# APPENDIX B
## *California Upset Rules and Data*

California is divided into 35 local air districts, which each have their own air pollution control rules. Details regarding the upset reporting and variance requirements for the South Coast Air Quality Management District (SCAQMD) and the Bay Area Air Quality Management District (BAAQMD) are discussed below. In addition to the problems with certain California rules discussed below, a recent report by the Environmental Working Group found lax enforcement by California's air pollution control districts and average penalties that are too low to deter noncompliance.[1]

### *Bay Area Air Quality Management District*

***Upset Rules*:** The Bay Area Air Quality Management District's SIP approved upset rules appear to be consistent with the Clean Air Act and EPA's guidance. BAAQMD does, however, grant state variances. While these variances are not approved into the SIP, they can be used to exempt upset emissions from state enforcement.

- *Breakdown rules:* BAAQMD's SIP approved rules recognize the district's enforcement discretion with respect to excess emissions resulting from "breakdowns."[2] A breakdown is defined as an "unforeseeable failure or malfunction of any air pollution control equipment or operating equipment which causes a violation of any emission standard or limitation."[3] Breakdowns do not include incidents resulting from "intent, neglect, or disregard" of the law or improper maintenance, or incidents that cause a nuisance or are an "excessively recurrent" breakdown of the same equipment.[4] The breakdown rule provides that BAAQMD "may refrain from" taking enforcement action for violations of emission standards resulting from a breakdown provided the emissions do not interfere with attainment or maintenance of the federal national ambient air quality standards.[5] Only emissions occurring within 24 hours of the breakdown qualify under the breakdown provision.[6]

- *Variance Rules:* For breakdown emissions lasting longer than 24 hours, or for excess emissions caused by other factors, facilities can apply to the BAAQMD Hearing Board for a variance.[7] If a variance is granted, it temporarily relieves the source from the obligation of complying with a district regulation or permit condition. BAAQMD's variance provisions are not included in the SIP, and cannot immunize emissions that exceed federal air pollution limits from EPA or citizen enforcement. Despite this, BAAQMD's granting of variances appears to

### Henry Clark, Richmond, CA

"I live on the front line of the chemical assault from the Chevron-Texaco Refinery in Richmond, California. The daily toxic emissions that my community is bombarded with are dangerous and deadly, the dioxins, benzene and xylene emissions. When there is an upset or explosion we have been exposed to toxics emissions for over a week. There is a high rate of childhood asthma and cancer in the Richmond, CA, area. This situation must stop! Chevron-Texaco must be held accountable to operate safely and compensate the community for years and years of chemical assaults."

violate the Clean Air Act requirement that states enforce emission standards at least as stringent as those in the SIP.[8] BAAQMD's variance procedures and the state statute authorizing them should, therefore, be revised to provide that the process is simply an exercise of the agency's enforcement discretion and that all exceedances of emission limits are violations of the law subject to enforcement.

***Reporting:*** BAAQMD does not have a general rule that requires facilities to report excess emissions. Its breakdown and variance reports should identify some of these emissions. In addition, BAAQMD's new flare monitoring rules and pressure relief device rules require the reporting of all emissions, routine and upset, from certain types of equipment.

- *Breakdown Reports:* Sources seeking breakdown relief must notify BAAQMD "immediately" following a breakdown.[9] The notification must include the location, equipment involved and, to the extent known, the cause of the breakdown. A written follow-up report must be filed within 30 days that includes sufficient information for the agency to determine whether the cause of the emissions was truly a breakdown, a summary of corrective action taken and a summary of actions taken to ensure such breakdowns will not occur in the future.[10] The rules do not require the reports to identify the type and quantity of emissions released, although agency guidance does.

- *Variance Files:* Applications to the Hearing Board for variances must include "to the extent possible" the number and type of emission points and measurements or estimates of the quantity and nature of emissions released during the event for which a variance is sought, as well as the quality in excess of legal limits.[11]

- *Flare Monitoring Reports:* BAAQMD's flare monitoring rule requires monthly reports which specify the methane, non-methane and sulfur dioxide emissions, both upset and routine, from flares.[12]

- *Pressure Relief Device Reports:* BAAQMD's pressure relief device rules apply to refineries and chemical plants and require reporting of all releases greater than 10 pounds from pressure relief devices.[13] These reports must include the amount of total organic compounds, ammonia, hydrogen sulfide, chlorine, sulfur dioxide, sulfur trioxide, hydrofluoric acid, and difluoroethane released.

While these reports each provide some information about certain types of upset emissions, without a centralized reporting system for all excess emissions that includes specific estimates of quantities, it was extremely difficult to determine how much excess pollution the facilities studied were emitting.

BAAQMD staff informed us that episode reports were the best place to look for upset emission data. Episode Printouts summarize all of the reported excess emission events at a particular facility. Individual Episode Reports include such useful information at the date and time of the event, the units involved, and whether a Notice of Violation was issued, but often fail to include the amount of pollution emitted during an event. Instead, the reports frequently simply site the regulatory limit and indicate that the facility exceeded that limit.

A further problem with the BAAQMD's system was the number of episode reports that were lost, on corrupted electronic media, or withheld by the legal department pending settlement.

BAAQMD would not produce information within numerous reports that were "withheld by legal." The emission data within the withheld documents is clearly public information under the Clean Air

| Company | Reports Lost | Reports Withheld by Legal | Reports Corrupted |
|---|---|---|---|
| Shell Oil Refinery | | 17 | |
| Tesoro Oil Refinery | 8 | 11 | 1 |
| Valero Oil Refinery | | 28 | 6 |

Act and should not be withheld for any length of time.[14] Further, the emissions reports requested were from 2001 and 2002. It is unreasonable for the District to withhold even the non-emission information in these reports for this extended period of time.[15]

The District does post incident reports that it deems of significant interest to the public on its website.[16] A limited number of reports are posted, however, and the reports often do not include information regarding the type or amount of pollution emitted. The reports do, though, include helpful information such as the number of complaints received during the event and the actions taken in response by BAAQMD.

***Data:*** The attached spreadsheets include upsets documented in BAAQMD's episode report database for the following facilities:

| Facility Name | Facility Location |
|---|---|
| Tesoro | Martinez, CA |
| Valero | Benicia, CA |
| Shell | Martinez, CA |

Because BAAQMD does not have a uniform system for reporting quantities of excess emissions, and because so many of the reports were missing entirely or lacking emission data, it was impossible to determine how much pollution the facilities studied emitted during upsets. As can be seen from the attached Tesoro, Valero and Shell spreadsheets, the facilities frequently reported "breakdowns" but did not indicate the total amount of pollution released during the upset.[17] Due to this lack of data, we did not attempt to total these facilities' upset emissions.

Our findings regarding the causes of upsets at Texas and Louisiana facilities, however, are consistent with a report by Communities for a Better Environment that found repeated Bay Area refinery flaring due to routine and preventable conditions, including equipment breakdowns, power failures and lack of compressor capacity.[18]

### *South Coast Air Quality Management District*

***Upset Rules:*** The South Coast Air Quality Management District's SIP includes upset provisions that violate the Clean Air Act and EPA guidance. SCAQMD's breakdown rules exempt certain upset emissions from compliance with emission limits and have not been approved into the SIP. SCAQMD's variance rule, however, referred to as the Alternative Operating Condition (AOC) rule, has been approved into the SIP despite its violating federal law.

- *Breakdowns:* SCAQMD's breakdown provision makes certain air pollution control rules "inapplicable to a violation directly caused by a breakdown" providing certain criteria are met.[19]

### Cynthia Babich, Los Angeles, CA

"Choke, choke, gasp, gasp, these upset emissions, which are unreported and unpermitted, gas our community constantly. When we reviewed their Title V permits last year, we found that Exxon Mobil had operated without their electrostatic precipitator working properly for months and that tons of catalyst had been blown out of the catalytic cracking unit into the community. Something needs to be done!"

To qualify for the exemption, a source must demonstrate the following: (1) reporting requirements were met, (2) the breakdown was not caused by operator error, neglect, or improper operation or maintenance procedures, (3) steps were immediately taken to correct the conditions leading to the breakdown and emissions were mitigated to the maximum extent feasible, and (4) the equipment in violation was shut down within 24 hours or at the end of the operating cycle, whichever occurs first.[20] As noted above, this rule had not been approved by EPA into the SCAQMD SIP and cannot apply to prevent EPA or citizen enforcement for violations of federal emission standards. It still, however, appears to violate the Clean Air Act requirement that states enforce emission limits at least as stringent as those in the state SIP, as well as the requirement that states have the authority to collect penalties for every violation of the Act.[21]

- *Variances:* The SCAQMD's Hearing Board grants several different types of variances. These include emergency variances, regular variances, and "alternative operating conditions." If the Hearing Board grants a variance, a source is authorized to continue operating in violation of the law.

  Rule 517 allows emergency variances for excess emissions lasting less than 24 hours caused by breakdowns. Rule 517 is not approved into the SCAQMD SIP. Variances granted pursuant to rule 517 that authorize violations of federal rules or SIP standards, however, appear to violate Clean Air Act section 116.[22]

  Rule 518.2 creates an exemption process that allows major sources to exceed their emission limits by changing those limits in their Title V permits. This exemption process is illegal, but has been approved by EPA into the SCAQMD SIP. The AOC variance is included in SCAQMD's Title V rules and allows facilities to illegally change applicable requirements through their Title V permits. The AOC provision violates numerous requirements of the Clean Air Act and EPA guidance, including the following:
  - Clean Air Act (CAA) §502 because Title V permits are not allowed to revise applicable requirements;[23]
  - CAA §110 because any revisions to the SIP must be approved by EPA and the AOC provision allows revisions to take effect if EPA takes no action;
  - CAA §116 because, by granting any variance from SIP limits or other federal standards, SCAQMD is not enforcing emission limits at least as stringent as those in the SIP and federal regulations; and
  - EPA's Guidance because the AOC can excuse violations that are not caused by unforeseen or unavoidable circumstances and creates an exemption, rather than an affirmative defense, that applies to both penalties and injunctive relief.

To date, apparently only one facility has applied to SCAQMD for an AOC, and that application is still pending. While the AOC does provide some protections not included in other exemption provisions—such as the requirement for obtaining emission reduction credits or mitigation—it is still an illegal exemption from federal Clean Air Act requirements and should be removed from the SCAQMD SIP.

***Reporting:*** There is no uniform system for reporting excess emissions in SCAQMD. Like BAAQMD, SCAQMD has several reporting requirements that may include some information on upset emissions.

- *Breakdowns:* Facility operators must report breakdowns within one hour of the time they should have known about the violation caused by the breakdown.[24] The initial report must include the time, location, equipment, responsible party, and, to the extent known, the cause and estimated time for repairs.[25] Within seven days after the breakdown has been corrected, and no later than 30-days after the breakdown, the operator must file a written report, which includes the equipment causing the breakdown; the duration; the date of correction and demonstration of compliance; the identification of the times of emissions, quantification of emissions and basis used to quantify; information demonstrating that the breakdown was not the result of operator error, neglect, or improper operation or maintenance; information substantiating the steps immediately taken to minimize emissions; and a description of the steps taken to avoid similar malfunctions in the future.[26]

- *Variances:* Petitions for variances are supposed to include an estimate of emissions.[27] In addition, the "Calculation of Excess Emission Fees" form that facilities are required to submit should include estimates of emissions.

- *Flaring:* SCAQMD Rule 1118 requires facilities to submit quarterly flaring reports that include the daily and quarterly emissions of criteria pollutants from each flare. The flare monitoring reports should include emissions from flares resulting from upsets, as well as other causes.

Despite these reporting requirements, it was difficult to gather upset data from SCAQMD. While there is a requirement that breakdown reports include emissions estimates, many of the reports merely stated that emissions were greater than the regulatory threshold or included no information quantifying emissions. Likewise, although the Hearing Board variance records were supposed to include emissions estimates, many of the files did not. Because SCAQMD lacks a centralized reporting system for excess emissions, and because many of the reports we reviewed did not quantify emissions, we could not adequately evaluate the excess emissions from the five SCAQMD facilities studied.

***Data:*** We reviewed breakdown and variance files for the following facilities:

| Facility Name | Facility Location |
|---|---|
| Exxon Mobil | Torrance, CA |
| Chevron Texaco | El Segundo, CA |
| BP Amoco | Carson, CA |
| Conoco Phillips | Wilmington, CA |
| Conoco Phillips | Carson, CA |

As can be seen from the attached spreadsheets, data regarding these facilities' upset emissions were often incomplete.[28] Because these reports did not give us a complete picture of excess emission from the facilities, we have not totaled emissions.

## NOTES

1 Environmental Working Group, "Still Above the Law: How California's Major Air Polluters Get Away With It" (July 29, 2004).

2 The rules are not clearly written and could be subject to different interpretation. The interpretation included here is consistent with BAAQMD's stated interpretation.

3 BAAQMD Reg. 1-208.

4 *Id.*

5 BAAQMD Regs. 1-112 & 1-113.

6 *Id.*

7 Ca. Health & Safety Code §42352.

8 Clean Air Act §116.

9 BAAQMD Reg. 1-431.

10 BAAQMD Reg. 1-432.

11 Hearing Board Rules Section 2.2d.

12 BAAQMD Reg. 12-11-500.

13 BAAQMD Reg. 8-28-401.

14 42 U.S.C. §114(a) & (c); 40 C.F.R. §2.301(a)(2)(i).

15 In commenting on a draft of this appendix, BAAQMD stated that its policy is that investigation reports should be available to the public upon request. If the investigation report is part of a notice of violation report, BAAQMD said it should be available in its entirety upon closure of the case.

16 http://www.baaqmd.gov/enf/incidents/index.asp.

17 Information on the BAAQMD spreadsheets included in the "Type of Event" column indicates the follow up taken by BAAQMD. NOV means a Notice of Violation was issued. BRG means breakdown relief was granted and NACT means no action taken. In addition, monitor outages are included separately at the end of the BAAQMD spreadsheets.

18 Communities for a Better Environment, "Refinery Flaring in the Neighborhood" (Spring 2004).

19 SCAQMD Rule 430(b)(3).

20 *Id.*

21 Clean Air Act §§116 & 502(b).

22 SCAQMD Rule 504 does provide that variances may not be granted from NSPS or NESHAP standards.

23 As EPA stated in its Notice of Deficiency for Indiana's Title V program, "Indiana's rule … allows the state to address emission limit exceedances for startups, shutdowns, and malfunctions on a case-by-case basis in title V permits. This allows the permitting authority to establish through the title V permitting process limits which exceed applicable requirements. Because Title V does not give permitting authorities the authority to establish new emission limits, Indiana's program does not meet the program approval requirements of title V…" 66 Fed. Reg. 64039, 64040 (Dec. 11, 2001).

24 SCAQMD Rule 430(b).

25 *Id.*

26 *Id.*

27 SCAQMD rules 517 & 518.2 and Ca. Health & Safety Code §§42352 & 42353.

28 The information on the SCAQMD spreadsheets included in the "Type of Event" column sometimes indicates the determination made, or follow-up action taken by SCAQMD. NOV means a Notice of Violation was issued.

## SHELL MARTINEZ REFINERY BAAQMD • Martinez, CA
## Emissions Data (Lbs./Event unless noted): 1.01.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/5/02 | #3 Sulfur Recovery Plant | | | 16.0 | >250 ppm/ hr | | | | | | | | Malfunction |
| 12/5/02 | Steam Coil in Sulfer Pit | | | | | | | | | | | | Excess Emission, Breakdown (NOV) |
| 10/12/02 | Cat Feed Hydrotreater & Cat cracker | PSV - N002 | | 0.0 | | 8 | | | 110 | | | | Malfunction |
| 9/30/02 | Effluent Treatment Plant | | | | | | | | | | | | Excess Emission (NOV) |
| 9/21/02 | #7 Pond | | | 1.0 | | 60 ppb 3 min avg., 118 ppb peak; 35 ppb avg/ hr, 118 ppb peak | | | | | | | Malfunction |
| 9/21/02 | No Source ID | | | | | | | | | | | | Excess Emission (NACT) |
| 9/20/02 | Sour Water Stripper #7 | | | | | | | | | | | | Excess Emisssion, Breakdown (NOV) |
| 9/1/02 | #3 Hydrogen Plant SMR Furnace | | | 3.0 | | | | 22 ppm @3% 02/3 hr. avg | | | | | Malfunction |
| 8/3/02 | LOP Flare | | | | | | | | | | | | Excess Emission (NOV) |
| 7/20/02 | #1 CO Boiler | #1 CO Boiler Stack | >30% <3min/hr | 0.1 | | | | | | | | | Excess Emission, Breakdown (NACT) |
| 7/18/02 | | | | | | | | | | | | | Excess Emission (NOV) |
| 7/9/02 | CCU Gas redistributor | | | | | | | | | | | | Excess Emission (NOV) |
| 7/4/02 | HC Flare | | | 0.1 | | 141 ppm | | | | | | | Excess Emission (NOV) |
| 7/2/02 | DMDS Pump | Tubing | | | | | | | | | | | Excess Emission, Breakdown (BRG) |
| 6/25/02 | DEA Treatment System | | | | | | | | | | | | Excess Emission (NOV) |
| 6/25/02 | SRU3 | | | | | | | | | | | | Excess Emission (NOV) |
| 6/25/02 | Dea Treatment System | | | | | | | | | | | | Excess Emission (NOV) |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/25/02 | DEA Treatment System | | | | | | | | | | | | Excess Emission (NOV) |
| 6/15/02 | Fuel Gas DEA Treater | | | 3.0 | | 165ppm avg | | | | | | | Excess Emission (NOV, NACT) |
| 6/8/02 | Analyzer | Flame | | | | | | | | | | | |
| 5/31/02 | #2 CO Boiler | #2 CO Boiler Stack | | 0.7 | | | 500 - 600 ppm | | | | | | Excess Emission (NACT) |
| 5/25/02 | Feed Heater | | | 11.6 | | | | >10 ppm | | | | | Excess Emission (NOV) |
| 5/10/02 | #3 CO Boiler | #3 CO Boiler Stack | | 1.0 | | | 588 ppm average | | | | | | Excess Emission (NACT) |
| 5/9/02 | #3 CO Boiler | #3 CO Boiler Stack | | 3.9 | | | >500 ppm | | | | | | Excess Emission (NOV) |
| 5/8/02 | #6 Pond (probably) | | | 1.2 | | 31 ppb 60 min avg/42 ppb peak | | | | | | | Excess Emission (NACT) |
| 5/7/02 | #3 Sulfur Recovery Plant | | | 3.0 | >500ppm | | | | | | | | Excess Emission (NOV) |
| 5/7/02 | #6 Pond (probably) | | | 0.7 | | 31ppb 60 min avg/44 ppb peak | | | | | | | Excess Emission (NACT) |
| 4/23/02 | #3 Sulfur Recovery Plant | Catalytic Oxidizer | | 3.0 | >250 ppm | | | | | | | | Excess Emission (NOV) |
| 4/19/02 | #3 Sulfur Recovery Plant | MDEA System | | 1.0 | >250 ppm | | | | | | | | Excess Emission (NOV) |
| 4/13/02 | ? | | | 0.0 | | | | | | | | | Excess Emission (NACT) |
| 4/12/02 | #2 CO Boiler | #2 CO Boiler Stack | | 1.0 | | | 591 ppm | | | | | | Excess Emission (NACT) |
| 4/1/02 | #1 CO Boiler | #1 CO Boiler Stack | >20% | 2.0 | | | 423 ppm; 523 ppm | | | | | | Excess Emission, Breakdown (NACT) |
| 3/28/02 | Pressure relief device - E396 | OPCen - Lean oil sponge chiller | | 0.0 | | | | | 190 | | | | Pressure (NACT) |
| 3/12/02 | O2 Analyzer | Calibration | | | | | | | | | | | |
| 3/12/02 | Analyzer | Calibration | | | | | | | | | | | |
| 3/11/02 | Analyzer Hiway | Power Supply | | | | | | | | | | | |
| 3/9/02 | Analyzer | Calibration | | | | | | | | | | | |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/26/02 | ? | | | | | | | | | | | | Excess Emission, Breakdown (NACT) |
| 2/26/02 | #3 Hydrogen Plant | | | 3.0 | | | | 10.4 ppm | | | | | ? |
| 2/20/02 | ? | | | | | | | | | | | | Excess Emission, Breakdown |
| 2/14/02 | #3 CO Boiler | #3 CO Boiler Stack | ≥30% | 0.0 | | | | | | | | | Excess Emission (NACT) |
| 1/13/02 | OPCen Flare | | | 1.5 | | >163 ppm | | ≤192/3hr avg | | | | | Excess Emission (NACT) |
| 11/1/01 | Vine Hill storage tank vapor recovery system | Pressure relief device - J127 | | 1.2 | | | 334lbs; 23 PPMW | | | | | natural gas - 440 lbs | Pressure (NACT) |
| 10/18/01 | #3 CO Boiler | #3 CO Boiler Stack | ≥30% | 0.2 | | | | | | | | | Excess Emission (NACT) |
| 10/17/01 | #2 CO Boiler | #2 CO Boiler Stack | up to 60% for a maximum of 15min/hr | 0.3 | | | | | | | | | Excess Emission (NOV) |
| 10/17/01 | #3 CO Boiler | #3 CO Boiler Stack | >60% for a maximum of 14 min/hr | 0.3 | | | | | | | | | Excess Emission (NOV) |
| 10/16/01 | Pressure relief device - J244 | FCC gas plant debutanizer column | | 0.0 | | | 1700 lbs; 1100 PPMW | | | | | HC: 950 lbs | Pressure (NOV) |
| 10/14/01 | #2 CO Boiler | #2 CO Boiler Stack | up to 60% for a maximum of 41min/hr | 2.3 | | | | | | | | | Excessive Emission(NOV) |
| 10/14/01 | #3 CO Boiler | #3 CO Boiler Stack | up to 60% for a maximum of 20 min/hr | 2.2 | | | | | | | | | Excessive Emission (NOV) |
| 10/12/01 | Pressure relief devices - M31 & M36 | Fluid Catalytic Cracker | | 0.1 | | 6.3lbs | 5800lbs 1000 PPMW | | | | | HC: 7300 | Pressure (NOV) |
| 10/12/01 | CCU | #3 CO Boiler Stack | >20% | 0.7 | | | | | | | | | Excess Emission (NACT) |
| 10/2/01 | #3 CO Boiler | Dust hopper | >3min of >Ringleman 1 in an hour | 0.1 | | | | | | | | | Excess Emission (NACT) |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/30/01 | CO boiler | FCC Flue gas emission | | 19.5 | | 1001 | Likely but no monitor | | | | | Carbon sulfide - 100; formalde-hyde - 100; acetalde-hyde - 1000 hydrogen cyanide - 10; ammonia - 100 | Breakdown (BRG) |
| 9/18/01 | Lube Hydrotreater | | | 0.0 | | 66 ppb | | | | | | | Excess Emission (NOV) |
| 8/28/01 | Furfural Unit | Furfural Column | | | | | | | | | | | ? |
| 8/23/01 | Tank 1161 | | | 1.2 | | >30 ppb | | | | | | | Excess Emission (NOV) |
| 8/22/01 | Cat Cracker | Pressure relief device - J244 | | 0.1 | | 1 lb | | | | | | HC: 3200 lbs | Pressure (NACT) |
| 8/9/01 | Fuel gas system | Hydrocracker | | 1.1 | | 169.03 ppm peak | | | | | | | Pressure (NOV) |
| 8/9/01 | Fuel gas system | Hydrocracker | | 2.1 | | >163ppm | | | | | | | Pressure (NOV) |
| 8/9/01 | #3 Hydrogen Plant - 4161 | Pressure swing absorbtion | | 144.0 | | | 54000lb (450 lb/hr for 5dy) = 27tons = more than CO permit/ month (26.3) | | | | | | Excess Emission, Breakdown (BRG) |
| 8/9/01 | Pressure relief devices - J231 & J232 | Hydrocracker | | 0.1 | | 17 lbs | | | | | | HC: 670 lbs | Excess Emission (NOV) |
| 8/9/01 | Pressure relief devices - M50 & M53 | Hydrocracker | | 0.1 | | 150 lbs | | | | | | HC 12000 lbs | Excess Emission (NACT) |
| 7/27/01 | | Straight Run Hydrotreater | | 0.0 | | 4.3 lbs | | | | | | HC: 1500 lbs | Pressure (NOV) |
| 7/18/01 | Pressure relief devices - M50 &C82 | Naptha Hydrotreater, c-82 | | 0.3 | | 80 lbs | | | | | | HC: 31,000 lbs | Pressure (NOV) |
| 7/9/01 | CFU unit | Fuel Gas Treaters | | 5.0 | | 163 ppm | | | | | | | Excess Emission (NOV) |
| 7/9/01 | CFU unit | Fuel Gas Treaters | | 6.4 | | 163 ppm | | | | | | | Excess Emission (NOV) |
| 7/2/01 | #2 Sulfur Plant | | | 2.0 | 250 ppm | | | | | | | | Excess Emission (NOV) |
| 5/18/01 | Fuel Gas System | | | 2.3 | | 164 ppm | | | | | | | Excess Emission (NOV) |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/18/01 | Fuel Gas System | | | 3.0 | | 192 ppm | | | | | | | Excess Emission (NACT) |
| 5/18/01 | #3 hydrogen plant - 4161 | | | 0.8 | | | | 11.2 ppm | | | | | Breakdown, Excess Emission NACT) |
| 4/18/01 | #3 Sulfur Recovery Plant | | | 1.0 | 79 ppm | | | | | | | | Excess Emission (NOV) |
| 4/3/01 | | Catalytic Cracking Unit | | 2.0 | | | 500 ppm | | | | | | Excess Emission (NOV) |
| 3/19/01 | ? | | | 0.0 | | 60 ppb | | | | | | | Excess Emission (NOV) |
| 3/5/01 | PG&E natural gas header | PRD N-25 | | 0.1 | | | | | | | | Natural gas: 3680 lbs | Pressure (NACT) |
| 2/7/01 | #3 Hydrogen Plant 3 SMR Furnance | | | 3.0 | | | | 10.7 ppm | | | | | Excess Emission (NACT) |
| 2/6/01 | #4 Sulfur Recovery Plant | | | 1.0 | 250 ppm | | | | | | | | Excess Emission (NOV) |
| 1/25/01 | #3 Sulfur Recovery Plant | | | 1.0 | 267 ppm | | | | | | | | Excess Emission (NOV) |
| 1/16/01 | ? | | | 0.4 | | 60 ppb | | | | | | | Excess Emission (NOV) |
| | | | | | | Monitor Outages | | | | | | | |
| 12/28/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 12/26/02 | Calibrator/Span Drift test Failed | | | | | | | | | | | | Inoperative |
| 12/20/02 | Failed Span Drift Test | | | | | | | | | | | | Inoperative |
| 12/20/02 | Process Analyzer | | | | | | | | | | | | Inoperative |
| 12/15/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 12/12/02 | Low Sample Flow | | | | | | | | | | | | Inoperative |
| 12/8/02 | O2 Analyzer | | | | | | | | | | | | Inoperative |
| 12/7/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 12/5/02 | CEMS Sample Cooler Failure | | | | | | | | | | | | Inoperative |
| 12/4/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 12/3/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 11/28/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/27/02 | ? | | | | | | | | | | | | Inoperative |
| 11/26/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/24/02 | Calibrator | | | | | | | | | | | | Inoperative |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/23/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 11/20/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/20/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/20/02 | Data Collection System | | | | | | | | | | | | Inoperative |
| 11/13/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/10/02 | Sample Tubing | | | | | | | | | | | | Inoperative |
| 11/5/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/4/02 | Electrical | | | | | | | | | | | | Inoperative |
| 11/3/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 10/30/02 | ? | | | | | | | | | | | | Inoperative |
| 10/29/02 | Contamination of Stretford Solution | | | | | | | | | | | | Inoperative |
| 10/27/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 10/22/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 10/22/02 | Card Failure | | | | | | | | | | | | Inoperative |
| 10/13/02 | Substation Maint. | | | | | | | | | | | | Inoperative |
| 10/10/02 | Flame out | | | | | | | | | | | | Inoperative (NOV) |
| 9/24/02 | Electrical Power | | | | | | | | | | | | Inoperative |
| 9/9/02 | Sample Line Plugging | | | | | | | | | | | | Inoperative (NOV) |
| 9/2/02 | Calibrator | | | | | | | | | | | | Inoperative (NOV) |
| 8/31/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 8/31/02 | | | | | | | | | | | | | Inoperative |
| 8/30/02 | Sample Tube | | | | | | | | | | | | Inoperative |
| 8/29/02 | ? | | | | | | | | | | | | Inoperative |
| 8/21/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 8/12/02 | O2 Cell | | | | | | | | | | | | Inoperative |
| 8/9/02 | Alternator Switch | | | | | | | | | | | | Inoperative |
| 8/8/02 | ? | | | | | | | | | | | | Inoperative |
| 7/26/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 7/25/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 7/14/02 | O2 Analyzer | | | | | | | | | | | | Inoperative |
| 7/13/02 | Calibrator | | | | | | | | | | | | Inoperative |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/9/02 | Air-Conditioning | | | | | | | | | | | | Inoperative |
| 7/8/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 7/4/02 | Sample Line | | | | | | | | | | | | Inoperative |
| 7/3/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 7/2/02 | Hydrocracker, Dimethyl disulfide spill | | | 0.0 | | 80 ppb 60 min avg/130 ppb peak | | | | | | | Inoperative |
| 7/1/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 6/26/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 6/24/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 6/23/02 | Sample Systerm | | | | | | | | | | | | Inoperative |
| 6/20/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 6/15/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 6/7/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 6/6/02 | Pump | | | | | | | | | | | | Inoperative |
| 5/31/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 5/27/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 5/25/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 5/4/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 5/2/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 4/29/02 | Cal Gas Line | Low Flow | | | | | | | | | | | Inoperative |
| 4/28/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 4/2/02 | Stack O2 Analyzer | | | | | | | | | | | | Inoperative |
| 3/22/02 | Analyzer | Calibration Water | | | | | | | | | | | Inoperative |
| 3/22/02 | Analyzer | Calibration Water | | | | | | | | | | | Inoperative |
| 3/22/02 | Analyzer | Calibration | | | | | | | | | | | Inoperative |
| 3/18/02 | Analyzer | Flame | | | | | | | | | | | Inoperative |
| 3/5/02 | #1 Sulfur Plant | | | 390.5 | | | | | | | | | Inoperative (NOV) |
| 3/5/02 | Sample Line | Leak | | | | | | | | | | | Inoperative |
| 2/23/02 | Analyzer | Electronic Data Collection | | | | | | | | | | | Inoperative (NOV) |
| 2/22/02 | Sample Line | Plug | | | | | | | | | | | Inoperative |
| 2/20/02 | Analyzer | Calibration | | | | | | | | | | | Inoperative |
| 2/15/02 | Calibrator | | | | | | | | | | | | Inoperative |

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/4/02 | Motor | | | | | | | | | | | | Inoperative |
| 1/29/02 | Solenoid Valve | | | | | | | | | | | | Inoperative |
| 1/21/02 | Cal Gas Regulator | | | | | | | | | | | | Inoperative |
| 1/20/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 1/9/02 | Analyzer Pump | | | | | | | | | | | | Inoperative |
| 1/9/02 | Sample System | | | | | | | | | | | | Inoperative |
| 1/6/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 1/6/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 1/6/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 1/5/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 12/31/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 12/31/01 | Analyzer | Flame | | | | | | | | | | | Inoperative |
| 12/25/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 12/25/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 12/22/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 12/17/01 | Nox Analyzer | | | | | | | | | | | | Inoperative |
| 12/15/01 | Vacuum Pump | | | | | | | | | | | | Inoperative |
| 12/13/01 | Detector and Valve | | | | | | | | | | | | Inoperative |
| 11/28/01 | Analyzer | Flame | | | | | | | | | | | Inoperative |
| 11/23/01 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/21/01 | Calibrator | | | | | | | | | | | | Inoperative |
| 11/16/01 | Control Air Conditioner | | | | | | | | | | | | Inoperative |
| 11/12/01 | Sample Pump | | | | | | | | | | | | Inoperative |
| 11/12/01 | Sample Inlet Line | | | | | | | | | | | | Inoperative |
| 11/12/01 | Analyzer Span | | | | | | | | | | | | Inoperative |
| 11/2/01 | Calibration Failure | | | | | | | | | | | | Inoperative |
| 10/30/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 10/26/01 | Sample Lines | | | | | | | | | | | | Inoperative |
| 10/26/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 10/21/01 | Cal Gas Line | | | | | | | | | | | | Inoperative |
| 10/20/01 | Flow Meter | | | | | | | | | | | | Inoperative |
| 10/20/01 | Sample Conditioning | Bad Solenoid Valve | | | | | | | | | | | Inoperative |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/18/01 | Sample Line | | | | | | | | | | | | Inoperative |
| 10/16/01 | | Sample Flow Rate | | | | | | | | | | | Inoperative |
| 10/7/01 | Flow Meter | | | | | | | | | | | | Inoperative |
| 10/7/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 10/2/01 | Sample Fliter | | | | | | | | | | | | Inoperative |
| 9/18/01 | Electronics | | | | | | | | | | | | Inoperative |
| 9/10/01 | Maintenance | | | | | | | | | | | | Inoperative |
| 9/1/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/30/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/28/01 | Sample Chiller | | | | | | | | | | | | Inoperative |
| 8/28/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/28/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/22/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/12/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/9/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/7/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/3/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/2/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 7/29/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 7/27/01 | | Analyzer | | | | | | | | | | | Inoperative |
| 7/19/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 7/16/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 7/5/01 | #4 EMSR1 Boiler | | | 478.5 | | | | ? | | | | | Inoperative (VOID) |
| 6/29/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 6/28/01 | Sample System | | | | | | | | | | | | Inoperative |
| 6/27/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 6/16/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 6/16/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 6/13/01 | Analyzer | | | | | | | | | | | | Inoperative (NACT) |
| 6/13/01 | Analyzer | | | Not Specified | | | | | | | | | Inoperative |
| 6/11/01 | Analyzer | | | | | | | | | | | | Inoperative |

## Shell Martinez Refinery BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOx | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/3/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 5/28/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 5/26/01 | Analyzer | | | 2.0 | | | | ? | | | | | Inoperative (NACT) |
| 5/23/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 5/21/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 5/15/01 | #4 Sulfur Recovery Unit | | | 139.0 | ? | | | | | | | | Inoperative (NOV) |
| 5/8/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 5/6/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 4/15/01 | Fliexigas H2S analyzer | | | 1.0 | | Excess | | | | | | | Inoperative |
| 3/26/01 | Monitor | | | | | | | | | | | | Inoperative |
| 3/24/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 3/18/01 | Monitor | | | | | | | | | | | | Inoperative |
| 3/17/01 | Monitor | | | | | | | | | | | | Inoperative |
| 3/4/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 2/26/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 2/11/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 2/3/01 | Electric data capture system | | | 41.0 | | | | | | | | Flow | Inoperative (NOV) |
| 1/27/01 | 02 cell | | | 0.0 | | | | | | | | | Inoperative |
| 1/15/01 | Inoperative parametric | | | 225.6 | | | | | | | | Flow | Inoperative (NOV) |
| 1/12/01 | Electric data capture system | | | 75.0 | | | | | | | | | Inoperative (NOV) |
| 1/7/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 1/4/01 | Sample System | | | | | | | | | | | | Inoperative |

## TESORO BAAQMD • Martinez, CA
## Emission Data (Lbs./Event unless otherwise noted): 1.01.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/30/02 | SRU | | | | | | | | | | | | Excess Emission (NOV, NACT) |
| 12/23/02 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 12/18/02 | Firebox Burner | | | | | | | | | | | | Excess Emission (NOV) |
| 10/31/02 | Pulsation Dampner | | | | | | | | | | | | Excess Emission (NOV) |
| 10/27/02 | O2 Enrichment Valve | | | | | | | | | | | | Excess Emission (NOV) |
| 10/19/02 | ? | | | | | | | | | | | | Pressure (NACT) |
| 10/18/02 | Furnace 17 | | | 3.0 | | >160 ppm | | | | | | | Excess Emission (NOV) |
| 9/26/02 | Central Deck | | | | | | | | | | | | Breakdwon (NACT) |
| 9/26/02 | ESP Dampner | | | | | | | | | | | | Excess Emission (NACT) |
| 9/12/02 | Air Blower | | | | | | | | | | | | Excess Emission (NOV), Pressure (NACT) |
| 8/23/02 | ? | | | | | | | | | | | | Excess Emission (NOV) |
| 8/9/02 | Under Investigation | | | | | | | | | | | | Excess Emission (NOV) |
| 7/29/02 | Electro Static Precipitator | | | | | | | | | | | | Excess Emission (NACT) |
| 7/26/02 | SRU | Dea pump | | 2.0 | 405 ppm | | | | | | | | Excess Emission (NOV, BRG), Breakdown (BRG), |
| 5/23/02 | Facilitywide | | | | | | | | | | | | Excess Emission, Breakdown (NACT) |
| 5/22/02 | Pan | | | | | | | | | | | | Breakdown (NOV) |
| 4/10/02 | Control Module | | | | | | | | | | | | Excess Emission, Breakdown (NACT) |
| 4/8/02 | Substation | | | | | | | | | | | | Excess Emission (NACT) |
| 4/5/02 | By-pass Controller | | | | | | | | | | | | Excess Emission (NACT) |

## Tesoro BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/13/02 | #5 Boilerhouse | | >20% | 10.3 | | | | | | | | | Excess Emission (NACT, NOV) |
| 3/10/02 | Under Investigation | | | | | | | | | | | | Excess Emission (NACT) |
| 2/27/02 | Coker Sluice Tank | | >20% | 0.3 | | | | | | | | | Breakdown (NACT) |
| 2/26/02 | Cold Coke Riser | | | | | | | | | | | | Breakdown (NOV) |
| 2/22/02 | SRU | | | 1.0 | 269.5 ppm | | | | | | | | Excess Emission (NACT) |
| 1/20/02 | Facilitywide | | | 0.8 | | >60 ppb | | | | | | | Excess Emission (NACT) |
| 1/13/02 | SRU | | | 1.5 | >250 ppm | | | | | | | | Excess Emission (NOV) |
| 1/5/02 | Fuel Gas Mixpot | | | 3.8 | | >160 ppm | | | | | | | Excess Emission (NACT) |
| 1/4/02 | Unknown | | | 1.0 | | >30 ppb | | | | | | | Excess Emission (NOV) |
| 1/2/02 | Waterfront | Tank farm tract | | 0.0 | | 62 ppb avg.; 84 ppb peak | | | | | | | Excess Emission (NACT) |
| 12/28/01 | #6 Boilerhouse | | >20% | 16.7 | | | | | | | | | Excess Emission (NOV) |
| 12/28/01 | Facilitywide | | | 24.0 | | | | .050 lb/ MMBTU/ day avg. | | | | | Facilitywide NOx Bubble Limit, Excess Emission (NACT) |
| 12/24/01 | R135 | | | | | | | | | | | | Breakdown (NACT) |
| 12/21/01 | Boiler S-1469 | | | | | | | | | | | | Excess (NACT) |
| 12/21/01 | No Known Problem | | | 0.0 | | >60 ppb | | | | | | | Excess Emission (NOV) |
| 12/17/01 | Package Boiler | | | | | | | | | | | | Excess (NACT) |
| 12/15/01 | SRU | | | 3.0 | >250 ppm | | | | | | | | Excess Emission (NOV) |
| 12/13/01 | Transformers | | | | | | | | | | | | Excess Emission (BRG) |
| 12/12/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 12/11/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 12/11/01 | Leaking condenser | | | 4.4 | >50 ppb | | | | | | | | Excess Emission (NOV) |

## Tesoro BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/10/01 | Fuel Gas | | | 24.0 | >29 lbs per mmbtu | | | | | | | | Malfunction |
| 12/10/01 | | | | | | | | | | | | | |
| 12/10/01 | #56 Furnance | | | 67.0 | | | | >40 ppm | | | | | |
| 12/10/01 | | | | | | | | | | | | | |
| 12/9/01 | #6 Boilerhouse | | | 91.9 | >250 ppm | | | | | | | | ? |
| 12/9/01 | SRU | | | 1.0 | 317 ppm | | | | | | | | Excess Emission, Breakdown (BRG) |
| 12/9/01 | Facilitywide | | | 24.0 | | | | ? | | | | | Facilitywide NOx Bubble Limit |
| 11/27/01 | Secondary Seal - 312 | | | ? | | | | | | | | | Breakdown (NOV) |
| 11/26/01 | Under Investigation | | | 0.1 | | >60 ppb | | | | | | | Excess Emission (NOV) |
| 11/7/01 | Turnaround & Feed Out | | | | | | | | | | | | Excess Emission (NACT) |
| 11/4/01 | Turnaround & Feed Out | | | | | | | | | | | | Excess Emission (NACT) |
| 10/11/01 | Under Investigation | | | | | | | | | | | | Excess Emission (NACT) |
| 9/18/01 | Under Investigation | | | | | | | | | | | | Excess Emission (NACT) |
| 9/18/01 | Amonia Recovery | | | | | | | | | | | | Excess Emission (NACT) |
| 9/18/01 | SRU | | | 9.4 | 430 ppm; 435 ppm; 500 ppm; 461 ppm; 470 ppm | | | | | | | | Excess Emission (NOV) |
| 9/15/01 | #7 Boilerhouse | | >20% | 0.9 | | | | | | | | | Excess Emission (NOV) |
| 8/26/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 7/21/01 | SRU | | | | | | | | | | | | Excess Emission (NACT) |
| 7/19/01 | SRU | | | 1.0 | 360 ppm | | | | | | | | Excess Emission (NOV) |
| 7/16/01 | Under Investigation | | | | | | | | | | | | Breakdown (NACT) |
| 7/6/01 | Tank - 312 | | | ? | | | | | | | | hydrocarbon | Breakdown (EMI) |

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/1/01 | SRU | | | 1.0 | 304 ppm | | | | | | | | Excess Emission (NOV) |
| 6/13/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 6/13/01 | Compressor | | | | | | | | | | | | Pressure (VOID) |
| 5/17/01 | #1 Feed Prep Water Spray | | | | | | | | | | | | Excess Emission (NOV) |
| 4/11/01 | SRU | | | 1.1 | >250 ppm | | | | | | | | Excess Emission(NOV) |
| 3/10/01 | SRU | | | | | | | | | | | | Excess Emission(NACT) |
| 2/22/01 | Amonia Injection Heater | | | | | | | | | | | | Excess Emissions, Breakdown (NACT) |
| 2/16/01 | ? | | | | | | | | | | | | Excess Emission (NACT) |
| 2/11/01 | SRU | Steam system | >50% | 2.0 | >500 ppm | | | | | | | | Excess Emission (NOV) |
| 2/10/01 | #5 Boilerhouse | | >50% | 12.7 | >500 ppm | | | | | | | | Excess Emission, Breakdown (NOV) |
| 2/8/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 1/29/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 1/24/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 1/23/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 1/21/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| 1/17/01 | Facilitywide | | | | | | | | | | | | Excess Emission (NACT) |
| | | | | | Monitor Outages | | | | | | | | |
| 12/21/02 | Probe Heater | Common Fault Alarm | | | | | | | | | | | Inoperative |
| 12/14/02 | Blower | | | | | | | | | | | | Inoperative |
| 12/10/02 | Sample Tank | Under Investigation | | | | | | | | | | | Inoperative |
| 12/8/02 | Drain Pump | | | | | | | | | | | | Inoperative |
| 11/3/02 | Sample Line | | | | | | | | | | | | Inoperative |
| 10/29/02 | | Possible Leak | | | | | | | | | | | Inoperative |

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/28/02 | Under Investigation | | | | | | | | | | | | Inoperative |
| 10/19/02 | Chiller Drain | | | | | | | | | | | | Inoperative |
| 10/14/02 | Sample Line | | | | | | | | | | | | Inoperative |
| 10/3/02 | CEM | | | | | | | | | | | | Inoperative |
| 9/21/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 9/11/02 | Calibrator | | | | | | | | | | | | Inoperative |
| 8/24/02 | System | | | | | | | | | | | | Inoperative |
| 8/23/02 | Regulator | | | | | | | | | | | | Inoperative |
| 6/28/02 | Under Investigation | | | | | | | | | | | | Inoperative |
| 6/21/02 | Equipment Repairs | | | | | | | | | | | | Inoperative |
| 6/19/02 | Air Conditioning | | | | | | | | | | | | Inoperative |
| 5/30/02 | Measuring Cell | | | | | | | | | | | | Inoperative |
| 5/26/02 | Sample Lines | | | | | | | | | | | | Inoperative |
| 4/30/02 | CEM | | | | | | | | | | | | Inoperative |
| 4/5/02 | Output Module | | | | | | | | | | | | Inoperative |
| 3/1/02 | System | | | | | | | | | | | | Inoperative |
| 2/24/02 | Unknown | | | | | | | | | | | | Inoperative |
| 2/20/02 | Xmitter | | | | | | | | | | | | Inoperative (NOV) |
| 12/27/01 | Facilitywide | | | 0.0 | | >60 ppb | | | | | | | Inoperative |
| 11/24/01 | Sample Gas Rotometer | | | | | | | | | | | | Inoperative |
| 10/16/01 | Lost Calibration | | | | | | | | | | | | Inoperative |
| 10/5/01 | ? | | | | | | | | | | | | Inoperative |
| 9/17/01 | Line | | | | | | | | | | | | Inoperative |
| 9/1/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/28/01 | Calibrator | Gas Leak | | | | | | | | | | | Inoperative |
| 8/20/01 | Monitor | | | | | | | | | | | | Inoperative |
| 7/30/01 | PEN | | | | | | | | | | | | Inoperative |
| 6/9/01 | #6 Boilerhouse | | >20% | 8.2 | | | | | | | | | Inoperative |
| 6/6/01 | CEM | | | | | | | | | | | | Inoperative |
| 6/2/01 | Valve | | | | | | | | | | | | Inoperative |
| 5/30/01 | Ink Pen | | | | | | | | | | | | Inoperative |

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/19/01 | Source Lamp | | | | | | | | | | | | Inoperative |
| 5/9/01 | Cooler Unit | | | | | | | | | | | | Inoperative |
| 4/15/01 | Instrumentation | | | | | | | | | | | | Inoperative |
| 4/14/01 | Various Components | | | | | | | | | | | | Inoperative |
| 4/1/01 | Sample Line | | | | | | | | | | | | Inoperative |
| 3/12/01 | Switch | | | | | | | | | | | | Inoperative |
| 3/6/01 | Line | | | | | | | | | | | | Inoperative |
| 2/17/01 | O2 Analyzer | | | | | | | | | | | | Inoperative |

## VALERO BAAQMD • Benicia, CA
## Emissions Data (lb./event unless otherwise noted): 1.01.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/19/02 | | SG-1032 Boiler | | 1.4 | | | >50 ppm | | | | | | Breakdown (BRG) |
| 12/19/02 | Main stack | FCCU Regenerator | 2.5 ppm | 0.7 | | | | | | | | | Excess Emission (MIS)/ Breakdown (NACT) |
| 12/4/02 | Furnance 4460 | Hot Oil Burner | | 1.8 | | | | 10.4 ppm | | | | | Excess Emission (NACT) |
| 11/20/02 | Main stack | FCCU Regenerator | ≥30% | 1.0 | | | | | | | | | Excess Emission (NACT) |
| 11/9/02 | Substation | | | | | | | | | | | | Excess Emission/ Breakdown (NOV) |
| 11/8/02 | ? | | | | | | | | | | | | Excess Emission (NOV) |
| 10/12/02 | SCR system | Furnance 4460 | | 0.9 | | | | 11 ppm | | | | | Excess Emission (NACT) |
| 10/11/02 | SCR system | Furnance 4460 | | 7.0 | | | | 15.9 ppm | | | | | Excess Emisssion/ Breakdown (BRG) |
| 10/3/02 | Ammonia Vaporizer | | | | | | | | | | | | Excess Emission/ Breakdown (NOV) |
| 10/1/02 | Fuses | | | | | | | | | | | | Excess Emission/ Breakdown (NOV) |
| 9/28/02 | Injection Quill | | | | | | | | | | | | Excess Emission/ Breakdown (NOV) |
| 9/23/02 | Main stack | FCCU Regenerator | ≥30% | 0.2 | | | | | | | | | Excess Emission (NACT) |
| 6/6/02 | Analyzer | | | | | | | | | | | | Excess Emission/ Breakdown (NOV)/ Inoperative |
| 6/3/02 | Flare gas compressor | South Flare | 1 Ringlemann | 4.7 | | | | | | | | | Excess Emission/ Breakdown (NOV) |
| 6/3/02 | Main stack | FCCU Regenerator | 2.2 Ringlemann | 0.0 | | | | | | | | | Excess Emission/ Breakdown (NOV) |
| 6/3/02 | Flare gas compressor | North Flare | 1 Ringlemann | 4.7 | | | | | | | | | Malfunction |
| 5/30/02 | Coker Burner | FCCU Regenerator | ≥30% | 0.0 | | | | | | | | | Excess Emission/ Breakdown (NACT) |
| 5/21/02 | ? | | | | | | | | | | | | Breakdown (NOV) |

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5/16/02 | Coker Burner | FCCU Regenera-tor | ≥30% | 0.1 | | | | | | | | | Excess Emission/ Breakdown (NACT) |
| 5/14/02 | Coker Burner | FCCU Regenerator | ≥20% | 0.2 | | | | | | | | | Excess Emission/ Breakdown (NACT) |
| 5/1/02 | "B" Cell Rectifiers | main stack | ≥30% | 3.6 | | | | | | | | | Excess Emission/ Breakdown (NACT) |
| 4/22/02 | PR-101BOutlet | FCCU Regenera-tor | ≥30% | 0.1 | | | | | | | | | Excess Emission (NACT) |
| 4/16/02 | Coker Burner | | | | | | | | | | | | Excess Emission, Breakdown (NOV) (NACT) |
| 2/25/02 | Boiler Feed | | | 0.0 | | | | | | | | | Breakdown (NOV) |
| 2/18/02 | Coker Burner | FCCU Regenerator | ≥30% | 0.0 | | | | | | | | | Excess Emission (NACT) |
| 1/28/02 | Analyzer | | | | | | | | | | | | Excess Emission (NOV), Inoperative |
| 1/7/02 | Coker Burner | FCCU Regenera-tor | ≥30% | 0.1 | | | | | | | | | Excess Emission (NACT) |
| 1/6/02 | ? | | | | | | | | | | | | Excess Emission (NOV) |
| 1/5/02 | Coker Burner | FCCU Regenerator | ≥30% | 0.5 | | | | | | | | | Excess Emission (NACT) |
| 1/4/02 | FCCU Regenerator | | | 0.0 | | | | | | | | | Excess Emission (NACT) |
| 1/4/02 | Coker Burner | FCCU Regenera-tor | ≥30% | 0.2 | | | | | | | | | Excess Emission (NACT) |
| 1/3/02 | Boiler | | | | | | | | | | | | Excess Emission, Breakdown (NOV) |
| 12/18/01 | Electrical Short | | | | | | | | | | | | Excess Emission, Breakdown (NOV) |
| 11/29/01 | Asphalt plant fuel gas | | | 0.1 | | ≤12ppm/3 hr. avg. | | | | | | | Process fuel production |
| 10/19/01 | Process Gas Turbine | SRC system | | 2.6 | | | | 11.1 ppm | | | | | Excess Emission (NOV) |
| 9/24/01 | Coker Burner | FCCU Regenerator | ≥30% | 0.1 | | | | | | | | | Breakdown (NACT) |
| 9/19/01 | Coker Burner | FCCU Regenerator | ≥30% | 0.2 | | | | | | | | | Excess Emission (NACT) |

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/17/01 | Crude Preheat Furnace (F-101) | FCCU dump stack | ≥30% | 0.2 | | | | | | | | | Breakdown/ Excess Emission (BRG) |
| 9/1/01 | Scrubbing system | Fuel Gas | | 0.7 | | 165.30 ppm | | | | | | | Excess Emission (NACT) |
| 8/27/01 | Scrubbing system | Fuel Gas | | 1.5 | | 178.94 ppm | | | | | | | Excess Emission (NACT) |
| 7/5/01 | Amonia Injestion System | Main Stack | ≥30% | 0.1 | | | | ? | | | | | Excess Emission, Breakdown (NACT) |
| 7/3/01 | Process Gas Turbine (GT-702) | Ammonia injection nozzle | | 1.0 | | | | 11 ppm/ 1 hour | | | | | Excess Emission (NACT) |
| 6/23/01 | Boiler & SCR | | | | | | | | | | | | Excess Emission, Breakdown (BRG) |
| 6/21/01 | Process Gas Turbine (GT-702) | | | 122.3 | | | | excess greater than 9 ppm/3 hour | | | | | |
| 5/20/01 | Unknown | Flexsorb Stack | | 0.0 | | greater than 60 ppb /3 minutes | | | | | | | Excess Emission (NACT) |
| 5/12/01 | Process Gas Turbine (GT-702) | Steam generator (SG-702) | | 3.0 | | | | 13.3 ppm | | | | | Excess Emission (NOV) |
| 4/20/01 | Cat Feed Hydrofiner | MEA Absorber Tower (T-601) | | 0.0 | | 96 ppb (avg) | | | | | | | Excess Emission/ Breakdown (NOV) |
| 3/26/01 | Sulfur Recovery Unit "B" | Flexsorb Stack | | 0.1 | | 136 ppb (avg) | | | | | | | Excess Emission (NOV) |
| 3/14/01 | SRU | Analyzer | | | | | | | | | | | Excess Emission, Breakdown (BRG) |
| 2/1/01 | LPG | Monitor | | | | | | | | | | | Excess Emission (NACT) |
| 1/23/01 | ? | | | | | | | | | | | | Excess Emission (NACT) |
| 1/5/01 | HCU | Leak | | | | | | | | | | | Breakdown (NACT) |
| 1/5/01 | HCU | H2 Vent | | | | | | | | | | | Excess Emission (NACT) |
| | | | | | | Monitor Outages | | | | | | | |
| 11/27/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 11/26/02 | FE-32 Flow Totalizer on Crude Unit | | | | | | | | | | | | Inoperative |

## Valero BAAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/20/02 | CEM | | | | | | | | | | | | Inoperative |
| 9/17/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/30/02 | Monitor | | | | | | | | | | | | Inoperative (NOV) |
| 8/29/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 8/16/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 7/3/02 | wwf205 Vapor Flow Meter | | | | | | | | | | | | Inoperative |
| 4/20/02 | Analyzer | | | | | | | | | | | | Inoperative |
| 12/22/01 | O2 and CO2 Chems failed | | | | | | | | | | | | Inoperative |
| 12/4/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 11/24/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 11/2/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 10/27/01 | Failed Detector | | | | | | | | | | | | Inoperative |
| 8/12/01 | | S# 31, 32, 33 | | | | | | | | | | | Inoperative |
| 7/15/01 | Analyzer | Sample Tubing | | | | | | | | | | | Inoperative |
| 7/8/01 | Analyzer | | | | | | | | | | | | Inoperative |
| 5/29/01 | CO Detector | | | | | | | | | | | | Inoperative |
| 3/12/01 | Sample Lines | | | | | | | | | | | | Inoperative |
| 2/26/01 | Detector | | | | | | | | | | | | Inoperative |
| 2/25/01 | ? | | | | | | | | | | | | Inoperative |

## BP WEST COAST PRODUCTS SCAQMD • Carson, CA
## EMISSIONS DATA (LBS./EVENT): 1.01.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11/30/02 | FCCU ESP | | | 1.5 | | | | | | | | PM 290 | Breakdown |
| 11/26/02 | Cogen units | | | 0.7 | 41.8 | | | | | | | | Invalid Breakdown (NOV issued) |
| 11/25/02 | | | | | | | | | | | | | |
| 11/18/02 | NE Tank Farm | Vapor Recovery Sys. | | 25.0 | | | | | | | | "negligible emissions" | |
| 10/22/02 | Compressor | Flare | excess | 0.1 | 7.0 | | 5,793.0 | 1,065.0 | | | | PM 257; ROG 986 | Invalid Breakdown |
| 10/20/02 | | | | | | | | | | | | | |
| 09/23/02 | ESPs for FCCU | | 20+ | | | | | | | | | PM 11.9 | |
| 09/06/02 | CEMS to Turbine | | | | | | | | | | | | |
| 08/24/02 | Coker Plant | Fire & Flare | | 0.4 | 14,080.0 | | 14,836.7 | 3,014.0 | | | | ROG 2529.7 | |
| 08/12/02 | FCC | ESP exhaust stack | 85 (smoke) | | | | | | | | | | |
| 03/01/02 | Claroil pump at cc unit | Leak | | | | | | | | | | | Invalid Breakdown |
| 02/21/02 | Loading rack | | | | | | | | | | | | Breakdown |
| 01/25/02 | Coker Frac Swing Tower | Leak | | | | | | | | | | | NOV |
| 6/8/01 | FCCU Main Air Blower | Fire | smoke | | | | | | | | | SO2, CO, PM | |
| 06/04/01 | Analyzer failure | | | | | | | | | | | | |
| 05/25/01 | FCCU | Flare, ESP | smoke | | | | | | | | | SOx | Breakdown |
| 05/07/01 | Uacuum Unit fire | | | | | | | | | | | | |
| 2/4/01 | No. 2 Crude Fin Fan | Leak | | 3.3 | | | | | 56.0 | | | | |

## CHEVRON EL SEGUNDO SCAQMD • El Segundo, CA
## Emissions Data (Lbs./Event unless otherwise noted): 1.01.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/7/02 | | | | | | | | | | | | | breakdown |
| 11/26/02 | Cogen Unit A Train | | | 1.2 | | | | over 9ppm | | | | | breakdown |
| 11/20/02 | | | | | | | | | | | | | |
| 11/8/02 | Cogen Unit A Train | Flare | | | | | | | | | | $SO_2$, CO | retrofitting |
| 10/16/02 | Compressor Spillback system IP Tranducer | Flare | | 4.0 | | | | | | | | SOx, NOx, H2S | breakdown |
| 10/15/02 | K-751 Blower | Incinerator stacks | | | | | | | | | | SOx & NOx | breakdown |
| 10/14/02 | SRU blower | | | | | | | | | | | SOx, NOx, H2S | operator error (NOV) |
| 10/13/02 | | | | | | | | | | | | | |
| 9/24/02 | PRD | Spill | | | | | | | | | | 20 barrels crude | breakdown |
| 9/23/02 | | | | | | | | | | | | | breakdown |
| 8/26/02 | Suflur Plant | | | 20.3 | 46.5 | | | | | | | | |
| 8/19/02 | Coker Unit | | | | | | | | | | | | breakdown |
| 6/10/02 | Wash pad fire | | | | | | | | | | | | breakdown |
| 5/30/02 | SMR plant | | | | | | | | | | | | |
| 5/23/02 | Tank 209 | Spill | | | | | | | | | | 3 barrels methanol | breakdown |
| 5/23/02 | Ammonia feed pumps lost power | | | | | | | | | | | | |
| 5/1/02 | Alky Plant Debutanizer Reflux Pump | | | | | | | | | | | gas leak with over 50,000 ppm/dy | variance denied |
| 4/19/02 | CoGen Train C | | | 0.2 | | | | | | | | CO exceedance | |
| 3/21/02 | Compressor plugged line | | | | | | | | | | | | no violations |
| 2/26/02 | Vacuum Resid De-Sulfurization unit | Seal Oil Reservoir | | | | | | | | | | sour H2 | invalid breakdown; NOV issued |
| 2/20/02 | Wet Gas Compressor | FCC Flare | smoke | | | | | | | | | | |
| 2/18/02 | | | | | | | | | | | | | breakdown |
| 1/28/02 | Boiler Feed Water Pump | | | | | | | | | | | no violations | breakdown |
| 1/20/02 | VRDS Unit | Fire | | 3.0 | 3,413.4 | 25,375.0 | | 31.3 | | | | DEA 457.07, HC 22985 | |
| 1/10/02 | SNR Furnace | | | | | | | | | | | PM11855.5 | variance |

## Chevron El Segundo SCAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/27/01 | Cogen B Steam Injection | | | 1.0 | | | | 23.9 | | | | | |
| 12/13/01 | Fuel gas mixture gas analyzer | | | | | | | | | | | | breakdown |
| 12/6/01 | Heater F201-A at #2 Resid Unit | | | | | | | | | | | no excess emissions | breakdown |
| 12/6/01 | Cogen B Steam Injection | | | 2.0 | | | | 19.1 | | | | | no violation |
| 12/5/01 | Heater F201-A at #2 Resid Unit | | | 0.3 | | | | | | | | no excess emissions | |
| 12/4/01 | Cogen A Train and Heater F201A | | | 0.1 | | | | | | | | no excess emissions | breakdown |
| 12/1/01 | | | | | | | | | | | | | breakdown |
| 11/28/01 | #2 Resid Unit heater F201A | | | 0.2 | | | | | | | | no excess emissions | breakdown |
| 11/27/01 | #2 Resid Unit heater F201A | | | 0.5 | | | | | | | | no excess emissions | |
| 11/25/01 | Steam Naphtha Reformer | | | | | | | | | | | no excess emissions | |
| 11/7/01 | Cogen Trains A & C | | | 5.0 | | | | | | | | no excess emissions b/c limits don't apply during SS | |
| 9/21/01 | Boiler 39 | | | 0.2 | | | 11.6 | | | | | | breakdown |
| 9/11/01 | SRU #70 Stack | | | 0.7 | 285.7 | | | | | | | | |
| 9/5/01 | #2 Resid. Heater F201A | | | 0.1 | | | | | | | | no excess emissions | shutdown |
| 9/4/01 | Strainer on Pump P-22 | spill | | | | | | | | | | 10-20 barrels crude naphtha | breakdown |
| 8/25/01 | | | | | | | | | | | | | invalid Breakdown (operational not mechanical problem) |
| 8/24/01 | | | | | | | | | | | | | breakdown |
| 8/15/01 | Heater F-201A | | | 3.0 | | | | 2.3 | | | | | |
| 7/26/01 | Compressor K-302 | FCCU Flare | | 2.8 | | | | 16.6 | | | | | |
| 7/15/01 | | | | | | | | | | | | | |
| 7/13/01 | Heater F-1330 | | | | | | | 5.6 | | | | | invalid Breakdown (NOV issued) |
| 7/5/01 | SCR serving CoGen Train B | | | 0.3 | | | | | | | | NOx | breakdown |

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/27/01 | Heater F-201A at #2 Resid Unit | | | | | | | | | | | no excess emissions | |
| 6/21/01 | SNR furnice | | | | | | | | | | | PM: | breakdown |
| 6/19/01 | Exchanger E322 at DFH Unit | | | 1.3 | | | | | | | | no excess emissions | breakdown |
| 6/18/01 | Cogen B Train | | | 0.3 | | | 0.1 | | | | | | breakdown |
| 6/17/01 | | | | | | | | | | | | | invalid breakdown |
| 6/15/01 | $NH_3$ Injection | | | 0.2 | | | | 6.3 | | | | | breakdown |
| 5/16/01 | Heater F-201A serving #2 Resid Unit | | | 0.3 | | | 1.1 | | | | | | |
| 5/16/01 | Heater F210A serving #2 Crude Unit | | | | | | | | | | | no excess emissions | breakdown |
| 5/11/01 | | | | | | | | | | | | | breakdown |
| 4/17/01 | $NH_3$ Injection serving #4 Crude Unit heaters | | | 31.0 | | | | | | | | no excess emissions b/c no NOx limit | |
| 4/14/01 | | | | | | | | | | | | | |
| 4/5/01 | LSFO Flare, Compressors | | | 0.4 | 3.6 | | | 1.6 | | | | | breakdown |
| 4/3/01 | Basin F6 | | | 4.8 | | | | | 2.0 | | | | |
| 3/30/01 | $NH_3$ injection serving heaters at VRDS | | | 0.4 | | | | | | | | no excess emissions b/c RECLAIM | breakdown |
| 3/28/01 | | | | | | | | | | | | PM: 5214 | breakdown |
| 3/27/01 | $NH_3$ Injection serving #4 Crude Unit heaters | | | 13.0 | | | | | | | | no excess emissions b/c no NOx limit | breakdown |
| 3/27/01 | $NH_3$ Injection serving Cogen C Train | | | 0.4 | | | | | | | | no excess emissions b/c RECLAIM | breakdown |
| 3/24/01 | | | | | | | | | | | | | |
| 2/20/01 | Compressor K-951 | | | 3.1 | 47.0 | 0.5 | | 17.6 | | | | | |
| 2/19/01 | $NH_3$ Injection seving #4 Crude Unit Heater | | | | | | | | | | | no rules violated | breakdown |
| 2/14/01 | tank 997 | Floating roof | | 72.0 | | | | | 788.0 | | | | variance (breakdown) |
| 2/14/01 | | | | | | | | | | | | | |
| 2/13/01 | Compressor K-951 | | | 4.3 | 218.4 | 2.4 | | 18.9 | | | | | breakdown |

## Chevron El Segundo SCAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2/10/01 | | | | | | | | | | | | | |
| 2/5/01 | NH3 injection serving Heater F1330 | | | 18.8 | | | | 324.0 | | | | | breakdown |
| 1/31/01 | Unit 118 heater | | | | | | | | | | | | breakdown |
| 1/30/01 | Incinerator F205 serving SRU 20 | | exceeded | 5.0 | | | | | | | | | breakdown |
| 1/26/01 | Compressor K-951 | | | 3.3 | 31.4 | 0.3 | | 9.9 | | | | | breakdown |
| 1/22/01 | CO Boiler #39 | | | 0.3 | | | | | | | | CO exceedance | invalid breakdown (operational problem) |
| 1/20/01 | Cogen C Train | | | 0.4 | | | 2.2 | | | | | | invalid breakdown |
| 1/1/01 | Compressor K-951 | | | | | | | | 1,791.5 | | | | |

## CONOCO PHILLIPS SCAQMD • Carson, CA
## Emissions Data (Lbs./Event): 1.01.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/2/02 | Boiler 10 | | | | | | | | | | | | |
| 6/19/02 | FCCU | | | | | | | | | | | | Variance Denied |
| 5/8/02 | Sulfur Plant No. 2 | | | 120.0 | 0.5 | 3.2 | | | | | | | Variance (maintenance) |
| 5/6/02 | Boiler 10 | | | 0.3 | | | | | | | | | |
| 1/9/02 | FCCU | | 60-100 | | | | | | | | | 1,400 PM | Variance (startup after turnaround) |
| 11/9/01 | Boiler 10 & 11 | | | | | | | | | | | | Breakdown |
| 6/22/01 | FCCU | | 20-60 (as high as 100) | 96.0 | | | | | | | | 1,400 PM | Variance (startup after maintenance) |
| 4/25/01 | Coker Unit | Cleanup | | 216.0 | | | | | | | | unspecified | Variance |
| 4/23/01 | Coker Unit | Fire | | | | | | | | | | | Breakdown (NOV for H&S 41701(a)) |
| 3/7/01 | Vacuum Unit | Valve | | | | | | | | | | | Invalid Breakdown (acknowleged poor maintenance, no NOV) |
| 3/3/01 | Coker Unit | Fire | | | | | | | | | | | |
| 2/8/01 | FCCU | | 40 | 144.0 | | | | | | | | 1,400 PM | Variance (startup after maintenance) |
| 1/10/01 | SRU 2 | Valve Failure | | | | | | | | | | | Request for Variance |
| 1/19/01 | Facility | | | 288.0 | | | | | 604.8 | | | | Variance (for additional throughput) |
| 1/9/01 | SRU tailgas unit | Flare | | | | | | | | | | | Breakdown but still NOV for nuisance |

## CONOCO PHILLIPS SCAQMD • Wilmington, CA
## Emissions Data (Lbs./Event): 1.1.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/12/02 | Cogen Unit | | | 0.3 | | | | | | | | NOx | |
| 11/16/02 | Cogen | Flare | | | | | | 12.2 | | | | | Breakdown |
| 9/8/02 | | | | | | | | | | | | | |
| 9/4/02 | Transformer | Sulfur Pit Blower | | | | | | | | | | | Breakdown |
| 7/16/02 | Vent Blower | | | | | | | | | | | | |
| 3/7/02 | Tank vapor recover blowers | | | | | | | | | | | | |
| 3/7/02 | Absorbor tower line at acid plant | | | | | | | | | | | | |
| 1/8/02 | Boiler #6 | | | 2.5 | | | | | | | | | |
| 12/12/01 | | | | | | | | | | | | | |
| 9/11/01 | Sulfur pit blower failure | | | | | | | | | | | H2S | Breakdown |
| 8/21/01 | | | | | | | | | | | | | |
| 6/21/01 | FCC Unit | Flares | smoke | | | | | | | | | | |
| 6/18/01 | Precipitator | | exceeded | | | | | | | | | PM | Invalid breakdown (NOV) |
| 3/2/01 | Level controller malfunction | | | | | | | | | | | | |
| 1/31/01 | | | | | | | | | | | | | |

## EXXON MOBIL SCAQMD • Torrance, CA
## Emissions Data (Lbs./Event): 1.1.01 – 12.31.02

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12/29/02 | | | | | | | | | | | | | |
| 12/16/02 | | | | | | | | | | | | | |
| 12/10/02 | Bypass dampers | | | | | | | 550.0 | | | | | Variance (testing) |
| 12/5/02 | Vapor recovery system Tank 510x4 | | | 144.0 | 1.0 | | 875.0 | 161.0 | | | | PM 15, 149 NMHC | Breakdown (Variance) |
| 12/4/02 | Tanks | Vapor recovery line | | 3.5 | | | | | 1.0 | | | | Breakdown |
| 12/3/02 | SCR | | | | | | | | | | | | |
| 11/28/02 | SCR heater 19F-1 | | | | | | | | | | | | |
| 11/25/02 | | | | | | | | | | | | | |
| 11/19/02 | Pump barring failur e | Fire | 20+ | 0.1 | | | | | | | | | Invalid Breakdown |
| 11/16/02 | | | | | | | | | | | | | |
| 11/15/02 | | | | | | | | | | | | | |
| 11/12/02 | Multiple sources | | | 312.0 | | | | 2,999.1 | | | | | Variance |
| 11/4/02 | | | | | | | | | | | | | |
| 10/29/02 | | Flare | 20+ | 0.6 | | | | | | | | | Breakdown |
| 10/26/02 | 2K1 Compressor | Flare | | 12.3 | | | | 1,765.0 | | | | | Breakdown |
| 10/23/02 | FCCU blower | | | 0.7 | | | | | | | | No excess b/c under RECLAIM | Breakdown |
| 10/18/02 | Tank 500 x1 chiller | Leak | | 432.0 | | | | | | | | Freon 12 | Invalid Breakdown (NOV issued) |
| 10/16/02 | Coke barn | storage piles | | 2,160.0 | | | | | | | | PM10 | Variance |
| 9/30/02 | | | | | | | | | | | | | |
| 9/27/02 | | | | | | | | | | | | | |
| 9/19/02 | Coker Unit | Fire & Flare | 20+ | 0.5 | 722.0 | 43.0 | | 17.0 | 11,148.0 | 45 | | | Breakdown |
| 9/12/02 | ESP power failure | Flare | 20+ | 7.0 | | | | | | | | PM 33.6 | Breakdown |
| 9/9/02 | Hydrogen unit pressure swing absorber | | | 12.0 | 3,573.0 | | 2,340.0 | 430.0 | | | | PM 136 | Breakdown |
| 9/1/02 | | | | | | | | | | | | | |
| 8/29/02 | SCR | | | 0.1 | | | | 309.0 | | | | | Breakdown |
| 8/15/02 | Hydrogen unit pressure swing absorber | | 20+ | 22.0 | | | | | | | | | Breakdown |
| 8/6/02 | FCCU main air blower | | 20+ | 18.0 | 180.0 | | | 800.0 | | | | PM 15.1 | Breakdown |

## Exxon Mobil SCAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8/3/02 | | | | | | | | | | | | | |
| 8/2/02 | Tank 400x31 valve | Flare | | 2.8 | 0.0 | | | 3.6 | | | | | Breakdown |
| 7/3/02 | Units 1F1 & 1F2 | Units 1F1 & 1F2 | | 2,160.0 | | | | 32,000.0 | | | | | Variance denied |
| 6/10/02 | Crude Heater 1F-2 bypass vent | Vent | | 0.4 | | | | 14.8 | | | | | ? |
| 3/5/02 | | | | | | | | | | | | | |
| 2/21/02 | | | | | | | | | | | | | |
| 2/19/02 | Hydrogen Unit valve | Flare | | 3.1 | | | | 61.0 | | | | | Breakdown |
| 2/11/02 | | | | | | | | | | | | | |
| 2/6/02 | MHF Alkylation Unit | Leak | | | | | | | | | | Butane | ? |
| 2/6/02 | FCC Regenerator flange | Leak | | 6.4 | | | | | | | | 14 tons catalyst | Breakdown |
| 1/24/02 | | | | | | | | | | | | | |
| 12/18/01 | | Vacuum hearing & catalytic hydro-desulfurization unit | | 5.2 | | | | 2,999.1 | | | | | Variance granted |
| 11/30/01 | | | | | | | | | | | | | |
| 11/28/01 | | | | | | | | | | | | | |
| 11/8/01 | | | | | | | | | | | | | |
| 11/6/01 | Blower Motor & VFD | Bypass Stacks | | 18.0 | | | | 12,600.0 | | | | Requ'd obtain RECLAIM credits | Maintenance Variance |
| 10/25/01 | Alkylantion Unit | Valve stem lek | | 288.0 | | | | 2.4 | | | | Possible HF emissions | Variance denied |
| 10/16/01 | | | | | | | | | | | | | |
| 10/10/01 | Fulfur Plant cooler | Leak | | 0.4 | | 1.6 | | | | | | | Breakdown |
| 10/6/01 | | | | | | | | | | | | | |
| 10/5/01 | | | | | | | | | | | | | |
| 8/2/01 | Hydrotreater Fractionator Tower | Heaters | | 456.0 | | | | 89.3 | | | | Excess emissions were offset at facility | Maintenance Variance |
| 7/3/01 | | | | | | | | | | | | | |
| 6/29/01 | | | | | | | | | | | | | |
| 6/23/01 | Power bumps - sour water stripper, compressor, SCRs, CO boiler | Flaring | | | | | | | | | | NOx & SOx | Breakdown |

## Exxon Mobil SCAQMD, continued

| Start Date | Unit | Emission Point | Opacity (%) | Duration (hrs.) | $SO_2$ | $H_2S$ | CO | NOX | Total VOCs | Benzene Compounds | Butadiene | Other Emissions | Type of Event |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/10/01 | | | | | | | | | | | | | |
| 5/17/01 | | | | | | | | | | | | | |
| 4/26/01 | | | | | | | | | | | | | |
| 4/12/01 | Hydrocracker unit compressor | Leak | 20+ | | | | | | | | | | Breakdown |
| 4/4/01 | SRU Fuel Gas Regulator | | | | | | | | | | | No excess emissions | Breakdown |
| 3/28/01 | Thermal oxidizer | | | | | | | | | | | | Invalid breakdown (NOV) |
| 3/13/01 | | | | | | | | | | | | | |
| 3/6/01 | SRU sulfur CEMS | | | | | | | | | | | | Not a breakdown |
| 2/18/01 | | | | | | | | | | | | | |
| 2/13/01 | FCCU CO boiler fan | Boiler stack | 20+ | | | | | | | | | | Breakdown |
| 2/8/01 | Alkylation Unit | Leak | | | | | | | 2,500.0 | | | | Breakdown |
| 2/7/01 | | | | | | | | | | | | | |
| 2/5/01 | Incinerators serving wastewater separators | | | 0.4 | | | | | 8.0 | | | | Breakdown |
| 2/4/01 | | | | | | | | | | | | | |
| 2/3/01 | | | | | | | | | | | | | |
| 2/2/01 | | | | | | | | | | | | | |
| 1/31/01 | | | | | | | | | | | | | |
| 1/29/01 | | | | | | | | | | | | | |
| 1/28/01 | | | | | | | | | | | | | |
| 1/20/01 | | | | | | | | | | | | | |
| 1/17/01 | | | | | | | | | | | | | |
| 1/15/01 | | | | | | | | | | | | | |
| 1/13/01 | | | | | | | | | | | | | |
| 1/5/01 | | | | | | | | | | | | | |