,000	9	Connection	700	9	Connection	100
9	Connection	50,000	9	Connection	10,000	9	Connection	4,000	9	Connection	700	9	Connection	100
9	Connection	40,000	9	Connection	10,000	9	Connection	3,500	9	Connection	700	9	Connection	100
9	Connection	40,000	9	Connection	10,000	9	Connection	3,500	9	Connection	600	9	Connection	100
9	Connection	40,000	9	Connection	10,000	9	Connection	3,500	9	Connection	500	9	Connection	100
9	Connection	30,000	9	Connection	10,000	9	Connection	3,000	9	Connection	500	9	Connection	100
9	Connection	30,000	9	Connection	10,000	9	Connection	3,000	9	Connection	500	9	Connection	90
9	Connection	30,000	9	Connection	10,000	9	Connection	3,000	9	Connection	500	9	Connection	80
9	Connection	20,000	9	Connection	10,000	9	Connection	3,000	9	Connection	500	9	Connection	70
9	Connection	20,000	9	Connection	10,000	9	Connection	3,000	9	Connection	500	9	Connection	70

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
9	Connection	70	9	Valve	100,000	9	Valve	2,000	9	Valve	200			
9	Connection	70	9	Valve	100,000	9	Valve	2,000	9	Valve	200			
9	Connection	60	9	Valve	100,000	9	Valve	2,000	9	Valve	200			
9	Connection	50	9	Valve	80,000	9	Valve	1,500	9	Valve	150			
9	Connection	50	9	Valve	80,000	9	Valve	1,500	9	Valve	150			
9	Connection	50	9	Valve	40,000	9	Valve	1,500	9	Valve	150			
9	Connection	50	9	Valve	40,000	9	Valve	1,500	9	Valve	150			
9	Connection	30	9	Valve	10,000	9	Valve	1,500	9	Valve	100			
9	Connection	30	9	Valve	10,000	9	Valve	1,200	9	Valve	100			
9	Connection	30	9	Valve	10,000	9	Valve	1,000	9	Valve	100			
9	Connection	30	9	Valve	10,000	9	Valve	1,000	9	Valve	80			
9	Connection	25	9	Valve	10,000	9	Valve	1,000	9	Valve	50			
9	Connection	20	9	Valve	10,000	9	Valve	1,000	9	Valve	50			
9	Connection	20	9	Valve	10,000	9	Valve	1,000	9	Valve	40			
9	Connection	20	9	Valve	10,000	9	Valve	1,000	9	Valve	40			
9	Connection	20	9	Valve	10,000	9	Valve	1,000	9	Valve	20			
9	Connection	15	9	Valve	10,000	9	Valve	1,000	9	OpenEnd	100,000			
9	Connection	10	9	Valve	10,000	9	Valve	700	9	OpenEnd	100,000			
9	Valve	100,000	9	Valve	10,000	9	Valve	500	9	OpenEnd	100,000			
9	Valve	100,000	9	Valve	10,000	9	Valve	500	9	OpenEnd	10,000			
9	Valve	100,000	9	Valve	10,000	9	Valve	500	9	OpenEnd	10,000			
9	Valve	100,000	9	Valve	10,000	9	Valve	500	9	OpenEnd	10,000			
9	Valve	100,000	9	Valve	10,000	9	Valve	500	9	OpenEnd	5,000			
9	Valve	100,000	9	Valve	10,000	9	Valve	400	9	OpenEnd	4,000			
9	Valve	100,000	9	Valve	10,000	9	Valve	400	9	OpenEnd	4,000			
9	Valve	100,000	9	Valve	9,000	9	Valve	400	9	OpenEnd	400			
9	Valve	100,000	9	Valve	9,000	9	Valve	300	9	OpenEnd	150			
9	Valve	100,000	9	Valve	7,000	9	Valve	300	9	Hatch	70,000			
9	Valve	100,000	9	Valve	5,000	9	Valve	300	9	Hatch	15,000			
9	Valve	100,000	9	Valve	4,000	9	Valve	300	9	Instrument	10,000			
9	Valve	100,000	9	Valve	4,000	9	Valve	300	9	Instrument	2,000			
9	Valve	100,000	9	Valve	3,500	9	Valve	300	9	Instrument	200			
9	Valve	100,000	9	Valve	3,000	9	Valve	300	9	Instrument	150			
9	Valve	100,000	9	Valve	3,000	9	Valve	300	9	PressureRelie	200			
9	Valve	100,000	9	Valve	3,000	9	Valve	250	9	PressureRelie	200			
9	Valve	100,000	9	Valve	2,500	9	Valve	200	9	PressureRelie	50			

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
10	Connection	100,000	10	Connection	3,000	10	Connection	400	10	Connection	100	10	Valve	100,000
10	Connection	100,000	10	Connection	3,000	10	Connection	300	10	Connection	100	10	Valve	100,000
10	Connection	100,000	10	Connection	2,500	10	Connection	300	10	Connection	90	10	Valve	100,000
10	Connection	100,000	10	Connection	2,000	10	Connection	300	10	Connection	90	10	Valve	100,000
10	Connection	10,000	10	Connection	2,000	10	Connection	300	10	Connection	80	10	Valve	100,000
10	Connection	10,000	10	Connection	2,000	10	Connection	250	10	Connection	75	10	Valve	100,000
10	Connection	10,000	10	Connection	2,000	10	Connection	250	10	Connection	60	10	Valve	100,000
10	Connection	10,000	10	Connection	2,000	10	Connection	225	10	Connection	50	10	Valve	100,000
10	Connection	10,000	10	Connection	1,500	10	Connection	200	10	Connection	50	10	Valve	10,000
10	Connection	10,000	10	Connection	1,500	10	Connection	200	10	Connection	50	10	Valve	10,000
10	Connection	10,000	10	Connection	1,500	10	Connection	200	10	Connection	30	10	Valve	10,000
10	Connection	10,000	10	Connection	1,500	10	Connection	200	10	Connection	30	10	Valve	10,000
10	Connection	10,000	10	Connection	1,500	10	Connection	200	10	Connection	30	10	Valve	10,000
10	Connection	10,000	10	Connection	1,200	10	Connection	200	10	Connection	30	10	Valve	10,000
10	Connection	10,000	10	Connection	1,200	10	Connection	200	10	Connection	30	10	Valve	10,000
10	Connection	10,000	10	Connection	1,200	10	Connection	175	10	Connection	30	10	Valve	10,000
10	Connection	10,000	10	Connection	1,000	10	Connection	150	10	Connection	20	10	Valve	10,000
10	Connection	10,000	10	Connection	1,000	10	Connection	150	10	Connection	20	10	Valve	10,000
10	Connection	10,000	10	Connection	1,000	10	Connection	150	10	Connection	20	10	Valve	10,000
10	Connection	10,000	10	Connection	1,000	10	Connection	150	10	Connection	20	10	Valve	10,000
10	Connection	10,000	10	Connection	1,000	10	Connection	150	10	Connection	20	10	Valve	10,000
10	Connection	10,000	10	Connection	750	10	Connection	150	10	Connection	15	10	Valve	10,000
10	Connection	10,000	10	Connection	750	10	Connection	100	10	Connection	15	10	Valve	10,000
10	Connection	10,000	10	Connection	700	10	Connection	100	10	Connection	15	10	Valve	10,000
10	Connection	10,000	10	Connection	500	10	Connection	100	10	Connection	15	10	Valve	10,000
10	Connection	10,000	10	Connection	500	10	Connection	100	10	Connection	10	10	Valve	10,000
10	Connection	10,000	10	Connection	500	10	Connection	100	10	Connection	10	10	Valve	10,000
10	Connection	9,000	10	Connection	500	10	Connection	100	10	Connection	10	10	Valve	10,000
10	Connection	9,000	10	Connection	500	10	Connection	100	10	Valve	100,000	10	Valve	10,000
10	Connection	9,000	10	Connection	500	10	Connection	100	10	Valve	100,000	10	Valve	10,000
10	Connection	8,000	10	Connection	500	10	Connection	100	10	Valve	100,000	10	Valve	10,000
10	Connection	6,000	10	Connection	500	10	Connection	100	10	Valve	100,000	10	Valve	10,000
10	Connection	5,000	10	Connection	500	10	Connection	100	10	Valve	100,000	10	Valve	10,000
10	Connection	3,000	10	Connection	500	10	Connection	100	10	Valve	100,000	10	Valve	10,000
10	Connection	3,000	10	Connection	400	10	Connection	100	10	Valve	100,000	10	Valve	10,000
10	Connection	3,000	10	Connection	400	10	Connection	100	10	Valve	100,000	10	Valve	10,000

SITE	TYPE	PPMV
10	Valve	10,000
10	Valve	10,000
10	Valve	10,000
10	Valve	10,000
10	Valve	10,000
10	Valve	10,000
10	Valve	10,000
10	Valve	10,000
10	Valve	9,000
10	Valve	9,000
10	Valve	8,000
10	Valve	8,000
10	Valve	8,000
10	Valve	7,000
10	Valve	5,000
10	Valve	4,000
10	Valve	3,000
10	Valve	2,500
10	Valve	2,000
10	Valve	1,500
10	Valve	1,500
10	Valve	1,200
10	Valve	1,000
10	Valve	1,000
10	Valve	800
10	Valve	800
10	Valve	700
10	Valve	600
10	Valve	500
10	Valve	500
10	Valve	500
10	Valve	450
10	Valve	400
10	Valve	300
10	Valve	200
10	Valve	200

SITE	TYPE	PPMV
10	Valve	200
10	Valve	200
10	Valve	200
10	Valve	200
10	Valve	200
10	Valve	200
10	Valve	150
10	Valve	150
10	Valve	150
10	Valve	150
10	Valve	125
10	Valve	125
10	Valve	100
10	Valve	100
10	Valve	100
10	Valve	100
10	Valve	100
10	Valve	80
10	Valve	70
10	Valve	50
10	Valve	50
10	Valve	40
10	Valve	30
10	Valve	30
10	Valve	30
10	Valve	25
10	Valve	20
10	Valve	20
10	Valve	20
10	Valve	15
10	Valve	15
10	Valve	15
10	Valve	10
10	Valve	10
10	Valve	10
10	OpenEnd	100,000

SITE	TYPE	PPMV
10	OpenEnd	100,000
10	OpenEnd	100,000
10	OpenEnd	10,000
10	OpenEnd	9,000
10	OpenEnd	2,000
10	OpenEnd	1,000
10	OpenEnd	500
10	OpenEnd	500
10	OpenEnd	300
10	OpenEnd	200
10	OpenEnd	150
10	OpenEnd	150
10	OpenEnd	60
10	OpenEnd	50
10	OpenEnd	40
10	OpenEnd	30
10	Compressor	100
10	Diaphragm	1,500
10	DumpArm	100,000
10	DumpArm	100,000
10	DumpArm	100,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000

SITE	TYPE	PPMV
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	10,000
10	DumpArm	5,000
10	Hatch	10,000
10	Hatch	10,000
10	Hatch	300
10	Instrument	100,000
10	Instrument	100,000
10	Instrument	100,000
10	Instrument	100,000
10	Instrument	10,000
10	Instrument	10,000
10	Instrument	10,000
10	Instrument	10,000
10	Instrument	10,000
10	Instrument	9,000
10	Instrument	8,000
10	Instrument	750
10	Instrument	500
10	Instrument	500
10	Instrument	450
10	Instrument	100
10	Meter	500
10	Meter	20
10	PressureRelie	10,000
10	Vent	3,500
10	Vent	125

SITE	TYPE	PPMV

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000
11	Connection	100,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000	11	Connection	10,000

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	150
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	150
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	150
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	10,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	2,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	2,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,500	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100
11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	1,000	11	Connection	100

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
11	Connection	100	11	Valve	10,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000
11	Connection	100	11	Valve	10,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000
11	Connection	100	11	Valve	10,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000
11	Connection	100	11	Valve	10,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000
11	Connection	100	11	Valve	10,000	11	Valve	10,000	11	Valve	6,000	11	Valve	1,000
11	Connection	100	11	Valve	10,000	11	Valve	10,000	11	Valve	5,000	11	Valve	1,000
11	Connection	80	11	Valve	10,000	11	Valve	10,000	11	Valve	4,000	11	Valve	1,000
11	Connection	80	11	Valve	10,000	11	Valve	10,000	11	Valve	2,000	11	Valve	1,000
11	Connection	60	11	Valve	10,000	11	Valve	10,000	11	Valve	1,700	11	Valve	1,000
11	Connection	50	11	Valve	10,000	11	Valve	10,000	11	Valve	1,500	11	Valve	1,000
11	Connection	25	11	Valve	10,000	11	Valve	10,000	11	Valve	1,500	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,500	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,200	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,200	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	100,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	10,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000
11	Valve	10,000	11	Valve	10,000	11	Valve	10,000	11	Valve	1,000	11	Valve	1,000

SITE	TYPE	PPMV
11	Valve	1,000
11	Valve	1,000
11	Valve	750
11	Valve	600
11	Valve	500
11	Valve	300
11	Valve	300
11	Valve	300
11	Valve	200
11	Valve	200
11	Valve	200
11	Valve	150
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	100
11	Valve	90
11	Valve	80
11	Valve	60
11	Valve	50
11	Valve	50
11	Valve	40
11	Valve	40
11	Valve	30
11	Valve	30
11	Valve	25
11	Valve	20
11	Valve	20

SITE	TYPE	PPMV
11	Valve	20
11	OpenEnd	100,000
11	OpenEnd	10,000
11	OpenEnd	10,000
11	OpenEnd	10,000
11	OpenEnd	10,000
11	OpenEnd	7,000
11	OpenEnd	40
11	Drain	3,000
11	Drain	2,000
11	Drain	850
11	Drain	100
11	Drain	60
11	Hatch	10,000
11	Hatch	10,000
11	Hatch	10,000
11	Hatch	8,000
11	Hatch	4,000
11	Hatch	3,500
11	Hatch	500
11	Hatch	500
11	Hatch	500
11	Hatch	100
11	Vent	100,000
11	Vent	100,000
11	Vent	100,000
11	Vent	100,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000

SITE	TYPE	PPMV
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	10,000
11	Vent	3,000
11	Vent	1,500
11	Vent	1,000
11	Vent	1,000
11	Vent	750
11	Vent	500
11	Vent	400
11	Vent	175
11	Vent	150
11	Vent	100
11	Vent	50
11	Vent	50

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV
12	Connection	100,000
12	Connection	100,000
12	Connection	100,000
12	Connection	100,000
12	Connection	10,000
12	Connection	10,000
12	Connection	10,000
12	Connection	10,000
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12	Connection	8,000
12	Connection	6,000
12	Connection	6,000
12	Connection	6,000
12	Connection	5,000
12	Connection	5,000
12	Connection	5,000
12	Connection	3,000
12	Connection	3,000
12	Connection	2,500
12	Connection	2,000
12	Connection	2,000
12	Connection	2,000
12	Connection	2,000
12	Connection	1,800
12	Connection	1,800
12	Connection	1,500
12	Connection	1,100

SITE	TYPE	PPMV
12	Connection	1,000
12	Connection	950
12	Connection	500
12	Connection	500
12	Connection	400
12	Connection	400
12	Connection	300
12	Connection	300
12	Connection	300
12	Connection	200
12	Connection	200
12	Connection	200
12	Connection	100
12	Connection	100
12	Connection	100
12	Connection	100
12	Connection	40
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12	Connection	30
12	Connection	30
12	Connection	25
12	Connection	20
12	Connection	20
12	Connection	15
12	Connection	12
12	Connection	10
12	Valve	100,000
12	Valve	100,000
12	Valve	100,000
12	Valve	100,000
12	Valve	100,000
12	Valve	100,000
12	Valve	100,000

SITE	TYPE	PPMV
12	Valve	100,000
12	Valve	100,000
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SITE	TYPE	PPMV
12	Valve	10,000
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12	Valve	2,000
12	Valve	1,500
12	Valve	1,500
12	Valve	1,200
12	Valve	1,000
12	Valve	1,000
12	Valve	1,000
12	Valve	900
12	Valve	600
12	Valve	600
12	Valve	500
12	Valve	400

SITE	TYPE	PPMV
12	Valve	300
12	Valve	300
12	Valve	300
12	Valve	200
12	Valve	200
12	Valve	200
12	Valve	200
12	Valve	100
12	Valve	100
12	Valve	50
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12	Valve	50
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12	Valve	40
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12	Valve	30
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12	Valve	20
12	Valve	18
12	Valve	12
12	Valve	12
12	Valve	10
12	Valve	10
12	OpenEnd	100,000
12	OpenEnd	100,000
12	OpenEnd	10,000
12	OpenEnd	10,000
12	OpenEnd	10,000
12	OpenEnd	10,000
12	OpenEnd	10,000
12	OpenEnd	10,000
12	OpenEnd	4,000

SITE	TYPE	PPMV
12	OpenEnd	3,000
12	OpenEnd	2,500
12	OpenEnd	2,500
12	OpenEnd	2,000
12	OpenEnd	2,000
12	OpenEnd	2,000
12	OpenEnd	500
12	OpenEnd	500
12	OpenEnd	500
12	OpenEnd	400
12	OpenEnd	250
12	OpenEnd	200
12	OpenEnd	200
12	OpenEnd	200
12	OpenEnd	100
12	OpenEnd	100
12	OpenEnd	100
12	OpenEnd	50
12	OpenEnd	50
12	OpenEnd	30
12	OpenEnd	20
12	Compressor	100,000
12	Compressor	100,000
12	Compressor	100,000
12	Compressor	100,000
12	Compressor	10,000
12	Compressor	1,000
12	Hatch	15
12	Instrument	10,000
12	PressureRelie	100,000
12	PressureRelie	10,000
12	PressureRelie	10,000
12	PressureRelie	8,000
12	PressureRelie	3,500
12	PressureRelie	3,000
12	PressureRelie	3,000

SITE	TYPE	PPMV
12	PressureRelie	2,000
12	PressureRelie	2,000
12	PressureRelie	700
12	PressureRelie	500
12	PressureRelie	500
12	PressureRelie	500
12	PressureRelie	400
12	PressureRelie	300
12	PressureRelie	250
12	PressureRelie	150
12	PressureRelie	100
12	PressureRelie	100
12	PressureRelie	80
12	PressureRelie	70
12	PressureRelie	50
12	PressureRelie	40
12	PressureRelie	30
12	PressureRelie	30
12	PressureRelie	25
12	PressureRelie	25
12	PressureRelie	20
12	PressureRelie	15
12	PressureRelie	15
12	PressureRelie	15
12	PressureRelie	15
12	Vent	100,000
12	Vent	100,000
12	Vent	100,000
12	Vent	4,000

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV
13	Connection	100,000
13	Connection	100,000
13	Connection	100,000
13	Connection	100,000
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13	Connection	20,000
13	Connection	20,000
13	Connection	20,000
13	Connection	20,000
13	Connection	15,000
13	Connection	12,000

SITE	TYPE	PPMV
13	Connection	10,000
13	Connection	10,000
13	Connection	10,000
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13	Connection	10,000
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13	Connection	2,000
13	Connection	2,000
13	Connection	2,000
13	Connection	1,500
13	Connection	1,500
13	Connection	1,500
13	Connection	1,200
13	Connection	1,000
13	Connection	1,000

SITE	TYPE	PPMV
13	Connection	1,000
13	Connection	1,000
13	Connection	1,000
13	Connection	1,000
13	Connection	1,000
13	Connection	1,000
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13	Connection	1,000
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13	Connection	750
13	Connection	700
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13	Connection	300
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13	Connection	150
13	Connection	150
13	Connection	150
13	Connection	100
13	Connection	100
13	Connection	100
13	Connection	80
13	Connection	80
13	Connection	50
13	Connection	40
13	Connection	15
13	Valve	100,000
13	Valve	100,000
13	Valve	100,000
13	Valve	100,000
13	Valve	100,000

SITE	TYPE	PPMV
13	Valve	100,000
13	Valve	100,000
13	Valve	100,000
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SITE	TYPE	PPMV
13	Valve	100,000
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13	Valve	80,000
13	Valve	80,000
13	Valve	80,000
13	Valve	80,000
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13	Valve	80,000
13	Valve	80,000

SITE	TYPE	PPMV
13	Valve	50,000
13	Valve	50,000
13	Valve	40,000
13	Valve	30,000
13	Valve	20,000
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13	Valve	5,000
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SITE	TYPE	PPMV
13	Valve	5,000
13	Valve	5,000
13	Valve	5,000
13	Valve	4,000
13	Valve	4,000
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13	Valve	2,000
13	Valve	2,000
13	Valve	2,000
13	Valve	1,800
13	Valve	1,500
13	Valve	1,500
13	Valve	1,500
13	Valve	1,500
13	Valve	1,200
13	Valve	1,000
13	Valve	1,000

SITE	TYPE	PPMV
13	Valve	1,000
13	Valve	1,000
13	Valve	1,000
13	Valve	1,000
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13	Valve	500
13	Valve	500
13	Valve	500
13	Valve	500
13	Valve	500
13	Valve	500
13	Valve	500
13	Valve	400
13	Valve	300
13	Valve	300

SITE	TYPE	PPMV
13	Valve	300
13	Valve	300
13	Valve	300
13	Valve	300
13	Valve	300
13	Valve	300
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SITE	TYPE	PPMV
13	Valve	200
13	Valve	200
13	Valve	150
13	Valve	150
13	Valve	150
13	Valve	150
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13	Valve	70
13	Valve	70
13	Valve	60
13	Valve	60
13	Valve	50
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13	Valve	50
13	Valve	50

SITE	TYPE	PPMV
13	Valve	50
13	Valve	50
13	Valve	40
13	Valve	40
13	Valve	40
13	Valve	35
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13	OpenEnd	100,000
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13	OpenEnd	600
13	OpenEnd	500
13	OpenEnd	300
13	OpenEnd	150
13	OpenEnd	150
13	OpenEnd	100
13	OpenEnd	100
13	OpenEnd	100
13	OpenEnd	100
13	OpenEnd	80
13	OpenEnd	30
13	OpenEnd	25
13	Compressor	100,000
13	Compressor	100,000
13	Compressor	100,000

SITE	TYPE	PPMV
13	Compressor	100,000
13	Compressor	100,000
13	Compressor	10,000
13	Compressor	8,000
13	Compressor	7,000
13	Compressor	7,000
13	Compressor	4,000
13	Compressor	3,000
13	Compressor	3,000
13	Hatch	20,000
13	Instrument	100,000
13	Instrument	100,000
13	Instrument	500
13	Instrument	500
13	PressureRelie	2,000
13	PressureRelie	70
13	PumpSeal	100,000
13	PumpSeal	5,000
13	PumpSeal	100
13	Vent	200

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV
14	Connection	100,000
14	Connection	100,000
14	Connection	100,000
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14	Connection	100,000
14	Connection	90,000
14	Connection	90,000
14	Connection	80,000
14	Connection	80,000
14	Connection	70,000
14	Connection	70,000

SITE	TYPE	PPMV
14	Connection	70,000
14	Connection	50,000
14	Connection	50,000
14	Connection	50,000
14	Connection	40,000
14	Connection	30,000
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SITE	TYPE	PPMV
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14	Connection	6,000
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14	Connection	5,000
14	Connection	5,000

SITE	TYPE	PPMV
14	Connection	5,000
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14	Connection	2,000
14	Connection	1,700
14	Connection	1,400
14	Connection	1,100
14	Connection	1,000
14	Connection	1,000
14	Connection	1,000
14	Connection	1,000

SITE	TYPE	PPMV
14	Connection	1,000
14	Connection	1,000
14	Connection	1,000
14	Connection	1,000
14	Connection	1,000
14	Connection	700
14	Connection	600
14	Connection	500
14	Connection	500
14	Connection	500
14	Connection	500
14	Connection	500
14	Connection	500
14	Connection	500
14	Connection	500
14	Connection	500
14	Connection	400
14	Connection	400
14	Connection	300
14	Connection	300
14	Connection	300
14	Connection	300
14	Connection	300
14	Connection	250
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	200
14	Connection	150

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
14	Connection	150	14	Connection	10	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	90,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	90,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	90,000	14	Valve	10,000	14	Valve	10,000
14	Connection	100	14	Valve	100,000	14	Valve	90,000	14	Valve	10,000	14	Valve	10,000
14	Connection	70	14	Valve	100,000	14	Valve	80,000	14	Valve	10,000	14	Valve	10,000
14	Connection	70	14	Valve	100,000	14	Valve	70,000	14	Valve	10,000	14	Valve	10,000
14	Connection	70	14	Valve	100,000	14	Valve	60,000	14	Valve	10,000	14	Valve	10,000
14	Connection	70	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	70	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	70	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	55	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	55	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	50	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	50	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	50	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	50	14	Valve	100,000	14	Valve	50,000	14	Valve	10,000	14	Valve	10,000
14	Connection	50	14	Valve	100,000	14	Valve	40,000	14	Valve	10,000	14	Valve	10,000
14	Connection	50	14	Valve	100,000	14	Valve	40,000	14	Valve	10,000	14	Valve	10,000
14	Connection	50	14	Valve	100,000	14	Valve	40,000	14	Valve	10,000	14	Valve	10,000
14	Connection	40	14	Valve	100,000	14	Valve	30,000	14	Valve	10,000	14	Valve	10,000
14	Connection	40	14	Valve	100,000	14	Valve	30,000	14	Valve	10,000	14	Valve	10,000
14	Connection	30	14	Valve	100,000	14	Valve	30,000	14	Valve	10,000	14	Valve	10,000
14	Connection	30	14	Valve	100,000	14	Valve	30,000	14	Valve	10,000	14	Valve	10,000
14	Connection	30	14	Valve	100,000	14	Valve	30,000	14	Valve	10,000	14	Valve	10,000
14	Connection	20	14	Valve	100,000	14	Valve	30,000	14	Valve	10,000	14	Valve	10,000
14	Connection	20	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000	14	Valve	10,000
14	Connection	20	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000	14	Valve	10,000
14	Connection	20	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000	14	Valve	10,000
14	Connection	15	14	Valve	100,000	14	Valve	10,000	14	Valve	10,000	14	Valve	10,000

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
14	Valve	10,000	14	Valve	7,000	14	Valve	2,000	14	Valve	600	14	Valve	200
14	Valve	10,000	14	Valve	7,000	14	Valve	2,000	14	Valve	600	14	Valve	150
14	Valve	10,000	14	Valve	7,000	14	Valve	2,000	14	Valve	500	14	Valve	150
14	Valve	10,000	14	Valve	7,000	14	Valve	2,000	14	Valve	500	14	Valve	150
14	Valve	10,000	14	Valve	7,000	14	Valve	2,000	14	Valve	500	14	Valve	150
14	Valve	10,000	14	Valve	6,000	14	Valve	2,000	14	Valve	500	14	Valve	150
14	Valve	10,000	14	Valve	6,000	14	Valve	2,000	14	Valve	500	14	Valve	150
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	500	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	500	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	500	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	500	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	500	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	500	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	400	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	2,000	14	Valve	400	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	1,800	14	Valve	300	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	1,700	14	Valve	300	14	Valve	100
14	Valve	10,000	14	Valve	5,000	14	Valve	1,400	14	Valve	300	14	Valve	100
14	Valve	10,000	14	Valve	4,000	14	Valve	1,100	14	Valve	300	14	Valve	100
14	Valve	10,000	14	Valve	4,000	14	Valve	1,000	14	Valve	300	14	Valve	100
14	Valve	10,000	14	Valve	3,000	14	Valve	1,000	14	Valve	300	14	Valve	70
14	Valve	10,000	14	Valve	3,000	14	Valve	1,000	14	Valve	300	14	Valve	70
14	Valve	10,000	14	Valve	3,000	14	Valve	1,000	14	Valve	300	14	Valve	70
14	Valve	10,000	14	Valve	3,000	14	Valve	1,000	14	Valve	300	14	Valve	60
14	Valve	10,000	14	Valve	3,000	14	Valve	1,000	14	Valve	300	14	Valve	55
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	300	14	Valve	50
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	300	14	Valve	50
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	250	14	Valve	50
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	200	14	Valve	50
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	200	14	Valve	50
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	200	14	Valve	50
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	200	14	Valve	50
14	Valve	9,000	14	Valve	3,000	14	Valve	1,000	14	Valve	200	14	Valve	50
14	Valve	9,000	14	Valve	2,000	14	Valve	1,000	14	Valve	200	14	Valve	50
14	Valve	8,000	14	Valve	2,000	14	Valve	800	14	Valve	200	14	Valve	45
14	Valve	8,000	14	Valve	2,000	14	Valve	700	14	Valve	200	14	Valve	30

SITE	TYPE	PPMV
14	Valve	30
14	Valve	30
14	Valve	30
14	Valve	15
14	Valve	15
14	Valve	15
14	OpenEnd	100,000
14	OpenEnd	100,000
14	OpenEnd	100,000
14	OpenEnd	20,000
14	OpenEnd	10,000
14	OpenEnd	10,000
14	OpenEnd	10,000
14	OpenEnd	9,000
14	OpenEnd	9,000
14	OpenEnd	5,000
14	OpenEnd	5,000
14	OpenEnd	4,000
14	OpenEnd	3,000
14	OpenEnd	3,000
14	OpenEnd	1,000
14	OpenEnd	300
14	OpenEnd	50
14	OpenEnd	40
14	OpenEnd	30
14	Drain	1,000
14	Drain	600
14	Hatch	10,000
14	Hatch	10,000
14	Hatch	8,000
14	Hatch	8,000
14	Hatch	3,000
14	Hatch	1,200
14	Instrument	9,000
14	Instrument	3,000
14	PressureRelie	100,000

SITE	TYPE	PPMV
14	PressureRelie	100,000
14	PressureRelie	10,000
14	PressureRelie	10,000
14	PressureRelie	10,000
14	PressureRelie	10,000
14	PressureRelie	7,000
14	PressureRelie	5,000
14	PressureRelie	2,000
14	PressureRelie	1,200
14	PressureRelie	1,200
14	PressureRelie	1,000
14	PressureRelie	300
14	PumpSeal	100,000
14	PumpSeal	10,000
14	PumpSeal	10,000
14	PumpSeal	10,000
14	PumpSeal	10,000
14	PumpSeal	10,000
14	PumpSeal	10,000
14	PumpSeal	10,000
14	PumpSeal	5,000
14	PumpSeal	4,000
14	PumpSeal	4,000
14	PumpSeal	3,000
14	PumpSeal	3,000
14	PumpSeal	3,000
14	PumpSeal	2,000
14	PumpSeal	1,000
14	PumpSeal	1,000
14	PumpSeal	1,000
14	PumpSeal	500
14	PumpSeal	400
14	PumpSeal	300
14	PumpSeal	200
14	PumpSeal	150
14	PumpSeal	100

SITE	TYPE	PPMV
14	PumpSeal	60
14	PumpSeal	50
14	PumpSeal	50
14	Vent	100,000

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
15	Connection	100,000	15	Connection	10,000	15	Connection	3,000	15	Connection	700	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	3,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	3,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,500	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	500	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	400	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	400	15	Valve	100,000
15	Connection	100,000	15	Connection	10,000	15	Connection	2,000	15	Connection	400	15	Valve	100,000
15	Connection	30,000	15	Connection	10,000	15	Connection	2,000	15	Connection	300	15	Valve	100,000
15	Connection	30,000	15	Connection	10,000	15	Connection	2,000	15	Connection	300	15	Valve	100,000
15	Connection	20,000	15	Connection	10,000	15	Connection	2,000	15	Connection	300	15	Valve	100,000
15	Connection	10,000	15	Connection	10,000	15	Connection	2,000	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	9,000	15	Connection	2,000	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	9,000	15	Connection	1,500	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	8,000	15	Connection	1,200	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	8,000	15	Connection	1,000	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	7,000	15	Connection	1,000	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	5,000	15	Connection	1,000	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	5,000	15	Connection	1,000	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	5,000	15	Connection	1,000	15	Connection	200	15	Valve	100,000
15	Connection	10,000	15	Connection	4,000	15	Connection	1,000	15	Connection	150	15	Valve	100,000
15	Connection	10,000	15	Connection	4,000	15	Connection	1,000	15	Connection	100	15	Valve	100,000
15	Connection	10,000	15	Connection	4,000	15	Connection	1,000	15	Connection	100	15	Valve	100,000
15	Connection	10,000	15	Connection	4,000	15	Connection	1,000	15	Connection	100	15	Valve	100,000
15	Connection	10,000	15	Connection	3,000	15	Connection	1,000	15	Connection	100	15	Valve	100,000
15	Connection	10,000	15	Connection	3,000	15	Connection	1,000	15	Connection	60	15	Valve	100,000
15	Connection	10,000	15	Connection	3,000	15	Connection	1,000	15	Connection	50	15	Valve	100,000
15	Connection	10,000	15	Connection	3,000	15	Connection	1,000	15	Connection	50	15	Valve	100,000
15	Connection	10,000	15	Connection	3,000	15	Connection	1,000	15	Connection	50	15	Valve	100,000
15	Connection	10,000	15	Connection	3,000	15	Connection	1,000	15	Connection	50	15	Valve	100,000
15	Connection	10,000	15	Connection	3,000	15	Connection	800	15	Connection	30	15	Valve	100,000

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
15	Valve	100,000	15	Valve	10,000	15	Valve	2,000	15	OpenEnd	2,000			
15	Valve	100,000	15	Valve	10,000	15	Valve	2,000	15	OpenEnd	1,100			
15	Valve	100,000	15	Valve	10,000	15	Valve	2,000	15	Instrument	10,000			
15	Valve	100,000	15	Valve	10,000	15	Valve	1,500	15	PumpSeal	100,000			
15	Valve	100,000	15	Valve	10,000	15	Valve	1,500	15	PumpSeal	100,000			
15	Valve	100,000	15	Valve	10,000	15	Valve	1,000	15	PumpSeal	100,000			
15	Valve	80,000	15	Valve	10,000	15	Valve	1,000	15	PumpSeal	100,000			
15	Valve	40,000	15	Valve	10,000	15	Valve	1,000	15	PumpSeal	100,000			
15	Valve	40,000	15	Valve	10,000	15	Valve	1,000	15	PumpSeal	10,000			
15	Valve	35,000	15	Valve	10,000	15	Valve	750	15	PumpSeal	10,000			
15	Valve	30,000	15	Valve	10,000	15	Valve	500	15	PumpSeal	10,000			
15	Valve	30,000	15	Valve	10,000	15	Valve	500	15	PumpSeal	1,000			
15	Valve	30,000	15	Valve	10,000	15	Valve	500	15	PumpSeal	300			
15	Valve	30,000	15	Valve	10,000	15	Valve	500	15	PumpSeal	15			
15	Valve	30,000	15	Valve	10,000	15	Valve	500	15	Vent	200			
15	Valve	20,000	15	Valve	10,000	15	Valve	400						
15	Valve	20,000	15	Valve	10,000	15	Valve	300						
15	Valve	20,000	15	Valve	10,000	15	Valve	300						
15	Valve	20,000	15	Valve	10,000	15	Valve	250						
15	Valve	15,000	15	Valve	10,000	15	Valve	200						
15	Valve	15,000	15	Valve	10,000	15	Valve	200						
15	Valve	15,000	15	Valve	10,000	15	Valve	200						
15	Valve	10,000	15	Valve	10,000	15	Valve	200						
15	Valve	10,000	15	Valve	9,000	15	Valve	150						
15	Valve	10,000	15	Valve	7,000	15	Valve	100						
15	Valve	10,000	15	Valve	6,000	15	Valve	100						
15	Valve	10,000	15	Valve	5,000	15	Valve	100						
15	Valve	10,000	15	Valve	5,000	15	Valve	50						
15	Valve	10,000	15	Valve	5,000	15	Valve	50						
15	Valve	10,000	15	Valve	5,000	15	Valve	50						
15	Valve	10,000	15	Valve	4,500	15	Valve	50						
15	Valve	10,000	15	Valve	4,000	15	Valve	20						
15	Valve	10,000	15	Valve	4,000	15	OpenEnd	100,000						
15	Valve	10,000	15	Valve	4,000	15	OpenEnd	100,000						
15	Valve	10,000	15	Valve	3,000	15	OpenEnd	100,000						
15	Valve	10,000	15	Valve	2,000	15	OpenEnd	2,000						

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
16	Connection	100,000	16	Connection	10,000	16	Connection	500	16	Valve	100,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	300	16	Valve	100,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	300	16	Valve	100,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	300	16	Valve	100,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	200	16	Valve	100,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	200	16	Valve	100,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	200	16	Valve	40,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	200	16	Valve	15,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	150	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	100	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	100	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	100	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	100	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	100	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	90	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Connection	20	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	10,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	3,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	2,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	2,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	100,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	70,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	40,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	40,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	40,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	40,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	20,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	10,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	10,000	16	Connection	1,000	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	10,000	16	Connection	800	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	10,000	16	Connection	700	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	10,000	16	Connection	700	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000
16	Connection	10,000	16	Connection	500	16	Valve	100,000	16	Valve	10,000	16	Valve	10,000

SITE	TYPE	PPMV
16	Valve	10,000
16	Valve	10,000
16	Valve	9,000
16	Valve	8,000
16	Valve	8,000
16	Valve	7,000
16	Valve	6,000
16	Valve	6,000
16	Valve	5,000
16	Valve	5,000
16	Valve	5,000
16	Valve	4,000
16	Valve	4,000
16	Valve	3,000
16	Valve	3,000
16	Valve	3,000
16	Valve	2,000
16	Valve	2,000
16	Valve	2,000
16	Valve	2,000
16	Valve	2,000
16	Valve	2000
16	Valve	1500
16	Valve	1200
16	Valve	1200
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	1000

SITE	TYPE	PPMV
16	Valve	1000
16	Valve	1000
16	Valve	1000
16	Valve	800
16	Valve	700
16	Valve	500
16	Valve	500
16	Valve	500
16	Valve	500
16	Valve	400
16	Valve	400
16	Valve	400
16	Valve	400
16	Valve	300
16	Valve	300
16	Valve	250
16	Valve	250
16	Valve	200
16	Valve	200
16	Valve	150
16	Valve	150
16	Valve	125
16	Valve	100
16	Valve	100
16	Valve	100
16	Valve	100
16	Valve	100
16	Valve	90
16	Valve	80
16	Valve	60
16	Valve	50
16	Valve	50
16	Valve	30
16	OpenEnd	10,000
16	OpenEnd	10,000
16	OpenEnd	10,000

SITE	TYPE	PPMV
16	OpenEnd	10,000
16	OpenEnd	10,000
16	OpenEnd	10,000
16	OpenEnd	10,000
16	OpenEnd	9,000
16	OpenEnd	600
16	OpenEnd	200
16	OpenEnd	200
16	OpenEnd	100
16	Compressor	100,000
16	Compressor	3,000
16	Compressor	3,000
16	Compressor	2,000
16	Compressor	2,000
16	Compressor	2,000
16	Compressor	150
16	Drain	50
16	Instrument	10,000
16	Instrument	10,000
16	Instrument	2,000
16	PressureRelie	10,000
16	PressureRelie	100
16	PumpSeal	10,000
16	PumpSeal	10,000
16	PumpSeal	10,000
16	PumpSeal	10,000
16	PumpSeal	10,000
16	PumpSeal	1,000

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV	SITE	TYPE	PPMV
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Connection	30
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Connection	30
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Connection	30
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Connection	30
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Valve	10,000
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Valve	10,000
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Valve	10,000
17	Connection	10,000	17	Connection	10,000	17	Connection	1,000	17	Connection	175	17	Valve	10,000
17	Connection	10,000	17	Connection	10,000	17	Connection	800	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	10,000	17	Connection	700	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	10,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	8,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	7,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	5,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	5,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	5,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	5,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	5,000	17	Connection	500	17	Connection	100	17	Valve	10,000
17	Connection	10,000	17	Connection	4,000	17	Connection	500	17	Connection	75	17	Valve	10,000
17	Connection	10,000	17	Connection	3,000	17	Connection	500	17	Connection	75	17	Valve	10,000
17	Connection	10,000	17	Connection	3,000	17	Connection	500	17	Connection	75	17	Valve	9,000
17	Connection	10,000	17	Connection	3,000	17	Connection	500	17	Connection	75	17	Valve	5,000
17	Connection	10,000	17	Connection	3,000	17	Connection	400	17	Connection	70	17	Valve	5,000
17	Connection	10,000	17	Connection	2,500	17	Connection	300	17	Connection	60	17	Valve	5,000
17	Connection	10,000	17	Connection	2,000	17	Connection	300	17	Connection	60	17	Valve	5,000
17	Connection	10,000	17	Connection	2,000	17	Connection	300	17	Connection	60	17	Valve	3,000
17	Connection	10,000	17	Connection	2,000	17	Connection	300	17	Connection	50	17	Valve	2,000
17	Connection	10,000	17	Connection	2,000	17	Connection	300	17	Connection	50	17	Valve	2,000
17	Connection	10,000	17	Connection	1,500	17	Connection	300	17	Connection	50	17	Valve	2,000
17	Connection	10,000	17	Connection	1,500	17	Connection	300	17	Connection	45	17	Valve	1,000
17	Connection	10,000	17	Connection	1,500	17	Connection	300	17	Connection	40	17	Valve	1,000
17	Connection	10,000	17	Connection	1,500	17	Connection	250	17	Connection	40	17	Valve	1,000
17	Connection	10,000	17	Connection	1,300	17	Connection	250	17	Connection	40	17	Valve	1,000
17	Connection	10,000	17	Connection	1,000	17	Connection	250	17	Connection	40	17	Valve	500
17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Connection	35	17	Valve	200
17	Connection	10,000	17	Connection	1,000	17	Connection	200	17	Connection	30	17	Valve	150

SITE	TYPE	PPMV
17	Valve	150
17	Valve	100
17	Valve	100
17	Valve	100
17	Valve	100
17	Valve	100
17	Valve	100
17	Valve	100
17	Valve	80
17	Valve	60
17	Valve	50
17	Valve	50
17	Valve	45
17	Valve	45
17	Valve	40
17	Valve	40
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	10,000
17	OpenEnd	3,000
17	OpenEnd	400
17	OpenEnd	100
17	OpenEnd	70
17	OpenEnd	60
17	OpenEnd	50
17	OpenEnd	35
17	Instrument	10,000
17	Instrument	10,000

SITE	TYPE	PPMV
17	Instrument	10,000
17	PressureRelie	1,000

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV
18	Connection	100,000
18	Connection	100,000
18	Connection	100,000
18	Connection	100,000
18	Connection	100,000
18	Connection	100,000
18	Connection	10,000
18	Connection	10,000
18	Connection	10,000
18	Connection	10,000
18	Connection	10,000
18	Connection	10,000
18	Connection	5,000
18	Connection	5,000
18	Connection	4,000
18	Connection	4,000
18	Connection	2,500
18	Connection	2,000
18	Connection	1,000
18	Connection	700
18	Connection	500
18	Connection	500
18	Connection	300
18	Connection	200
18	Connection	100
18	Connection	75
18	Connection	50
18	Connection	50
18	Connection	30
18	Connection	30
18	Connection	20
18	Connection	20
18	Connection	20
18	Connection	15
18	Connection	10
18	Valve	100,000

SITE	TYPE	PPMV
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	100,000
18	Valve	50,000
18	Valve	40,000
18	Valve	10,000
18	Valve	10,000
18	Valve	10,000
18	Valve	10,000
18	Valve	10,000
18	Valve	10,000
18	Valve	10,000
18	Valve	8,000
18	Valve	6,000
18	Valve	5,000
18	Valve	2,000
18	Valve	2,000
18	Valve	2,000
18	Valve	1,000
18	Valve	900
18	Valve	500
18	Valve	400
18	Valve	300
18	Valve	250
18	Valve	250

SITE	TYPE	PPMV
18	Valve	200
18	Valve	200
18	Valve	200
18	Valve	200
18	Valve	200
18	Valve	200
18	Valve	125
18	Valve	100
18	Valve	100
18	Valve	75
18	Valve	75
18	Valve	50
18	Valve	50
18	Valve	30
18	Valve	30
18	Valve	25
18	Valve	25
18	Valve	20
18	Valve	20
18	Valve	20
18	Valve	15
18	Valve	12
18	Valve	10
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	100,000
18	OpenEnd	40,000
18	OpenEnd	10,000
18	OpenEnd	10,000

SITE	TYPE	PPMV
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	10,000
18	OpenEnd	1,500
18	OpenEnd	1,000
18	OpenEnd	1,000
18	OpenEnd	700
18	OpenEnd	700
18	OpenEnd	500
18	OpenEnd	300
18	OpenEnd	200
18	OpenEnd	200
18	OpenEnd	200
18	OpenEnd	100
18	OpenEnd	100
18	OpenEnd	50
18	OpenEnd	50
18	Compressor	100,000
18	Compressor	10,000
18	Drain	50
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000
18	Hatch	10,000

SITE	TYPE	PPMV
18	Vent	500

SITE	TYPE	PPMV
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	10,000
19	Connection	8,000
19	Connection	7,000
19	Connection	3,000
19	Connection	3,000
19	Connection	3,000
19	Connection	2,500
19	Connection	2,000
19	Connection	2,000
19	Connection	2,000
19	Connection	1,500
19	Connection	1,000
19	Connection	1,000
19	Connection	1,000
19	Connection	1,000
19	Connection	1,000
19	Connection	1,000
19	Connection	1,000
19	Connection	1,000
19	Connection	800
19	Connection	700
19	Connection	500
19	Connection	500
19	Connection	500

SITE	TYPE	PPMV
19	Connection	300
19	Connection	300
19	Connection	250
19	Connection	200
19	Connection	200
19	Connection	200
19	Connection	150
19	Connection	100
19	Connection	100
19	Connection	100
19	Connection	80
19	Connection	70
19	Connection	60
19	Connection	50
19	Connection	50
19	Connection	50
19	Connection	50
19	Connection	50
19	Connection	50
19	Connection	50
19	Connection	35
19	Connection	30
19	Connection	30
19	Connection	25
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	10,000
19	Valve	3,000
19	Valve	2,000

SITE	TYPE	PPMV
19	Valve	2,000
19	Valve	1,000
19	Valve	1,000
19	Valve	1,000
19	Valve	1,000
19	Valve	500
19	Valve	300
19	Valve	300
19	Valve	150
19	Valve	100
19	Valve	100
19	Valve	100
19	Valve	40
19	OpenEnd	10,000
19	OpenEnd	10,000
19	OpenEnd	4,000
19	OpenEnd	2,000
19	OpenEnd	300
19	OpenEnd	200
19	OpenEnd	150
19	OpenEnd	50

SITE	TYPE	PPMV

SITE	TYPE	PPMV

SITE	TYPE	PPMV
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
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20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000

SITE	TYPE	PPMV
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	10,000
20	Connection	9,000
20	Connection	9,000
20	Connection	9,000
20	Connection	5,000
20	Connection	5,000
20	Connection	4,000
20	Connection	3,000
20	Connection	3,000
20	Connection	2,500
20	Connection	2,500
20	Connection	2,000
20	Connection	2,000
20	Connection	1,500
20	Connection	1,500
20	Connection	1,000
20	Connection	1,000
20	Connection	1,000
20	Connection	1,000
20	Connection	1,000
20	Connection	1,000
20	Connection	1,000
20	Connection	1,000
20	Connection	500
20	Connection	500
20	Connection	500
20	Connection	500
20	Connection	500
20	Connection	500
20	Connection	300
20	Connection	300
20	Connection	300
20	Connection	300

SITE	TYPE	PPMV
20	Connection	250
20	Connection	200
20	Connection	200
20	Connection	200
20	Connection	200
20	Connection	200
20	Connection	200
20	Connection	150
20	Connection	100
20	Connection	100
20	Connection	100
20	Connection	100
20	Connection	90
20	Connection	70
20	Connection	60
20	Connection	50
20	Connection	50
20	Connection	45
20	Connection	40
20	Connection	35
20	Connection	30
20	Connection	25
20	Connection	25
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000

SITE	TYPE	PPMV
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	10,000
20	Valve	5,000
20	Valve	1,500
20	Valve	1,000
20	Valve	500
20	Valve	500
20	Valve	400
20	Valve	200
20	Valve	200
20	Valve	100
20	Valve	100
20	Valve	80
20	Valve	50
20	OpenEnd	10,000
20	OpenEnd	10,000
20	OpenEnd	10,000
20	OpenEnd	10,000
20	OpenEnd	10,000
20	OpenEnd	10,000
20	OpenEnd	10,000
20	OpenEnd	10,000
20	OpenEnd	8,000
20	OpenEnd	2,000
20	OpenEnd	1,000
20	OpenEnd	1,000
20	OpenEnd	500
20	OpenEnd	250
20	OpenEnd	200
20	OpenEnd	100
20	OpenEnd	100
20	OpenEnd	80

SITE	TYPE	PPMV
20	OpenEnd	60
20	OpenEnd	50
20	OpenEnd	50
20	OpenEnd	50
20	OpenEnd	50
20	OpenEnd	35
20	OpenEnd	20
20	Vent	10,000
20	Vent	10,000
20	Vent	10,000
20	Vent	10,000
20	Vent	1,000
20	Vent	800
20	Vent	500
20	Vent	200

APPENDIX D
NON-AROMATIC SPECIATION DATA

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
1	CN	100000	100000	0.062	0.004	0.003	0.002	0.000	0.003	0.074
1	CN	100000	100000	8.687	0.313	0.009	0.001	0.003	0.005	9.018
1	CN	100000	100000	82.695	1.967	0.047	0.004	0.002	0.003	84.717
1	CN	2500	100000	77.845	5.145	2.803	1.503	0.491	0.171	87.959
1	CN	10000	40000	1404.500	634.834	234.832	73.596	20.618	11.011	2379.392
1	CN	2000	4000	21.215	3.441	1.513	0.708	0.215	0.069	27.162
1	CN	100000	2500	6.733	0.331	0.052	0.009	0.004	0.046	7.174
1	CN	2000	2000	4.974	0.537	0.279	0.124	0.047	0.024	5.985
1	CN	1500	2000	33.363	0.852	0.116	0.026	0.007	0.014	34.378
1	CN	NA	100	0.525	0.038	0.016	0.006	0.003	0.004	0.591
1	CN	15000	90	0.049	0.002	0.001	0.001	0.001	0.003	0.056
1	CN	20	40	0.040	0.014	0.009	0.006	0.004	0.004	0.078
1	OEL	100000	100000	598.980	15.422	0.287	0.004	0.001	0.002	614.695
1	OEL	100000	70000	44.435	1.477	0.041	0.003	0.003	0.005	45.963
1	OEL	7000	6000	6.348	2.041	1.413	0.829	0.357	0.225	11.214
1	OEL	80000	1500	0.732	0.051	0.029	0.009	0.005	0.011	0.837
1	VL	100000	100000	73.168	2.235	0.065	0.002	0.003	0.005	75.479
1	VL	100000	90000	73.168	6.916	2.118	1.253	0.408	0.175	84.037
1	VL	60000	60000	22.687	0.531	0.036	0.008	0.004	0.009	23.275
1	VL	100000	20000	10.190	1.176	0.688	0.332	0.119	0.069	12.575
1	VL	NA	9000	0.585	0.022	0.001	0.000	0.001	0.001	0.610
1	VL	45000	9000	4.367	0.101	0.003	0.000	0.001	0.094	4.567
1	VL	1250	7000	5.112	1.026	1.580	1.193	0.501	0.221	9.632
1	VL	100000	4000	3.579	0.079	0.003	0.001	0.001	0.002	3.664
1	VL	100000	3500	0.017	0.000	0.001	0.000	0.000	0.001	0.019
1	VL	750	3500	54.291	0.528	0.241	0.116	0.093	0.045	55.314
1	VL	3000	2500	1.902	0.092	0.031	0.012	0.006	0.005	2.048
1	VL	125	2000	1.086	0.610	0.346	0.149	0.044	0.022	2.257
1	VL	50	2000	2.881	0.391	0.139	0.049	0.016	0.009	3.486
1	VL	35000	1500	0.743	0.021	0.002	0.001	0.000	0.003	0.771
1	VL	250	1500	0.306	0.030	0.029	0.034	0.025	0.026	0.450
1	VL	50	1500	0.113	0.031	0.037	0.061	0.078	0.093	0.413
1	VL	20	1500	0.431	0.065	0.206	0.431	0.254	0.163	1.550
1	VL	1000	900	0.213	0.066	0.086	0.090	0.058	0.075	0.589
1	VL	500	900	24.901	0.184	0.102	0.055	0.025	0.019	25.286
1	VL	60	900	29.996	0.731	0.039	0.007	0.004	0.005	30.781
1	VL	100000	600	0.007	0.000	0.000	0.000	0.001	0.000	0.008
1	VL	75	450	0.670	0.073	0.044	0.019	0.005	0.001	0.812

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
1	VL	250	250	1.395	0.254	0.272	0.295	0.180	0.104	2.500
1	VL	750	200	0.182	0.076	0.115	0.099	0.048	0.054	0.574
1	VL	1250	150	0.849	0.030	0.022	0.044	0.078	0.116	1.140
1	VL	NA	90	0.039	0.003	0.010	0.018	0.011	0.001	0.083

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
2	BACK	NA	1	0.147	0.003	0.001	0.000	0.000	0.000	0.151
2	CN	NA	100000	138.334	2.220	0.104	0.006	0.000	0.000	140.664
2	CN	5000	5000	11.177	0.186	0.000	0.002	0.004	0.010	11.379
2	CN	NA	200	1.232	0.021	0.005	0.000	0.000	0.000	1.258
2	CN	NA	150	0.189	0.051	0.003	0.001	0.001	0.000	0.245
2	CN	40	40	0.004	0.000	0.000	0.000	0.000	0.165	0.168
2	CN	NA	1	0.008	0.000	0.000	0.000	0.000	0.000	0.008
2	INST	NA	30000	6.435	0.068	0.006	0.000	0.000	0.000	6.509
2	OEL	100000	100000	3473.920	27.640	0.551	0.021	0.001	0.008	3502.140
2	OEL	10000	100000	10.694	0.110	0.006	0.000	0.000	0.000	10.811
2	OEL	2000	12000	6.464	0.160	0.008	0.000	0.000	0.005	6.637
2	OEL	300	7000	0.965	0.984	1.381	1.381	0.798	0.824	6.332
2	OEL	6000	6000	24.091	0.344	0.037	0.018	0.009	0.004	24.502
2	OEL	1200	1200	0.011	0.001	0.005	0.005	0.008	0.018	0.047
2	OEL	1000	500	0.062	0.003	0.004	0.001	0.000	0.000	0.070
2	OEL	10000	150	0.125	0.010	0.009	0.004	0.000	0.000	0.148
2	OEL	70	70	0.074	0.000	0.000	0.000	0.000	0.000	0.075
2	PRV	1000	1000	0.609	0.013	0.004	0.000	0.001	0.001	0.629
2	VENT	200	2000	1.197	0.009	0.001	0.000	0.000	0.002	1.210
2	VENT	100	100	0.220	0.000	0.000	0.000	0.000	0.000	0.221
2	VL	100000	100000	1342.875	28.970	1.261	0.156	0.040	0.012	1373.314
2	VL	100000	60000	1035.096	7.222	0.170	0.001	0.011	0.020	1042.520
2	VL	20000	50000	370.048	2.627	0.159	0.035	0.001	0.000	372.870
2	VL	50	50000	25.110	0.148	0.032	0.015	0.002	0.007	25.314
2	VL	90000	15000	21.504	0.172	0.013	0.018	0.009	0.007	21.723
2	VL	NA	10000	38.802	0.230	0.010	0.001	0.001	0.001	39.045
2	VL	2500	9000	95.958	0.643	0.017	0.002	0.001	0.000	96.621
2	VL	3000	3500	7.573	0.056	0.015	0.004	0.000	0.000	7.648
2	VL	1500	3000	1.679	0.030	0.007	0.002	0.000	0.000	1.719
2	VL	40000	2000	0.013	0.000	0.000	0.000	0.000	0.000	0.014
2	VL	10000	800	0.187	0.001	0.004	0.001	0.000	0.001	0.194
2	VL	700	700	0.138	0.002	0.002	0.000	0.000	0.000	0.143
2	VL	2000	400	7.499	0.053	0.005	0.001	0.001	0.000	7.559
2	VL	NA	300	0.059	0.010	0.016	0.004	0.001	0.001	0.091
2	VL	100000	300	0.200	0.002	0.005	0.001	0.000	0.000	0.208
2	VL	NA	50	0.136	0.011	0.008	0.002	0.001	0.000	0.159

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
3	BOX	NA	10000	0.822	0.186	0.468	0.564	0.409	0.366	2.814
3	BOX	NA	10000	3.250	0.590	1.975	2.740	2.705	3.390	14.650
3	BOX	NA	8000	0.943	0.400	1.177	1.487	1.368	1.584	6.959
3	BOX	NA	5000	9.100	1.770	5.300	5.850	4.005	3.780	29.805
3	BOX	NA	4000	2.830	0.965	3.420	5.200	5.550	6.550	24.515
3	BOX	NA	3000	4.185	1.750	4.930	6.950	8.300	10.550	36.665
3	BOX	NA	1000	0.187	0.084	0.364	0.613	0.641	0.805	2.693
3	BOX	NA	1000	6.031	2.224	10.397	19.758	20.202	18.093	76.705
3	BOX	NA	1000	0.525	0.255	1.165	1.670	1.615	1.965	7.195
3	BOX	NA	1000	0.299	0.025	0.101	0.284	0.435	0.720	1.863
3	BOX	NA	1000	1.010	0.425	1.480	2.010	1.810	2.200	8.935
3	BOX	NA	1000	0.760	0.323	1.160	1.590	1.480	1.800	7.113
3	BOX	NA	300	0.172	0.023	0.091	0.179	0.182	0.255	0.902
3	BOX	NA	300	0.204	0.141	0.600	0.855	0.780	0.950	3.530
3	BOX	NA	75	0.173	0.079	0.429	0.564	0.711	1.014	2.971
3	CN	NA	100000	305.631	29.556	37.259	24.302	12.732	10.616	420.096
3	CN	NA	100000	1585.947	192.687	316.124	199.589	80.929	37.885	2413.159
3	CN	NA	10	0.094	0.010	0.032	0.012	0.013	0.025	0.187
3	INST	NA	100000	66.308	5.657	1.185	0.003	0.008	0.023	73.184
3	OEL	NA	20000	0.967	0.180	0.153	0.123	0.052	0.045	1.520
3	OEL	NA	2000	1.283	0.079	0.133	0.097	0.041	0.028	1.660
3	OEL	NA	1500	1.578	0.208	0.409	0.352	0.177	0.060	2.784
3	OEL	NA	150	0.767	0.086	0.137	0.076	0.020	0.000	1.086
3	OEL	NA	2.5	0.090	0.012	0.006	0.003	0.007	0.026	0.144
3	VL	NA	100000	780.499	86.710	145.184	106.331	39.359	14.882	1172.964
3	VL	NA	100000	250.869	26.427	44.965	30.056	12.665	6.843	371.824
3	VL	NA	100000	4251.709	387.847	732.488	419.042	65.306	11.900	5868.290
3	VL	NA	100000	67.609	5.984	7.506	3.698	1.131	0.507	86.433
3	VL	NA	100000	71.120	6.044	8.738	4.854	1.964	0.961	93.679
3	VL	NA	100000	6.842	0.805	1.141	0.621	0.208	0.089	9.706
3	VL	NA	70000	14.222	1.302	0.326	0.008	0.007	0.011	15.878
3	VL	NA	40000	40.525	3.711	1.049	0.006	0.036	0.272	45.599
3	VL	NA	30000	15.883	1.445	0.605	0.210	0.101	0.084	18.329
3	VL	NA	30000	7.209	0.761	1.125	0.713	0.236	0.096	10.140
3	VL	NA	20000	9.786	0.802	0.271	0.003	0.015	0.026	10.903
3	VL	NA	10000	2.960	0.364	0.157	0.000	0.008	0.026	3.516
3	VL	NA	4000	7.739	0.799	0.219	0.023	0.012	0.012	8.804
3	VL	NA	3000	2.386	0.178	0.262	0.184	0.079	0.031	3.120

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
3	VL	NA	3000	1.423	0.124	0.247	0.157	0.042	0.035	2.029
3	VL	NA	2500	2.066	0.217	0.330	0.175	0.034	0.025	2.847
3	VL	NA	2000	5.920	0.520	0.187	0.001	0.002	0.000	6.630
3	VL	NA	2000	12.061	1.017	1.962	1.565	0.316	0.213	17.135
3	VL	NA	2000	0.010	0.027	0.045	0.034	0.023	0.030	0.169
3	VL	NA	2000	0.008	0.358	0.126	0.015	0.034	0.003	0.544
3	VL	NA	1500	0.776	0.095	0.178	0.108	0.038	0.035	1.231
3	VL	NA	1500	0.488	0.042	0.067	0.045	0.025	0.033	0.701
3	VL	NA	800	2.725	0.283	0.434	0.222	0.042	0.023	3.729
3	VL	NA	800	0.039	0.028	1.274	0.010	0.010	0.024	1.385
3	VL	NA	500	1.141	0.094	0.024	0.002	0.013	0.036	1.310
3	VL	NA	300	0.856	0.088	0.115	0.061	0.022	0.028	1.170
3	VL	NA	200	0.355	0.030	0.013	0.005	0.007	0.000	0.411
3	VL	NA	200	0.374	0.031	0.009	0.002	0.001	0.012	0.429
3	VL	NA	200	6.519	0.558	0.153	0.039	0.026	0.031	7.325
3	VL	NA	40	0.132	0.019	0.037	0.028	0.014	0.022	0.251
3	VL	NA	10	0.202	0.000	0.001	0.000	0.004	0.024	0.231
3	VL	NA	2.5	0.374	0.074	0.062	0.068	0.030	0.028	0.636
3	VL	NA	2.5	0.009	0.002	0.003	0.003	0.007	0.047	0.070
3	VL	NA	2	0.132	0.006	0.003	0.001	0.002	0.000	0.145

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
4	BACK	NA	4.5	0.034	0.001	0.000	0.000	0.001	0.000	0.036
4	CN	NA	3000	2.153	0.139	0.050	0.026	0.009	0.005	2.381
4	CN	NA	1000	0.400	0.027	0.010	0.004	0.002	0.003	0.446
4	CN	NA	400	0.295	0.018	0.007	0.001	0.000	0.001	0.323
4	CN	NA	125	0.105	0.006	0.003	0.000	0.000	0.001	0.115
4	CN	NA	70	0.068	0.004	0.002	0.000	0.001	0.000	0.075
4	CN	NA	40	0.074	0.005	0.002	0.000	0.000	0.001	0.082
4	CN	NA	12	0.005	0.000	0.000	0.000	0.000	0.002	0.007
4	OEL	NA	100000	13.982	0.637	0.255	0.141	0.054	0.032	15.101
4	OEL	NA	80000	122.682	4.078	1.302	0.649	0.275	0.166	129.153
4	OEL	NA	50000	74.340	2.643	0.843	0.418	0.147	0.072	78.463
4	OEL	NA	40000	22.599	1.008	0.449	0.294	0.147	0.096	24.593
4	OEL	NA	20000	41.291	1.818	0.812	0.528	0.265	0.190	44.905
4	OEL	NA	5000	2.084	0.104	0.040	0.013	0.006	0.005	2.252
4	OEL	NA	2000	5.964	0.219	0.071	0.034	0.017	0.018	6.323
4	OEL	NA	1200	4.150	0.187	0.063	0.032	0.012	0.007	4.450
4	OEL	NA	750	0.053	0.003	0.002	0.001	0.000	0.000	0.059
4	OEL	NA	100	0.021	0.000	0.000	0.000	0.003	0.000	0.024
4	OEL	NA	12	0.006	0.000	0.001	0.001	0.001	0.003	0.013
4	VL	NA	100000	0.095	0.008	0.008	0.008	0.001	0.000	0.120
4	VL	NA	100000	5148.576	307.555	114.526	62.700	24.808	14.392	5672.558
4	VL	NA	10000	7.650	0.295	0.129	0.078	0.025	0.006	8.183
4	VL	NA	10000	38.062	1.916	0.719	0.367	0.177	0.113	41.355
4	VL	NA	10000	23.220	1.049	0.440	0.272	0.112	0.066	25.159
4	VL	NA	1000	0.399	0.021	0.009	0.005	0.002	0.000	0.435
4	VL	NA	900	2.458	0.144	0.050	0.017	0.017	0.012	2.698
4	VL	NA	400	1.702	0.147	0.062	0.008	0.023	0.016	1.957
4	VL	NA	12	0.003	0.000	0.000	0.000	0.000	0.001	0.005
4	VL	NA	4.5	0.005	0.000	0.000	0.000	0.000	0.000	0.006

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
5	BOX	NA	50	0.020	0.010	0.002	0.002	0.002	0.002	0.038
5	BOX	45	45	0.020	0.010	0.002	0.002	0.002	0.002	0.038
5	OEL	NA	10000	0.301	0.137	0.068	0.014	0.014	0.014	0.548
5	OEL	500	2000	22.975	0.447	0.109	0.073	0.053	0.154	23.810
5	OEL	75	180	0.049	0.018	0.009	0.002	0.002	0.002	0.081
5	OEL	200	100	0.034	0.020	0.010	0.002	0.002	0.002	0.071
5	OEL	30	100	0.057	0.019	0.010	0.002	0.002	0.002	0.092
5	OEL	20	45	0.041	0.015	0.007	0.001	0.001	0.001	0.068
6	BOX	1500	1000	29.945	0.053	0.015	0.015	0.007	0.001	30.036
6	BOX	100	800	18.033	1.155	0.191	0.024	0.012	0.002	19.416
6	BOX	70	200	0.867	0.020	0.010	0.002	0.002	0.002	0.904
6	CN	50	400	0.113	0.020	0.010	0.002	0.002	0.002	0.150
6	CN	50	30	0.222	0.020	0.010	0.002	0.002	0.002	0.259
6	OEL	10000	10000	60.556	0.164	0.137	0.068	0.014	0.014	60.953
6	OEL	2500	1200	10.545	0.032	0.015	0.007	0.001	0.001	10.603
6	OEL	300	30	0.037	0.017	0.008	0.002	0.002	0.002	0.068
6	VL	50	150	0.152	0.020	0.010	0.002	0.002	0.002	0.188
7	BOX	70	70	0.030	0.020	0.010	0.002	0.002	0.002	0.067
7	BOX	40	40	0.034	0.021	0.011	0.002	0.002	0.002	0.072
7	BOX	25	25	0.020	0.010	0.002	0.002	0.002	0.002	0.038
7	OEL	1000	50	1.247	0.019	0.010	0.002	0.002	0.002	1.282
7	OEL	500	40	1.454	0.019	0.010	0.002	0.002	0.002	1.488
8	BOX	50	300	1.555	0.020	0.010	0.002	0.002	0.002	1.591
8	BOX	NA	150	0.239	0.021	0.011	0.002	0.002	0.002	0.277
8	BOX	50	150	0.146	0.020	0.010	0.002	0.002	0.002	0.182
8	OEL	NA	2000	1.791	0.020	0.010	0.002	0.002	0.002	1.828
8	OEL	100	300	1.371	0.021	0.011	0.002	0.002	0.002	1.409
8	OEL	NA	150	1.185	0.021	0.011	0.002	0.002	0.002	1.224
8	OEL	30	100	0.596	0.020	0.010	0.002	0.002	0.002	0.633
8	OEL	NA	60	0.196	0.020	0.010	0.002	0.002	0.002	0.233

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min) C1	C2	C3	C4	C5	C6+	TOTAL
9	CN	NA	100000	8.761	0.892	0.034	0.000	0.018	0.013	9.718
9	CN	NA	10000	0.047	0.000	0.002	0.001	0.009	0.005	0.064
9	CN	3500	3000	2.224	0.120	0.006	0.001	0.000	0.001	2.353
9	CN	1000	3000	1.305	0.076	0.007	0.001	0.001	0.000	1.389
9	CN	200	600	0.006	0.061	0.114	0.054	0.017	0.008	0.259
9	CN	1000	400	0.099	0.014	0.011	0.009	0.008	0.008	0.148
9	CN	100	200	0.195	0.011	0.005	0.001	0.000	0.001	0.214
9	INST	2000	3000	0.052	0.002	0.002	0.000	0.000	0.001	0.057
9	INST	10000	2000	1.173	0.111	0.062	0.026	0.008	0.004	1.383
9	OEL	NA	10000	0.579	0.035	0.007	0.000	0.006	0.004	0.631
9	OEL	5000	9000	3.123	0.166	0.009	0.001	0.000	0.000	3.299
9	OEL	400	700	0.009	0.000	0.000	0.000	0.000	0.000	0.009
9	PRV	200	700	3.020	0.185	0.011	0.005	0.000	0.000	3.220
9	VL	80000	100000	67.648	5.149	0.314	0.070	0.003	0.000	73.184
9	VL	NA	70000	0.013	1.753	3.358	1.473	0.448	0.209	7.254
9	VL	1000	8000	0.399	3.049	0.666	0.055	0.000	0.000	4.170
9	VL	NA	500	0.361	0.020	0.003	0.001	0.000	0.000	0.384
9	VL	150	200	0.024	0.002	0.001	0.001	0.000	0.000	0.028
9	VL	100000	100	0.011	0.001	0.002	0.000	0.000	0.000	0.013

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
10	BACK	NA	1.5	0.008	0.000	0.000	0.000	0.000	0.000	0.008
10	BACK	NA	1	0.007	0.001	0.000	0.000	0.000	0.000	0.008
10	CN	NA	100000	314.541	19.258	6.018	2.471	1.112	0.621	344.021
10	CN	NA	10000	66.042	0.645	0.060	0.035	0.030	0.057	66.869
10	CN	NA	2000	1.531	0.230	0.142	0.096	0.054	0.027	2.080
10	CN	NA	500	0.130	0.011	0.004	0.001	0.000	0.000	0.146
10	CN	NA	10	0.005	0.000	0.000	0.000	0.000	0.000	0.005
10	DLA	NA	100000	7542.560	527.979	130.952	52.637	24.553	12.389	8291.071
10	OEL	NA	1000	0.298	0.077	0.130	0.225	0.351	0.531	1.612
10	OEL	NA	300	0.279	0.024	0.008	0.003	0.002	0.000	0.316
10	OEL	NA	50	0.039	0.002	0.003	0.002	0.002	0.000	0.048
10	OEL	NA	10	0.008	0.000	0.000	0.000	0.001	0.000	0.010
10	PRV	NA	100000	8302.008	89.874	3.411	0.269	0.046	0.019	8395.628
10	PRV	NA	200	0.684	0.103	0.039	0.036	0.036	0.083	0.980
10	PRV	NA	15	0.076	0.002	0.002	0.000	0.000	0.001	0.081
10	VL	NA	100000	124.230	1.108	0.054	0.008	0.004	0.001	125.405
10	VL	NA	100000	746.090	37.227	10.638	4.517	2.103	1.346	801.921
10	VL	NA	100000	1128.316	10.655	0.492	0.033	0.000	0.000	1139.497
10	VL	NA	60000	39.223	2.336	0.765	0.337	0.160	0.076	42.897
10	VL	NA	10000	4.642	0.392	0.133	0.059	0.032	0.028	5.286
10	VL	NA	10000	5472.368	337.008	89.066	35.948	17.653	8.891	5960.933
10	VL	NA	10000	2022.048	21.504	1.517	0.660	0.568	0.597	2046.894
10	VL	NA	10000	262.668	2.544	0.117	0.001	0.000	0.020	265.350
10	VL	NA	10000	1609.200	0.705	0.230	0.042	0.004	0.000	1610.181
10	VL	NA	3000	29.849	1.200	0.353	0.138	0.045	0.016	31.602
10	VL	NA	750	1.877	0.293	0.097	0.038	0.011	0.009	2.325
10	VL	NA	200	1.949	0.019	0.008	0.000	0.000	0.000	1.976
10	VL	NA	100	0.021	0.014	0.026	0.035	0.044	0.047	0.187
10	VL	NA	50	0.006	0.000	0.000	0.000	0.000	0.000	0.007
10	VL	NA	1.5	0.004	0.001	0.000	0.000	0.000	0.000	0.005
10	VL	NA	1.5	0.004	0.000	0.000	0.000	0.000	0.000	0.005

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
11	AMB	NA	1000	2.802	0.156	0.065	0.026	0.010	0.010	3.069
11	AMB	NA	200	13.264	1.901	1.099	0.555	0.220	0.144	17.183
11	CN	NA	60	0.008	0.000	0.002	0.001	0.004	0.074	0.087
11	OEL	40	1200	0.081	0.149	0.249	0.214	0.101	0.099	0.894
11	OEL	20	300	0.009	0.000	0.000	0.000	0.001	0.001	0.012
11	PRV	NA	100000	221.088	35.207	34.468	15.363	5.170	3.176	314.471
11	PRV	NA	175	0.582	0.087	0.036	0.068	0.102	0.161	1.037
11	Vent	NA	100000	162.039	16.438	3.909	1.754	0.655	0.388	185.182
11	Vent	175	300	5.823	0.651	0.188	0.053	0.017	0.012	6.744
11	VL	NA	100000	4.962	0.253	0.114	0.055	0.022	0.019	5.425
11	VL	300	9000	2.547	0.169	0.054	0.023	0.003	0.003	2.800
11	VL	NA	7500	19.618	2.769	0.699	0.293	0.091	0.054	23.524
11	VL	1200	3000	19.792	1.216	0.383	0.151	0.032	0.014	21.587
11	VL	NA	2000	0.537	0.040	0.018	0.009	0.004	0.002	0.610
11	VL	100000	2000	0.830	0.050	0.023	0.012	0.005	0.002	0.922
11	VL	150	1500	0.345	0.117	0.117	0.110	0.095	0.164	0.949
11	VL	NA	1000	0.940	0.156	0.099	0.034	0.008	0.001	1.237
11	VL	NA	500	0.825	0.083	0.022	0.012	0.006	0.004	0.951
11	VL	NA	200	0.007	0.001	0.001	0.001	0.000	0.930	0.941
11	VL	100	100	0.158	0.036	0.028	0.029	0.011	0.009	0.272

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
12	BACK	NA	7	0.100	0.000	0.000	0.000	0.002	0.002	0.104
12	CN	100	100000	1747.008	2.930	0.094	0.012	0.006	0.003	1750.053
12	CN	5000	10000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	COMP	100000	100000	809.811	1.780	0.061	0.018	0.014	0.007	811.691
12	COMP	1000	100000	23.445	0.039	0.002	0.002	0.004	0.003	23.495
12	OEL	100000	100000	187.641	0.284	0.006	0.003	0.006	0.003	187.943
12	OEL	100000	100000	1610.523	2.648	0.066	0.011	0.005	0.004	1613.257
12	OEL	10000	100000	81.284	0.151	0.004	0.002	0.002	0.002	81.444
12	OEL	10000	35000	13.345	0.028	0.002	0.002	0.002	0.002	13.379
12	OEL	200	20000	0.992	0.009	0.002	0.002	0.016	0.008	1.027
12	OEL	500	8000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	10000	6000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	2000	3500	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	900	3000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	3000	1000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	2000	800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	NA	500	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	500	40	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	OEL	200	25	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	PRV	700	6000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	PRV	3500	4000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	PRV	2000	1500	6.733	0.016	0.002	0.002	0.002	0.002	6.755
12	PRV	2000	500	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	PRV	150	150	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	VENT	100000	100000	683.910	1.252	0.026	0.002	0.010	0.002	685.202
12	VENT	100000	100000	2.978	0.006	0.000	0.000	0.004	0.003	2.991
12	VENT	100000	100000	6.400	0.011	0.000	0.000	0.004	0.003	6.418
12	VL	100000	100000	101.606	0.020	0.000	0.000	0.002	0.003	101.631
12	VL	100000	100000	4574.250	8.265	0.209	0.036	0.041	0.019	4582.821
12	VL	10000	100000	1229.250	2.190	0.046	0.006	0.008	0.002	1231.502
12	VL	10000	100000	2073.042	3.747	0.077	0.019	0.020	0.003	2076.907
12	VL	10000	100000	2003.254	4.378	0.115	0.015	0.006	0.004	2007.772
12	VL	1200	10000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	VL	4000	400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	VL	300	60	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
13	BACK	2	2	0.003	0.002	0.004	0.023	0.003	0.019	0.055
13	CN	100000	100000	0.375	4.738	37.861	134.994	72.414	19.355	269.737
13	CN	100000	100000	30.856	3.217	2.754	1.748	0.754	0.397	39.726
13	CN	1000	100000	0.104	5.054	149.685	2.724	0.012	0.014	157.593
13	CN	1500	2000	0.029	0.002	0.211	5.031	0.007	0.014	5.294
13	CN	NA	800	7.167	0.018	0.046	0.075	0.031	0.016	7.352
13	COMP	100000	100000	247.874	31.057	58.958	16.068	6.768	2.458	363.184
13	INST	500	100000	361.005	17.258	6.164	2.278	0.473	0.122	387.299
13	OEL	100000	100000	0.040	0.003	0.029	42.376	0.653	0.010	43.110
13	OEL	100000	100000	1.371	0.416	0.720	5.400	92.567	4.126	104.599
13	OEL	2000	10000	0.022	0.030	0.665	0.040	0.001	0.008	0.767
13	OEL	600	100	0.011	0.051	1.277	0.056	0.003	0.011	1.409
13	OEL	100	100	0.032	0.004	0.007	0.586	0.016	0.015	0.660
13	OEL	500	20	0.015	0.000	0.008	0.052	0.008	0.016	0.100
13	PUMP	5000	5000	0.628	0.073	0.044	462.556	2.002	0.052	465.356
13	VL	NA	100000	0.095	0.467	2.937	6.914	3.131	1.000	14.544
13	VL	100000	100000	0.027	0.011	0.096	1.667	7.058	1.813	10.672
13	VL	100000	100000	0.047	0.026	0.557	23.272	0.381	0.035	24.319
13	VL	100000	100000	0.200	0.049	0.241	61.891	1.640	0.033	64.053
13	VL	100000	100000	0.031	0.003	0.014	0.194	18.820	5.281	24.343
13	VL	100000	100000	0.044	0.007	0.117	8.089	0.051	0.019	8.326
13	VL	100000	100000	0.014	0.002	0.341	31.180	1.584	0.012	33.133
13	VL	100000	100000	0.017	1.360	171.991	1.966	0.068	0.021	175.423
13	VL	100000	100000	0.054	8.800	363.982	2.686	0.216	0.045	375.782
13	VL	100000	100000	2.894	19.870	271.450	0.722	0.018	0.010	294.964
13	VL	100000	100000	465.808	53.530	5.174	0.249	0.039	0.017	524.817
13	VL	100000	100000	83.882	33.978	102.995	61.584	28.403	12.635	323.477
13	VL	100000	100000	125.292	16.936	21.342	7.380	1.736	0.400	173.086
13	VL	100000	100000	4326.835	317.478	83.351	21.077	6.265	1.455	4756.461
13	VL	100000	100000	160.675	21.517	28.371	10.506	3.489	0.949	225.507
13	VL	100000	100000	0.048	0.697	5.223	0.115	0.010	0.011	6.104
13	VL	100000	100000	0.011	0.033	0.657	0.013	0.004	0.017	0.735
13	VL	80000	100000	0.042	0.007	0.674	17.865	0.019	0.019	18.627
13	VL	20000	100000	0.013	0.128	21.976	2.475	0.021	0.044	24.657
13	VL	100000	80000	0.024	0.012	0.422	8.314	0.034	0.015	8.821
13	VL	80000	80000	0.054	1.958	43.448	15.109	3.813	0.541	64.923
13	VL	80000	80000	89.509	10.062	12.902	3.537	0.679	0.075	116.763
13	VL	40000	40000	35.248	1.586	0.533	0.014	0.015	0.015	37.411

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
13	VL	50000	30000	0.086	0.007	2.530	104.486	0.124	0.025	107.258
13	VL	100000	25000	0.022	0.002	0.661	14.445	0.005	0.015	15.150
13	VL	15000	20000	40.066	0.057	0.078	0.057	0.009	0.014	40.281
13	VL	15000	15000	0.018	0.002	0.594	0.082	0.006	0.103	0.805
13	VL	500	15000	0.061	0.099	1.023	0.611	0.253	0.075	2.122
13	VL	10000	12000	0.016	0.003	0.003	10.044	0.024	0.010	10.099
13	VL	15000	5000	183.709	76.405	137.641	52.865	11.742	2.112	464.474
13	VL	2000	5000	0.038	0.637	9.025	0.197	0.018	0.014	9.929
13	VL	5000	4000	0.007	0.095	3.500	0.034	0.011	0.014	3.662
13	VL	5000	3000	0.015	0.004	0.005	0.067	3.811	1.726	5.629
13	VL	NA	2500	0.820	2.202	5.388	4.242	0.792	0.121	13.565
13	VL	NA	2500	0.362	1.207	4.716	8.579	2.399	0.406	17.668
13	VL	3000	2000	0.391	16.426	82.131	17.410	0.069	0.013	116.439
13	VL	NA	1500	2.427	0.004	0.022	0.133	0.938	0.053	3.577
13	VL	NA	1500	2.461	0.003	0.010	0.107	0.944	0.059	3.583
13	VL	NA	1000	0.022	0.004	0.003	0.405	1.030	0.473	1.935
13	VL	1000	1000	0.280	0.057	0.082	1.221	0.033	0.021	1.694
13	VL	1000	1000	1.454	0.213	0.265	0.100	0.064	0.070	2.165
13	VL	3000	900	0.370	0.119	0.186	0.073	0.037	0.022	0.807
13	VL	300	500	0.036	0.554	5.375	0.014	0.019	0.033	6.031
13	VL	10000	300	0.030	0.012	0.038	0.050	0.015	0.029	0.173
13	VL	1200	300	3.714	0.013	0.021	0.071	0.013	0.017	3.850
13	VL	NA	250	0.022	0.062	0.421	1.051	0.532	0.062	2.149

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
14	BACK	NA	1.75	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	BACK	NA	1.5	0.020	0.010	0.002	0.002	0.002	0.002	0.038
14	BACK	NA	1	0.020	0.010	0.002	0.002	0.002	0.002	0.038
14	BACK	NA	1	0.020	0.010	0.002	0.002	0.002	0.002	0.038
14	CN	NA	2000	0.018	0.009	0.002	0.025	0.559	0.117	0.730
14	CN	NA	600	0.586	0.024	0.012	0.002	0.002	0.002	0.628
14	CN	NA	125	0.015	0.015	0.015	0.077	0.062	0.015	0.197
14	CN	NA	100	0.087	0.029	0.015	0.003	0.003	0.003	0.139
14	CN	NA	2.5	0.013	0.006	0.001	0.001	0.001	0.001	0.024
14	OEL	NA	70	0.016	0.008	0.002	0.002	0.002	0.002	0.030
14	OEL	NA	60	0.064	0.011	0.006	0.001	0.001	0.001	0.085
14	OEL	NA	30	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	OEL	NA	28	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	OEL	NA	18	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	OEL	NA	4.5	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	VL	NA	3500	0.030	0.036	1.015	0.081	0.030	0.015	1.208
14	VL	NA	1500	0.031	0.016	0.003	0.003	0.003	0.003	0.059
14	VL	NA	1200	0.294	0.032	0.016	0.003	0.003	0.003	0.352
14	VL	NA	1200	0.017	0.042	0.984	0.056	0.017	0.008	1.124
14	VL	NA	900	0.006	0.134	0.059	0.003	0.002	0.001	0.206
14	VL	NA	900	0.028	0.028	0.307	3.738	0.193	0.028	4.322
14	VL	NA	500	0.024	0.073	0.842	0.024	0.012	0.002	0.976
14	VL	NA	300	0.017	0.008	0.002	0.002	0.002	0.002	0.032
14	VL	NA	250	0.502	0.015	0.006	0.001	0.001	0.001	0.528
14	VL	NA	40	0.021	0.011	0.002	0.002	0.002	0.002	0.041
14	VL	NA	35	0.014	0.011	0.006	0.001	0.001	0.001	0.034
14	VL	NA	18	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	VL	NA	15	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	VL	NA	1.5	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	VL	NA	1	0.011	0.006	0.001	0.001	0.001	0.001	0.022
14	VL	NA	1	0.011	0.006	0.001	0.001	0.001	0.001	0.022

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
15	CN	NA	100000	190.668	19.444	6.192	0.859	0.087	0.033	217.284
15	CN	NA	100000	193.687	5.165	0.167	0.027	0.020	0.043	199.109
15	CN	NA	100000	2277.618	65.100	1.449	0.026	0.014	0.013	2344.221
15	CN	NA	100000	462.511	11.251	0.481	0.081	0.032	0.016	474.372
15	CN	NA	100000	301.291	8.321	0.187	0.003	0.011	0.012	309.824
15	CN	NA	100000	6.531	0.410	0.041	0.004	0.001	0.000	6.988
15	CN	NA	100000	771.072	163.853	112.950	33.132	7.952	1.340	1090.299
15	CN	NA	9000	7.037	1.671	1.982	1.253	0.651	0.283	12.877
15	CN	NA	2000	77.654	2.457	0.103	0.003	0.009	0.015	80.241
15	CN	NA	250	7.479	0.948	0.689	0.259	0.079	0.028	9.482
15	OEL	NA	100000	0.983	6.300	1656.486	0.306	0.033	0.036	1664.144
15	OEL	NA	2000	5.811	0.642	0.603	0.210	0.077	0.046	7.389
15	OEL	NA	1500	0.036	3.360	0.461	0.164	0.027	0.011	4.059
15	OEL	NA	100	0.110	0.105	0.078	0.023	0.005	0.002	0.321
15	VL	NA	100000	224.175	6.887	0.615	0.116	0.027	0.013	231.832
15	VL	NA	100000	96.306	11.908	7.676	2.313	0.477	0.074	118.754
15	VL	NA	100000	2.618	48.422	17.719	2.600	0.260	0.208	71.827
15	VL	NA	100000	1298.422	242.109	159.254	49.498	8.303	1.438	1759.024
15	VL	NA	100000	0.588	40.686	38.766	11.927	2.724	0.482	95.173
15	VL	NA	100000	3479.196	103.300	1.451	0.064	0.001	0.001	3584.014
15	VL	NA	100000	4525.932	933.267	611.166	198.216	41.295	6.789	6316.665
15	VL	NA	100000	0.091	0.074	0.111	0.028	0.022	0.012	0.338
15	VL	NA	100000	220.588	45.552	30.667	7.694	1.736	0.285	306.523
15	VL	NA	100000	627.690	42.504	3.569	0.221	0.009	0.013	674.005
15	VL	NA	100000	0.520	0.504	41.680	0.007	0.001	0.001	42.713
15	VL	NA	100000	46.286	1.110	0.056	0.007	0.002	0.003	47.464
15	VL	NA	100000	9684.360	295.911	5.524	0.360	0.502	0.079	9986.736
15	VL	NA	45000	5.913	121.199	60.713	8.722	1.722	0.468	198.736
15	VL	NA	20000	9.862	5.240	6.433	2.386	0.548	0.156	24.625
15	VL	NA	10000	0.321	10.972	12.601	4.198	0.949	0.155	29.196
15	VL	NA	10000	3.938	174.579	198.791	67.793	12.870	2.829	460.800
15	VL	NA	10000	30.582	3.436	1.331	0.302	0.066	0.030	35.747
15	VL	NA	10000	1.713	0.069	0.033	0.215	13.451	33.357	48.837
15	VL	NA	10000	11.363	1.027	0.718	0.236	0.052	0.011	13.408
15	VL	NA	9000	0.123	0.080	0.300	0.380	0.647	0.180	1.710
15	VL	NA	7000	47.241	7.004	4.642	1.883	1.004	0.757	62.531
15	VL	NA	4000	0.165	0.753	3.898	4.810	2.682	1.205	13.514
15	VL	NA	125	0.241	0.070	0.060	0.016	0.005	0.002	0.395
15	VL	NA	1	0.036	0.096	0.114	0.022	0.012	0.017	0.298

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
16	BACK	NA	10000	23.000	0.962	0.362	0.152	0.066	0.025	24.568
16	BACK	NA	1200	0.360	0.032	0.032	0.019	0.013	0.010	0.466
16	BACK	NA	500	0.664	0.011	0.010	0.002	0.003	0.003	0.693
16	BACK	NA	400	0.226	0.005	0.001	0.003	0.004	0.002	0.242
16	BACK	NA	250	0.082	0.004	0.012	0.002	0.001	0.000	0.101
16	BACK	NA	2	0.230	0.019	0.003	0.001	0.000	0.000	0.253
16	CN	NA	100000	326.435	94.523	54.884	24.214	6.583	1.847	508.486
16	CN	NA	100000	353.528	30.066	1.396	0.099	0.031	0.065	385.185
16	CN	NA	100000	688.884	166.852	100.772	47.247	17.676	6.245	1027.676
16	CN	NA	10000	75.827	10.275	6.079	2.841	1.166	0.565	96.754
16	CN	NA	10000	681.568	52.373	2.027	0.116	0.028	0.004	736.115
16	CN	NA	4000	8.068	1.230	0.089	0.005	0.002	0.001	9.394
16	CN	NA	4000	8.954	0.786	0.051	0.012	0.013	0.009	9.825
16	CN	NA	2000	0.154	0.111	0.158	0.127	0.062	0.022	0.634
16	CN	NA	1000	0.365	12.744	13.630	6.392	2.753	1.165	37.050
16	CN	NA	20	0.805	0.107	0.070	0.047	0.004	0.000	1.033
16	CN	NA	20	2.063	0.166	0.029	0.011	0.001	0.000	2.270
16	OEL	NA	100000	2.849	0.378	7.187	0.004	0.001	0.000	10.419
16	OEL	NA	100000	63.437	11.706	6.684	2.719	0.868	0.225	85.638
16	OEL	NA	100000	174.451	17.134	0.810	0.046	0.018	0.061	192.520
16	OEL	NA	100000	14108.080	1394.288	63.437	4.328	1.029	0.392	15571.554
16	OEL	NA	100000	239.776	101.386	92.890	66.080	31.718	9.780	541.629
16	OEL	NA	10000	9.883	48.786	8.286	1.273	0.156	0.013	68.398
16	OEL	NA	10000	12.914	50.221	10.224	1.471	0.179	0.149	75.157
16	OEL	NA	700	0.102	0.020	0.011	0.006	0.003	0.001	0.144
16	VL	NA	100000	3.354	1.754	169.675	0.280	0.057	0.033	175.152
16	VL	NA	100000	15514.640	1829.472	48.248	0.694	0.019	0.013	17393.086
16	VL	NA	100000	261.866	44.302	15.748	8.161	3.175	1.209	334.460
16	VL	NA	100000	8465.792	5075.888	1485.101	721.027	272.627	102.953	16123.388
16	VL	NA	100000	3105.760	901.992	459.256	135.794	30.397	4.526	4637.726
16	VL	NA	100000	753.312	197.296	112.997	44.840	11.658	4.125	1124.228
16	VL	NA	100000	689.120	168.032	74.198	16.803	3.266	0.559	951.979
16	VL	NA	100000	685.580	62.446	6.063	0.515	0.052	0.016	754.672
16	VL	NA	100000	743.400	62.776	7.104	1.652	0.826	0.413	816.171
16	VL	NA	100000	277.536	17.105	0.697	0.040	0.001	0.015	295.394
16	VL	NA	100000	443.680	117.622	65.514	30.019	12.385	4.607	673.827
16	VL	NA	10000	740.474	192.104	97.798	34.928	6.881	1.376	1073.561
16	VL	NA	10000	8.704	1.463	49.088	0.018	0.010	0.055	59.338

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
16	VL	NA	10000	0.249	6.918	6.894	3.471	1.197	0.460	19.189
16	VL	NA	10000	172.374	50.787	25.488	6.155	0.736	0.175	255.716
16	VL	NA	10000	220.613	21.882	0.748	0.037	0.007	0.008	243.294
16	VL	NA	4000	0.179	0.780	0.222	0.038	0.008	0.004	1.231
16	VL	NA	1000	0.311	0.140	2.016	0.028	0.006	0.004	2.505
16	VL	NA	700	14.821	1.191	0.058	0.004	0.001	0.001	16.076

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min) C1	C2	C3	C4	C5	C6+	TOTAL
17	CAL	NA	10000	17.188	0.020	0.010	0.002	0.002	0.002	17.224
17	CAL	NA	38	0.072	0.020	0.010	0.002	0.002	0.002	0.108
17	CN	NA	100000	2.896	0.160	0.080	0.016	0.016	0.016	3.184
17	CN	10000	100000	178.848	36.368	12.416	3.312	0.864	0.160	231.968
17	CN	10000	10000	186.864	62.992	22.752	5.568	1.248	0.464	279.888
17	CN	10000	10000	0.123	0.062	0.012	0.012	0.012	0.012	0.234
17	CN	5000	10000	39.757	0.904	0.315	0.137	0.069	0.014	41.196
17	CN	1000	10000	83.1324	1.6692	0.4524	0.1872	0.156	0.078	85.675
17	CN	500	7000	0.470151	0.01583	0.007915	0.001583	0.001583	0.001583	0.499
17	CN	NA	5000	4.742	0.085	0.029	0.018	0.009	0.002	4.884
17	CN	1000	5000	0.763524	0.014859	0.01143	0.005715	0.001143	0.001143	0.798
17	CN	1000	5000	0.032	0.018	0.009	0.002	0.002	0.002	0.065
17	CN	500	5000	86.110	1.690	0.589	0.153	0.109	0.055	88.704
17	CN	3000	4000	0.085	0.017	0.008	0.002	0.002	0.002	0.115
17	CN	1000	3000	3.568	0.16	0.08	0.016	0.016	0.016	3.856
17	CN	NA	2000	1.075055	0.022009	0.01693	0.008465	0.001693	0.001693	1.126
17	CN	NA	2000	0.111786	0.01803	0.009015	0.001803	0.001803	0.001803	0.144
17	CN	NA	2000	2.560	0.160	0.080	0.448	0.160	0.080	3.488
17	CN	300	1250	0.368	0.018	0.009	0.002	0.002	0.002	0.400
17	CN	NA	1000	2.204286	0.066027	0.035553	0.01693	0.008465	0.001693	2.333
17	CN	3000	1000	2.667	0.047	0.018	0.009	0.002	0.002	2.744
17	CN	1500	1000	0.02022	0.01011	0.002022	0.002022	0.002022	0.002022	0.038
17	CN	10000	700	0.445	0.018	0.009	0.002	0.002	0.002	0.478
17	CN	2000	700	0.694	0.019	0.010	0.002	0.002	0.002	0.729
17	CN	500	300	0.851579	0.01693	0.008465	0.001693	0.001693	0.001693	0.882
17	CN	500	300	0.511	0.019	0.010	0.002	0.002	0.002	0.545
17	CN	300	200	0.807	0.015	0.007	0.001	0.001	0.001	0.834
17	CN	45	200	0.596	0.017	0.008	0.002	0.002	0.002	0.626
17	CN	40	200	0.047	0.017	0.008	0.002	0.002	0.002	0.078
17	CN	40	100	0.256	0.018	0.009	0.002	0.002	0.002	0.288
17	CN	70	50	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
17	OEL	NA	10000	1.040	0.022	0.018	0.009	0.002	0.002	1.093
17	OEL	NA	10000	172.920	12.375	4.554	1.188	0.347	0.165	191.549
17	OEL	10000	10000	25.056	0.48	0.16	0.16	0.08	0.016	25.952
17	OEL	10000	10000	0.118	0.059	0.0118	0.0118	0.0118	0.0118	0.224
17	OEL	10000	10000	4.048	0.160	0.080	0.016	0.016	0.016	4.336
17	OEL	10000	10000	185.163	26.499	9.125	2.426	0.776	0.429	224.417
17	OEL	NA	4000	2.921	0.056	0.020	0.018	0.009	0.002	3.025

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
17	OEL	NA	4000	4.224	0.132	0.066	0.013	0.013	0.013	4.462
17	OEL	NA	3500	0.357	0.017	0.008	0.002	0.002	0.002	0.388
17	OEL	NA	3000	2.816	0.018	0.009	0.002	0.002	0.002	2.849
17	OEL	NA	3000	0.754	0.015	0.007	0.001	0.001	0.001	0.781
17	OEL	NA	3000	0.240	0.017	0.008	0.002	0.002	0.002	0.271
17	OEL	NA	3000	1.265	0.091	0.068	0.030	0.017	0.008	1.480
17	OEL	NA	2000	0.571551	0.01803	0.009015	0.001803	0.001803	0.001803	0.604
17	OEL	NA	1000	0.157	0.018	0.009	0.002	0.002	0.002	0.189
17	OEL	60	600	0.142	0.018	0.009	0.002	0.002	0.002	0.175
17	OEL	NA	350	0.146	0.017	0.008	0.002	0.002	0.002	0.176
17	OEL	NA	300	0.442	0.018	0.009	0.002	0.002	0.002	0.474
17	OEL	NA	300	0.186	0.018	0.009	0.002	0.002	0.002	0.218
17	OEL	NA	200	0.093397	0.01583	0.007915	0.001583	0.001583	0.001583	0.122
17	OEL	NA	100	0.113589	0.01803	0.009015	0.001803	0.001803	0.001803	0.146
17	OEL	NA	100	0.411	0.018	0.009	0.002	0.002	0.002	0.444
17	OEL	NA	35	0.207	0.017	0.008	0.002	0.002	0.002	0.237
17	PRV	NA	500	0.018	0.009	0.002	0.050	0.018	0.009	0.106
17	VENT	NA	10000	25.862526	0.445212	0.150192	0.037548	0.02682	0.01341	26.536
17	VENT	NA	10000	43.470	0.770	0.263	0.175	0.088	0.018	44.783
17	VL	NA	100000	0.224	0.160	0.080	0.016	0.016	0.016	0.512
17	VL	NA	10000	507.552	12.121	4.165	1.105	0.493	0.17	525.606
17	VL	NA	10000	0.396	0.165	0.083	0.017	0.017	0.017	0.693
17	VL	10000	10000	870.48598	11.54244	3.72008	1.0192	0.77714	0.59878	888.144
17	VL	10000	10000	1726.5204	77.55	27.2184	7.26	3.7224	1.0164	1843.288
17	VL	10000	10000	99.924	1.716	0.5775	0.165	0.0825	0.0165	102.482
17	VL	10000	10000	649.74	15.623	5.406	1.445	0.697	0.17	673.081
17	VL	10000	10000	127.6	3.168	1.104	0.304	0.16	0.08	132.416
17	VL	10000	10000	1915.219	3.096	1.247	0.329	0.151	0.137	1920.178
17	VL	10000	10000	0.160	0.080	0.016	0.016	0.016	0.016	0.304
17	VL	100	10000	0.17	0.085	0.017	0.017	0.017	0.017	0.323
17	VL	2000	2000	3.425776	0.062776	0.02242	0.038114	0.02242	0.01121	3.583
17	VL	1000	2000	0.651	0.020	0.010	0.002	0.002	0.002	0.687
17	VL	150	150	0.165208	0.01544	0.00772	0.001544	0.001544	0.001544	0.193
17	VL	100	45	0.02202	0.01101	0.002202	0.002202	0.002202	0.002202	0.042
17	VL	NA	15	0.066	0.033	0.007	0.007	0.007	0.007	0.125
17	VL	NA	15	0.066	0.033	0.007	0.007	0.007	0.007	0.125

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
18	CN	100000	100000	42.221	0.915	0.395	0.179	0.090	0.018	43.818
18	CN	100000	100000	1234.967	32.570	16.224	8.505	3.091	1.153	1296.510
18	CN	10000	100000	1290.757	398.413	12.952	4.593	2.131	0.562	1709.407
18	CN	10000	100000	2246.885	61.007	18.041	8.747	5.311	1.944	2341.935
18	CN	5000	100000	217.718	2.787	1.971	1.257	2.447	0.357	226.537
18	CN	10000	10000	5.302	0.425	0.170	0.085	0.017	0.017	6.015
18	CN	100000	1500	1.718	0.165	0.083	0.165	0.529	0.165	2.825
18	OEL	100000	100000	698.608	112.289	98.262	2.332	0.859	0.356	912.705
18	OEL	100000	100000	73.384	11.439	15.106	10.705	3.440	1.240	115.315
18	OEL	100000	100000	268.083	0.170	0.085	0.170	1.325	0.170	270.003
18	OEL	100000	100000	1568.095	34.246	12.241	6.195	3.436	0.628	1624.841
18	OEL	100000	100000	172.174	3.823	1.392	0.661	0.248	0.118	178.416
18	OEL	10000	100000	464.195	10.936	4.014	1.784	0.578	0.314	481.822
18	OEL	10000	100000	103.200	3.007	1.090	0.430	0.132	0.165	108.024
18	OEL	10000	100000	1209.766	37.335	11.987	4.256	1.824	0.793	1265.961
18	OEL	10000	50000	155.312	0.118	0.118	0.118	0.330	0.059	156.055
18	OEL	10000	40000	75.475	3.354	1.686	0.969	0.395	0.215	82.093
18	OEL	10000	30000	2.280	0.165	0.083	0.017	0.017	0.017	2.577
18	OEL	10000	15000	48.786	1.381	0.359	0.179	0.090	0.018	50.813
18	OEL	100000	10000	26.304	2.039	0.974	0.170	0.113	0.113	29.713
18	OEL	10000	10000	8.258	0.493	0.170	0.085	0.017	0.017	9.040
18	OEL	10000	10000	1.020	0.191	0.127	0.064	0.013	0.013	1.427
18	OEL	NA	2000	0.142	0.071	0.014	0.014	0.014	0.014	0.269
18	OEL	1000	2000	259.271	86.010	97.816	67.690	26.144	1.030	537.961
18	OEL	10000	1000	1.150	0.132	0.066	0.013	0.013	0.013	1.388
18	OEL	1500	1000	2.664	0.770	0.818	0.514	0.177	0.160	5.103
18	OEL	1000	1000	2.957	0.170	0.085	0.017	0.017	0.017	3.262
18	OEL	100000	600	175.150	0.094	0.047	0.009	0.009	0.009	175.320
18	OEL	NA	500	1.237	0.179	0.090	0.018	0.018	0.018	1.560
18	VL	100000	100000	353.895	45.109	25.900	16.860	2.475	1.004	445.243
18	VL	100000	100000	180.095	3.390	1.435	0.807	0.395	0.341	186.463
18	VL	100000	100000	1.351	0.344	0.433	0.421	0.319	0.229	3.097
18	VL	100000	100000	651.884	20.913	12.232	7.049	2.995	2.924	697.997
18	VL	100000	100000	1021.043	150.896	143.614	89.339	32.410	11.712	1449.014
18	VL	100000	100000	450.696	13.831	4.520	1.631	0.765	0.204	471.647
18	VL	100000	100000	3731.240	192.720	56.633	26.704	9.452	5.103	4021.853
18	VL	50000	100000	122.929	3.126	1.572	0.838	0.297	0.175	128.937
18	VL	40000	100000	4133.219	242.357	72.811	34.358	12.081	4.571	4499.397

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
18	VL	10000	100000	722.552	13.943	5.931	3.221	1.338	0.743	747.728
18	VL	10000	100000	464.979	14.561	4.862	1.723	0.732	0.165	487.021
18	VL	2000	100000	1852.668	53.773	25.243	20.006	13.761	7.401	1972.851
18	VL	900	100000	0.175	0.087	0.017	0.017	0.017	0.017	0.332
18	VL	200	100000	3249.977	384.189	59.490	28.325	8.586	3.948	3734.514
18	VL	100000	60000	0.170	0.085	0.017	0.017	0.017	0.017	0.323
18	VL	10000	50000	57.741	1.075	0.465	0.241	0.080	0.080	59.683
18	VL	2000	15000	1.652	0.165	0.083	0.017	0.017	0.017	1.949
18	VL	100000	10000	4.592	0.179	0.179	0.233	1.094	0.090	6.367
18	VL	100000	10000	8.333	1.178	0.700	0.430	0.123	0.061	10.824
18	VL	10000	10000	114.418	2.478	1.256	0.710	0.297	0.165	119.324
18	VL	8000	8000	7.228	2.170	2.009	1.363	1.417	0.179	14.367
18	VL	2000	5000	30.937	0.952	0.544	0.283	0.091	0.113	32.919
18	VL	1000	4000	10.807	0.323	0.170	0.085	0.017	0.017	11.419
18	VL	10000	2000	2.583	0.179	0.090	0.018	0.018	0.018	2.906

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
19	CN	NA	100000	476.137	21.186	7.524	2.521	1.254	0.488	509.111
19	CN	NA	100000	106.921	9.323	2.735	1.537	0.226	0.113	120.854
19	CN	NA	10000	12.905	0.461	0.190	0.064	0.031	0.028	13.678
19	CN	NA	10000	181.245	11.597	6.463	2.537	1.616	0.664	204.122
19	CN	NA	10000	13.114	1.695	0.988	0.354	0.166	0.104	16.422
19	CN	NA	10000	66.7042	12.700886	5.835771	1.982503	1.034423	0.306433	88.564
19	CN	10000	10000	5.600	0.160	0.080	0.016	0.016	0.016	5.888
19	CN	10000	10000	54.176	1.568	0.560	0.176	0.160	0.080	56.720
19	CN	10000	10000	1.288896	0.044688	0.02352	0.01176	0.002352	0.002352	1.374
19	CN	10000	10000	58.4	2.096	0.864	0.288	0.16	0.08	61.888
19	CN	7000	10000	2.784	0.16	0.08	0.016	0.016	0.016	3.072
19	CN	NA	9000	1.888952	0.066092	0.027716	0.02132	0.01066	0.002132	2.017
19	CN	NA	8000	1.022	0.034	0.018	0.009	0.002	0.002	1.087
19	CN	10000	5000	2.384	0.160	0.080	0.016	0.016	0.016	2.672
19	CN	2500	5000	0.460496	0.01693	0.008465	0.001693	0.001693	0.001693	0.491
19	CN	2000	5000	0.303047	0.01693	0.008465	0.001693	0.001693	0.001693	0.334
19	CN	NA	3000	0.01583	0.007915	0.001583	0.001583	0.001583	0.001583	0.030
19	CN	NA	1500	0.076185	0.01693	0.008465	0.001693	0.001693	0.001693	0.107
19	CN	NA	1000	0.019	0.010	0.002	0.002	0.002	0.002	0.036
19	CN	1000	1000	0.177	0.018	0.009	0.002	0.002	0.002	0.209
19	CN	50	1000	0.533688	0.019833	0.01803	0.009015	0.001803	0.001803	0.584
19	CN	30	600	0.867	0.025	0.018	0.009	0.002	0.002	0.923
19	CN	500	500	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
19	CN	NA	400	0.184	0.018	0.009	0.002	0.002	0.002	0.216
19	CN	NA	300	0.055869	0.01693	0.008465	0.001693	0.001693	0.001693	0.086
19	CN	800	300	0.073	0.017	0.008	0.002	0.002	0.002	0.103
19	CN	NA	200	0.01803	0.009015	0.001803	0.001803	0.001803	0.001803	0.034
19	CN	NA	150	0.034	0.017	0.008	0.002	0.002	0.002	0.064
19	CN	NA	150	0.519751	0.01693	0.008465	0.001693	0.001693	0.001693	0.550
19	CN	NA	100	0.018623	0.01693	0.008465	0.001693	0.001693	0.001693	0.049
19	CN	50	50	0.025242	0.01803	0.009015	0.001803	0.001803	0.001803	0.058
19	CN	60	40	0.017	0.008	0.002	0.002	0.002	0.002	0.032
19	CN	NA	30	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
19	OEL	NA	100000	286.954	8.648	2.897	0.824	0.256	0.142	299.719
19	OEL	NA	20000	0.682	0.024	0.017	0.008	0.002	0.002	0.735
19	OEL	10000	10000	29.152	1.008	0.416	0.160	0.080	0.016	30.832
19	OEL	NA	3500	0.356	0.132	0.066	0.013	0.013	0.013	0.594
19	OEL	NA	2000	0.024	0.017	0.008	0.002	0.002	0.002	0.054

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
19	OEL	NA	2000	0.094	0.019	0.010	0.002	0.002	0.002	0.128
19	OEL	10000	2000	0.216	0.127	0.064	0.013	0.013	0.013	0.445
19	OEL	NA	1100	0.528	0.020	0.017	0.008	0.002	0.002	0.577
19	OEL	NA	1000	1.562	0.165	0.127	0.064	0.013	0.013	1.943
19	OEL	2000	600	0.125	0.017	0.008	0.002	0.002	0.002	0.156
19	OEL	200	400	0.019149	0.01473	0.007365	0.001473	0.001473	0.001473	0.046
19	OEL	NA	250	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
19	OEL	NA	150	0.017	0.008	0.002	0.002	0.002	0.002	0.032
19	OEL	300	150	0.017	0.008	0.002	0.002	0.002	0.002	0.032
19	VL	10000	100000	27.072	0.960	0.400	0.160	0.080	0.016	28.688
19	VL	10000	100000	637.280	49.434	21.500	7.244	3.482	1.172	720.110
19	VL	10000	100000	539.904	28.352	12.576	4.304	2.128	0.688	587.952
19	VL	10000	100000	336.320	13.152	5.408	1.792	0.848	0.288	357.808
19	VL	10000	50000	51.948	1.388	0.468	0.156	0.156	0.078	54.194
19	VL	10000	10000	49.385	0.924	0.231	0.165	0.083	0.017	50.804
19	VL	10000	10000	262.864	8.208	2.928	0.944	0.432	0.160	275.536
19	VL	10000	10000	712.256	224.480	92.736	38.320	15.728	5.440	1088.960
19	VL	500	10000	19.519	0.702	0.288	0.095	0.044	0.026	20.674
19	VL	1000	4000	0.462	0.027	0.029	0.018	0.009	0.002	0.546
19	VL	50	2000	0.049	0.015	0.007	0.001	0.001	0.001	0.075
19	VL	300	1500	0.097	0.015	0.007	0.001	0.001	0.001	0.124
19	VL	300	1000	0.341986	0.01693	0.008465	0.001693	0.001693	0.001693	0.372
19	VL	NA	350	37.623	1.488	0.573	0.201	0.097	0.027	40.009

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
20	CAL	NA	469	0.064	0.020	0.010	0.002	0.002	0.002	0.100
20	CN	NA	100000	7.7055	0.165	0.165	0.0825	0.0165	0.0165	8.151
20	CN	NA	100000	105.2	2.4	0.848	0.24	0.16	0.08	108.928
20	CN	NA	100000	19.12	0.352	0.16	0.08	0.016	0.016	19.744
20	CN	10000	100000	2.358729	0.049738	0.01913	0.009565	0.001913	0.001913	2.441
20	CN	10000	100000	64.6464	1.326	0.4524	0.156	0.078	0.0156	66.674
20	CN	10000	100000	151.0151	7.4141	2.5972	0.7097	0.3624	0.151	162.250
20	CN	10000	100000	17.472	0.336	0.16	0.08	0.016	0.016	18.080
20	CN	10000	100000	144.352	3.536	1.264	0.336	0.16	0.16	149.808
20	CN	10000	70000	1.419	0.165	0.0825	0.0165	0.0165	0.0165	1.716
20	CN	NA	10000	0.502821	0.01693	0.008465	0.001693	0.001693	0.001693	0.533
20	CN	10000	10000	63.712	1.184	0.4	0.16	0.08	0.016	65.552
20	CN	9000	6500	0.235327	0.01693	0.008465	0.001693	0.001693	0.001693	0.266
20	CN	NA	5000	0.213318	0.01693	0.008465	0.001693	0.001693	0.001693	0.244
20	CN	300	300	8.415	0.198	0.165	0.0825	0.0165	0.0165	8.894
20	CN	250	300	0.277662	0.01803	0.009015	0.001803	0.001803	0.001803	0.310
20	CN	200	250	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
20	CN	200	200	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
20	CN	1000	150	0.040632	0.01693	0.008465	0.001693	0.001693	0.001693	0.071
20	CN	200	150	0.22009	0.01693	0.008465	0.001693	0.001693	0.001693	0.251
20	CN	25	100	0.382236	0.01803	0.009015	0.001803	0.001803	0.001803	0.415
20	CN	25	50	0.452553	0.01803	0.009015	0.001803	0.001803	0.001803	0.485
20	OEL	NA	100000	0.01803	0.009015	0.001803	0.001803	0.001803	0.001803	0.034
20	OEL	NA	100000	15.877467	1.733721	0.612768	0.169395	0.08838	0.048609	18.530
20	OEL	10000	100000	141.776	4.032	1.456	0.4	0.208	0.16	148.032
20	OEL	10000	100000	162.736	5.68	1.936	0.512	0.256	0.16	171.280
20	OEL	10000	100000	95.8095	1.812	0.6191	0.1661	0.0755	0.151	98.633
20	OEL	10000	50000	0.38808	0.0132	0.0066	0.00132	0.00132	0.00132	0.412
20	OEL	NA	10000	12.448	0.24	0.16	0.08	0.016	0.016	12.960
20	OEL	NA	2000	0.171285	0.01803	0.009015	0.001803	0.001803	0.001803	0.204
20	OEL	2000	2000	8.8	0.176	0.16	0.08	0.016	0.016	9.248
20	OEL	1000	1500	0.523137	0.01693	0.008465	0.001693	0.001693	0.001693	0.554
20	OEL	80	1500	0.048681	0.01803	0.009015	0.001803	0.001803	0.001803	0.081
20	OEL	50	1500	0.054176	0.01693	0.008465	0.001693	0.001693	0.001693	0.085
20	OEL	10000	1000	0.23702	0.01693	0.008465	0.001693	0.001693	0.001693	0.267
20	OEL	100	1000	0.624717	0.01693	0.008465	0.001693	0.001693	0.001693	0.655
20	OEL	500	800	0.026911	0.01583	0.007915	0.001583	0.001583	0.001583	0.055
20	OEL	NA	400	0.029	0.017	0.008	0.002	0.002	0.002	0.059

SITE	TYPE	ORIG. ISV	PRE-BAG ISV	HYDROCARBON EMISSIONS (cc/min)						
				C1	C2	C3	C4	C5	C6+	TOTAL
20	OEL	NA	250	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
20	OEL	200	200	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
20	OEL	50	200	0.275859	0.019833	0.01803	0.009015	0.001803	0.001803	0.326
20	OEL	100	110	0.01693	0.008465	0.001693	0.001693	0.001693	0.001693	0.032
20	OEL	NA	70	0.106061	0.01583	0.007915	0.001583	0.001583	0.001583	0.135
20	OEL	60	55	0.036347	0.01913	0.009565	0.001913	0.001913	0.001913	0.071
20	VENT	10000	100000	0.528	0.16	0.08	0.016	0.016	0.016	0.816
20	VENT	10000	100000	158.496	11.31	3.9936	1.092	0.5616	0.2184	175.672
20	VENT	10000	2000	20.144	0.352	0.16	0.08	0.016	0.016	20.768
20	VENT	800	1500	1.7892	0.142	0.071	0.0142	0.0142	0.0142	2.045
20	VENT	500	500	2.706	0.165	0.0825	0.0165	0.0165	0.0165	3.003
20	VL	NA	100000	0.544	0.16	0.08	0.016	0.016	0.016	0.832
20	VL	10000	100000	14.671	0.238	0.17	0.085	0.017	0.017	15.198
20	VL	400	100000	22.672	0.432	0.16	0.08	0.016	0.016	23.376
20	VL	NA	10000	0.475992	0.01803	0.009015	0.001803	0.001803	0.001803	0.508
20	VL	5000	10000	1.054063	0.021043	0.01913	0.009565	0.001913	0.001913	1.108
20	VL	500	180	0.025242	0.01803	0.009015	0.001803	0.001803	0.001803	0.058

APPENDIX E
AROMATIC SPECIATION DATA

SITE	TYPE	ORIG. ISV	PRE-BAG	HYDROCARBON EMISSIONS (cc/min) Benzene	Toluene	E-Benzene	Xylenes
1	VL	75	450	0.000098	0.000046	0.000046	0.000376
1	CN	10000	40000	0.233147	0.729778	0.160675	0.333709
1	CN	20	40	0.000449	0.003397	0.001887	0.026402
1	VL	750	200	0.004944	0.015559	0.009584	0.012375
1	VL	500	900	0.001134	0.004004	0.002730	0.003191
1	CN	100000	2500	0.029208	0.001677	0.000728	0.001374
1	VL	125	2000	0.001140	0.001647	0.000510	0.000702
1	VL	750	3500	0.003063	0.006248	0.002172	0.002493
1	VL	20	1500	0.050954	0.004550	0.000734	0.001043
1	VL	50	2000	0.000443	0.000886	0.000610	0.000735
1	CN	1500	2000	0.001462	0.003215	0.000576	0.001240
1	CN	15000	90	0.000176	0.001253	0.000649	0.001265
1	- CN	NA	100	0.000291	0.001565	0.000831	0.001089
2	CN	40	40	0.000178	0.000581	0.000038	0.000207
2	OEL	300	7000	0.026668	0.076936	0.004885	0.032072
2	VENT	200	2000	0.000710	0.000067	0.000067	0.000133
2	VL	100000	60000	0.008354	0.000467	0.000467	0.000935
2	VL	90000	15000	0.002857	0.000530	0.000530	0.001059
2	OEL	6000	6000	0.000343	0.000343	0.000343	0.000685
2	VL	3000	3500	0.000078	0.000078	0.000078	0.000155
2	OEL	70	70	0.000045	0.000045	0.000045	0.000090
2	VL	100000	300	0.000045	0.000045	0.000045	0.000090
2	CN	5000	5000	0.001261	0.004652	0.001571	0.000997
2	VL	50	50000	0.000545	0.001155	0.000545	0.001090
2	VENT	100	100	0.000081	0.000081	0.000081	0.000162
2	VL	10000	800	0.000245	0.001508	0.000404	0.011258
2	OEL	100000	100000	0.000498	0.000498	0.000498	0.000997
2	BACK	NA	1	0.000081	0.000081	0.000081	0.000163
2	CN	NA	1	0.000081	0.000081	0.000081	0.000308
2	VL	NA	300	0.000063	0.000168	0.000063	0.000126
2	VL	NA	10000	0.000070	0.000190	0.000070	0.000141
3	BOX	NA	300	0.006944	0.031000	0.003348	0.005410
3	BOX	NA	75	0.022950	0.069300	0.006870	0.014760
3	BOX	NA	1000	0.019075	0.050400	0.003990	0.012355
3	BOX	NA	10000	0.012090	0.024118	0.002117	0.004607
3	BOX	NA	8000	0.034812	0.087840	0.006480	0.016560
4	OEL	NA	12	0.000469	0.000342	0.000031	0.000062
4	VL	NA	100000	0.000425	0.000425	0.000425	0.000850
4	VL	NA	1000	0.000067	0.000067	0.000067	0.000133
4	VL	NA	12	0.000108	0.000189	0.000031	0.000062
4	VL	NA	400	0.000859	0.000413	0.000413	0.000826

SITE	TYPE	ORIG. ISV	PRE-BAG	HYDROCARBON EMISSIONS (cc/min)			
				Benzene	Toluene	E-Benzene	Xylenes
4	VL	NA	10000	0.007397	0.003183	0.000084	0.000346
4	OEL	NA	100000	0.004089	0.001754	0.000084	0.000281
5	OEL	NA	10000	0.190263	0.055436	0.013551	0.044349
6	OEL	10000	10000	0.168362	0.052425	0.006844	0.050235
6	BOX	1500	1000	0.018854	0.005170	0.000471	0.004905
6	BOX	100	800	0.024461	0.009855	0.000400	0.007197
8	BOX	50	300	0.008088	0.001213	0.001011	0.002022
9	CN	3500	3000	0.000074	0.000074	0.000074	0.000148
9	CN	100	200	0.000049	0.000049	0.000049	0.000097
9	INST	2000	3000	0.000052	0.000116	0.000052	0.000104
9	CN	1000	400	0.000358	0.001058	0.000035	0.000201
9	VL	1000	8000	0.000018	0.000040	0.000018	0.000036
9	VL	150	200	0.000034	0.000114	0.000018	0.000054
9	INST	10000	2000	0.000097	0.000113	0.000016	0.000032
9	CN	200	600	0.000424	0.000626	0.000333	0.001536
9	VL	NA	70000	0.007674	0.008499	0.000178	0.000308
10	BACK	NA	1.5	0.000000	0.000066	0.000066	0.000132
10	CN	NA	500	0.000038	0.000038	0.000038	0.000075
10	OEL	NA	300	0.000056	0.000056	0.000056	0.000112
10	OEL	NA	50	0.000045	0.000045	0.000045	0.000090
10	OEL	NA	10	0.000045	0.000136	0.000045	0.000090
10	VL	NA	100	0.002740	0.006010	0.000424	0.001497
10	VL	NA	1.5	0.000052	0.000052	0.000052	0.000104
10	OEL	NA	1000	0.035306	0.112147	0.007404	0.040913
10	VL	NA	750	0.007903	0.000938	0.000436	0.000872
10	CN	NA	2000	0.003634	0.001487	0.000545	0.001090
10	VL	NA	10000	0.001784	0.003188	0.000545	0.001090
10	CN	NA	100000	0.017492	0.023751	0.000530	0.004253
10	DLA	NA	100000	0.327379	0.422062	0.014668	0.077833
10	VL	NA	10000	0.174923	0.242325	0.009629	0.049685
10	VL	NA	100000	0.001784	0.003188	0.000545	0.001090
10	VL	NA	10000	0.027603	0.068364	0.003081	0.024778
11	Vent	175	300	0.001632	0.003882	0.000251	0.002519
11	VL	100	100	0.000906	0.002350	0.000198	0.000811
11	VL	150	1500	0.009730	0.019035	0.000256	0.001406
11	VL	300	9000	0.000178	0.000190	0.000087	0.000175
11	VL	1200	3000	0.001294	0.002409	0.000473	0.000723
11	OEL	20	300	0.001136	0.003880	0.000158	0.001590
11	VL	100000	2000	0.000064	0.000136	0.000081	0.000163
11	OEL	40	1200	0.004382	0.004284	0.000069	0.000620
11	VL	NA	500	0.000561	0.002297	0.000672	0.002977

SITE	TYPE	ORIG. ISV	PRE-BAG	HYDROCARBON EMISSIONS (cc/min)			
				Benzene	Toluene	E-Benzene	Xylenes
11	CN	NA	60	0.000143	0.000265	0.000282	0.001137
11	VL	NA	2000	0.000069	0.000337	0.000087	0.000175
11	PRV	NA	175	0.010727	0.016834	0.001341	0.003315
11	AMB	NA	1000	0.003486	0.000780	0.000373	0.001915
11	AMB	NA	200	0.016438	0.024356	0.000565	0.004109
11	VL	NA	1000	0.000840	0.001317	0.000236	0.001160
11	PRV	NA	100000	0.229458	0.307750	0.005367	0.050126
11	VL	NA	100000	0.001225	0.004092	0.001564	0.003128
11	VL	NA	7500	0.004440	0.006007	0.000081	0.001065
11	Vent	NA	100000	0.024256	0.027329	0.000578	0.004297
11	VL	NA	200	0.000178	0.000346	0.000087	0.000175
12	PRV	3500		0.000000	0.000000	0.000000	0.000000
12	VL	4000		0.000000	0.000000	0.000000	0.000000
12	VL	300		0.000000	0.000000	0.000000	0.000000
12	OEL	3000		0.000000	0.000000	0.000000	0.000000
12	OEL	2000		0.000000	0.000000	0.000000	0.000000
12	OEL	500		0.000000	0.000000	0.000000	0.000000
13	VL	100000	100000	0.002049	0.001235	0.000377	0.000673
13	VL	100000	100000	0.238203	0.092135	0.004876	0.007556
13	VL	100000	80000	0.000148	0.000335	0.000045	0.000089
13	VL	1200	300	0.000217	0.000194	0.000057	0.000103
13	VL	NA	1500	0.004140	0.002573	0.000193	0.001008
13	VL	NA	1000	0.052878	0.006424	0.000350	0.000446
13	VL	NA	1500	0.012079	0.000944	0.000056	0.000101
13	VL	NA	100000	0.041141	0.030398	0.003440	0.008868
13	VL	NA	250	0.001438	0.000517	0.000056	0.000157
13	VL	NA	2500	0.010890	0.001572	0.000051	0.000159
13	VL	NA	2500	0.003489	0.002416	0.000253	0.000669
13	CN	NA	800	0.000165	0.000101	0.000053	0.000096
14	VL	NA	1	0.000000	0.000000	na	0.000000
14	VL	NA	1	na	0.000000	na	na
14	VL	NA	40	na	na	na	0.000394
14	BACK	NA	1	na	0.000000	na	na
15	CN	NA	9000	0.065976	0.036528	0.000425	0.000708
15	VL	NA	7000	0.198216	0.073505	0.000496	0.001833
15	VL	NA	4000	0.032506	0.030260	0.000370	0.002352
15	VL	NA	100000	0.102403	0.007658	0.000448	0.001166
15	VL	NA	9000	0.003862	0.005398	0.000410	0.000819
15	VL	NA	20000	0.008034	0.012686	0.001571	0.003473
15	VL	NA	100000	0.064204	0.016643	0.000538	0.000897
15	VL	NA	100000	1.308226	0.262636	0.001371	0.003254

SITE	TYPE	ORIG. ISV	PRE-BAG	HYDROCARBON EMISSIONS (cc/min)			
				Benzene	Toluene	E-Benzene	Xylenes
15	OEL	NA	1500	0.001038	0.001548	0.000264	0.000529
15	VL	NA	100000	0.272597	0.124103	0.000538	0.000897
15	VL	NA	100000	0.011801	0.052547	0.000538	0.000897
15	VL	NA	10000	0.039631	0.019879	0.000357	0.001593
15	VL	NA	45000	0.009809	0.006207	0.000317	0.000634
15	VL	NA	100000	0.004484	0.118185	0.000538	0.000897
15	CN	NA	2000	0.001022	0.014006	0.001202	0.005685
15	OEL	NA	100000	0.003540	0.001996	0.000425	0.000708
16	BACK	NA	2	0.000000	0.000000	0.000000	0.000000
16	OEL	NA	700	0.000627	0.000277	0.000034	0.001786
16	VL	NA	4000	0.019444	0.000194	0.000078	0.000858
16	VL	NA	10000	0.193021	0.010734	0.000263	0.002659
16	OEL	NA	100000	0.588773	0.002098	0.000260	0.002856
16	VL	NA	100000	2.133440	0.241664	0.006948	0.084016
16	CN	NA	20	0.000502	0.000502	0.001184	0.001937
16	CN	NA	4000	0.000435	0.000044	0.000073	0.000798
16	OEL	NA	10000	0.003157	0.005417	0.000502	0.002744
16	OEL	NA	100000	0.000237	0.000154	0.000040	0.000435
16	VL	NA	100000	0.001090	0.005121	0.000463	0.000925
17	VL	10000	10000	0.626509	0.300077	0.020956	0.047900
17	VL	10000	10000	0.431911	0.299607	0.020226	0.052010
17	OEL	10000	10000	0.000026	0.000022	0.000008	0.000016
17	VL	10000	10000	0.199097	0.124379	0.011567	0.023134
17	CN	10000	10000	0.152867	0.062712	0.010886	0.021773
17	VL	10000	10000	0.380011	0.175411	0.018643	0.024857
17	CN	5000	10000	0.012667	0.010739	0.009321	0.018643
17	OEL	10000	10000	0.086450	0.034492	0.011227	0.022453
17	VL	10000	10000	0.000015	0.000013	0.000011	0.000022
17	OEL	NA	3500	0.000002	0.000001	0.000001	0.000002
17	VL	NA	100000	0.000094	0.000033	0.000011	0.000022
17	VL	NA	10000	0.000025	0.000013	0.000011	0.000023
17	CN	NA	100000	0.059174	0.012542	0.010886	0.021773
18	CN	100000	100000	na	0.000003	na	na
18	VL	40000	100000	0.080125	0.031657	0.003199	0.012833
19	VL	10000	50000	0.014424	0.036687	0.010614	0.021228
19	VL	10000	100000	0.014794	0.012542	0.010886	0.021773
19	VL	500	10000	0.002378	0.002016	0.001750	0.003500
19	VL	10000	100000	0.472933	0.254376	0.011227	0.033680
19	CN	10000	10000	0.002175	0.001844	0.001600	0.003201
19	CN	10000	10000	0.014794	0.012542	0.010886	0.021773
19	CN	NA	100000	0.201994	0.082675	0.007689	0.015377

SITE	TYPE	ORIG. ISV	PRE-BAG	HYDROCARBON EMISSIONS (cc/min)			
				Benzene	Toluene	E-Benzene	Xylenes
19	CN	NA	10000	0.060527	0.019907	0.001152	0.002304
19	CN	NA	10000	0.102384	0.067076	0.010274	0.020548
19	CN	NA	10000	0.002581	0.002189	0.001900	0.003799
19	CN	NA	100000	0.052887	0.044839	0.008981	0.017963
19	OEL	NA	100000	0.013129	0.011131	0.009662	0.019323
19	VL	NA	350	0.001464	0.001241	0.001077	0.002154
20	CN	10000	100000	0.014424	0.012229	0.010614	0.021228
20	VL	400	100000	0.014794	0.087797	0.010886	0.021773
20	VL	10000	100000	0.015718	0.022211	0.011567	0.023134
20	VL	5000	10000	0.005306	0.006998	0.001302	0.002603
20	VENT	10000	100000	0.600990	0.216043	0.074300	0.021228
20	OEL	10000	100000	0.078899	0.225763	0.010886	0.021773
20	OEL	10000	100000	0.046538	0.193336	0.010274	0.020548
20	OEL	NA	100000	0.000002	0.000001	0.000001	0.000002
20	VL	NA	100000	0.000015	0.000013	0.000011	0.000022
20	CN	NA	100000	0.167661	0.079435	0.010886	0.021773

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