

State of California
AIR RESOURCES BOARD

**NOTICE OF PUBLIC MEETING TO CONSIDER
Draft Recommendations on Guidance
for Penalty Assessments at Petroleum Refineries**

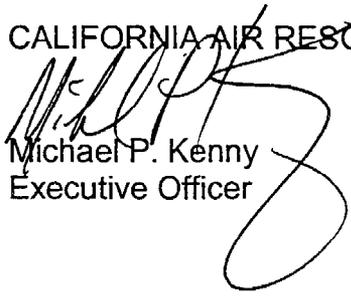
The Air Resources Board (the "Board" or "ARB") invites you to attend a public meeting in the City of El Monte on December 13, 2001, to present your comments on the written report, entitled "Draft Recommendations on Guidance for Penalty Assessments at Petroleum Refineries" ("Draft Recommendations"). The meeting will be held at the Air Resources Board Hearing Room, Southern California Headquarters, 9530 Telstar Avenue, El Monte, California 91731. The Board will conduct the public meeting starting at 9:00 a.m.

The Air Resources Board (ARB or Board) believes that enforcement programs in California's air districts should be reviewed periodically and that such reviews can result in program improvements. Accordingly, the Board directed staff to evaluate district enforcement programs at petroleum refineries and make recommendations on district enforcement practices, including the levels of penalties being assessed. The staff produced the "Draft Recommendations" for in response to the Board's direction and the staff is recommending that the Board approve the "Draft Recommendations". Copies of the "Draft Recommendations" are available and may be obtained by calling the Board's Public Information Office at (916) 322-2990 or at the ARB's Internet site at www.arb.ca.gov/cbg/meeting/2001/mtg2001.htm

The meeting facility is accessible for persons with disabilities. If accommodation is needed, please contact ARB's Clerk of the Board at (916) 322-5594 by November 29, 2001. Persons with hearing or speech impairments can contact us by using our Telephone Device for the Deaf (TDD) at (916) 324-9531 or (800) 700-8326 for TDD calls from outside the Sacramento area.

Interested members of the public are encouraged to ask questions or present comments on the "Draft Recommendations" at the public meeting or submit them in writing or by e-mail prior to the meeting. Written comments should be addressed to the Clerk of the Board, P.O. Box 2815, Sacramento, California 95812. E-mail submissions should be addressed to ewhite@arb.ca.gov.

CALIFORNIA AIR RESOURCES BOARD



Michael P. Kenny
Executive Officer

Date: November 20, 2001

Estado de California
CONSEJO DE RECURSOS ATMOSFÉRICOS

NOTIFICACIÓN DE ASAMBLEA PÚBLICA PARA CONSIDERAR
Un Borrador de Recomendaciones para una Guía de
Evaluación de Sanciones a las Refinerías Petroleras

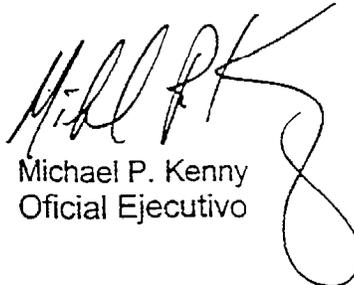
El Consejo de Recursos de Aire (el "Consejo" o "ARB", siglas en Inglés) le invita a participar en una asamblea pública que se efectuará en la Ciudad de El Monte el día 13 de diciembre del 2001, en donde podrá presentar sus comentarios sobre el reporte titulado "Borrador de Recomendaciones para una Guía de Evaluación de Sanciones a las Refinerías Petroleras" ("Borrador de Recomendaciones"). La reunión tendrá lugar en la Sala de Audiencias del Consejo de Recursos Atmosféricos, 9530 Telstar Avenue, El Monte, California 91731. El Consejo dará inicio a la reunión a las 9:00 a.m.

En la opinión del ARB, los programas de aplicación de la ley de los distritos de aire en California se deben examinar periódicamente, ya que dichos exámenes pueden resultar en mejoras a los programas. Por consiguiente, el Consejo ordenó al personal técnico de ARB que realizara una evaluación de los programas para aplicación de la ley en refinerías, y que hiciera recomendaciones sobre las prácticas en los distritos, incluyendo los niveles de sanciones que se aplican. El personal de ARB elaboró el "Borrador de Recomendaciones" y recomienda que el Consejo apruebe el borrador. Para obtener copias del "Borrador de Recomendaciones" llame a la Oficina de Información Pública de ARB al teléfono (916) 322-2990, o visite nuestra página de internet a la dirección www.arb.ca.gov/cbg/meeting/2001/mtg2001.htm

La sala de audiencias es accesible para las personas discapacitadas. Si necesita asistencia especial, por favor comuníquese con el Secretario del Consejo al teléfono (916) 322-5594 antes del 29 de noviembre del 2001. Las personas con discapacidades auditivas o del habla pueden contactarnos por el sistema telefónico para sordomudos (TDD) al (916) 324-9531 o al (800) 700-8326 para llamadas de fuera del área de Sacramento.

Se invita a las personas interesadas a que hagan preguntas o que presenten sus comentarios sobre el "Borrador de Recomendaciones" en la asamblea, o que los envíen por escrito o por correo electrónico antes de la reunión. Los comentarios por escrito deberán ser enviados a: Clerk of the Board, P.O. Box 2815, Sacramento, California 95812. Los comentarios por correo electrónico deberán ser dirigidos a ewhite@arb.ca.gov.

CONSEJO DE RECURSOS ATMOSFÉRICOS DE CALIFORNIA

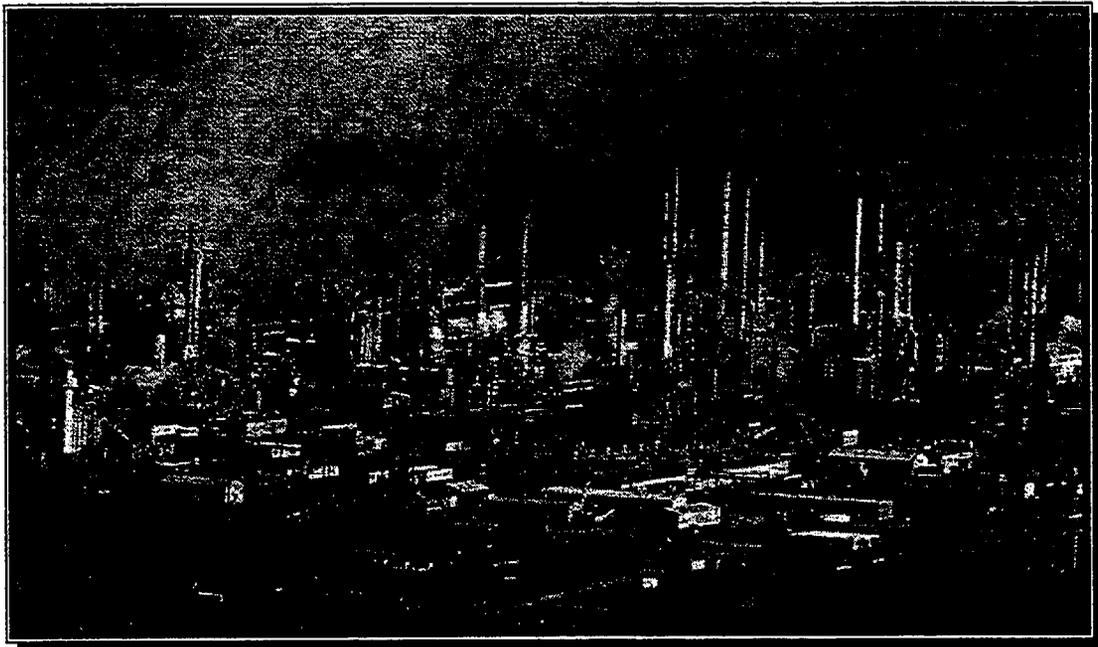


Michael P. Kenny
Oficial Ejecutivo

Fecha: 20 de noviembre del 2001

California Environmental Protection Agency
Air Resources Board

**Draft Recommendations on Guidance
for Penalty Assessments at
Petroleum Refineries**



Release Date: November 20, 2001

State of California
California Environmental Protection Agency
AIR RESOURCES BOARD

**Draft Recommendations on Guidance
For Penalty Assessments at
Petroleum Refineries**

**Date of Release: November 20, 2001
Scheduled for Consideration: December 13, 2001**

Location:

**California Air Resources Board
Auditorium, Annex IV
9528 Telstar Avenue
El Monte, California 91731**

This report has been reviewed by the staff of the Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use. To obtain this document in an alternative format, please contact the Air Resources Board ADA Coordinator at (916) 322-4505, TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area. This report is available for viewing or downloading from the Air Resources Board's Internet site: <http://www.arb.ca.gov/regact/>

Acknowledgements

This report was prepared with the assistance and support from a number of divisions and offices of the Air Resources Board. In addition, staff would like to acknowledge the assistance and cooperation that were received from the staffs of the Bay Area Air Quality Management District, the San Joaquin Valley Unified Air Pollution Control District, and the South Coast Air Quality Management District.

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I. INTRODUCTION AND SUMMARY

This chapter provides an introduction and a summary of the findings the staff made in its evaluation of the enforcement programs of selected local air quality management districts and air pollution control districts in California.

A. Introduction

Local air quality management districts and air pollution control districts (districts) have the primary responsibility to adopt rules and regulations to achieve and maintain state and federal ambient air quality standards in areas affected by emission sources under their jurisdiction. The districts have developed enforcement programs to assist in the implementation of, and ensure compliance with, the rules and regulations they adopt. The California Health and Safety Code establishes the penalties for air quality violations.

An effective enforcement program has many elements. One critical element is the dedication of sufficient staffing resources to carry out rigorous equipment inspections, verification of permits and operating conditions, and validation of equipment breakdowns.

The ultimate success of an enforcement program, however, depends on the fair and firm use of appropriate and meaningful penalties to address violations of local, state, or federal air quality rules, regulations or laws. The primary purpose of penalties is to deter future violations. The use of meaningful penalties provides a financial incentive for regulated industries to comply with air quality laws, and creates an environment where full compliance is the most cost-effective option available. Penalties must be commensurate with the nature, scope and seriousness of the violations.

B. Why Is the ARB Evaluating Districts' Enforcement Programs and Practices?

The Air Resources Board (ARB or Board) believes that enforcement programs in California's air districts should be reviewed periodically and that such reviews can result in program improvements. Also, the Board has received comments that districts may not be assessing meaningful penalties for violations of local air quality rules and regulations. Accordingly, the Board directed staff to evaluate district enforcement programs and make recommendations on district enforcement practices, including the levels of penalties being assessed.

ARB staff has begun to work with districts to evaluate enforcement activities at the community level across the state. As a first step in this process, we evaluated enforcement activities at petroleum refineries. Refineries were selected because they

are one of the largest and most complex sources of emissions in the state, and compared to other regulated or permitted stationary sources, there are relatively few facilities (only about 20). Petroleum refineries are also concentrated in the State's three largest air districts: the South Coast and Bay Area Air Quality Management Districts, and the San Joaquin Valley Unified Air Pollution Control District.

A petroleum refinery is a complex facility where crude oil is converted into petroleum products (primarily gasoline, diesel fuel and jet fuel) which are then transported through a system of pipelines and storage tanks for final distribution by delivery truck to fueling facilities throughout the State. In California, most crude oil is delivered either by ship from Alaska or foreign sources, or is delivered via pipeline from oil production fields within the State. The crude oil then undergoes many complex chemical and physical reactions, which include distillation, catalytic cracking, reforming and finishing. These refining processes have the potential to emit air contaminants, and are subject to various controls by district rules and regulations. This report focuses on the enforcement of those rules, which are listed in Appendix C.

While staff's current evaluation is limited to enforcement activities at petroleum refineries, the ARB staff will continue to work with the districts to strengthen enforcement activities across the state for many source types, with a focus on community level concerns. This proposal includes plans to evaluate enforcement activities at other stationary source categories, as time and resources allow, and to make recommendations for improvements where indicated. ARB's ultimate goal is to work with the districts to ensure statewide compliance with all applicable air quality requirements from all air pollution sources.

C. What Are the Current Districts' Enforcement Practices as They Relate to Petroleum Refineries?

Typically, districts assign one inspector to each refinery in the district. The inspector is responsible for all enforcement activities at the refinery. These activities generally include:

- Upset/breakdown verification and investigation;
- Investigation of citizen complaints;
- Routine inspections, and;
- The issuance of notices of violation (NOVs) for violations of local, state, and federal air quality laws.

This inspector normally visits the refinery at least once per week. While inspectors usually conduct their work during normal business hours, they are on-call evenings and weekends to respond to citizen complaints and investigate upset/breakdowns.

D. What Data Did Staff Utilize In Their Evaluation?

To evaluate the effectiveness of refinery enforcement practices, staff performed a two-part analysis. The first part of the analysis was to evaluate data on the penalties that had been assessed at refineries for violations of district rules and regulations. For this analysis, staff collected and reviewed refinery NOVs issued by the South Coast Air Quality Management District, the Bay Area Air Quality Management District, and the San Joaquin Valley Unified Air Pollution Control District, for the years 1997 – 2000. This NOV information was collected for a total of five refineries in the state. Two refineries each were in the South Coast and Bay Area Air Quality Management Districts, and one was located in the San Joaquin Valley Unified Air Pollution Control District.

In addition, ARB staff also collected information on mutual settlements reached between the districts and these refiners over the same period. This included information on the amount of civil penalties assessed and any contributions to supplemental environmental programs that may have occurred.

The second part of staff's analysis focused on the effectiveness of the districts' enforcement practices, as well as other indicators which show trends in refinery operating activities. For this analysis, ARB staff evaluated the current refinery enforcement activities in the South Coast Air Quality Management District, the Bay Area Air Quality Management District, and the San Joaquin Valley Unified Air Pollution Control District. ARB staff also evaluated reported upset/breakdowns at four refineries in the state during 1990 – 2000, to identify trends in how refiners are operating their facilities. Staff further reviewed citizen complaints from the same facilities during this time period. This 10 year period was selected to coincide with a time in which significant modifications and modernization to California refineries occurred. Two refineries each were in the South Coast and Bay Area Air Quality Management Districts. These are the same refineries used above to evaluate district NOV settlement practices. Due to constraints on ARB staff time and resources, a refinery in the San Joaquin Valley Unified Air Pollution Control District was not included in this analysis. However, in the near future, staff intends to perform a similar analysis for a refinery in that district, and will report the findings when they are complete.

While only about 40 percent of the refineries in the state that produce gasoline for consumption in California were selected for staff's evaluation, the refineries selected represent a mix of large and small refineries. These refineries also represent different levels of modernization. Staff believes that analysis of additional refineries would provide little additional insight into the districts' enforcement practices or trends in refinery operating activities, and would not significantly change the results of the staff's evaluation.

Also, ARB staff evaluated data from the United States Occupational Health and Safety Administration regarding worker illness and injury for petroleum refineries California and in the other 49 states. This provided staff insight into how California refineries are operated as compared to refineries nationwide, from a worker safety standpoint.

E. What Were the Results of Staff's Evaluation of the Districts' NOV Settlements?

In evaluating the data, staff categorized the NOV settlements by district into rule violation categories (such as visible emission, fugitive emission, public nuisance, etc). For each rule violation category, staff determined the minimum, maximum, and average penalty assessment on a per day, per violation basis. A summary of the staff's findings is presented in Table I-1. A more detailed listing of all of staff's findings is presented in Chapter VI.

As can be seen in Table I-1, within each district, there were significant ranges of penalties assessed for violations of the same district rules or regulations, with some violations being assessed a higher penalty than other violations of the same rule. There were also significant differences in the amounts of penalties collected for violations of similar rules from district to district.

**Table I-1:
Minimum, Maximum and Average Penalty Assessments
For Selected NOV Settlements
(Dollars Per Day)**

Violation Type		Bay Area	South Coast	San Joaquin Valley
Visible Emission	Max	\$3000	\$7000	\$4500
	Min	\$244	\$500	\$4500
	Ave	\$1436	\$3100	\$4500
Excess Emission	Max	\$3000	\$3750	\$5000
	Min	\$11	\$500	\$750
	Ave	\$342	\$1236	\$2912
Other Administrative	Max	\$2500	\$2500	\$4500
	Min	\$116	\$250	\$1080
	Ave	\$853	\$1125	\$3456

The range of settlements summarized in Table I-1 is likely due to a number of factors specific to each individual case, including: the severity of the circumstances that resulted in each NOV, the amount of time that elapsed before corrective action, if any, was taken by the facility, and other statutory factors that must be considered, as well as other intangible factors such as the strength of the evidence of the violation. In addition, differences between the districts in penalty assessments are likely attributable to differences in the stringency of the particular district rules involved, district enforcement

practices and policies, and differences in the processes that each district uses in reaching mutual settlements.

In considering the results of staff's analysis, it is important to recognize that the penalty amounts shown in Table I-1 are not necessarily reflective of the total penalty assessments for individual NOVs, which cover one or more violations, or cases involving multiple NOVs. For example, in settling NOVs, districts and refiners often engage in the settlement of numerous NOVs within the same settlement agreement, or an individual NOV may contain multiple violations. Often, the number of 'days of violation' is unknown or assumed in this process.

Thus, the data presented above must also be considered in the larger context of the overall performance of each district's enforcement program. As an example, over an 18 month period (from July 1998 through December 2000), the South Coast Air Quality Management District settled about 1,300 NOVs involving violations of air quality rules from all stationary sources. Of these, nearly 700 were settled for not less than \$10,000, and over 150 were settled for amounts greater than \$100,000. Details of these settlements are provided in Chapter VI.

Nevertheless, even in light of the significant penalties assessed in many of the mutual settlements reached by the districts, based on the minimum per violation (i.e., per day) penalties set out in Table I-1, ARB staff believes the minimum penalties that have been assessed in settlements of petroleum refinery NOVs in all districts generally should be higher, and in some cases significantly higher.

Finally, it may be useful to compare the historical minimum penalties for refineries set out in Table I-1 to typical minimum penalties in other contexts. For example, a single violation of the heavy-duty diesel smoke standards carries a mandatory minimum penalty of \$300 regardless of the financial ability of the violator (Health and Safety Code section 44011.6), typically a small business, including single-rig owner/operators. Failing to submit any information required by the Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code sections 44300, et seq.), or violating any of the Act's other requirements, is punishable by a civil penalty of not less than five hundred dollars for each day that the information is not submitted or that the violation continues. Even where no minimum penalty is established, the courts have sustained high penalties where no excess emissions took place. For example, in the *Wilmshurst* case cited in Chapter VII, the court upheld the imposition of the maximum \$5,000 per vehicle penalty on an auto dealership and on the dealer himself, in the absence of evidence of excess emissions (*People v. Wilmshurst* (1999) 68 Cal.App, 4th 1332, pp. 1340, 1348-1352.).

F. What Are the Existing Statutes Regarding Civil Penalties for Violations of Air Quality Laws?

In determining penalties for violations of air pollution rules and regulations, districts are guided by both statute and case law. The statutes are contained in the Health and Safety Code. The Health and Safety Code does not establish minimum civil penalties for violations of state and local air quality requirements, but does establish maximum penalties for these violations. A summary of the maximum penalty amounts that can be assessed per violation per day under the Health and Safety Code is presented in Table I-3.

**Table I-3:
Maximum Civil Penalties for Violations
Of Air Quality Laws**

Severity of Violation	Maximum Civil Penalty (Amount per Violation per Day)
Strict Liability, No Fault Basis	\$10,000
Negligent, Causing Actual Injury	\$25,000
Knowingly Emitting Air Contaminants	\$40,000
Willfully and Intentionally Emitting Air Contaminants	\$75,000
Willful and Intentional Emitting Air Contaminants Causing Great Injury or Death	\$1,000,000

Under the Health and Safety Code, penalties of up to \$10,000 per day can be imposed for violations of district rules, permits and orders on a no fault basis even where the violations do not involve a release of air contaminants. The maximum penalty specified under these circumstances ensures credible penalties for sources with significant financial resources; otherwise, strict liability penalties for these largest of sources would be meaningless. Higher maximum penalties of \$25,000 are available for negligent

emissions of air contaminants or emissions that cause actual injury. Knowingly, willfully or intentionally emitting air contaminants carries even higher maximum penalties, and corporations that "willfully and intentionally or with reckless disregard for the risk of great bodily injury" emit air contaminants that cause great bodily injury or death are liable of civil penalties of up to \$1,000,000 per day.

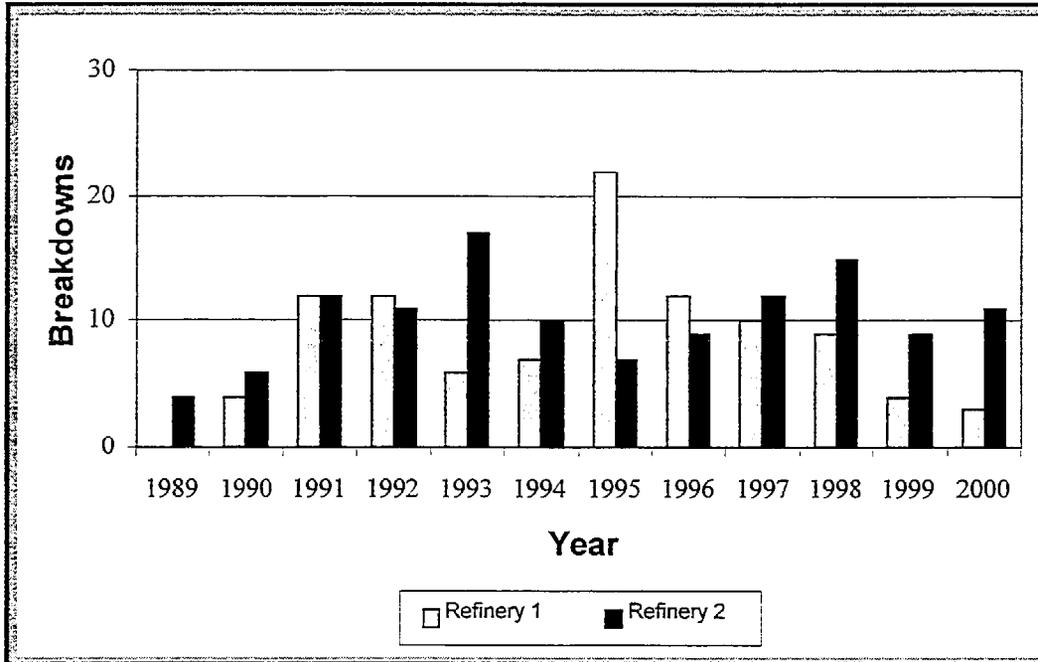
G. What Were the Results of Staff's Evaluation of the Districts' Enforcement Activities?

After reviewing the enforcement activities of the South Coast Air Quality Management District, the Bay Area Air Quality Management District, and the San Joaquin Valley Unified Air Pollution Control District, the staff has concluded that these districts' current enforcement programs provide an effective level of compliance inspections and records review to discover air quality violations at petroleum refineries. These districts have made commitments, in the form of assigning an inspector dedicated to each refinery, to provide the resources to carry out rigorous enforcement activities, including routine inspections, detailed inspections, and breakdown investigation. All three districts respond to all citizen complaints they receive regarding petroleum refineries, and both the Bay Area Air Quality Management District and the San Joaquin Valley Unified Air Pollution Control District have practices in place to inform complainants of the disposition of their complaints.

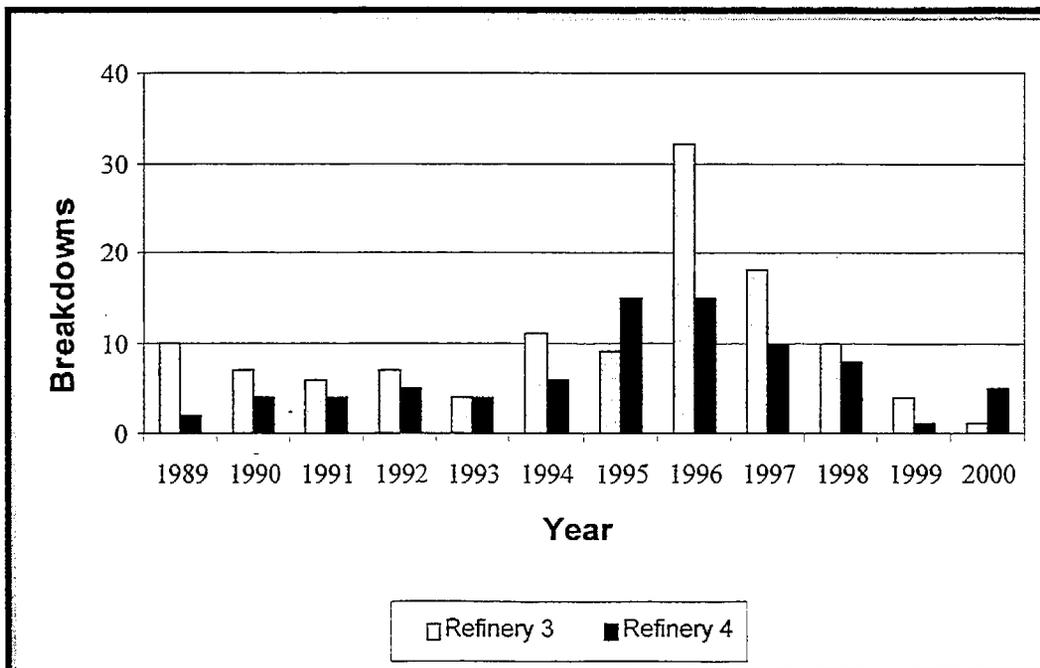
H. What Were Staff's Other Findings?

The analysis of the upset/breakdown data collected from the South Coast and Bay Area Air Quality Management Districts, as can be seen in both Figures I-1 and I-2, indicates that the number of reported breakdowns of major process units at refineries (crude distillation units, fluid catalytic crackers, alkylation plants, etc.) have generally remained stable or have decreased over the last ten years.

**Figure I-1:
Total Reported Breakdowns of Major Process Units In the
South Coast Air Quality Management District
(1990-2000)**



**Figure I-2:
Total Reported Breakdowns of Major Process Units In the
Bay Area Air Quality Management District
(1989-2000)**



This stable breakdown rate is notable because it occurred during a period when California refineries underwent significant modifications and modernizations to produce clean fuels in response to changes in state law. These modifications and modernizations made the industrial plant at these refineries more complex, but this does not appear to have increased the frequency of breakdowns at California refineries, nor did it increase the rate at which refinery workers are injured on the job. An evaluation of the data collected from the United States Occupational Health and Safety Administration regarding worker illness and injury for petroleum refineries clearly shows that nationwide, illness and injuries among refinery workers has declined over the last decade, and that California refineries consistently have a lower rate of worker injuries than refineries nationwide. Of course, these data indicate the rate of injuries only, not the severity of the injuries in particular cases.

These data correlate well with the data presented in Figures I-1 and I-2, which show downward trends in the number of breakdowns at California refineries. This is an indication that, as refineries have modernized, older equipment has been replaced with newer units with more safeguards built in, and that these newer units are less likely to break down and cause injury.

I. What Was the Process?

In developing this evaluation of district enforcement practices at petroleum refineries, the staff worked closely with interested parties and community groups to solicit their input. ARB staff met individually with the staffs of the districts to obtain data from districts' files and records. ARB staff also met with district staff to discuss information and findings on individual district programs.

In addition, ARB staff held two public workshops this year in the following locations: Carson in August and Martinez in September. The purpose of these workshops was to begin the discussion on draft recommendations on guidance for penalty assessments at petroleum refineries. Individuals from the local community, industry representatives and district staff attended these workshops.

II. RECOMMENDATIONS

This chapter discusses the staff's recommendations for districts to consider, presented as policy and practice guidance regarding minimum penalties. This guidance is intended to achieve uniform and credible penalty assessments at petroleum refineries statewide.

A. Staff Recommendation

The use of sanctions, including substantial civil penalties and where warranted criminal penalties, to achieve the broad public policy directive to achieve and maintain health-based air quality standards is a critical element of an effective enforcement program. The California Health and Safety Code (HSC) establishes maximum civil penalties for violations of state and local air quality requirements. It does not establish minimum civil penalties. In assessing civil penalties for air quality violations, local air districts must first determine the statutory maximum penalty and then apply the relevant factors specified in HSC section 42403. The penalties must be set at levels that will serve as a punishment in light of the violator's conduct and financial ability. The laws involved in these violations protect the public health and welfare, and the violations cited at petroleum refineries are committed by entities with considerable financial resources. Case law places the burden on the violator to justify a penalty below the maximum. Even though the law does not establish statutory minimum penalties for air quality violations, neither law nor practice supports imposing inconsequential penalties.

The staff's review of the enforcement activities of the South Coast Air Quality Management District, the Bay Area Air Quality Management District and the San Joaquin Valley Unified Air Pollution Control District indicates that these districts' current enforcement programs provide an effective level of enforcement to discover air quality violations at refineries in terms of inspection frequency and response to complaints. Nevertheless, the minimum penalties collected for some of the violations revealed in these enforcement activities are not consistent with the overall quality of these districts' enforcement programs. Imposing penalties in the hundreds of dollars for violations of laws designed to protect public health and safety and the environment is inadequate, especially against violators with such ample financial resources. The staff concludes that whatever the totality of circumstances is for a particular case, higher minimum penalties are warranted where the violator is a large source with significant financial resources.

The California Legislature recently augmented the air pollution penalties by making certain offenses punishable as a felony (Senate Bill 1865, Chapter 805 of the Statutes of 2000). SB 1865 also raised the maximum civil and criminal monetary penalties available for air pollution violations. For example, civil penalties for negligent violations were increased from \$15,000 per day to \$25,000 per day; penalties for knowing violations were increased from \$25,000 per day to \$40,000 per day and penalties for intentional violations were increased from \$50,000 per day to \$75,000 per day (HSC

sections 42402.1, 42402.2 and 42402.3). Even higher maximum penalties are established for corporations that intentionally violate the air quality laws (HSC section 42402.3.). Similar increases in criminal penalties were also enacted (HSC sections 42400, et seq.).

Staff believes assessing higher penalties will encourage the installation of new technology at refineries, such as leakless valves, which would result in better compliance with district rules and regulations, and greater emission benefits. However, these penalties are not intended to set an upper level or range for air quality violations at refineries or any other violations, as maximum penalties are established by state law. Nor should these penalties be the starting place in the determination of an appropriate penalty in any case. The burden is on the violator to justify a penalty below the maximum. Penalties should increase for repeat violations, especially for violations of the same type that reoccur at the same unit. Of course, after a point repeat violations indicate negligence, or intent, justifying penalties higher than the \$10,000 per day strict liability maximum. The staff also believes that there are certain short-term violations that warrant assessment of at or near the maximum statutory penalties. This could result in penalties in the hundreds of thousands of dollars. Such violations include, but are not limited to, those that involve large releases that expose surrounding communities to emissions or result in the creation of dangerous or emergency conditions.

This analysis could be equally applicable to many industrial sources other than petroleum refiners, and as part of the ARB staff's proposed policies and actions to ensure effective and equitable enforcement, staff will look into this issue and make necessary recommendations in the future.

III. DISTRICTS' REFINERY ENFORCEMENT PROGRAMS

This chapter provides information on refinery enforcement programs in the South Coast Air Quality Management District, the Bay Area Air Quality Management District, and the San Joaquin Valley Unified Air Pollution Control District.

A. General District Enforcement Practices

Local air quality management districts and air pollution control districts have the primary responsibility for enforcing air quality standards at all sources of air pollution within their jurisdiction other than motor vehicles. The HSC requires the districts to adopt and enforce rules and regulations to achieve and maintain state and federal ambient air quality standards in areas affected by emission sources under their jurisdiction, and enforce applicable provisions of state and federal law. These legal authorities are discussed further in Chapter VII.

Each district in the state has an enforcement program to assist in implementing district adopted rules and regulations. These programs are staffed by district personnel who inspect regulated sources within the district to ensure compliance with district rules, regulations and permits, and respond to complaints from citizens regarding facilities within the district. While enforcement programs may vary from district to district, they share some common characteristics.

District enforcement programs apply generally to all regulated stationary sources within their jurisdiction, but the focus here is on enforcement efforts at oil refineries. ARB staff plan to continue to work with districts to strengthen enforcement activities across the State with a focus on community level impacts. This proposal includes plans to evaluate enforcement activities at other stationary source categories, and as time and resources allow, make appropriate recommendations for improvement of these activities. The ultimate goal is to work with districts to ensure statewide compliance with all applicable air quality requirements from all air pollution sources.

Because the focus of this evaluation is on refineries, ARB staff have described the refinery enforcement programs within the districts where the majority of oil refining in California occurs and where the state's motor vehicle fuels are produced. These districts are the South Coast Air Quality Management District (SCAQMD), the Bay Area Air Quality Management District (BAAQMD), and the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD).

In evaluating information regarding the enforcement programs for these districts, several similar key components became apparent. These include the use of routine inspections and audits of refinery activities to ensure compliance with district rules and regulations, the issuance of NOVs for violations of local, state, and federal air quality laws, oversight responsibilities for source testing, and the response to citizen complaints

regarding emissions from stationary sources within the district. A more detailed description of the enforcement programs is provided below.

B. South Coast AQMD Enforcement Practices

The SCAQMD's enforcement practices at oil refineries consist of three main components. These are regular inspections, upset/breakdown verification and investigation, and the investigation of complaints. Enforcement staff are also responsible for witnessing source tests, conducting annual audits of self-reporting requirements applicable to refineries, and verifying the accuracy of installed CEMs and ground level monitors (GLMs). In addition, the SCAQMD has developed procedures for settling NOVs with violators. The SCAQMD has one inspector assigned to each refinery. On average a district inspector will visit each refinery about three times a week. The number of inspections per refinery varies from year to year, depending on the types and the complexity of inspections performed. In 2000 there were 1027 inspections at petroleum refineries in the district, which is about 150 per refinery.

1. Inspections

The SCAQMD conducts three types of regular inspections at refineries. These are RECLAIM, unit, and "blue sky" inspections. These types of inspections are described below.

RECLAIM (Regional Clean Air Incentives Market) inspections and audits are conducted at refineries to verify compliance with the SCAQMD's RECLAIM (SCAQMD Regulation XX) program. The RECLAIM program is a market based incentive program designed to allow facilities flexibility in achieving reductions of emissions of oxides of nitrogen (NOx) and oxides of sulfur (SOx) using methods which include, but are not limited to: add-on controls, equipment modifications, reformulated products, operational changes, shutdowns, and the purchase of excess emission reductions. Under the RECLAIM program, monitoring systems and calibration gas specifications are inspected and reviewed on an ongoing basis.

In addition, a RECLAIM audit is performed once per year at each refinery. This compliance audit takes about two months to complete, and includes an inspection of as much of the equipment at the refinery as possible. District inspectors review all facility permits to ensure that equipment is being operated within the permit parameters, and verify the accuracy of installed continuous emission monitors (CEMs). Violations of both the RECLAIM program's requirements and other district rules discovered are cited during these inspections.

Unit inspections involve selecting a specific unit or operation and inspecting it. In these inspections, the unit is checked for compliance with permitted operations and emissions, as well as for violations of district rules and regulations. Violations discovered in these inspections result in the issuance of NOVs.

'Blue-Sky' inspections involve several district inspectors visiting one refinery within the district for approximately one week and focusing on compliance with a particular rule (for instance, SCAQMD Rule 1173 regarding fugitive emissions). During these inspections, district inspectors will investigate all possible sources at the refinery that could be involved in a violation of the rule under consideration. The blue-sky inspections are done less frequently than the other two types of inspections. In general, district inspectors conduct approximately 6 to 10 blue-sky inspections each year. Violations discovered in these inspections result in the issuance of NOVs

Appendix B provides information on the number of NOVs issued from 1990-2000 to two refineries operating in the SCAQMD. A description of the way the data was collected and analyzed is contained in Appendix B.

2. Upset/Breakdown Verification

In addition to regular inspections, the district also responds to unusual refinery operating conditions that are reported as upset/breakdowns, as required under SCAQMD Rules 430 and 2004(i). An upset/breakdown occurs when the refinery experiences the breakdown of a piece of equipment that is either permitted or regulated by the district. A breakdown may or may not include the release of excess emissions. However, the district's breakdown rules do not provide relief for violations of the following district rules or permit conditions which implement these rules: Rules 218 and 402, and Regulations I, IX, X, XIV, XVII, XX, XXX, and XXXI.

To qualify for temporary relief under district breakdown rules, a refinery must report an upset/breakdown to the district within one hour of the incident or discovery and meet all other criteria specified in the rules. After receiving notification, a district inspector will be sent to investigate and verify the breakdown. If the breakdown results in a violation of permit conditions or District rules, and it is not reported within one hour, a NOV is typically issued.

Upon investigation, the breakdown must be shown to be an actual equipment failure. An actual equipment failure means that the breakdown or excess emissions were not the result of any of the following:

- Operator error;
- Inadequate equipment maintenance, or;
- Operation of equipment outside of operational or permitted parameters.

If any of these conditions or other criteria specified in the district's breakdown rules is not satisfied, the incident is not considered an upset/breakdown, and if it results in a violation of permit conditions or district rules, a NOV is typically issued. Most reported upset/breakdowns do not result in the issuance of a NOV. However, the refiner is required to complete repairs to the equipment involved in the upset/breakdown within 24 hours. If the circumstances of the breakdown necessitate the equipment being down for

longer than 24 hours, the refinery can petition for a variance. A public-hearing is held before a variance can be granted. However, emergency variances may be given for up to 45 days without a hearing.

Appendix B lists the upset/breakdown incidents that occurred at two SCAQMD refineries over the years 1990-2000. A description of the way the data was collected and analyzed is contained in Appendix B.

3. Citizen Complaints

The third compliance activity conducted by the SCAQMD is the investigation of citizen complaints. A large majority of citizen complaints involve odor or visible emissions. The district responds to these complaints by sending an inspector to investigate a single complaint if it is received during working hours, or if three complaints of a similar nature are received outside working hours. Staffing resources dictate requiring three complaints of a similar nature before an inspector will be dispatched during non-business hours. A priority list is also maintained for immediate response to any complaint. This list is established based on past history of violations or potential for significant public health impacts in the community. Investigations of citizen complaints result in one of three outcomes:

- The inspector may be able to verify the complaint and identify the source;
- The inspector may verify the complaint, but be unable to identify the source of the complaint, or;
- The inspector may be unable to verify the complaint.

For each investigation a report is written and filed. If the inspector can verify a complaint and identify the source, and it is found that the cause is not the result of a "qualified" reported upset/breakdown, a NOV is typically issued if a permit condition or district rule has been violated.

One exception to this is an odor complaint. Odor complaints may cause public nuisances. As a matter of policy, the SCAQMD will issue a NOV for causing a public nuisance under district Rule 402 based on six to ten individual verified complaints about the same source. However, as a practical matter, the district will write a NOV if it receives six individual verified complaints. If a single odor complaint is received and verified, the inspector will often return to the location of the original complaint and inquire to determine if there are additional individuals who wish to file a complaint.

Appendix B contains a history of complaints received at two SCAQMD refineries for the years 1990-2000. A description of how the data were collected and analyzed is contained in Appendix B.

4. Settlement of Violations

Upon issuing a NOV, district enforcement staff prepares a written report and forwards the NOV and report to the district's legal office for review. The district's legal office reviews the material and decides if further action is warranted. If it is determined that further action is not warranted, the NOV may be dismissed. If it is determined that further action is warranted, the legal office will evaluate the case for settlement purposes and contact the violator to arrange an office conference to discuss resolution of the matter.

In most cases, the district and the violator reach a mutual settlement, in which the violator pays a civil penalty. Part of the mutual settlement may also include contributions, both monetary and in-kind, to supplemental environmental projects agreed upon by the facility and the district. In mutual settlements, several NOVs may be settled at one time. If settlement is not reached, then an action to recover civil penalties for the violations may be filed in court or the district may petition the district hearing board for an order of abatement.

C. Bay Area AQMD Enforcement Practices

Like the SCAQMD, the BAAQMD's enforcement practices for oil refineries also consist of three main types of investigations. These include routine inspections, upset/breakdown reporting, and the investigation of complaints. Enforcement staff are also responsible for witnessing source tests, conducting annual audits of self-reporting requirements applicable to refineries, and verifying the accuracy of installed CEMs and ground level monitors (GLMs). The BAAQMD has an inspector assigned to each refinery within the district. On average the inspector will visit the refinery each day, but the number of inspections varies from year to year. The average number of inspections per year per refinery is about 120.

1. Inspections

The BAAQMD staff conducts routine inspections at refineries within the district continuously throughout the year. These inspections are performed to verify that the operations at the refinery are within permitted levels, and that no violations of the districts' regulations are occurring. Over a 12-month period, the district will inspect most major process units and equipment at each refinery at least once. Some equipment at the refinery, such as storage tanks, may take longer to inspect because of the time required to inspect the equipment and limitations on district resources. The inspectors also review equipment permits to ensure that equipment is being operated within the parameters of the permit. When violations of either permit conditions or district regulations are found during any inspection, the district typically issues a NOV to the refinery.

Appendix B provides information on the number of NOV's issued from 1990-2000 to two refineries operating in the BAAQMD. A description of the way the data was collected and analyzed is contained in Appendix B.

2. Upset/Breakdown Verification

In addition to inspections, the district also responds to unusual refinery operating conditions reported as upset/breakdowns, as required by the BAAQMD Regulation 1. An upset/breakdown occurs when the refinery experiences the breakdown of a piece of equipment that is either permitted or regulated by the district. A breakdown may or may not include the release of excess emissions. Under the district's upset/breakdown rule, a refinery has 24 hours to report an upset/breakdown to the district, at which time a district inspector will be sent to investigate and verify the breakdown. If the breakdown is not reported within 24 hours, a NOV is typically issued.

Upon investigation, the breakdown must be shown to be an actual equipment failure. An actual equipment failure means that the breakdown or excess emissions were not the result of any of the following:

- Operator errors;
- Inadequate equipment maintenance, or;
- Operation of equipment outside of operational or permitted parameters.

If any of these conditions is satisfied, the incident is not considered an upset/breakdown, and a NOV may be issued. Most reported upset/breakdowns do not result in the issuance of a NOV. However, the refiner is required to complete repairs to the equipment involved in the upset/breakdown within 24 hours. If the circumstances of the breakdown necessitate the equipment being down for longer than 24 hours, the refinery can petition for a variance. The district holds a public hearing before granting variances. However an emergency variance can be granted for up to 45 days without a hearing.

Appendix B contains a history of upset/breakdown incidents at two BAAQMD refineries over the years 1990-2000. A description of how the data was collected and analyzed is contained in Appendix B.

3. Citizen Complaints

The third compliance program is the investigation of citizen complaints. In general, a district inspector will investigate those complaints in the area around a refinery if five complaints of the same nature relating to the same event are received within a day. This investigation will result in one of three outcomes:

- The inspector may be able to verify the complaint and identify the source;
- The inspector may verify the complaint, but be unable to identify the source of the complaint, or;
- The inspector may be unable to verify the complaint.

In each case, a report will be written and filed, and notification of the disposition of the complaint will be sent to the complainant at the conclusion of the investigation. If the inspector can verify a complaint and identify the source, and it is found that the cause is not the result of a reported upset/breakdown, a NOV may be issued if a permit condition or district regulation has been violated.

One exception to this is an odor complaint. Odor complaints may cause public nuisances. As a matter of policy, the BAAQMD will issue a NOV for causing a public nuisance under district Regulation 1-301 based on three individual complaints about the same source. If a single odor complaint is received and verified, the inspector will often return to the location of the original complaint and inquire as to if there are additional individuals who wish to file a complaint.

Appendix B contains a history of complaints received at two BAAQMD refineries for the years 1990-2000, as well as the outcome of the complaints (verifiable or non-verifiable) and whether NOVs were issued. A description of how the data were collected and analyzed is contained in Appendix B.

4. Settlements of Violation

Upon issuing a NOV, district enforcement staff prepares a written report and forwards the NOV and report to the district's Legal Division to initiate legal action. Upon receipt of the NOV and report, the Legal Division reviews the case to determine if further action is warranted. If it is determined that further action is not warranted the NOV may be dismissed. If additional information is needed before further action can be taken, the case may be referred back to the enforcement staff to obtain additional information. If the Legal Division determines that further action is warranted, the case will be evaluated to determine the appropriate remedy. This may include resolution through settlement with the alleged violator, the filing of an accusation against the alleged violator before the district's Hearing Board, or the filing of a complaint in civil court to collect proposed civil penalties or obtain injunctive relief.

Prior to 1997, most refinery NOV cases involved a mutual settlement, whereby the violator, in exchange for settlement of the NOV, paid a civil penalty and/or contributed to a supplemental environmental project. Since 1997, the district has embarked upon a program whereby refinery NOVs are handled by an attorney for settlement or for the filing of a civil penalty action.

D. San Joaquin Valley Unified APCD Enforcement Practices

Like the SCAQMD and the BAAQMD, the SJVUAPCD's enforcement practices for oil refineries consist of three main types of investigations. These include routine inspections, upset/breakdown reporting, and the investigation of complaints. SJVUAPCD enforcement staff are also responsible for witnessing source tests at refineries. The SJVUAPCD has one or more inspectors assigned to each refinery within the district (during and after normal work hours). The largest facility receives approximately 40 visits per year while smaller facilities are visited less often. The number of inspections may vary from year to year depending upon circumstances.

1. Inspections

The SJVUAPCD staff conduct routine inspections at refineries within the district throughout the year. These inspections are performed to verify that the operations at the refinery are within permitted levels, and that no violations of the districts' regulations are occurring. Over a 12-month period the district will inspect major process units and equipment at each refinery at least once. Some equipment, such as storage tanks, may require considerably more time to inspect because of special safety precautions and/or the need to utilize specialized equipment. Inspectors also review permits, any associated permit conditions, and any other records required by the district to ensure equipment is operated and maintained within specified parameters. When violations of permit conditions or district regulations are found during any inspection, the district typically issues a NOV to the refinery.

2. Upset/Breakdown Verification

In addition to inspections, the district also responds to unusual refinery operating conditions reported as upset/breakdowns, as required by SJVUAPCD Rule 1100. A breakdown occurs when the refinery experiences an unforeseen failure of equipment that is either permitted or regulated by the district. A breakdown may or may not include the release of excess emissions. Under the district's breakdown rule, a refinery has one hour following the discovery of the breakdown to report the incident to the district. At that time a district inspector will investigate and verify the condition. If the breakdown is not reported as required, it typically is treated as a violation with the issuance of a NOV.

Upon investigation, the breakdown must be shown to be an actual equipment failure. An actual equipment failure means that the breakdown or excess emissions were not the result of any of the following:

- Operator errors;
- Inadequate equipment maintenance, or;
- Operation of equipment outside of operational or permitted parameters.

If any of these conditions occur, the incident is not considered a breakdown and a NOV is typically issued. Most reported breakdowns do not result in the issuance of a NOV. However, the refiner is required to complete repairs of the equipment involved in the upset/breakdown within 24 hours (96 hours for continuous emissions monitoring equipment). If the circumstances of the breakdown necessitate the equipment being down for a longer period, the facility may petition for a variance. The district hearing board usually conducts public hearings before granting variances, but state law and district rules allow for the granting emergency variances up to 30 days without a public hearing.

3. Citizen Complaints

The third compliance program is the investigation of citizen complaints. During regular business hours, district inspectors investigate all complaints in the area around refineries. Complaints related to either excess emissions or violations of permit conditions are always investigated immediately, regardless of the time of the day. Weekend or after-hours odor complaints usually require the receipt of three separate complaints relating to the same event before a field investigation will ensue. Where after-hours odor complaints do not exceed the three-complaint threshold, the district inspector assigned to that facility will address the matter the next business day. Generally, investigations will result in one of three outcomes:

- The inspector may be able to verify the complaint and identify the source;
- The inspector may verify the complaint, but be unable to identify the source of the complaint, or;
- The inspector may be unable to verify the complaint.

All complaints received by the district will result in the inspector telephoning the complainant for information. For each complaint received, a report is prepared and filed, and the reporting party notified of the disposition. If the inspector can verify a complaint and identify the source, and it is found that the cause is not the result of a reported breakdown, a NOV is typically issued if a permit condition or district regulation has been violated.

Odor complaints are handled differently. Odor complaints are considered public nuisances. As a matter of district policy, if five complaints of the same nature relating to the same event are received and confirmed within one day, it is deemed a public nuisance condition under district Rule 4102 and may result in the issuance of a NOV.

4. Settlement of Violations

Upon issuing a NOV, district enforcement staff prepare a written report and forward the NOV and report to a supervisor. Once the facility returns to compliance, the completed report and associated evidence are submitted to the district's mutual settlement group for disposition.

In most cases, the district and the facility reach a mutual settlement, whereby the violator pays a civil penalty to the district. Part of the mutual settlement may also include contributions, both monetary and in-kind, to supplemental environmental projects agreed upon by both the facility and the district. In mutual settlements, several NOVs may be settled at one time. If settlement is not reached, then an action to recover civil penalties for the violations may be filed in court.

IV. DESCRIPTION OF DISTRICT REFINERY RULES AND REGULATIONS

This chapter provides a description of significant district rules and regulations that apply to petroleum refineries. An additional listing of all BAAQMD, SCAQMD, SJVUAPCD rules and regulations that apply to petroleum refineries is presented in Appendix C.

A. Overview

In regulating emissions from refineries, the three districts have adopted rules that prohibit or regulate particular refinery activities or processes, or limit emissions of particular pollutants from any source at refineries. These rules are either specific in nature (such as controlling NO_x emissions from boilers) or general (such prohibitions of visible emissions or emissions of particular criteria pollutants over a certain length of time). The SCAQMD has about 65 rules and regulations applicable to refineries, the BAAQMD has nearly 50, and SJVAPCD has over 40. Many of these rules and regulations have numerous subparts, which greatly increases the total number of rules and regulations applicable to refineries. A complete listing of these districts' rules and regulations applicable at refineries is presented in Appendix C.

B. Description of Selected District Refinery Rules and Regulations

The following is a brief description of some of the more significant district regulations enforced at refineries.

Visible Emissions:

SCAQMD: *Rule 401 – Visible Emissions*

BAAQMD: *Regulation 6-301 - Ringelmann No. 1 Limitation*

SJVUAPCD: *Rule 4101 – Visible Emissions*

These regulations prohibit the release of visible emissions that exceed a period or periods of time aggregating more than three minutes in any hour.

Fugitive Emissions:

SCAQMD: *Rule 1173 - Fugitive Emissions of Volatile Organic Compounds*

BAAQMD: *Regulation 8-18 - Equipment Leaks*

SJVUAPCD: *Rule 4451 – Valves, Pressure Relief Valves, Flanges, Threaded Connections and Process Drains at Petroleum Refineries and Chemical Plants*

Rule 4452 – Pump and Compressor Seals at Petroleum Refineries and Chemical Plants

These regulations prohibit the use of any equipment that leaks certain organic compounds at a rate or frequency in excess of the leak rates or frequency rates specified for each type of equipment (such as valves, fittings, pumps, compressors, pressure relief devices, etc.). These regulations also specify the frequency with which the operator must conduct inspections and maintenance operations on the equipment, as well as recordkeeping, and other administrative requirements.

Waste Water:

SCAQMD: *Rule 1176 - Sumps and Wastewater Separators*

BAAQMD: *Regulation 8-8 - Wastewater (Oil-Water) Separators*

SJVUAPCD: *Rule 4625 – Wastewater Separators*

These regulations prohibit the operation of wastewater separators and associated wastewater systems without specified covers and seals. These regulations also prohibit the operation of specified systems or components that emit more than a specified level of volatile organic compounds. The SCAQMD regulation specifies an inspection schedule for the operator. All three districts' regulations include recordkeeping requirements.

Nuisance:

SCAQMD: *Rule 402 - Nuisance*

BAAQMD: *Regulation 1-301 - Public Nuisance*

SJVUAPCD: *Rule 4102 - Nuisance*

These regulations prohibit the discharge air contaminants in such quantities, which cause a nuisance to a considerable number of persons.

Storage of Organic Liquids:

SCAQMD: *Rule 463 - Storage of Organic Liquids*

BAAQMD: *Regulation 8-5 – Storage of Organic Liquids*

SJVUAPCD: *Rule 4623 – Storage of Organic Liquids*

These regulations prohibit the storage of volatile organic liquids with vapor pressures exceeding certain threshold levels unless the storage tanks containing these volatile organic liquids have certain emission control devices installed. These emission control devices may include floating roofs, fixed roofs, and/or vapor recovery systems. These regulations also have requirements for regular inspection programs as well as particular recordkeeping requirements.

Refinery Boilers and Heaters:

SCAQMD: *Rule 1109 - Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Petroleum Refineries*

BAAQMD: *Regulation 9-10 – Nitrogen Oxide and Carbon Monoxide from Boilers, Steam Generators and Process Heaters in Petroleum Refineries*

SJVUAPCD: *Rule 4305 – Boilers, Steam Generators and Process Heaters*

These regulations limit the combustion emissions from boilers, steam generators, and/or process heaters at petroleum refineries. In general, facility emissions are limited by pounds of NO_x per million BTU of input heat. These regulations apply only to gaseous and liquid fired units, and exemptions are provided for low heat input devices. These regulations also have requirements for regular compliance testing, as well as particular recordkeeping requirements.

Continuous Emission Monitors:

- SCAQMD: *Rule 218 - Continuous Emission Monitoring*
Rule 2011 - Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SO_x) Emissions
Rule 2012 - Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NO_x) Emissions
- BAAQMD: *Regulation 1-520 - Continuous Emission Monitoring*
Regulation 1-522 - Continuous Emission Monitoring and Recordkeeping Procedures
- SJVUAPCD: *Rule 1080 - Stack Monitoring*

These regulations establish monitoring, reporting and recordkeeping requirements for CEMs for certain pollutants on particular pieces of equipment.

C. Comparison of the Stringency of Selected District Refinery Rules and Regulations

While the SCAQMD, BAAQMD and SJVUAPCD all have rules and regulations specific to refineries, the stringency of these rules often varies by district. Because of this, what constitutes a violation of a rule or regulation in one district may not be a violation of a similar rule in another district. Table IV-1 provides a comparison summary of the stringency between some of the refinery rules and regulations discussed above.

Table IV-1
Comparison of the Stringency of Selected Refinery Rules in the
BAAQMD, SCAQMD and the SJVUAPCD

Rule Type	BAAQMD	SJVUAPCD	SCAQMD
Storage of Organic Liquids	<ul style="list-style-type: none"> Equally Stringent 	<ul style="list-style-type: none"> Equally Stringent 	<ul style="list-style-type: none"> Equally Stringent
Fugitive Emissions	<ul style="list-style-type: none"> Most Stringent 	<ul style="list-style-type: none"> Least Stringent 	<ul style="list-style-type: none"> Less Stringent than BAAQMD
Wastewater Separators	<ul style="list-style-type: none"> Less Stringent than SCAQMD Equally Stringent to SJVUAPCD 	<ul style="list-style-type: none"> Less Stringent than SCAQMD Equally Stringent to BAAQMD 	<ul style="list-style-type: none"> Most Stringent
Refinery Boilers and Heaters	<ul style="list-style-type: none"> Less Stringent than SCAQMD Equally Stringent to SJVUAPCD 	<ul style="list-style-type: none"> Less Stringent than SCAQMD Equally Stringent to BAAQMD 	<ul style="list-style-type: none"> Most Stringent

V. DATA COLLECTION AND ANALYSIS

This chapter discusses staff's data collection efforts and the methodology used to evaluate the data, including the limitations the data presented.

A. Data Collection

In order to develop draft recommendations on guidance for penalty assessments at petroleum refineries, ARB staff collected and reviewed certain refinery NOV settlements from the three districts for the years 1997 – 2000. Five refineries in the State were selected for evaluation. Two refineries each were located in the South Coast and Bay Area Air Quality Management Districts, and one was located in the San Joaquin Valley Unified Air Pollution Control District. The refineries selected represent both large and small facilities with different levels of modernization. Additional refineries were not selected for evaluation due to limited ARB staff resources. However, it is staff's expectation that analysis of additional refineries would provide little additional insight and would not significantly change the results of the staff's evaluation.

As stated earlier in this report, in addition to this NOV settlement information, ARB staff also collected information on NOVs issued, breakdowns reported under the districts' rules, and complaints received over the general period 1990 – 2000 within the SCAQMD and the BAAQMD. Information on the data collected and the methodology used in its analysis is presented in detail in Appendix B. Due to limited ARB staff resources, similar information was not collected in time from the SJVUAPCD for inclusion in Appendix B.

ARB staff worked very closely with district staff to collect all of this information. District staff also helped compile and evaluate the information collected, and provided critical review of staff's findings. District staffs' were also very helpful in providing follow up information and answering any questions. Staff of the ARB sincerely appreciate the resources and efforts provided by the districts in the development of this guidance document.

B. Evaluation of NOV Settlement Data

In this section, the methodology used in analyzing the NOV settlement data collected, and the limitations encountered with the data are discussed.

1. Methodology

In order to evaluate the NOV settlement data collected, staff first separated the data into two categories: emission-related NOVs and administrative NOVs. Emission-related NOVs are those NOVs determined when an emission of a regulated pollutant occurred. These types of NOVs would include leaking valves (fugitive emissions), public

nuisances, visible emission exceedances, etc. Administrative NOV's are those NOV's that were issued for any other reason. These would include a failure to report a breakdown within a period of time specified in district rules, failure to calibrate instruments according to permit conditions or district rules, etc. Staff then correlated the NOV settlements for these two classifications of NOV's (emission-related or administrative) by district and by type of rule violation (fugitive emission, CEMs, public nuisance, etc.) on a per day basis.

Segregating the NOV settlement data in this manner provided for a comparison of similar types of rule violations among the districts and an assessment of the relative amounts of settlements being collected for a particular type of rule violation. To simplify this assessment, the minimum, maximum, and average settlement amounts collected for eight types of rule violations were calculated on a per day basis. These include:

- Visible Emission
- Fugitive Emission
- Public Nuisance
- Wastewater
- Organic Liquid Storage
- Excess Emissions
- Other Administrative
- CEMs

The results of this analysis are summarized in Tables 1 and 2 of the next chapter. Individual information on each NOV evaluated is presented in Appendix A.

2. Limitations

As staff began evaluating the data, several limitations to analyzing the data in the manner described above became apparent. This is due two reasons: the manner in which the districts issue some NOV's, and the manner in which districts settle some NOV's.

In issuing NOV's, the districts sometimes issue a single NOV for multiple violations of the same district rule or permit, or may cite violations of multiple district rules or permits on the same NOV. The difficulty in using this information in staff's analysis is that when the NOV is resolved under mutual settlement, it is not always possible to ascertain how much of the penalty collected applies to each discrete violation contained within the NOV, e.g., how much of a given settlement applies to violation of rule A, how much to rule B, etc. This means that for those settlements where multiple rule violations (either for violations of the same or different rules) were contained on the same NOV, and the district's settlement did not distinguish penalty amounts between each of the violations, staff were unable to include these NOV settlements in the analysis.

In addition, districts sometimes settled multiple NOV's within the same mutual settlement. In these cases, it was not always possible to determine how much of a combined mutual settlement was allocated for each NOV issued. In these cases staff were unable to determine a discrete penalty amount for each NOV settled, and did not include that data in the analysis. While staff made every effort to determine a settlement amount per violation (i.e., per day) from each of these mutual settlements, it

is important to note that the mutual settlement process is complex. NOVs sometimes contain multiple violations, and the number of 'days of violation' is often unknown or assumed. This creates difficulty in analyzing mutual settlements on a per violation, per day basis because the specifics of the settlements are not always known, and the NOV settlement process is synergistic. The strength of evidence associated with some NOVs supplements the weakness of others, whereby reasonable and often substantial settlements are reached for all of the NOVs.

In evaluating some of the mutual settlements from the three districts, contributions to supplemental environmental programs (SEPs) played an important role in the settlements that was difficult to attribute to individual NOVs. Several mutual settlements evaluated contained contributions to SEPs. These SEP contributions included:

- Cash payments to the district for use in environmental programs to reduce emissions from the refinery and/or from the use of refinery products;
- Installation of new emission control equipment at the refinery to reduce or eliminate the likelihood of future violations of a similar nature;
- Relinquishment of banked emission reduction credits (ERCs), and;
- Land purchases around the refinery to provide a buffer to the community.

In reaching a mutual settlement that includes an SEP component, the civil penalty of the NOV is often reduced by the amount of the SEP contribution. This creates the appearance that some NOVs were settled for lower amounts than NOVs settled without SEP components, when in reality, the total value of the settlements that include SEPs may exceed the value of settlements comprised of civil penalties only. Where possible, staff included in their analysis the civil penalty portion of NOV settlements that include SEP components, and noted any SEP contributions along with the NOV settlement amounts in Appendix A.

While not specifically a limitation in the analysis of the data, it is important to recognize that inherent differences between districts create challenges in evaluating the data. For instance, differences in the stringency of similar rules between districts can lead to different penalty amounts through differences in what constitutes a violation and the severity of a violation. For instance, in the BAAQMD, a valve or flange is considered leaking (fugitive emissions) when a concentration of 500 parts per million (ppm) volatile organic compounds (VOCs) is measured during an inspection. In the SCAQMD, the same valve would not be considered leaking until a concentration of 1,000 ppm VOC was detected. This can result in differences in the severity and number of NOVs issued to refiners within the two districts.

Additionally, while the three enforcement programs have many similar components, differences in the individual policies of the districts in implementing their enforcement programs and internal changes in enforcement programs themselves over time can lead to differences in the NOV settlement amounts. Other districts may not utilize penalty structures in the same manner. Also, districts may have had at one time self-inspection components in their enforcement programs, which may not be present in their current programs. These differences can lead to significant differences in the manner and type of NOVs issued, and the manner in which these NOVs are settled.

Finally, in the ARB staff analysis, only data from five refineries in the state was analyzed. This represents about 40 percent of the refineries (five out of 13) in the state that produce gasoline for consumption in California. While the refineries selected represent a mix of large and small refineries in the state which represent different levels of modernization, there are a number of NOV settlements from the other refineries which staff were not able to evaluate. However, it is staff's expectation, that analysis of these remaining refineries would provide little additional insight into the districts NOV settlement practices and would not significantly change the results of the evaluation, due to the representativeness of the analyzed samples.

VI. RESULTS FROM EVALUATION OF DISTRICT ENFORCEMENT PROGRAMS

This chapter discusses the results of staff's analysis of the districts' enforcement programs, including the settlement of NOVs and the effectiveness of the districts' overall enforcement program.

A. Emission-Related NOV Settlements

Table 1 presents the results of staff's analysis of the emission-related NOV settlement information from the three districts. The data in Table 1 is organized by district and into six rule violation categories: visible emissions, storage of organic liquids, fugitive emissions, wastewater, public nuisance, and excess emissions (which includes violations of district permit conditions, violations of specific process emission limits, such as boiler and heater rules, violations of nonspecific emission limits and violations of federal regulations).

For each rule violation category, staff has provided the minimum, maximum, and average penalty. The rule or regulation number(s) violated within each 'violation type' category is also identified, as is the number of days the rule(s) in each category were violated. Specific information on each NOV and settlement (including the penalty amount on a per day basis) is provided in Appendix A.

As can be seen from Table 1, there are significant ranges of penalties each district assesses for violations of the same district rules or regulations. For instance, public nuisance settlements in the SCAQMD ranged from \$3,000 to \$15,000, while storage of organic liquid settlements in the BAAQMD ranged from \$188 to \$3,000. This range in settlements is likely due to differences in the severity of the violation or violations involved in individual NOVs, the strength of the evidence associated with a particular NOV, and the amount of elapsed time before corrective action was taken by the facility. The range in the SJVUAPCD was not as great, however significantly fewer NOVs were issued to refiners over the same period.

In addition to differences within each district for settlements of similar rule violations, there were also significant differences in the amount of penalties collected for specific violations of similar rules between the three districts. While there is no uniform pattern in terms of one district consistently assessing larger penalties for similar rule violations, in general the largest penalty assessments were levied by the SCAQMD. However, for several rule categories, both the SJVAPCD and the BAAQMD assessed higher maximum and/or average penalties than the SCAQMD. As noted above, differences between districts in penalty assessments are largely attributable to differences in the stringency of specific district rules, different enforcement practices and policies, and the differences in the methodology each district uses in reaching mutual settlements with refiners.

**Table IV-1:
Emission-Related NOV Settlements
(Dollars Per Day)**

Violation Type	Bay Area	South Coast	San Joaquin Valley	
Visible Emissions	<i>Rules</i>	6-301	401	4101
	Max	\$3000	\$7000	\$4500
	Min	\$244	\$500	\$4500
	Ave	\$1436	\$3100	\$4500
	<i>Violation Days</i>	4	5	1
Storage of Organic Liquids	<i>Rules</i>	8-5	463	4623
	Max	\$3000	None Settled	\$2550
	Min	\$169	None Settled	\$500
	Ave	\$609	None Settled	\$1158
	<i>Violation Days</i>	37	N/A	24
Fugitive Emissions	<i>Rules</i>	8-18	1173	4451 4452
	Max	\$2500	\$5000	None Settled
	Min	\$239	\$250	None Settled
	Ave	\$787	\$861	None Settled
	<i>Violation Days</i>	265	118	N/A
Waste Water	<i>Rules</i>	8-8	1176	4625
	Max	\$604	\$2000	None Settled
	Min	\$54	\$350	None Settled
	Ave	\$179	\$1077	None Settled
	<i>Violation Days</i>	11	49	N/A
Excess Emission	<i>Rules</i>	2-1, 8-2 9-X ² , 40CFR ¹	203 40CFR ¹	2070 4624
	Max	\$3000	\$3750	\$5000
	Min	\$11	\$500	\$750
	Ave	\$408	\$1236	\$2912
	<i>Violation Days</i>	143	22	11
Public Nuisance	<i>Rules</i>	1-301	402	4102
	Max	\$15000	\$15000	\$5000
	Min	\$1000	\$3000	\$1000
	Ave	\$7178	\$11083	\$3667
	<i>Violation Days</i>	14	12	3

¹ Title 40 of the Code of Federal Regulations.

² Includes violations of Regulations 9-1, 9-2, and 9-9.

In considering the results of staff's analysis, it is important to recognize that the information used to produce Table IV-1 is not necessarily conducive to the 'per violation, per day' treatment used by staff to prepare this report. That is, in settling NOVs, districts and refiners often engage in the settlement of numerous NOVs within the same settlement agreement. This process can be further complicated because an individual NOV may contain multiple violations, and because the number of 'days of violation' is often unknown or assumed.

The NOV settlement process is synergistic. The strength of evidence associated with some NOVs may balance the weakness of others, whereby reasonable and often substantial settlements are reached for all of the NOVs. The results of this process are evident in Table VI-2. The data in Table VI-2 is from the SCAQMD over the period July 1998 through December 2000. As can be seen, of the nearly 1,400 NOVs settled over this period, nearly 700 NOVs were settled for over \$10,000 each, and over 150 were settled in excess of \$100,000.

**Table VI-2:
NOV Settlement Amounts from All Stationary Sources in the
South Coast Air Quality Management District
(July 1998 – December 2000)**

Range of NOV Settlement Amounts (Per Violation)	Number of NOVs Settled
\$10,000 - \$24,999	274
\$25,000 - \$49,999	174
\$50,000 - \$74,999	66
\$75,000 - \$99,999	28
Greater than \$100,000	153

Nevertheless, even in light of the significant penalties assessed in many of the mutual settlements reached by the district, ARB staff believes that, based on the per violation (i.e., per day) penalties set out in Table IV-1, the minimum penalties that have been assessed in settlements of petroleum refinery NOVs in all districts generally should be higher, and in some cases significantly higher.

B. Administrative-Related NOV Settlements

Table IV-3 presents the results of staff's analysis of the administrative-related NOV settlement information from the three districts. The data in Table IV-3 is organized by district and into two rule violation categories: continuous emission monitoring equipment

and 'Other Administrative', which includes reporting and equipment calibration violations, as well as failure to permit access to district enforcement personnel. For each rule violation category, the minimum, maximum, and average penalties have been provided. The rule or regulation number(s) violated within each 'violation type' category is also identified, as is the number of days the rule(s) in each category were violated. Specific information on each NOV and settlement (including the penalty amount on a per day basis) is provided in Appendix A.

As can be seen from a comparison of Table VI-1 and Table VI-3, there are significantly fewer administrative rule violations than emission violations. It is also important to note that for administrative rule violations, the range in penalty assessments, both within the district for a particular rule, as well as between districts for similar rules, is much less. However, staff believes that the minimum penalties identified below are inadequate and should be increased.

**Table VI-3:
Administrative-Related NOV Settlements
(Dollars Per Day)**

Violation Type	Bay Area	South Coast	San Joaquin Valley	
CEM	<i>Rules</i>	1-522	2011 2012	1080
	Max	\$500	\$1250	\$3315
	Min	\$125	\$500	\$3315
	Ave	\$325	\$900	\$3315
	<i>Violation Days</i>	13	5	1
Other Administrative	<i>Rules</i>	1-440 8-18 8-44 9-9	Regulation XX ¹ 221 430 1158	4305 1100 2070
	Max	\$2500	\$2500	\$4500
	Min	\$116	\$250	\$1080
	Ave	\$853	\$1125	\$3456
	<i>Violation Days</i>	8	8	5

¹ All Regulation XX rules except 2011 and 2012.

C. Evaluation of District Enforcement Programs

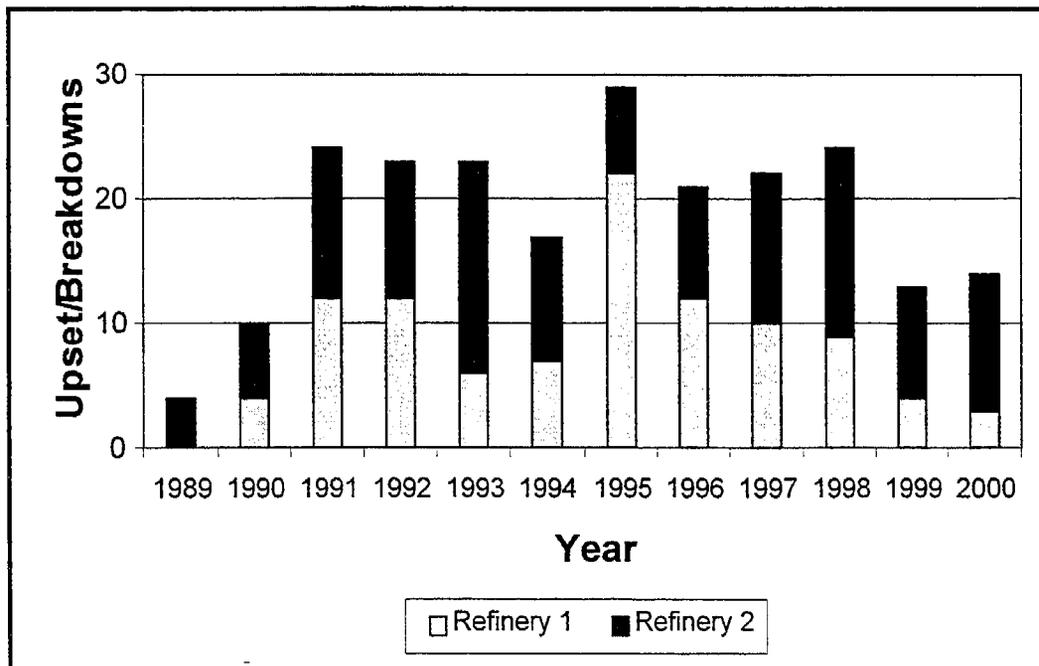
After reviewing the enforcement activities of the SCAQMD, BAAQMD and SJVUAPCD, staff has concluded that these districts' current enforcement programs are providing an effective level of enforcement at petroleum refineries. These districts have made

commitments, in the form of assigning an inspector dedicated to each refinery to provide the resources necessary to carry out the rigorous enforcement activities necessary at petroleum refineries, including routine inspections, detailed inspections, and breakdown investigation. All three districts respond to all citizen complaints received regarding petroleum refineries, and the BAAQMD and SJVUAPCD already have practices in place to provide the complainant with the disposition of the complaint. However, as stated earlier, while the district enforcement activities evaluated provide an effective level of compliance inspections and records for review to discover air quality violations at petroleum refineries, the staff believes that the minimum penalties assessed in the settlement of these air quality violations should have been higher.

D. Evaluation of Some Other Indicators of Refinery Operating Activities

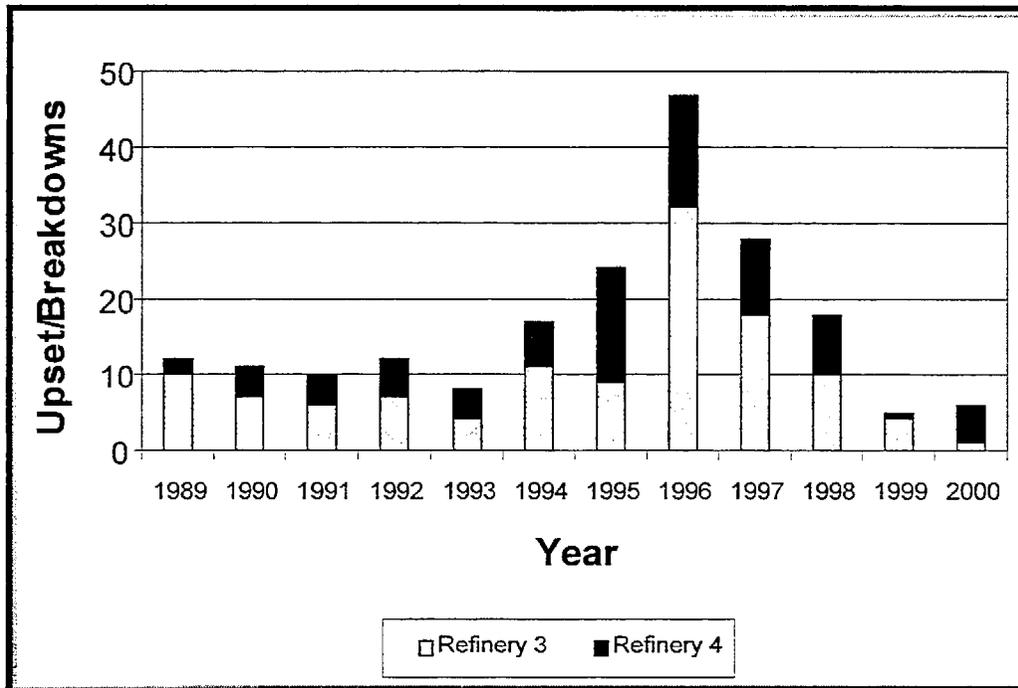
Staff analyzed the upset/breakdown data collected from the SCAQMD and the BAAQMD. As can be seen in both Figures VI-1 and VI-2, the number of reported breakdowns at refineries of major process units (crude distillation units, fluid catalytic

**Figure VI-1:
Total Reported Breakdowns of Major Process Units In the
South Coast Air Quality Management District
(1990-2000)**



crackers, alkylation plants, etc.) has remained fairly stable or even decreased over the last ten years. Some exceptions to this occurred in the mid-1990's when California Phase 2 gasoline was introduced.

**Figure VI-2:
Total Reported Breakdowns of Major Process Units In the
Bay Area Air Quality Management District
(1989-2000)**

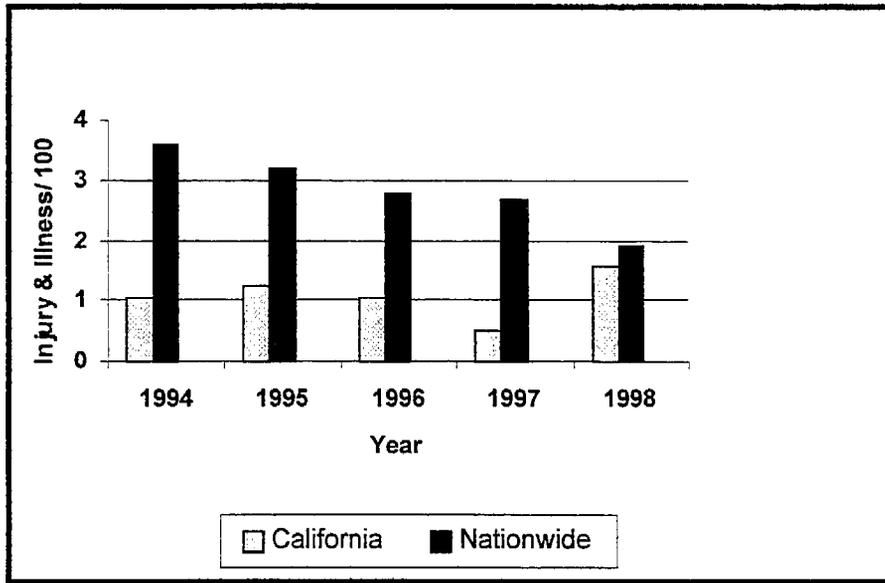


This stability in the frequency of breakdowns of these units has occurred during a period when refineries in California have undergone significant modification and modernization to produce clean fuels, even though this modernization has necessarily increased the complexity of these refineries. Yet, not only has this modernization not adversely impacted the frequency of breakdowns at California refineries, it has also not increased the rate at which refinery workers are injured.

Another indicator that upset/breakdowns have not increased as the complexity of refineries has increased is an evaluation of the rate of worker illness and injuries. An evaluation of the data collected from the United States Occupational Health and Safety Administration regarding worker illness and injury for petroleum refineries clearly shows that illness and injuries among refinery workers has declined over the last decade, and that California refineries consistently have a lower rate of worker injuries than refineries nationwide. These trends can be seen in Figure IV-3.

This data correlates well with the data presented in Figures IV-1 and IV-2, which shows downward trends in the number of breakdowns at California refineries. This is an indication of the fact that, as refineries have modernized, older equipment has been replaced with newer units with more safeguards built in, and these newer units are less likely to breakdown and cause injury.

**Figure IV-3:
California and National Refinery Injury & Illness
Rates Per 100 workers**



Source: United States Occupational Safety and Health Administration

VII. CIVIL PENALTY STATUTES

This chapter provides a description of the current statutes and case law that govern the assessment of civil penalties.

A. Overview

In determining appropriate penalties of air pollution rules and regulations, districts are bound by both statutes and case law. The HSC establishes a range (up to a maximum) of civil penalties for violations of state and district air pollution laws, rules and regulations. Court decisions provide direction regarding application of civil penalty statutes and provide insight into how a court would interpret California's air pollution penalty statutes.

B. California Health and Safety Code

California's air pollution control districts have primary authority for the control of air pollution from all sources other than motor vehicles (HSC section 40000). The districts exercise this authority by adopting rules and regulations (HSC section 40001), operating a permitting system (HSC section 42300, et seq.) and issuing abatement orders (HSC section 42450, et seq.). Violations of these requirements are punishable by criminal sanctions (HSC section 42400, et seq.) and civil penalties (HSC section 42402, et seq.). These civil penalties are discussed below.

Health and Safety Code sections 39674, 42401-42402.5 establish civil penalties for violations of state and local air quality requirements. For certain large sources of air pollution, as defined by Title V of the federal Clean Air Act (42 United States Code section 7661 et seq.), penalties of up to \$10,000 per day can be imposed for violations of district rules, permits and orders on a "strict liability, or no fault basis," even where the violations do not involve a release of air contaminants (HSC sections 39674 and 42402). Smaller sources can be penalized up to \$1,000 per day for these no fault, no emission violations. (*Id.*) Higher maximum penalties are available for negligent emissions of air contaminants and emissions that cause actual injury, irrespective of negligence (\$25,000 per day, HSC section 42402.1). Knowingly emitting air contaminants (\$40,000 per day) and willfully and intentionally emitting them (\$75,000 per day) carry even higher maximum penalties (HSC sections 42402.2 and 42402.3, respectively). Corporations that "willfully and intentionally or with reckless disregard for the risk of great bodily injury" emit air contaminants that cause great bodily injury or death are liable of civil penalties of up to \$1,000,000 per day (HSC section 42402.3). These are maximum penalties on a per violation (i.e., per day) basis, and are summarized in Table VII-1. The HSC does not establish minimum penalties for air quality violations.

**Table VII-1:
Maximum Civil Penalties for Violations
Of Air Quality Laws**

Severity of Violation	Maximum Civil Penalty (Amount per Violation per Day)
Strict Liability, No Fault Basis	\$10,000
Negligent, Causing Actual Injury	\$25,000
Knowingly Emitting Air Contaminants	\$40,000
Willfully and Intentionally Emitting Air Contaminants	\$75,000
Willful and Intentional Emitting Air Contaminants Causing Great Injury or Death	\$1,000,000

Health and Safety Code section 42403(b) lists factors that must be considered in setting civil penalties for air quality violations:

"In determining the amount assessed, the court, or in reaching any settlement, the district, shall take into consideration all relevant circumstances, including, but not limited to the following:

- (1) The extent of harm caused by the violation.
- (2) The nature and persistence of the violation.
- (3) The length of time over which the violation occurs.
- (4) The frequency of past violations.
- (5) The record of maintenance.
- (6) The unproven or innovative nature of the control equipment.
- (7) Any action taken by the defendant, including the nature, extent, and time of response of the cleanup and construction undertaken, to mitigate the violation.
- (8) The financial burden to the defendant."

These civil penalty provisions have not been interpreted in a published court opinion.

C. Case Law on Civil Penalties

Air quality laws protect the public health, safety and welfare. Health and Safety Code section 39000 provides:

“The Legislature finds and declares that the people of the State of California have a primary interest in the quality of the physical environment in which they live, and that this physical environment is being degraded by the waste and refuse of civilization polluting the atmosphere, thereby creating a situation which is detrimental to the health, safety, welfare, and sense of well-being of the people of California.”

This summarizes broadly the important public policy objective of district programs to enforce the laws, rules, regulations, permits and the like enacted or promulgated to protect public health by improving and maintaining air quality.

Courts have not interpreted HSC sections 39674, 42401-42402.5, or 42403, but they have considered other civil penalty statutes. In doing this, courts have recognized that civil penalties have several purposes. Among them are punishment, deterring future violations and motivating compliance, and preventing unjust enrichment and unfair business advantage. A civil penalty is “unquestionably intended as a deterrent against future misconduct and does constitute a severe punitive exaction by the state....” (*People v. Superior Court (Kaufman)* (1974) 12 Cal.3d 421, 431.) Civil penalties “do partake of the nature of punishments for wrongdoing [,] accomplish a chastisement of the wrongdoer and act as a deterrent against similar misconduct” by the violator and others. (*People v. Superior Court (Kardon)* (1973) 35 Cal.App.3d 710, 713.) “[C]ivil penalties may have a punitive or deterrent aspect, [but] their primary purpose is to secure obedience to statutes and regulations imposed to assure important public policy objectives.” (*Kizer v. County of San Mateo* (1991) 53 Cal.3d 139, 147-148 [279 Cal.Rptr. 318] cited in *City and County of San Francisco v. Sainez* (2000) 77 Cal.App.4th 1302, 1315 [92 Cal.Rptr. 418].

These concepts have been applied in interpreting California air quality law. Discussing civil penalties for violations of California’s vehicular air quality requirements, the court in *People ex rel. State Air Resources Board v. Wilmshurst* (1999) 68 Cal.App.4th 1332, explained at page 1351 that maximum penalties are in the nature of liquidated damages, and that the obligation to demonstrate that a lesser amount is appropriate lies with the violator:

“In addition to disgorging illicit gains and obtaining recompense, a civil penalty also has the purpose of deterring future misconduct. (*State of California v. City & County of San Francisco* (1979) 94 Cal.App. 3d 522, 531 [156 Cal.Rptr. 542]; *People v. Bestline Products, Inc.* (1976) 61

Cal.App.3d 879, 924 [132 Cal.Rptr. 767].) Regulatory statutes would have little deterrent effect if violators could be penalized only where a plaintiff demonstrated quantifiable damages. (*State of California v. City & County of San Francisco, supra*, 94 Cal.App.3d at p. 531.) Further, “A penalty statute presupposes that its violation produces damages *beyond that which is compensable.*” (*Ibid.*, italics added.) The burden of proving that actual damages are less than the liquidated maximum provided in a penalty statute lies with the defendant, and in the absence of evidence in mitigation a court is free to assess the full amount. (*Id.* at pp. 531-532.)”

To accomplish their intended goals, civil penalties must bear some relationship to the violator’s financial condition. The relevance of a violator’s financial information was established in *People v. Toomey* (1985) 157 Cal.App.3d 1, 24-25. In *Toomey* the court reiterated the holding in *People v. Superior Court (Kardon)* (1973) Cal.App.3d 710, 713, that civil penalty provisions are sufficiently similar to exemplary damages as to permit discovery of a violator’s financial condition. The *Kardon* court explained the necessity of financial information: “a relatively small penalty might suffice for the small operator, while the same penalty would be paid with little hurt by the wealthy one” (*Kardon*, at p. 713.) Recently, the court observed in *City and County of San Francisco v. Sainez, supra*, at p. 1319:

“Accordingly, we hold that, as in the case of substantive due process protection against excessive punitive damages awards, substantive due process protection against civil penalties under the rationale of *Hale and Kinney* allows inquiry into a defendant’s full net worth, not just the value of the particular property at issue in the case.”

Applying this holding, the *Sainez* court upheld a civil penalty that totaled 28.4 percent of the violators’ net worth and 120 percent of the illegal rents they charged. The court took note of *U.S. v. Lippert* (8th Cir. 1998) 148 F.3d 974, 976, 978 where “[a] net worth of about \$500,000 has been held enough ability to pay to uphold a penalty of \$353,000....”

D. Criminal Penalties

In SB 1865, the Legislature increased criminal penalties commensurate with the increases in civil penalties, and created a felony for air pollution violations. Courts have held individuals, as well as corporations and corporate officers, to extremely high standards of conduct in these situations, willingly punishing both the corporation and the responsible corporate officers criminally. In *United States v. Park* (1975) 421 U.S. 650, 672, the United States Supreme Court held that a corporate officer may be held criminally liable along with the corporation even though he or she had neither personal involvement in nor knowledge of the crime. The *Park* court reasoned:

“The requirements of foresight and vigilance imposed on responsible corporate agents are beyond question demanding, and perhaps onerous, but they are no more stringent than the public has a right to expect of

those who voluntarily assume positions of authority in business enterprises whose services and products affect the health and well-being of the public that supports them.” (Id., see also United States v. Dotterweich (1943) 320 U.S. 277, 284-285.

APPENDIX A

**SUMMARY OF NOV SETTLEMENT AMOUNTS IN THE SOUTH COAST
AIR QUALITY MANAGEMENT DISTRICT, THE BAY AREA AIR
QUALITY MANAGEMENT DISTRICT, AND THE SAN JOAQUIN VALLEY
UNIFIED AIR POLLUTION CONTROL DISTRICT**

- A.1 South Coast Air Quality Management District***
- A.2 Bay Area Air Quality Management District***
- A.3 San Joaquin Valley Unified Air Pollution Control District***

A.1 South Coast Air Quality Management District

APPENDIX A.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED

No.	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation days	Fine (\$/day/ Violation)	Total Fine	E/A	Comment
1	1	P 10983	12/3/1996	402	1	1	1	15000.00	\$15,000	E	Public Nuisance (odors)
2	1	P 10985	1/28/1997	1173 c1	1	2	2	600.00	\$1,200	E	Leaking VOC at Coker
3	1	P 10987	3/5/1997	1173 c1	1	12	12	450.00	\$5,400	E	Leaking VOC at LPG Loading Rack
4	1	P 10988	3/6/1997	1173 c1	1	6	6	350.00	\$2,100	E	Leaking VOC at Crude & Hydrocracker
5	1	P 10990	3/25/1997	1173 c1	1	1	1	500.00	\$1,000	E	Leaking VOC at #3 Reformer
				1173 c3	1	1	1	500.00		E	
6	1	P 10994	6/5/1997	1173 c2	1	1	1	5000.00	\$5,000	E	Valve leaked @ 19 drops/min
7	1	P 10996	6/18/1997	1173 c1	1	2	2	250.00	\$500	E	Leaking VOC at Hydrocracker
8	1	P 10997	6/8/1997	402	1	1	1	10000.00	\$10,000	E	Public Nuisance
9	1	P 10999	6/24/1997	1173 c1	1	4	4	500.00	\$2,000	E	Leaking VOC at Hydrogen Plant
10	1	P 11000	6/25/1997	221b	1	1	1	1500.00	\$1,500	E	Visible airborne Coke dust
11	1	P 11152	7/29/1997	1173 c1	0		0		Dismissed	E	
12	1	P 11153	8/7/1997	402	1	1	1	10000.00	\$10,000	E	Public nuisance
13	1	P 11154	8/21/1997	402	0		0		Dismissed	E	
14	1	P 11155	9/16/1997	1173 c1	1	2	2	250.00	\$500	E	Leaking VOC at LED and light hydro
15	1	P 11158	10/15/1997	401	1	1	1	5500.00	\$5,500	E	Visible Emissions from Coker Drum
16	1	P 11161	10/30/1997	402	1	1	1	10000.00	\$10,000	E	Public nuisance
17	1	P 11162	11/18/1997	1173 c1	1	1	1	1000.00	\$1,000	E	Leaking VOC at NESHAPS Unit
18	1	P 11166	12/16/1997	1173 c1	1	1	1	1000.00	\$1,000	E	Leaking VOC at #2 Reformer
19	1	P 11169	3/18/1998	1173 c1	1	1	1	1750.00	\$3,500	E	Leaking VOC at Alky Unit
				1173 c3	1	1	1	1750.00		E	
20	1	P 11170	2/22/1998	430a	1	1	1	1000.00	\$2,000	A	Failure to report Breakdown timely
				203b	1	1	1	1000.00		E	Oper. of flare contrary to permit
21	1	P 11171	3/23/1998	402	1	1	1	15000.00	\$15,000	E	Public nuisance
22	1	P 11172	3/19/1998	402	1	1	1	15000.00	\$15,000	E	Public nuisance
23	1	P 11173	5/6/1998	401 b1B	1	1	1	7000.00	\$7,000	E	Visible Emission
24	1	P 11175	5/20/1998	402	1	1	1	15000.00	\$15,000	E	Public nuisance
				1173 c1	1	1	1	1000.00		E	Leaking VOC (connector)
25	1	P 11264	11/18/1998	1173 c3	1	2	2	500.00	\$2,000	E	Leaking VOC (2 OEL)

* Unable to determine

APPENDIX A.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT: RULES AND FINES FOR NOV'S SETTLED

No	REFINERY	NOV	DATE	RULE	Days of Violation		# of Violations	Fine		E/A	Comment
					Violation	Days		(S/day)	Total		
26	1	P 11265	12/10/1998	1173 c1	1	1	1	1000.00	\$1,000	E	Leaking VOC at Reforming Unit
27	1	P 11266	1/20/1999	1173 c1	1	3	3	800.00	\$2,400	E	Leaking VOC at Alky Unit
28	1	P 11267	1/21/1999	1173 c1	1	5	5	640.00	\$3,200	E	Leaking VOC at FCCU and Hydrocrkr
29	1	P 11269	2/4/1999	1173 c1	1	1	1	700.00	\$700	E	Leaking VOC at Superfractionator
30	1	P 11270	8/1/1997	2012 d2B	1	1	1	UD*	UD*	A	RECLAIM rule
31	1	P 11271	4/20/1999	1173 c3	1	3	3	UD*	UD*	E	Leaking VOC at FCCU and Coker Flares (18 NOV's with \$514,300 fine)
32	1	P 11273	6/9/1999	1173 c1	1	4	4	UD*	UD*	E	Leaking VOC at FCCU
33	1	P 11274	6/12/1999	203b	1	1	1	UD*	UD*	E	Excess BAC limit of NOx at Cogen
34	1	P 11275	5/13/1999	1176 e1	1	4	4	UD*	UD*	E	14 counts violated both rules at Lift Station
35	1	P 11276	7/29/1999	1176 e2Bi	0	0	0	UD*	UD*	E	#2
36	1	P 11277	4/17/1999	1173 c1	1	2	2	UD*	UD*	E	Leaking NOV at Hydrogen Plant
37	1	P 11355	3/11/1998	Reg IX, subpart J	7	1	1	UD*	UD*	E	New Source Performance Standard Rule (SO2 > 250 ppm) at D Claus Unit
38	1	P 11368	8/12/1998	40 CFR 60.104 a2i	1	1	1	10000.00	\$10,000	E	Public Nuisance at FCCU
39	1	P 11371	9/29/1998	402	1	1	1	5000.00	\$5,000	E	Public Nuisance at Oil Tank
40	1	P 11372	9/30/1998	203 b	1	13	13	UD*	UD*	A	Failure to calibrate CEM
41	1	P 11374	10/1/1998	1176 e1	1	2	2	UD*	UD*	E	Leaking VOC at Cogen
42	1	P 11375	10/6/1998	1176 e1	1	6	6	UD*	UD*	E	Leaking VOC at Oil trap
				203 b	1	7	7	UD*	UD*	A	Leaking VOC at Lift Station
				1158 c3	1	2	2	UD*	UD*	E	Failure to tune up heater
				203 b	1	2	2	UD*	UD*	E	Open Coke pile outside
				1173 c1	1	2	2	UD*	UD*	A	CEM device not calibrated
				1176 e1	1	1	1	UD*	UD*	E	1 component leaking > 87 k ppm
				203 b	1	2	2	UD*	UD*	E	2 points leaking > 500 ppm
				1176 e1	182	2	2	UD*	UD*	A	Failure to install Air Pollution Ctrl equ.
				1176 e1	1	1	1	UD*	UD*	E	Leaking at Junction Box
				1176 e1	1	6	6	400.00		E	Leaking VOC at Junctions Boxes

* Unable to determine

APPENDIX A.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED

NO	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation Days	Fine (\$/day Violation)	Total Fine E/A	E/A	Comment
43		P 11376	10/7/1998	1176 e5A	1	1	1	350.00	\$2,750	E	Open to atm JB
44	1	P 11377	10/23/1998	402	1	1	1	15000.00	\$15,000	E	Public Nuisance (additional \$5000 for SEP)
45	1	P 11462	9/4/1997	1173 c1	1	4	4	375.00	\$1,500	E	Leaking 2 TC and 2 valves at LPG
46	1	P 11463	9/11/1997	1158 c3	1	1	1	2500.00	\$5,000	E	Emissions of black dust from load trucks
47				221b	1	1	1	2500.00		A	Violated PCSC Plan
48	1	P 11481	11/1/1997	401 b1A	1	1	1	1500.00	\$1,500	E	Visible Emmission from FCCU Flare
49	1	P 11482	1/16/1998	402	1	1	1	10000.00	\$10,000	E	Public Nuisance
50	1	P 11656	6/30/1999	401	1	1	1	UD*	UD*	E	¹ Visible Emission
51	1	P 11847	11/17/1997	401 b1B	1	1	1	500.00	\$500	E	Opacity - Visible emission
52	1	P 13410	8/29/1997	Reg X, subpart M 40 CFR part 61M	64	1	64	UD*	UD*	E	¹ Failure to notify AQMD 45 days prior to excavating an abestos site
53	1	P 25693	2/10/1999	402	1	1	1	UD*	UD*	E	¹ Public nuisance
54	1	P 28351	5/6/1999	402	1	1	1	UD*	UD*	E	¹ Public nuisance
55	2	P 11163	11/20/1997	401 b1A	1	1	1	UD*	UD*	E	² Visible Emission
56	2	P 11357	12/20/1997	1176 e1	0		0		dimissed	E	by District
57	2	P 11380	12/3/1998	1173 c1	1	2	2	1000.00	\$2,000	E	Leaking VOC at Reforming Unit
58	2	P 11381	12/23/1998	1173 c1	1	3	3	1333.33	\$4,000	E	Leaking VOC at Hydrocracker
59	2	P 11382	1/19/1999	1173 c1	1	4	4	750.00	\$3,000	E	Leaking VOC at Alky and LPG
60	2	P 11383	1/21/1999	1173 c1	1	3	3	500.00	\$1,500	E	Leaking VOC at Reform and LPG rack
61	2	P 11385	2/17/1999	1176 e1	1	4	4	1500.00	\$6,000	E	Leaking VOC at WWS
62	2	P 11386	3/5/1999	1176 e1	3	2	6	1000.00		E	² leaking at API hatches for 2 days ; ¹
				1176 e3A	7	1	7	1500.00	\$27,000	E	² major leakings > 100k for 7 days
				1176 e5A	7	1	7	1500.00		E	
63	2	P 11388	3/4/1999	1176 e1	1	1	1	500.00	\$1,000	E	Leaking at WWS
				1176 e3A	1	1	1	500.00		E	
64	2	P 11389	3/11/1999	1176 e1	1	1	1	1000.00	\$1,000	E	Follow-up NOV P 11386
65	2	P 11390	3/10/1999	1176 e2Bi	1	1	1	2000.00	\$2,000	E	Leaking VOC at WWS

* Unable to determine

APPENDIX A.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV's SETTLED

No.	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation (S/day)	Fine (Total/Fine EA)	Comment
66	2	P 11391	4/29/1999	402	1	1	3000.00	\$3,000	E Public Nuisance
67	2	P 11392	6/17/1999	1173 c1	1	3	1000.00	\$3,000	E Leaking VOC at compressors
68	2	P 11393	6/18/1999	1173 c1	1	2	2500.00	\$7,000	E Leaking VOC at Coker
					1	1	2000.00		
69	2	P 11394	6/29/1999	1173 c1	1	1	1000.00	\$1,000	E Leaking VOC at Hydrotreater
70	2	P 11395	6/23/1999	203b	1	2	1000.00	\$11,000	A Not keeping records of operation and conducting inspection of 8 engines
					1	6	1500.00		
71	2	P 11400	12/9/1999	1173 c1	1	2	1000.00	\$6,500	E Leaking VOC
					1	3	1500.00		
72	2	P 11451	5/5/1997	203b	1	1	1000.00	\$1,000	E Equipment not operated as permit
73	2	P 11453	5/28/1997	401 b1A	1	1	1000.00	\$1,000	E Visible Emission
74	2	P 11454	6/17/1997	1173 c3	1	5	500.00	\$2,500	E Leaking VOC at Coker
75	2	P 11455	6/26/1997	1173 c1	1	5	900.00	\$4,500	E Leaking VOC at Unifining
76	2	P 11459	8/8/1997	1173 c1	1	1	750.00	\$1,500	E Leaking VOC at Crude Unit
					1	1	750.00		
77	2	P 11464	9/11/1997	1173 c1	1	5	1500.00	\$7,500	E Leaking VOC at LPG
					1	3	500.00		
78	2	P 11470	8/21/1997	1176 e2Bvi	1	2	750.00	\$6,500	E Leaking VOC at WWS
					1	1	2000.00		
					1	1	1500.00		
					1	1	1500.00		
79	2	P 11471	12/11/1997	1173 c1	1	1	1500.00	\$1,500	E Leaking VOC
80	2	P 11473	11/12/1997	430 b1	1	1		UD*	A ² Failure to report breakdown in time
					1	1			
					1	1			
					1	1			
81	2	P 11474	9/26/1997	203 b	4	1	UD*	UD*	A RECLAIM
					4	1	UD*		
					4	1	UD*		
					4	1	UD*		
82	2	P 11479	9/5/1998	203 b	1	1	UD*	\$1,000	A RECLAIM
					1	1	UD*		

* Unable to determine

APPENDIX A.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV's SETTLED

No.	REFINERY	NOV.	DATE	RULE	Days of Violation	# of Violations	Violation (days)	Fine (\$/day/ Violation)	Total Fine	EA	Comment
83	2	P 11486	2/8/1998	203a	450	1	1	16.67	\$7,500	A	2 engines operated w/o permit
				203b	450	1	1			A	1 engine operated w/o record as PC
				1173 c1	1	2	2	1500.00		E	Leaking VOC at FCCU
84	2	P 11491	3/20/1998	1173 c3	1	2	2	1000.00	\$6,000	E	Leaking VOC at FCCU
				1176 e5A	1	1	1	1000.00		E	Leaking VOC at FCCU
85	2	P 11493	4/2/1998	1173 c1	1	1	1	1500.00	\$1,500	E	Leaking VOC at Penex-Plus Unit
				2011 f3	1	1	1	1250.00		A	1. \$2500 (rule 2011 f3, 2012 h3)
				2011 d2B	1	1	1	500.00		A	2. \$1500/quarter x 1 qtr = \$1,500 (rule 2011 d2b, 2012 e2b, 2004 b4)
				2012 d2B	1	1	1	750.00		A	3. \$500/month x 3 mos = \$1,500 (rule 2011 d2b, 2012 e2b)
86	2	P 11494	6/30/1997	2012 e2B	1	1	1	750.00	\$6,000	A	4. \$500 (rule 2004-b2, b4)
				2012 h3	1	1	1	500.00		A	
				2004 b2	0	1	1	1250.00		A	
				2004 b4	1	1	1	500.00		A	
				2005 b4	1	1	1	500.00		A	
87	2	P 11495	4/29/1998	203 b	1	1	1	1000.00	\$1,000	E	Leaking H2S at Sulfur Pit
88	2	P 11498	4/30/1998	1173 h2					Dismissed		Sample gases from the compressor C1B < 10% limit by Rule 1173 h2
89	2	P 11499	5/20/1998	1173 c1	1	1	1	1500.00	\$1,500	E	Leaking at Hydrogen Prod Unit
90	2	P 11500	4/23/1998	1176 e1	2	1	2	500.00	\$2,000	E	Violated both rules at Cogen
				1176 e3b	1	1	1	100.00		E	
				1173 c1	1	11	11	1000.00		E	Leaking at LPG storage
91	2	P 11503	8/5/1998	1173 c2	1	1	1	500.00	\$13,500	E	Leaking at LPG storage
				1173 d2	1	1	1	500.00		E	Leaking at LPG storage
				1176 e3B	1	1	1	1500.00		E	Leaking at LPG storage
92	2	P 11504	8/19/1998	1173 c1	1	2	2	500.00	\$2,000	E	Leaking at Vacuum Flasher Unit
				1174 c1	1	1	1	1000.00		E	
93	2	P 11505	6/11/1998	1176 c1	1	1	1	1000.00	\$1,000	E	Leaking at Coker
				1173 c3	1	1	1	500.00		E	

* Unable to determine

APPENDIX A.1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT: RULES AND FINES FOR NOV's SETTLED

No	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation (days)	Fine (\$/day Violation)	Total Fine E/A	Comment
94	2	P 11509	9/22/1998	REG IX 40 CFR 60-482-8c1	1	1	1	500.00	\$1,000	E Leaking at Unit 118
95	2	P 11508	8/8/1998	203b, 2004 f1					Dismissed	Valid breakdown reported
96	2	P 11510	8/6/1998	1173 e1 1176 e2Bvi	1 1	2 1	1000.00 1000.00		\$3,000	E Leaking at Crude Unit
97	2	P 11513	5/27/1998	2011 KA 2012 mA	358 266	1 1	358 266	UD* UD*	\$17,200	A Failure to calibrate gas bottles of 4 CEM violated Rule 2011kA: (CEM 6: 35 days, CEM 21: 92 days, CEM 18: 92 days, CEM 19: 139 days) Rule 2012 mA: (CEM 6: 35 days, CEM 18: 92 days, CEM 19: 139 days)
98	2	P 11843	11/17/1997	1173 c1	1	1	1	1000.00	\$1,000	E Leaking at Crude Unit
99	2	P 25691	2/4/1999	1173 c1 1173 c3	1 1	3 1	1000.00 500.00		\$3,500	E Leaking at FCCU (flange, valve, connector) Leaking at FCCU (OEL)
100	2	SRV 7	12/4/1998	203b	7	1	7	600.00	\$4,200	E Self Report for Exceeded gasoline/day at LA terminal
		Total			1945	272	1360		\$367,650	

1 Undetermined amount of total \$513,800 for 16 NOV's (\$313,800 for civil penalties and \$200,000 towards SEP) (P11270, P11271, P11273, P11274, P11275, P11276, P11277, P11371, P11372, P11374, P11375, P11376, P13410, P 28351)

2 Undetermined amount of total \$31,500 for 3 NOV's (\$1,500 in civil penalties and \$30,000 towards SEP) (P11473, P11474, P11163)

* Unable to determine

A.2 Bay Area Air Quality Management District

APPENDIX A.2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED

No	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation Days	Fine (\$/day Violation)	Total Fine	E/A	Comment
1	3	30615	1/3/1997	1-522.4	1	1	1	\$216	\$216	A	Failure to report
2	3	29310	1/6/1997	8-18-303	1	1	1	\$457	\$1,051	E	Leaking VOC
3	3	29311	1/6/1997	8-18-303	1	1	1	\$594		E	Leaking VOC
4	3	29313	1/13/1997	8-5-320	1	1	1	\$366	\$366	E	Leaking VOC
5	3	29312	1/30/1997	8-5-311.1	1	1	1	\$1,085	\$1,085	E	Leaking VOC
6	3	30609	1/31/1997	8-8-302.4	1	1	1	\$604	\$604	E	Leaking VOC
7	3	29314	2/5/1997	2-1-307	1	1	1	\$677	\$677	E	Leaking VOC
8	3	29315	3/4/1997	8-18-303	1	3	3	\$522	\$1,566	E	Leaking VOC
9	3	29316	3/4/1997	8-18-303	1	1	1	\$558	\$558	E	Leaking VOC
10	3	29317	3/4/1997	8-18-303	1	2	2	\$518	\$1,036	E	Leaking VOC
11	3	29318	3/5/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
12	3	29319	3/5/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
13	3	29320	3/5/1997	8-18-303	1	6	6	\$800	\$4,800	E	Leaking VOC
14	3	29321	3/6/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
15	3	29322	3/6/1997	8-18-303	1	5	5	\$800	\$4,000	E	Leaking VOC
16	3	29323	4/9/1997	8-18-303	1	2	2	\$800	\$1,600	E	Leaking VOC
17	3	29324	4/24/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
18	3	30457	4/24/1997	8-18-302.4	1	1	1	\$701	\$701	E	Leaking VOC
19	3	31027	6/25/1997	1-440	1	1	1	\$368	\$368	A	Denied Right to Access
20	3	31028	6/25/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
21	3	31029	6/25/1997	8-18-303	1	3	3	\$800	\$2,400	E	Leaking VOC
22	3	31514	7/12/1997	9-1-307	1	1	1	\$302	\$302	E	High SO2
23	3	31030	7/18/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
24	3	31501	8/4/1997	9-1-307	1	1	1	\$309	\$309	E	Leaking VOC
25	3	31502	8/6/1997	Reg 10	1	1	1	\$372	\$372	E	Leaking VOC
26	3	30024	9/2/1997	1-301	1	1	1	\$1,700	\$1,700	E	Plum of CO Boiler
27	3	31515	9/4/1997	Reg 10	1	1	1	\$403	\$403	E	High H2S
28	3	31031	10/8/1997	8-18-303	1	3	3	\$800	\$2,400	E	Leaking VOC
29	3	31032	10/8/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
30	3	31033	10/30/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC

* Unable to determine

APPENDIX A.2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED

No.	REFINERY	NOV	DATE	RULE	Days of Violation	No. of Violations	Violation days	Fine (\$/day Violation)	Total Fine	E/A	Comment
31	3	31034	12/2/1997	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
32	3	31437	12/26/1997	Reg 10	1	1	1	\$353	\$353	E	Excess H2S
33	3	31436	12/26/1997	Reg 10	1	1	1	\$353	\$353	E	Leaking VOC
34	3	32377	12/30/1997	1-522.7	1	1	1	\$125	\$125	A	Failure to report excess H2S
35	3	31042	1/12/1998	8-8-302	2	1	2	\$259	\$1,152	E	Variance denied
			1/12/1998	8-8-303	2	1	2	\$259		E	
			1/12/1998	2-1-307	2	1	2	\$108		E	
36	3	31038	1/21/1998	8-18-303	1	4	4	\$800	\$3,200	E	Leaking VOC
37	3	31439	1/25/1998	9-1-307	1	1	1	\$297	\$297	E	Leaking VOC
38	3	31039	1/27/1998	8-18-303	1	1	1	\$800	\$800	E	Leaking VOC
39	3	32378	1/29/1998	9-2-301	1	1	1	\$196	\$196	E	Excess H2S on GLM, but undetermined
40	3	31440	1/31/1998	9-1-307	1	1	1	\$273	\$273	E	Excess SO2
41	3	31040	2/1/1998	8-5-322.5	1	1	1	\$900	\$900	E	Leaking VOC
42	3	31434	3/8/1998	1-301	1	1	1	\$1,000	\$1,000	E	(5000.00)?
43	3	32386	3/21/1998	9-1-307	1	1	1	\$125	\$438	E	Breakdown at SRU #4
			3/21/1998	2-1-307	1	1	1	\$313		E	
44	3	31441	4/1/1998	6-301	1	1	1	\$244	\$244	E	Visible Emission
45	3	31442	4/7/1998	8-5-311.3	1	1	1	\$669	\$669	E	Leaking VOC
46	3	32387	4/8/1998	9-1-307	1	1	1	\$125	\$125	E	Excess SO2
47	3	31444	4/14/1998	8-5-311.3	1	1	1	\$729	\$729	E	Leaking VOC
48	3	31445	4/14/1998	8-5-311.3	1	1	1	\$725	\$725	E	Leaking VOC
49	3	31448	4/29/1998	8-5-311.3	1	1	1	\$831	\$831	E	Leaking VOC
50	3	31449	5/6/1998	8-5-322.5	1	1	1	\$1,000	\$1,000	E	Leaking VOC
51	3	31450	5/7/1998	8-5-320.6	1	1	1	\$933	\$933	E	Leaking VOC
52	3	32388	5/7/1998	2-1-307	1	1	1	\$313	\$438	E	Excess SO2
			5/7/1998	9-1-307	1	1	1	\$125		E	
53	3	32379	6/3/1998	8-5-320.2	1	1	1	\$787	\$1,661	E	Leaking VOC
			6/3/1998	8-5-320.4	1	1	1	\$874		E	
54	3	32380	6/3/1998	8-5-320.4	1	1	1	\$787	\$787	E	Leaking VOC
55	3	32393	6/16/1998	9-2-301	1	1	1	\$125	\$125	E	Excess H2S

* Unable to determine

APPENDIX A.2

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED**

No	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation days	Fine (\$/day Violation)	Total Fine	E/A	Comment
56	3	32394	7/10/1998	9-1-307	1	1	1	\$125	\$125	E	Breakdown at SRU
57	3	32384	7/15/1998	8-5-311.3	1	1	1	\$188	\$188	E	Leaking VOC
58	3	32385	7/22/1998	8-18-314	1	3	3	\$250	\$750	E	Leaking VOC
59	3	32396	8/6/1998	9-1-307	1	1	1	\$125	\$125	E	SRU shut down, high SO2
60	3	32389	8/11/1998	8-5-311.3	1	1	1	\$169	\$169	E	Breakdown on SRU
61	3	32390	8/11/1998	8-5-311.3	1	1	1	\$169	\$169	E	Leaking VOC
62	3	32391	9/8/1998	1-301	1	1	1	\$10,000	\$10,000	E	31 COMPLAINTS
63	3	32397	9/22/1998	9-2-301	1	1	1	\$125	\$125	E	High H2S
64	3	3083	10/7/1998	9-1-307	1	1	1	\$1,500	\$1,500	E	High SO2
			10/7/1998	2-1-307	1	1	1	\$3,000	\$3,000	E	
			10/7/1998	Reg 10	1	1	1	\$1,000	\$1,000	E	
65	3	3082	10/20/1998	9-1-307	1	1	1	\$2,192	\$3,692	E	High SO2
			10/20/1998	9-1-307	1	1	1	\$1,500	\$1,500	E	
66	3	3091	12/13/1998	9-1-307	1	1	1	\$1,500	\$1,500	E	High SO2
			12/14/1998	2-1-307	1	1	1	\$3,000	\$4,500	E	
67	3	3092	12/18/1998	1-522.6	1	1	1	\$500	\$500	A	CEM Failure
68	3	3084	1/13/1999	8-18-304	1	3	3	\$1,500	\$4,500	E	Leaking VOC
69	3	3085	1/14/1999	8-18-304	1	13	13	\$750	\$9,750	E	Leaking VOC
70	3	3086	1/14/1999	8-18-304	1	3	3	\$650	\$1,950	E	Leaking VOC
71	3	3087	1/27/1999	8-18-304	1	1	1	\$750	\$750	E	Leaking VOC
72	3	3088	1/27/1999	8-18-304	1	1	1	\$1,500	\$1,500	E	Leaking VOC
73	3	3089	1/27/1999	8-18-304	1	1	1	\$750	\$750	E	Leaking VOC
74	3	3090	1/27/1999	8-18-304	1	2	2	\$1,500	\$3,000	E	Leaking VOC
75	3	3096	3/3/1999	8-18-304	1	3	3	\$1,500	\$4,500	E	Leaking VOC
76	3	3095	3/3/1999	8-18-304	1	1	1	\$750	\$750	E	Leaking VOC
77	3	3735	8/24/1999	8-5-311.3	1	2	2	\$518	\$1,036	E	
78	3	3742	8/26/1999	3-2-301	1	1	1	\$116	\$116	E	Excess H2S
79	3	3736	9/25/1999	8-5-311.3	1	1	1	\$518	\$518	E	Leaking VOC
80	3	4213	1/2/2000	3-2-301	1	1	1	\$116	\$116	E	
81	4	31510	12/16/1996	1-522.7	1	1	1	\$1,000	\$1,000	A	104 DAYS NO REPORTING excess CO ₂
82	4	31512	1/13/1997	2-1-307	3	1	3	\$367	\$1,100	E	42 DAYS NO REPORTING excess CO ₂

* Unable to determine

APPENDIX A.2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV's SETTLED

NO	REFINERY	NOV/	DATE	RULE	Days/	Violation	Fine (\$/day/	Total Fine	EA	Comment
					of	days	Violation)			
					Violations					
					Violations					
83	4	31506	1/19/1997	1-522.7	1	2	\$290	\$580	A	NO REPORTING excess CO
84	4	30060	1/31/1997	2-1-307	1	1	\$1,000	\$1,000	E	Leaking NOV
85	4	30059	1/31/1997	2-1-307	1	4	\$1,000	\$1,000	E	Leaking NOV
86	4	30057	1/31/1997	2-1-307	1	8	\$125	\$1,000	E	Leaking NOV
87	4	30058	2/3/1997	8-8-307.1	1	6	\$54	\$324	E	Leaking NOV
88	4	31165	2/13/1997	2-1-307	1	1	\$425	\$425	E	High NOx
89	4	29148	2/17/1997	1-301	1	1	\$5,000	\$5,000	E	5 COMPLAINTS
90	4	30985	2/19/1997	2-1-307	1	1	\$1,000	\$1,000	E	High NOx
91	4	31513	2/22/1997	1-522.7	1	1	\$351	\$1,351	A	
92	4	30988	2/24/1997	2-1-307	38	1	\$11	\$425	E	38 days of excess CO emissions
93	4	31507	3/7/1997	1-522.4	1	1	\$396	\$396	A	Failure to provide proof of repair on CEM
94	4	30062	3/10/1997	2-1-307	25	1	\$88	\$2,000	E	25 day of excess CO emissions
95	4	30061	3/10/1997	8-18-303	1	5	\$734	\$4,348	E	Leaking VOC
96	4	30063	3/10/1997	8-18-307	1	2	\$339	\$694	E	Leaking VOC
97	4	30064	3/11/1997	8-18-307	1	1	\$694	\$694	E	Leaking VOC
98	4	30065	3/11/1997	8-18-303	1	5	\$639	\$4,109	E	Leaking VOC
99	4	30072	3/31/1997	9-9-503.2	1	13	\$719	\$10,010	E	Leaking VOC
100	4	30067	3/31/1997	8-18-303	1	1	\$663	\$3,470	E	Leaking VOC
101	4	30066	3/31/1997	8-18-303	1	5	\$694	\$225	A	Failure to certify a CEM
102	4	30068	4/2/1997	1-301	1	1	\$2,000	\$2,000	E	Leaking VOC
103	4	31000	4/12/1997	1-522.3	1	1	\$420	\$420	A	6 COMPLAINTS Failure to test the new package testing monitors and reported the results
104	4	30069	4/14/1997	8-18-303	1	1	\$1,000	\$1,000	E	Leaking VOC
105	4	30071	4/15/1997	8-18-303	1	1	\$1,000	\$1,000	E	Leaking VOC
106	4	30070	4/15/1997	8-18-303	1	2	\$1,000	\$2,000	E	Leaking VOC
107	4	30073	4/16/1997	1-301	1	1	\$15,000	\$15,000	E	Breakdown at SRU
108	4	30074	4/16/1997	1-301	1	1	\$15,000	\$15,000	E	Breakdown at Hydrotreater

* Unable to determine

APPENDIX A.2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED

No.	REFINERY	NOV.	DATE	RULE	Days of Violation	# of Violations	Violation days	Violation Fine (\$/day/ Violation)	Total Fine	EA	Comment
109	4	30075	4/16/1997	9-1-307	1	1	1	\$173	\$173	E	
110	4	31051	4/16/1997	9-1-307	1	1	1	\$174	\$174	E	
111	4	31080	4/28/1997	1-522.4	1	1	1	\$448	\$448	A	Failure to report malfunction on a CEM
112	4	31169	5/12/1997	1-522.4	1	1	1	\$491	\$491	A	Failure to report malfunction on a CEM
113	4	25445	5/30/1997	8-5-322.5	4	1	4	\$325	\$1,300	E	Odors from gap on Tank
114	4	31052	8/11/1997	8-18-303	1	1	1	\$1,000	\$1,000	E	Leaking VOC
115	4	31053	8/13/1997	8-18-303	2	2	4	\$500	\$2,000	E	Leaking VOC
116	4	30023	8/14/1997	1-301	1	1	1	\$1,298	\$1,298	E	7 COMPLAINTS
117	4	31517	8/26/1997	1-522.4	1	1	1	\$333	\$333	A	Failure to report excess NOx
118	4	31951	8/26/1997	9-9-301.3	1	1	1	\$448	\$448	E	
119	4	31951	9/1/1997	2-1-307	1	1	1	\$1,000	\$1,000	E	Excessive NOx
120	4	25450	10/7/1997	8-5-322.3	2	1	2	\$525	\$1,050	E	Leaking VOC
121	4	25449	10/7/1997	8-5-322.5	7	1	7	\$186	\$1,300	E	Leaking VOC
122	4	31955	10/8/1997	8-5-322.5	2	1	2	\$525	\$1,050	E	Leaking VOC
123	4	31956	10/8/1997	8-5-322.1	2	1	2	\$525	\$1,050	E	Leaking VOC
124	4	31054	10/11/1997	1-301	1	1	1	\$7,500	\$7,500	E	1 COMPLAINT, oil fallout on community
125	4	31952	11/17/1997	2-1-307	1	1	1	\$1,000	\$1,000	E	Excess NOx
126	4	29235	11/18/1997	2-1-307	1	1	1	\$1,000	\$1,000	E	Leaking VOC
127	4	29236	11/20/1997	8-18-303	1	1	1	\$1,000	\$1,000	E	Leaking VOC
128	4	25446	11/20/1997	8-18-303	1	2	2	\$1,000	\$2,000	E	Leaking VOC
129	4	25447	12/11/1997	8-18-303	2	1	2	\$1,150	\$575	E	Leaking VOC
130	4	31959	12/17/1997	2-1-307	1	1	1	\$313	\$313	E	
131	4	25448	12/17/1997	1-522.7	1	1	1	\$125	\$125	A	Failure to report excess NOx
132	4	31953	1/7/1998	1-301	1	1	1	\$1,000	\$1,000	E	Odors, H2S released
133	4	29238	1/22/1998	8-2-301	1	1	1	\$1,000	\$1,000	E	Leaking VOC
134	4	31958	1/22/1998	2-1-307	1	1	1	\$1,000	\$1,000	E	Excessive NOx
135	4	31958	2/27/1998	2-1-307	1	1	1	\$1,000	\$1,000	E	Excessive NOx
136	4	31954	4/2/1998	8-18-304.2	1	1	1	\$1,000	\$1,000	E	Leaking VOC
137	4	31961	5/17/1998	2-1-307	1	1	1	\$313	\$313	E	Violated PC 476, over limit feed rate at
138	4	31969	5/29/1998	9-9-301.3	1	1	1	\$750	\$750	E	Excess NOx
139	4	31970	5/29/1998	9-9-301.3	1	1	1	\$750	\$750	E	Excess NOx

* Unable to determine

APPENDIX A.2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED

No	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation days	Fine (\$/day Violation)	Total Fine	E/A	Comment
138	4	31962	6/1/1998	2-1-307	1	1	1	\$766	\$766	A	Failure to meet PC 1694
139	4	31960	6/2/1998	8-18-304.2	1	1	1	\$325	\$325	E	
140	4	31967	6/2/1998	8-18-304.2	1	2	2	\$250	\$825	E	Leaking VOC
141	4	31963	8/3/1998	9-2-301	1	1	1	\$750	\$750	E	Leaking VOC
142	4	31968	8/3/1998	1-0-301	1	1	1	\$15,000	\$15,000	E	Leaking VOC
143	4	31964	8/4/1998	9-2-301	1	1	1	\$750	\$750	E	Excess H2S
144	4	31965	9/3/1998	1-0-301	1	1	1	\$10,000	\$10,000	E	5 COMPLAINTS due to odors
145	4	31971	9/12/1998	1-0-301	1	1	1	\$15,000	\$15,000	E	Odors
146	4	31973	10/7/1998	2-1-307	1	1	1	\$800	\$800	E	High NOx
147	4	31972	11/18/1998	8-18-301	1	1	1	\$1,000	\$1,000	E	Leaking VOC
148	4	31974	12/22/1998	8-18-401.5	1	1	1	\$1,000	\$1,000	E	Leaking VOC
149	4	31975	12/22/1998	8-18-304.2.1	1	1	1	\$2,500	\$2,500	E	Leaking VOC
150	4	31976	1/5/1999	8-18-401.5	1	1	1	\$2,500	\$2,500	E	Leaking VOC (Failure to report)
151	4	3111	1/5/1999	9-1-301.3	1	1	1	\$1,000	\$1,000	E	
152	4	3112	3/25/1999	2-1-307	1	1	1	\$1,000	\$1,000	E	
153	4	3108	3/26/1999	2-1-307	1	1	1	\$1,500	\$1,500	E	
154	4	3107	3/29/1999	2-1-307	1	1	1	\$1,500	\$1,500	E	
155	4	3109	4/20/1999	2-1-307	1	1	1	\$1,500	\$1,500	E	
156	4	3103	4/21/1999	8-18-304.2.1	16	2	32	\$708	\$22,660	E	
157	4	3101	5/11/1999	2-1-307	1	1	1	\$1,500	\$1,500	E	
158	4	3104	5/18/1999	8-18-301	1	2	2	\$1,000	\$2,000	E	Leaking VOC
159	4	3102	5/18/1999	8-18-301	1	2	2	\$2,109	\$4,281	E	Leaking VOC > 750 ppm
160	4	3106	5/25/1999	REG 10	1	1	1	\$1,000	\$1,000	E	Leaking VOC
161	4	3110	6/5/1999	REG 10	1	1	1	\$750	\$1,750	E	
158	4	3104	5/18/1999	8-18-301	1	2	2	\$750	\$3,000	E	Leaking > 10000ppm and drop 11 drops/min
159	4	3102	5/18/1999	8-18-301	1	2	2	\$1,909	\$3,818	E	Leaking VOC
160	4	3106	5/25/1999	8-18-301	1	2	2	\$500	\$1,000	E	Leaking VOC
161	4	3110	6/5/1999	9-9-301.3	1	1	1	\$1,500	\$3,000	E	Failed Sources Test for NOx at CEM
			6/5/1999	1-522.7	1	1	1	\$1,500	\$3,000	A	

* Unable to determine

APPENDIX A.2

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
RULES AND FINES FOR NOV'S SETTLED**

No	REFINERY	NOV.	DATE	RULE	Days of Violation	# of Violations	Violation days	Fine (\$/day Violation)	Total Fine	E/A	Comment
162	4	3117	7/8/1999	8-44-501.5	1	1	1	\$1,250	\$2,500	A	Failure to maintain record at Marine
163	4	29242	7/8/1999	8-44-501.7	1	1	1	\$1,250		E	
164	4	3114	7/16/1999	1-0-301	1	1	1	\$1,000	\$1,000	E	Leaking VOC
165	4	3113	8/6/1999	2-1-307	3	1	3	\$1,771	\$5,312	A	Failure to collect daily test gas sample
166	4	3115	8/17/1999	8-5-320.2.2	1	1	1	\$3,000	\$3,000	E	missing hatch cover
167	4	3714	20/1/99	8-18-301	1	1	1	\$1,500	\$1,500	E	Leaking VOC
168	4	3715	12/16/1999	6-301	1	1	1	\$500	\$500	E	Odors, high VOC
169	4	3621	1/11/2000	6-301	1	1	1	\$3,000	\$3,000	E	Breakdown at all units due to power failure
170	4	3622	1/20/2000	320	1	1	1	\$2,000	\$2,000	E	Leaking VOC
171	4	29319	1/24/2000	6-307	1	1	1	\$2,000	\$2,000	E	Exceed limit of flow at WWWS
172	4	31435	3/5/1997	8-18-303	1	4	4	\$800	\$3,200	E	
173	4	3097	11/26/1997	8-18-307	1	1	1	\$239	\$480	E	
174	4	3579	11/26/1997	1-522.7	1	1	1	\$241		A	
175	4	3580	3/3/1999	8-18-304	1	4	4	\$750	\$3,000	E	
176	4	3581	5/12/1999	8-18-304	1	1	1	\$750	\$750	E	
177	4	3582	5/12/1999	8-18-304	1	7	7	\$750	\$5,250	E	
178	4	3583	5/12/1999	8-18-301	1	7	7	\$750	\$6,100	E	
179	4	3584	5/12/1999	8-18-304	1	1	1	\$750		E	
180	4	3585	5/12/1999	8-18-304	1	16	16	\$750	\$12,000	E	
181	4	3586	5/18/1999	8-18-301	1	12	12	\$750	\$9,000	E	
182	4	3587	5/18/1999	8-18-304	1	1	1	\$750	\$750	E	
183	4	3588	5/18/1999	8-18-304	1	1	1	\$750	\$750	E	
184	4	3589	5/18/1999	8-18-304	1	4	4	\$750	\$3,000	E	
185	4	3590	5/18/1999	8-18-304	1	2	2	\$750	\$1,500	E	
186	4	3591	5/18/1999	8-18-304	1	9	9	\$750	\$6,750	E	
187	4	3592	5/20/1999	8-18-304	1	2	2	\$750	\$1,500	E	
188	4	3593	5/20/1999	8-18-304	1	9	9	\$750	\$6,750	E	
					1	2	2	\$750	\$1,500	E	
					1	3	3	\$750	\$2,250	E	
					1	3	3	\$750	\$2,250	E	
					1	1	1	\$750	\$750	E	
					1	4	4	\$750	\$3,000	E	

* Unable to determine

APPENDIX A.2

BAY AREA AIR QUALITY MANAGEMENT DISTRICT:
 RULES AND FINES FOR NOV'S SETTLED

No	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation days	Fine (\$/day/ violation)	Total Fine	E/A	Comment
189	4	3594	5/20/1999	8-18-304	1	1	1	\$750	\$750	E	
190	4	3729	5/27/1999	2-1-307	1	1	1	\$116	\$116	E	
191	4	3730	5/30/1999	2-1-307	1	1	1	\$116	\$116	E	
192	4	3727	6/9/1999	8-18-301	1	4	4	\$750	\$3,000	E	
193	4	3740	10/22/1999	8-18-311.3	1	1	1	\$518	\$518	E	
194	4	3744	10/29/1999	2-1-307	1	1	1	\$116	\$116	E	
195	4	3745	11/5/1999	2-1-307	1	1	1	\$116	\$116	E	
196	4	3749	3/1/2000	8-18-311.3	1	1	1	\$518	\$518	E	
197	4	3098	1/28/1999	2-1-307	1	1	1	\$116	\$116	E	
Total					318	382	495		\$405,123		

* Unable to determine

A.3 *San Joaquin Valley Unified Air Pollution Control District*

APPENDIX A.3

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT:
RULES AND FINES FOR NOV'S SETTLED

No	REFINERY	NOV	DATE	RULE	Days of Violation	# of Violations	Violation days	Fine (\$/day/violation)	Total Fine E/A	Comment
1	5	9859	1/16/1997	4102	1	1	1	1000	\$1,000	E Moisture leaking ²
2	5	961	1/21/1997	2070	809	1	UD*	UD*	UD*	E Flare burning ¹
3	5	S97-376	UD*	4102	1	1	1	5000	\$5,000	E Moisture leaking ²
4	5	S97-377	UD*	4102	1	1	1	5000	\$5,000	E Moisture leaking ²
5	5	10405	3/7/1997	4623	1	3	3	2550	\$7,650	E Storage tank roof
6	5	2944	4/14/1997	2070	1	1	1	3785	\$3,785	E NOx (heater)
7	5	10406	6/4/1997	4624	1	1	1	750	\$750	E HC (Vapor return hose)
8	5	10241	7/21/1997	4623	1	1	1	500	\$500	E Leaking PVR
9	5	10408	8/4/1997	4623	1	1	1	650	\$650	E VOC (storage tanks)
10	5	4486	9/6/1997	2070	1	1	1	5000	\$5,000	E Coke dust (Coker)
11	5	16772	3/18/2000	2070 Sec 7	1	1	1	4200	\$4,200	A Notification not within 1 hr.
12	5	457	4/2/1998	2070	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
13	5	4656	4/2/1998	4623	UD*	UD*	UD*	UD*	UD*	UD* Flare burning ¹
14	5	9610	4/2/1998	2070	UD*	UD*	UD*	UD*	UD*	UD* Flare burning ¹
15	5	9612	4/2/1998	4001	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
16	5	9615	4/2/1998	4001	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
17	5	9616	4/2/1998	4001	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
18	5	9618	4/2/1998	4001	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
19	5	9619	4/2/1998	4001	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
20	5	10092	4/2/1998	4001	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
21	5	10411	4/2/1998	2010	UD*	UD*	UD*	UD*	UD*	UD* Flare burning ¹
22	5	10413	4/2/1998	4623	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
23	5	10415	4/2/1998	2070	UD*	UD*	UD*	UD*	UD*	UD* Flare burning ¹
24	5	10416	4/2/1998	4623	UD*	UD*	UD*	UD*	UD*	E Flare burning ¹
25	5	9816	4/27/1998	4623 - 5.3.2	19	1	19	UD*	\$19,000	E Leaking storage tanks
				4623 - 5.3.3	19	1	19	UD*		E
26	5	4999	4/25/2000	4305 - 5.0	1	1	1	4500	\$4,500	A Heater out of compliance
27	5	16804	6/24/2000	1080 - 99	1	1	1	UD*		E Heater non-compliance (NOx)
				2070 - 7	1	1	1	UD*		E

* Unable to determine

APPENDIX A.3

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT: RULES AND FINES FOR NOV'S SETTLED

No.	REFINERY	NOV	DATE	RULE	Days of Violation	No. of Violations	Violation days	Fine (\$/day/ violation)	Total Fine	E/A	Comment
28	5	16773	7/4/2000	1100 - 7	1	1	1	1080	\$1,080	A	Report not submitted 10 days
29	5	4830	7/7/2000	2070 - 7	1	1	1	2250	\$2,250	E	NOx excess
30	5	16827	7/21/2000	2070 - 7	6	1	6	3125	\$18,750	E	Fuel gas excess H2S
31	5	16510	7/22/2000	4101 - 5.1	1	1	1	4500	\$4,500	E	Opacity exceedance (flare)
32	5	16815	1/27/2001	2070 - 7	1	1	1	1500	\$1,500	E	Fuel gas excess H2S
33	5	18189	2/9/2001	2070 - 7	1	2	2	3750	\$7,500	A	Notification not within 1 hr.
	Total	31			871				\$95,930		

¹ Undetermined amount of \$500,000 in civil penalties for 14 NOV's

(4576, 9610, 9611, 9612, 9615, 9616, 9618, 9619, 10092, 10411, 10413, 10415, and 10416)

² These NOV settlements included an SEP component of \$203,000 for the purchase of real property around the refinery (9859, S97-376, S97-377)

APPENDIX B

**EVALUATION OF REFINERY UPSET/BREAKDOWNS, CITIZEN
COMPLAINTS AND NOTICES OF VIOLATION AT SELECTED
CALIFORNIA REFINERIES**

*EVALUATION OF REFINERY UPSET/BREAKDOWNS, CITIZEN COMPLAINTS
AND NOTICES OF VIOLATION AT SELECTED CALIFORNIA REFINERIES*

Appendix B provides additional information on staff's evaluation of upset/breakdowns, complaints, and Notices of Violation (NOVs) issued at selected refineries in the South Coast Air Quality Management District and the Bay Area Air Quality Management District.

A. Introduction

In evaluating the enforcement activities of local air quality management districts (districts) at refineries, Air Resources Board (ARB) staff also collected information on refinery operating activities. In particular, staff was interested in determining if requirements to produce reformulated fuels have had any impact on the ability of refineries to comply with district-adopted rules and regulations. Specifically, staff was interested in the impacts of the California Phase 2 reformulated gasoline (CaRFG2) regulations. These regulations, implemented in the spring of 1996, required refineries in the state to produce gasoline that meets eight key specifications, and when used, significantly reduces smog-forming emissions from gasoline-powered motor vehicles. To produce gasoline that meets these eight specifications, refineries in the state installed new equipment, and performed significant modification and modernization to various existing process units. These additions, modifications and modernizations made the California refineries more complex than they already were.

B. Methodology

To perform this evaluation, ARB staff worked with the enforcement staffs of the South Coast (SCAQMD) and Bay Area Air Quality Management Districts (BAAQMD) to collect information on four refineries in the state. Two of these refineries were located within the SCAQMD and two were located within the BAAQMD. The refineries selected represent both large and small facilities with different levels of modernization. Additional refineries were not selected for evaluation due to limited ARB staff resources. However, it is staff's expectation that analysis of additional refineries would provide little additional insight and would not significantly change the results of the staff's evaluation.

Since staff was interested in the observing any changes in the ability of California refineries to comply with district air quality rules and regulations as a result of the CaRFG2 regulations, staff evaluated historical information on upset/breakdowns, complaints, and NOVs issued at these refineries. Staff's goal was to determine if over time, the frequency of incidents at refineries has changed as a result of the modifications necessary to comply with the CaRFG2 regulations.

Since the focus of staff's evaluation was to determine if the CaRFG2 regulations had any impact on the frequency of incidents at refineries, staff evaluated upset/breakdown

*EVALUATION OF REFINERY UPSET/BREAKDOWNS, CITIZEN COMPLAINTS
AND NOTICES OF VIOLATION AT SELECTED CALIFORNIA REFINERIES*

data retained by the SCAQMD and the BAAQMD for these four refineries. To perform staff's evaluation, the period of time from about mid-1989 to mid-2000 was selected for analysis. This provided about five years of data both before and after the introduction of CaRFG2. The pre-CaRFG2 years of 1989 to 1993 provide a baseline for establishing historical upset/breakdown frequency at these refineries prior to the CaRFG2 modifications. The years 1994 through 1997 represent the period of time major modifications at the refineries were occurring, and the equipment was undergoing start-up and optimization during CaRFG2 implementation in 1996. Finally, the period 1998 through 2000 represents a stable period of time at the refineries where major modifications were not occurring, and refiners had additional time to fine tune and optimize their refining operations.

Another important aspect of refinery operations was to evaluate the frequency of complaints by local citizens to the districts regarding refinery operations. To quantify this impact, staff also collected information on the number of complaints received by the districts for these four refineries over approximately the same period. Finally, staff were interested in the compliance records of these refineries, so NOV information was collected for these facilities over approximately the same period.

Due to constraints on time and resources, a refinery in the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) was not included in this analysis. However, in the near future, staff intend to perform a similar analysis for a refinery in the SJVUAPCD, and will report the findings from that analysis when they are complete.

C. Data Collection

In performing staff's evaluation, available data was collected from a number of sources within the district. Information regarding upset/breakdowns was collected from district staff within the enforcement programs, and included upset/breakdown reports filed by the individual refiners, inspector investigations, interviews with district inspectors, and annual compliance reports prepared by the district.

Information on the number of citizen complaints received, and the disposition of those complaints, was obtained from the districts' complaint logs, as well as annual compliance reports prepared by the districts. Finally, ARB staff worked with the staffs of both the enforcement and legal divisions within the districts to collect information on the numbers and types of NOVs issued.

ARB staff worked very closely with district staff to collect all of this information. District staff also helped compile and evaluate the information collected, and provided critical review of the findings. District staff were also very helpful in providing follow up

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information and answering any questions ARB staff had. ARB staff sincerely appreciate the resources and efforts provided by the districts in this evaluation.

In addition to reviewing the data and findings with the districts, ARB staff also shared their findings with the four refineries selected for this evaluation. These refineries were helpful in providing insight into particular trends that were evident in the data, and in a number of cases, provided staff with additional information to supplement the data provided by the districts.

To provide another measure of the performance of refinery operations, ARB staff compared California refineries to refineries in the rest of the nation in terms of worker safety. Staff collected data from the United States Occupational Health and Safety Administration regarding worker illness and injury for petroleum refineries in California and in the other 49 states. It was felt that this would serve as another indicator of problems occurring in refineries and are California refineries experiencing a higher rate of worker injuries than other refineries in the rest of the country.

D. Limitations

Very early in the data collection process, staff recognized that inherent differences between districts created challenges in comparing the data between districts. For instance, while both the SCAQMD's and the BAAQMD's enforcement programs have many similar components, differences in the individual practices of the districts in implementing their enforcement programs, and internal changes in enforcement programs themselves over time, result in difficulties in making a direct comparisons of the data between districts. Also, while the two districts' rules and regulations applicable to refineries are often comparable, there are often sufficient differences in the stringency of similar rules between the districts to limit staff's ability to perform a direct comparison of compliance records between districts.

Because of these limitations, staff have not attempted to directly compare the enforcement programs of the two districts, nor have staff attempted to compare the compliance performance of refineries in different districts. ARB staff have limited their analysis to only a comparison of compliance trends within a particular district for each of the refineries selected.

E. Results

This section discusses the results of staff's data analysis of upset/breakdowns, complaints, and NOVs issued for the four refineries evaluated. It also includes the

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results of staff's evaluation of refinery worker injury and illness rates for California refineries compared to refineries in other parts of the country.

1. Upset/Breakdown Data

As stated previously, staff evaluated upset/breakdown data retained by the SCAQMD and the BAAQMD for four refineries over the period of time from about mid-1989 to mid-2000. This provided about five years of data both before and after the introduction of CaRFG2. The pre-CaRFG2 years of 1989 to 1993 provide a baseline for establishing historical upset/breakdown frequency at these refineries prior to the CaRFG2 modifications. The years 1994 through 1997 represent the period of time major modifications at the refineries were occurring, and when the new or modified equipment was undergoing start-up and optimization. Finally, the period 1998 through 2000 represents a stable period of time at the refineries where major modifications were not occurring, and refiners had sufficient time to fine tune and optimize their refining operations

The data is segregated by district, and presented by the number of upset/breakdowns per year. Each district is represented by two graphs: the first graph shows all reported upset/breakdowns for the two refineries selected, and the second graph shows upset/breakdowns of major refining units for the same two refineries. For this evaluation, major refinery process units are considered to be refinery process units that are critical to the production of finished refinery products, such as crude distillation units, fluid catalytic crackers, alkylation plants, etc. Ancillary equipment such as storage tanks, boilers, cogeneration units and monitoring equipment were not considered major refinery process units and are not included in the second graphs.

SCAQMD. The results of staff's analysis of the upset/breakdowns reported in the SCAQMD for the two refineries selected are shown in Figures B-1 and B-2. Figure B1 includes all reported upset/breakdowns that were reported from 1989 to 2000. Figure B2 includes only those upset/breakdowns for major refinery process units. The years 1989 and 2000 are likely only partially complete due to the unavailability of records from early 1989, and the fact that all of the 2000 records had not been completely compiled by the district when staff began their data collection.

As can be seen from Figure B-1, the total number of upset/breakdowns for all equipment at the two refineries evaluated in the SCAQMD is highly variable, with distinct peaks occurring in 1991, and again in 1997-1998. However, the data from 1999 and 2000 suggests that the current level of upset/breakdowns has returned to a level that is representative of minimum levels seen over the entire period evaluated.

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**Figure B-1:
Total Reported Breakdowns for All Units in
The South Coast Air Quality Management District
(1989 – 2000)**

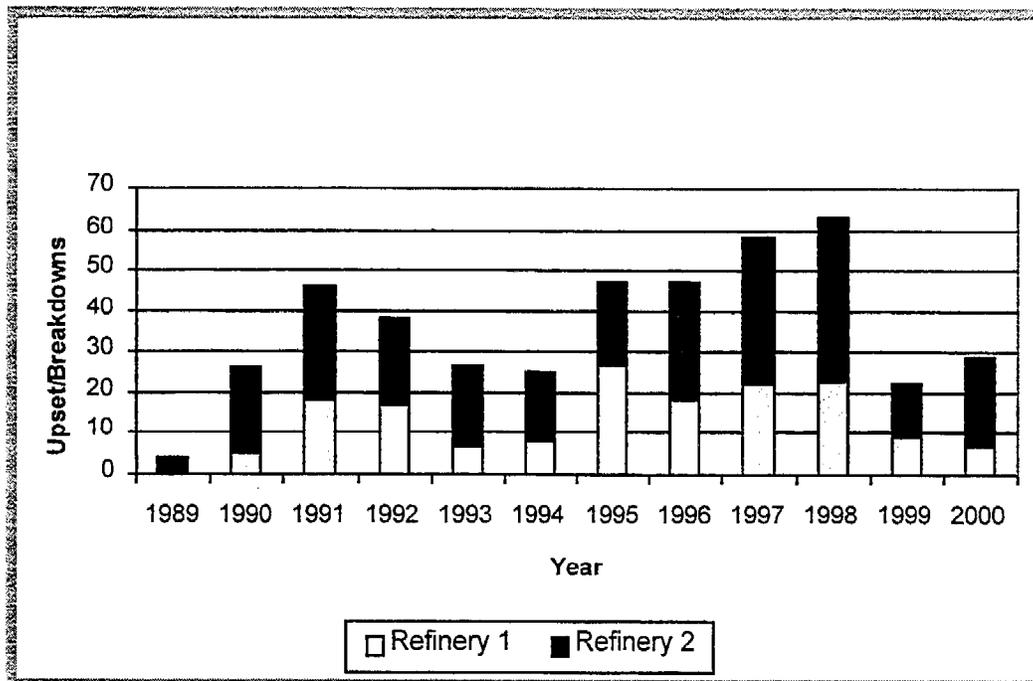
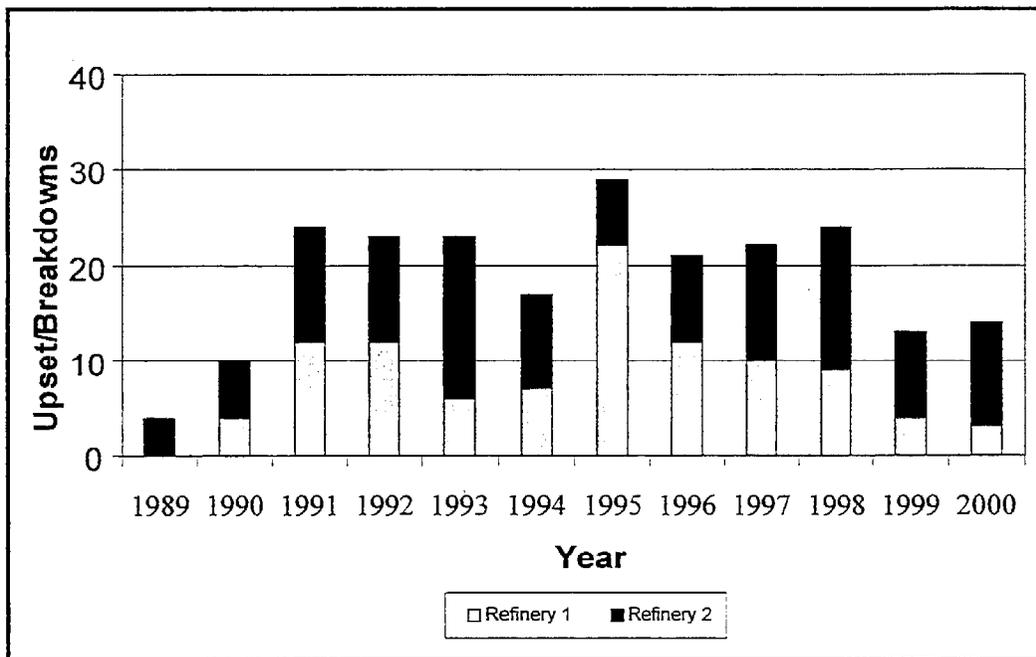


Figure B-2 shows similar data for the major process units at these same two refineries. It is interesting to note that for the major process units, the data shows significantly less variability from year to year, and that during most years, there are significantly more upset/breakdown conditions associated with the ancillary refinery equipment than with the major process units. With the exception of a small spike evident in 1995, the data shows a very consistent pattern of upset/breakdowns during the CaRFG2 modification and implementation period, and appears to have returned to a level that is lower than that observed in the early 1990's.

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Figure B-2:
**Total Reported Breakdowns for Major Process Units in
The South Coast Air Quality Management District
(1989 – 2000)**



By comparing Figures B-1 and B-2, it is evident that the equipment that is more likely to experience upset/breakdown conditions is usually not a major refinery process unit. Because of this fact, staff believes that as refineries have modernized, older refinery process equipment has been replaced with newer, more reliable units. Based on the data presented in Figures B-1 and B-2, these units appear to be less likely to experience upset/breakdown conditions than the ancillary refinery equipment.

BAAQMD. The results of staff's analysis of the upset/breakdowns reported in the BAAQMD for the two refineries selected are shown in Figures B-3 and B-4. Figure B-3 includes all reported upset/breakdowns that were reported from 1989 to 2000. Figure B-4 includes only those upset/breakdowns of major refinery process units. The years 1989 and 2000 are likely only partially complete due to the unavailability of records from early 1989, and all the fact that all of the 2000 records had not been completely compiled by the district when staff began their data collection.

As can be seen from Figure B-3, unlike in the SCAQMD, the total number of upset/breakdowns for all equipment at the two refineries evaluated is fairly consistent

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with the exception of the years 1994 through 1996. This higher than usual level of upset/breakdowns may be due to the installation and startup of new equipment associated with the production of CaRFG2. However, the data shows that for the years 1997 and 1998, the frequency of upset/breakdowns returned to a level consistent with the pre-CaRFG2 period, and has subsequently been further reduced to a level that is even lower than that observed during the pre-CaRFG2 period.

**Figure B-3:
Total Reported Breakdowns for All Units in
The Bay Area Air Quality Management District
(1989 – 2000)**

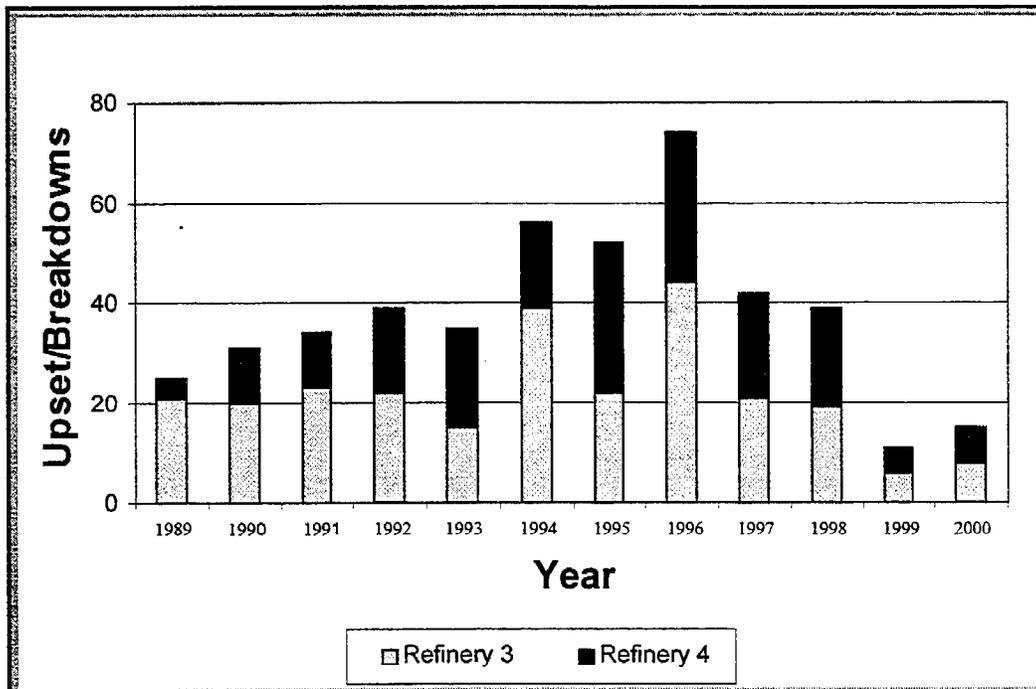
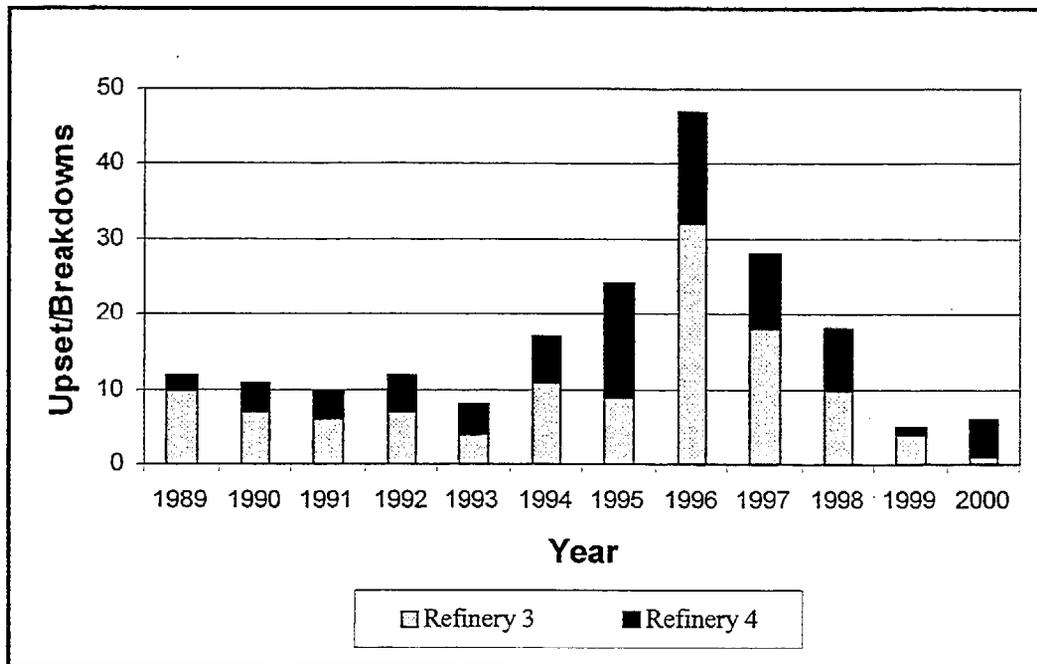


Figure B-4 shows similar data for the major process units at these same two refineries. Similar to the results seen in Figure B-3, the frequency of upset/breakdowns for major refinery process units is fairly consistent over the period evaluated. The exception to this is from the years 1995 through 1997. However, it is likely that, as observed in Figure B-3, this higher than usual level of upset/breakdowns may be due to the installation and startup of new equipment associated with the production of CaRFG2, and that when the refineries optimized the operation of these units, these upset/breakdown conditions were minimized. This conclusion is supported by the fact

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that the frequency of upset/breakdowns in 1999 and 2000 was less than that observed for any other period evaluated.

**Figure B-4:
Total Reported Breakdowns for Major Process Units in
The Bay Area Air Quality Management District
(1989 – 2000)**



By comparing Figures B-3 and B-4, it is evident that in the BAAQMD, the trends in the frequency of upset/breakdowns are consistent for both major refinery process units and ancillary equipment. However, as seen in the SCAQMD, the equipment that is more likely to experience upset/breakdown conditions is usually not a major refinery process unit. Staff believes that this is predominantly due to the fact that as refineries have modernized, older refinery process equipment has been replaced with newer, more reliable units.

2. Complaints

As stated previously, staff collected information on the number of citizen complaints received from about mid-1989 to mid-2000 for the four refineries evaluated. This provided about five years of data both before and after the introduction of CaRFG2 into

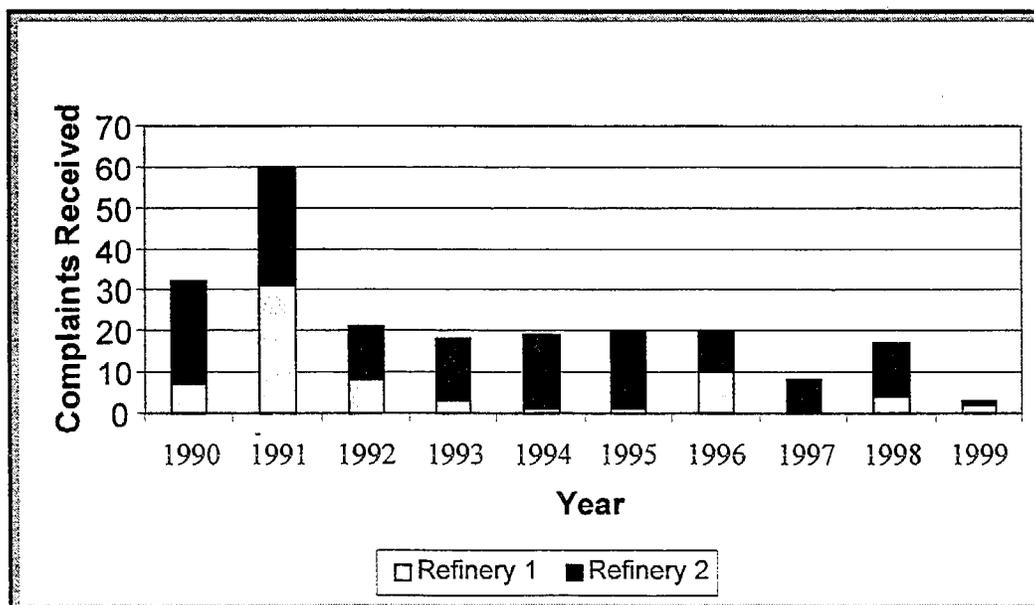
***EVALUATION OF REFINERY UPSET/BREAKDOWNS, CITIZEN COMPLAINTS
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the state. In general, the complaints received from citizens identifying the refineries evaluated usually were associated with unusual odors or visible emissions.

The data is segregated by district, and presented by the number of citizen complaints received per year. For the BAAQMD, staff had access to additional data, which identified the disposition of each complaint. Either the complaint was unverifiable as to the source or verified to have originated at the suspected refinery. Also, staff was able to determine whether a NOV was issued to the refinery as a result of the complaint.

SCAQMD. As can be seen from Figure B-5, with the exception of 1991, the number of complaints received by the SCAQMD regarding the two refineries selected for staff's evaluation has been fairly consistent with time. In general, less than 20 complaints per year have been received since 1992, and since 1997, the number of complaints has been further reduced. Since most complaints are associated with odors and visible emissions (excessive flaring, excessive steam releases, etc), this trend is correlated with the implementation of new refinery rules in the SCAQMD. These rules have been effective in reducing the frequency of flaring and other visible emission events (such as excess particulate emissions from petroleum coke handling), and have imposed new standards on refinery equipment that tends to release odorous compounds (such as wastewater separators, sulfur recovery plants, etc.).

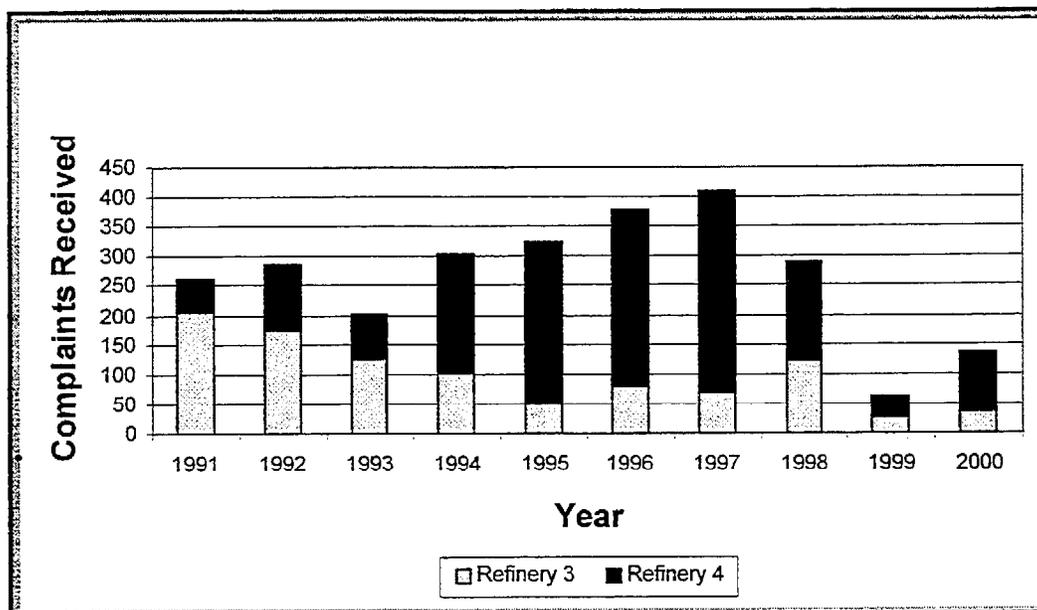
**Figure B-5:
Total Reported Complaints in
The South Coast Air Quality Management District
(1990-1999)**



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BAAQMD. As can be seen from Figure B-6, significantly more complaints are received within the BAAQMD than the SCAQMD. Although, the range in the number of complaints is highly variable, with slightly more than 50 complaints received in 1999, and over 400 received in 1997. However, when evaluating this particular set of data, it is important to note the disposition of these complaints, as shown in Figure B-7. Based upon investigation by BAAQMD inspectors, each complaint received was either verified or not verified as having originated from the suspected refinery. As can be seen from Figure B-7, the vast majority of complaints received by the district are not verified as originating from either refinery. In fact, in most cases, over 75 percent of the complaints received these refineries were not verifiable.

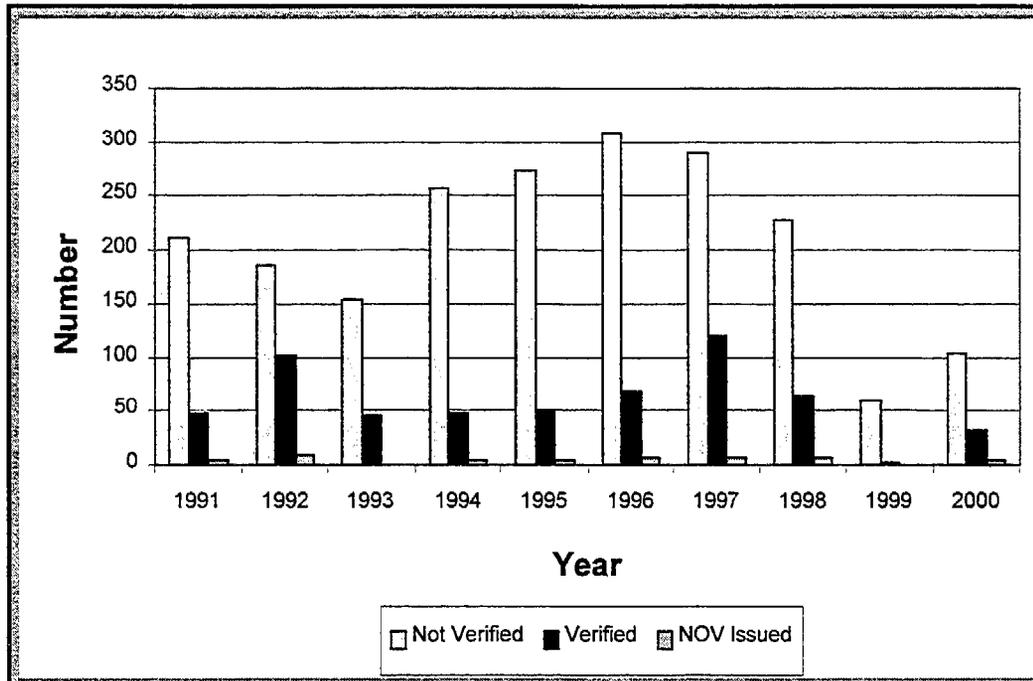
**Figure B-6:
Total Reported Complaints in
The Bay Area Air Quality Management District
(1991-2000)**



As shown in Figure B-7, the number of verified complaints has been fairly consistent over the period evaluated, with slight increases being observed in 1991 and 1997. Also, it is important to note that even for most verified complaints, the cause of the complaint was not a violation of any district regulations, and no NOVs were issued. In addition, both the total number of complaints and the number of verified complaints received since 1998 have declined dramatically below historic levels.

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**Figure B-7:
Disposition of Reported Complaints in
The Bay Area Air Quality Management District
(1991-2000)**



When staff compared the verified complaints in the BAAQMD with the complaints received in the SCAQMD over the same period, similar trends in the number of complaints were apparent. Staff believes that for both districts, as new refinery rules and regulations have been implemented, the frequency of flaring and excessive emissions from other visible emission events (such as petroleum coke handling) has been reduced, as has release of odorous compounds (such as mercaptans and hydrogen sulfide).

3. NOVs

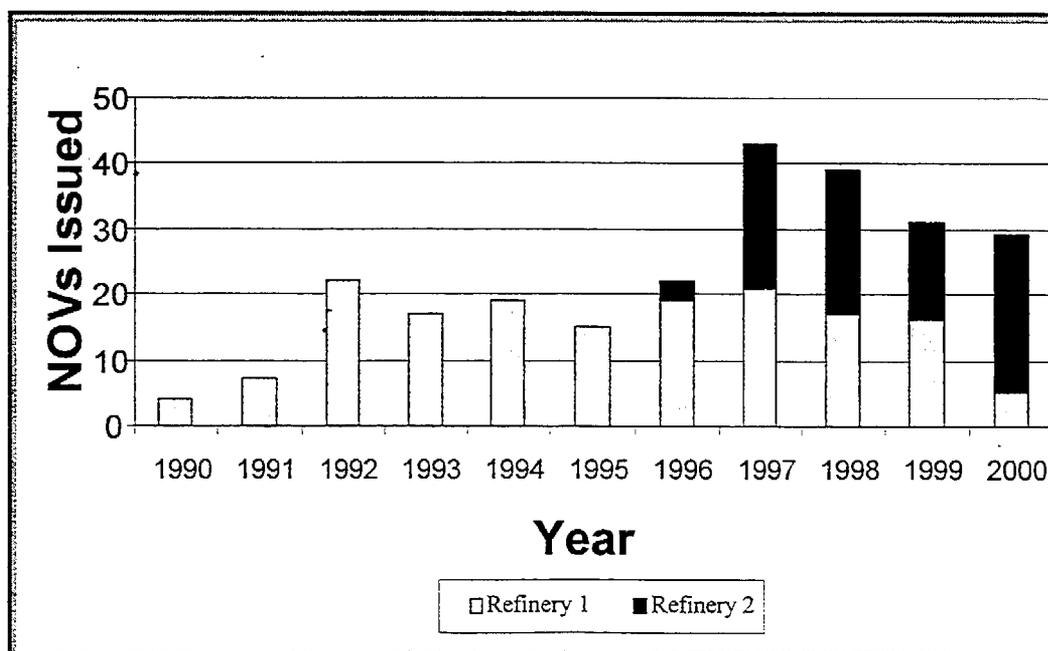
As stated previously, staff collected information on the number of NOVs issued by district refinery inspectors to the four refineries evaluated. NOV data provides insight into the level of enforcement activities at refineries, and indicates the level of compliance achieved at these facilities.

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The data in the SCAQMD covered the period of 1990 through 2000 for one refinery, and 1997 to 2000 for the other (data was incomplete for this refinery prior to 1997). The BAAQMD data collected only covered the period 1994 through 2000 because data prior to 1994 was not readily accessible to ARB staff (the district changed their file storage protocol in 1994). The 1989 data from the SCAQMD and the 1994 data from the BAAQMD are likely only partially complete due to the unavailability records from these years, and the 2000 records had not been completely compiled by the district when staff began their data collection. The data is segregated by district, and presented by the number of NOV's issued per year.

SCAQMD. The results of staff's analysis of the NOV's issued by the SCAQMD enforcement staff to the two refineries selected is shown in Figure B-8. As can be seen in Figure B-8, for Refinery 1, the number of NOV's issued has been fairly consistent since 1992, averaging less than 20 per year. Since 1997, the number issued has steadily declined. For Refiner 2, while historical data was generally not available prior to 1997, this facility has also seen a decline in the number of NOV's issued. These declines in the number of NOV's issued has occurred during a time when the SCAQMD has increased its level of enforcement at refineries significantly since the mid-1990's, with district inspectors now visiting each refinery nearly three times a week. This is indicative of an increasing rate of compliance of these facilities with district rules.

**Figure B-8:
Notices of Violation Issued in
The South Coast Air Quality Management District
(1990-2000)**

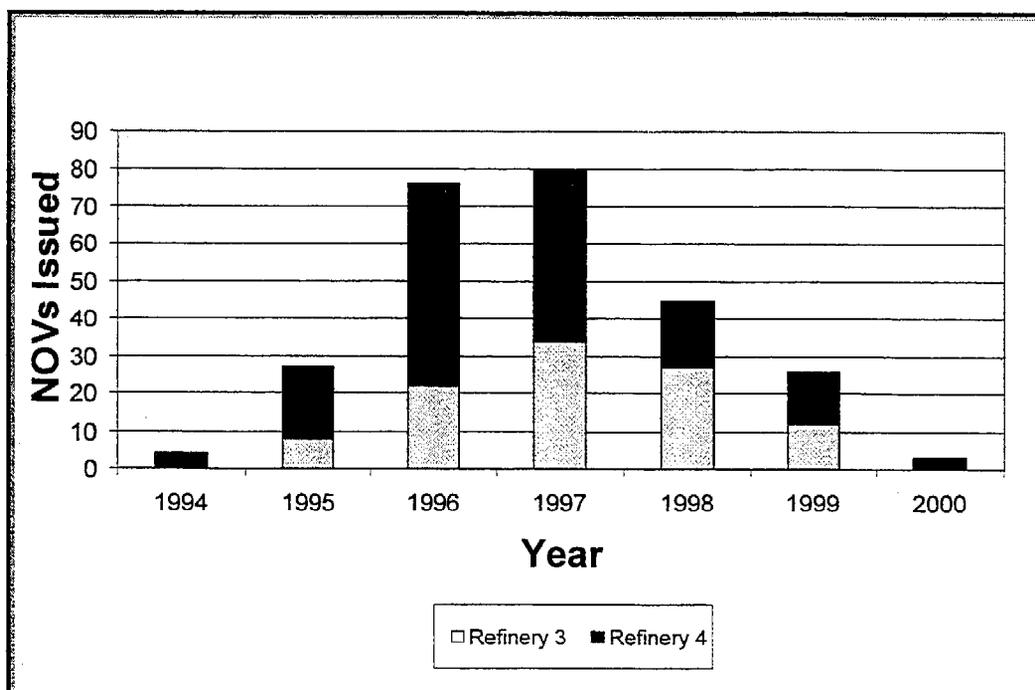


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BAAQMD. The results of staff's analysis of the NOVs issued by the BAAQMD enforcement staff to the two refineries selected are shown in Figure B-9. As can be seen in Figure B-9, there is a sharp increase in the number of NOVs issued to the two refineries evaluated in 1996 and 1997. This increase is likely due to more rigorous and frequent inspections by the BAAQMD enforcement staff during this period, when enforcement staff began visiting each refinery at least once per week.

However, similar to the trend observed in the SCAQMD, the number of NOVs issued to these facilities has steadily declined since 1997, while the enforcement practices of the district have not decreased. The decline in the number of NOVs issued, occurring during a time of aggressive enforcement by the district, is indicative of an increasing rate of compliance of these facilities with district regulations.

**Figure B-9:
Notices of Violation Issued in
The Bay Area Air Quality Management District
(1994-2000)**

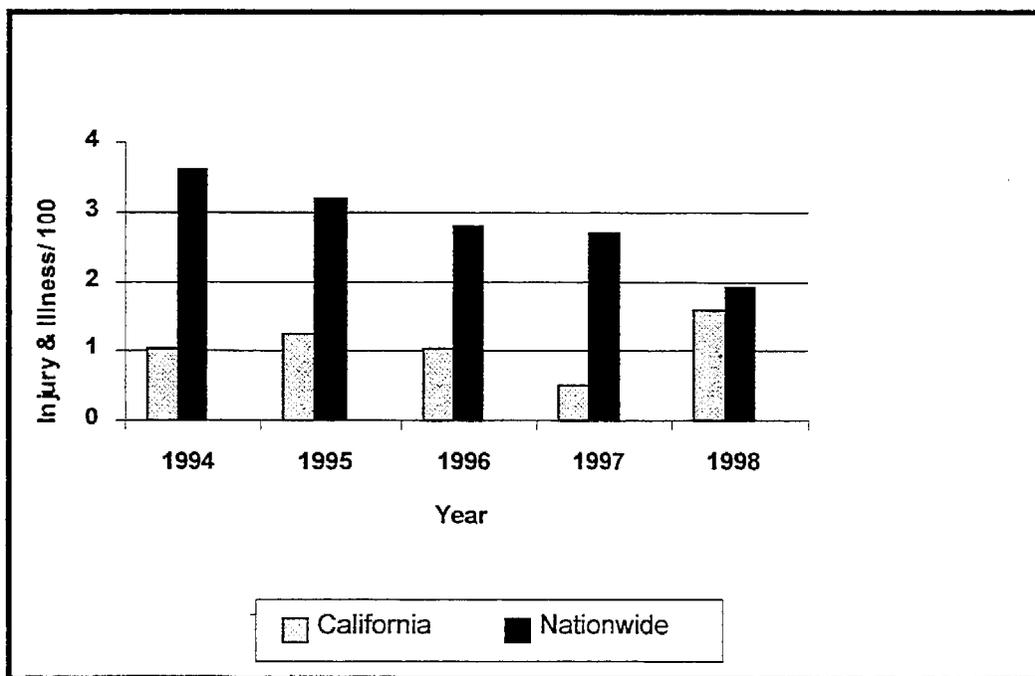


***EVALUATION OF REFINERY UPSET/BREAKDOWNS, CITIZEN COMPLAINTS
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4. OSHA Reported Injuries and Illness

Staff also evaluated data collected from the United States Occupational Health and Safety Administration regarding worker illness and injury at petroleum refineries. This data was collected for California refineries, as well as for refineries nationally. As shown in Figure B-10, this data clearly shows that while illness and injuries among refinery workers has declined nationally over the last decade, California refineries consistently have a lower rate of worker injuries than refineries nationwide. This consistently lower rate of worker illness and injury in California refineries has occurred during a period when refineries in California have undergone significant modification and modernization to produce clean fuels. In turn, this modernization has necessarily increased the complexity of these refineries. Yet, consistent with staff's findings earlier in this section, this modernization not adversely impacted the frequency of breakdowns at California refineries, and it has also not increased the rate at which refinery workers are injured.

**Figure B-10:
Comparison of Refinery Illness and Injuries
California vs. National
(1994-1998)**



Source: United States Occupational Safety and Health Administration

APPENDIX C**LIST OF SCAQMD, BAAQMD, AND SJVUAPCD RULES AND
REGULATIONS APPLICABLE AT PETROLEUM REFINERIES**

*LIST OF BAAQMD, SCAQMD, AND SJVUAPCD RULES AND REGULATIONS
APPLICABLE AT PETROLEUM REFINERIES*

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

REGULATION I - GENERAL PROVISIONS AND DEFINITIONS

Rule 1-100 General

All subparts, including:

1-112 Breakdown

1-113 Discretionary Enforcement, Breakdown

Rule 1-300 Standards

1-301 Public Nuisance

Rule 1-400 Administrative Requirements

All subparts, including:

1-430 Breakdown Procedures

1-431 Breakdown Report

1-432 Written Breakdown Report

1-433 Determination Of Breakdown

1-434 Administrative Violation, Breakdown

1-440 Right Of Access To Premises

1-441 Right Of Access To Information

Rule 1-500 Monitoring and Records

REGULATION II - PERMITS

Rule 2-1 General Requirements

Rule 2-2 New Source Review

Rule 2-3 Power Plants

Rule 2-4 Emissions Banking

Rule 2-6 Major Facility Review

REGULATION III - FEES

Reg 3 District Permit Fees and Hearing Board Fees

REGULATION V - OPEN BURNING

REGULATION VI - PARTICULATE MATTER AND VISIBLE EMISSIONS

REGULATION VII - ODOROUS SUBSTANCES

*LIST OF BAAQMD, SCAQMD, AND SJVUAPCD RULES AND REGULATIONS
APPLICABLE AT PETROLEUM REFINERIES*

REGULATION XIII - TRANSPORTATION CONTROL MEASURES

Rule 13-1 Trip Reduction Requirements for Large Employers

***LIST OF BAAQMD, SCAQMD, AND SJVUAPCD RULES AND REGULATIONS
APPLICABLE AT PETROLEUM REFINERIES***

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

REGULATION I - GENERAL PROVISIONS

Rule 109 Record Keeping for Volatile Organic Compound Emissions

REGULATION II – PERMITS

REGULATION III – FEES

Rule 301 Permit Fees

Rule 307 Fees for Publication

Rule 307-1 Alternatives Fees for Air Toxic Emissions Inventory

REGULATION IV – PROHIBITIONS

Rule 401 Visible Emissions

Rule 402 Nuisance

Rule 403 Fugitive Dust

Rule 404 Particulate Matter – Concentration

Rule 405 Solid Particulate Matter - Weight

Rule 407 Liquid and Gaseous Air Contaminants

Rule 408 Circumvention

Rule 409 Combustion Contaminants

Rule 429 Start-Up and Shutdown Exemption Provisions for Oxides of Nitrogen

Rule 430 Breakdown Provisions

Rule 431-1 Sulfur Content of Gaseous Fuels

Rule 431-2 Sulfur Content of Liquid Fuels

Rule 431-3 Sulfur Content of Fossil Fuels

Rule 444 Open Fires

Rule 461 Gasoline Transfer and Dispensing

Rule 462 Organic Liquid Loading

Rule 463 Organic Liquid Storage

Rule 464 Wastewater Separators

Rule 465 Refinery Vacuum-Producing Devices or Systems

Rule 466 Pumps, Compressors, Valves, And Flanges

Rule 467 Pressure Relief Devices

Rule 468 Sulfur Recovery Units

Rule 469 Sulfuric Acid Units

Rule 474 Fuel Burning Equipment - Oxides of Nitrogen

Rule 475 Electric Power Generating Equipment

Rule 476 Steam Generating Equipment

***LIST OF BAAQMD, SCAQMD, AND SJVUAPCD RULES AND REGULATIONS
APPLICABLE AT PETROLEUM REFINERIES***

- Rule 477 Coke Ovens*
Rule 480 Natural Gas Fired Control Devices

**REGULATION IX - STANDARDS OF PERFORMANCE FOR NEW
STATIONARY SOURCES**

**REGULATION X - NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS
AIR POLLUTANTS**

REGULATION XI - SOURCE SPECIFIC STANDARDS

- Rule 1105 Fluid Catalytic Cracking Units – Oxides of Sulfur*
Rule 1108 Cutback Asphalt and Emulsified Asphalt
Rule 1109 Emissions of NO_x from Boilers & Process Heaters
Rule 1110-1 Emissions from Stationary IC Engines
Rule 1110-2 Emissions from Gaseous- and Liquid-Fueled IC Engines
*Rule 1111 NO_x Emissions from Natural-Gas-Fired, Fan-Type Central
 Furnaces*
Rule 1113 Architectural Coatings
Rule 1118 Emissions from Refinery Flares
Rule 1119 Petroleum Coke Calcining Operations - SO_x
Rule 1123 Refinery Process Turnarounds
*Rule 1134 Emissions of Oxides of Nitrogen from Stationary Gas
 Turbines*
Rule 1135 Emissions of NO_x from Electric Power Generating Systems
*Rule 1146 Emissions of Oxides of Nitrogen from Industrial, Institutional,
 and Commercial Boilers, Steam Generators, and Process
 Heaters*
*Rule 1146-1 Emissions of Oxides of Nitrogen from Small Industrial,
 Institutional, and Commercial Boilers, Steam Generators,
 and Process Heaters*
*Rule 1146-2 Emissions of Oxides of Nitrogen from Large Water Heaters
 and Small Boilers*
Rule 1149 Storage Tank Degassing
Rule 1158 Storage, Handling, and Transport of Petroleum Coke
Rule 1168 Adhesive and Sealant Applications
Rule 1170 Methanol Compatible Fuel Storage and Transfer
Rule 1173 Fugitive Emissions of Volatile Organic Compounds
Rule 1176 Sumps and Wastewater Systems
Rule 1186 Less-Polluting Sweepers
Rule 1189 Emissions from Hydrogen Plant Process Vents

*LIST OF BAAQMD, SCAQMD, AND SJVUAPCD RULES AND REGULATIONS
APPLICABLE AT PETROLEUM REFINERIES*

REGULATION XIII - NEW SOURCE REVIEW

REGULATION XIV - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

- Rule 1401 New Source Review of Toxic Air Contaminants*
- Rule 1402 Control of Toxic Air Contaminants from Existing Sources*
- Rule 1410 Hydrogen Fluoride Storage and Use*

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

REGULATION XXX - TITLE V PERMITS

*LIST OF BAAQMD, SCAQMD, AND SJVUAPCD RULES AND REGULATIONS
APPLICABLE AT PETROLEUM REFINERIES*

SAN JOAQUIN VALLEY AIR QUALITY MANAGEMENT DISTRICT

REGULATION I - GENERAL PROVISIONS

- Rule 1080 Stack Monitoring*
- Rule 1081 Source Sampling*
- Rule 1090 Penalty*
- Rule 1100 Equipment Breakdown*
- Rule 1110 Circumvention*

REGULATION II - PERMITS

REGULATION III - FEES

- Rule 3010 Permit Fee*
- Rule 3090 California Clean Air Act Fees*
- Rule 3100 California Environmental Quality Act Fee*
- Rule 3110 Air Toxic Fees*

REGULATION IV - PROHIBITIONS

- Rule 4001 New Source Performance Standards*
- Rule 4002 National Emissions Standards for Hazardous Air Pollutants*
- Rule 4101 Visible Emissions*
- Rule 4102 Nuisance*
- Rule 4103 Open Burning*
- Rule 4201 Particulate Matter Concentration*
- Rule 4202 Particulate Matter Emission Rate*
- Rule 4301 Fuel Burning Equipment*
- Rule 4304 Equipment Tuning Procedures for Boilers, Steam Generators, And Process Heaters*
- Rule 4305 Boilers, Steam Generators & Process Heaters*
- Rule 4351 Boilers, Steam Generators & Process Heaters -RACT*
- Rule 4451 Valves, Pressure Relief Valves, Flanges, Threaded Connectors & Process Drains at Pet Refinery & Chemical Plants*
- Rule 4452 Pump & Compressor Seals at Petroleum Refinery & Chemical Plants*
- Rule 4453 Refinery Vacuum Producing Devices or Systems*
- Rule 4454 Refinery Process Unit Turnaround*
- Rule 4501 Alternate Compliance for Best Available Retrofit Control Technology (BARCT)*

*LIST OF BAAQMD, SCAQMD, AND SJVUAPCD RULES AND REGULATIONS
APPLICABLE AT PETROLEUM REFINERIES*

<i>Rule 4601</i>	<i>Architectural Coatings</i>
<i>Rule 4621</i>	<i>Gasoline Transfer into Stationary Storage Containers, Delivery Vessels and Bulk Plants</i>
<i>Rule 4623</i>	<i>Storage of Organic Liquids</i>
<i>Rule 4624</i>	<i>Organic Liquid Loading</i>
<i>Rule 4625</i>	<i>Wastewater Separators</i>
<i>Rule 4651</i>	<i>Volatile Organic Compound</i>
<i>Rule 4653</i>	<i>Adhesives</i>
<i>Rule 4661</i>	<i>Organic Solvents</i>
<i>Rule 4701</i>	<i>Internal Combustion Engines</i>
<i>Rule 4703</i>	<i>Stationary Gas Turbines</i>
<i>Rule 4801</i>	<i>Sulfur Compounds</i>
<i>Rule 4802</i>	<i>Sulfuric Acid Mist</i>

REGULATION VI – AIR POLLUTION EMERGENCY CONTINGENCY PLAN

REGULATION VIII – FUGITIVE PM₁₀ PROHIBITIONS

<i>Rule 8010</i>	<i>Fugitive Dust Administrative Requirements For Control Of PM₁₀</i>
<i>Rule 8020</i>	<i>Fugitive Dust Requirements for Control of PM₁₀ from Construction, Demolition, Excavation and Extraction Activities</i>
<i>Rule 8030</i>	<i>Fugitive Dust Requirements for Control of PM₁₀ from Bulk Materials</i>