

[Facility Name]
Facility ID [Facility ID]
Toxics Emissions Inventory Plan

for

AB 2588
California Air Toxics "Hot Spots"
Information and Assessment Act of 1987

[Date]

Submitted to:
San Joaquin Valley Unified Air Pollution Control District
1990 E Gettysburg Avenue
Fresno, California 93726

Prepared by:
[Facility Name]
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1. Introduction

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588 or the "Act") was enacted in September 1987. Under the Act, stationary sources are required to report the types and quantities of certain toxic substances their facilities routinely release into the air. AB 2588 is designed to provide information to state and local agencies and to the general public on the extent of airborne emissions from stationary sources and the potential public health impacts of those emissions. The San Joaquin Valley Air Pollution Control District (the District) is mandated by the State to implement AB 2588.

On March 6, 2015, The State Office of Environmental Health Hazard Assessment (OEHHA) adopted changes to the Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments. These revisions were designed to incorporate three technical support documents and to provide enhanced protection of children as required under state law (SB 25, Escutia, 1999). Due to these recent changes, and the corresponding potential increases in calculated health risk, the District notified [Facility Name] that we must be re-evaluated under AB 2588.

Pursuant to the Air Toxics "Hot Spots" Information and Assessment Act of 1987, we have prepared a comprehensive, site-specific Toxics Emissions Inventory Plan. The plan specifies in detail how [Facility Name] will inventory our facility's emissions of all toxic substances on the list of substances subject to the Act. The plan provides a comprehensive and detailed description of the methods that will be used to quantify air releases or potential air releases of listed substances from all points of release. The plan also includes quantification methods which result in accurate and comprehensive characterization of releases and comply with all applicable requirements of the "Hot Spots" regulation.

2. Facility Location & Description

[Indicate the actual location of the facility including the street address. Use Universal Transverse Meridian (UTM) coordinates, a descriptive location, or Mount Diablo Base Meridian location (section, township, and range) if the street address is not available.

Delete examples that do not apply.]

Example (a): (With a street address.)

The facility is located at 1990 E Gettysburg in Fresno, CA.

Example (b): (With a Mount Diablo Base Meridian Location.)

The facility is located at the 31X oil and water treatment plant, within the SW/4 of Section 31, Township 29S, Range 21E.

TEIP: [Facility Name] ([Facility ID])

Example (c): (With a descriptive location.)

The facility is located on the eastern side of 25th Avenue, approximately one mile south of State Route (SR) 198, in Kings County.

[Briefly describe the facility's operations.]

[If there are multiple facilities in a single stationary source, please add a statement as follows: "Facility X, Y, and Z are part of a single stationary source."]

Examples:

(a) This facility is a grain and commodity receiving, processing, and packing operation. Grain and commodities are received from trucks or railcars via underground receiving pits. Received products are transferred into storage silos or hoppers via fully enclosed conveyors. Feed is manufactured by grinding, flaking, and pelleting operations. Products can be mixed and bulk loaded or bagged for distribution.

(b) This facility is an agricultural operation with the primary function of growing crops and/or raising of fowl or animals. Equipment at this facility includes units needed for agricultural production, such as stationary IC engines powering agricultural irrigation well pumps.

(c) This facility is a glass and plastic bottle coating operation. Glass or plastic bottles are decorated utilizing either spray or screen-printing equipment. The coatings are cured utilizing UV lights, electric heaters, or natural gas fired lehrs.

This plan will address emission sources present during inventory year 2017. During the reporting year (2017), [Facility Name] identified the following sources of emissions, which must be evaluated pursuant to AB 2588:

[Verify the information in the table below. This should be a list of permitted emission sources and Permit-Exempt Equipment Registration (PEER) sources, including associated source descriptions, District IDs, and toxics device IDs for each emission source.]

Table 1. Permitted and PEER Emission Sources

Source Description	District ID	Toxics Device ID

TEIP: [Facility Name] ([Facility ID])

[Fill out Table 2 below with non-fugitive permit-exempt sources. Note: all PEERs are already accounted for in Table 1 above. Refer to Appendix A and Appendix C of the CARB Emission Inventory Criteria and Guidelines for details regarding the potential sources to include. Please contact the District's Hot Spots Team at (559) 230-6000 or at hotspots@valleyair.org with any questions you may have.

The toxics device IDs used for non-fugitive permit-exempt sources will start at 6001 and will continue sequentially (6001, 6002, 6003, etc.). Number each device separately. Refer to Section 4 below for more information regarding this category.]

Table 2. Non-Fugitive Permit-Exempt Sources

Source Description	Toxics Device ID
Example: 24 BHP GASOLINE ENGINE	6001
Example: XXXXXX	6002
	6003
[Add additional rows as necessary]	6004

[Fill out Table 3 below with fugitive permit-exempt sources. Note: all PEERs are already accounted for in Table 1 above. Refer to Appendix A and Appendix C of the CARB Emission Inventory Criteria and Guidelines for details regarding the potential sources to include.

The toxics device IDs used for fugitive permit-exempt sources will start at 7001 and will continue sequentially (7001, 7002, 7003, etc.). Number each device separately. Refer to Section 5 below for more information regarding this category.]

Table 3. Fugitive Permit-Exempt Sources

Source Description	Toxics Device ID
Example: CHLORINATED WATER PROCESSES	7001
Example: XXXXXX	7002
	7003
[Add additional rows as necessary]	7004

[Each inventory plan shall include a flow diagram consisting of a comprehensive schematic drawing of the process flows that affect the nature or quantity of emission of listed substances. If necessary, a reference document shall be attached to the drawing to include any information needed to fulfill the flow diagram requirements that cannot be included in the drawing. Flow diagram requirements are listed under Section VIB of the CARB Emission Inventory Criteria & Guidelines www.arb.ca.gov/ab2588/2588guid.htm. For information regarding trade secrets, please refer to Section VIC of the CARB Emission Inventory Criteria and Guidelines or the CA Health & Safety Code § 44346.]

A facility process flow diagram identifying each emission source is provided in Appendix A.

3. Permitted and PEER Emission Sources

This section describes the methods used to identify and quantify toxic emissions from sources subject to District permit or permit-exempt equipment registration (PEER). For permitted sources, the toxics device ID used is the same as the permit ID. For PEERs, the toxics device ID used is the District's PEER unit ID plus 5000. A complete listing of facility permits and PEERs is provided in Appendix B.

[List each toxic emission source by type that has a District permit or PEER. Identify the permit units associated with each source type, list the substances emitted, and describe the method used to calculate emissions.]

Add additional source groups as needed and delete any non-applicable sources from the examples below. Maintain the same outline format.]

[The District has provided a suggested discussion and sample calculations for your permitted and PEER equipment. Included are default methods for quantifying toxic emissions from these devices. You may propose alternate quantification methods to the District for review and approval. Please review and modify this plan as appropriate for your operation.]

3.1 **EXAMPLE: External Combustion (Boilers, Dehydrators, Heaters, Dryers), Natural Gas and/or LPG (Propane)**

3.1.1 **Applicability**

[List the toxics device ID(s) this emission source applies to. Refer to Table 1 for the device numbers.]

This section applies to toxics device(s) X, X, X and 500X.

3.1.2 **Process Description**

[Provide a process description of the above emission source per unit or source group, as applicable.]

Example: The facility operates two natural gas-fired boilers, one LPG-fired boiler and one natural gas-fired dryer. The boilers are used to provide steam to the various processes at the facility. The dryer is used to dry the starch as part of the starch production process.

3.1.3 **Listed Substances**

[Below are potential toxic emissions profiles. Delete profiles not used for this source type.]

Listed substances expected to be emitted are from the following District toxic emissions profiles:

TEIP: [Facility Name] ([Facility ID])

- Profile #3 for natural gas external combustion boilers with heat input <10 MMBtu/hr
- Profile #6 for natural gas external combustion boilers with heat input from 10-100 MMBtu/hr
- Profile #8 for natural gas external combustion boilers with heat input >100 MMBtu/hr

- Profile #102 for LPG external combustion boilers with heat input <10 MMBtu/hr
- Profile #103 for LPG external combustion boilers with heat input from 10-100 MMBtu/hr
- Profile #104 for LPG external combustion boilers with heat input >100 MMBtu/hr

[If the source has SCR, add the following, otherwise delete.]

- Ammonia (CAS# 7664417) from the Selective Catalytic Reduction system

Further information is provided in Appendix C.

3.1.4 Calculation Method

[Update units for the equation below as needed.]

San Joaquin Valley APCD approved emission factors will be used to quantify emissions of listed substances. Emissions of listed substances from the boilers will be quantified using the following equation:

$$E_{LS} = EF_{LS} \times PR$$

where,

E_{LS} = listed substance emissions in lb/yr or lb/hr

EF_{LS} = listed substance emission factor in lb/mmscf natural gas or 1,000 gallons LPG fuel

PR = process rate in mmscf natural gas or 1,000 gallons LPG fuel consumed per year or hour

[If the source has SCR, add the following, otherwise delete.]

Ammonia emissions shall be calculated in accordance with the requirements of the annual emissions inventory.

3.2 **EXAMPLE: Turbine IC Engines, Natural Gas and/or LPG (Propane)**

3.2.1 **Applicability**

[List the toxics device ID(s) this emission source applies to. Refer to Table 1 for the device numbers.]

This section applies to toxics device(s) X and X.

3.2.2 **Process Description**

[Provide a process description of the above emission source per unit or source group, as applicable.]

Example: The facility operates two natural gas-fired turbines. The turbines power electrical generators.

3.2.3 **Listed Substances**

[Below are potential toxic emissions profiles. Delete profiles not used for this source type.]

Listed substances expected to be emitted are from the following District toxic emissions profile:

- Profile #162 natural gas-fired turbine without a catalyst
- Profile #163 natural gas-fired turbine with a catalyst

- Profile #108 LPG-fired turbine without a catalyst
- Profile #158 LPG-fired turbine with a catalyst

[If the turbine has SCR, add the following, otherwise delete.]

- Ammonia (CAS# 7664417) from the Selective Catalytic Reduction system

Further information is provided in Appendix C.

3.2.4 **Calculation Method**

[Update units for the equation below as needed.]

San Joaquin Valley APCD approved emission factors will be used to quantify emissions of listed substances. Emissions of listed substances from the engines will be quantified using the following equation:

$$E_{LS} = EF_{LS} \times PR$$

where,

TEIP: [Facility Name] ([Facility ID])

- E_{LS} = listed substance emissions in lb/yr or lb/hr
 EF_{LS} = listed substance emission factor in lb/mmscf natural gas or 1,000 gallons LPG fuel
 PR = process rate in mmscf natural gas or 1,000 gallons LPG fuel consumed per year or hour

[If the turbine has SCR, add the following, otherwise delete.]

Ammonia emissions shall be calculated in accordance with the requirements of the annual emissions inventory.

3.3 **EXAMPLE: Reciprocating IC Engines, Diesel**

3.3.1 **Applicability**

[List the toxics device ID(s) this emission source applies to. Refer to Table 1 for the device numbers.]

This section applies to toxics device X.

3.3.2 **Process Description**

[Provide a process description of the above emission source per unit or source group, as applicable.]

Example: The facility operates one diesel fired emergency standby engine. The engine powers a generator which provides electrical power in case of an outage.

3.3.3 **Listed Substances**

[List all toxic profiles associated with this emission source.]

Listed substances expected to be emitted are from the following District toxic emissions profile:

- Profile #136 diesel engine particulate matter

3.3.4 **Calculation Method**

A San Joaquin Valley APCD PM₁₀ speciation profile will be used to quantify emissions of listed substances. The PM₁₀ emission factor used for reporting of the annual emissions inventory for the specified device will be used to estimate PM₁₀ emissions. The PM₁₀ emissions will then be speciated into associated listed substances as follows:

$$E_{LS} = EF_{PM10} \times PR \times SF_{LS}$$

where,

TEIP: [Facility Name] ([Facility ID])

E_{LS} = listed substance emissions in lb/yr or lb/hr
 EF_{PM10} = PM_{10} emission factor in lb/unit process
 PR = process rate per year or hour
 SF_{LS} = listed substance PM_{10} speciation factor (lb LS/lb PM_{10})

3.4 **EXAMPLE: Reciprocating IC Engines, Natural Gas and/or LPG (Propane)**

3.4.1 **Applicability**

[List the toxics device ID(s) this emission source applies to. Refer to Table 1 for the device numbers.]

This section applies to toxics device(s) X, X, and X.

3.4.2 **Process Description**

[Provide a process description of the above emission source per unit or source group, as applicable.]

Example: The facility operates three natural gas-fired engines. The engines power water pumps.

3.4.3 **Listed Substances**

[Below are potential toxic emissions profiles. Delete profiles not used for this source type.]

Listed substances expected to be emitted are from the following District toxic emissions profile:

- Profile #161 for 4-stroke rich burn natural gas-fired engines
- Profile #160 for 4-stroke lean burn natural gas-fired engines
- Profile #159 for 2-stroke lean burn natural gas-fired engines

- Profile #156 for 4-stroke rich burn LPG-fired engines
- Profile #137 for 4-stroke lean burn LPG -fired engines
- Profile #154 for 2-stroke lean burn LPG -fired engines

[If the source has SCR, add the following, otherwise delete.]

- Ammonia (CAS# 7664417) from the Selective Catalytic Reduction system

Further information is provided in Appendix C.

3.4.4 Calculation Method

[Update units for the equation below as needed.]

San Joaquin Valley APCD approved emission factors will be used to quantify emissions of listed substances. Emissions of listed substances from the engines will be quantified using the following equation:

$$E_{LS} = EF_{LS-UNC} \times CF \times PR$$

where,

E_{LS} = listed substance emissions in lb/yr or lb/hr
 EF_{LS-UNC} = listed substance uncontrolled emission factor in lb/unit fuel consumed
 CF = control factor
 PR = process rate in *mmscf natural gas or 1,000 gallons LPG consumed per year or hour*

The control factor will be calculated as follows:

$$CF = (VOC_{UNC} - VOC_{CON}) / VOC_{UNC}$$

where,

VOC_{UNC} = uncontrolled VOC emissions rate from the speciation profile selected

VOC_{CON} = controlled VOC emission rate of the equipment from the District Permit or source test (if applicable)

[If the source has SCR, add the following, otherwise delete.]

Ammonia emissions shall be calculated in accordance with the requirements of the annual emissions inventory.

3.5 **EXAMPLE: Permitted PM₁₀ Sources: Source-Specific Heading**

[Change the heading title to appropriately describe the source.]

3.5.1 Applicability

[List the toxics device ID(s) this emission source applies to. Refer to Table 1 for the device numbers.]

This section applies to toxics device(s) X.

3.5.2 Process Description

[Provide a process description of the above emission source per unit or source group, as applicable.]

3.5.3 Listed Substances

[List all toxic profiles or toxic substances associated with this emission source.]

Example: Listed substances are components of XXX emitted during XXX operations. Listed substances expected to be emitted are from the following District toxic emissions profile:

- Profile #XXX for XXX.

Further information is provided in Appendix C.

OR

[Examine Safety Data Sheets and determine if any listed substances are present. Provide name and CAS# in the table below for each listed substance present.]

Example: Listed substances are components of the particulate matter emitted during XXX.

Table 4. Listed Substances Present in XXX

Pollutant Name	CAS#
Example: Nickel	7440020
[Add more rows as necessary]	

3.5.4 Calculation Method

[Provide proposed calculation method(s) for quantifying ACTUAL emissions.]

Example:

A San Joaquin Valley APCD speciation profile will be used to quantify emissions of listed substances. The PM₁₀ emission factors (listed in the District's permit to operate for the specified devices OR as established per AP-42 OR as established per project #XXXXXXX OR established by District-approved source tests OR Toxics Emissions Inventory Reports (TEIR) for the specified devices) [Update reference as needed] will be

TEIP: [Facility Name] ([Facility ID])

used to estimate PM₁₀ emissions. The PM₁₀ emissions will then be speciated into associated listed substances as follows:

$$E_{LS} = EF_{PM10} \times PR \times SF_{LS}$$

where,

E_{LS} = listed substance emissions in lb/yr or lb/hr
 EF_{PM10} = PM₁₀ emission factor in lb/unit process
 PR = process rate per year or hour
 SF_{LS} = listed substance PM₁₀ speciation factor (lb LS/lb PM₁₀)

3.6 **EXAMPLE: Permitted VOC Sources: Source-Specific Heading** [Change the heading title to appropriately describe the source.]

3.6.1 **Applicability**

[List the toxics device ID(s) this emission source applies to. Refer to Table 1 for the device numbers.]

This section applies to toxics device(s) X and X.

3.6.2 **Process Description**

[Provide a process description of the above emission source per unit or source group, as applicable.]

Example: The facility operates two XXXX. VOCs emitted are fugitive.

3.6.3 **Listed Substances**

[List all toxic profiles or toxic substances associated with this emission source. The facility should identify and quantify any toxic emissions that may be contained in the VOC emissions released from the devices listed above.]

Example: Listed substances are components of fugitive VOCs emitted from XXXX. Listed substances expected to be emitted are from the following District toxic emissions profile:

- Profile #XXX for XXXX

Further information is provided in Appendix C.

OR

Example: Listed substances from the XXX Safety Data Sheets are provided in the following table:

TEIP: [Facility Name] ([Facility ID])

[Examine Safety Data Sheets and determine if any listed substances are present. Provide name and CAS# in the table below for each listed substance present.]

Table 5. Listed Substances Present in XXX

Pollutant Name	CAS#
Example: Ethyl Benzene	100414
[Add more rows as necessary]	

3.6.4 Calculation Method

[Provide proposed calculation method(s) for quantifying ACTUAL emissions.]

Example:

San Joaquin Valley APCD approved emissions profile (speciation factors) will be used to quantify emissions of listed substances. The VOC emission factors (listed in the District's permit to operate for the specified devices OR as established per AP-42 OR as established per project #XXXXXXX OR established by District-approved source tests OR Toxics Emissions Inventory Reports (TEIR) for the specified devices) [Update reference as needed] will be used to estimate VOCs. The VOCs will then be speciated into associated listed substances as follows:

$$E_{LS} = EF_{VOC} \times PR \times EF_{LS}$$

where,

- E_{LS} = listed substance emissions in lb/yr or lb/hr
- EF_{VOC} = VOC emission factor in lb/unit process
- PR = process rate per year or hour
- EF_{LS} = listed substance emission factor (lb LS/lb VOC)

3.7 **EXAMPLE: Other Permitted Sources** [Change the heading title to appropriately describe the source.]

[Use this when we do not have a toxics profile for the source. The facility will determine substances and quantification methods.]

3.7.1 Applicability

[List the toxics device ID(s) this emission source applies to.]

This section applies to toxics device(s) XX and XX.

3.7.2 Process Description

[Provide a process description of the above emission source per unit or source group, as applicable.]

Example: The facility operates XXXXX.

3.7.3 Listed Substances

[List all toxic substances associated with the emission source.]

3.7.4 Calculation Method

[Provide proposed calculation method(s) for quantifying ACTUAL emissions.]

4. Other Permit-Exempt Equipment

[List other permit-exempt equipment in this section, and describe the method by which toxic emissions will be calculated. Delete this section if it does not apply. All PEERs are already accounted for in the previous section. Refer to Appendix A and Appendix C of the CARB Emission Inventory Criteria and Guidelines for details regarding the potential sources to include in this section. Please contact the District Hot Spots Team at (559) 230-6000 or at hotspots@valleyair.org with any questions you may have.]

The toxics device IDs used for these sources will start at 6001 and will continue sequentially (6001, 6002, 6003, etc.). Number each device separately.]

4.1 EXAMPLE: [Other Permit-Exempt Equipment Type]

4.1.1 Applicability

[List the toxics device ID(s) this emission source applies to.]

4.1.2 Process Description

[Provide a process description of the above emission source per unit or source group, as applicable.]

4.1.3 Listed Substances

[List all toxic profiles or toxic substances associated with this emission source.]

4.1.4 Calculation Method

[Provide proposed calculation method(s) for quantifying ACTUAL emissions.]

5. Other Permit-Exempt Fugitive Emissions

[List sources of fugitive emissions in this section and describe the method by which their toxic emissions will be calculated. Fugitive emissions are those emissions which do not pass through a stack, chimney, vent or other functionally equivalent opening. Sources may include solvents, miscellaneous chemicals, leaks, etc. Fugitive emissions shall be reported with the permitted unit as applicable, otherwise fugitive emissions will be reported in this section. Delete this section if it does not apply. Refer to Appendix A and Appendix C of the CARB Emission Inventory Criteria and Guidelines for details regarding the potential sources to include in this section. Please contact the District Hot Spots Team at (559) 230-6000 or at hotspots@valleyair.org with any questions you may have.]

The toxics device ID used for these fugitive sources will start at 7001 and will continue sequentially (7001, 7002, 7003, etc.). Number each device separately.]

Safety Data Sheets (SDS) or other manufacturer's data will be used to determine the concentration of toxics in these substances. The toxics will be quantified based on engineering calculations, their physical properties, methods of application and amount of product used during the year.

5.1 **EXAMPLE: Chlorinated Water Processes**

5.1.1 **Applicability**

[List the toxics device ID(s) this emission source applies to.]

This section applies to toxics device(s) 700X and 700X.

5.1.2 **Process Description**

[Provide a process description of the above emission source per unit or source group, as applicable.]

Example: Chlorine is added to both the plant's cooling tower and decarbonators. According to Appendix E-II-8 of the Technical Guidance Document for the Air Toxics "Hot Spots" Information and Assessment Act or 1987, the only hazardous air pollutant emissions that must be quantified from chlorinate water processes is chloroform.

5.1.3 **Listed Substances**

[List all toxic substances emitted by the emission source.]

The listed substance expected to be emitted is chloroform (CAS# 67663).

5.1.4 Calculation Method

[Provide proposed calculation method(s) for quantifying ACTUAL emissions.]

Example:

Emissions of chloroform from the chlorinated water processes will be calculated using the emission factor from ARB's "Technical Guidance Document for the Emission Inventory Criteria and Guidelines Regulation for AB 2588, Attachment E-II-8" as follows:

$$E = U \times EF$$

Where:

E = chloroform emissions in lb/yr or lb/hr
U = chlorine used in lb/yr or lb/hr
EF = chloroform emission factor (0.0034 lbs chloroform per lb chlorine)

5.2 **EXAMPLE: [Other Permit-Exempt Fugitive Emissions]**

[Add additional sources of fugitive emissions as necessary in subsequent subsections 5.3, 5.4, etc.]

5.2.1 Applicability

[List the toxics device ID(s) this emission source applies to.]

5.2.2 Process Description

[Provide a process description of the above emission source per unit or source group, as applicable.]

5.2.3 Listed Substances

[List all toxic profiles or toxic substances associated with this emission source.]

5.2.4 Calculation Method

[Provide proposed calculation method(s) for quantifying ACTUAL emissions.]

6. Source Testing

6.1 No Source Testing

[If the available toxic emission profiles are a substantially equivalent characterization of facility-specific emissions, the facility may not need to propose new source testing; therefore, the following can be stated:]

Example: No new source testing is being proposed.

[Delete this section if 6.2: Proposed Source Testing is selected.]

6.2 Proposed Source Testing

[Delete this section if 6.1: No Source Testing is selected.]

[Per Section IX of the Emission Inventory Criteria and Guidelines, source testing options include some of the following:

- i. Complete source testing in accordance with ARB-adopted source test methods
- ii. Propose sampling and analysis methods that are substantially equivalent to ARB-adopted source test methods
- iii. Use existing source test data from the facility
 - a) Use only if all conditions affecting emissions of listed substances are substantially the same
 - b) Existing source test methods must be equivalent to ARB-adopted test methods, as approved by the District
- iv. Complete pooled source testing
 - a) A group of related facilities may perform a limited number of representative source tests to apply to their respective facilities
 - b) Utilize pooled source testing only if there is sufficient similarity in all emissions parameters between the facility tested and the facility applied to
- v. Propose an alternative method to quantify emissions that provides the best technologically feasible characterization of those facility emissions
 - a) The alternative method must result in a characterization that is as accurate as that achieved by the ARB-adopted source test method
 - b) Utilize this alternative if physical circumstances at the facility do not allow for the ARB-adopted source test method
- vi. Utilize ARB-approved emission factors from the California Air Toxics Emission Factors (CATEF) database, (subject to additional conditions)
 - a) <https://www.arb.ca.gov/ei/catef/catef.htm>

If source testing is required or proposed, please list the emitting process, device, or facility activity for which source testing will be applied to. Refer to Section IX and Appendix D of the CARB Emission Inventory Criteria and Guidelines (www.arb.ca.gov/ab2588/2588guid.htm) for more details regarding source testing. The methods used to conduct source tests must be approved in advance

TEIP: [Facility Name] ([Facility ID])

by the District. If source testing is proposed, please attach the Source Testing Protocol, set forth in Section IX.E., to the Toxics Emission Inventory Plan.]

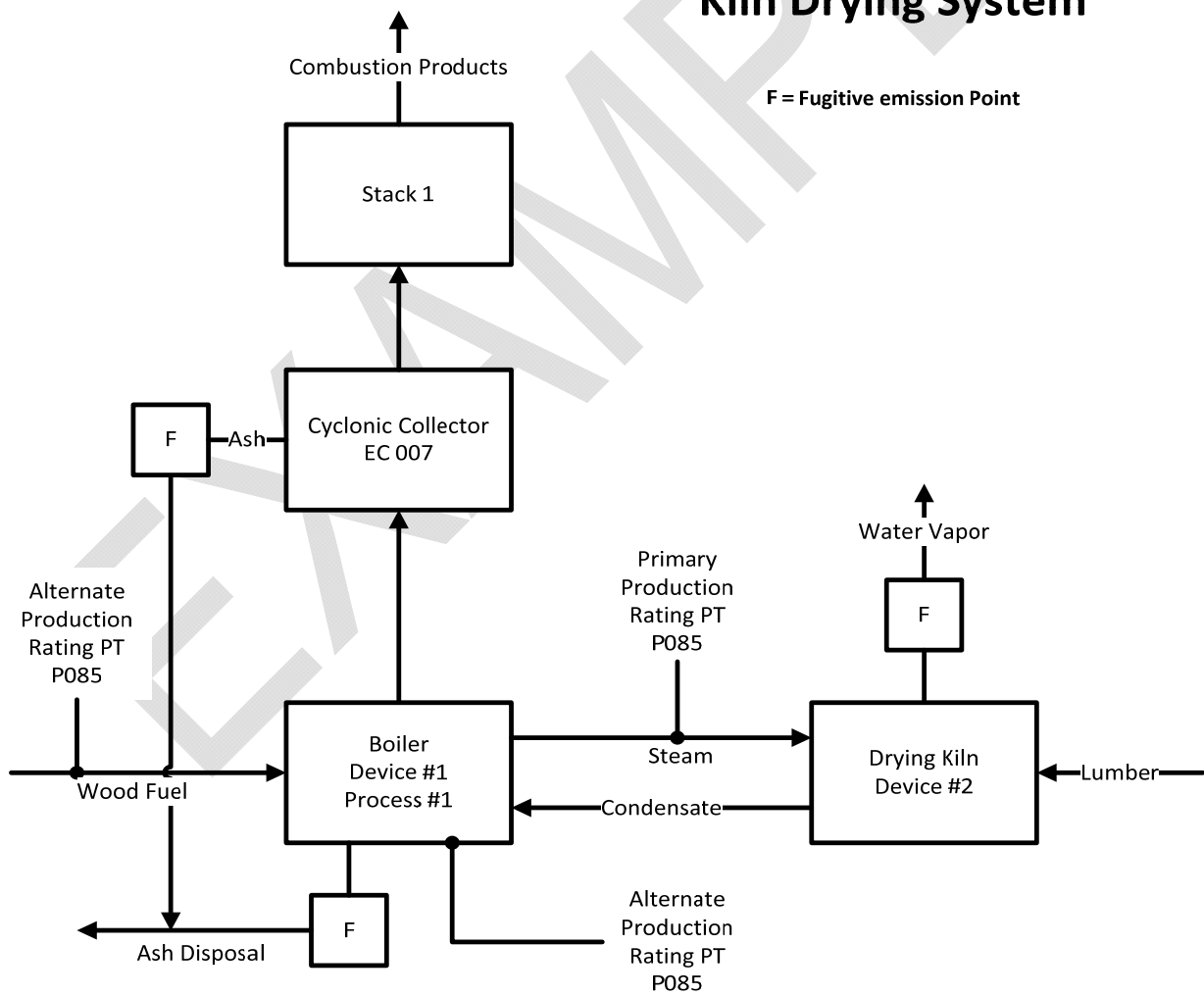
Example: Source testing is proposed for toxics device X, as detailed in the attached Source Testing Protocol.

EXAMPLE

Appendix A. Facility Process Flow Diagram(s)

[Each inventory plan shall include a flow diagram consisting of a comprehensive schematic drawing of the process flows that affect the nature or quantity of emissions of listed substances. If necessary, a reference document shall be attached to the drawing to include any information needed to fulfill the flow diagram requirements that cannot be included in the drawing. Flow diagram requirements are listed under Section VIB of the CARB Emission Inventory Criteria & Guidelines www.arb.ca.gov/ab2588/2588guid.htm. For information regarding trade secrets, please refer to Section VIC of the CARB Emission Inventory Criteria and Guidelines or the CA Health & Safety Code § 44346.]

Figure 1
Process Flow Diagram
Wood Fired Boiler
Kiln Drying System



Appendix B. Permit and PEER Unit Listing

Permit ID	Toxics Device ID	Permit Status	Permit Description

EXAMPLE

Appendix C. Toxic Emissions Profiles

Toxic Profile #	Description
3	NG < 10 MMBTU/Hr External Combustion
6	NG 10-100 MMBTU/Hr External Combustion
8	NG >100 MMBTU/Hr External Combustion
102	LPG External Combustion- <10 MMBtu/hr
103	LPG External Combustion- 10-100 MMBtu/hr
104	LPG External Combustion->100 MMBtu/hr
108	LPG Internal Combustion - Turbine w/o Catalyst
136	Diesel Engine Particulate Matter
137	LPG-Fired Internal Combustion 4SLB Engine No Cont
154	LPG-Fired Internal Combustion 2SLB Engine No Cont
156	LPG-Fired Internal Combustion 4SRB Engine No Cont
158	LPG Internal Combustion - Turbine w/ Catalyst
159	NG Internal Combustion 2SLB Engine No Controls
160	NG Internal Combustion 4SLB Engine No Controls
161	NG Internal Combustion 4SRB Engine No Controls
162	NG Internal Combustion - Turbine w/o Catalyst
163	NG Internal Combustion - Turbine w/ Catalyst

District Toxic Profile ID	3
Description	NG < 10 MMBTU/Hr External Combustion
Source	The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
Acetaldehyde	4.30E-03	lb/mmscf	75070
Acrolein	2.70E-03	lb/mmscf	107028
Benzene	8.00E-03	lb/mmscf	71432
Ethyl benzene	9.50E-03	lb/mmscf	100414
Formaldehyde	1.70E-02	lb/mmscf	50000
Hexane	6.30E-03	lb/mmscf	110543
Naphthalene	3.00E-04	lb/mmscf	91203
PAHs, total, w/o individ. components reported	1.00E-04	lb/mmscf	1151
Propylene	7.31E-01	lb/mmscf	115071
Toluene	3.66E-02	lb/mmscf	108883
Xylenes (mixed)	2.72E-02	lb/mmscf	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	6
Description	NG 10-100 MMBTU/Hr External Combustion
Source	The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
Acetaldehyde	3.10E-03	lb/mmscf	75070
Acrolein	2.70E-03	lb/mmscf	107028
Benzene	5.80E-03	lb/mmscf	71432
Ethyl benzene	6.90E-03	lb/mmscf	100414
Formaldehyde	1.23E-02	lb/mmscf	50000
Hexane	4.60E-03	lb/mmscf	110543
Naphthalene	3.00E-04	lb/mmscf	91203
PAHs, total, w/o individ. components reported	1.00E-04	lb/mmscf	1151
Propylene	5.30E-01	lb/mmscf	115071
Toluene	2.65E-02	lb/mmscf	108883
Xylenes (mixed)	1.97E-02	lb/mmscf	1330207

District Toxic Profile ID	8
Description	NG >100 MMBTU/Hr External Combustion
Source	The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
Acetaldehyde	9.00E-04	lb/mmscf	75070
Acrolein	8.00E-04	lb/mmscf	107028
Benzene	1.70E-03	lb/mmscf	71432
Ethyl benzene	2.00E-03	lb/mmscf	100414
Formaldehyde	3.60E-03	lb/mmscf	50000
Hexane	1.30E-03	lb/mmscf	110543
Naphthalene	3.00E-04	lb/mmscf	91203
PAHs, total, w/o individ. components reported	1.00E-04	lb/mmscf	1151
Propylene	1.55E-02	lb/mmscf	115071
Toluene	7.80E-03	lb/mmscf	108883
Xylenes (mixed)	5.80E-03	lb/mmscf	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	102
Description	LPG External Combustion- <10 MMBtu/hr
Source	The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 report, VCAPCD AB 2588 Combustion Emission Factors and a conversion from NG to LPG using District factors.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
Acetaldehyde	4.04E-04	lb/1000 gal LPG	75070
Acrolein	2.54E-04	lb/1000 gal LPG	107028
Benzene	7.52E-04	lb/1000 gal LPG	71432
Ethyl benzene	8.93E-04	lb/1000 gal LPG	100414
Formaldehyde	1.60E-03	lb/1000 gal LPG	50000
Hexane	5.92E-04	lb/1000 gal LPG	110543
Naphthalene	2.82E-05	lb/1000 gal LPG	91203
PAHs, total, w/o individ. components reported	9.40E-06	lb/1000 gal LPG	1151
Propylene	6.87E-02	lb/1000 gal LPG	115071
Toluene	3.44E-03	lb/1000 gal LPG	108883
Xylenes (mixed)	2.56E-03	lb/1000 gal LPG	1330207

District Toxic Profile ID	103
Description	LPG External Combustion- 10-100 MMBtu/hr
Source	The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors and a conversion from NG to LPG using District factors.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
Acetaldehyde	2.91E-04	lb/1000 gal LPG	75070
Acrolein	2.54E-04	lb/1000 gal LPG	107028
Benzene	5.45E-04	lb/1000 gal LPG	71432
Ethyl benzene	6.49E-04	lb/1000 gal LPG	100414
Formaldehyde	1.16E-03	lb/1000 gal LPG	50000
Hexane	4.32E-04	lb/1000 gal LPG	110543
Naphthalene	2.82E-05	lb/1000 gal LPG	91203
PAHs, total, w/o individ. components reported	9.40E-06	lb/1000 gal LPG	1151
Propylene	4.98E-02	lb/1000 gal LPG	115071
Toluene	2.49E-03	lb/1000 gal LPG	108883
Xylenes (mixed)	1.85E-03	lb/1000 gal LPG	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	104
Description	LPG External Combustion->100 MMBtu/hr
Source	The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors and a conversion from NG to LPG using District factors.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
Acetaldehyde	8.46E-05	lb/1000 gal LPG	75070
Acrolein	7.52E-05	lb/1000 gal LPG	107028
Benzene	1.60E-04	lb/1000 gal LPG	71432
Ethyl benzene	1.88E-04	lb/1000 gal LPG	100414
Formaldehyde	3.38E-04	lb/1000 gal LPG	50000
Hexane	1.22E-04	lb/1000 gal LPG	110543
Naphthalene	2.82E-05	lb/1000 gal LPG	91203
PAHs, total, w/o individ. components reported	9.40E-06	lb/1000 gal LPG	1151
Propylene	1.46E-03	lb/1000 gal LPG	115071
Toluene	7.33E-04	lb/1000 gal LPG	108883
Xylenes (mixed)	5.45E-04	lb/1000 gal LPG	1330207

District Toxic Profile ID	108
Description	LPG Internal Combustion - Turbine w/o Catalyst
Source	LPG-fired turbine toxic emission are not available, so natural gas-fired turbine emission factors are used as a surrogate. The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 94,000 Btu/gal LPG

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,3-Butadiene	4.04E-05	lb/1000 gal LPG	106990
Acetaldehyde	3.76E-03	lb/1000 gal LPG	75070
Acrolein	6.02E-04	lb/1000 gal LPG	107028
Benzene	1.13E-03	lb/1000 gal LPG	71432
Ethyl benzene	3.01E-03	lb/1000 gal LPG	100414
Formaldehyde	6.67E-02	lb/1000 gal LPG	50000
Naphthalene	1.22E-04	lb/1000 gal LPG	91203
PAHs, total, with individ. components also reported	2.07E-04	lb/1000 gal LPG	1150
Propylene oxide	2.73E-03	lb/1000 gal LPG	75569
Toluene	1.22E-02	lb/1000 gal LPG	108883
Xylenes (mixed)	6.02E-03	lb/1000 gal LPG	1330207

District Toxic Profile ID	136
Description	Diesel Engine Particulate Matter
Source	Assumes all PM10 is DPM

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
Diesel engine exhaust, particulate matter	1.00E+00	lb/lb PM10	9901

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	137
Description	LPG-Fired Internal Combustion 4SLB Engine No Cont
Source	The emission factors are derived from July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine and conversion from NG to LPG using District conversion factors.. Use spreadsheet to determine VOC control or to use different HHV

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,1,2,2-Tetrachloroethane	3.76E-03	lb/1,000 gallons	79345
1,1,2-Trichloroethane	2.99E-03	lb/1,000 gallons	79005
1,1-Dichloroethane	2.22E-03	lb/1,000 gallons	75343
1,2,4-Trimethylbenzene	1.34E-03	lb/1,000 gallons	95636
1,3-Butadiene	2.51E-02	lb/1,000 gallons	106990
2,2,4-Trimethylpentane	2.35E-02	lb/1,000 gallons	540841
2-Methyl naphthalene	3.12E-03	lb/1,000 gallons	91576
Acenaphthene	1.18E-04	lb/1,000 gallons	83329
Acenaphthylene	5.20E-04	lb/1,000 gallons	208968
Acetaldehyde	7.86E-01	lb/1,000 gallons	75070
Acrolein	4.83E-01	lb/1,000 gallons	107028
Benzene	4.14E-02	lb/1,000 gallons	71432
Benzo[b]fluoranthene	1.56E-05	lb/1,000 gallons	205992
Benzo[e]pyrene	3.90E-05	lb/1,000 gallons	192972
Benzo[g,h,i]perylene	3.89E-05	lb/1,000 gallons	191242
Biphenyl	1.99E-02	lb/1,000 gallons	92524
Carbon tetrachloride	3.45E-03	lb/1,000 gallons	56235
Chlorobenzene	2.86E-03	lb/1,000 gallons	108907
Chloroform	2.68E-03	lb/1,000 gallons	67663
Chrysene	6.51E-05	lb/1,000 gallons	218019
Ethyl benzene	3.73E-03	lb/1,000 gallons	100414
Ethylene dibromide {EDB}	4.16E-03	lb/1,000 gallons	106934
Fluoranthene	1.04E-04	lb/1,000 gallons	206440
Fluorene	5.33E-04	lb/1,000 gallons	86737
Formaldehyde	4.96E+00	lb/1,000 gallons	50000
Hexane	1.04E-01	lb/1,000 gallons	110543
Methanol	2.35E-01	lb/1,000 gallons	67561
Methylene chloride {Dichloromethane}	1.88E-03	lb/1,000 gallons	75092
Naphthalene	6.99E-03	lb/1,000 gallons	91203
PAHs, total, w/o individ. components reported	2.53E-03	lb/1,000 gallons	1151
Phenanthrene	9.78E-04	lb/1,000 gallons	85018
Phenol	2.26E-03	lb/1,000 gallons	108952
Pyrene	1.28E-04	lb/1,000 gallons	129000
Styrene	2.22E-03	lb/1,000 gallons	100425
Toluene	3.84E-02	lb/1,000 gallons	108883
Vinyl chloride	1.40E-03	lb/1,000 gallons	75014
Xylenes (mixed)	1.73E-02	lb/1,000 gallons	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	154
Description	LPG-Fired Internal Combustion 2SLB Engine No Cont
Source	The emission factors are derived from July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine and conversion from NG to LPG using District conversion factors.. Use spreadsheet to determine VOC control or to use different HHV

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,1,2,2-Tetrachloroethane	6.23E-03	lbs/1,000 gals	79345
1,1,2-Trichloroethane	4.95E-03	lbs/1,000 gals	79005
1,1-Dichloroethane	3.68E-03	lbs/1,000 gals	75343
1,2,4-Trimethylbenzene	9.21E-04	lbs/1,000 gals	95636
1,3-Butadiene	7.71E-02	lbs/1,000 gals	106990
2,2,4-Trimethylpentane	7.95E-02	lbs/1,000 gals	540841
2-Methyl naphthalene	2.01E-03	lbs/1,000 gals	91576
Acenaphthene	1.25E-04	lbs/1,000 gals	83329
Acenaphthylene	2.98E-04	lbs/1,000 gals	208968
Acetaldehyde	7.29E-01	lbs/1,000 gals	75070
Acrolein	7.31E-01	lbs/1,000 gals	107028
Anthracene	6.75E-05	lbs/1,000 gals	120127
Benz[a]anthracene	3.16E-05	lbs/1,000 gals	56553
Benzene	1.82E-01	lbs/1,000 gals	71432
Benzo[a]pyrene	2.20E-06	lbs/1,000 gals	50328
Benzo[b]fluoranthene	8.00E-07	lbs/1,000 gals	205992
Benzo[e]pyrene	2.20E-06	lbs/1,000 gals	192972
Benzo[g,h,i]perylene	2.33E-06	lbs/1,000 gals	191242
Benzo[k]fluoranthene	4.00E-07	lbs/1,000 gals	207089
Biphenyl	3.71E-04	lbs/1,000 gals	92524
Carbon tetrachloride	5.71E-03	lbs/1,000 gals	56235
Chlorobenzene	4.17E-03	lbs/1,000 gals	108907
Chloroform	4.43E-03	lbs/1,000 gals	67663
Chrysene	6.32E-05	lbs/1,000 gals	218019
Cyclohexane	2.90E-02	lbs/1,000 gals	110827
Ethyl benzene	1.02E-02	lbs/1,000 gals	100414
Ethylene dibromide {EDB}	6.90E-03	lbs/1,000 gals	106934
Fluoranthene	3.39E-05	lbs/1,000 gals	206440
Fluorene	1.59E-04	lbs/1,000 gals	86737
Formaldehyde	5.19E+00	lbs/1,000 gals	50000
Hexane	4.18E-02	lbs/1,000 gals	110543
Indeno[1,2,3-cd]pyrene	9.33E-07	lbs/1,000 gals	193395
Methanol	2.33E-01	lbs/1,000 gals	67561
Methylene chloride {Dichloromethane}	1.38E-02	lbs/1,000 gals	75092
Naphthalene	9.05E-03	lbs/1,000 gals	91203
PAHs, total, w/o individ. components reported	1.23E-02	lbs/1,000 gals	1151
Perylene	4.67E-07	lbs/1,000 gals	198550
Phenanthrene	3.32E-04	lbs/1,000 gals	85018
Phenol	3.96E-03	lbs/1,000 gals	108952
Pyrene	5.49E-05	lbs/1,000 gals	129000
Styrene	5.15E-03	lbs/1,000 gals	100425
Toluene	9.05E-02	lbs/1,000 gals	108883
Vinyl chloride	2.32E-03	lbs/1,000 gals	75014
Xylenes (mixed)	2.52E-02	lbs/1,000 gals	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	156
Description	LPG-Fired Internal Combustion 4SRB Engine No Cont
Source	The emission factors are derived from July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine and conversion from NG to LPG using District conversion factors. Use spreadsheet to determine VOC control or to use different HHV.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,1,2,2-Tetrachloroethane	2.38E-03	lbs/1,000 gals	79345
1,1,2-Trichloroethane	1.44E-03	lbs/1,000 gals	79005
1,1-Dichloroethane	1.06E-03	lbs/1,000 gals	75343
1,3-Butadiene	6.23E-02	lbs/1,000 gals	106990
Acetaldehyde	2.62E-01	lbs/1,000 gals	75070
Acrolein	2.47E-01	lbs/1,000 gals	107028
Benzene	1.49E-01	lbs/1,000 gals	71432
Carbon tetrachloride	1.66E-03	lbs/1,000 gals	56235
Chlorobenzene	1.21E-03	lbs/1,000 gals	108907
Chloroform	1.29E-03	lbs/1,000 gals	67663
Ethyl benzene	2.33E-03	lbs/1,000 gals	100414
Ethylene dibromide {EDB}	2.00E-03	lbs/1,000 gals	106934
Formaldehyde	1.93E+00	lbs/1,000 gals	50000
Methanol	2.88E-01	lbs/1,000 gals	67561
Methylene chloride {Dichloromethane}	3.87E-03	lbs/1,000 gals	75092
Naphthalene	9.13E-03	lbs/1,000 gals	91203
PAHs, total, w/o individ. components reported	1.33E-02	lbs/1,000 gals	1151
Styrene	1.12E-03	lbs/1,000 gals	100425
Toluene	5.25E-02	lbs/1,000 gals	108883
Vinyl chloride	6.75E-04	lbs/1,000 gals	75014
Xylenes (mixed)	1.83E-02	lbs/1,000 gals	1330207

District Toxic Profile ID	158
Description	LPG Internal Combustion - Turbine w/ Catalyst
Source	LPG-fired turbine toxic emission are not available, so natural gas-fired turbine emission factors are used as a surrogate. The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 94,000 Btu/gal LPG

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,3-Butadiene	4.04E-05	lb/1,000 Gallons	106990
Acetaldehyde	3.76E-03	lb/1,000 Gallons	75070
Acrolein	6.02E-04	lb/1,000 Gallons	107028
Benzene	8.55E-05	lb/1,000 Gallons	71432
Ethyl benzene	3.01E-03	lb/1,000 Gallons	100414
Formaldehyde	1.88E-03	lb/1,000 Gallons	50000
Naphthalene	1.22E-04	lb/1,000 Gallons	91203
PAHs, total, with individ. components also reported	2.07E-04	lb/1,000 Gallons	1150
Propylene oxide	2.73E-03	lb/1,000 Gallons	75569
Toluene	1.22E-02	lb/1,000 Gallons	108883
Xylenes (mixed)	6.02E-03	lb/1,000 Gallons	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	159
Description	NG Internal Combustion 2SLB Engine No Controls
Source	The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engines, Table 3.2-1. Assumes 1,000 btu per scf natural gas. Use spreadsheet to determine VOC control or to use different HHV

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,1,2,2-Tetrachloroethane	6.63E-02	lb/MMscf	79345
1,1,2-Trichloroethane	5.27E-02	lb/MMscf	79005
1,1-Dichloroethane	3.91E-02	lb/MMscf	75343
1,2,4-Trimethylbenzene	9.80E-03	lb/MMscf	95636
1,3-Butadiene	8.20E-01	lb/MMscf	106990
2,2,4-Trimethylpentane	8.46E-01	lb/MMscf	540841
2-Methyl naphthalene	2.14E-02	lb/MMscf	91576
Acenaphthene	1.33E-03	lb/MMscf	83329
Acenaphthylene	3.17E-03	lb/MMscf	208968
Acetaldehyde	7.76E+00	lb/MMscf	75070
Acrolein	7.78E+00	lb/MMscf	107028
Anthracene	7.18E-04	lb/MMscf	120127
Benz[a]anthracene	3.36E-04	lb/MMscf	56553
Benzene	1.94E+00	lb/MMscf	71432
Benzo[a]pyrene	5.68E-06	lb/MMscf	50328
Benzo[b]fluoranthene	8.51E-06	lb/MMscf	205992
Benzo[e]pyrene	2.34E-05	lb/MMscf	192972
Benzo[g,h,i]perylene	2.48E-05	lb/MMscf	191242
Benzo[k]fluoranthene	4.26E-06	lb/MMscf	207089
Biphenyl	3.95E-03	lb/MMscf	92524
Carbon tetrachloride	6.07E-02	lb/MMscf	56235
Chlorobenzene	4.44E-02	lb/MMscf	108907
Chloroform	4.71E-02	lb/MMscf	67663
Chrysene	6.72E-04	lb/MMscf	218019
Cyclohexane	3.08E-01	lb/MMscf	110827
Ethyl benzene	1.08E-01	lb/MMscf	100414
Ethylene dibromide {EDB}	7.34E-02	lb/MMscf	106934
Ethylene dichloride {EDC}	4.22E-02	lb/MMscf	107062
Fluoranthene	3.61E-04	lb/MMscf	206440
Fluorene	1.69E-03	lb/MMscf	86737
Formaldehyde	5.52E+01	lb/MMscf	50000
Hexane	4.45E-01	lb/MMscf	110543
Indeno[1,2,3-cd]pyrene	9.93E-06	lb/MMscf	193395
Methanol	2.48E+00	lb/MMscf	67561
Methylene chloride {Dichloromethane}	1.47E-01	lb/MMscf	75092
Naphthalene	9.63E-02	lb/MMscf	91203
PAHs, total, w/o individ. components reported	3.47E-02	lb/MMscf	1151
Perylene	4.97E-06	lb/MMscf	198550
Phenanthrene	3.53E-03	lb/MMscf	85018
Phenol	4.21E-02	lb/MMscf	108952
Pyrene	5.84E-04	lb/MMscf	129000
Styrene	5.48E-02	lb/MMscf	100425
Toluene	9.63E-01	lb/MMscf	108883
Vinyl chloride	2.47E-02	lb/MMscf	75014
Xylenes (mixed)	2.68E-01	lb/MMscf	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	160
Description	NG Internal Combustion 4SLB Engine No Controls
Source	The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engines, Table 3.2-2. Assumes 1,000 Btu per scf natural gas. Use spreadsheet to determine VOC control or to use different HHV

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,1,2,2-Tetrachloroethane	4.00E-02	lb/MMscf	79345
1,1,2-Trichloroethane	3.18E-02	lb/MMscf	79005
1,1-Dichloroethane	2.36E-02	lb/MMscf	75343
1,2,4-Trimethylbenzene	1.43E-02	lb/MMscf	95636
1,3-Butadiene	2.67E-01	lb/MMscf	106990
2,2,4-Trimethylpentane	2.50E-01	lb/MMscf	540841
2-Methyl naphthalene	3.32E-02	lb/MMscf	91576
Acenaphthene	1.25E-03	lb/MMscf	83329
Acenaphthylene	5.53E-03	lb/MMscf	208968
Acetaldehyde	8.36E+00	lb/MMscf	75070
Acrolein	5.14E+00	lb/MMscf	107028
Benzene	4.40E-01	lb/MMscf	71432
Benzo[b]fluoranthene	1.66E-04	lb/MMscf	205992
Benzo[e]pyrene	4.15E-04	lb/MMscf	192972
Benzo[g,h,i]perylene	4.14E-04	lb/MMscf	191242
Biphenyl	2.12E-01	lb/MMscf	92524
Carbon tetrachloride	3.67E-02	lb/MMscf	56235
Chlorobenzene	3.04E-02	lb/MMscf	108907
Chloroform	2.85E-02	lb/MMscf	67663
Chrysene	6.93E-04	lb/MMscf	218019
Ethyl benzene	3.97E-02	lb/MMscf	100414
Ethylene dibromide {EDB}	4.43E-02	lb/MMscf	106934
Ethylene dichloride {EDC}	2.36E-02	lb/MMscf	107062
Fluoranthene	1.11E-03	lb/MMscf	206440
Fluorene	5.67E-03	lb/MMscf	86737
Formaldehyde	5.28E+01	lb/MMscf	50000
Hexane	1.11E+00	lb/MMscf	110543
Methanol	2.50E+00	lb/MMscf	67561
Methylene chloride {Dichloromethane}	2.00E-02	lb/MMscf	75092
Naphthalene	7.44E-02	lb/MMscf	91203
PAHs, total, w/o individ. components reported	7.75E-03	lb/MMscf	1151
Phenanthrene	1.04E-02	lb/MMscf	85018
Phenol	2.40E-02	lb/MMscf	108952
Pyrene	1.36E-03	lb/MMscf	129000
Styrene	2.36E-02	lb/MMscf	100425
Toluene	4.08E-01	lb/MMscf	108883
Vinyl chloride	1.49E-02	lb/MMscf	75014
Xylenes (mixed)	1.84E-01	lb/MMscf	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	161
Description	NG Internal Combustion 4SRB Engine No Controls
Source	The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engines, Table 3.2-3. Assumes 1,000 Btu's per scf natural gas. Use spreadsheet to determine VOC control or to use different HHV

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,1,2,2-Tetrachloroethane	2.53E-02	lbs/MMscf	79345
1,1,2-Trichloroethane	1.53E-02	lbs/MMscf	79005
1,1-Dichloroethane	1.13E-02	lbs/MMscf	75343
1,3-Butadiene	6.63E-01	lbs/MMscf	106990
Acetaldehyde	2.79E+00	lbs/MMscf	75070
Acrolein	2.63E+00	lbs/MMscf	107028
Benzene	1.58E+00	lbs/MMscf	71432
Carbon tetrachloride	1.77E-02	lbs/MMscf	56235
Chlorobenzene	1.29E-02	lbs/MMscf	108907
Chloroform	1.37E-02	lbs/MMscf	67663
Ethyl benzene	2.48E-02	lbs/MMscf	100414
Ethylene dibromide {EDB}	2.13E-02	lbs/MMscf	106934
Ethylene dichloride {EDC}	1.13E-02	lbs/MMscf	107062
Formaldehyde	2.05E+01	lbs/MMscf	50000
Methanol	3.06E+00	lbs/MMscf	67561
Methylene chloride {Dichloromethane}	4.12E-02	lbs/MMscf	75092
Naphthalene	9.71E-02	lbs/MMscf	91203
PAHs, total, w/o individ. components reported	4.39E-02	lbs/MMscf	1151
Styrene	1.19E-02	lbs/MMscf	100425
Toluene	5.58E-01	lbs/MMscf	108883
Vinyl chloride	7.18E-03	lbs/MMscf	75014
Xylenes (mixed)	1.95E-01	lbs/MMscf	1330207

District Toxic Profile ID	162
Description	NG Internal Combustion - Turbine w/o Catalyst
Source	The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 1,000 Btu's per scf natural gas.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,3-Butadiene	4.30E-04	lb/MMscf	106990
Acetaldehyde	4.00E-02	lb/MMscf	75070
Acrolein	6.40E-03	lb/MMscf	107028
Benzene	1.20E-02	lb/MMscf	71432
Ethyl benzene	3.20E-02	lb/MMscf	100414
Formaldehyde	7.10E-01	lb/MMscf	50000
Naphthalene	1.30E-03	lb/MMscf	91203
PAHs, total, with individ. components also reported	2.20E-03	lb/MMscf	1150
Propylene oxide	2.90E-02	lb/MMscf	75569
Toluene	1.30E-01	lb/MMscf	108883
Xylenes (mixed)	6.40E-02	lb/MMscf	1330207

TEIP: [Facility Name] ([Facility ID])

District Toxic Profile ID	163
Description	NG Internal Combustion - Turbine w/ Catalyst
Source	The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 1,000 Btu's per scf natural gas.

Pollutant Name	Emission Factor	Emission Factor Units	CAS#
1,3-Butadiene	4.30E-04	lbs/MMscf	106990
Acetaldehyde	4.00E-02	lbs/MMscf	75070
Acrolein	6.40E-03	lbs/MMscf	107028
Benzene	9.10E-04	lbs/MMscf	71432
Ethyl benzene	3.20E-02	lbs/MMscf	100414
Formaldehyde	2.00E-02	lbs/MMscf	50000
Naphthalene	1.30E-03	lbs/MMscf	91203
PAHs, total, with individ. components also reported	2.20E-03	lbs/MMscf	1150
Propylene oxide	2.90E-02	lbs/MMscf	75569
Toluene	1.30E-01	lbs/MMscf	108883
Xylenes (mixed)	6.40E-02	lbs/MMscf	1330207

Appendix D. Safety Data Sheets

[Identify the toxic device(s) to which each SDS is associated with. Provide all SDSs as applicable.]

EXAMPLE