BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS' REGULAR MEETING

JULY 20, 2005

A meeting of the Bay Area Air Quality Management District Board of Directors will be held at 9:45 a.m. in the 7th floor Board Room at the Air District headquarters, 939 Ellis Street, San Francisco, California.

Questions About an Agenda Item

The name, telephone number and e-mail of the appropriate staff person to contact for additional information or to resolve concerns is listed for each agenda item.

Meeting Procedures

The public meeting of the Air District Board of Directors begins at 9:45 a.m. The Board of Directors generally will consider items in the order listed on the agenda. However, any item may be considered in any order.

After action on any agenda item not requiring a public hearing, the Board may reconsider or amend the item at any time during the meeting.

BOARD OF DIRECTORS' REGULAR MEETING
A G E N D A

WEDNESDAY **BOARD ROOM**
JULY 20, 2005 **7TH FLOOR**

9:45 A.M.

CALL TO ORDER

Opening Comments — Marland Townsend, Chairperson
Roll Call — Clerk of the Boards
Pledge of Allegiance
Commendation/Proclamation

PUBLIC COMMENT PERIOD

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3 *Members of the public are afforded the opportunity to speak on any agenda item. All agendas for regular meetings are posted at District headquarters, 939 Ellis Street, San Francisco, CA, at least 72 hours in advance of a regular meeting. At the beginning of the regular meeting agenda, an opportunity is also provided for the public to speak on any subject within the Board's subject matter jurisdiction. Speakers will be limited to three (3) minutes each.*

CONSENT CALENDAR (ITEMS 1 – 6)

Staff/Phone (415) 749-

1. Minutes of June 15, 2005 Meetings — **M. Romaidis/4965** mromaidis@baaqmd.gov

2. Communications — **J. Broadbent/5052** jbroadbent@baaqmd.gov

   Information only

3. Report of the Advisory Council — **B. Zamora/4962** Bzamora@co.sanmateo.ca.us

4. Monthly Activity Report — **J. Broadbent/5052** jbroadbent@baaqmd.gov

   Report of Division Activities for the month of June 2005

5. Quarterly Report of the Clerk of the Boards — **J. Broadbent/5052** jbroadbent@baaqmd.gov

6. Quarterly Report of Air Resources Board Representative — **J. Broadbent/5052** jbroadbent@baaqmd.gov

COMMITTEE REPORTS AND RECOMMENDATIONS

7. Report of the **Mobile Source Committee** Meeting of July 14, 2005

CHAIR: S. HAGGERTY **J. Broadbent/5052**
jbroadbent@baaqmd.gov

Action(s): The Committee recommends Board of Director Approval of the following:

A) *A 1-year contract extension for the Vehicle Buy Back Program Direct Mail campaign;*

B) *Transportation Fund for Clean Air (TFCA) County Program Manager expenditure plans for fiscal year 2005/2006 as summarized in Tables 1 and 2 of the attached staff report; and*

C) *The Vehicle Incentive Program (VIP) for fiscal year 2005/2006, including: 1) allocation of $500,000 in TFCA funds for the fiscal year 2005/2006 VIP funding cycle; and 2) approval of the VIP guidelines.*

8. Report of the **Public Outreach Committee** Meeting of July 18, 2005

CHAIR: S. YOUNG **J. Broadbent/5052**
jbroadbent@baaqmd.gov

Action(s): The Committee may recommend Board of Director approval of Allison and Partners as the contractor to assist with the Employer Spare the Air program, and authorize to the Executive Officer/APCO to execute a contract in the amount of $98,600.

PUBLIC HEARING

9. Public Hearing to Consider Adoption of new Regulation 12, Rule 12: Flares at Petroleum Refineries; Adoption of an Amendment to Regulation 8, Rule 2: Miscellaneous Standards of Operation; and Certification of a CEQA Final Environmental Impact Report

H. Hilken/4642
hhilken@baaqmd.gov

The proposed rule will reduce emissions from flares at petroleum refineries by requiring refiners to develop and implement plans to reduce the frequency and magnitude of flaring.

CLOSED SESSION

10. Conference with Legal Counsel

Existing Litigation:

Pursuant to Government Code Section 54956.9(a), a need exists to meet in closed session with legal counsel to consider the following cases:

1. ***Arbitration Between Paul Mauriello, Grievant, and Bay Area AQMD,*** *American Arbitration Association No. 74-300-600-04 LYMC*

2. ***Our Children's Earth Foundation v. United States Environmental Protection Agency, et al.****, United States Court of Appeals for the Ninth Circuit, Case No. 04-7303*

OPEN SESSION

11. Report of the Executive Officer/APCO

12. Chairperson's Report

13. Board Members' Comments

    Any member of the Board, or its staff, on his or her own initiative or in response to questions posed by the public, may: ask a question for clarification, make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter or take action to direct staff to place a matter of business on a future agenda. (Gov't Code § 54954.2)

14. Time and Place of Next Meeting – 9:45 a.m.Wednesday, August 3, 2005 - 939 Ellis Street, San Francisco, CA 94109

15. Adjournment

CONTACT CLERK OF THE BOARD - 939 ELLIS STREET SF, CA 94109 **(415) 749-4965**
FAX: (415) 928-8560
BAAQMD homepage:
www.baaqmd.gov

- To submit written comments on an agenda item in advance of the meeting.
- To request, in advance of the meeting, to be placed on the list to testify on an agenda item.
- To request special accommodations for those persons with disabilities. Notification to the Clerk's Office should be given at least 3 working days prior to the date of the meeting so that arrangements can be made accordingly.

AGENDA: 1

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Townsend and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: July 6, 2005

Re: Board of Directors' Draft Meeting Minutes

RECOMMENDED ACTION:

Approve attached draft minutes of the Board of Directors meeting of June 15, 2005.

DISCUSSION

Attached for your review and approval are the draft minutes of the June 15, 2005 Board of Directors' meeting.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET – SAN FRANCISCO, CA 94109

Draft Minutes: Board of Directors' Regular Meeting – June 15, 2005

Call To Order

Opening Comments: Chairperson Marland Townsend called the meeting to order at 9:49 a.m.

Roll Call: Present: Marland Townsend, Chair, Harold Brown, Roberta Cooper, Chris Daly (10:05 a.m.), Mark DeSaulnier (10:21 a.m.), Scott Haggerty, Jerry Hill, Liz Kniss (10:14 a.m.), Jack McGoldrick, Nate Miley, Julia Miller, Mark Ross, Michael Shimansky, John Silva, Pam Torliatt (9:56 a.m.), Brad Wagenknecht, Shelia Young.

Absent: Dan Dunnigan, Erin Garner, Patrick Kwok, Tim Smith, Gayle B. Uilkema.

Pledge of Allegiance: Director Brown led the Board in the Pledge of Allegiance.

Public Comment Period: The following individuals came forward to speak:

Jane Huvane
Bayshore School District
Daly City, CA 94014

Steve Waterman
Bayshore School District
Daly City, CA 94014

The speakers thanked the Board of Directors and the Air District for implementing the Clean Air Challenge curriculum. The speakers also thanked the Board for allowing the students studying the curriculum to make presentations before the Board at a previous meeting.

Director Pamela Torliatt arrived at 9:56 a.m.

Commendation/Proclamation

The Board of Directors recognized employees who have completed milestone levels of twenty-five (25), and thirty (30), years of service with the Air District during this past half year with certificates and pins.

The Board of Directors recognized the following employee who has completed 30 years of service with the District: Victor Morales-Laimon. The Board of Directors recognized the following employees who have completed 25 years of service with the District: Ninevah Williams, William Hammel, Dick Ducker, and Robert Bartley.

Consent Calendar (Items 1 – 6)

1. Minutes of June 1, 2005 Meetings

2. Communications. Correspondence addressed to the Board of Directors

3. Report of the Advisory Council. There was no report.

4. Monthly Activity Report – Report of Division Activities for the month of May 2005.

5. Considered Approval of a New Classification of Policy and Outreach Intern and Approval of Revisions to College Intern Program Guidelines

   The Board of Directors considered approval of a new classification of Policy and Outreach Intern and Revisions to the College Intern Program Guidelines.

6. Authorization for Execution of Purchase Orders in Excess of $70,000

   The Board of Directors considered authorizing the Executive Officer/APCO to execute the following purchase orders in excess of $70,000.

   A) Purchase order to San Francisco Honda for the purchase of 5 (five) 2005 model year compressed natural gas Honda Civic sedans, not to exceed $113,911;
   B) Purchase order to Brady Air Conditioning for Phase IV HVAC replacement, not to exceed $653,160;
   C) Purchase order to Benjamin Bolles for Phase II of the fire alarm upgrades, not to exceed $116,340; and
   D) Purchase order to Benjamin Bolles for upgrades to the 7th floor Board room, the 7th and 4th floor bathrooms, and the main lobby doors of the District, not to exceed $147,300.

   Board Action: Director Miller moved approval of the Consent Calendar; seconded by Director Young; carried unanimously with the following Board members voting:

   AYES: Brown, Cooper, Daly, Haggerty, Hill, McGoldrick, Miley, Miller, Ross, Shimansky, Silva, Torliatt, Wagenknecht, Young, Townsend.

   NOES: None.

   ABSENT: DeSaulnier, Dunnigan, Garner, Kniss, Kwok, Smith, Uilkema.

   Adopted Resolution No. 2005-07: A Resolution to Approve New Classification of Policy and Outreach Intern and Approve Revised College Intern Program Guidelines

Committee Reports and Recommendations

7. Report of the Legislative Committee Meeting of June 6, 2005

   Action(s): The Committee recommended that the Board of Directors take the following position on the bills listed below:

Bill	Brief Description	Committee Recommendation
AB 386 (Lieber)	Transfers smog check policy authority from BAR to ARB	Support
AB 721 (Nunez)	Establishes loan program for metal platers to install technology to cut emissions	Support

AB 1229 (Nation)	Puts air pollution and greenhouse gas labels on new cars	Support
AJR 8 (Canciamilla)	Urges Congress to ratify international treaty on marine vessel emissions	Support
SB 250 (Campbell)	Establishes specifications for hydrogen fuel for vehicles and fuel cells	Support
SB 1024 (Perata)	Safe Facilities, Improved Mobility, and Clean Air Bond Act of 2005	Support

Director Wagenknecht presented the report and stated that the Committee met on Monday, June 6, 2005. Staff presented six bills for the Committee's consideration. The bills, a brief description, and the Committee's recommendations are listed above.

At the Committee's request, staff provided information on several bills from the BAAQMD Bill Discussion List – June 2005. The next Committee meeting will be at the Call of the Chair.

Board Action: **Director Wagenknecht moved that the Board approve the recommendations of the Legislative Committee; seconded by Director Daly; carried unanimously without objection.**

Public Hearings

8. Public Hearing to Consider Proposed New Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants; Proposed Manual of Procedures, Volume II, Part 4: New and Modified Sources of Toxic air Contaminants; proposed amendments to various District rules for consistency with proposed Regulation 2, Rule 5; and certification of a California Environmental Quality Act (CEQA) Environmental Impact Report

The proposed rule and chapter to the Manual of Procedures will incorporate existing Air Toxics New Source Review policies to prevent significant increases in health risks resulting from new and modified sources of toxic air contaminants. The rule will also reduce existing health risks by requiring updated control requirements when older, more highly polluting sources are modified or replaced.

Chairperson Townsend opened the Public Hearing at 10:08 a.m.

Brian Bateman, Director of Engineering, presented the report and provided background on the Air Toxics NSR Program that began in 1987. Mr. Bateman discussed the Risk Evaluation Procedure, including the health risk assessment guidelines and the steps in the Risk Evaluation Procedure.

Director Liz Kniss arrived at 10:14 a.m.

The Risk Management Policy was reviewed along with the criteria for permit approval. Program implementation includes Health Risk Screening Analyses (HRSAs); certain sources requiring HRSAs; and preparation of the HRSA with modeling software and use of digital maps and geophysical data.

Mr. Bateman reviewed the three reasons to codify the Air Toxics NSR Rule into the Air District's regulations. It will integrate the policy into the regulations, increase program clarity and public visibility, and update and enhance the program requirements.

The proposed changes in the Air Toxics NSR Program were reviewed and they include new OEHHA Health Risk Assessment Guidelines; CARB Risk Management Guidelines; requirements for perc dry cleaners; and changes in risk screening fees.

Director Mark DeSaulnier arrived at 10:21 a.m.

The rule development process, public comments, and cumulative risk assessment were also discussed. Mr. Bateman stated that staff recommends the Board take the following actions:

- Adopt the new Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants;
- Adopted associated Manual of Procedures chapter;
- Adopt associated amendments to seven other District rules;
- Certify the final Environmental Impact Report; and
- Adopt a CEQA Statement of Overriding Considerations.

The following individuals came forward to speak:

Karen G. Pierce BVHP Community Advocates & Bay Area Clean Air Task Force San Francisco, CA 94124	Amy Cohen Environmental Law & Justice Clinic San Francisco, CA 94105	Wafaa Aborashed Environmental Justice for Clean Air Coalition Alameda, CA 94577

Chairperson Townsend closed the Public Hearing at 10:54 a.m.

Board Action: Director Brown moved that the Board adopt the staff recommendations; seconded by Director Kniss; carried unanimously with the following Board members voting:

AYES: Brown, Cooper, Daly, DeSaulnier, Haggerty, Hill, Kniss, McGoldrick, Miley, Miller, Ross, Shimansky, Silva, Torliatt, Wagenknecht, Young, Townsend.

NOES: None.

ABSENT: Dunnigan, Garner, Kwok, Smith, Uilkema.

Adopted Resolution No. 2005-08 – A Resolution of the Board of Directors of the Bay Area Air Quality Management District
Adopting:
District Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants; District Manual of Procedures, Volume II, Part 4: New and Modified Sources of Toxic Air Contaminants;
Amending:
District Regulation 2, Rule 1: General Requirements; District Regulation 2, Rule 2: New Source Review; District Regulation 2, Rule 9: Interchangeable Emission Reduction Credits; District Regulation 8, Rule 34: Solid Waste Disposal Sites; District Regulation 8, Rule 40: Aeration of Contaminated Soil and Removal of Underground Storage Tanks; District Regulation 8, Rule 47: Air Stripping and Soil Vapor Extraction Operations; District Regulation 11, Rule 16: Perchloroethylene and Synthetic Solvent Dry Cleaning Operations; District Manual of Procedures, Volume II, Part 2: Permits, General;
Certifying an Environmental Impact Report for this Project; and
Adopting a Statement of Overriding Considerations.

9. Public Hearing to Consider Approval of Proposed Amendments to Regulation 3: Fees and approval of the filing of a California Environmental Quality Act (CEQA) Notice of Exemption

The proposed amendments to Regulation 3: Fees, would increase fees effective July 1, 2005 based on the results of the Cost Recovery Study by Stonefield Josephson, Inc.

Peter Hess, Deputy APCO, stated that the Air District contracted with Stonefield Josephson, Inc. to conduct a Cost Recovery Study. The Study has been completed and the findings are the basis for the proposed amendments to the fee regulation.

Mr. Bateman presented the report and reviewed the background, a summary of the proposed amendments, the rule development process and the impacts on annual permit fees. Staff

recommends that the Board adopt the proposed amendments to Regulation 3 effective July 1, 2005; and approve the filing of a CEQA Notice of Exemption.

Chairperson Townsend opened the Public Hearing at 11:31 a.m.

The following individual came forward to speak:

Dennis DeCota
California Service Station Association

Chairperson Townsend closed the Public Hearing at 11:35 a.m.

Board Action: Director Kniss moved that the Board adopt the staff recommendations; seconded by Director Hill; carried unanimously with the following Board members voting:

AYES: Cooper, Daly, DeSaulnier, Haggerty, Hill, Kniss, Miley, Miller, Ross, Shimansky, Wagenknecht, Young, Townsend.

NOES: None.

ABSENT: Brown, Dunnigan, Garner, Kwok, McGoldrick, Silva, Smith, Torliatt, Uilkema.

Adopted Resolution No. 2005-09 – A Resolution of the Board of Directors of the Bay Area Air Quality Management District Amending Regulation 3 - Fees

10. Final Public Hearing to on the Proposed District Budget for Fiscal Year 2005/2006

Pursuant to California Health and Safety Code Section 40131, the Board of Directors conducted the final public hearing on the proposed District Budget and considered adoption.

Chairperson Townsend opened the Public Hearing at 11:38 a.m. There being no speakers on this item, Chairperson Townsend closed the Public Hearing at 11:39 a.m.

Board Action: Director Kniss moved that the Board of Directors adopt the proposed District Budget for Fiscal Year 2005/2006 and the resolution reflecting actions of the Board in adopting the proposed budget; seconded by Director Young.

There was a brief discussion on additional funding for the Clean Air Curriculum and Jack Broadbent, Executive Officer/APCO, noted that additional funding could come from the Program 104 budget. The motion then passed with the following Board members voting:

AYES: Cooper, Daly, DeSaulnier, Haggerty, Hill, Kniss, Miley, Miller, Ross, Shimansky, Wagenknecht, Young, Townsend.

NOES: None.

ABSENT: Brown, Dunnigan, Garner, Kwok, McGoldrick, Silva, Smith, Torliatt, Uilkema.

Adopted Resolution No. 2005-10 – A Resolution to Approve the Budget for Fiscal Year Ending June 30, 2006 (FY 2005-2006) and Various Budget Related Actions

Other Business

11. Report of the Executive Officer/APCO – Mr. Broadbent reported on the following items:

1. The Air District's 50th Anniversary Symposium is Monday, June 20th.
2. The refinery flare control rule will be on the next Board meeting agenda.

12. Chairperson's Report: Chairperson Townsend stated that Mr. Hess has provided information packets to those Board members attending the Air & Waste Management Conference. Chairperson Townsend noted that Director Ross will be presenting a paper at the Conference.

    Chairperson Townsend commented that Director Shimansky rode BART today and received a Spare the Air notice.

13. Board Members' Comments – Director Young requested that copies of the Board Correspondence regarding the EBMUD Bayside Groundwater Project be forwarded to her.

    Director Miller congratulated the Legal Division on closing all NOVs and for the revenue it generated.

14. Time and Place of Next Meeting – Mr. Broadbent recommended cancellation of the July 6, 2005 Board meeting and Chairperson Townsend so ordered. The next Regular Board meeting is scheduled for 9:45 a.m., Wednesday, July 20, 2005 - 939 Ellis Street, San Francisco, CA 94109.

15. Adjournment – The meeting adjourned at 11:46 a.m.

Mary Romaidis
Clerk of the Boards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Townsend and Members of the Board of Directors

From: Jack P. Broadbent Executive Officer/APCO

Date: July 20, 2005

Re: Report of Division Activities for the month of June 2005

ADMINISTRATIVE SERVICES DIVISION – J. McKAY, ACTING DIRECTOR

On June 1 and June 15 two public hearings before the Board of Directors resulted in approval of the FY 2005-2006 Budget.

The Board also approved an increase to the 2004-2005 Budget in the amount of $1,438,000.

Status of various capital projects in process:

	Started	% Complete	Completion Date
➢ Phase III Fire Alarm System	August 06		TBD
➢ Phase IV HVAC Upgrade	August 06		TBD

COMPLIANCE & ENFORCEMENT DIVISION – K. WEE, DIRECTOR

Enforcement Program

Staff issued two public nuisance Notices of Violation to Pacific Steel Castings (PSC) for odor events that occurred on June 6 and 17, 2005. Additionally, staff conducted air sampling to identify the different odorous compounds emitted and the highest concentration emission points from Plant #3's ventilation points. An office conference was held on June 30 with PSC management to discuss recent odor episodes and PSC's plans for reducing and/or controlling odors from their casting operations in Plant #3. District staff met with members of the West Berkeley Alliance for Clean Air, a community group, on June 29 to discuss air pollution issues at Pacific Steel Castings.

On June 16, staff presented a detailed overview of the District to the San Mateo County Environmental Crimes task force members. The presentation included history, jurisdiction, authority, structure, divisions and future District challenges.

Compliance Assurance Program

On June 14 staff required asbestos ambient air monitoring for a Hunter's Point Shipyard Parcel A development project that included grading and construction subject to the state naturally occurring asbestos air toxics control measure. This is the first time that the District

has decided that a project should conduct ambient air monitoring for asbestos because it is relatively close to sensitive receptors (two elementary schools).

Staff attended a meeting organized by the Bay Area affiliate of the World Trade Center Organization. The purpose of the meeting was to facilitate discussions between all parties that move cargo containers through the Port of Oakland. The meeting included representatives from shipping lines, marine terminal operators, trucker associations and labor organizations, as well as representatives from the offices of State Senators Lowenthal and Torlakson. Discussion centered on extending gate hours at the terminals and the problems presents for the labor organizations' contracts.

The Port of Oakland invited Inspection staff to attend a Marine Terminal Operator meeting regarding appointment system effectiveness on June 8. A company from Canada was interested in discussing the Port of Oakland's experience with using different appointment systems and longer gate hours.

Compliance Assistance Program

Three sessions of Industry Compliance School were held in June at San Francisco, Sunnyvale and Emeryville, for operators and vendors subject to Regulation 8, Rule 45, Motor Vehicle Refinishing Operations. These course are offered free of charge to help companies better understand the requirements of District regulations.

Three Green Business re-certifications were referred to inspection staff for review. Staff attended the Bay Area counties' Green Business Coordinators meeting on June 10 at ABAG headquarters. Two major successes were reported. In San Francisco, the Green Business recognition reception occurring during World Environment Day Conference events was attended by over 300 participants. In Santa Clara County, the coordinators reported the adoption of their program by all cities within the County of Santa Clara, with the sole exception of the City of Santa Clara. There was also discussion stemming from the statewide Green Business coordinators meeting held in Oakland on April 25.

On June 9 Inspection and Engineering staff were guest speakers at the City of San Jose Building Department on the topics of asbestos and District permitting procedures. The telephone translation service was used in the month of May for Spanish and Vietnamese.

Training

The third In-Service training session for inspection staff of this year was completed in June and covered the following topics: Diesel ATCM's, Planning Grants, SEP's, Source Test Tracking, Laptop viruses, Time Card Billing Codes, and Personal Safety Training. On June 13, Gasoline Dispensing Facility (GDF) inspection staff additionally met with Technical Services Division staff in the field to review insertion interlock and tank adapter torque test procedures. On June 28 CARB staff provided training on Maximum Achievable Control Technology (MACT), including CARB and EPA toxic regulations/programs, CARB Hot Spots versus EPA Significant Risk Programs, EPA & California Accidental Release Prevention Programs; pathways for CARB and EPA enforcement; and examples of where BAAQMD was a national leader in MACT permit deployment. Staff attended the second Cal/EPA Regional Cross-Media Training Program Committee meeting in Sacramento on June 2. The meeting time was spent on identifying basic, non-media-specific "highly

recommended" classes that would be the basis of a certificate program for all inspectors within Cal/EPA and other agencies.

(See Attachment for Activities by County)

ENGINEERING DIVISION – B. BATEMAN, DIRECTOR

Toxics Program

The Toxic Evaluation Section completed a total of 37 health risk screening analyses during June. The majority of these risk screens were for diesel engine emergency generators and gas stations. The District's Board of Directors approved staff's proposed Air Toxics New Source Review Rule with an effective date of July 15, 2005. Staff prepared for the transition to the new rule including the use of new health risk screening procedures.

Title V Program

Work continued on addressing the EPA's objection issues on the Refinery Title V permits. The proposed Revision 3 permits, and statement of bases, are scheduled to be issued in August. The Title V permit renewal for U.S. Pipe & Foundry (Union City) was issued, and the proposed Title V permit renewals were issued for Mirant Delta (Antioch), and P.E. Berkley (Berkeley).

Permit Evaluation Program

Staff testified at a public hearing held by the CEC on Los Esteros Energy Facility. The subject of the hearing was the conversion of the facility from simple-cycle to combined-cycle configuration.

Permit application submittals were at record levels during FY04-05 (July 1, 2004 through June 30, 2005), with a total of 2752 permit applications submitted. Permit activity was heavily impacted by CARB's Enhanced Vapor Recovery (EVR) program, which requires gasoline dispensing facilities to upgrade their vapor recovery systems. Permit activity is expected to remain at high levels during the new fiscal year as deadlines for Phase II EVR upgrades approach. In addition, application submittals for emergency standby engines are expected to continue at their current levels – these sources have become the most common type of permitted source following the elimination of permit exemptions several years ago.

Engineering Special Projects Program

Staff continued to provide assistance to commercial, industrial, and public agencies that own/operate stationary diesel engines for compliance with the state-mandated Airborne Toxic Control Measure (ATCM) for diesel particulate matter (PM) emissions. Diesel PM emissions must be reduced to meet requirements of the ATCM by either limiting hours of engine operation or by installing PM controls. Owners of in-use engines must report their compliance plans by July 1, 2005, with initial compliance beginning January 1, 2006. New engines are already subject to stringent requirements. Staff hosted an in-house presentation from Applied Filter Technology on the cleanup of landfill and digester gases prior to their use as waste fuels in resource recovery projects.

Community Air Risk Evaluation (CARE) Program

Staff presented a program update to a joint meeting of the Advisory Council's Technical and Planning committees, and hosted the second CARE Task Force meeting. A supplementary

meeting was held for East Bay members of the Task Force who had been unable to attend the Task Force meeting.

Several contracts for services were awarded in June. The most important were with Farallon Geographics for installation and support for the ArcSDE server (GIS data) and with Desert Research Institute for hydrocarbon analysis of District particulate matter filters.

INFORMATION SYSTEMS DIVISION – J. McKAY, DIRECTOR

Toolsets for Permits/Enforcement/Legal

The District has finalized a contract and initiated work with CH2M Hill to design the migration from Ingress and HP flat files to Oracle. Although underlying structured database design can be performed apart from the design of systems for Content Management (forms and documents), the two elements will be pursued concurrently and each process will inform the other.

The design methodology for replacement of IRIS and Databank has concluded with clear focus on the importance of Content Management tools. While this may not allow the District to accomplish all of its objectives with a single vendor offering, it will allow the opportunity to substitute purchased modules for custom code. Work on an in-house pilot project has started. Likely participants in the pilot include OpenText and other Content Management vendors. An update of the extensive requirement documentation that was previously developed continues.

Infrastructure

User migration is approximately 95% complete. The upgrade is motivated by security needs and equipment obsolescence. Remaining migrations focus primarily on remote users.

LEGAL DIVISION – B. BUNGER, DISTRICT COUNSEL

The District Counsel's Office received 128 Violations reflected in Notices of Violation ("NOVs") for processing.

Mutual Settlement Program staff initiated settlement discussions regarding civil penalties for 63 Violations reflected in NOVs. In addition, Mutual Settlement Program staff sent 9 Final 30 Day Letters regarding civil penalties for 11 Violations reflected in NOVs. Finally, settlement negotiations by Mutual Settlement Program staff resulted in collection of $61,950 in civil penalties for 59 Violations reflected in NOVs.

Counsel in the District Counsel's Office initiated settlement discussions regarding civil penalties for 29 Violations reflected in NOVs. Settlement negotiations by counsel in the District Counsel's Office resulted in collection of $76,450 in civil penalties for 22 Violations.

(See Attachment for Penalties by County)

PLANNING DIVISION – H. HILKEN, DIRECTOR

Grant Programs

Staff made a presentation on grant programs during a World Environment Day workshop sponsored by the Air District. Staff also participated in a Green Ports Workshop as part of World Environment Day. Staff received over 60 applications for grants from the

Transportation Fund for Clean Air (TFCA) Regional Fund by the June 30 deadline. A total of 692 eligible light-duty vehicles were purchased and scrapped by the three Vehicle Buy Back Program contractors.

Rule Development Program

Staff participated in meetings regarding proposed Regulation 12, Rule 12: Flares at Petroleum Refineries with refinery managers, Western States Petroleum Association and refinery staff, and representatives of Plumbers and Steamfitters Local 342, and also discussed the proposed flare control rule with South Coast AQMD staff. As part of the analysis of potential further controls on refinery wastewater systems, staff observed source testing and collected wastewater samples from refinery wastewater systems, and met with the refinery wastewater technical working group. Staff conducted a regulatory scoping meeting concerning Regulation 9, Rule 9: Nitrogen Oxides and Carbon Monoxide from Stationary Gas Turbines. Staff met with industry representatives regarding potential amendments to Regulation 8, Rule 20: Graphic Arts Printing and Coating Operations. Staff presented an overview of the District's planning and rule development activities to the Pacific Industrial Business Association and as part of the World Environment Day program sponsored by the Air District.

Air Quality Planning Program

The Board of Directors adopted a resolution establishing a District Climate Protection Program. The District also co-sponsored and attended an announcement by Governor Schwarzenegger establishing a statewide climate change initiative. This event was part of the opening ceremonies for World Environment Day. On June 15 the national 1-hour ozone standard was revoked by EPA. The Bay Area is a marginal nonattainment area for the new national 8-hour ozone standard, but specific planning requirements for the region are still uncertain due to legal challenges to EPA's implementation guidance. Staff intends to move forward this summer with public review of the Bay Area Ozone Strategy, which will address the State 1-hour ozone standard. Staff wrote four comment letters regarding air quality impacts of development projects and plans in the Bay Area: Downtown Vallejo Specific Plan; Coyote Valley Specific Plan (San Jose); Goble Lane Project (San Jose); and EBMUD Bayside Groundwater Project (San Leandro).

Research and Modeling

Staff participated in Northern California Agency Transport and 8-hour Ozone State Implementation Plan Work Group meetings, multi-agency meetings to review ARB modeling for northern California for the national 8-hour ozone standard. Staff participated in Central California Ozone Study (CCOS) Technical and Policy Committee meetings to discuss data analysis, air quality modeling, and emissions inventory development projects that will be funded by CCOS. Staff presented the results of preliminary analysis and source apportionment of ambient particulate matter data collected in the Bay Area to the District's Advisory Council and the Community Air Risk Evaluation (CARE) Program Task Force. A draft report summarizing the highlights of the findings has been prepared.

PUBLIC INFORMATION & OUTREACH – T. GALVIN LEE, DIRECTOR

World Environment Day was celebrated on June 1. The Air District held an event at St Mary's Cathedral Hall in San Francisco. The event featured a press conference with the

handover of a fuel cell vehicle from Daimler Chrysler to the Air District, and a series of talks (the "Top Ten Ways to Reduce Air Pollution") illustrating various Air District programs. The Contra Costa Times had a front page story on the fuel cell vehicle.

There were no Spare the Air days in June. Staff continued to work on the media and advertising for the free morning commute program which now includes 21 Bay Area transit agencies. All the advertising is in place, including 15 wrapped buses and BART cars. The advertising campaign kicked off with television and radio advertisements promoting e-mail signups via AirAlert. As a result there were 3,326 new sign-ups during the month of June, bringing the total number to 25,280. More billboard, radio, and television advertising will occur in July. Spare the Air light pole banners were installed in several Bay Area cities. To date, over 2200 employers and 600 Bay Area schools have signed up to be part of the Spare the Air network.

Public Information and Outreach staff presented papers on the Air District's outreach campaign at the AWMA conference in Minneapolis. The Community Relations staff and the outreach consultant held a diesel PM Retrofit workshop in Richmond to encourage refuse haulers and railroads to utilize existing Carl Moyer funds. AC Transit, Richmond Sanitary, BNSF Railroad and others attended. Staff also worked on the Air Quality Symposium held on June 20th. The *Clean Air Journey* was also produced for the event. There were 2,336 smoking vehicle complaints reported in June.

TECHNICAL DIVISION – G. KENDALL, DIRECTOR

Air Quality

There were no days in June when the air quality reached the Unhealthful for Sensitive Groups category (AQI > 100). Ozone levels stayed in the Good category every day except June 29th, when Livermore reached the low Moderate category with a 51 AQI. The good air quality was due to the persistence of a low pressure trough aloft over the West Coast. This resulted in good mixing and a strong onshore flow, which produced unseasonably cool temperatures. The highest temperature reached in June was only 95 degrees, on June 30th at Livermore and Concord.

Air Monitoring

Thirty-two of the thirty-four air monitoring stations were operational during the month of June 2004. The Hayward and Crockett stations, both located at water district facilities, are shut down during seismic upgrades at those facilities.

Meteorology and Forecasting

March 2005 air quality data were quality assured and entered into the EPA Air Quality System (AQS) database. Staff continued to make daily air quality and burn forecasts. Staff performed a shutdown audit of the meteorological equipment at the Bay View-Hunter's Point air monitoring station.

Quality Assurance

The Quality Assurance (QA) group conducted regular, mandated performance audits of 34 monitors at 9 District air monitoring stations. QA staff also conducted performance audits on

7 SO_2 and H_2S monitors at 4 Ground Level Monitoring (GLM) stations at the Tesoro Refinery in Avon. QA Staff also conducted a shut-down performance audit of eight monitors at the Bay View-Hunter's Point air monitoring station known as Bay CAMP.

Laboratory

In addition to the ongoing, routine analyses, three gas samples from rheniformer unit #5 at Chevron Richmond Refinery in Richmond were analyzed for hydrocarbons and perchloroethylene. The ammonia content of a condensate sample from an internal combustion engine exhaust of Tesoro Refining Company in Martinez was determined. Four printing ink samples from Alcan Packaging in American Canyon and two resin samples from Isola Laminate Systems in Fremont were speciated for organic compounds.

Source Test

Ongoing Source Test activities included Continuous Emissions Monitoring (CEM) Field Accuracy Tests, source tests, gasoline cargo tank testing, and evaluations of tests conducted by outside contractors. The ConocoPhillips Refinery's open path monitor monthly report for the month of May was reviewed. The Source Test Section provided ongoing participation in the District's Further Studies Measures for refineries.

These facilities have received one or more Notices of Violations
Report period: June 1, 2005 – June 30, 2005

Alameda County

Status Date	Site #	Site Name	City	Regulation Title
6/13/2005	C7925	Campus Mini-Mart	Berkeley	Gasoline Dispensing Facilities
6/6/2005	A7577	AC Label Company	Fremont	Authority to Construct; Permit to Operate
6/8/2005	A3024	Isola USA Corp	Fremont	Parametric Monitoring and Recordkeeping Procedures; Failure to Meet Permit Conditions
6/6/2005	A8391	Western Digital Corporation	Fremont	Failure to Meet Permit Conditions
6/8/2005	B0145	Folgergraphics, Inc	Hayward	Authority to Construct; Permit to Operate
6/6/2005	B2196	Heritage Paper	Livermore	Authority to Construct; Permit to Operate
6/8/2005	Q7836	Kevin Greene	Oakland	Asbestos Demolition, Renovation
6/23/2005	B5760	SSA Terminals - Oakland	Oakland	Idling Trucks

Contra Costa County

Received Date	Site #	Site Name	City	Regulation Title
6/9/2005	A5515	Metallics Refining Inc	Antioch	Airborne Toxic Control Measure For Emissions of Toxic Metals From Non-ferrous Metal Melting; Authority to Construct; Permit to Operate
6/2/2005	Q7837	Stewart Heating	Concord	Asbestos Demolition, Renovation
6/2/2005	A0581	ST Shore Terminals LLC	Crockett	Failure to Meet Permit Conditions
6/1/2005	A7034	Shore Terminals - Martinez	Martinez	Failure to Meet Permit Conditions
6/7/2005	B2758	Tesoro Refining and Marketing Company	Martinez	Flare Monitoring at Petroleum Refineries
6/14/2005	Q8119	Team Commercial Construction, Inc	Point Richmond	Asbestos Demolition, Renovation
6/9/2005	A0016	ConocoPhillips - San Francisco Refinery	Rodeo	Flare Monitoring at Petroleum Refineries; Continuous Emission Monitoring and Recordkeeping Conditions; Storage of Organic Liquids

Marin County

Received Date	Site #	Site Name	City	Regulation Title
6/1/2005	B7053	Bank of Marin	Novato	Authority to Construct; Permit to Operate
6/1/2005	B7022	Custom Built Cabinets	Novato	Authority to Construct; Permit to Operate
6/1/2005	Q7807	Ignacio Auto Service	Novato	Solvent Cleaning Operations
6/8/2005	Q7993	Martinez Construction	Novato	Asbestos Demolition, Renovation
6/21/2005	A1470	Lucas Digital Ltd LLC	San Rafael	Failure to Meet Permit Conditions
6/21/2005	Q8317	Bob Wright	Woodside	Open Burning

Napa County

Received Date	Site #	Site Name	City	Regulation Title
NONE				

San Francisco County

Received Date	Site #	Site Name	City	Regulation Title
6/21/2005	A6513	Borden Decal Company	San Francisco	Authority to Construct; Permit to Operate
6/21/2005	A3460	Cameo Cleaners	San Francisco	Perc Dry Cleaning
6/21/2005	Q8316	Phuong Pham	San Francisco	Asbestos Demolition, Renovation

San Mateo County

Received Date	Site #	Site Name	City	Regulation Title
6/21/2005	A0298	Poly Clean Center	Atherton	Perc Dry Cleaning
6/8/2005	A5283	Burlingame One Hour Cleaners	Burlingame	Perc Dry Cleaning
6/8/2005	B5262	Multi Craft Auto Body	Burlingame	Motor Vehicle Coating Operations
6/8/2005	A8056	Greenhouse Cleaners	Half Moon Bay	Perc Dry Cleaning
6/9/2005	C9889	Menlo Park Beacon	Menlo Park	Gasoline Dispensing Facilities
6/15/2005	Q6696	Graham Plastering	Pacifica	Asbestos Demolition, Renovation
6/1/2005	A3134	Port of Redwood City	Redwood City	Failure to Meet Permit Conditions
6/1/2005	C9153	Whipple Avenue Shell	Redwood City	Gasoline Dispensing Facilities
6/21/2005	A6498	Ricker Motors Collision Specialists	San Mateo	Motor Vehicle Coating Operations

Santa Clara County

Received Date	Site #	Site Name	City	Regulation Title
6/9/2005	C3952	Delta Queen Car Wash	Campbell	Gasoline Dispensing Facilities
6/9/2005	Q5508	Henry Lo	Cupertino	Asbestos Demolition, Renovation
6/1/2005	D1403	Christopher Ranch	Gilroy	Authority to Construct; Permit to Operate
6/21/2005	A7167	Department of General Services	Milpitas	Motor Vehicle Coating Operations
6/27/2005	C9809	DBA McKee Beacon Service	San Jose	Gasoline Dispensing Facilities
6/15/2005	B1670	Gas Recovery Systems, Inc	San Jose	Parametric Monitoring and Recordkeeping Procedures ;Failure to Meet Permit Conditions; Solid Waste Disposal Sites; Solid Waste Disposal Sites
6/14/2005	N7112	Z-Con Specialty	San Jose	Asbestos Demolition, Renovation
6/15/2005	A1939	International Rectifier HI-REL	Santa Clara	Failure to Meet Permit Conditions
6/21/2005	A2206	Streamline Circuits	Santa Clara	Authority to Construct; Permit to Operate; Failure to Meet Permit Conditions; General Solvent and Surface Coating Operations
6/15/2005	B2994	Western Precision Inc	Santa Clara	Failure to Meet Permit Conditions

Solano County

Received Date	Site #	Site Name	City	Regulation Title
6/14/2005	B2626	Valero Refining Company - California	Benicia	Continuous Emission Monitoring and Recordkeeping Procedures; Failure to Meet Permit Conditions; Orgar Compounds: Miscellaneous Operations

Sonoma County

Received Date	Site #	Site Name	City	Regulation Title
6/20/2005	Q8282	Seth Lewers	Healdsburg	Open Burning
6/21/2005	B0223	The Print Works	Petaluma	Right of Access to Information; Permit to Operate
6/6/2005	Q7898	Donald Dow	Santa Rosa	Open Burning
6/1/2005	Q7809	Hampton Tires	Santa Rosa	Solvent Cleaning Operations

June 2005 Closed NOVs with Penalties by County

Alameda

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Arch Mirror West	A1662	Newark	**$5,000**	**2**
Campus Mini-Mart	C7925	Berkeley	**$250**	**1**
Chevron SS #9-0076	C8419	Oakland	**$500**	**1**
CST Environmental	G2509	San Leandro	**$3,000**	**2**
David Sailer dba Jordan Environmental Inc	G2586	San Leandro	**$3,200**	**3**
Edgewater Super Stop	C9508	Oakland	**$1,000**	**1**
Environmental Remedies	Q5007	Pleasanton	**$650**	**1**
Livermore Crematory	A2501	Livermore	**$2,000**	**1**
New United Motor Manufacturing, Inc	A1438	Fremont	**$40,000**	**7**
Wente Brother Winery	L1677	Livermore	**$2,000**	**1**
Wente Winery Vineyards	P0935	Livermore	**$3,000**	**1**

Total Violations Closed: 21

Contra Costa

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
California Oils Corp	A0927	Richmond	**$500**	**1**
Delta Energy Center	B2095	Pittsburg	**$16,000**	**2**
Equilon Enterprises LLC	B1956	Martinez	**$7,750**	**2**
Gaylord Container Corporation	A2180	Antioch	**$11,000**	**4**
Gilroy Energy Center,LLC for Riverview Energy Ctr	B4512	Antioch	**$2,000**	**2**
Marty Murray	Q5233	Discovery Bay	**$350**	**1**
Sugar City Building Materials	A2368	Pinole	**$1,000**	**1**
We Haul	Q1558	Danville	**$500**	**1**

Total Violations Closed: 14

Napa

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Ristow Winery	Q7036	Napa	**$400**	**1**
Tres Sabores	Q6754	Saint Helena	**$150**	**1**

Total Violations Closed: 2

San Francisco

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Earl Scheib Inc of California	A8007	San Francisco	**$1,000**	**1**
Envent Corporation	B6338	San Francisco	**$1,000**	**1**
Eur-Asia Motors	A9973	San Francisco	**$750**	**2**
Malcolm Davis	Q6731	San Francisco	**$3,000**	**3**
Paint Wizard	Q3791	San Francisco	**$300**	**1**

Total Violations Closed: 8

San Mateo

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Patrick Martin Uniacke	Q6880	San Bruno	**$1,250**	**1**
Valley Market & Gas	D0113	Redwood City	**$250**	**1**
Wu's Auto Center	A4491	South San Francisco	**$800**	**2**

Total Violations Closed: 4

Santa Clara

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Beneto Tank Lines	N1032	San Jose	**$2,000**	**1**
Chevron #96215	C7942	San Jose	**$300**	**1**
Chevron SS# 3029	C3873	San Jose	**$500**	**1**
Cleaners Connection	B0060	Saratoga	**$500**	**1**
Dan Gamel	Q2055	Morgan Hill	**$500**	**1**
DE ANZA/U S GAS	C9905	San Jose	**$500**	**1**
Diamond Tank Lines	Q7078	San Jose	**$500**	**1**
E2C Incorporated	B5925	Santa Clara	**$2,000**	**1**
Great Earth Construction Co.	P9269	San Jose	**$4,000**	**5**
Henry Lo	Q5508	Cupertino	**$4,000**	**4**
Kwikserv (Sherwin Petroleum)	D0888	San Jose	**$300**	**1**
Navy Exchange/PO Box 84	C9602	Moffett Field	**$500**	**1**
Siliconix, Incorporated	A0646	Santa Clara	**$500**	**1**
Unocal #4553	C4156	San Jose	**$500**	**1**

USA Petroleum	C8383	San Jose	**$850**	**1**
Z-Con Specialty	N7112	San Jose	**$1,500**	**1**

Total Violations Closed: 23

Solano

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Food & Liquor #56	C9185	Fairfield	**$3,000**	**4**
Goose Haven Energy Center	B4416	Suisun City	**$6,000**	**1**
Rodriguez Hauling	P6847	Vallejo	**$1,000**	**1**

Total Violations Closed: 6

Sonoma

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Don Bliss	Q4257	Sebastopol	**$300**	**1**
Henry Moravec	Q6353	Sonoma	**$300**	**1**
Stanley Ramondo	P8657	Sebastopol	**$250**	**1**

Total Violations Closed: 3

ACRONYMS AND TERMINOLOGY

ABAG	Association of Bay Area Governments
AC	Authority to Construct issued to build a facility (permit)
AMBIENT AIR	The surrounding local air
AQI	Air Quality Index
ARB	[California] Air Resources Board
ATCM	Airborne Toxic Control Measure
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BANKING	Applications to deposit or withdraw emission reduction credits
BAR	[California] Bureau of Automotive Repair
BARCT	Best Available Retrofit Control Technology

BIODIESEL	A fuel or additive for diesel engines that is made from soybean oil or recycled vegetable oils and tallow. B100=100% biodiesel; B20=20% biodiesel blended with 80% conventional diesel
BTU	British Thermal Units (measure of heat output)
CAA	[Federal] Clean Air Act
CAL EPA	California Air Resources Board
CCAA	California Clean Air Act [of 1988]
CCCTA	Contra Costa County Transportation Authority
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CMA	Congestion Management Agency
CMAQ	Congestion Management Air Quality [Improvement Program]
CMP	Congestion Management Program
CNG	Compressed Natural Gas
CO	Carbon monoxide
EBTR	Employer-based trip reduction
EJ	Environmental Justice
EIR	Environmental Impact Report
EPA	[United States] Environmental Protection Agency
EV	Electric Vehicle
HC	Hydrocarbons
HOV	High-occupancy vehicle lanes (carpool lanes)
hp	Horsepower
I&M	[Motor Vehicle] Inspection & Maintenance ("Smog Check" program)
ILEV	Inherently Low Emission Vehicle
JPB	[Peninsula Corridor] Joint Powers Board
LAVTA	Livermore-Amador Valley Transit Authority (“Wheels”)
LEV	Low Emission Vehicle
LNG	Liquefied Natural Gas
MPG	Miles per gallon
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards (federal standards)
NO_x	Nitrogen oxides, or oxides of nitrogen
NPOC	Non-Precursor Organic Compounds
NSR	New Source Review
O_3	Ozone
$PM_{2.5}$	Particulate matter less than 2.5 microns
PM_{10}	Particulate matter (dust) less than 10 microns
$PM_{>10}$	Particulate matter (dust) over 10 microns
POC	Precursor Organic Compounds
pphm	Parts per hundred million
ppm	Parts per million
PUC	Public Utilities Commission

RFG	Reformulated gasoline
ROG	Reactive organic gases (photochemically reactive organic compounds)
RIDES	RIDES for Bay Area Commuters
RTP	Regional Transportation Plan
RVP	Reid vapor pressure (measure of gasoline volatility)
SCAQMD	South Coast [Los Angeles area] Air Quality Management District
SIP	State Implementation Plan (prepared for *national* air quality standards)
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminant
TCM	Transportation Control Measure
TFCA	Transportation Fund for Clean Air [BAAQMD]
TIP	Transportation Improvement Program
TMA	Transportation Management Association
TOS	Traffic Operations System
tpd	tons per day
Ug/m^3	micrograms per cubit meter
ULEV	Ultra low emission vehicle
ULSD	Ultra low sulfur diesel
USC	United States Code
UV	Ultraviolet
VMT	Vehicle miles traveled (usually per *day*, in a defined area)
VTA	Santa Clara Valley Transportation Authority
ZEV	Zero Emission Vehicle

AGENDA: 5

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Interoffice Memorandum

TO: Chairperson Townsend and Members of the Board of Directors

FROM: Mary Ann Goodley
Executive Office Manager

DATE: July 7, 2005

RE: Quarterly Report of the Clerk of the Boards: April 1 – June 30, 2005

RECOMMENDED ACTION

This report is provided for information only.

DISCUSSION

Listed below is the status of minutes for the Board of Directors and Advisory Council and activities of the Hearing Board for the second quarter of 2005:

Board of Directors

Meeting Type	Meeting Date	Status of Minutes
Regular Meeting	April 20	Approved
Regular Meeting	May 4	Approved
Regular Meeting	May 18	Approved
Regular Meeting	June 1	Approved
Regular Meeting for Budget	June 1	Approved
Regular Meeting	June 15	Minutes Completed/Pending Approval
Budget & Finance Committee	April 6	Approved
Budget & Finance Committee	May 5	Approved
Budget & Finance Committee	May 18	Minutes Completed/Pending Approval
Executive Committee	May 20	Minutes Completed/Pending Approval
Legislative Committee	April 4	Approved
Legislative Committee	June 6	Minutes Completed/Pending Approval
Personnel Committee	April 7	Minutes Completed/Pending Approval
Public Outreach Committee	May 16	Minutes Completed/Pending Approval
Mobile Source Committee	April 25	Minutes Completed/Pending Approval
Stationary Source Committee	May 23	Minutes Completed/Pending Approval

Advisory Council

Meeting Type	Meeting Date	Status of Minutes
Regular Meeting	May 11	Minutes Completed/Pending Approval
Air Quality Planning Committee	April 4	Approved
Joint Air Quality Planning and Technical Committees	June 8	Minutes Completed/Pending Approval
Technical Committee	April 13	Approved
Executive Committee	May 11	Minutes Completed/Pending Approval
Public Health Committee	April 18	Approved
Public Health Committee	June 13	Minutes Completed/Pending Approval

Hearing Board

1. During the Period April – June 2005, the Hearing Board processed and filed two Applications for Variance and two Appeals.

2. The Deputy Clerk attended and took minutes at a total of three hearings and other discussions at the District facility.

3. A total of $ 299.75 was collected in excess emission fees.

4. On March 30, 2005, the Hearing Board presented its Quarterly Report (January –March 2005) to the Board Executive Committee.

5. On May 5, 2005 the Hearing Board elected Thomas M. Dailey, M.D., as its Chair and Christian Colline, P.E., as its Vice-Chair.

Respectfully submitted,

Mary Ann Goodley
Executive Officer Manager

FORWARDED: _____

G/Board/Quarter.doc

AGENDA: 7

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Townsend and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: July 13, 2005

Re: Report of the Mobile Source Committee Meeting of July 14, 2005

RECOMMENDED ACTIONS

The Committee may recommend Board of Director approval of the following:

A) A 1-year contract extension for the Vehicle Buy Back Program Direct Mail campaign;

B) The Transportation Fund for Clean Air (TFCA) County Program Manager expenditure plans for fiscal year 2005/2006, as summarized in Tables 1 and 2 of the attached staff report; and

C) The Vehicle Incentive Program (VIP) for fiscal year 2005/2006, including: 1) allocation of $500,000 in TFCA funds for the fiscal year 2005/2006 VIP funding cycle; and 2) approval of the VIP guidelines.

DISCUSSION

The Mobile Source Committee will meet Thursday, July 14, 2005. Chairperson Scott Haggerty will give a summary of the meeting. The attached staff reports were presented to the Committee.

BUDGET CONSIDERATION/FINANCIAL IMPACTS

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Juan Orthellado
Reviewed by: Henry Hilken

AGENDA: 4

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-office Memorandum

To: Chairperson Haggerty and
Members of the Mobile Source Committee

From: Henry Hilken
Director of Planning and Research

Date: July 7, 2005

Re: Vehicle Buy Back Program Fiscal Year 2004/05 Annual Report

RECOMMENDED ACTION

Receive and file the fiscal year (FY) 2004/2005 annual report on the Vehicle Buy Back (VBB) Program

BACKGROUND

The Air District's Vehicle Buy Back Program began in June 1996 to provide a financial incentive to retire older, higher polluting vehicles. The VBB Program currently purchases and scraps model year 1985 and older vehicles that lack modern emission control systems and therefore produce more air pollution than newer cars. The VBB Program is completely voluntary and pays $650 to the vehicle owner if the vehicle qualifies for the program. The VBB Program adheres to the Voluntary Accelerated Light-Duty Vehicle Retirement (VAVR) regulation adopted by the California Air Resources Board. The VBB Program is funded by the Transportation Fund for Clean Air (TFCA).

Since its inception in June 1996 through June 30, 2005, the VBB Program has purchased and scrapped 24,845 eligible vehicles. The total is expected to exceed 27,350 vehicles with current funding through FY 2005/2006. Total emission reductions through FY 2004/2005 will amount to 3,849 tons: 2,394 tons of reactive organic gases, 1,203 tons of oxides of nitrogen and 252 tons of particulate matter. The VBB Program remains one of the most cost-effective TFCA-funded programs, with an estimated cost effectiveness of $8,600 (TFCA dollars) per ton of reduced emissions for FY 2004/2005. Several factors have helped to achieve and maintain an increased scrapping rate in FY 2004/2005, including the VBB Program direct mail campaign, the increase in model year to 1985 and older light-duty vehicles, and an increase in the amount paid per vehicle to $650. The VBB Program is functioning well and, with sustained funding, will continue to serve as an excellent program to reduce mobile source emissions in the Bay Area.

The purpose of this report is to provide a summary of the VBB Program for the FY 2004/2005 TFCA funding cycle.

FY 2004/2005 VEHICLE BUY BACK PROGRAM SUMMARY

Following is a summary of the status of major elements of the Vehicle Buy Back Program for the FY 2004/2005 TFCA funding cycle.

Vehicle Dismantler Scrapping Contracts: The Air District implements the VBB Program by contracting with vehicle dismantlers to screen, purchase, and destroy eligible vehicles. For FY 2004/2005, the Air District approved contracts totaling $3,500,000 with Pick Your Part, Pick-N-Pull, and Environmental Engineering Studies to purchase and scrap 3,932 eligible vehicles. Pick Your Part purchases vehicles at its six buy back sites in the cities of Hayward, Milpitas,

Redwood City, Richmond, San Francisco, and San Jose, while Environmental Engineering Studies purchases vehicles at eight sites in the cities of Hayward, Napa, Newark, Pittsburg, San Francisco, San Jose, Santa Rosa, and Richmond. Pick-N-Pull purchases vehicles at its six buy back sites in the cities of Fairfield, Newark, Oakland, Richmond, San Jose, and Windsor. At the current purchase rate, the remaining vehicles to be scrapped under the FY 2004/2005 contracts should be completed by September 2005. The Air District's FY 2005/2006 budget includes $7.2 million in TFCA funds to continue the VBB program implementation.

Direct Mail: The direct mail campaign has been in place since January 2000 and, based upon VBB Program surveys, it is the most successful method of informing potential participants about the program. The Air District's current direct mail contractor has delivered over 203,000 pieces of mail since August 2004 to eligible vehicle owners, informing them of the program.

Outreach to Department of Motor Vehicles (DMV) and Auto Dealers: Air District staff has sent outreach letters and VBB Program brochures to Bay Area Department of Motor Vehicles offices and auto dealers to inform them of the program. In response to the letters, some DMV offices and auto dealers have requested additional brochures and information about the program.

Vehicle dismantler site visits: Air District staff visited vehicle dismantling sites in the second quarter of 2004. Based on the site visits, staff found that the vehicle dismantlers were implementing the program in compliance with the outlined contracts. Air District staff will continue to visit vehicle dismantling sites throughout the Bay Area.

Vehicle Scrapping Rates: Scrapping rates have almost doubled since the Board approved changes to the VBB Program in October 2004, to approximately 600 vehicles per month. Those changes included an increase in the eligible vehicle model year to 1985 and older, and an increase in the amount paid per vehicle to $650 from $500.

CONCLUSION

The VBB Program is one of the most cost-effective TFCA-funded programs. The VBB Program's direct mail campaign continues to attract a high rate of voluntary participants. Air District staff believes that the near doubling of the monthly buy back rate since October 2004 is due to the expansion of the eligible model years to 1985 and older vehicles and the increase in the amount paid for each vehicle to $650. At this time staff does not recommend increasing the amount paid per vehicle.

BUDGET CONSIDERATION/FINANCIAL IMPACT

VBB Program costs are covered by TFCA funds, which are based on motor vehicle registration fee surcharges. Funding for the continuation of the VBB Program is included in the FY 2005/2006 budget under Program 612.

Respectfully submitted,

Henry Hilken
Director of Planning and Research

FORWARDED: _____
Prepared by: Vanessa Mongeon
Reviewed by: Juan Ortellado

AGENDA: 5

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-office Memorandum

To: Chairperson Haggerty and
Members of the Mobile Source Committee

From: Henry Hilken
Director of Planning and Research

Date: July 7, 2005

Re: Vehicle Buy Back Program Direct Mail Campaign Contract Extension

RECOMMENDED ACTION

Consider recommending Board of Director approval of a one-year contract extension for the Vehicle Buy Back (VBB) Program direct mail campaign.

BACKGROUND

In an effort to increase participation in the Air District's Vehicle Buy Back Program, a direct mail campaign was initiated in January 2000. Currently, the Air District has a direct mail contract with Ad Mail, awarded in May 2004, in the amount of up to $90,000. Included in the original contract approved by the Board of Directors, was the option to renew Ad Mail's contract for an additional year at the Air District's discretion.

DISCUSSION

Ad Mail is responsible for sorting approximately 400,000 Department of Motor Vehicles database mailing addresses and mailing, on a bi-monthly basis, the VBB Program information letter. The VBB Program letter is mailed to owners of model year 1985 and older light-duty vehicles that may qualify for the program. Approximately 20,000 to 30,000 letters are mailed each month. The direct mail campaign is a very effective means of notifying potential participants of the VBB Program.

The VBB Program's direct mail campaign, currently implemented by Ad Mail, Inc., is working well. Ad Mail, Inc.'s performance under the current contract has been very good. Ad Mail, Inc. consistently adheres to mailing deadlines and is very responsive to Air District staff requests. Staff recommends extending Ad Mail's contract for one additional year in an amount not to exceed $90,000 for the period of August 2005 through July 2006.

BUDGET CONSIDERATION/FINANCIAL IMPACT

The Vehicle Buy Back Program's direct mail campaign costs are funded by the Transportation Fund for Clean Air, which is based on motor vehicle registration fee surcharges. The funding

for this one year contract extension, in an amount not to exceed $90,000 is included in the FY 2005/2006 budget under Program 612.

Respectfully submitted,

Henry Hilken
Director of Planning and Research

FORWARDED: _____

Prepared by: Vanessa Mongeon
Reviewed by: Juan Ortellado

AGENDA: 6

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-Office Memorandum

To: Chairperson Haggerty and
Members of the Mobile Source Committee

From: Henry Hilken
Director of Planning and Research

Date: July 7, 2005

Re: Transportation Fund for Clean Air County Program Manager Expenditure Plans for Fiscal Year 2005/2006

RECOMMENDED ACTION

Recommend Board approval of staff recommendations on the fiscal year (FY) 2005/2006 Transportation Fund for Clean Air (TFCA) County Program Manager projects listed on the attached Table 1.

BACKGROUND

Pursuant to California Health and Safety Code Sections 44241 and 44242, the Air District Board of Directors has imposed a $4 per vehicle annual surcharge on all motor vehicles registered within the boundaries of the Air District[a]. The revenues fund the implementation of transportation control measures and mobile source control measures. By law, forty percent of the revenues generated by this surcharge is returned to the designated Program Manager in each county. Each Program Manager submits to the Air District for approval an annual expenditure plan of recommended projects for its forty percent share. Air District staff has reviewed the County Program Manager expenditure plans submitted for FY 2005/2006, as discussed below.

DISCUSSION

Project Evaluation

To determine eligibility, Air District staff evaluated the projects in the County Program Manager expenditure plans relative to:

1. *Consistency with State Law:* the projects shall be consistent with one of the eligible project categories listed in California Health and Safety Code (HSC) Section 44241.
2. *Consistency with the Clean Air Plan:* pursuant to HSC Sections 40233, 40717, and 40719 the projects shall be consistent with the appropriate transportation control measures or mobile source measures contained in the Clean Air Plan.

[a] Revenues from an additional $2 surcharge in motor vehicle registrations, authorized by Assembly Bill 923, are not part of TFCA. These revenues will be used to implement the Air District's Mobile Source Incentive Fund (MSIF), which will provide incentives for the implementation of additional mobile source projects.

3. *Reduction of Emissions from Motor Vehicles:* pursuant to HSC Section 44220(b), the projects shall reduce emissions from motor vehicles.
4. *Consistency with Board Adopted Policies:* the projects shall be consistent with Board policies adopted on February 16, 2005 for the FY 2005/2006 funding cycle.

TFCA Cost Effectiveness

Pursuant to policies adopted by the Board of Directors on February 16, 2005, individual projects included in the annual expenditure plans for County Program Manager funds must achieve a TFCA cost-effectiveness of less than $90,000 per ton. Projects excluded from the calculation of TFCA cost-effectiveness include TFCA County Program Manager administrative costs, alternative fuel infrastructure projects, and light-duty clean air vehicles with a gross vehicle weight of 10,000 pounds or less.

Project List

Summary information for all of the projects in the FY 2005/2006 County Program Manager expenditure plans is provided in Table 1, which is divided into nine sections, one section for each Bay Area county. Table 1 lists the project sponsor, the project description, years of effectiveness, the TFCA funds requested, the TFCA cost-effectiveness (TFCA dollars per ton of emissions reduced over the life of the project), and staff's recommended action for the Air District Board.

Originally, 64 projects were submitted for consideration. Two projects were withdrawn by mutual agreement, as discussed in the next section below. Staff recommends the approval of the remaining 62 projects. Additionally, the Alameda and Santa Clara County Program Managers proposed the swapping of $2,553,312 and $1,417,327, respectively, of their available TFCA funds with Congestion Mitigation and Air Quality (CMAQ) funds. The Metropolitan Transportation Commission (MTC), through its Clean Air in Motion program, committed CMAQ funds to augment the Air District's Vehicle Buy Back program. However, the Federal Highway Administration has indicated that vehicle buy back programs are not eligible for CMAQ funding. MTC worked with the Air District and the TFCA Program Managers to swap funding so that the Air District can use the Program Manager funds to augment the VBB program, and the Program Managers receive CMAQ funding from MTC to implement CMAQ-eligible projects locally. As required by Board-adopted policy, all projects recommended for funding, including the swapping of funds, comply with the $90,000 per ton threshold on an individual basis, as calculated by Air District staff.

Table 2 shows, for each county, the total amount of TFCA County Program Manager funds available and the amount recommended for programming. The total funds available for programming represents the sum of projected calendar year 2005 Department of Motor Vehicles (DMV) receipts, interest earned on TFCA funds in calendar year 2004, and funds available for reprogramming from prior year projects that were canceled or completed under budget.

Table 2 also provides a breakdown of County Program Manager funds by county and project type. Most of the Program Manager TFCA funds are requested for ridesharing programs (36.9%), bicycle projects (20%), shuttle services (17.1%), and arterial management projects

(10.1%). The remaining funds are requested for other eligible project categories. Program administration costs are less than the maximum of 5% of new FY 2005/06 revenues in each county, as required by the TFCA enabling legislation.

Withdrawn/Ineligible Projects

Two projects were withdrawn based on a mutual agreement between the Contra Costa County Program Manager and Air District staff because the projects were ineligible per current TFCA policies:

- City of Clayton - Speed Calming Project, and
- SWAT/City of San Ramon, Contra Costa County General Services Dept. - CNG Direct-Line Fast Fill Fueling Station.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None. Approval of the recommended projects will have no impact on the District's budget. TFCA revenues are generated from a dedicated outside funding source and passed through to counties. TFCA allocations do not impact the District's general fund or operating budget.

Respectfully submitted,

Henry Hilken
Director of Planning and Research

FORWARDED: _____

Prepared by: Juan Ortellado
Reviewed by: Henry Hilken

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
ALAMEDA COUNTY						
05ALA00	Alameda County CMA	Program Manager costs to administer TFCA funds within the County.		$33,840	NA	Approve
05ALA01	BART	Project to install sixteen (16) electronic bike lockers at BART stations in the cities of Berkeley, Dublin, and San Leandro in Alameda County. BART will be the project sponsor for the multi-jurisdictional project.	10	$50,000	$55,722	Approve
05ALA02	City of Berkeley	Project to install 150 new bicycle racks throughout the City of Berkeley.	10	$25,000	$24,326	Approve
05ALA03	City of Livermore	Class-1 bicycle path linking Arroyo Mocho bicycle path with the South Livermore Valley Wine Trail - 0.3 miles.	20	$86,803	$74,572	Approve
05ALA04	Alameda County Congestion Management Agency	Signal timing project along E14th St./International Boulevard in Oakland, along the segment between Dutton Avenue and Hegenberger Road.	4	$395,000	$74,458	Approve
05ALA05	City of Union City	Project to retrofit the CNG vehicle maintenance yard adjacent to the CNG fueling facility to comply with safety regulations.		$120,000	NA	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
CONTRA COSTA COUNTY						
05CC00	Contra Costa Transportation Authority	Program Manager costs to administer TFCA funds within the County.		67223	NA	Approve
05CC01	West Contra Costa Transportation Advisory Committee	Project to install forty-five (45) bike racks, with the capacity of 450 total bikes, at several employer/business and school sites.	10	$23,417	$9,471	Approve
05CC02	City of Lafayette	Provide funds to cover the incremental cost to lease 17 natural gas buses for school bus service in the Lamorinda area.	1	$50,000	$53,890	Approve
05CC03	ECCTA dbs Tri Delta Transit	Provide funds to cover the incremental cost to use CARB Level 2 verified PuriNOx fuel in place of standard low sulphur diesel fuel in 60 transit buses.	1	$53,798	$4,130	Approve
05CC04	City of San Ramon	Provide comprehensive trip reduction services to employers at worksites in southern Contra Costa County. Project will provide information, workshops, and surveys, and will promote carpools and vanpools.	1	$65,000	$13,476	Approve
05CC05	City of San Ramon	Provide ridematching services for K-8 students in San Ramon Valley and the Lafayette, Moraga and Orinda Unified school districts. Provide 20-ride transit passes to each student unable to find a carpool.	1	$36,450	$60,780	Approve
05CC06	City of San Ramon	Provide incentives to promote vanpool formation throughout the County. Incentives include: 50% of vanpool expenses for first three months, incentives for drivers who recruit at least 6 new riders for a year, and passenger emergency program for those not	1	$70,000	$18,706	Approve
05CC07	City of San Ramon	Provide partial funding to install on-site natural gas infrastructure to support public agency fleets throughout Contra Costa County.		$10,000	NA	Approve
05CC08	TRANSPAC/City of Pleasant Hill	Project to install forty-one (41) seven-loop bicycle racks at 10 school locations throughout the central/east Contra Costa County.	10	$25,000	$13,422	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
CONTRA COSTA COUNTY						
05CC09	TRANSPAC/City of Pleasant Hill	Provide financial incentives to encourage residents and employees in Contra Costa to use carpools. Includes three components: a commuter incentive program, a college commuter incentive program, and a Carpool to BART project.	1	$175,000	$36,150	Approve
05CC10	TRANSPAC/City of Pleasant Hill	Provide comprehensive trip reduction services to employers at worksites in central/eastern Contra Costa County. Project will provide information, workshops, and website updates; and will promote carpools and vanpools.	1	$120,000	$13,080	Approve
05CC11	TRANSPAC/City of Pleasant Hill	Provide ridematching services for K-12 students in western, central and eastern Contra Costa County. Provide 20 free bus tickets to each student unable to find a carpool.	1	$204,000	$80,264	Approve
05CC12	TRANSPAC/City of Pleasant Hill	Provide financial incentives to encourage residents and employees in Contra Costa to use transit (BART and the various local bus systems). Services include informational materials, marketing, free tickets, discount passes, and website updates.	1	$188,500	$24,008	Approve
05CC13	Contra Costa Transportation Authority	Construct 1.5 miles of a Class 1 bicycle lane to close a gap between Pennsylvania and Gertrude Avenues to create four miles of continuous Bay Trail along the Richmond Parkway, connecting the bike lane to various points of interest.	20	$47,000	$86,967	Approve
05CC14	Contra Costa Transportation Authority	Provide comprehensive trip reduction services to employers at worksites in western Contra Costa County. Project will provide information, workshops, and website updates, and will promote carpools and vanpools.	1	$89,000	$40,666	Approve
05CC15	Contra Costa Transportation Authority	Provide up to six (6) taxi or rental car vouchers per year to registered participants working in Contra Costa County who regularly use alternative commute modes.	1	$150,000	$29,131	Approve
05CC16	Contra Costa Transportation Authority	Provide financial incentives to increase transit ridership among West County residents and commuters in the I-80 corridor in Contra Costa County. Offer tickets, informational materials, and website updates.	1	$66,000	$76,102	Approve
05CC17	Contra Costa Transportation Authority	Construct 1.5 mile of a Class-1 bicycle lane which travels on the northwest side of San Pablo Avenue between Tara Hills Drive and the Richmond Parkway and provide striping and signage.	20	$20,000	$6,501	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
MARIN COUNTY						
05MAR00	Transportation Authority of Marin	Program Manager costs to administer TFCA funds within the County.		$18,108	NA	Approve
05MAR01	Bolinas Community Public Utilities District	Class-1 bicycle path - Olema-Bolinas and Mesa Roads - 0.9 miles.	20	$40,000	$88,657	Approve
05MAR02	Golden Gate Bridge, Highway & Trans. District	Bicycle racks on Golden Gate Transit buses - 54 racks.	10	$60,000	$62,026	Approve
05MAR03	Marin County Community Development Agency	New signalized pedestrian crosswalk and pathway across Shoreline Highway to provide safe access between the Manzanita Regional Transit Center and Shoreline trail system.	20	$200,000	$79,354	Approve
05MAR04	Marin County Transit District	Provide free bus rides for middle and high school students on Golden Gate Transit buses.	1	$98,800	$89,291	Approve
05MAR05	City of Novato	Class-1 bicycle path - South Novato Boulevard to Enfrente Drive - 0.6 miles.	20	$200,000	$89,621	Approve
05MAR06	County of Marin	Establish a video conference traning network to reduce the number of car trips and driving time spent by firefighters traveling to attend mandatory traning classes. Firestations include - Woodacre, Marin City, Hicks Valley in Petaluma, Throckmorton in M	5	$67,243	$59,857	Approve
05MAR07	Transportation Authority of Marin	Class-2 bicycle lane - Los Ranchitos Road between Lincoln Avenue to Ranch Road - 0.4 miles.	20	$160,000	$89,391	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
NAPA COUNTY						
05NAP00	Napa County Transportation Planning Agency	Program Manager costs to administer TFCA funds within the County.		$5,000	NA	Approve
05NAP01	County of Napa	Construct a Class-2 bicycle lane on Conn Creek Road, from State Route 128 to Skellenger Lane - 0.95 miles.	15	$165,000	$88,934	Approve
05NAP02	City of Napa	Construct a bicycle boulevard (Class 2 or Class 3) on Seminary Road, from Third Street to Hayes - 1.5 miles.	15	$12,000	$47,329	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
SAN FRANCISCO COUNTY						
05SF00	San Francisco County Transportation Authority	Program Manager costs to administer TFCA funds within the County.		$36,555	NA	Approve
05SF01	BART	Funding for operating and maintenance costs for the third year of operation of the attended Embarcadero Bikestation.	1	$37,000	$89,727	Approve
05SF02	County of San Francisco	Provide bicycles and related helmet/accessories for 30 gardeners in the Dept. of Parks & Recreation.	5	$19,000	$80,406	Approve
05SF03	County of San Francisco	Provide a free or low cost guaranteed ride home to employees at more than 3,000 participating companies located thoughout the County that regularly use an alternative commute mode.	1	$34,000	$89,900	Approve
05SF04	County of San Francisco	Provide a Citywide Commuter Benefits Incentives Program targeted at both San Francisco business and City and County of San Francisco departments.	1	$130,000	$88,961	Approve
05SF05	County of San Francisco	Purchase 20 ($4,000 ea.) natural gas and 10 (2,000 ea.) electric-hybrid vehicles. Vehicles will replace older gasoline-powered light-duty vehicles in the San Francisco City and County Fleet Management program.		$105,000	NA	Approve
05SF06	County of San Francisco	Purchase computer equipment for the City and County of San Francisco to facilitate the implemention of a telecommute pilot project for all city department employees.	5	$50,000	$37,372	Approve
05SF07	County of San Francisco	Class-2 bicycle lane striping - Southbound Bayshore Boulevard (Industrial Street to Silver Avenue) 0.4 miles.	15	$14,000	$14,801	Approve
05SF08	County of San Francisco	Class-2 bicycle lane - Conservatory Drive East (Arguello Boulevard to JFK Drive) 2.1 miles.	15	$11,000	$89,712	Approve
05SF09	County of San Francisco	Class-2 bicycle lane and path - San Jose Avenue (Diamond Street to Monterey Boulevard - Lane) (San Jose Ave. to Arlington Street - Path) 0.6 miles.	18	$26,000	$86,864	Approve
05SF10	County of San Francisco	Class-2 bicycle lane - Townsend Street (from 4th to 8th streets) 2.6 miles.	15	$135,000	$87,581	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
SAN FRANCISCO COUNTY						
05SF11	Presido Trust	Presidio Transit Center bicycle lockers - 6 lockers.	10	$35,000	$75,809	Approve
05SF12	University of California, San Francisco	Operation of one 22-passenger gasoline shuttle bus route from the UCSF Mission Bay in San Francisco to the 16th Street BART station.	1	$71,000	$76,096	Approve
05SF13	University of California, San Francisco	Construct two (2) enclosed and secured bicycle parking facilities for fifty (50) bicycles at two (2) parking garages on the UCSF Mission Bay Campus.	10	$54,000	$80,449	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
SAN MATEO COUNTY						
05SM00	San Mateo C/CAG	Program Manager costs to administer TFCA funds within the County.		$50,000	NA	Approve
05SM01	City of Menlo Park	Provide shuttle service between the Menlo Park Caltrain Station and major activity centers in the area.	1	$430,000	$79,254	Approve
05SM02	Peninsula Traffic Congestion Relief Alliance	Encourage use of commute alternatives for trips to employment sites through such programs as Emergency Ride Home, Commuter Benefits, Bike Rack and Locker Subsidy, Bicycle and Pedestrian Safety, Vanpool/Carpool Incentives and Try Transit programs.	1	$430,000	$47,487	Approve
05SM03	SamTrans	Provide shuttle service from BART stations to major employment sites in San Mateo County during peak commute periods.	1	$605,000	$35,927	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
SANTA CLARA COUNTY						
05SC00	Santa Clara Valley Transportation Authority	Program Manager costs to administer TFCA funds within the County.		$40,020	NA	Approve
05SC01	City of Sunnyvale	Construct traffic calming elements in the Blair Avenue Neighborhood.	20	$90,000	$33,829	Approve
05SC02	City of Sunnyvale	Provide adaptive traffic signal controls at six intersections along Sunnyvale-Saratoga Avenues.	4	$315,000	$71,681	Approve
05SC03	Santa Clara Valley Transportation Authority	Provide continued operation and expansion of light rail shuttle services from Santa Clara Valley Transportation Authority light rail stations to employment destinations.	1	$485,000	$58,709	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
SOLANO COUNTY						
05SOL00	Solano Transportation Authority	Program Manager costs to administer TFCA funds within the County.		$15,861	NA	Approve
05SOL01	STA's Solano Napa Commuter Information	Provide a comprehensive ridesharing program. Includes vanpool and carpool services, SolanoLinks Transit Information Program, organizational service enhancements, Guaranteed Ride Home Program, countywide bike commuter services, and web site information.	1	$195,000	$46,620	Approve
05SOL02	City of Benicia	Installation of new sidewalks, ADA ramps, curb extensions, and 0.85 mile of Class-2 bicycle lanes between two elementary schools.	20	$125,000	$80,184	Approve
05SOL03	City of Suisun City	Construct 1/2 mile of Class 1 multi-use bike path connecting central Suisun City residents to the Highway 12 Class-1 multi-use bicycle path and on to Downtown Suisun City.	20	$35,000	$42,096	Approve
05SOL04	City of Suisun City	Construct 1/2 mile of Class-1 pedestrian/bicycle path connection from Suisun Transit Center to Downtown Suisun.	30	$25,000	$20,046	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 1: TFCA County Program Manager
FY05/06 Project List

Project Number	Sponsor	Project Description	Yrs Eff	TFCA Funding Requested	TFCA$ Cost-Effectiveness Per Ton (1)	Action
SONOMA COUNTY						
05SON00	Sonoma County Transportation Authority	Program Manager costs to administer TFCA funds within the County.		$29,189	NA	Approve
05SON01	Sonoma County Transit	Construct Windsor Intermodal Facility/Park & Ride facility served by Sonoma County Transit local and intercity services.	20	$34,548	$3,723	Approve
05SON02	Sonoma County Transit	Construct Petaluma Transit Mall/Park & Ride facility served by Petaluma Transit, Sonoma County Transit, Golden Gate Transit and paratransit services.	20	$153,266	$19,657	Approve
05SON03	Sonoma County Transit	Construct Cotati Intermodal Facility/Park & Ride facility served by Sonoma County Transit local and intercity services.	20	$9,695	$1,617	Approve
05SON04	Sonoma County Transit	Support Sonoma County Transit marketing program, in part through radio and newspaper advertising, and promoting conversion of its entire transit fleet to compressed natural gas, marketed as "The Clean Air Alternative".	1	$71,000	$42,679	Approve
05SON05	City of Sebastopol	Construct 1.1 mile Class-1 and Class 3 bicycle route linking Joe Rodota Recreational Trail with Sebastopol Avenue/Morris Street intersection.	20	$55,451	$83,150	Approve
05SON06	City of Santa Rosa	Provide incentives for voluntary trip reduction program including funding incentives, outreach materials, commute alternative training, and bicycle equipment.	1	$140,000	$78,096	Approve
05SON07	City of Rohnert Park	Construct 1 mile Class-2 bicycle lane on Bodway Parkway connecting an industrial office complex with Sonoma State University.	15	$40,000	$70,816	Approve
05SON08	City of Santa Rosa	Fund a student monthly transit pass subsidy.	1	$80,031	$54,501	Approve

Notes:
(1) TFCA$ per ton = TFCA$ divided by the estimated lifetime emission reductions (ozone precursors and weighted particulate matter) for the project. NA = not applicable. Emission reductions are not attributed to administration and clean air vehicle fueling infrastructure.

Table 2: TFCA County Program Manager
FY2005/06 Projects by County and Project Type

	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano	Sonoma	Grand Total
Total Available TFCA Funds *	**$3,214,005**	**$1,734,401**	**$1,093,656**	**$317,936**	**$938,637**	**$1,214,489**	**$2,418,214**	**$409,773**	**$884,594**	**$12,225,705**
Program Administration	$33,840	$67,223	$18,108	$5,000	$36,555	$50,000	$40,020	$15,861	$29,189	$295,796
Trip Reduction/Ridesharing	$0	$1,163,950	$166,043	$0	$214,000	$430,000	$0	$195,000	$417,540	$2,586,533
Bicycle Projects	$161,803	$115,417	$460,000	$177,000	$331,000	$0	$0	$60,000	$95,451	$1,400,671
Arterial Management	$395,000	$0	$0	$0	$0	$0	$315,000	$0	$0	$710,000
Shuttle/Feeder Bus Service	$0	$0	$0	$0	$71,000	$645,000	$485,000	$0	$0	$1,201,000
Smarth Growth	$0	$0	$200,000	$0	$0	$0	$90,000	$125,000	$0	$415,000
Low Emission Light Duty Vehicles	$0	$0	$0	$0	$105,000	$0	$0	$0	$0	$105,000
Fuel Substitute	$0	$53,798	$0	$0	$0	$0	$0	$0	$0	$53,798
Natural Gas Infrastructure	$120,000	$10,000	$0	$0	$0	$0	$0	$0	$0	$130,000
Clean Fuel Buses	$0	$50,000	$0	$0	$0	$0	$0	$0	$0	$50,000
Rail-Bus Integration	$0	$0	$0	$0	$0	$0	$0	$0	$71,000	$71,000
Total Allocated Funds **	$710,643	$1,460,388	$844,151	$182,000	$757,555	$1,125,000	$930,020	$395,861	$613,180	**$7,018,798**

* The total funds available for programming represents the sum of projected calendar year 2005 DMV receipts, interest earned on TFCA funds in calendar year 2004, and funds available for reprogramming from prior year projects that were canceled or completed under budget.

** Total Allocated Funds do not include $2,503,362 from Alameda County and $1,417,327 from Santa Clara County allocated to the Vehicle Buy Back Program through a swapping of TFCA and CMAQ funds.

Table 2: TFCA County Program Manager
FY2005/06 Projects by County and Project Type

Percent
4.2%
36.9%
20.0%
10.1%
17.1%
5.9%
1.5%
0.8%
1.9%
0.7%
1.0%
100%

for

A and

AGENDA: 7

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-office Memorandum

To: Chairperson Haggerty and
Members of the Mobile Source Committee

From: Henry Hilken
Director of Planning and Research

Date: July 7, 2005

Re: Vehicle Incentive Program for Fiscal Year 2005/2006

RECOMMENDED ACTION

Consider recommending Board of Director approval of the Vehicle Incentive Program (VIP) for fiscal year (FY) 2005/2006, including:

- allocation of $500,000 in Transportation Fund for Clean Air (TFCA) funds for the FY 2005/2006 VIP funding cycle, and
- approval of the VIP guidelines in Attachments A and B.

BACKGROUND

The Vehicle Incentive Program was established by the Board in FY 1999/2000 to help public agencies acquire light-duty alternative fuel vehicles weighing 10,000 pounds or less. Each year since the program's inception, the Board has allocated funds from the Transportation Fund for Clean Air to the VIP to provide fixed incentive amounts for new, dedicated light-duty alternative fuel vehicles that:

- have a gross vehicle weight (GVW) of 10,000 pounds or less;
- are powered by natural gas, propane, hydrogen, battery electric, or hybrid electric;
- are certified to either the super ultra-low emission vehicle (SULEV), partial zero emission vehicle (PZEV), or zero emission vehicle (ZEV) emission standards by the California Air Resources Board (CARB)

The VIP is a key element of the District's efforts to encourage local agencies to incorporate low-emission, alternative fuel light-duty vehicles in their fleets. The program application process is streamlined and user-friendly. Applications are accepted and funded on a first-come, first-served basis.

Only public agencies are eligible to apply for VIP incentives. In addition to acquiring vehicles for their own fleets, public agencies may apply for incentives on behalf of certain third-party fleets, such as taxi and door-to-door shuttle operators, as permitted under Board-adopted TFCA Policy #5.

DISCUSSION

On May 9, 2005, staff issued a memorandum to interested parties requesting comments on the draft VIP policies and procedures, and on the funding level for the FY 2005/2006 VIP funding cycle. No changes were proposed by staff to the VIP guidelines for the next fiscal year. However, in an effort to promote the potential viability of hydrogen as a transportation fuel for public fleets, staff emphasized in the memorandum that the VIP guidelines include a provision for an incentive of $5,000 per vehicle for zero emission vehicles, and that this provision applies to fully functioning hydrogen fuel cell vehicles that are certified to the ZEV standard by CARB. The memorandum also stated that an incentive amount of $4,000 per vehicle would apply to hydrogen vehicles that are certified to the CARB SULEV and PZEV vehicle emission standards.

Two comments were submitted by the May 20, 2005 comment deadline by the San Francisco International Airport (SFO) and the City and County of San Francisco (City). SFO expressed concern that the level of recommended VIP funding ($500,000) may not be sufficient given the potential new interest in the program from airport taxi fleets. Staff believes the level of funds allocated to the program will be sufficient for FY 2005/2006.

The City requested Air District consideration of a special allocation in VIP funds ($85,000) to pursue a plug-in hybrid vehicle demonstration project. The project would consist of converting two model year 2005 Toyota Prius hybrid cars to plug-in hybrids to demonstrate improved mileage and extended vehicle range. Staff supports the City's efforts to demonstrate the merits of plug-in hybrid vehicle technology. However, under the established VIP guidelines this project is ineligible for VIP funds. Board policy limits the VIP to specific vehicle incentive amounts, and all vehicles funded must be CARB certified. The plug-in hybrid vehicles are currently not CARB certified and the funding amount requested by the City far exceeds the program incentive limits.

Staff recommends retaining the existing VIP structure and process. The recommended per-vehicle incentive amounts are the same as in FY2004/2005. The recommended VIP guidelines for FY 2005/2006 are provided in Attachment A.

Staff recommends the allocation of $500,000 in TFCA funds for the FY 2005/2006 VIP funding cycle. Staff believes that $500,000, which is the same amount allocated to the VIP for FY 2004/2005, will be sufficient to accommodate demand for VIP incentives in the FY 2005/2006 funding cycle.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None. VIP costs are covered through the Transportation Fund for Clean Air.

Respectfully submitted,

Henry Hilken
Director of Planning and Research

FORWARDED: _____

Prepared by: Andrea Gordon
Reviewed by: Juan Ortellado

Attachments

Attachment A
Vehicle Incentive Program Guidelines for Fiscal Year 2005/2006

Available Funds: $500,000 in Transportation Fund for Clean Air (TFCA) funds are available for the fiscal year (FY) 2005/2006 Vehicle Incentive Program (VIP).

Eligible Applicants:

- Public agencies located within the jurisdiction of the Bay Area Air Quality Management District (Air District) are eligible to apply for VIP incentives.
- State and federal agencies and utility fleets that are subject to federal EPACT (Energy Policy Act of 1992) alternative fuel vehicle requirements are not eligible for VIP incentives.
- A public agency may apply for VIP incentives on behalf of a non-public entity (i.e., a private or non-profit fleet), subject to the conditions defined in TFCA Policy # 5. Public agencies that apply on behalf of third-party fleets must agree to fulfill the oversight and monitoring responsibilities specified in Attachment B.

Maximum Request:

- Each eligible public agency may request up to $100,000 in VIP incentives.
- If VIP funds remain available as of March 1, 2006, then agencies that have applied for and received the maximum grant award (i.e., $100,000) may request VIP funds for additional vehicles, to a maximum of $150,000 total per agency.

Eligible vehicles:

A **new vehicle** is defined as a model year 2005 vehicle. A model year 2004 vehicle that has never been owned or sold previously and has less than 1,000 odometer miles will also be considered a new vehicle. New vehicles must meet the following eligibility criteria:

1) Vehicles must have a gross vehicle weight (GVW) of 10,000 pounds or less.
2) Vehicles must be powered by natural gas, propane, hydrogen, electricity, or hybrid electric. Except for hybrid electrics, vehicles with the ability to run on gasoline or diesel as their primary fuel are not eligible.
3) Vehicles must be certified by the California Air Resources Board (CARB) to the Super Ultra Low Emission Vehicle (SULEV), Partial Zero Emission Vehicle (PZEV), Advanced Technology-Partial Zero Emission Vehicle (AT-PZEV), or Zero Emission Vehicle (ZEV) emission standards.
4) Vehicles must be operated in the Bay Area for the duration of their useful life (or lease term), and at least 75% of the miles driven must be within the boundaries of the Air District.
5) The vehicle purchase or lease order must be issued July 1, 2005 or later.

A **used vehicle** is defined as any vehicle that is model year 2004 or older, as well as any model year 2005 vehicle with more than 1,000 odometer miles. Used vehicles must meet the criteria defined for new vehicles above, plus the following two requirements:

- The used vehicle must not have been previously funded by the Air District.

- The used vehicle must have been registered outside the boundaries of the Air District for at least the last 180 calendar days, prior to the date of purchase.

Incentive amounts: The incentive amounts for the FY 2005/2006 VIP funding cycle are as follows:

Vehicle Type / Emission Rating	New Vehicle	Used Vehicle: One-Year Old (60%)	Used Vehicle: 2-Years Old (40%)	Used Vehicle: 3-Years Old (20%)
Hybrid electric – SULEV or PZEV	$2,000	$1,200	$800	$400
Natural gas or propane – SULEV or PZEV	$4,000	$2,400	$1,600	$800
Full-function ZEV	$5,000	$3,000	$2,000	$1,000
City ZEV	$3,000	$1,800	$1,200	$600
Neighborhood ZEV	$1,000	$600	$400	$200

Notes:

- The SULEV incentive amounts also apply to light-duty vehicles that are certified to the PZEV or AT-PZEV standards.
- If the project sponsor elects to lease an eligible vehicle that is available for purchase, the VIP incentive amount will be prorated based on the length of the lease compared to the expected useful life of the vehicle.
- Incentives for Zero Emission Vehicles apply to battery electric vehicles or fuel cell vehicles that are certified to ZEV standard by CARB. In the case of ZEVs that are only available for lease, the VIP incentive amount is based on a three-year lease period. The incentive amount will be pro-rated for shorter lease terms.
- The Air District will not award VIP incentives for any vehicle that has received TFCA County Program Manager funds.

The VIP Process:

1. The Air District receives and reviews application; issues VIP voucher (if funds are available).
2. Applicant has 60 calendar days from date of VIP voucher in which to issue purchase or lease order for the vehicles. (If applicant fails to submit copy of the purchase order (PO) to the Air District within 60 calendar days, the Air District cancels the voucher.)
3. Upon receipt of purchase or lease order, the Air District issues confirmation letter, and provides 180 calendar days for applicant to take delivery of the vehicle(s). (The Air District may grant an extension to the 180-day delivery period, as warranted.)
4. Applicant submits VIP Payment Request Form after taking delivery of all of the vehicles covered by the VIP voucher.
5. The Air District issues payment.

Attachment B

Responsibilities of Public Agencies Applying for VIP Incentives on Behalf of a Non-Public Entity

The Air District has defined in Transportation Fund for Clean Air Policy #5 the conditions whereby a public agency may apply for clean vehicle incentives on behalf of a non-public entity.

To apply for VIP incentives on behalf of a non-public entity, the public agency must agree to assume the following responsibilities:

- To develop a policy to ensure that all eligible fleets are provided equitable access to the funds, prior to submitting a VIP application.
- To transfer the incentive funds to the non-public entity and to provide documentation of said process to the Air District.
- To monitor the use of the VIP-funded vehicles, ensure that the non-public entity operates the vehicle(s) in accordance with the VIP guidelines, and ensure that the vehicle(s) is (are) garaged and operated within the boundaries of the Air District for the duration of the useful vehicle life.
- To notify the Air District within 10 calendar days if the non-public entity violates VIP guidelines or fails to operate the vehicle(s) according to the terms of the incentive.
- To maintain information as to the operational status of each vehicle, and to provide operational data and status for each vehicle to the Air District within 60 calendar days of a request from the Air District for this information.
- To provide written notification to the Air District of any change in vehicle ownership or operational status within 30 calendar days of its occurrence.
- To refund the VIP incentives to the Air District, on a prorated basis, if any vehicle funded by this program is removed from service, wrecked, scrapped, or sold before it achieves at least five full years of service or 150,000 miles in the third-party fleet.

AGENDA: 8

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Townsend and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: July 14, 2005

Re: Report of the Public Outreach Committee Meeting of July 18, 2005

RECOMMENDED ACTION

The Committee may recommend that the Board of Directors: 1) Approve Allison and Partners as contractor to assist the Air District's Employer Spare the Air program; and 2) Authorize the Executive Officer/APCO to execute a contract with Allison and Partners for a seven month period to begin July 27, 2005 and end February 28, 2006, in the amount of $98,600 with the possibility of extending the contract for an additional one-year period.

BACKGROUND

The Public Outreach Committee will meet on Monday, July 18, 2005. The Committee will review the attached reports.

Chairperson, Shelia Young will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT

Funding for the Employer Spare the Air Program is provided by a federal congestion Mitigation Air Quality (CMAQ) grant and has been included in the 2005/2006 budget. The contract would be for a seven month period in the amount of $98,600.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Mary Ann Goodley

AGENDA: 4

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-office Memorandum

To: Chairperson Young and
Members of the Public Outreach Committee

From: Teresa Galvin Lee
Director of Public Information and Outreach

Date: July 6, 2005

Re: Spare the Air Update - 2005

RECOMMENDED ACTION

Informational only.

BACKGROUND

Staff will update the committee on the Spare the Air season including the status of air quality excesses, media, advertising and Resource Team activities.

DISCUSSION

The Spare the Air season began on June 1, 2005 and will continue through October 14, 2005. Staff will update the committee on:

- Meteorological conditions in the Bay Area to date
- Excesses of federal and state air quality standards
- Media and Advertising activities and
- The "Great Race for Clean Air" sponsored by the Tri-Valley Resource Team.

BUDGET CONSIDERATIONS/FINANCIAL IMPACT

Funding for the 2005 Spare the Air program and resource team activities has been allocated in the 2005-06 budget.

Respectfully submitted,

Teresa Galvin Lee
Director of Public Information and Outreach

FORWARDED: _____

Reviewed by: Jean Roggenkamp

AGENDA: 5

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-Office Memorandum

To: Chairperson Young and
Members of the Public Outreach Committee

From: Teresa Galvin Lee
Director of Public Information & Outreach

Date: July 1, 2005

Re: Spare the Air Employer Program

RECOMMENDED ACTION

1) Recommend Board approval of Allison and Partners as the contractor to assist with the Air District's Employer program.

2) Recommend that the Board authorize the Executive Officer/APCO to execute a contract with Allison and Partners for a seven month period, from July 27, 2005 to February 28, 2006 in the amount of $98,600 with the possibility of extending the contract for an additional one-year period.

BACKGROUND

The Air District has several contractors that assist with various aspects of the Spare the Air program. The contract for the Spare the Air Employer program was recently rebid because the previous contractor, RIDES for Bay Area Commuters, ceased operations on June 30, 2005.

DISCUSSION

Because the previous contractor was no longer available, a "Request for Proposals" to solicit a new contractor was issued on May 12th, 2005. The announcement was sent out through mailings, posted on prominent websites, sent to prior RFP lists, and published in the *San Francisco Chronicle.*

A bidders' conference was held on May 20th at Air District headquarters. Five proposals were received by the deadline of May 31st. The proposals were reviewed and evaluated according to published criteria that included:

1) Innovation and creativity of the proposal
2) Demonstrated expertise as evidenced by examples of past work
3) Expertise and qualifications of the assigned project team
4) Thoroughness in responding to the RFP
5) Cost effectiveness

Based on the written proposals, three finalists were invited to make oral presentations to Air District staff on June 17th 2005 including:

- Allison and Partners
- Communications West and
- the Majic Consulting Group

The presentations were evaluated based on the following criteria:

1) Understanding the goals and scope of the program
2) Presenting innovative/new methods for growing the program and accomplishing all goals,
3) Experience or ability to perform the tasks and
4) Presenting an efficient use of the budget

The candidates were scored with the following results:

- Allison and Partners 94.3
- Majic Consulting Group and 94.3
- Communications West 84

After reviewing the written proposals and listening to the oral presentations, staff is recommending that Allison and Partners be awarded the contract. Allison and Partners is located in the Bay Area and is currently the District's contractor for media relations. Staff has been pleased with Allison and Partners' performance and believes that given the existing relationship, restarting the employer component of the Spare the Air program will be more readily accomplished.

For the Employer Program, Allison and Partners strategies include:

- Maintaining the basic core of the Employer Program, including soliciting new employers to grow the program, managing the database, attending on-site events and providing one-on-one assistance to employers,
- Working with their existing clients to leverage resources to reward AirAlert registrants,
- Enhancing the employer web site
- Using the media to build awareness of the employer program and
- Incorporating economic messages as a reason to join the Spare the Air program.

Allison and Partners offered an innovative program with new, creative ideas. In addition, they can leverage their existing clients to make the employer program more effective.

BUDGET CONSIDERATIONS/FINANCIAL IMPACT

Funding for the Employer Spare the Air Program is provided by a federal Congestion Mitigation Air Quality (CMAQ) grant and has been included in the 2005-06 budget. The contract would be for a seven month period in the amount of $98,600.

Respectfully submitted,

Teresa Galvin Lee
Director of Public Information & Outreach

FORWARDED: _____

Reviewed by: Jean Roggenkamp

AGENDA: 6

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Inter-office Memorandum

To: Chairperson Young and
Members of the Public Outreach Committee

From: Teresa Galvin Lee
Director of Public Information and Outreach

Date: July 8, 2005

Re: Walk to School Day – October 5, 2005

RECOMMENDED ACTION

Informational and input.

BACKGROUND

Staff will review the Air District's involvement in Walk to School Day scheduled for October 5, 2005.

DISCUSSION

National Walk to School day is promoted by the Partnership for a Walkable America, which is a national coalition working to improve the conditions for walking in America and to increase the number of Americans who walk regularly. Walk to School day this year is October 5th, and is part of the larger International Walk to School Week - October 3 to 7, 2005. Walk to School day is supported by organizations concerned about:

- Improving air quality and the environment by replacing car trips to school with walking or bicycling,
- Enhancing the health of children by increasing physical activity, and
- Creating safer routes for walking and bicycling with education programs, traffic calming measures and awareness.

The Air District has supported Walk to School Day primarily through the Resource Teams. Last year, the Marin/Sonoma Resource Team participated in Walk to School day at McDowell Elementary School in Petaluma. The event was very successful and received local media coverage. The Air District supported the event with planning and staffing resources. In addition, the team funded a Walk to School banner which the children carried. The principal at McDowell Elementary School remains committed to the program and is interested in collaborating on an event again this year.

In addition, the Santa Clara Resource Team has completed transportation evaluations at four schools in Milpitas and Sunnyvale (two middle schools, one elementary and one high school). Walk to School Day provides a good opportunity to follow-up with these schools.

Finally, the Sonoma County Resource Team is planning to hold a workshop in October in Santa Rosa for parents, teachers and school administrators on how to reduce traffic around school sites. Walk to School program activities and guidance can be incorporated into the workshop.

In addition to resource team activities, the Air District can support Walk to School day this year by:

- Issuing a press release emphasizing the connection between air quality and walking or biking to school,
- Supporting additional local events where resources are available,
- Supplying Air District youth materials - such as bookmarks and pencils with air quality messages - to participating schools, and
- Linking the Air District's web site to the Walk to School site at www.walktoschool.org.

BUDGET CONSIDERATIONS/FINANCIAL IMPACT

Funding for these activities has been allocated in the 2005-06 budget.

Respectfully submitted,

Teresa Galvin Lee
Director of Public Information and Outreach

FORWARDED: _____

Reviewed by: Jean Roggenkamp

AGENDA: 9

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Townsend and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: July 13, 2005

Re: Public Hearing to Consider Adoption of Proposed Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Petroleum Refineries; Proposed Amendment to Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations; and Certification of a CEQA Final Environmental Impact Report

---

RECOMMENDED ACTION:

Staff recommends that the Board of Directors take the following actions:

- Adopt a proposed new rule, Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Petroleum Refineries;
- Adopt a proposed amendment to Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations; and
- Certify the California Environmental Quality Act Final Environmental Impact Report.

BACKGROUND

District staff has been working for a number of years to evaluate, characterize, and reduce emissions from flares at petroleum refineries. This work was initiated as part of the San Francisco Bay Area 2001 Ozone Attainment Plan for the 1-Hour National Ozone Standard. A draft Technical Assessment Document (TAD) for flares was released in December 2002. The TAD presented information on refinery flares and emission estimates, and was the foundation for the flare monitoring rule, which was adopted by the District Board of Directors on June 4, 2003. During this process, estimates of emissions from flares have been refined and real reductions have been realized by refineries. The proposed rule is the culmination of those efforts; it will maintain emission reductions that have been achieved and will further reduce emissions from flares.

The proposed rule was developed with significant public input. The District hosted four informational meetings, formed a technical working group that met on ten occasions, held two public workshops, and presented four status reports to the District's Stationary Source Committee. In addition, staff met numerous times with interested parties. This process proved to be successful and helped the District formulate a rule that will reduce flaring emissions while providing refineries with flexibility to address their unique flare systems without compromising the safety of workers, the public, or the refineries.

DISCUSSION

The proposed Regulation 12, Rule 12 will reduce emissions from flares at petroleum refineries by minimizing the frequency and magnitude of flaring. The proposal includes a standard that prohibits the use of a refinery flare unless the use is consistent with an approved flare minimization plan ("FMP" or "Plan"). The rule is structured to capture reductions realized by the refineries, and to require refiners to identify and implement feasible prevention measures to further minimize flaring. In addition to the requirement to develop and implement plans, the rule will:

- require annual updates to the FMPs;
- require timely notification to the District when flaring occurs;
- require refineries to conduct a causal analysis when flaring occurs; and
- require monitoring and recording of the pressure and water levels in the flare water seals.

The flare minimization plans will be developed in active consultation with District staff and will be made available to the public for review and comment. A plan will only be approved if the APCO determines that all feasible flaring prevention measures have been identified, considered, incorporated and scheduled for expeditious implementation. Flaring will only be allowed in accordance with an approved FMP or for emergencies where necessary to prevent accident, hazard or release of flare vent gas into the atmosphere, based on a causal analysis. Staff believes that the proposed Regulation 12, Rule 12 will result in a continuous improvement process in refineries to reduce flaring.

ISSUES

A draft rule was presented at two public workshops, one in Martinez on March 16, 2005 and one in Richmond on March 24, 2005. Both meetings were held in the evening and together were attended by a total of over 200 people. The core issues raised at the workshops concerned a perceived lack of clearly defined standards, a desire to have the rule provide an opportunity for public comment on the flare minimization plans, and concerns about the effect of the proposed rule on the safe operation of the refineries. Staff considered these comments and made numerous changes to the workshop draft. The "final draft" of proposed Regulation 12, Rule 12 was published on June 13, 2005. Additional issues have been raised since then. Most of these issues have been resolved satisfactorily by discussion with the interested parties or by minor, non-substantive changes to the rule. Remaining issues and responses are summarized below:

Trigger for Causal Analysis: Communities for a Better Environment (CBE) and the Plumbers and Steamfitters Union Local 342, represented by the law firm of Adams Broadwell Joseph & Cardozo (Adams Broadwell), contend that the rule should require a causal analysis if a flaring event exceeds 100,000 standard cubic feet (scf) of gas flared, rather than 500,000 scf. Section 12-12-407 in the proposed rule specifically addresses flared volumes of vent gas below 500,000 scf and requires an annual summary of these events including the reason for flaring and any prevention measures considered or implemented. Annual updates to the FMPs must include feasible prevention measures for these volumes of gases vented to the flare. Staff believes that the 500,000 scf trigger level for a causal analysis ensures that causal analyses will be required for the vast majority of emissions from flaring and that the number of formal causal analyses that will result is manageable.

Sulfur Standard: CBE and Adams Broadwell contend that the rule should contain a standard limiting the sulfur content of flared gas to 160 ppm to control sulfur dioxide (SO_2) emissions. The 160 ppm limit is derived from the federal New Source Performance Standard (NSPS) for Petroleum Refinery Flares that affects flares installed after 1972. However, the NSPS does not prevent or reduce flaring, it *allows* flaring if the 160 ppm standard is met; furthermore, the 160 ppm standard does not apply during startups, shutdowns, emergencies, malfunctions or to control valve leakage. This is contrary to the approach of the proposed rule, which seeks to limit emissions by *reducing* flaring. Also, prohibiting flaring in all circumstances if the 160 ppm standard is not met may not be technically feasible for all types of crude oil processed. The proposed rule requires an evaluation of scrubbing (hydrogen sulfide removal) capacity to address gas quality issues.

Public Hearings on FMPs: CBE and Adams Broadwell have requested that the rule contain a provision requiring the District to conduct a public hearing before the Hearing Board prior to final action on a flare minimization plan by the APCO. Refiners, on the other hand, had requested that FMPs be approved before the public review period. CBE, Adams Broadwell and many members of the community commented during workshops that they wanted an opportunity to comment on the plans. Staff believes that an opportunity for public comment on the plans is appropriate and that public participation is meaningful only when it precedes any approval so that comments can be appropriately evaluated by staff. The proposed rule has both a 60 day comment period for FMPs and a 30 day comment period for annual FMP updates. The FMPs are expected to be detailed and technical and staff expects to expend a considerable amount of resources evaluating them. Staff will enforce the standards in the rule that require the FMPs contain all feasible measures to prevent flaring and a schedule to expeditiously implement them. A public hearing would require additional resources, would duplicate the lengthy public comment period already provided, and would delay the implementation of the FMPs. Staff does not believe public hearings would provide added public benefit.

Delay in Permitting: The Western States Petroleum Association (WSPA) expressed concern over the possibility of a delay in the permitting process for modifications that require a FMP update. WSPA suggests that permits not be contingent on approval of an update. The proposed rule requires a refinery to obtain an approved plan update prior to installing or modifying equipment that requires permitting. Staff anticipates the FMP update review will be concurrent with the review of the permit application and is likely to include the same staff. The intent of this provision is to have refiners consider the impact of these new projects on flaring and to minimize that impact when constructing new equipment. The District does not anticipate a delay in permitting due to these types of updates.

CHANGES TO THE RULE SINCE PUBLICATION

Staff has met with WSPA, refinery representatives, CBE, and Adams Broadwell since the proposed rule was published on June 13, 2005. Staff is proposing several minor modifications to clarify the intent of the rule and has deleted the definition of “malfunction” because the term is not used in the rule. The changes are shown in strikethrough – underline format in the attached rule. These constitute minor, non-substantive changes and do not require that the public hearing be continued in order to adopt the proposed rule.

BUDGET CONSIDERATION/FINANCIAL IMPACTS

There will be an increase in costs associated with staff time to evaluate, approve, and enforce flare minimization plans. Details of costs are iterated in the staff report under "District Staff Impacts." On June 15, the Board adopted amendments to Regulation 3: Fees. The amendments include an increase in fees for refinery flares that will help to offset the costs of the projected increased staff time.

Respectfully submitted,

Jack P. Broadbent
Executive Officer / Air Pollution Control Officer

Prepared by: Alex Ezersky
Approved by: Henry Hilken

Attachments:

Proposed Regulation 12, Rule 12: Flares at Petroleum Refineries
Proposed Amendment to Regulation 8, Rule 2: Miscellaneous Operations
Staff Report
Appendices:
1) Socioeconomic Analysis
2) CEQA Final Environmental Impact Report
3) Comments and Responses
4) Flare Minimization Plan Timeline

REGULATION 12
MISCELLANEOUS STANDARDS OF PERFORMANCE
RULE 12
FLARES AT PETROLEUM REFINERIES

INDEX

REGULATION 12
MISCELLANEOUS STANDARDS OF PERFORMANCE
RULE 12
FLARES AT PETROLEUM REFINERIES

12-12-100 GENERAL

12-12-101 Description: The purpose of this rule is to reduce emissions from flares at petroleum refineries by minimizing the frequency and magnitude of flaring. Nothing in this rule should be construed to compromise refinery operations and practices with regard to safety.

12-12-110 Exemption, Organic Liquid Storage and Distribution: The provisions of this rule shall not apply to flares or thermal oxidizers used to control emissions exclusively from organic liquid storage vessels subject to Regulation 8, Rule 5 or exclusively from loading racks subject to Regulation 8 Rules 6, 33, or 39.

12-12-111 Exemption, Marine Vessel Loading Terminals: The provisions of this rule shall not apply to flares or thermal oxidizers used to control emissions exclusively from marine vessel loading terminals subject to Regulation 8, Rule 44.

12-12-112 Exemption, Wastewater Treatment Systems: The provisions of this rule shall not apply to thermal oxidizers used to control emissions exclusively from wastewater treatment systems subject to Regulation 8, Rule 8.

12-12-113 Exemption, Pumps: The provisions of this rule shall not apply to thermal oxidizers used to control emissions exclusively from pump seals subject to Regulation 8, Rule 18. This exemption does not apply when emissions from a pump are routed to a flare header.

12-12-200 DEFINITIONS: For the purposes of this rule, the following definitions apply:

12-12-201 Emergency: A condition at a petroleum refinery beyond the reasonable control of the owner or operator requiring immediate corrective action to restore normal and safe operation that is caused by a sudden, infrequent and ~~non-~~not reasonably preventable equipment failure, natural disaster, act of war or terrorism or external power curtailment, excluding power curtailment due to an interruptible power service agreement from a utility.

12-12-202 Feasible: Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

12-12-203 Flare: ~~For purposes of this rule, a~~ A combustion device that uses an open flame to burn combustible gases with combustion air provided by uncontrolled ambient air around the flame. This term includes both ground-level and elevated flares. When used as a verb, the term "flare" means the combustion of vent gas in a flare.

12-12-204 Flare Minimization Plan (FMP): A document intended to meet the requirements of Section 12-12-401.

12-12-205 Gas: The state of matter that has neither independent shape nor volume, but tends to expand indefinitely. ~~For the purposes of this rule,~~ "~~g~~Gas" includes aerosols and the terms "gas" and "gases" are interchangeable.

~~**12-12-206 Malfunction:** Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused by poor maintenance or careless operation are not malfunctions.~~

12-12-206 Petroleum Refinery: A facility that processes petroleum, as defined in the North American Industrial Classification Standard No. 32411 and including any associated sulfur recovery plant.

12-12-207 Prevention Measure: A component, system, procedure or program that will minimize or eliminate flaring.

12-12-208 Reportable Flaring Event: Any flaring where more than 500,000 standard cubic feet per calendar day of vent gas is flared. A reportable flaring event ends when it can be demonstrated by monitoring required in Section 12-12-501 that the integrity of the water seal has been maintained sufficiently to prevent vent gas to the flare tip. ~~Until August 1, 2006, f~~For flares without water seals or water seal monitors as required by Section 12-12-501, a reportable flaring event ends when the rate of flow of vent gas falls below 0.5 feet per second.

12-12-209 Responsible Manager: An employee of the facility or corporation who possesses sufficient authority to take the actions required for compliance with this rule.

12-12-210 Shutdown: The intentional cessation of a petroleum refining process unit or a unit operation within a petroleum refining process unit due to lack of feedstock or the need to conduct periodic maintenance, replacement of equipment, ~~or~~ repair or other operational requirements. ~~For purposes of this rule, a~~ A process unit includes subsets and components of the unit operation. Subsets and components includes but are not limited to reactors, heaters, vessels, columns, towers, pumps, compressors, exchangers, accumulators, valves, flanges, sample stations, pipelines or sections of pipelines.

12-12-211 Startup: The setting into operation of a petroleum refining process unit for purposes of production. ~~For purposes of this rule, a~~ A process unit includes subsets and components of the unit operation. Subsets and components includes but are not limited to reactors, heaters, vessels, columns, towers, pumps, compressors, exchangers, accumulators, valves, flanges, sample stations, pipelines or sections of pipelines.

12-12-212 Thermal Oxidizer: An enclosed or partially enclosed combustion device, other than a flare, that is used to oxidize combustible gases.

12-12-213 Vent Gas: Any gas directed to a flare excluding assisting air or steam, flare pilot gas, and any continuous purge gases.

12-12-300 STANDARDS

12-12-301 Flare Minimization: Effective November 1, 2006, flaring is prohibited unless it is consistent with an approved FMP and all commitments due under that plan have been met. This standard shall not apply if the APCO determines, based on an analysis conducted in accordance with Section 12-12-406, that the flaring is caused by an emergency and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere.

12-12-400 ADMINISTRATIVE REQUIREMENTS

12-12-401 Flare Minimization Plan Requirements: The owner or operator of a petroleum refinery with one or more flares subject to this rule shall submit to the APCO a FMP in accordance with the schedule in Section 12-12-402. The FMP shall be certified and signed by a Responsible Manager and shall include, but not be limited to:

401.1 Technical Data: A description and technical information for each flare that is capable of receiving gases and the upstream equipment and processes that send gas to the flare including:

1.1 A detailed process flow diagram accurately depicting all pipelines, process units, flare gas recovery systems, water seals, surge drums and knock-out pots, compressors and other equipment that vent to each flare. At a minimum, this shall include full and accurate as-built dimensions and design capacities of the flare gas recovery systems, compressors, water seals, surge drums and knockout pots.

1.2 Full and accurate descriptions including locations of all associated monitoring and control equipment.

401.2 Reductions Previously Realized: A description of the equipment, processes and procedures installed or implemented within the last five years to reduce flaring. The description shall specify the year of installation.

401.3 Planned Reductions: A description of any equipment, processes or procedures the owner or operator plans to install or implement to eliminate or reduce flaring. The description shall specify the scheduled year of installation or implementation.

401.4 Prevention Measures: A description and evaluation of prevention measures, including a schedule for the expeditious implementation of all feasible prevention measures, to address the following:

4.1 Flaring that has occurred or may reasonably be expected to occur during planned major maintenance activities, including startup and shutdown. The evaluation shall include a review of flaring that has occurred during these activities in the past five years, and shall consider the feasibility of performing these activities without flaring.

4.2 Flaring that may reasonably be expected to occur due to issues of gas quantity and quality. The evaluation shall include an audit of the vent gas recovery capacity of each flare system, the storage capacity available for excess vent gases, and the scrubbing capacity available for vent gases including any limitations associated with scrubbing vent gases for use as a fuel; and shall consider the feasibility of reducing flaring through the recovery, treatment and use of the gas or other means.

4.3 Flaring caused by the recurrent failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. The evaluation shall consider the adequacy of existing maintenance schedules and protocols for such equipment. For purposes of this Section, a failure is recurrent if it occurs more than twice during any five year period as a result of the same cause as identified in accordance with Section 12-12-406.

401.5 Any other information requested by the APCO as necessary to enable determination of compliance with applicable provisions of this rule.

Failure to implement and maintain any equipment, processes, procedures or prevention measures in the FMP is a violation of this section.

12-12-402 Submission of Flare Minimization Plans: On or before August 1, 2006, ~~T~~the owner or operator of a petroleum refinery with one or more flares subject to this rule shall submit a FMP as required by Section 12-12-401. ~~in accordance with the following schedule:~~

~~**402.1** On or before November 1, 2005 and every three months thereafter until a complete FMP is submitted, the owner or operator shall provide a status report detailing progress towards fulfilling the requirements of Section 12-12-401.~~

~~**402.2** Upon the submission of each status report, the APCO may require a consultation regarding the development of the plan to ensure that the plan meets the requirements of Section 12-12-401.~~

12-12-403 Review and Approval of Flare Minimization Plans: The procedure for determining whether the FMP meets the applicable requirements of this regulation is as follows:

403.1 Completeness Determination: Within 45 days of receipt of the FMP, the APCO will deem the plan complete if he determines that it includes the information ~~as~~ required by Section 12-12-401. If the APCO determines that the proposed FMP is not complete, the APCO will notify the owner or operator in writing. The notification will specify the basis for this determination and the required corrective action.

403.2 Corrective Action: Upon receipt of such notification, the owner or operator shall correct the identified deficiencies and resubmit the proposed FMP within 45 days. If the APCO determines that the owner or operator failed to

correct any deficiency identified in the notification, the APCO will disapprove the FMP.

403.3 **Public Comment:** The complete FMP (with exception of confidential information) will be made available to the public for 60 days. The APCO will consider any written comments received during this period prior to approving or disapproving the FMP.

403.4 **Final Action:** Within 45 days of the close of the public comment period, the APCO will approve the FMP if he determines that the plan meets the requirements of Section 12-12-401, and shall provide written notification to the owner or operator. This period may be extended if necessary to comply with state law. If the APCO determines that the FMP does not meet the requirements of Section 12-12-401, the APCO will notify the owner or operator in writing. The notification will specify the basis for this determination. Upon receipt of such notification, the owner or operator shall correct the identified deficiencies and resubmit the FMP within 45 days. If the APCO determines that the owner or operator failed to correct any deficiency identified in the notification, the APCO will disapprove the FMP.

If the owner or operator submitted a complete FMP in accordance with Section 12-12-402, and the APCO has not disapproved the FMP under this section, the FMP shall be considered an approved FMP for the purposes of Section 12-12-301 until the APCO takes final action under Section 12-12-403.4.

12-12-404 **Update of Flare Minimization Plans:** The FMP shall be updated as follows:

404.1 No more than 12 months following approval of the original FMP and annually thereafter, the owner or operator of a flare subject to this rule shall review the FMP and revise the plan to incorporate any new prevention measures identified as a result of the analyses prescribed in Sections 12-12-401.**4**, 12-12-406, and 12-12-407. The updates must be approved and signed by a Responsible Manager.

404.2 Prior to installing or modifying any equipment described in Section 12-12-401.1.1 that requires a District permit to operate, the owner or operator shall obtain an approved updated FMP addressing the new or modified equipment.

404.3 Annual FMP updates (with exception of confidential information) shall be made available to the public for 30 days. The APCO shall consider any written comments received during this period prior to approving or disapproving the update.

404.4 Within 45 days of the close of the public comment period, the APCO shall approve the FMP update if he determines that the update meets the requirements of Section 12-12-401, and shall provide written notification to the owner or operator. The previously approved FMP together with the approved update constitutes the approved plan for purposes of Section 12-12-301. This period may be extended if necessary to comply with state law. If the APCO determines that the FMP update does not meet the requirements of Section 12-12-401, the APCO will notify the owner or operator in writing. The notification will specify the basis for this determination and the required corrective action. Upon receipt of such notification, the owner or operator shall correct the identified deficiencies and resubmit the FMP update within 30 days. If the APCO determines that the owner or operator failed to correct the deficiencies identified in the notification, the APCO will disapprove the FMP update. For purposes of Section 12-12-301, disapproval of the update constitutes disapproval of the existing FMP, unless otherwise specified by the APCO.

404.5 If the owner or operator fails to submit a plan update as required by this Section, the APCO shall provide written notification of the lapse. If the owner or operator fails to submit an update within 30 days of receipt of the

notification, the existing FMP shall no longer be considered an approved plan for purposes of Section 12-12-301.

12-12-405 Notification of Flaring: Effective August 20, 2005, t~~T~~he owner or operator of a flare subject to this rule shall notify the APCO as soon as possible, consistent with safe operation of the refinery, if the volume of vent gas flared exceeds 500,000 standard cubic feet per calendar day. The notification, either by phone, fax or electronically, shall be in a format specified by the APCO and include the flare source name and number, the start date and time, and the end date and time.

12-12-406 Determination and Reporting of Cause: The owner or operator of a flare subject to this rule shall submit a report to the APCO within 60 days following the end of the month in which a reportable flaring event occurs. The report shall include, but is not limited to, the following:

406.1 The results of an investigation to determine the primary cause and contributing factors for the flaring event.

406.2 Any prevention measures that were considered or implemented to prevent recurrence together with a justification for rejecting any measures that were considered but not implemented.

406.3 If appropriate, an explanation of why the flaring is consistent with an approved FMP.

406.4 Where applicable, an explanation of why the flaring was an emergency and necessary to prevent an accident, hazard or release of vent gas to the atmosphere or where, due to a regulatory mandate to vent to a flare, it cannot be recovered, treated and used as fuel gas at the refinery.

12-12-407 Annual Reports: Effective twelve months after approval of the original FMP and annually thereafter, the owner or operator of a flare subject to this rule shall submit a report to the APCO that summarizes the use of a flare at rates less than 500,000 standard cubic feet per day where sulfur dioxide (SO_2) emissions are greater than 500 lbs per day. The summary shall include, but not be limited to, the date and duration, the reason for flaring and any prevention measures considered or implemented.

12-12-408 Designation of Confidential Information: When submitting the initial FMP, any updated FMP or any other report required by this Rule, the owner or operator shall designate as confidential any information claimed to be exempt from public disclosure under the California Public Records Act, Government Code section 6250 et seq. If a document is submitted that contains information designated confidential in accordance with this Section, the owner or operator shall provide a justification for this designation and shall submit a separate copy of the document with the information designated confidential redacted.

12-12-500 MONITORING AND RECORDS

12-12-501 Water Seal Integrity Monitoring: Effective August 1, 2006, the owner or operator of a flare subject to this rule with a water seal shall continuously monitor and record the water level and pressure of the water seal that services each flare. Any new installation of a water seal shall be subject to this requirement immediately. Records of these measurements shall be retained for one year. Monitoring devices required pursuant to this section shall be subject to the reporting and record keeping requirements of Regulation 1, Section 523: Parametric Monitors.

REGULATION 8
ORGANIC COMPOUNDS
RULE 2
MISCELLANEOUS OPERATIONS

INDEX

REGULATION 8
ORGANIC COMPOUNDS
RULE 2
MISCELLANEOUS OPERATIONS

8-2-100 GENERAL

8-2-101 Description: The purpose of this Rule is to reduce emissions of precursor organic compounds from miscellaneous operations. (Amended March 17, 1982)

8-2-110 Exemption, Natural Gas: Emissions from any operations consisting entirely of natural gas, provided best modern practices are used, are exempt from this Rule.

8-2-111 Exemption, Preparation of Food: Emissions from the preparation of food for human consumption provided best modern practices are used, are exempt from this Rule.

8-2-112 Exemption, Cold Reduction Equipment Used in Metal Forming: The emissions from any cold reduction equipment used in metal forming are exempt from this rule provided the cooling oil introduced in the cold reduction system is not less than 90 percent (by weight) normal paraffins of a carbon number 12 or higher and that such oil shall have a Reid vapor pressure not greater than 52 mm Hg (1.0 psia). (Amended September 2, 1981)

8-2-113 Exemption, Blind Changing: Emissions from blind changing are exempt from this Rule, providing best modern practices are used. (Amended March 17, 1982)

8-2-114 Exemption, Miscellaneous Plants: Emissions from cooling towers, railroad tank cars, marine vessels and crude oil production operations are exempt from this Rule, provided best modern practices are used.

8-2-115 Exemption, Equipment: The following equipment is exempt from this Rule, provided best modern practices are used:

115.1 Presses used for the curing of rubber products or plastic products.
115.2 Ovens used exclusively for the curing of plastics which are concurrently being vacuum held to a mold or for the softening or annealing of plastics.
115.3 Ovens used exclusively for the curing of vinyl plastisols by the closed mold curing process.
115.4 Equipment used exclusively for the melting or applying of wax.
115.5 Equipment used exclusively for the packaging of lubricants and greases.
115.6 Equipment used exclusively for the manufacture of water emulsions of waxes, greases or oils.
115.7 Vacuum producing devices in laboratory operations or which are used exclusively in connection with other equipment which is excluded or exempted by this Regulation.
115.8 Vacuum producing devices which do not remove or convey air contaminants from another source.
115.9 Porcelain enameling furnaces, porcelain enameling drying ovens, vitreous enameling furnaces or vitreous enamel drying ovens.
115.10 All printing presses other than rotogravure printing presses.
115.11 Equipment used exclusively for bonding lining to brake shoes.
115.12 Equipment used for hydraulic and hydrostatic testing.
115.13 Ovens and furnaces used for heat treating and annealing metals.
115.14 Oil quench tanks used for tempering heated metals.
115.15 Crucible type or pot type furnaces with a brimful capacity of less than 450 in^3 of molten metal.
115.16 Space heating and heat transfer operations using gas fuel and rated at less than one million BTU's per hour.
115.17 Equipment used exclusively for steam cleaning.

8-2-116 Exemption, Equipment or Exhaust System: The following equipment or any exhaust system or collector exclusively serving such equipment is exempt from this Rule providing best modern practices are used:

116.1 Ovens used exclusively for curing potting materials or for castings made with epoxy resins.
116.2 Equipment used for compression molding or injection molding of plastics.
116.3 Dipping operations for coating objects with oils, waxes, or greases.
116.4 Dipping operations for applying coatings of natural or synthetic resins which contain no organic solvents.
116.5 Unheated solvent dispensing containers, unheated solvent rinsing containers, or unheated coating dip tanks, all of 100 gal. capacity or less.
116.6 Kilns used for firing ceramic ware, heated exclusively by natural gas, liquefied petroleum gas, electricity or any combination thereof.
116.7 Shell core and shell molding machines.
116.8 Die casting machines.
116.9 Laboratory equipment used exclusively for chemical or physical analyses and bench scale laboratory equipment.

8-2-117 Exemption, Open Outdoor Fires: The limitations of this Rule shall not apply to emissions arising from open outdoor fires. (Adopted December 19, 1990)

8-2-200 DEFINITIONS

8-2-201 Miscellaneous Operations: Any operation other than those limited by the other Rules of this Regulation 8, ~~and~~ the Rules of Regulation 10, or Rule 12 of Regulation 12.

8-2-202 Total Carbon: Organic compounds calculated as total carbon shall be determined as follows:

202.1 Total carbon of an individual organic compound is equal to the ppm of that compound in an emission multiplied by the number of carbon atoms present in the molecule.
202.2 Total carbon in an emission is the sum of the total carbon of all of the individual organic compounds present in the effluent. 1,1,1, trichloroethane, methylene chloride, methane and chlorofluorocarbons shall not be included in the calculation of total carbon.

8-2-300 STANDARDS

8-2-301 Miscellaneous Operations: A person shall not discharge into the atmosphere from any miscellaneous operation an emission containing more than 6.8 kg. (15 lbs.) per day and containing a concentration of more than 300 PPM total carbon on a dry basis. (Amended May 21, 1980)

8-2-600 MANUAL OF PROCEDURES

8-2-601 Determination of Compliance: Emissions of organic compounds as specified in Section 8-2-301 shall be measured as prescribed by any of the following methods 1) BAAQMD Manual of Procedures, Volume IV, ST-7, 2) EPA Method 25 or 25A. A source shall be considered in violation if the VOC emissions measured by any of the referenced test methods exceed the standards of this rule.
(Adopted March 17, 1982, Amended June 15, 1994)

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Staff Report

Proposed Regulation
Regulation 12, Miscellaneous Standards of Performance
Rule 12, Flares at Petroleum Refineries

July 8, 2005

Prepared by:

Alex Ezersky
Principal Air Quality Specialist
Planning and Research Division

Reviewed by:

Dan Belik
Rule Development Manager
and
Kathleen Walsh
Assistant Counsel

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

Emissions from flaring at petroleum refineries have been an ongoing concern to the Bay Area Air Quality Management District and residents of the communities in the neighborhoods surrounding the refineries. Because flares are first and foremost a safety device that must be available for use in emergencies to prevent accident, hazard or release of refinery gas directly to the atmosphere, development of an appropriate regulatory mechanism to address flaring emissions has been a challenge. Through a broad participatory process involving District staff, refinery representatives, community representatives, representatives of local, state and federal public agencies, and other members of the interested public, however, the District has formulated a regulation that will reduce flaring emissions while providing refineries with flexibility to address their unique flare systems without compromising the safety of workers and the public, or the refineries.

Refinery flares are necessary for the safe disposal of gases generated during the refining process. These gases are collected by the refinery blowdown system, which gathers relief flow from process units throughout the refinery, separates liquid from vapors, recovers any condensable oil and water, and recovers gases for use in the refinery fuel system. When the heating value of the gas stream is insufficient for use as refinery fuel, when the stream is intermittent or when it exceeds the refinery's capacity to recover and use the gas for use as a fuel, the blowdown system directs the vapors to the flare, which combusts the gases and prevents their direct uncontrolled release to the atmosphere.

The Bay Area Air Quality Management District (District) discussed the need to study the feasibility of implementing controls on refinery flaring as part of the San Francisco Bay Area 2001 Ozone Attainment Plan for the 1-Hour National Ozone Standard. Analysis of Further Study Measure 8 (FSM-8) for flares, blowdown systems and pressure relief devices was initiated in January of 2002. A draft Technical Assessment Document (TAD) for flares was released in December 2002. The TAD presented information on refinery flares and emission estimates, and was the foundation for the flare monitoring rule. The District's flare monitoring rule, Regulation 12, Rule 11, was adopted by the District Board of Directors on June 4, 2003. Information obtained from the required monitoring was used to develop the proposed control strategies. The result is a proposed new rule, Regulation 12, Rule 12: Flares at Petroleum Refineries.

Emissions from flare operations at each Bay Area refinery have decreased since the District began work on development of the flare monitoring rule in 2002. Reports from refiners and analysis by staff have shown a reduction of total organics of approximately 85% since the time period covered by the TAD. These reductions are primarily due to adding flare gas compressor capacity and better management practices.

Emissions from refinery flares are currently estimated at 2 tons per day of total organic compounds (TOC) and 4 tons per day of sulfur dioxide (SO_2). These emission levels reflect the reductions realized as a result of actions taken by Bay Area refiners in recent years. The proposed regulation will capture these reductions to ensure no backsliding to flaring practices of the past. These emissions levels are expressed as daily averages, however; actual emissions on any given day range from 0 to 12 tons TOC and 0 to 61 tons of SO_2. The proposed rule calls for refiners to develop flare minimization plans to further reduce these emissions.

Staff investigated a variety of options for addressing emissions from refinery flares. The proposed regulation uses an approach that requires each refinery to develop a comprehensive plan to minimize flare use. Significant differences in refinery configurations and capacities to process and use gas in other processes require the rule to provide flexibility to implement the most appropriate flaring prevention measures for each refinery. The minimization plans will be developed in active consultation with District staff and will require annual updates to ensure that new technologies and practices will be identified and implemented in a process of continuous improvement. The plans will be made available for public review and written comment. A plan will only be approved if the APCO determines that all feasible flaring prevention measures have been considered and incorporated.

An Environmental Impact Report (EIR) was prepared to investigate and discuss elements of the proposed regulation that could result in environmental impacts. The EIR concludes that the proposed regulation would have no adverse environmental impact. A socioeconomic analysis mandated by Section 40728.5 of the Health and Safety Code was prepared by Applied Economic Development, Berkeley, California. The analysis concludes that the affected refineries should be able to absorb the costs of compliance with the rule without significant economic dislocation or loss of jobs.

As part of the technical assessment and rule development process a working group was formed that included representatives from the Bay Area petroleum refineries, the Western States Petroleum Association (WSPA), Communities for a Better Environment (CBE), the California Air Resources Board, and District staff. The workgroup met routinely to discuss technical issues including legal requirements of rule development, emission control strategies, monitoring techniques, standard definitions and investigation procedures. Summaries of these meetings are contained in Section IX of this report.

Additionally, staff hosted two evening public workshops in Martinez on March 24, 2005 and Richmond on, March 16, 2005, to receive input from the public on a proposed draft rule. The core issues raised at these meetings were: due consideration of safety, enforceability of the standards, clarity in definitions, the need for public input into the development of flare minimization plans, adequacy

of the breadth of flaring scenarios covered by the rule, and the need for a limit on the hydrogen sulfide content of the vent gas. The proposed rule includes revisions to the rule language presented at the workshops as necessary and appropriate to address these issues.

II. BACKGROUND

A. Process Description

Flares are first and foremost devices to ensure the safety of refinery operations and personnel. They also serve as emission control mechanisms for refinery blowdown systems. Blowdown systems collect and separate liquid and gaseous discharges from various process units and equipment throughout the refinery. They also collect gases that are the normal byproducts of a process unit or vessel depressurization, or that may result from an upset in a process unit, or that come from refinery process units during startup and shutdown, or when the balance between gas generation and the combustion of that gas for process heat is disrupted.

Blowdown systems generally recover liquids and send gases to the fuel gas system for use in refinery combustion. However, when the heating value of the gas stream is insufficient, when the stream is intermittent, or when the stream exceeds the refinery's capacity to safely use the gas stream to satisfy refinery combustion needs, and the refinery does not have available storage capacity, the flare is used to combust these gases and prevent their direct uncontrolled release to the atmosphere.

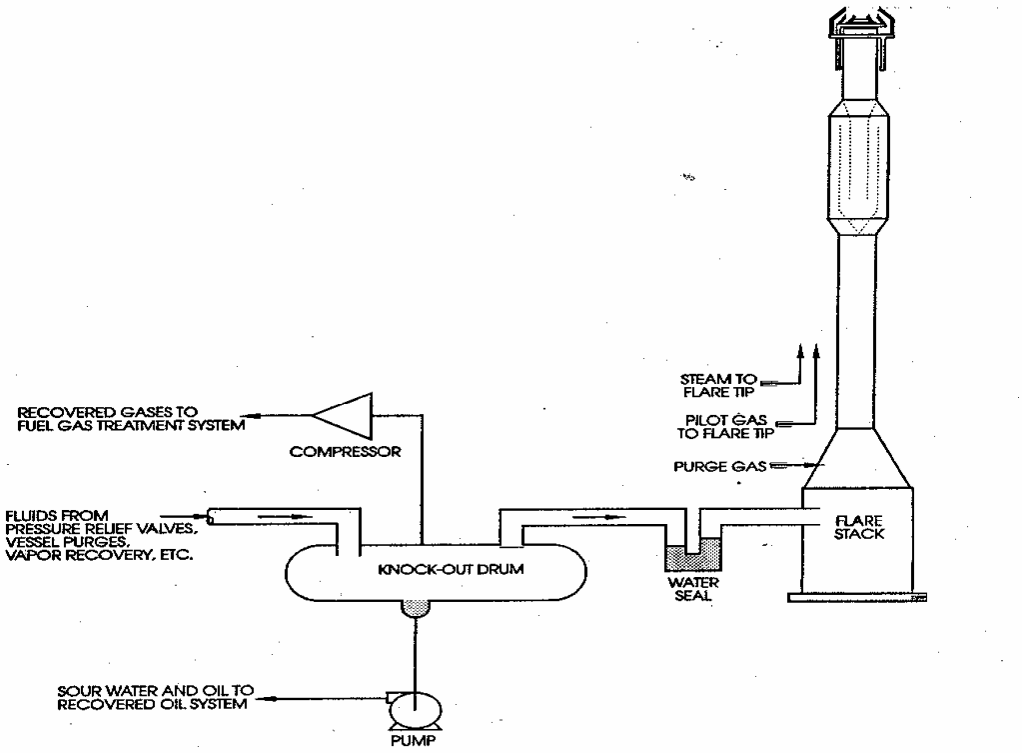


Figure 1. Typical Flare System

The diagram above illustrates a typical flare system. The system is a component of the refinery blowdown system, which delivers gases and liquids to a knockout drum that captures liquids and directs them to the oil recovery stream. The gases are routed to the fuel gas system. The extent to which these gases can be captured depends upon the capacity of the compressors and the energy demand throughout the refinery. A refinery is said to be operating in good balance when gas generation during normal operation is consumed by demand requirements in the refining processes. As a general rule a refinery should be able to capture all of the gases delivered to the blowdown system during normal operations.

B. Bay Area Air Quality Management District Regulations Applicable to Flares

Several District rules apply to Bay Area refinery flare emissions, varying from the general to source specific requirements. The most recent is Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries, which was adopted on June 4,

2003. This rule requires refineries to accurately monitor the flow and composition of vent gases combusted in a flare, to calculate total organic (methane and non-methane organic compounds) and sulfur dioxide emissions, to identify reasons for and corrective actions taken to prevent major flaring events, to continuously video record flares subject to the rule, and to report this information to the District in a timely manner.

There are several other District regulations applicable to flare emissions. Regulation 1, Section 301: Public Nuisance, is derived from California Health and Safety Code Section 41700. It prohibits discharges that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Regulation 6: Particulate Matter and Visible Emissions, limits the quantity of particulate matter in the atmosphere through limitations on emission rates, concentration, visible emissions and opacity. Regulation 7: Odorous Compounds, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Regulation 9, Rule 1 and Rule 2: Inorganic Gaseous Pollutants for Sulfur Dioxide and Hydrogen Sulfide, limit ground level concentrations of these pollutants. Regulation 10 - Standards of Performance for New Stationary Sources, incorporates Federal standards for petroleum refineries adopted by reference.

Regulation 8, Rule 2 contains controls for organic compounds from miscellaneous operations. Although this regulation was not intended to apply to refinery flares and has not been enforced against these sources by the District, some confusion regarding the scope of this regulation exists. Staff proposes an amendment to Regulation 8, Rule 2, to clarify that this standard does not apply to refinery flares. This modification will resolve the existing confusion and will avoid any overlap or duplication of requirements applicable to refinery flares once Regulation 12-12 takes effect.

C. Applicable Federal Regulations

Federal New Source Performance Standards (NSPS) in 40 CFR Part 60, Subpart A, Section 60.18 applies to flares that are used as general control devices. Subpart A specifies design and operational criteria for new and modified flares. The requirements include monitoring to ensure that flares are operated and maintained in conformance with their designs. Flares are required to be monitored for the presence of a pilot flame using a thermocouple or equivalent device, to meet visible emissions standards, to maintain a minimum exit velocity and to meet a net heat content of the gas being combusted by the flare.

In addition, the NSPS limits sulfur oxides from combustion devices installed after June 11, 1973 (40 CFR Part 60, Subpart J, Section 60.104). Flaring of gases released due to upset conditions or as a result of relief valve leakage, startup/shutdown, or other emergency malfunctions is exempt from this standard.

Since 1998, EPA has pursued a coordinated, integrated compliance and enforcement strategy to address Clean Air Act compliance issues at the nation's petroleum refineries.

The National Petroleum Refinery Initiative[1] addresses four compliance and enforcement issues under the federal Clean Air Act based on EPA's determination that these concerns affect the petroleum refining industry nationwide:

- Prevention of Significant Deterioration/New Source Review (NSR);
- New Source Performance Standards (NSPS) for fuel gas combustion devices, including sulfur recovery plants, flares, heaters and boilers;
- Leak Detection and Repair requirements (LDAR); and
- Benzene National Emissions Standards for Hazardous Air Pollutants (BWON).

EPA has embarked on a series of multi-issue/multi-facility settlement negotiations with major petroleum refining companies. The settlements for the Bay Area refineries are specific to each refinery. In general, they include elements specific to catalytic cracking units, sulfur recovery plants and flares. One facility has entered into a settlement agreement that locks in the current status of flare operations. Other settlements seek to improve upon the current operating practices and require implementation schedules for application of the NSPS to all their flares. The details of these settlements are available on EPA's website.

III. POTENTIAL CONTROL STRATEGIES

Staff considered a variety of strategies to control emissions from flares. The traditional method of controlling emissions generally involves add-on devices that capture or reduce emissions, such as baghouses, scrubbers and low NOx burners. These devices are usually designed for a specific pollutant and emission source. They are not well suited for flares where combustion takes place in open air at the flare tip. Also, these control devices are designed for steady state operation making them inappropriate for a source like a flare that must go from burning only pilot gas to burning thousands of cubic feet of gas per second. Consequently, staff concluded that mandating the use of such devices to control emissions from flares generally is not a workable approach.

[1] EPA Website: http://www.epa.gov/compliance/civil/programs/caa/oil/index.html. October 6th, 2004

Equipment control strategies applicable to refinery flare systems include those that require the installation of new equipment or devices, or physical changes to the flare system. Strategies that might be applied to these systems include:

- additional flare gas compressors to collect gases and prevent flaring;
- addition of gas storage capacity to hold flare gas;
- increasing gas treatment capacities;
- installation of redundant equipment;
- improvement of the reliability of the existing flare gas compressors;
- improvement of flare tip designs.

Pollution prevention strategies are designed to reduce emissions through changes to the operation of the refinery, as opposed to controlling the emissions with add-on equipment. These include:

- balancing the use of combustion devices, flare gas and natural gas consumption;
- developing management practices to minimize vent gases directed to the flare.

Since the beginning of the District's technical assessment efforts in 2002, each refinery has implemented one or more of the strategies described above. The most significant of these involve installation of new flare gas recovery compressors at one refinery. Installation of additional compressor capacity and improvement of the reliability of the existing flare gas compressors at other refineries have also significantly reduced emissions. During the rule development process, refiners have presented trend charts to the District that show up to 60% reduction in emissions since 2002. Bay Area refiners and other participants in the work group meetings convened to assist in rule development generally concur with this assessment, but District staff as well as some members of the public have expressed concern over possible backsliding or failure to maintain those reductions. Staff concluded that the most workable strategy for reducing emissions from flaring is to require refiners to develop individual flare minimization plans. This strategy provides flexibility to maximize emission reductions among significantly different refinery process designs and has been crafted to maintain emission reductions from the practices already instituted by the refiners.

IV. REGULATORY PROPOSAL

PROPOSED NEW REGULATION 12, MISCELLANEOUS STANDARDS OF PERFORMANCE, RULE 12: FLARES AT PETROLEUM REFINERIES

A. THE STANDARD

The proposed regulation is to reduce emissions from flares at petroleum refineries by minimizing the frequency and magnitude of flaring. The proposal

includes a standard that prohibits the use of a refinery flare unless the use is consistent with an approved flare minimization plan ("FMP" or "Plan"). The rule includes a requirement to conduct a causal analysis to evaluate a reportable flaring event, i.e., flaring more than 500,000 standard cubic feet per calendar day, to identify the cause (or causes) of the flaring and the means to avoid flaring from that cause in the future if possible. In addition, each facility is required to submit an annual report to the District that includes an evaluation of flaring at volumes less than 500,000 where the calculated sulfur dioxide emissions are greater than 500 pounds. This formal evaluation process will ensure that each refinery makes continuous improvement and progress toward the goal to minimize use of refinery flares.

The standard recognizes that flares are safety devices and includes a provision to allow flaring in an emergency if necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere. To ensure that this exemption is properly applied, the proposed rule relies on the causal analysis to confirm that only flaring necessary for the safe operation of the refinery due to an emergency is allowed under this provision.

While the proposal will not eliminate all non-emergency flaring immediately, it will maintain reductions achieved by Bay Area refiners over the past few years and help identify areas where additional reductions are possible. Refiners will be required to update the plan annually to incorporate newly identified preventive measures to ensure continuous improvement over time and progress toward the goal to minimize use of refinery flares.

Certain flares are exempt from the requirements of the proposed rule. These exemptions apply to any flare that functions as an abatement device used exclusively for the following sources: organic liquid storage and distribution, marine vessel loading terminals, wastewater treatment plants, and pumps. Standards for these sources are specified in other District regulations. They include, but are not limited to abatement efficiency, use of good engineering practices, and emission limits depending on the source operation. Emission data from these source-specific applications are submitted annually to the District. Monitoring and control of these systems are well managed within this existing structure.

B. ADMINISTRATIVE REQUIREMENTS

The proposal specifies the required elements of a flare minimization plan; lays out the process that the APCO will use to evaluate and approve the FMP and updates; identifies the criteria for submission of the initial FMP and FMP updates; requires investigation into the cause of flaring and timely notification to the APCO; and specifies the procedures for submittal and designation of confidential information.

The FMP is not intended to serve as a permit for a flare or to be included as part of the refinery permit; thus the plan is not subject to provisions of the Health and Safety Code or District rules related to permits. If the plan includes a commitment to install new equipment or to modify existing equipment or to take any other action that would trigger the requirement to obtain a permit from the District, the owner or operator must obtain the required permit in a separate process in accordance with applicable District permitting rules.

Refiners will be required to include all feasible prevention measures in the FMP with a schedule for expeditious implementation of those measures. The elements of a FMP include:

1) A description of and technical information for the refinery flare system and the upstream equipment and processes that send gas to the flare, including all associated monitoring and control equipment;
2) A description of the equipment, processes and procedures previously installed or implemented by the owner or operator within the last five years to reduce the flaring;
3) A description of any equipment, process or procedure to reduce flaring that is planned, but not yet installed or implemented and the schedule for completion;
4) A description and evaluation of prevention measures, including a schedule to expeditiously implement the following:
    - flaring during planned major maintenance activities including startup and shutdown;
    - flaring that may occur due to issues of gas quantity or quality;
    - flaring caused by the recurrent breakdown of equipment;
5) Any other information requested by the Air Pollution Control Officer as necessary to enable determination of compliance with applicable provisions of this rule.

The schedule for submitting a flare minimization plan requires the owner or operator of a flare subject to the rule to submit a complete plan within a year of rule adoption. The proposed rule also requires the refiner to demonstrate that it is making progress toward development and timely submission of a complete plan beginning three months after adoption of the rule and every three months thereafter. Ongoing consultation with the APCO will ensure that any problems are identified and addressed early in the process.

The review and approval process allows time for the APCO to make an administrative determination that the FMP is complete and for facilities to make any corrections to address any deficiencies identified by the APCO before the substantive review of the plan is initiated. Once the APCO determines that the plan addresses all the required elements, it will be made available for 60 days for public review and comment. In addition to the complete plans, the quarterly status reports are public records and will be available for review upon request. In providing a lengthy public review and comment period at the earliest stage of the

substantive review of the plans, the process ensures meaningful public participation at the point in time when it will be most informed and most effective.

The District's substantive review process will involve an analysis of the prevention measures considered in the plan, including the completeness of the universe of measures identified, the feasibility determination for those measures, and the reasonableness of implementation schedule for the feasible measures. Following this review, including consideration of written public comment, the APCO will approve the FMP if he determines that it complies with the procedural and substantive requirements of the rule.

The proposed regulation includes language allowing a refiner to use a flare consistent with a complete FMP pending final action by the APCO on the plan. This prohibition is necessary because the prohibition on flaring takes effect November 1, 2006. In the event that the APCO has not taken final action on a refiner's initial FMP submission, rather than further delay implementation of the standard, the rule allows a refiner that has submitted a complete plan to flare in accordance with that plan until the APCO takes final action to approve or disapprove the plan. This provision does not signify that the plan is or will be approved.

Updates of FMPs are required annually to incorporate any significant changes in process equipment or operational procedures related to flares. In addition, an update is required prior to installing or modifying any equipment associated with flare systems that would require a District Authority to Construct. This provision requires refineries to consider the impact on flaring when installing or modifying equipment. After the initial implementation phase of the flare control rule, experience may indicate that the frequency of updates may need adjustment. At that point, District staff will reassess this requirement and may recommend to the Board in a future rulemaking that the frequency of updates could be adjusted to enhance the regulation.

Refiners will also be required to submit an annual report covering less significant flaring with sulfur emissions of concern (greater than 500 pounds per day). This report must identify the reason for flaring and describe any prevention measures considered or implemented. Any prevention measure implemented must be included in the annual update of the FMP. Having refiners examine smaller flaring events serves the continuous improvement goal of the proposed rule.

The proposed rule includes a requirement to notify the District of flaring of gas in excess of 500,000 standard cubic feet per calendar day. This will provide the District and the public with timely information about flare operations. Under current regulations, refiners do not have to notify the District of a flaring event unless there is an indicated excess on a ground level monitor (within 96 hours) or they are seeking breakdown relief under Regulation 1 (immediately, with due regard for safety), which is available for equipment failures but not operator error.

The new proposal would ensure that the District receives information regarding flaring in a timely manner (as soon as possible consistent with safe operation of the refinery) in all cases where the trigger level is exceeded.

The proposed rule requires the flare owner or operator to determine and report the cause of a reportable flaring event. The investigation must be sufficient to determine the primary cause and contributing factors that resulted in flaring. This level of investigation is necessary to ensure that sufficient information is available to develop prevention measures to eliminate the recurrence of avoidable flaring. Currently the flare monitoring rule, Regulation 12, Rule 11, requires reporting of the cause of flaring more than 1 million standard cubic feet of vent gas. Over the past two years, the District has worked closely with refinery personnel preparing those reports to ensure that the investigations conducted are sufficient to provide the information necessary to identify measures to reduce or eliminate such flaring, and that reporting of the results of those investigations is complete. The language of the proposed rule is intended to require that the same level of investigation and reporting is provided for flaring of 500,000 scf under the proposed rule.

C. MONITORING AND RECORDS

The proposed rule requires continuous monitoring of the water seal. The "knockout water seal drum" performs three functions. First, the drum provides final vapor-liquid disengaging ("knockout") to reduce the potential for liquid carryover up the flare stack. Second, the drum provides a positive barrier or "water seal" between the flare gas header and flare stack. This prevents air in the flare stack from back flowing into the flare gas header and potentially forming an explosive mixture with the hydrocarbon vapors. An inert gas purge (such as nitrogen) may also be added at the base of the flare stack as "sweep gas" to prevent air from back flowing from the flare tip into the flare gas header. Third, the drum provides backpressure on the flare gas header to operate a flare gas recovery compressor. The recovery compressor collects vapors in the flare gas header that would otherwise be combusted in the flare, and returns those vapors to the refinery fuel gas system.[2] The flare owner or operator must record and archive the monitoring data to verify the integrity, or proper operational status, of the flare's water seal. These data are indicators of actual flow to the flare and are measured by flow of makeup water, the water seal height or system pressure. Records of these measurements will assist in verification of calculated emissions and investigations into the cause of flaring.

D. PROPOSED AMENDMENT TO REGULATION 8, ORGANIC COMPOUNDS, RULE 2: MISCELLANEOUS OPERATIONS

Staff is also proposing to amend Regulation 8, Rule 2, to clarify that flares are not subject to that rule.

[2] Excerpt from Flare Control Workgroup meeting by Clark Hopper, Valero Refinery

V. EMISSIONS AND EMISSION REDUCTIONS

A. Emissions

Flares produce air pollutants through two primary mechanisms. The first mechanism is incomplete combustion of a gas stream. Like all combustion devices, flares do not combust all of the fuel directed to them. Combustion efficiency reflects the extent to which the oxidation reactions that occur in combustion are complete reactions converting the gases entering the flare into fully oxidized combustion products. Combustion efficiency may be stated in terms of the extent to which all gases entering the flare are combusted, typically called "overall combustion efficiency" or simply "combustion efficiency", or it may be stated as the efficiency of combustion for some constituent of the flare gas as, for example, "hydrocarbon destruction efficiency."

The second mechanism of pollutant generation is the oxidation of flare gases to form other pollutants. As an example, the gases that are burned in flares typically contain sulfur in varying amounts. Combustion oxidizes these sulfur compounds to form sulfur dioxide, a criteria pollutant. In addition, combustion also produces relatively minor amounts of nitrogen oxides through oxidation of the nitrogen in flare gas or atmospheric nitrogen in combustion air.

Unlike internal combustion devices like engines and turbines, flares combust fuel in the open air. Because combustion products are not contained and emitted through a stack, a duct, or an exhaust pipe, emission measurement is very problematic. Studies can be conducted on scale-model flares under a hood or in a wind tunnel where all combustion products can be captured. Any results for these small flares must be adjusted with scaling factors if they are to be applied to full-size flares. For full-size operating industrial flares, which can have a diameter of four feet or more and a stack height of 100 feet or more, all combustion products cannot be captured and measured. To study emissions from these flares, emissions can be sampled with test probes attached to the stack, a tower, or a crane. Emissions can also be studied using remote sensing technologies like open-path Fourier transform infrared (FTIR) or differential absorption lidar (DIAL). In applying the results of any particular study to a specific flare or flare type, it is important to note any differences in flare design and construction. For example, some flares are simply open pipes, while others, like most refinery flares, have flare tips that are engineered to promote flare vent gas mixing to maximize combustion efficiency. In addition, studies suggest that composition and BTU content of gas burned, gas flow rates, flare operating conditions, and environmental factors like wind speed can affect, to varying extents, the efficiency of flare combustion.

B. Emission Reductions

While the District staff was studying flare emissions during the TAD period, the Tesoro Refinery was in the process of installing a fuel gas compressor capital improvement project to recover hydrocarbons previously sent to the flare.

Tesoro added an additional 8 million standard cubic feet of recovery capacity to the flare system. This project significantly reduced the volume of gases flared and emissions from flaring. Additionally, all the refineries instituted programs to reduce flaring. Measures implemented include improvements in flare gas compressor reliability, prolonging the interval between major maintenance activities, better process controls during startup and shutdown, source reduction efforts and increased scrutiny of flare gas systems.

Characterizing Flare Emissions

When the District staff examines the emissions from an air pollution source category, the air pollution emission estimates are typically expressed on an annual average basis (usually tons per day) determined from reported annual process throughput or reported emissions. For large, intermittent emission sources such as refinery flares, this air pollution emission estimation process can be quite challenging. First, there is the cyclic nature of refinery process unit startups and shutdowns. Major refining units at a petroleum refinery typically go five years between turnaround events. Until recently, the District's inventory excluded episodic emissions and Bay Area refineries were not required to measure the quantities of vent gases sent to their flare systems. Therefore, engineering assumptions had to be made to estimate air pollution emissions with limited information. While daily emissions based on annual averages are consistent with standard emission inventory practices, on any given day, actual refinery flare emissions can vary significantly. The day-to-day variation for the period of June 1, 2001 through September 1, 2002, is shown in Figure 2.

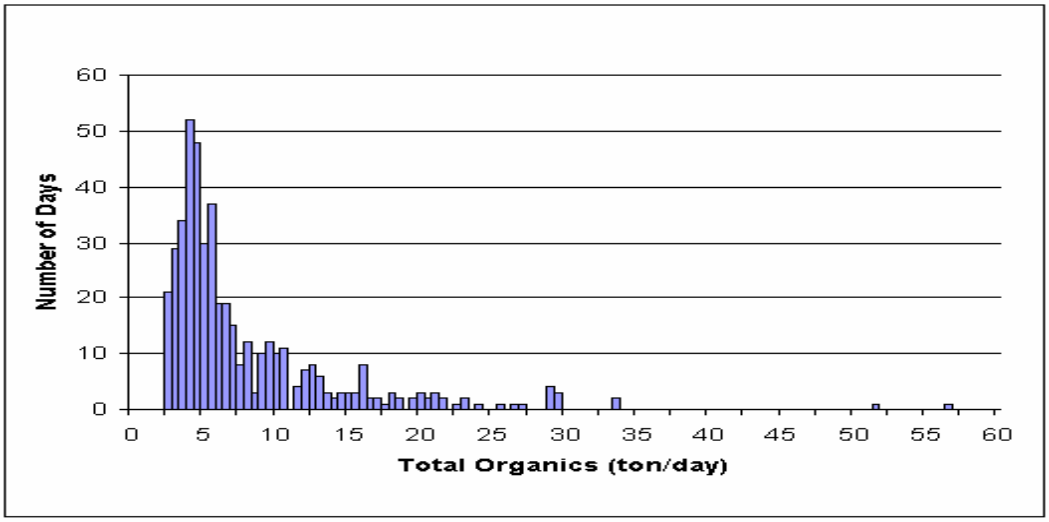


Figure 2. Distribution of Total Organics (tons per day) for the period of June 1, 2001 through September 1, 2002

Estimating Minimum Flow in Calculating Flare Emissions

In the past, there was a wide variation in the quality of flare monitoring instrumentation. The limit of detection of the instrumentation, the lower limit

where vent gas flows could be detected, was not state-of-the-art. Under typical operating situations, water seals prevent refinery gases from venting to a flare until a certain positive pressure is achieved. Once that positive pressure is exceeded, the refinery gases pass through the water seal and then are combusted in the flare.

The potential exists for refinery gases to travel through the water seal at some nominal flow less than the limit of detection for the monitoring instrumentation that was in place during the TAD period.[3] Pressure surging, percolation, inadequate or fluctuating water levels, or water seal design may allow refinery gases to reach the flare. To address concerns about minimum flows that could not be easily detected by the instrumentation, District staff investigated several methods to quantify these emissions. One method was to examine correlations between pressure and level indications at the water seal and the flow meter readings. This method presented limitations for some flare systems. In some instances the pressure measuring devices were located in different locations or at long distances from the water seal, possibly providing measurements that may not represent the actual water seal pressure. Where District staff identified proper installations of the water seal instrumentation, the readings were used to adjust minimum flow data.

Where the District staff identified issues with using water seal data, an alternative method was used. Staff considered the variation in flow meter technologies used during the TAD period, the limits of detection and reliability of the meters, refinery design and operational status that could generate flow to the flare, and then estimated minimum flow emissions at a value equal to 50% of the minimum limit of detection. The total contribution of this minimum flow emission estimate is approximately 1 ton per day of total organic emissions during the flare TAD study period.

The TAD Emission Estimates

The emission inventory for refinery flares prior to the Flare Monitoring Rule was included in the Draft December 2002 Technical Assessment Document (TAD). In order to develop emission information for the TAD, the District asked the refineries to submit flow and composition data on their flare systems for the period of January 1, 2001 to August 31, 2002. Some refineries had no monitoring, some used fairly new ultrasonic monitoring systems. To compensate for the wide-variation in the quality of information provided, staff used engineering assumptions and estimated from the information submitted that emissions from flares were approximately 22 tons/day[4] of total organic

[3] Uncertainties regarding minimum flows have been greatly reduced due to improved instrumentation requirements that specify much lower limits of detection. These requirements of Regulation 12, Rule 11 became effective in December 2003.

[4] Assumptions used for that estimate are: 1) emissions are averaged per day of flare use, 2) a flare gas composition of 75% hydrocarbon, and 3) a hydrocarbon molecular weight of 44.

compounds. As described below, subsequent efforts indicate that the TAD significantly overestimated flare emissions.

Updated TAD Emission Estimates

The initial emission estimate in the flare TAD caused the refineries to question District staff's analysis and the data submittals themselves. District staff spent considerable time working with each refinery to review the available data and replace the overall averages used in the TAD with refinery-specific information that is more representative of each refinery's flare emissions. Since the publishing of the TAD, the refineries have submitted several modifications to their original data submittals and have met with District staff on numerous occasions to clarify their data re-submittals. After evaluating the data re-submittals and developing refinery-specific gas composition and hydrocarbon molecular weight estimates, staff have revised the emission estimate from flares, on an annual average basis, to approximately 8 tons/day of total organic compounds (5 tons/day of non-methane organic compounds) during the TAD period. Additionally, staff now estimates flare emissions for the period of time covered by the TAD to include approximately 20 tons/day of SO_X for the time period June 1, 2001 through September 1, 2002. The daily emissions ranged from 2.5 to 55 tons/day of total organic compounds, and from 6 to 55 tons/day SO_X during the TAD data period.

Current Flare Emission Estimates

The data from the refineries that have been submitted since adoption of the monitoring rule indicates that flare flows have been reduced compared to flows during the TAD data period. Much of the reduction is due to the installation of additional compressors at the Tesoro refinery and better management practices at all of the refineries. Figure 3 illustrates the trend since implementation of the flow measuring requirement in the flare monitoring rule.

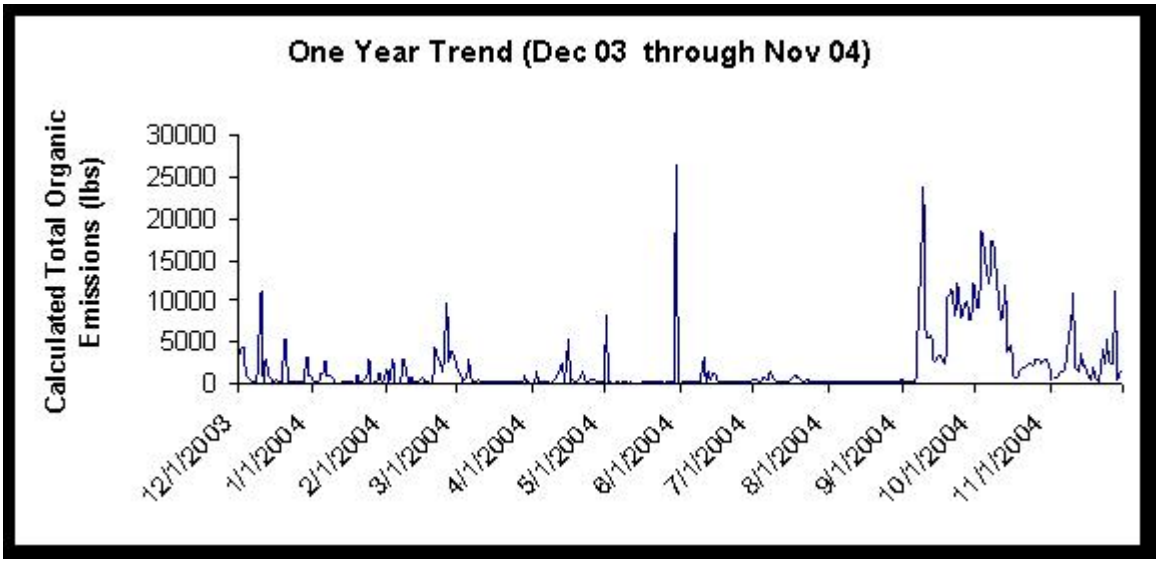


Figure 3. Total Organic Emission Trend

The graph illustrates four characteristics of refinery operations relative to flaring: 1) general operations through May 2004, 2) episodic emissions around June 2004, 3) general operations with emphasis on reductions during July 2004 to September 2004, and 4) major maintenance activities at several refineries from September through November 2004. The values represented in this figure are based on the assumption that no flow occurs when the water seal remains intact or the flow rate is less than 0.5 feet per second (lower limit of accuracy for ultrasonic flow meters).

Staff evaluated the reported data and characterized emissions using the assumption that any positive reading represents flow to the flare tip. Figure 3 illustrates the breakdown per facility for total organic emissions from vent, pilot and purge gas on an average daily basis for 2004.

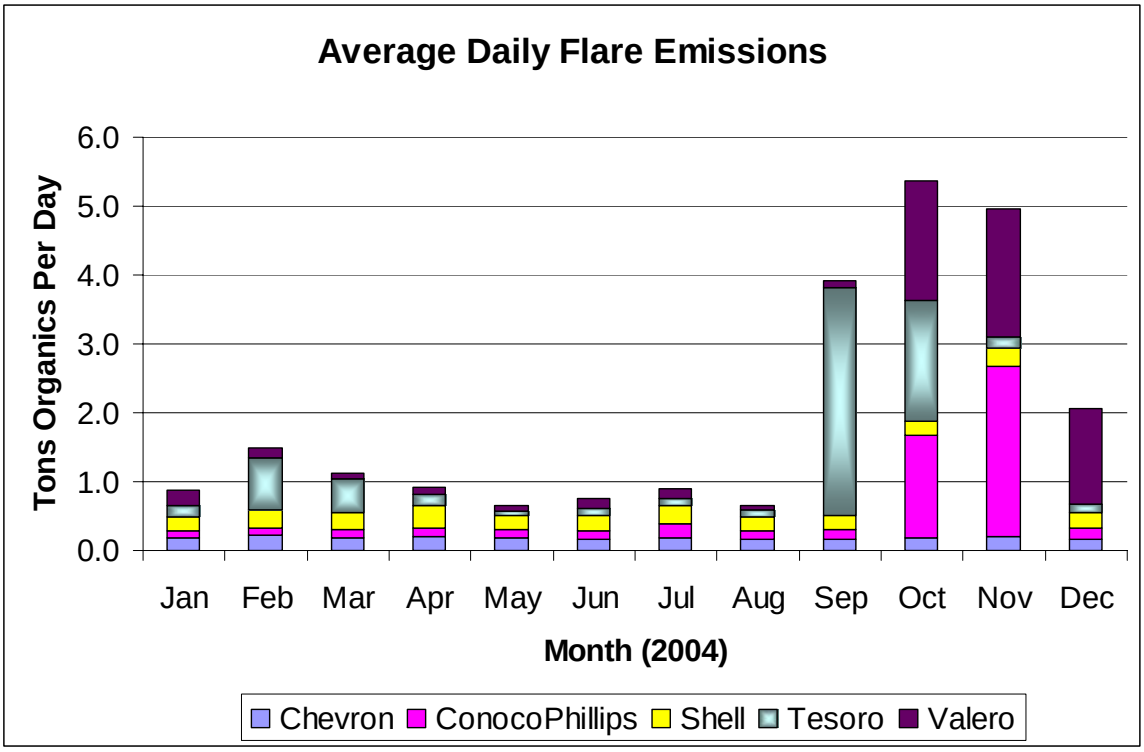


Figure 4. Average Daily Total Organic Emissions

The emission estimate from flares, on an average daily basis for all facilities in 2004, was approximately 2 tons/day of total organic compounds (approximately 1.5 tons/day of non-methane organic compounds). A monthly distribution for each facility is illustrated in Figure 4. The daily emissions ranged from 0 to 12 tons/day of total organic compounds. For sulfur dioxide, the average daily basis was approximately 4 tons/day and ranged from 0 to 61 tons/day.

VI. ECONOMIC IMPACTS

A. Introduction

This section discusses the estimated costs associated with the proposed rule. The California Health & Safety Code states, in part, that districts shall endeavor to achieve and maintain state ambient air quality standards for ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide by the earliest practicable date. In developing regulations to achieve this objective, districts shall consider the cost-effectiveness of their air quality programs, rules, regulations, and enforcement practices in addition to other relevant factors, and shall strive to achieve the most efficient methods of air pollution control. However, priority shall be placed upon expeditious progress toward the goal of healthful air.[5]

A number of unique factors come into play in the analysis of the cost of the proposed flare control rule. First, many of the benefits of the flare control rule, at least those expected in the early years of implementation, have already been achieved and the associated costs have been incurred by the refineries. Second, a number of the controls refineries will implement to reduce flaring will provide additional operational or economic benefits to the refinery operations, thus offsetting costs. For this reason, the costs of compliance presented below provide a very conservative picture.

Non-typical factors affect the cost-effectiveness analysis as well. For example, because emissions from flares are episodic, the use of annualized emissions provides a much less meaningful picture of cost effectiveness for the proposed flare control rule than for a standard control measure to control emissions from more stable sources or operations. In fact, the reduction or elimination of flaring will have far more significant benefits during a day when flaring would have occurred – particularly a day when the amount of gas flared is at the high end of the events that have occurred historically and can be expected to occur in the future – than during an hypothetical day with annualized flaring emissions.

Moreover, because the proposed rule requires refineries to develop the prevention measures they will implement to reduce flaring, the regulation ensures that the most cost effective means for achieving this goal will be implemented. That is, it is reasonable to expect that each refinery, given the flexibility provided by the structure of the rule, will include the most cost-effective prevention measures available for each iteration of the flare minimization plan, thus insuring the continuous improvement at the least cost.

B. Discussion of Elements

Development of a Flare Minimization Plan

Staff estimated the cost of developing the FMP document based on the workload

[5] California Health and Safety Code Section 40910

encountered during development of materials mandated by the Contra Costa County Safety Ordinance. The safety ordinance requires a hazard analysis for each process unit. This structure is nearly identical to the FMP, although the level of detail in the analysis would be substantially less under the proposed rule. The difference is due to the narrower focus of the FMP; it targets flare minimization while the hazard analysis required consideration of the "entire universe" of potential impacts. The approximate cost of a hazard analysis was $12,000 per process unit. This assumes 3.5 refinery staff at $35 per hour, a professional facilitator to assist in developing the analysis at $150 per hour, and 32 days[6] to develop the report. [7] Applying these values to a medium sized refinery, the cost for developing a FMP is approximately $100,000.

Implementation of Prevention Measures

The costs associated with implementing a flare minimization plan will vary depending on the status of the individual flare systems. Some systems may need only minor adjustments to existing operating procedures while others may need substantial modifications to incorporate design changes.

The precise costs for implementing a plan are difficult to determine prior to evaluating the specific elements of the plan. Refiners did not provide this level of detail during the workgroup process due to concerns over liability and trade secret information. Discussions with refiners regarding prevention measures already implemented or planned for study have lead to a general consensus that $20,000,000 represents a fair estimate of the high end of the range of costs.

To demonstrate the range of cost, staff considered alternatives to the high end, for example where a facility has already achieved the most feasible level of emission reductions. Staff estimated the range to be from $100,000 for minor modifications to potentially well over $20,000,000 for systems needing additional recovery and scrubbing capacities.

Notification of Flaring

The trigger level for this requirement is 500,000 standard cubic feet in any calendar day. The cost is dependant on the number of flaring days exceeding the volume trigger. The data from the flare monitoring monthly reports shows 243 occurrences where the volume of vent gas flared was greater than 500,000 standard cubic feet per day in 2004 for all facilities[8]. Based on this information and assuming 15 minutes per call at a rate of $30.00 per person hour, staff estimated the total cost for all facilities of notifying the District and providing the necessary information would be approximately $1,800 for all facilities per year. The cost for an individual refinery is expected to be much less, and in some cases zero cost.[9]

[6] Excludes administrative review and approval.
[7] Based on phone conversations with affected refineries.
[8] The majority, 88 occurrences, are from one flare with the same reported cause of flaring.
[9] Maintaining levels indicated in the 2004 Flare Monitoring Reports

Determination and Reporting of Cause

The cost for this requirement is dependant on the number of reportable flaring events and the complexity of the event. The data from the flare monitoring monthly reports shows 243 occurrences where the volume of vent gas flared was greater than 500,000 standard cubic feet per day (MMSCFD) in 2004 for all facilities. Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries requires investigation into and reporting of flaring events. The new requirement expands the scope of events requiring investigation because the trigger drops from 1,000,000 to 500,000, and it requires greater detail for all reportable events, including a thorough investigation into the cause and contributing factors, a description of prevention measures considered and justification for those not implemented, and identification of issues that require the use of a flare including safety considerations and regulatory mandates. To adjust for these differences, staff assumed an increase in the hourly rate to $50.00 per hour for 12 hours per event. The result was an estimate of approximately $145,800 for all facilities per year. Again the cost for an individual refinery will be much less. Moreover, staff expects this value to drop in time as facilities minimize the number of events and become more proficient in investigations.

Annual Reports and Updates

The proposed rule requires an annual report that summarizes flare usage when the flow rate is less than 500,000 standard cubic feet per day where the sulfur dioxide emissions are greater than 500 pounds. Flare monitoring data for 2004 indicates an additional 20 events for all facilities meeting the reporting criteria will occur. Additionally, the proposed rule requires the FMP to be updated annually to incorporate any new prevention measures identified as a result of the causal analysis and annual updates. Staff expects the complexity of these reports to be far less than the FMPs. Based on these factors staff estimates the annual reports and updates will cost less than one third of the cost of the FMP, or $30,000 for each.

Water Seal Integrity

The costs associated with this provision are dependant on the need to upgrade current monitoring systems on water seals. Several refineries have systems that are already configured for continuous monitoring and recording. Other systems would need upgrades, including water level and drum pressure measuring devices, hardwiring to data recording systems, and administrative procedures. For those systems that require upgrades, about half, the primary cost is hard-wiring to the control room and is a function of the distance. The cost might be reduced by choosing an alternative such as wireless, however, confidence in this technology is not known. Staff considered a system that would require only minor upgrades and arrived at an estimate of $100,000 for the first year. Annual costs thereafter include periodic maintenance and data handling. This cost was estimated at $3,000 per year.

C. Cost Analysis

The proposed rule is intended to reduce emissions from flares by minimizing the frequency and magnitude of flaring. This is accomplished by requiring each refinery to develop a flare minimization plan (FMP). The primary function of the plan is to set a schedule for implementing feasible flaring prevention measures. Refiners will be required to investigate the cause of all significant flaring and to update the FMP annually to incorporate the means identified to prevent recurrence. The initial FMP will prevent backsliding from those emission reductions that have already occurred by codifying those efforts as part of the plan.

Table 1 shows the costs associated with the proposed rule. Costs for individual refineries will vary significantly depending on the number and complexity of flares and flare systems and the amount of reduction already achieved. Following the table is a discussion of each provision. The provisions listed in the table include both one-time and recurring costs. The non-recurring costs are those associated with development of the FMP and the upgrades for water seal monitoring. About half of the monitoring systems would need an upgrade. The recurring costs in Table 1 are based on the scenario where significant flaring has occurred. These costs are likely to decrease in time as the level of flaring is minimized.

Table 1. Estimated Costs, First Year

Provision	Estimated Cost	Assumptions
FMP Development[a]	100,000	1/3 of an average hazard analysis[b] for a medium size facility
Prevention Measure (High End)	1,900,000	$20,000,000 project amortized over 20 year lifespan at 7%
FMP Updates	30,000	Approximately 1/3 of a full FMP
Notification of Flaring	500	67 notifications[c]
Causal Analysis	40,200	$50/hr for 12 hours per event for 67 events[d]
Annual Reports	30,000	Approximately1/3 of a full FMP
Water Seal Monitoring	9,000[e]	Partial upgrade; amortized over 20 year lifespan at 7%

[a] One time cost

[b] Hazop for the Contra Costa County Safety Ordinance

[c] Data from monthly reporting pursuant to the District's Flare Monitoring Rule

[d] Time based on pilot program during technical assessment, 2001

[e] Includes $3,000 for direct annual or recurring cost, and $6,000 non-recurring upgrade costs

Based on the example given in Table 1, the cost for a hypothetical refinery that must undertake a significant capital improvement project, such as the addition of compressor capacity, is approximately $2,100,000 for the first year. The total cost for the proposed rule would not be this calculated cost times the number of

flare systems. Each flare system is unique and would have a unique set of feasible prevention measures at a variety of costs. However, this hypothetical provides an example approaching the upper bound of the cost range. Costs for a typical Bay Area flare is expected to be less.

As an alternative scenario staff considered a refinery that only implements an enhanced I&M program or other type of operational control, or is able to demonstrate no flare usage and therefore only needs to memorialize existing practices. Using Table 1 provisions for FMP updates, annual reports and recurring costs for monitoring, the recurring cost is approximately $63,000. This hypothetical provides the lower bound of the cost range.

COST EFFECTIVENESS ESTIMATE

Even though a traditional cost-effectiveness analysis is expected to be conservative due to various factors as discussed above, i.e., the use of average daily emissions, which tend to underestimate expected emission reductions from preventing a period of flaring, and the flexibility built into the proposed rule, which is expected to result in refiners selecting the most cost-effective means of reducing emissions from flaring, the following analysis – based on the traditional model – still supports a finding that the proposed rule is cost effective.

Case Studies

To demonstrate the cost effectiveness of equipment modifications, staff considered two scenarios that have already been implemented. Both involve modifications to the vent gas recovery compressors. The first involved a reliability study and implementation of measures used to improve performance of existing compressors. The second involved an increase in the recovery capacity of the compressors. Although the cost of implementation is similar – approximately $20,000,000 – the reductions achieved differ significantly. Table 2 shows the estimated emissions over the time period for these projects.

Table 2. Estimated Annualized Average Emissions[a]

Facility	Year	Organics[b] (tons/day)	SOx[c] (tons/day)	CO[d] (tons/day)	NOx[d] (tons/day)	PM[e] (tons/day)	Total
Case 1	2002	0.73	0.95	0.11	0.06	0.01	1.86
	2003	0.18	0.41	0.04	0.02	0.01	0.66
Case 2	2002	3.93	13.6	0.59	0.59	0.09	18.8
	2003	0.32	2.21	0.05	0.03	0.01	2.61

[a] Until the flare monitoring rule was adopted (June 2003) Bay Area refineries were not required to measure the quantities of vent gases sent to their flare systems. Therefore, engineering assumptions had to be made to estimate air pollution emissions with limited information.

[b] Total organics including vent, pilot and purge gas. Methane varies significantly; average content

is ~ 30%
[c] Assumes all sulfur as hydrogen sulfide oxidized to sulfur dioxide
[d] Calculated using AP42 emission factors
[e] Calculated using AP42 emission factors assuming no visible emissions

For the first case, the total emissions as indicated in Table 2 decreased from a total of 1.86 tons per day prior to the reliability study, to a total of 0.66 tons per day, after implementing the reliability improvements. This represents a 65% reduction. For the second case, the total emissions decreased from 18.8 tpd to 2.61 tpd after the equipment upgrade. This represents approximately an 86% reduction.

At a twenty year amortized cost of 7%, equipment costs for each of the two case studies is $1,921,592 per year. The cost effectiveness for Case 1 is about $40,000 per ton for total organics, $9600 per ton for SOx, and $4,300 per ton for all pollutants combined. The cost effectiveness for Case 2 is about $1,580 per ton for total organics, $443 per ton for SOx, and $341 per ton for all pollutants combined. Despite the many factors that indicate these estimates are conservative, this analysis demonstrates that the proposed rule is cost effective for all pollutants and exceeds the range for hydrocarbon only in comparison to Best Available Control Technology guidelines.

Tables 3 and 4 include the cost of the administrative requirements of the rule with the equipment costs. Table 3 shows the estimated costs using as an example a facility that has performed a hazard analysis for Contra Costa County and has upgraded the flare gas recovery system. It is intended to represent a more costly prevention measure. Table 4 gives an example of a less costly measure in which startup and shutdown schedule adjustments result in a reduction of flaring and add lost production.

Table 3. Estimated Costs for High Cost Prevention Measure

Provision	Estimated Cost ($/Year)	Assumptions
FMP Development	100,000	1/3 of an average hazard analysis for a medium size facility
Prevention Measure	1,921,592	Flare gas recovery compressor project; amortized over 20 years at 7%
FMP Updates	30,000	1/3 of a full FMP
Notification of Flaring	500	67 notifications
Causal Analysis	40,200	$50/hr for 12 hours per event for 67 events
Annual Reports	10,950	Enhanced daily log:1 hr/day at $30/hour for 365 days
Monitoring	9,000	Partial upgrade; amortized over 20 years at 7%

It is important to note that all items except the FMP development and the prevention measure are recurring costs that will decrease in time. The estimated cost of the prevention measure listed in Table 3 is for a specific system and would be substantially reduced after implementation. The cost could vary significantly for different systems and should not be assumed to be the same for any other system. However, recovery upgrade projects at other facilities were cited in this general price range.

Table 4. Estimated Costs for a Low Cost Prevention Measure

Provision	Estimated Cost ($/Year)	Assumptions
FMP Development	100,000	1/3 of an average hazard analysis for a medium size facility
Prevention Measure	121,945	Startup/Shutdown schedule adjustments including lost production costs; 5 year lifespan
FMP Updates	30,000	Approximately 1/3 of a full FMP
Notification of Flaring	50	7 notifications
Causal Analysis	4,200	$50/hr for 12 hours per event for 7 events
Annual Reports	10,950	Enhanced daily log:1 hr/day at $30/hour for 365 days
Monitoring	3,000	No upgrades

The cost effectiveness for the high cost prevention measure would be $1,603 per ton for the first year for all pollutants, $1,527 per ton thereafter. For the low cost prevention measure the cost effectiveness would be $1,298 per ton for all pollutants, and $818 per ton thereafter.

D. Socioeconomic Impacts

Section 40728.5 of the Health and Safety Code requires an air district to assess the socioeconomic impacts of the adoption, amendment, or repeal of a rule if the rule is one that "will significantly affect air quality or emissions limitations." Applied Economic Development, Berkeley, California, has prepared a socioeconomic analysis. The analysis concludes that the affected refineries should be able to absorb the costs of compliance with the proposed rule without significant economic dislocation or loss of jobs. The socioeconomic analysis is attached as Appendix A.

E. Incremental Costs

Under California Health and Safety Code Section 40920.6, the District is required to perform an incremental cost analysis for a proposed rule under certain circumstances. To perform this analysis, the District must (1) identify one or

more control options achieving the emission reduction objectives for the proposed rule, (2) determine the cost effectiveness for each option, and (3) calculate the incremental cost effectiveness for each option. To determine incremental costs, the District must "calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option."

To determine the incremental cost, staff used a case study (Case 2, Table 2) that considers reductions achieved since installation of capital equipment, and future implementation of a potential control option with a corresponding emission reduction based on historical reductions. The capital equipment installed was two new compressors rated at 4 MMSCFD each and was operational in the first quarter of 2003. The estimated cost was $20,000,000.[10] The emission inventory for NMHC[11] in tons per day, based on flare monitoring data received during the technical assessment and in accordance with the flare monitoring rule, indicated 3.07, 0.25 and 0.45 for 2002, 2003 and 2004, respectively.

The NMHC reduction in 2003 was 2.82 tons per day, or 92%. Assuming comparable reductions[12] and a potential control option with a cost of $40,000,000, the incremental cost is calculated at approximately $8,300,000. This is an example of a "most costly" scenario. For comparison, assuming the same reductions at a lower cost, for example $500,000[13], the incremental cost is calculated at approximately $207,500.

The proposed concept is to evaluate each flare system to identify where reductions may be available for that particular system, develop a plan most suited for that system, then operate in a manner consistent with the plan. It is dissimilar to traditional regulatory mandates due to the variation of the flare systems and the emission reduction potential for each of those systems. The incremental cost is specific to the individual system rather than applicable to the entire source category. This approach adds greater certainty to the selection of the most feasible measure.

F. District Staff Impacts

Implementing this rule will require a total of 1.5 FTE at an average staff level of a Senior Engineer. The actual personnel involved will likely include Senior and Supervising Inspectors assigned to refineries, a Principal Specialist and a Principal Engineer to coordinate review of flare minimization plans, and Source Test Engineers and Technicians to review water seal monitoring systems.

[10] This figure represents an estimate of the total project costs. A breakdown of costs was not provided, is likely to be less and is not applicable to any other project.
[11] Methane was approximately 22% of the total organic emissions.
[12] This assumption recognizes that flaring will not be eliminated.
[13] This value was stated during workgroup meetings and is an estimate for one day of loss in production, for example to extend a startup.

Causal analysis review should take no more than an hour for 90% of the flaring events, however, for the 10% of the events (24, based on 2004 flaring events) that are large, emergency events, a week of an inspector's time and several days of an engineer's time may be needed. A Senior Engineer level (top step) costs $149,000 at 1.5 FTE. In addition, management review, particularly for first year plans and major event analyses, will add to the costs. Management staff involvement would include personnel from the Enforcement, Engineering and Technical Divisions, with some oversight by the Deputy APCOs and the APCO. The total cost will exceed $250,000.

On June 15, the Board adopted a schedule of fees that shifted refinery flares from Schedule G1 to Schedule 3, which will result in approximately an additional $178,000 in revenue from these sources. The calculations above are only for the increase in costs for this proposal. Significant additional costs have been incurred over the last several years from investigation of complaints and implementation of the flare monitoring rule (Reg. 12, Rule 11). One Air Quality Specialist currently allocates 40% of his time to quality assurance of the monitoring reports and coordinating refinery work groups in the Enforcement Division, at a cost of $34,000.

VII. ENVIRONMENTAL IMPACTS

Pursuant to the California Environmental Quality Act, the District's environmental consultant, Environmental Audit, Inc., has prepared an Environmental Impact Report (EIR) for the proposed rule to determine whether it would result in any significant environmental impacts. The EIR concludes that the proposed rule would not have any adverse impacts. The EIR including comments and responses is attached as Appendix B.

VIII. REGULATORY IMPACTS

Section 40727.2 of the Health and Safety Code requires an air district, in adopting, amending, or repealing an air district regulation, to identify existing federal and district air pollution control requirements for the equipment or source type affected by the proposed change in district rules. The district must then note any differences between these existing requirements and the requirements imposed by the proposed change. Table 5 is a matrix of the proposed rule, existing Bay Area regulations, and federal requirements for flares.

Table 5. Regulatory Matrix

Agency	Regulation	Control/Performance Requirements	Monitoring Requirements	Emission Limitations
BAAQMD	Reg. 2, Rule 6 (Title V permit)	Specific to facility and source	Specific to facility and source	Throughput (lbs/hr vent gas), Visible emissions
BAAQMD	Proposed Reg. 12, Rule 12	Prohibits flaring without or not in accordance with a flare minimization plan.	Water seal pressure and level.	Minimize Flaring
EPA	40 CFR 60.18 (applies to flares subject to NSPS)	Pilot flame present at all times, heat content, maximum tip velocity, composition	Presence of flame, heating value	Smokeless capacity
EPA	Subpart J	Limits on gases other than those due to malfunction, relief valve leakage and emergencies.	Hydrogen sulfide in fuel gas	Hydrogen sulfide in fuel gas

Federal Requirements

Federal New Source Performance Standards (NSPS) in 40 CFR Part 60, Subpart A, Section 60.18 apply to flares that are used as general control devices. They specify design and operational criteria for new and modified flares. The requirements include monitoring to ensure that flares are operated and maintained in conformance with their designs. Flares are required to be monitored for the presence of a pilot flame using a thermocouple or equivalent device. Other parameters to be monitored include visible emissions, exit velocity and net heat content of the gas being combusted by the flare.

In addition, the NSPS limit sulfur oxides in vent gases combusted in a flare installed after June 11, 1973 (40 CFR Part 60, Subpart J, Section 60.104). Upset gases or fuel gas that is flared as a result of relief valve leakage or other emergency malfunctions is exempt from the standard. As discussed above, EPA has entered into consent decrees with all Bay Area refineries. These decrees, among other requirements, contain increments of progress for the application of NSPS standards to all flares.

IX. RULE DEVELOPMENT PROCESS

As part of the development of this regulation staff have undertaken an extensive rule development process in order to receive input from all affected parties. These efforts included the formation of a technical working group, public meetings, workshops and presentations to the District Board Stationary Source Committee. The following is a discussion of these efforts.

A. Technical Working Group

To assist in the TAD and rule development process a technical working group was formed that included representatives from Industry, Communities for a Better Environment (CBE), California Air Resources Board, and District staff. This workgroup met routinely to discuss technical issues. The issues discussed include the significance of emission levels, potential control strategies, legal requirements for rule development and sharing of confidential information, current flare system monitoring, procedures to determine the cause of flaring, and the most effective means to distribute information to the public. The following is a summary of those meetings:

August 7, December 10, and January 13, 2003
The topics included the Technical Assessment Document (TAD) update, flare use categories and control strategies, and the rule development schedule. The discussion focused on the basis to update the District's initial assessment, how to identify the causes of flaring and how to develop appropriate control strategies.

March 19, 2004
The topics included technical assessment of emissions and flare control proposals. The discussion of the basis for updating the District's initial assessment, how to identify the cause of flaring and develop appropriate control strategies was continued from the previous meeting.

June 11, 2004
The topics included status update and timelines, final TAD revision, flare control proposals, definitions, and web casting. Staff presented a tentative schedule for rule development, an updated assessment of the flare TAD, proposals for controlling emissions from flares, definitions of various terms and text based web casting of flare monitoring data.

November 4, 2004
A professional facilitator was added to the workgroup for this and subsequent meetings. The topics included agenda review, flare control rule status, workgroup discussion ground rules, possible categories of flaring events, and definitions of terms. The discussion focused on meeting process, developing categories for the cause of flaring, and using terms consistently.

December 2, 2004
This meeting consisted of individual presentations by the Western States Petroleum Association, Communities for a Better Environment, and the District. The focus was on the procedure to evaluate the significance of flare events and the appropriate action to establish control strategies.

December 14, 2004
The topics included flaring information for determining cause, verification of low flow regimes, water seal integrity, and characterization of flare gas composition. The discussion focused on root cause analysis as the standard for investigating the reasons for flaring, monitoring devices on water seals, and current sampling protocols.

January 11, 2005
Workgroup members discussed the purpose, approach and essential elements of a flare control rule. A list of findings/issues was developed, with general agreement that a management plan for reducing emissions from flares is appropriate.

February 8, 2005
The meeting focused on two issues that had been developed at the prior meeting; thresholds for the casual analysis and expectations for a management plan.

The group reached consensus on the need to meet individually for future meetings. Subsequently, staff and District management met with representatives of the refineries, the Western States Petroleum Association, Communities for a Better Environment and the Plumbers and Steamfitters Local 342. In addition, numerous phone conversations between District staff and individual refineries occurred to gather information on the specific designs and operating practices for each flare system.

B. Stationary Source Committee Reports

At the flare monitoring rule adoption hearing, staff committed to provide an update to the Stationary Source Committee eighteen months after rule adoption. At the November 11, 2004 meeting, staff provided a report on the implementation of Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries, flare emissions information, and flare control rule development progress. In addition to staff's presentation, WSPA and CBE gave presentations. The minutes of that meeting can be found on the District's web site at (http://www.baaqmd.gov/brd/brddirectors/agendas_minutes_2004.asp).

Three additional presentations were given to the Stationary Source Committee: one on January 24, 2005, one on March 28, 2005, and one on May 23, 2005. The presentations provided progress reports regarding rule development and accomplishments since November 11, 2004, the last Stationary Source meeting.

The reports included background materials, an update on emission characterizations, workgroup progress, reports on the public workshops, response to public comments, and plans for finalizing this rule development process.

C. Public Meetings and Workshops

The staff of the Bay Area Air Quality Management District conducted public meetings in four different locations to discuss flare systems at petroleum refineries. The purpose of the meetings was to present information on the flare control measure and to receive input. These evening meetings were held on October 23, 2003 at the Crockett Community Center, October 29, 2003 at the Maple Hall Civic Center in San Pablo, November 5, 2003 at the Benicia City Council Chambers, and November 6, 2003 at the Martinez City Council Chambers. The input provided by the public was used in developing a draft rule.

A draft rule was presented at two public workshops held in Martinez on March 16, 2005 and in Richmond on March 24, 2005. Both meetings were held in the evening and combined were attended by over 200 people. The two core issues raised at the workshops concerned the perceived lack of clearly defined standards and the desire to have the rule provide an opportunity for public comment on the flare minimization plans. Staff made modifications to the proposed rule to address both of these concerns.

Written comments on the draft rule were received from the Western States Petroleum Association, Communities for a Better Environment, the Plumbers and Steamfitters Local 342, American Lung Association, Valero Refinery, EPA, ARB, Global Community Monitor, Clean Water Action and Community Labor Refinery Tracking Committee, Ohio Citizen Action, Louisiana Bucket Brigade, Inform Public Relations, Center for Environmental Health, Pamela Calvert, Bob Craft, Norma Wallace, Molly Boggs, and Peter Hendricks. In addition, one phone message was received from Shirley Butt. All were supportive of the District's effort to develop a flare control rule and made suggestions for improvement. Staff made modifications to the proposed rule to address the comments and suggestions.

This proposed rule was made available for public comment and posted on the District's web site. Staff has continued to meet with workgroup members to discuss the proposed rule. Written comments and staff responses will be contained in an addendum to this Staff Report (Appendix C), which will be prepared following the July 12, 2005 close of the public comment period on the regulatory proposals.

Appendix D contains a matrix of the timeline for the FMP submittal, public comment, and review and approval process.

X. CONCLUSION

The proposed rule, Regulation 12, Rule 12: Flares at Petroleum Refineries, is intended to limit the amount of emissions released from flares by limiting the frequency and magnitude of flaring events. Pursuant to Health and Safety Code Section 40727, new regulations must meet necessity, authority, clarity, consistency, non-duplicity and reference. The proposed regulation is:

- Necessary to protect public health by reducing ozone precursor emissions. The amendments also reduce exposures to toxic air contaminants, sulfur dioxide and particulate matter.

- Authorized by California Health and Safety Code Section 40702.

- Clear, in that the new regulation specifically delineates the affected industry, compliance options and administrative requirements for industry subject to this rule,

- Consistent with other District rules, and not in conflict with state or federal law,

- Non-duplicative of other statutes, rules or regulations, and

- The proposed regulation properly references the applicable District rules and test methods and does not reference other existing law.

An Environmental Impact Report prepared by Environmental Audit, Inc., concludes that there will be no adverse environmental impacts from adoption of the proposed rule. A socioeconomic analysis prepared by Applied Development Economics concludes that the affected refineries will be able to absorb the costs of compliance with the proposed rule without economic dislocation or loss of jobs.

Staff recommends the adoption of the proposed new Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Petroleum Refineries, the proposed amendment to Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations, and certification of the Final Environmental Impact Report.

REFERENCES

1. United States Environmental Protection Agency, “Refinery Initiative”, EPA Website: http://www.epa.gov/compliance/civil/programs/caa/oil/index.html. Last updated on Wednesday, October 6th, 2004

2. Bay Area Air Quality Management District, “Draft Technical Assessment Document-Flares”, December 2002

3. Bay Area Air Quality Management District, “Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries” Adopted June 4, 2003

4. California Health and Safety Code, CHAPTER 10, “District Plans To Attain State Ambient Air Quality Standards”, Section 40910

SOCIOECONOMIC
ANALYSIS
PROPOSED RULE

REGULATION 12
MISCELLANEOUS STANDARDS OF PERFROMANCE
RULE 12
FLARES AT PETROLEUM REFINERIES

July 1, 2005

Prepared for
Bay Area Air Quality
Management District

Prepared by

Applied Development Economics
2029 University Avenue • Berkeley, California 94704 • (510) 548-5912
1029 J Street, Suite 310 • Sacramento, California 95814 • (916) 441-0323
www.adeusa.com

CONTENTS

TABLES

1. EXECUTIVE SUMMARY

INTRODUCTION

This report describes the socioeconomic impacts of proposed changes in oil refinery operations expected to comply with the proposed flare control rule (Regulation 12, Rule 12). The report summarizes the proposed rule requirements and describes the methodology for the socioeconomic analysis. The report also describes the economic characteristics of sites affected by the proposed rule along with the socioeconomic impacts of proposed operation changes. The proposed changes will assist the BAAQMD in meeting its commitments to improving air quality in the region by reducing emissions from flares by minimizing the frequency and magnitude of flaring that occur at Bay Area refineries.

SUMMARY

The proposed rule affects five oil refineries, which currently operate 21 flares. It is estimated that the refineries employ about 1,935 workers and provide a total payroll of $557 million per year. The refineries are estimated to generate sales of $9.8 billion per year and to realize net income of about 7 percent of sales, or $689 million per year.

Compliance with the proposed rule would require development of a Flare Minimization Plan (FMP) as well as various reporting activities when flaring occurs. The costs for implementation of the FMP will vary considerably at each refinery depending on the existing levels of emission controls and the types of systems in place. At the upper end, a $20 million expenditure may be necessary to install equipment for systems needing additional recovery capacities. Amortized over the 20 year life of such a system, the annual costs are estimated at about $1.9 million. Combined with the plan development and reporting activities, the total annual cost per flare system is estimated at $2.1 million. At the lower end, the total annual cost per flare system is estimated at $270,145. The aggregate cost for the 5 facilities affected by the proposed rule would range between $1.4 million per year at the lower end and $10.6 million per year at the upper end.

The socioeconomic analysis evaluates the compliance costs in relation to the financial characteristics of the affected facilities to determine the significant of the economic impact of the rule. The annual cost of the rule compliance represents between 0.2 percent and 2 percent of annual net income for the affected facilities, below the 10 percent threshold of significance for such impacts. The analysis concludes that the affected refineries should be able to absorb these costs without significant economic dislocation or loss of jobs. The analysis also addresses the issue of potential impacts to small businesses but concludes that the affected refineries do not meet the criteria to be considered small business operations.

2. DESCRIPTION OF PROPOSED RULE

The proposed rule is intended to reduce emissions from flares by minimizing the frequency and magnitude of flaring. The proposal includes a standard that prohibits the use of a refinery flare unless the use is consistent with an approved flare minimization plan ("FMP" or "Plan") or is necessary to prevent accident, hazard or release of gas to the atmosphere. The rule includes a requirement to conduct a causal analysis to evaluate a reportable flaring event, i.e., flaring more than 500,000 standard cubic feet per calendar day (scfd), to identify the cause (or causes) of the flaring and the means to avoid flaring from that cause in the future if possible, and to provide an annual summary for flaring less than 500,000 scfd where the sulfur dioxide emission are greater than 500 pounds. This formal evaluation process will ensure that each refinery makes continuous improvement and progress toward the goal of flare use minimization.

3. IMPACTS OF THE RULE

This section of the socioeconomic analysis describes demographic and economic trends in the San Francisco Bay Area region. Following an overview of the methodology for the socioeconomic analysis, the first part of this section compares the Bay Area against California and provides a context for understanding demographic and economic changes that have occurred within the Bay Area between 1994 and 2004. After an overview of Bay Area industries, we focus on SIC 2911 (NAICS 32411) and how the new proposed rule would impact the refineries. For the purposes of this report, the Bay Area region is defined as Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma Counties. The refineries are located in Contra Costa and Solano Counties.

3.1 METHODOLOGY

The socioeconomic analysis of the new proposed rule involves the use of information provided directly by BAAQMD, as well as secondary data used to describe the industries affected by the proposed change.

Based on conversations with BAAQMD staff, ADE determined that the impacts would affect oil refineries in the BAAQMD region and, of these, we further focused attention on Chevron, Shell, Conoco Phillips, Valero and Tesoro.

With this information we began to prepare an economic description of the industry groups of which the affected sites are part, as well as to analyze data on the number of jobs, sales levels, the typical profit ratios and other economic indicators for Bay Area oil refineries. ADE also reviewed and summarized documents available to the public such as annual reports for publicly traded companies.

With the annual reports and data from the US Economic Census, ADE was able to estimate revenues and profit ratios for many of the sites affected by the proposed flare minimization. In calculating aggregate revenues generated by Bay Area refineries, ADE first estimated an average revenue figure for a refinery based on revenues generated over the

four-year period between 2000 and 2003. Using annual reports and publicly available data, ADE calculated ratios of profit per dollar of sales for the refineries. To estimate employment, ADE used employment data from Dun & Bradstreet.

The result of the socioeconomic analysis shows what proportion of profit the compliance costs represent. Based on a given threshold of significance, ADE discusses in the report whether the affected sites are likely to reduce jobs as a means of recouping the cost of compliance or as a result of reducing business operations. To the extent that such jobs losses appear likely, the indirect multiplier effects of the jobs losses are estimated using a regional IMPLAN input-output model.

3.2 REGIONAL DEMOGRAPHIC TRENDS

The San Francisco Bay Area experienced moderate population growth from 1994 to 2004. Between 1994 and 1999, the nine-county region increased by 3 percent, from 6.2 million in 1994 to 6.6 million in 1999. From 1994 to 2004 the population increase was from 6.2 million to 6.8 million for an increase of 11 percent. At the same time, California had population growth of 14 percent.

Within the Bay Area the greatest percentage increase occurred in Contra Costa County. From 1994 to 2004 Contra Costa increased its population by 18 percent. All other Bay Area counties had population increases equal to, or slower than the state. The smallest percentage increase occurred in Marin and San Mateo Counties where population grew 5 percent from 1994 to 2004. Table 1 shows the population changes that have occurred in the Bay Area and California from 1994 to 2004.

TABLE 1
Population Growth: San Francisco Bay Area

	Population			Percent Change		
	1994	1999	2004	94 - 99	99 - 04	94 - 04
California	30,889,182	32,971,834	35,300,654	7%	7%	14%
Bay Area	6,189,000	6,646,167	6,865,370	7%	3%	11%
Alameda County	1,302,462	1,406,046	1,470,456	8%	5%	13%
Contra Costa County	844,076	914,645	992,608	8%	9%	18%
Marin County	228,718	236,955	239,209	4%	1%	5%
Napa County	111,083	118,088	126,283	6%	7%	14%
San Francisco County	729,024	771,122	772,985	6%	0%	6%
San Mateo County	667,218	712,376	702,017	7%	-1%	5%
Santa Clara County	1,544,523	1,672,977	1,701,831	8%	2%	10%
Solano County	356,652	377,601	399,826	6%	6%	12%
Sonoma County	405,244	436,357	460,155	8%	5%	14%

Source: Applied Development Economics, based on household population estimates from The California Department of Finance

3.3 REGIONAL ECONOMIC TRENDS

The Bay Area is one of the world's greatest regional economies. It benefits from pre-eminent knowledge-based industries, with competitive strength flowing from an unmatched culture of entrepreneurship, world-leading research institutions, and some of the nation's best educated and most highly skilled workforce. With these remarkable advantages, it has led through innovation in a wide range of research and industrial fields.

Many of the Bay Area's most prominent industries are manufacturing related. From Intel to PowerBar, Bay Area manufacturers are often high profile companies with world-renowned recognition. From small to large, Bay Area industry has been dynamic creating wealth and jobs in both the export sector and local serving industries.

The economic base is typically comprised of export industries within the manufacturing, minerals-resource extraction, and agricultural sectors. There are also the "local support industries" such as retail or service sectors, the progress of which is a function of the economic base and demographic changes, and more so the latter than the former. As population increases in a given area, demand for services –

such as realtors, teachers, healthcare –increases, as does demand for basic retail items like groceries, gas for commuting, or clothing at the local apparel shops.

The industries affected by flare minimization are a prominent part of the region's economic base. Mainly engaged in export related business, the oil refineries are classified as manufacturers. In the Bay Area, manufacturing jobs have decreased over the last decade. In 1994 manufacturing accounted for 14 percent of all Bay Area employment. By 2004 manufacturing declined 11 percent to account for 11 percent of all Bay Area employment.

As of 2004, the professional and business services sector was the largest employer in the region, at 520,200 jobs or 16 percent of all private and public sector jobs. This is a change from 1994 when professional and business services accounted for 15 percent of all Bay Area employment. During the same period professional and business services increased 17 percent. The next largest industry in the Bay Area is public service, or government, with 460,300 jobs. In 2004 government accounted for 14 percent of all Bay Area employment. From 1994 to 2004 government had one of the lowest growth rates of all industries at 4 percent. Two other industries came close to manufacturing in total employment. Retail trade and education & health care both made up 11 percent of total employment and had only a few hundred or few thousand jobs less than manufacturing. Unlike manufacturing, both retail trade and education & health care had significant jobs gains from 1994 to 2004. All other industries made up less than manufacturing in total employment in 2004. Table 2 shows Bay Area industry sectors and their trends from 1994 to 2004.

TABLE 2
Employment Profile of the San Francisco Bay Area, 1994 - 2004

Industry	1994	1999	2004	% of Total Employment in 2004
Farm	25,800	28,600	21,300	1%
Natural Resources & Mining	4,300	3,600	2,300	0%
Construction	109,300	171,400	181,000	6%
Manufacturing	405,400	459,400	359,700	11%
Wholesale Trade	118,500	107,100	121,900	4%
Retail Trade	300,200	339,000	337,900	11%
Transportation & Warehousing & Utilities	115,500	124,700	102,900	3%
Information	89,200	122,100	111,600	3%
Financial Activities	193,300	197,400	209,800	7%
Professional and Business Services	445,400	626,100	520,200	16%
Education & Health Care	293,800	335,000	359,200	11%
Leisure and Hospitality	250,000	289,500	304,400	10%
Other Services	100,100	108,800	109,700	3%
Government	444,500	449,800	460,300	14%
Total	**2,895,300**	**3,362,500**	**3,202,200**	**100%**

Source: Applied Development Economics from data supplied by the Labor Market Information Division of the California Employment Development Department

3.4 DESCRIPTION OF AFFECTED INDUSTRIES

The new proposed rule for flares at petroleum refineries affects industries in SIC 2911 (NAICS 32411- oil refineries). What follows is a description of this industry, along with economic trends for oil refineries in the Bay Area, and it provides a comparison between 2001 and 2004. Data in Table 3 are for all sources, not just the five major oil refineries in the Bay Area. As shown in Table 3, employment in oil refineries increased by 2 percent for in the four years from 2001 to 2004. This is at the same time that Bay Area manufacturing jobs decreased 22 percent. In California, oil refineries declined 5 percent during the same period and manufacturing jobs declined 14 percent.

TABLE 3
Employment Trends: Industries Affected by Proposed Amendments, 2001 - 2004

	2001	2002	2003	2004	Change from 2001 to 2004	% Change from 2001 to 2004
San Francisco Bay Area						
Manufacturing	460,992	402,895	362,089	357,385	-103,607	-22%
Petroleum refineries	7,086	7,271	7,248	7,196	110	2%
California						
Manufacturing	1,780,544	1,633,958	1,532,287	1,536,787	-243,757	-14%
Petroleum refineries	13,447	12,878	13,149	12,776	-671	-5%

Source: Applied Development Economics from data supplied by the Labor Market Information Division of the California Employment Development Department

Table 4 identifies the economic characteristics of the refineries affected by the new proposed rule. This table shows that the refineries are estimated to employ 1,935 workers. These sites have an estimated aggregate payroll of $172 million, and estimated revenues of $9.8 billion. In calculating aggregate revenues generated by Bay Area refineries, the consultant estimated an average revenue figure per refinery based on revenues generated by that refinery in 2004 using annual reports. Then, the consultant summed the refineries' estimated revenue to arrive at the aggregate amount of $9.8 billion.

TABLE 4
Economic Characteristics of Impacted Oil Refineries in the San Francisco Bay Area

No. of Oil Refineries	Estimated Sales	Estimated Employment	ES202 Payroll
5	$9,837,598,944	1,935	$557,340,000

Source: U.S. Economic Census 2002; California Employment Development Department Quarterly Census of Employment and Wages

As Table 5 shows, the affected sources represent 27 percent of all employment within their respective industry in the Bay Area. Overall, there are an estimated 7,196 petroleum refining employees in the Bay Area. Of the 7,196 workers, 1,935 work in the affected refineries, or 27 percent. In all of California, there were 12,776 workers in SIC 2911 (NAICS 32411),

meaning that the affected Bay Area refineries equaled 15 percent of the state oil refinery workforce.

TABLE 5
Employment at Impacted Sites Relative to the Bay Area as a Whole

No. of Oil Refineries	Estimated Employment	Affected Oil Refineries as a % of Bay Area Total	Affected Oil Refineries as a % of California Total
5	1,935	27%	15%

Source: Calculations by Applied Development Economics

3.5 COMPLIANCE COSTS

The cost of compliance analysis indicates that recurring and one-time costs would range from $270,145 per flare system at the lower end to $2.1 million per flare system at the upper end. The flare monitoring consists of six elements including provisions to update the plan. In addition, there is a requirement to notify BAAQMD when a flaring event occurs, annual updates, and continuous monitoring of the flare water seal. Table 6 provides a breakdown of the estimated costs.

TABLE 6
Estimated Cost of Compliance per Flare System

	Costs	
Provision	**Lower End**	**Upper End**
FMP Development*	$100,000	$100,000
Control Measure	$121,945	$1,921,592
FMP Updates	$30,000	$30,000
Notification of Flaring	$50	$500
Causal Analysis	$4,200	$40,200
Annual Reports	$10,950	$10,950
Water Seal Monitoring*	$3,000	$9,000
Total	**$270,145**	**$2,112,242**

Source: BAAQMD Staff
*Note: One time cost

For purposes of the rule, there are 21 flares among the five refineries. The total aggregates costs of compliance for the industry would range from $1.4 million per year in the lower end to $10.6 million per year in the upper end.

3.6 BUSINESS RESPONSE TO COMPLIANCE COSTS

Sites impacted by flare minimization plans may respond in a variety of ways when faced with new regulatory costs. These responses may range from simply absorbing the costs and accepting a lower rate of return to shutting down the business operation altogether. Businesses may also seek to pass the costs on to their customers in the form of higher prices, although in general throughout the oil industry prices are set in global markets and individual producers or refineries are not in a position to affect prices. More likely, they may renew efforts to increase productivity and reduce costs elsewhere in their operation in order to recoup the regulatory costs and maintain profit levels.

3.7 IMPACT ANALYSIS

The businesses' responses to increased compliance costs hinge on the effect of the costs on the profits generated at the affected sites. An impact on estimated profits greater than 10 percent implies that the source would experience serious economic effects because of the compliance cost. When compliance costs are greater than 10 percent of estimated profits, companies typically respond to the impact by laying off some workers, closing parts of manufacturing facilities or, in the most drastic case, possibly closing the manufacturing facility.

Using the cost estimates developed for the proposed new rule, ADE calculated the socioeconomic impacts of the proposed actions. In calculating impacts on profits, ADE used return on sales ratios identified by media reports and in annual reports of companies directly affected by the proposal. Based on this information, we estimate that the affected refineries generated a combined profit of $688 million on $9.8 billion in revenues.

Table 7 compares the estimated costs of the proposed new rule and its impact on profits. Affected refineries will incur an aggregate annual cost ranging between $1.4 million and $10.4 million under the flare minimization program. This cost represents an estimated 0.2 percent to 2 percent of profits for the oil refineries affected by the proposed rule.

TABLE 7
Impact of Proposed Measure on Estimated Profits at Bay Area Oil Refineries

		Cost of Prevention Measure		Cost as a % of profits	
Impacted Refineries	Estimated Profits Generated	Lower End	Upper End	Lower End	Upper End
5	$688,631,926	$1,350,725	$10,561,210	0.2%	2%

Source: Calculations by ADE, based on a 7 percent profit margin for oil refiners

3.8 IMPACT ON SMALL BUSINESSES

In addition to analyzing the employment impacts of the proposed new rule, state legislation requires that the socioeconomic analysis assess whether small businesses are disproportionately affected by air quality rules. First, this section profiles oil refineries in the San Francisco Bay Area region by employment size categories, and, in so doing, shows that most of these manufacturers are relatively large employers. Then, this section discusses the average size of the five refineries affected by the proposed new rule. Finally, this section shows how the five refineries affected by the proposal fail to qualify as small businesses as defined by the State of California.

Oil Refineries by Employment Size Categories

Fifty percent of all businesses in California and 46 percent of United States businesses employ less than fifty people. Data in Table 8 are for all sites in industries identified by the BAAQMD, and it includes data on sites affected by the proposed flare monitoring. The data in the table comes from Dun & Bradstreet and is current as of the second quarter of 2005. Table 8 distributes affected industries by number of employees per site. As a group, establishments in the affected industries are significantly larger than state and national industries as a whole.

Establishments with more than 100 workers represent 37 percent of all establishments in all industries in California and 41 percent in the United States. In contrast, 90 percent of Bay Area oil refineries employ at least 100 people. We estimate that the sites directly affected by the proposed rule employ,

on average, 387 workers, placing these facilities as mid- to large-sized employers.

TABLE 8
Distribution of Oil Refineries by Employment Size in the San Francisco Bay Area

	Employment Size Categories*							
	1 thru 4	5 thru 9	10 thru 24	25 thru 49	50 thru 99	100 thru 249	250 thru 499	500 or more
Bay Area Petroleum refineries	0%	1%	1%	3%	5%	0%	30%	60%
California (all industries)	16%	8%	14%	12%	13%	14%	8%	15%
U.S. (all industries)	12%	8%	14%	12%	13%	15%	8%	18%

Source: Applied Development Economics, based on data supplied by Zapdata.com (a Dun & Bradstreet Company)
*Note: Employment size based on number of employees located at individual company/business sites

Definition of Small Business per California Statute

The previous section showed oil refineries in the San Francisco Bay Area, including refineries affected by flare monitoring are significantly larger than most businesses in California and the nation, which, on average, employ less than 50 people. In contrast, the refineries, on average, employ 387 workers. This section discusses how the State of California defines small business, and shows how the five sources affected by the proposed new rule fail to meet the State's definition of small business.

For purposes of qualifying small businesses for bid preferences on state contracts and other benefits, the State of California defines small businesses in the following manner. To be eligible for small business certification, a business:

- Must be independently owned and operated;
- Cannot be dominant in its field of operation;
- Must have its principal office located in California
- Must have its owners (or officers in the case of a corporation) domiciled in California; and
- Together with its affiliates, be either:
- A business with 100 or fewer employees, and an average gross receipts of $10 million or less over the previous tax years, or
- A manufacturer with 100 or fewer employees

The refineries that are affected by the proposed new rule are not independently-owned and operated businesses. These refineries are owned by publicly-traded global corporations whose headquarters are generally outside of California. In addition, each of the refineries that are affected by the proposal employ, on average, 387 workers, and their average revenue is approximately $1.9 billion. Thus, by the standards established by the State of California, these sources are not small businesses. Based on this discussion, it is determined that proposal does not disproportionately affect small businesses because the sources impacted by the proposed new rule do not meet California's definition of small business.

Environmental Impact Report for the Bay Area Air Quality Management District's Flare Rule: Regulation 12, Rule 12

July 8, 2005

Prepared for:

Bay Area Air Quality Management Distict
939 Ellis Street
San Francisco, CA 94109
Contact: Alex Ezersky
(415) 749-4650`

Prepared By:

Environmental Audit, Inc.
1000-A Ortega Way
Placentia, CA 92870
Contact: Debra Bright Stevens
(714) 632-8521

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

ENVIRONMENT IMPACTS REPORT

FLARE RULE

TABLE OF CONTENTS

Page No.

Page No.

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The Bay Area Air Quality Management District (BAAQMD or District) was established in 1955 by the California Legislature to control air pollution in the counties around San Francisco Bay and to attain federal air quality standards by the dates specified in federal law. There have been significant improvements in air quality in the Bay Area over the last several decades. The BAAQMD is also required to meet state standards by the earliest date achievable.

For the last several years the District has been monitoring emissions from refinery flares. The data resulting from this monitoring has been made available for public review on the District's web site. Considerable reductions in emissions from flares have been realized since this program has been implemented. The District is proposing to adopt a new rule to ensure these reductions remain, and to encourage refineries to operate flares when necessary to maintain safety at the refineries.

This EIR addresses the impacts due to implementation of the Bay Area Air Quality Management District ("the District" or BAAQMD) Regulation 12, Rule 12, Flares at Petroleum Refineries. The District is also proposing to amend Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations, to clarify that this rule does not apply to sources subject to the new Regulation 12, Rule 12.

1.1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., requires that the potential environmental impacts of proposed projects be evaluated and that feasible methods to reduce or avoid identified significant adverse environmental impacts of these projects be identified.

To fulfill the purpose and intent of CEQA, the BAAQMD has prepared this Environmental Impact Report (EIR) under the requirements of CEQA Guidelines §15187 to address the potential environmental impacts associated with the proposed Regulation 12, Rule 12. Amendments to several other District rules are also proposed in order to maintain consistency with Regulation 12, Rule 12. Prior to making a decision on the adoption of the new flare rule, the BAAQMD Governing Board must review and certify the EIR as providing adequate information on the potential adverse environmental impacts of implementing the proposed Rule.

1.1.2 NOTICE OF PREPARATION AND INITIAL STUDY

A Notice of Preparation (NOP) and Initial Study for the adoption of District Regulation 12, Rule 12 (included as Appendix A of this EIR) was distributed to responsible agencies and interested parties for a 30-day review on March 28, 2005. A notice of the availability of this document was distributed to other agencies and organizations and was placed on the BAAQMD's web site, and was also published in newspapers throughout the area of

the BAAQMD's jurisdiction. One comment letter was received on the NOP and Initial Study.

The NOP and Initial Study identified the following environmental resources as being potentially significant, requiring further analysis in the EIR: air quality and hazards and hazardous materials. The following environmental resources were considered to be less than significant in the NOP and Initial Study: aesthetics, agricultural resources, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities service systems (see Appendix A).

1.1.3 TYPE OF EIR

In accordance with §15121(a) of the State CEQA Guidelines (California Administrative Code, Title 14, Division 6, Chapter 3), the purpose of an EIR is to serve as an informational document that: "will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project."

The EIR is an informational document for use by decision-makers, public agencies and the general public. The proposed project requires discretionary approval and, therefore, it is subject to the requirements of CEQA (Public Resources Code, §21000 et seq.).

The focus of this EIR is to address the environmental impacts of the proposed project as identified in the NOP and Initial Study (included as Appendix A of this EIR). The degree of specificity required in an EIR corresponds to the degree of specificity involved in the underlying activity described in the EIR (CEQA Guidelines §15146). Because the level of information regarding potential impacts from the adoption of Regulation 12, Rule 12, is relatively general at this time, the environmental impact forecasts are also general or qualitative in nature.

1.1.4 INTENDED USES OF THIS DOCUMENT

In general, a CEQA document is an informational document that informs a public agency's decision-makers, and the public generally, of potentially significant adverse environmental effects of a project, identifies possible ways to avoid or minimize the significant effects, and describes reasonable alternatives to the project (CEQA Guidelines §15121). A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this EIR is intended to: (a) provide the BAAQMD Governing Board and the public with information on the environmental effects of the proposed project; and, (b) be used as a tool by the BAAQMD Governing Board to facilitate decision making on the proposed project.

Additionally, CEQA Guidelines §15124(d)(1) require a public agency to identify the following specific types of intended uses of a CEQA document:

1. A list of the agencies that are expected to use the EIR in their decision-making;

2. A list of permits and other approvals required to implement the project; and

3. A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

Other local public agencies, such as cities, county planning commissions, etc., may use the EIR for the purpose of developing projects consistent with Regulation 12, Rule 12 if construction activities are determined to be necessary at refineries and local building permits are required. No other permits will be required by single purpose public agencies.

1.1.5 AREAS OF CONTROVERSY

In accordance to CEQA Guidelines §15123(b)(2), the areas of controversy known to the lead agency including issues raised by agencies and the public shall be identified in the EIR. Several areas of controversy have been expressed during public workshops or in the letter received on the NOP.

Concerns about the impact of the proposed rule on the safe operation of the refinery have been expressed by the refinery operators. They are of the opinion that an impact could occur during the refinery operator's decision process, when making the choice to flare or an alternative decision that may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous materials to the atmosphere. The rule has been developed to mitigate this impact; language has been included that requires priority be given to the safe operation of the refinery, and incorporating operational procedures for routine flaring in the flare management plan.

Comments on the impacts of the proposed rule were provided by Communities for a Better Environment (CBE). CBE raised concerns regarding the significance of refinery hazards associated with the proposed rule, the need to evaluate all pollutants emitted by flares, the need to estimate episodic and average emissions for flares, the need to re-evaluate historical flare data, the need to evaluate flare episodes near each refinery, the need to evaluate ambient monitoring before and after historic flare events, list all community odor reports, evaluate cumulative health effects of localized exposure to flare plumes, evaluate environmental injustice on communities exposed to flare plumes, compile demographic data, evaluate emission fallout on water quality and aquatic life, evaluate the potential for disproportionate impacts on refinery workers and neighbors, evaluate impacts associated with gasoline and diesel price spikes caused by major refinery upsets, encourage public participation, evaluate alternatives, and evaluate the need for independent audits of refinery activities. Issues related to the EIR (e.g., existing emissions) have been addressed in this document.

1.1.6 PROJECT OBJECTIVES

CEQA Guidelines §15124(b) requires an EIR to include a statement of objectives, which describes the underlying purpose of the proposed project. The purpose of the statement of objectives is to aid the lead agency in identifying alternatives and the decision-makers in preparing a statement of findings and a statement of overriding considerations, if necessary. The objectives of the proposed Regulation 12, Rule 12 are summarized in the following bullet points.

- allow flaring for the safe operation of the facility;
- require a management plan for each flare subject to the rule;
- require prompt notification and detailed investigation of flaring events;
- continue to develop better emission estimates from flares, and
- ensure continued emission reductions from flaring minimization.

1.1.7 DOCUMENT FORMAT

State CEQA Guidelines outline the information required in an EIR, but allow the format of the document to vary [CEQA Guidelines §15120(a)]. The information in the EIR complies with CEQA Guidelines §15122 through §15131 and consists of the following:

Chapter 1: Introduction

Chapter 2: Project Description

Chapter 3: Environmental Setting, Impacts and Mitigation Measures

Chapter 4: Alternatives

Chapter 5: Other CEQA Topics

Chapter 6: References

Chapter 7: Acronyms

Appendix A: Notice of Preparation/Initial Study

Appendix B: Comments Received on the Notice of Preparation (NOP)/Initial Study and Responses to Comments

1.2 EXECUTIVE SUMMARY OF EIR

1.2.1 EXECUTIVE SUMMARY – CHAPTER 2: PROJECT DESCRIPTION

Regulation 12, Miscellaneous Standards of Performance, Rule 12, Flares at Petroleum Refineries is a proposed new rule initiated by the 2001 Ozone Attainment Plan and is included as part of the District's current Ozone Strategy. It is intended to reduce emissions from flares at petroleum refineries by reducing the magnitude and duration of flaring events.

This new proposed rule will require each refinery to develop and implement a flare management plan for each flare subject to the rule; submit the plan to the District for review and approval, including a provision for public comment; conduct a causal analysis when significant flaring occurs; develop and submit an annual report that summarizes the use of a flare at low flow rates; periodically update the plan; continuously monitor the pressure and height within the water seal; and operate the flare in accordance with the developed flare management plan except for flaring in emergency situations.

Flare systems in petroleum refineries provide for the safe disposal of hydrocarbons, liquids and gases, which are either vented automatically from the process units through pressure safety valves, control valves, or manually vented from units.

The proposed rule amendments would apply to refineries under BAAQMD jurisdiction, which includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma counties (approximately 5,600 square miles).

The District is monitoring 23 flares at five refineries. The refineries who are affected by Regulation 12, Rule 12 are ChevronTexaco, Valero, ConocoPhillips, Shell Oil and Tesoro.

Several District rules apply to Bay Area refinery flare emissions, varying from the generic to source specific requirements. The most recent is Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries, which was adopted on June 4, 2003. There are four other Bay Area District regulations applicable to Bay Area flare emissions. Regulation 1, Section 301: Public Nuisance, is derived from the California Health and Safety Code Section 41700, Regulation 6: Particulate Matter and Visible Emissions, Regulation 7: Odorous Compounds and Regulation 9, Rule 1 and Rule 2: Inorganic Gaseous Pollutants for Sulfur Dioxide and Hydrogen Sulfide. Additionally, Regulation 10 - Standards of Performance for New Stationary Sources, contains Federal standards for petroleum refineries adopted by reference.

Emissions from flare operations have decreased. Reports from refiners and analysis by staff have shown a reduction of up to 86% for one facility since 2002. These reductions

are primarily due to adding flare gas compressor capacity and better management practices. The proposed new rule would capture these reductions and add new requirements to control organic compounds.

The General section of the proposed project states the focus of the rule and specifies any exemptions from the requirements. A description is provided that specifies the rule's applicability. The rule is intended to reduce emissions from flares at petroleum refineries by a variety of means that would become enforceable elements of a flare management plan.

Exemptions have been developed to exclude those flares that have equivalent limitations, which have been established either by requirements in source specific regulations or as permit conditions. These include flares that control emissions from Organic Liquid Storage and Distribution, Marine Vessel Loading Terminals, Wastewater Treatment Plants, and Pumps.

The proposed rule will maintain emission reductions from flares achieved over the past few years and help identify areas where future reductions might be possible. The process is enhanced by increments of progress with APCO review and approval, and a provision for public comment. This structure provides an opportunity to evaluate different approaches and the feasibility of applying them to other systems.

1.2.2 EXECUTIVE SUMMARY – CHAPTER 3: ENVIRONMENTAL SETTINGS, IMPACTS AND MITIGATION MEASURES

1.2.2.1 Air Quality

1.2.2.1.1 Environmental Setting

It is the responsibility of the BAAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM10), sulfur dioxide (SO_2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution.

Air quality conditions in the San Francisco Bay Area have improved since the District was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeds air quality standards have fallen dramatically. The District is in attainment of the state and federal ambient air quality standards for CO, nitrogen oxides (NOx), and sulfur oxides (SOx). The District is unclassified for the federal 24-hour PM10 standard. Unclassified means that the monitoring data are incomplete and do not support a designation of attainment or non-attainment. The BAAQMD has requested and U.S. EPA has proposed a finding of attainment of the national one-hour ozone standard

for the Bay Area. The proposed finding is based on monitoring from the years 2001, 2002, and 2003.

Flares produce air pollutants through two primary mechanisms. The first mechanism is by incomplete combustion of a gas stream. Like all combustion devices, flares do not combust all of the fuel directed to them. The second mechanism of pollutant generation is through the oxidation of flare gases to form other pollutants. As an example, the gases that are burned in flares typically contain sulfur in varying amounts. Combustion oxidizes these sulfur compounds to form sulfur dioxide, a criteria pollutant. In addition, combustion also produces relatively minor amounts of nitrogen oxides through oxidation of the nitrogen in flare gas or atmospheric nitrogen in combustion air.

Unlike internal combustion devices like engines and turbines, flares combust fuel in the open air, and combustion products are not contained and emitted through a stack, a duct, or an exhaust pipe. As a result, emission measurement is difficult.

Flare Emission Inventory: Emission data for criteria pollutants from flares have been recently collected as the BAAQMD implemented regulations requiring the monitoring of emissions from flares. This regulation required refineries to determine vent gas composition, install volumetric flow monitoring instrumentation, install and archive video monitoring of their flares, and submit monthly reports to the District. The data allowed the refineries and the BAAQMD to better estimate emissions from flares.

Current Flare Emission Estimate: The data from the refineries that have been submitted after adoption of the monitoring rule is more reliable and based on more accurate data. The refineries submitted data to the District from January 2004 to December 2004. Total emissions from flares in the Bay Area in tons/day for this period are as follows: SOx (3.891), NOx (0.405), CO (1.674), PM (0.025) and Non-Methane Hydrocarbons (1.490). Data collected by the BAAQMD shows large variation in the daily emissions from flares.

Although the primary mandate of the BAAQMD is attaining and maintaining the national and state Ambient Air Quality Standards for criteria pollutants within the BAAQMD jurisdiction, the BAAQMD also has a general responsibility to control, and where possible, reduce public exposure to airborne toxic compounds. The state and federal governments have set health-based ambient air quality standards for criteria pollutants. The air toxics program was established as a separate and complementary program designed to evaluate and reduce adverse health effects resulting from exposure to toxic air contaminants (TACs). Flares are a potential source of TACs.

Historically, the BAAQMD has regulated criteria air pollutants using either a technology-based or an emissions-limit approach. The technology-based approach defines specific control technologies that may be installed to reduce pollutant emissions. The emission limit approach establishes an emission limit, and allows industry to use any emission control equipment, as long as the emission requirements are met. The District's Air Toxics New Source Review (NSR) Program requires permits for new and modified

stationary emissions sources. Additionally, the Air Toxics Hot Spot Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code §39656) establishes a state-wide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with those emissions. The BAAQMD maintains a database that contains information concerning emissions of TACs from permitted stationary sources in the Bay Area. The 2002 emissions inventory shows decreasing emissions of many TACs in the Bay Area.

1.2.2.1.2 Environmental Impacts

Identifying the physical impacts that may be required at the affected refineries is difficult because the actual modifications that may be required have not yet been determined. Regulation 12, Rule 12 requires each refinery to develop a Flare Management Plan (FMP or Plan).

The rule is general in nature because each flare system is unique. The rule is expected to require modifications at some refineries but little or no modifications to others. In general, the refineries indicate that they expect to use best management practices to comply with Regulation 12, Rule 12. The best management practices are general in nature and implementation of them would be site specific and largely depend on the specific characteristics of each individual flare system.

Construction Emission Impacts: Proposed Regulation 12, Rule 12 will prohibit routine flaring and require the refineries to develop Flare Management Plans. Until the Plans are prepared and submitted to the BAAQMD, the specific construction activities required under the rule are unknown. However, extensive construction activities at the refineries are not expected to be required. Many of the activities that may be conducted under the new rule are expected to result in operational changes where little or no construction activities are required.

Operational Emission Impacts: As discussed in the environmental setting, flare emissions are episodic, with great variations on a day-to-day basis. Large emissions can occur during emergency events, such as electricity or equipment failures. These events are relatively rare. On most days, only the flare pilots are operating.

The overall impact of Regulation 12, Rule 12 on the operational emissions from flares is unknown. The impact of Regulation 12, Rule 11, which only required monitoring of flares, was to create an incentive for refineries to reduce the frequency and duration of flaring events, thereby reducing overall emissions from the flares. The objective of Regulation 12, Rule 12 is to provide measures and assurances that the emission reductions from flares achieved under Regulation 12, Rule 11 will continue to be achieved and prevent the potential for "backsliding," or increases in emissions from the flares.

By implementing Regulation 12, Rule 12 the BAAQMD believes that the emissions (both criteria pollutants and toxic air contaminants) from flares will be further reduced by

prohibiting non-routine flaring and requiring that all refineries develop Flare Management Plans to examine measures to prevent flaring. The proposed new rule is expected to decrease the likelihood of flaring by analyzing events that lead to flaring (root cause analysis) and implementing measures to avoid flaring. Therefore, under Regulation 12, Rule 12 emissions from flares at the refineries are expected to continue to decline on an annual basis.

1.2.2.2 Hazards and Hazardous Materials

1.2.2.2.1 Environmental Setting

The goal of Regulation 12, Rule 12 is to reduce flaring and the related emissions, thus improving air quality and protecting public health. Hazard concerns are related to the potential for fires, explosions or the release of hazardous substances in the event of accident or upset conditions.

The potential hazards associated with industrial activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facility. The hazards likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions. These conditions include toxic gas clouds, torch fires (gas and liquefied gas releases), flash fires (liquefied gas releases), pool fires, and vapor cloud explosions (gas and liquefied gas releases), thermal radiation and explosion/overpressure.

State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released. These requirements are enforced by the California Office of Emergency Services. The Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business or government agency that handles hazardous materials prepare a business plan.

Under the federal Resource Conservation and Recovery Act (RCRA) of 1976, the U.S. EPA set standards for transporters of hazardous waste. In addition, the State of California regulates the transportation of hazardous waste originating or passing through the state; state regulations are contained in CCR, Title 13. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

Under the authority of the Occupational Safety and Health Act of 1970, Fed/OSHA has adopted numerous regulations pertaining to worker safety (contained in 29 CFR – Labor). These regulations set standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries. Some OSHA regulations contain standards relating to hazardous materials handling, including workplace conditions, employee protection requirements, first aid, and fire protection, as well as material

handling and storage. Because California has a federally-approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR.

National Fire Codes (NFC), Title 45 (published by the National Fire Protection Association) contains standards for facilities using chemicals, which are not requirements, but are generally employed by organizations in order to protect workers. These standards provide basic protection of life and property through prevention and control of fires and explosions, and also serve to protect personnel from exposure to non-fire health hazards.

Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements. U.S. EPA approved California's program to implement federal regulations as of August 1, 1992.

The Hazardous Waste Control Law (HWCL) is administered by the California Environmental Protection Agency Department of Toxic Substance Control (DTSC). Under HWCL, DTSC has adopted extensive regulations governing the generation, transportation, and disposal of hazardous wastes. HWCL differs little from RCRA; both laws impose "cradle to grave" regulatory systems for handling hazardous wastes in a manner that protects human health and the environment. Regulations implementing HWCL are generally more stringent than regulations implementing RCRA.

Pursuant to the Emergency Services Act, the State has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies and private persons. Response to hazardous materials incidents is one part of this plan. The Plan is administered by the state Office of Emergency Services (OES), which coordinates the responses of other agencies including CalEPA, California Highway Patrol (CHP), the Department of Fish and Game, the Regional Water Quality Control Board (RWQCB), and local fire departments (see California Government Code, §8550.)

In addition, pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985 (the Business Plan Law), local agencies are required to develop "area plans" for response to releases of hazardous materials and wastes. These emergency response plans depend to a large extent on the business plans submitted by persons who handle hazardous materials. An area plan must include pre-emergency planning of procedures for emergency response, notification and coordination of affected government agencies and responsible parties, training, and follow-up.

1.2.2.2.2 Environmental Impacts

In general, flares are used to burn and dispose of excess combustible process gases, or during a process upset or other situations. Flares are also used as safety devices to reduce the potential for fires and explosions due to unburned gaseous hydrocarbon releases. Identifying the physical impacts that may be required at the affected refineries is difficult

because the actual modifications that may be required have not yet been determined. Regulation 12, Rule 12 requires each refinery to develop a Flare Management Plan. Until the details of the Plan are prepared for each refinery, the potential physical hazard impacts associated with implementation of the new rule are difficult to determine. The rule is expected to require modifications at some refineries but little or no modifications to others. In general, the refineries indicate that they expect to use best management practices to comply with Regulation 12, Rule 12.

Implementation of the Proposed Rule will not change the units that discharge to the flare system. Since the rule will not alter the units that discharge to the flare, the hazards related to the operation of each flare system is not expected to change from the baseline conditions.

The existing and potential new operational procedures at refineries and flare management plans as prescribed by the rule will take into account potential risks and minimize the potential for these safety-related impacts. Therefore, the hazard impacts will be less than significant.

1.2.3 EXECUTIVE SUMMARY – CHAPTER 4: ALTERNATIVES

An EIR is required to describe a reasonable range of feasible alternatives to the proposed project that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project (CEQA Guidelines §15126.6(a)). As discussed in Chapter 3 of this EIR and the Initial Study (see Appendix A), the proposed new rule is not expected to result in significant impacts to any environmental resources including aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities service systems. Because no significant impacts have been identified for the proposed project, alternatives are not required to be analyzed in this EIR. The requirement to develop alternatives under CEQA Guidelines §15126.6 has been satisfied because no significant adverse impacts were identified for the proposed project. No further discussion of alternatives is required for this EIR.

1.2.4 EXECUTIVE SUMMARY – CHAPTER 5: OTHER CEQA TOPICS

1.2.4.1 Relationship Between Short-term Uses and Long-Term Productivity

Implementing Regulation 12, Rule 12 would not narrow the range of beneficial uses of the environment. Of the potential environmental impacts discussed in Chapter 3, no significant adverse impacts were identified. The Rule is expected to minimize flare emissions and to continue the downward trend in flare emissions that started when the BAAQMD began monitoring flares. The rule would reduce both TAC and criteria pollutant emissions. By reducing TAC and criteria emissions, human exposure to air pollutant would also be reduced, providing long-term health benefits. Therefore, no

short-term benefits at the expense of long-term impacts have been identified due to implementation of the proposed rule.

1.2.4.2 Significant Irreversible Environmental Changes

Implementation of the proposed flare rule is not expected to result in significant irreversible adverse environmental changes. Of the potential environmental impacts discussed in Chapter 3, no significant impacts to any environmental resource are expected. Proposed Regulation 12, Rule 12 is expected to result in long-term benefits associated with improved air quality. The project would result in reduced emissions of criteria pollutants and TACs, thereby improving air quality and related public health.

1.2.4.3 Growth-Inducing Impacts

Growth-inducing impacts can generally be characterized in three ways: (1) a project includes sufficient urban infrastructure to result in development pressure being placed on less developed adjacent areas; (2) a large project affects the surrounding community by producing a "multiplier effect," which results in additional community growth; and (3) a new type of development is allowed in an area, which subsequently establishes a precedent for additional development of a similar character. None of the above scenarios characterize the project evaluated in the EIR since it will control emissions from existing flares.

1.2.5 EXECUTIVE SUMMARY – CHAPTERS 6 AND 7: REFERENCES AND ACRONYMS

Information on references cited (including organizations and persons consulted) and the acronyms are presented in Chapters 6 and 7, respectively.

CHAPTER 2

PROJECT DESCRIPTION

Introduction
Project Location
Background
    Process Description
    BAAQMD Regulation Applicable to Flares
    Applicable Federal Regulation
Project Objective
Proposed Project

2.0 PROJECT DESCRIPTION

2.1 INTRODUCTION

Regulation 12, Miscellaneous Standards of Performance, Rule 12, Flares at Petroleum Refineries is a proposed new rule initiated by the 2001 Ozone Attainment Plan and is included as part of the District's current Ozone Strategy. It is intended to reduce emissions from flares at petroleum refineries by reducing the magnitude and duration of flaring events.

As part of the San Francisco Bay Area 2001 Ozone Attainment Plan for the 1-Hour National Ozone Standard, the BAAQMD committed to study flare systems at petroleum refineries to determine if additional emission reductions could be achieved and whether implementation of a control measure is feasible. Further Study Measure 8 (FSM-8) for flares, blowdown systems and pressure relief devices was initiated in January of 2002. Draft Technical Assessment Documents (TAD) were prepared separately for each source type, and the flare TAD was released in December 2002 (BAAQMD, 2002). The document presented information on refinery flares and emission estimates, and was the foundation for Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries, "the flare monitoring rule". The flare monitoring rule was adopted by the District Board of Directors on June 4, 2003. Information obtained from the required monitoring was used to develop the proposed control strategies. The result is a proposed new rule, Regulation 12, Rule 12: Flares at Petroleum Refineries.

This new proposed rule will require each refinery to develop and implement a flare management plan for each flare subject to the rule; submit the plan to the District for review and approval, including a provision for public comment; conduct a causal analysis when significant flaring occurs; develop and submit an annual report that summarizes the use of a flare at low flow rates; periodically update the plan; continuously monitor the pressure and height within the water seal; and operate the flare in accordance with the developed flare management plan except for flaring in emergency situations.

Currently, the District has a source specific regulation for flare monitoring and several general regulations that are applicable to flares. Opacity standards are contained in Regulation 6: Particulate and Visible Emissions. Hydrogen sulfide and sulfur dioxide limits are specified in Regulation 9: Inorganic Gaseous Pollutants and in the Code of Federal Regulations. The flare monitoring requirements are specified in Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries. This rule requires refineries to accurately monitor the flow and composition of vent gases combusted in a flare, to calculate total organic (methane and non-methane organic compounds) and sulfur dioxide emissions, to identify reasons for and corrective actions taken to prevent major flaring events, to continuously video record flares subject to the rule, and to report this information to the District in a timely manner.

Flare systems in petroleum refineries provide for the safe disposal of hydrocarbons, liquids and gases, which are either vented automatically from the process units through pressure safety valves, control valves, or manually vented from units. These systems gather relief flow, separate liquid from vapors, recover any condensable oil and water and discharge the vapors through a flare to the atmosphere. When the heating value of the gas stream is insufficient, when the stream is intermittent, or when the stream exceeds what is necessary to satisfy refinery combustion needs, flares combust these gases and prevent their direct release to the atmosphere.

2.2 PROJECT LOCATION

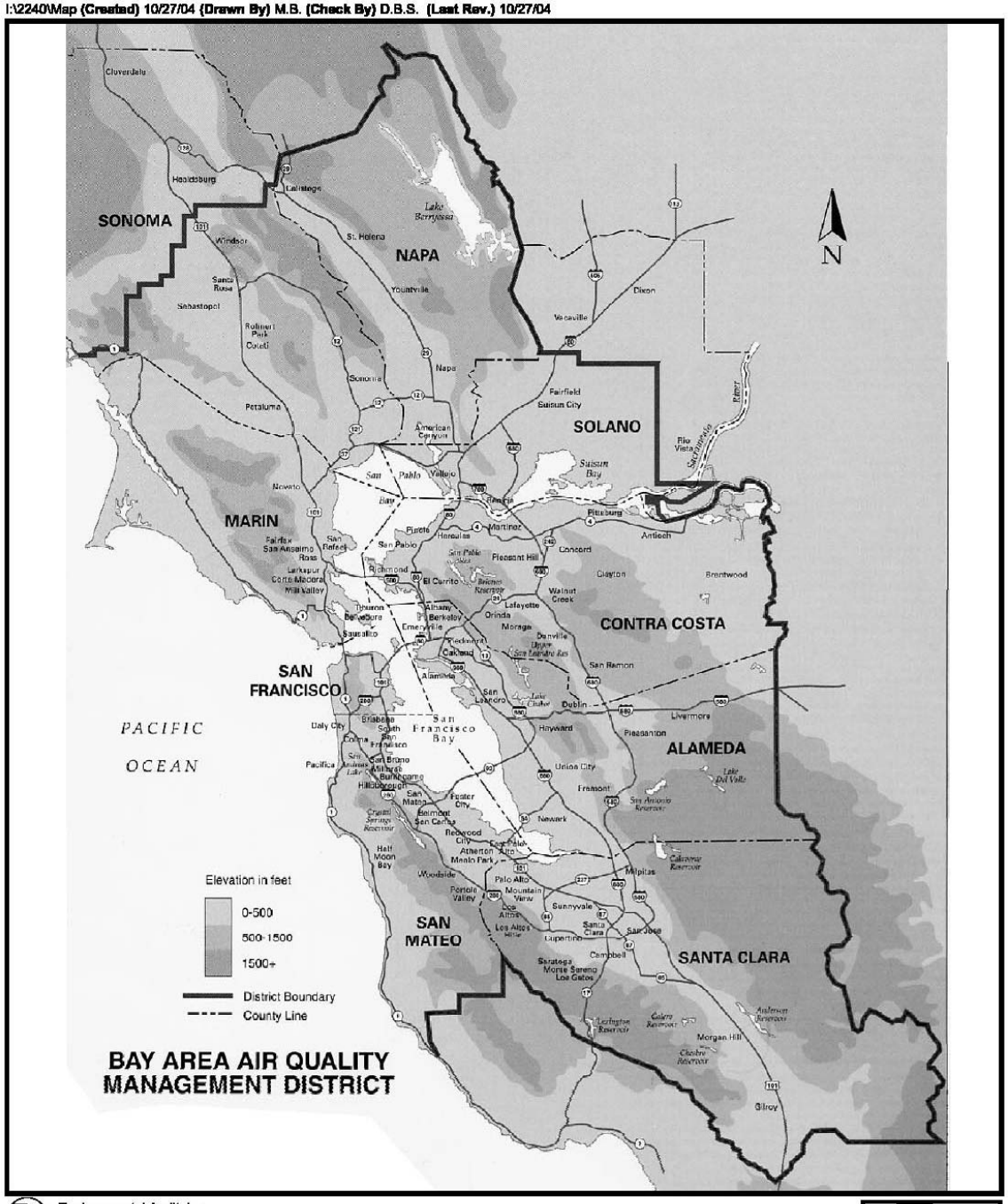
The proposed rule amendments would apply to refineries under BAAQMD jurisdiction, which includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma counties (approximately 5,600 square miles). The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast. The Basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays (see Figure 2-1).

The refineries affected by the proposed rule amendments are located within existing refineries located in Contra Costa County and Solano County adjacent to the San Francisco Bay. The general locations of the refineries are discussed below.

The ChevronTexaco refinery is located in Richmond, Contra Costa County, California. The refinery lies to the west of Castro Street and mostly to the north of Interstate 580 and some storage tanks and the wharf lie south of Interstate 580. The refinery occupies most of the Point San Pablo Peninsula and covers approximately 2,900 acres. It is generally bordered on the north and south by the residential communities of North Richmond and Point Richmond, respectively. East of the refinery, across Castro Street and Garrard Boulevard, are the Iron Triangle and Santa Fe communities and central and downtown Richmond. San Francisco and San Pablo Bays form the western border of the refinery.

The Valero refinery is located on about 800 acres of land within the City of Benicia. The refinery is located about 0.5 mile north of Interstate 780 and immediately west of Interstate 680. Valero is bisected in a north-south direction by East Second Street. The refinery is bounded on the north by residential development and open space, on the east by an industrial park and Interstate 680, on the south by industrial development, and on the west by residential development.

I:\2240\Map (Created) 10/27/04 (Drawn By) M.B. (Check By) D.B.S. (Last Rev.) 10/27/04



Environmental Audit, Inc.

NOT TO SCALE

LOCATION OF BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Figure 2-1

The ConocoPhillips refinery is located on approximately 1,100 acres of land in the unincorporated area northeast of the community of Rodeo. The refinery property is bounded on the north by San Pablo Bay and a marine terminal, on the east by agricultural lands, on the south and southwest by a residential area and on the west by San Pablo Bay. Interstate 80 runs north-south through the refinery dividing the eastern portion of the refinery.

The Shell Oil refinery is located on about 880 acres in Contra Costa County, partially within the City of Martinez. The main portion of the refinery is bordered by Marina Vista Boulevard to the north, Interstate 680 to the east, Pacheco Boulevard to the South, Merrithew Avenue to the west, and the Shell marine terminal to the northwest. Land use north of the refinery is a combination of industrial and open space; northeast of the refinery is an environmental conservation district; east is residential land use with some light industrial areas; land use south and southwest of the refinery is residential. The Martinez reservoir is also located to the south of the refinery.

The Tesoro refinery is located in Contra Costa County, within the community of Avon. The refinery is located south of Suisun Bay and is bordered by Waterfront road to the north and Solano Way to the west. Land use south and east of the refinery is a combination of industrial and open space. The Tesoro refinery is located east of the Shell Martinez refinery. The Mallard reservoir is also located southeast of the refinery.

The District is monitoring 23 flares at these five refineries under the requirements of Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries.

2.3 BACKGROUND

2.3.1 PROCESS DESCRIPTION

Flares provide a safety and emission control mechanism for refinery blowdown systems. Blowdown systems collect and separate both liquid and gaseous discharges from various refinery process units and equipment. The systems generally recover liquids and send gases to the fuel gas system for use in refinery combustion. However, when the heating value of the gas stream is insufficient, when the stream is intermittent, or when the stream exceeds what is necessary to satisfy refinery combustion needs, flares combust these gases and prevent their direct release to the atmosphere. Flares are designed to handle large fluctuations in the flow rate and hydrocarbon content of gases (see Figure 2-2).

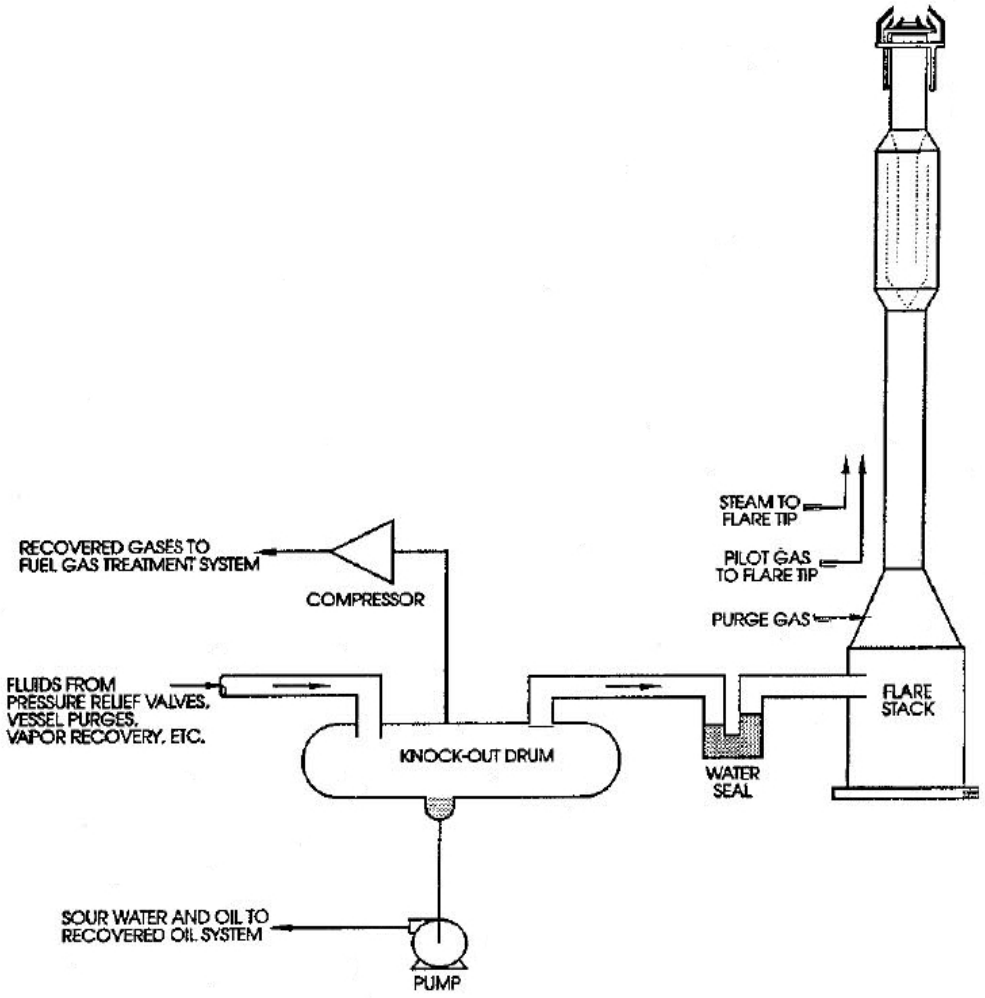


FIGURE 2-2

Typical Flare System

Figure 2-1 illustrates a typical general service flare system. The system is a component of the refinery blowdown system. The blowdown system is designed to collect gases and liquids released throughout the refinery and direct them to the refinery recovery system or, when there is insufficient capacity to recover and use them, these gases and liquids may be released for many different reasons, as stated above. In addition, they may be normal byproducts of a process unit or vessel depressurization, they may result from an upset in a process unit, or they may come from refinery process units during startup and shutdown when the balance between gas generation and the combustion of that gas for process heat is disrupted.

The blowdown system delivers gases and liquids to a knockout drum that captures liquids and directs them to the oil recovery stream. The refinery flare gas compressors then direct gases to the fuel gas system. The extent to which these gases can be captured depends upon the capacity of the compressors. A refinery operating in good balance, between gas generation and gas combustion required for heating processes, should be able to capture most of the gases delivered to the blowdown system during normal operations and use them to heat process units.

2.3.2 BAAQMD REGULATIONS APPLICABLE TO FLARES

Several District rules apply to Bay Area refinery flare emissions, varying from the generic to source specific requirements. The most recent is Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries, which was adopted on June 4, 2003. The rule requires refineries to accurately monitor the flow and composition of vent gases combusted in a flare, to calculate total organic (methane and non-methane organic compounds) and sulfur dioxide emissions, to identify reasons for and corrective actions taken to prevent major flaring events, to continuously video record flares subject to the rule, and to report this information to the District in a timely manner.

There are four other Bay Area District regulations applicable to Bay Area flare emissions. Regulation 1, Section 301: Public Nuisance, is derived from the California Health and Safety Code Section 41700. It prohibits discharges that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Regulation 6: Particulate Matter and Visible Emissions, limits the quantity of particulate matter in the atmosphere through limitations on emission rates, concentration, visible emissions and opacity. Regulation 7: Odorous Compounds, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Regulation 9, Rule 1 and Rule 2: Inorganic Gaseous Pollutants for Sulfur Dioxide and Hydrogen Sulfide, limit ground level concentrations of these pollutants. Regulation 10 - Standards of Performance for New Stationary Sources, contains Federal standards for petroleum refineries adopted by reference.

2.3.3 APPLICABLE FEDERAL REGULATIONS

Federal New Source Performance Standards (NSPS) in 40 CFR Part 60, Subpart A, Section 60.18 applies to flares that are used as general control devices. They specify design and operational criteria for new and modified flares. The requirements include monitoring to ensure that flares are operated and maintained in conformance with their designs. Flares are required to be monitored for the presence of a pilot flame using a thermocouple or equivalent device, visible emissions, exit velocity and net heat content of the gas being combusted by the flare.

In addition, the NSPS limit sulfur oxides from combustion devices installed after June 11, 1973 (40 CFR Part 60, Subpart J, Section 60.104). Gases released due to upset conditions or fuel gas that is released to the flare as a result of relief valve leakage, startup/shutdown, or other emergency malfunctions are exempt from the standard.

Since 1998, EPA has pursued a coordinated, integrated compliance and enforcement strategy to address Clean Air Act compliance issues at the nation's petroleum refineries. [1] The National Petroleum Refinery Initiative addresses the four most significant compliance and enforcement concerns affecting the petroleum refining industry under the Clean Air Act:

- Prevention of Significant Deterioration/New Source Review (NSR);
- New Source Performance Standards (NSPS) for fuel gas combustion devices, including sulfur recovery plants, flares, heaters and boilers;
- Leak Detection and Repair Requirements (LDAR); and
- Benzene National Emissions Standards for Hazardous Air Pollutants (BWON).

U.S. EPA has initiated scores of investigations at the refineries, each focusing on at least one of the above areas. At the same time, U.S. EPA has embarked on a series of innovative, multi-issue/facility settlement negotiations with major petroleum refining companies. Since March 2000, U.S. EPA has entered into 12 global settlements with petroleum refiners that together represent more than 40 percent of the domestic petroleum refining capacity. The settlements cover each of the four areas of non-compliance at all of the refiners' facilities.

The settlements for the Bay Area refineries are site specific. In general, they include elements specific to catalytic cracking units, sulfur recovery plants and flares. One facility has signed off on a settlement that locks in the current status of flare operations. Another facility is close to a settlement that improves upon the current operating practices and requires NSPS for all flares.

[1] EPA Website: http://www.epa.gov/compliance/civil/programs/caa/oil/index.html. October 6th, 2004

2.4 PROJECT OBJECTIVES

Emissions from flare operations have decreased. Reports from refiners and analysis by BAAQMD staff have shown a reduction of up to 86% for one facility since the TAD time period studied in the technical assessment. These reductions are primarily due to adding flare gas compressor capacity and better management practices. The proposed new rule would capture these reductions and add new requirements to control organic compounds. The proposed rule, Regulation 12, Rule 12: Flares at Petroleum Refineries would:

- allow flaring for the safe operation of the facility;
- require a management plan for each flare subject to the rule;
- require prompt notification and detailed investigation of flaring events;
- continue to develop better emission estimates from flares; and
- ensure continued emission reductions from flaring minimization.

2.5 PROPOSED PROJECT

The General section of the proposed project states the focus of the rule and specifies any exemptions from the requirements. A description is provided that specifies the rule's applicability. The rule is intended to reduce emissions from flares at petroleum refineries by a variety of means that would become enforceable elements of a flare management plan.

Exemptions have been developed to exclude those flares that have equivalent limitations, which have been established either by requirements in source specific regulations or as permit conditions. These include flares that control emissions from Organic Liquid Storage and Distribution, Marine Vessel Loading Terminals, Wastewater Treatment Plants, and Pumps.

The definitions exist to ensure clarity. Most are standard definitions previously adopted. They include the following terms; Flare, Flaring, Flare Management Plan, Gas, Malfunction, Petroleum Refinery, Reportable Flaring Event, Responsible Manager, Shutdown, Startup, Thermal Oxidizer, and Vent Gas.

A flare management plan is defined as one that contains specific elements which are identified in the administrative section. These elements can be categorized into technical specifications, prevention measure development, and implementation schedules.

Malfunction is defined as any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal

or usual manner. Failures that are caused even in part by poor maintenance or careless operation are not malfunctions. This definition is proposed to distinguish unforeseen upsets from substandard practices.

Responsible Manager is defined as a person who is an employee of the facility or corporation, who possesses sufficient corporate authority to take the actions required for compliance with this rule. Similar to the definition and concept contained in Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants, the purpose is to require certification of the flare management plan by a qualified individual prior to submittal to the Air Pollution Control Officer (APCO).

Section 12-12-301 of the proposed rule requires Flare Management Plans that prohibit the use of a flare subject to the rule unless it is consistent with a flare management plan. The proposed standard will maintain reductions achieved over the past few years and help identify areas where future reductions might be possible. The process is enhanced by increments of progress with APCO review and approval, and a provision for public comment. This structure provides an opportunity to evaluate different approaches and the feasibility of applying them to other systems.

Section 12-12-401: Flare Management Plan Requirements specifies the elements of a flare management plan. These include: 1) a technical description of each flare system and the upstream equipment and processes that send gas to the flare, 2) a description of the equipment, processes and procedures previously installed or implemented by the owner or operator to reduce the number and duration of flaring events, 3) a description of any equipment, process or procedure as described above, but not yet installed or implemented and the schedule for completion, 4) a description and an evaluation of eliminating flaring during planned major maintenance activities including startup and shutdown, 5) a description and evaluation of flaring that may occur due to issues of gas quantity or quality, and the feasibility of recovery, treatment and use as fuel gas or other means to avoid flaring, 6) a procedure for elimination of avoidable flaring events including, but not limited to, events caused by the recurrent breakdown o equipment, 7) a description of the process by which the owner or operator will continue to review flare use to identify additional equipment, processes or procedures to minimize use of the flare, 8) an implementation schedule for those items identified in 5 and 6 as capital improvement projects, 9) An implementation schedule for the prevention measures identified in accordance with 6 and 7, if any, and 10) other information as requested by the Air Pollution Control Officer (APCO) as necessary to enable determination of compliance with applicable provisions of this rule.

There are a number of Administrative Requirements noted in the proposed rule to include:

Section 12-12-402: Submission of Flare Management Plans. This section establishes the schedule for submitting a flare management plan. The requirement for a flare management plan is 12 months after adoption of the rule and includes quarterly status

reports for the first four quarters. Provisions are made for consultation with the APCO in developing the plan.

Section 12-12-403: Review and Approval of Flare Management Plans. This section establishes the schedule and the criteria that will be used by the APCO to review and approve a flare management plan. It allows adequate time for review by the APCO, notification to the facility, and timely correction of any deficiencies by the facility.

Section 12-12-404: Update of Flare Management Plans. This section requires annual review and updates to the plan to incorporate any significant changes in process equipment or operational procedures related to flares subject to the rule.

Section 12-12-405: Notification of Flaring. This section was developed in response to the public's request for more timely information. Currently, District notification requirements for flares occur if they are the sole cause of a ground level emission excess, typically of hydrogen sulfide or sulfur dioxide, and in the flare monitoring rule. Reporting is required within 96 hours after a ground level excess, and monthly for flare monitoring reports. In addition, breakdown notification requirements state that a person seeking relief pursuant to breakdown provisions shall notify the APCO of the breakdown condition immediately, with due regard for public safety, including the hazard of fire and explosion, followed by a report within 30 days. A facility has an option of seeking breakdown relief. The new proposed rule would provide the District with information of flaring events in a timely manner.

Section 12-12-406: Determination and Reporting of Cause. This section is proposed to ensure that the level of investigation is sufficient to determine the primary cause and contributing factors that resulted in flaring.

Monitoring and Records are covered in Section 12-12-501: Water Seal Integrity Monitoring. This section requires continuous monitoring, recording and archiving of data necessary to verify the integrity of the flare's water seal. Integrity, or the proper operational status of the water seal, is an indicator of actual flow to the flare and is measured by either water seal height or system pressure. Records of these measurements will assist in calculating emissions, investigations into the cause and compliance verification inspections.

CHAPTER 3

ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Introduction
Air Quality
Hazards and Hazardous Materials

3.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

3.1 INTRODUCTION

A NOP and Initial Study was prepared for Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Petroleum Refineries and Amendment of Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations on March 28, 2005 (see Appendix A). The NOP and Initial Study identified the following environmental resources as being potentially significant, requiring further analysis in the EIR: air quality and hazards and hazardous materials. The following environmental resources were considered to be less than significant and will not be further evaluated: aesthetics, agricultural resources, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities service systems.

Each environmental resource section is organized into the following subsections: (1) Environmental Setting; (2) Thresholds of Significance; (3) Environmental Impacts; and (4) Mitigation Measures. A description of each subsection follows.

3.1.1 Environmental Setting

CEQA Guidelines §15125 requires that an EIR include a description of the physical environmental conditions in the vicinity of the proposed project as they exist at the time the NOP is published, or if no NOP is published, at the time the environmental analysis is commenced, from both a local and regional perspective. This Chapter describes the existing environment in the Bay Area as they exist at the time the NOP was prepared (March 2005). The environmental topics identified in this Chapter include both a regional and local setting. The analyses included in this chapter focus on those aspects of the environmental resource areas that could be adversely affected by the implementation of the proposed project (implementation of Regulation 12, Rule 12 and amendment of Regulation 8, Rule 2) as determined in the NOP and Initial Study (see Appendix A), and not those environmental resource areas determined to have no potential adverse impact from the proposed project.

3.1.2 Thresholds of Significance

This section identifies the criteria used to determine when physical changes to the environment created as a result of the project approval would be considered significant. The levels of significance for each environmental resource were established by identifying significance criteria. These criteria are based upon those presented in the California Environmental Quality Act (CEQA) environmental checklist and the BAAQMD's CEQA Air Quality Handbook (BAAQMD, 1998).

The significance determination under each impact analysis is made by comparing the proposed project impacts with the conditions in the environmental setting and comparing the difference to the significance criteria.

3.1.3 Environmental Impacts

The potential impacts associated with each discipline are either quantitatively analyzed where possible or qualitatively analyzed where data were insufficient to quantify impacts. The impacts are compared to the significance criteria to determine the level of significance.

The impact sections of this chapter focus on those impacts that are considered potentially significant per the requirements of the California Environmental Quality Act. An impact is considered significant if it leads to a "substantial, or potentially substantial, adverse change in the environment." Impacts from the project fall within one of the following categories:

> **No Impact:** There would be no impact to the identified resource as a result of the project.
>
> **Less Than Significant:** Some impacts may result from the project; however, they are judged to be less than significant. Impacts are frequently considered less than significant when the changes are minor relative to the size of the available resource base or would not change an existing resource. A “less than significant impact” applies where the environmental impact does not exceed the significance threshold.
>
> **Potentially Significant But Mitigation Measures Can Reduce Impacts to Less Than Significant:** Significant adverse impacts may occur; however, with proper mitigation, the impacts can be reduced to less than significant.
>
> **Potentially Significant or Significant Impacts:** Adverse impacts may occur that would be significant even after mitigation measures have been applied to minimize their severity. A “potentially significant or significant impacts” applies where the environmental impact exceeds the significance threshold, or information was lacking to make a finding of insignificance.

3.1.4 Mitigation Measures

This section describes feasible mitigation measures that could minimize potentially significant or significant impacts that may result from project approval. CEQA Guidelines (§15370) defines mitigation to include:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating or restoring the impacted environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

In accordance with CEQA statutes (§21081.6), a mitigation and monitoring program would be required to be adopted to demonstrate and monitor compliance with any mitigation measures identified in this EIR. The program would identify specific mitigation measures to be undertaken, when the measure would be implemented, and the agency responsible for oversight, implementation and enforcement.

3.2 AIR QUALITY

3.2.1 ENVIRONMENTAL SETTING

3.2.1.1 Criteria Air Pollutants

Ambient Air Quality Standards

It is the responsibility of the BAAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM10), sulfur dioxide (SO_2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards and in the case of PM10 and SO_2, far more stringent. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride.

The state and National Ambient Air Quality Standards (NAAQS) for each of these pollutants and their effects on health are summarized in Table 3.2-1. CO, NO_2, PM10, and SO_2 are directly emitted from stationary and mobile sources. Ozone is not emitted directly from pollution sources. Instead ozone is formed in the atmosphere through

complex chemical reactions between hydrocarbons or reactive organic hydrocarbons (ROG, also commonly referred to as volatile organic compounds or VOCs).

U.S. EPA requires CARB and BAAQMD to measure the ambient levels of air pollution to determine compliance with the NAAQS. To comply with this mandate, the BAAQMD monitors levels of various criteria pollutants at 26 monitoring stations. The 2003 air quality data from the BAAQMD monitoring stations are presented in Table 3.2-2.

Air quality conditions in the San Francisco Bay Area have improved since the District was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeds air quality standards have fallen dramatically (see Table 3.2-3). The District is in attainment of the state and federal ambient air quality standards for CO, NOx, and SOx. The District is unclassified for the federal 24-hour PM10 standard. Unclassified means that the monitoring data are incomplete and do not support a designation of attainment or non-attainment.

The 2003 air quality data from the BAAQMD monitoring stations are presented in Table 3.2-2. All monitoring stations were below the state and federal ambient air quality standards for CO, NO_2, and SO_2. The federal 1-hour ozone standard was exceeded on one day in 2003 at the Livermore monitoring station. The other monitoring stations were in compliance with the federal 1-hour ozone standard. The Bay Area is designated as a non-attainment area for the California 1-hour ozone standard, and is seeking re-designation to attainment for the national one-hour standard. The federal 8-hour standard was exceeded on seven days in the District in 2003, most frequently in the Eastern District (Bethel Island, Concord, Fairfield, Livermore, and Pittsburg) and the Santa Clara Valley (Gilroy, Los Gatos and San Martin). The state 1-hour standard was exceeded on 19 days in 2003 in the District, most frequently in the Eastern District and Santa Clara Valley (see Table 3.2-2).

All monitoring stations were in compliance with the federal PM10 standards. The California PM10 standards were exceeded on six days in 2003 throughout the various monitoring stations in the District. The District did not exceed the federal PM2.5 standards in 2003 (see Table 3.2-2).

TABLE 3.2-1

Federal and State Ambient Air Quality Standards

	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
AIR POLLUTANT	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr avg. >	0.12 ppm, 1-hr avg.> 0.08 ppm, 8-hr avg>	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals; (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hr avg.> 35 ppm, 1-hr avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg.> 0.25 ppm, 1-hr avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hr avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM10)	30 $\mu g/m^3$, ann. geometric mean > 50 $\mu g/m^3$, 24-hr average>	50 $\mu g/m^3$, annual arithmetic mean > 150 $\mu g/m^3$, 24-hr avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter (PM2.5)		15 $\mu g/m^3$, annual arithmetic mean> 150 $\mu g/m^3$, 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 $\mu g/m^3$, 24-hr avg. >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 $\mu g/m^3$, 30-day avg. >=	1.5 $\mu g/m^3$, calendar quarter>	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70percent, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

TABLE 3.2-2
Bay Area Air Pollution Summary 2003

MONITORING STATIONS	Ozone							CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM10				PM2.5				
NORTH COUNTIES	Max 1-Hr (pphm)	Nat Days	Cal Days	3-Yr Avg	Max 8-Hr (pphm)	Nat Days	3-Yr Avg	Max 1-Hr (ppm)	Max 8-Hr (ppm)	Nat/ Cal Days	Max 1-Hr (pphm)	Ann Avg (pphm)	Nat/ Cal Days	Max 24-Hr (ppb)	Ann Avg (ppb)	Nat/ Cal Days	Ann Avg ($\mu g/m^3$)	Max 24-Hr ($\mu g/m^3$)	Nat Day	Cal Days	Max 24-Hr ($\mu g/m^3$)	Nat Days	3-Yr Avg ($\mu g/m^3$)	Ann Avg ($\mu g/m^3$)	3-Yr Avg ($\mu g/m^3$)
Napa	11	0	2	0.0	8	0	6.5	4.7	2.5	0	7	1.2	0	--	--	--	21.3	41	0	0	--	--	--	--	--
San Rafael	9	0	0	0.0	7	0	4.9	3.8	2.0	0	7	1.6	0	--	--	--	17.6	41	0	0	--	--	--	--	--
Santa Rosa	10	0	1	0.0	8	0	5.4	3.1	1.8	0	6	1.2	0	--	--	--	16.9	36	0	0	39	0	37.9	8.8	10.0
Vallejo	10	0	2	0.0	7	0	6.5	4.0	2.9	0	7	1.2	0	5	1.2	0	17.3	39	0	0	31	0	35.0	9.4	11.8
COAST & CENTRAL BAY																									
Oakland	8	0	0	0.0	5	0	4.0	3.9	2.8	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Richmond	--	--	--	--	--	--	--	--	--	--	--	--	--	5	0.9	0	--	--	--	--	--	--	--	--	--
San Francisco	9	0	0	0.0	6	0	4.8	3.6	2.8	0	7	1.8	0	7	2.2	0	22.7	52	0	1	42	0	47.3	10.1	11.6
San Pablo	9	0	0	0.0	7	0	5.3	3.1	1.8	0	7	1.3	0	5	1.5	0	20.6	49	0	0	--	--	--	--	--
EASTERN DISTRICT																									
Bethel Island	9	0	0	0.3	8	0	7.9	1.6	0.9	0	5	0.9	0	6	2.2	0	19.4	51	0	1	--	--	--	--	--
Concord	10	0	5	0.3	9	1	8.2	3.2	2.0	0	6	1.3	0	3	0.6	0	16.4	34	0	0	50	0	41.0	9.7	11.2
Crockett	--	--	--	--	--	--	--	--	--	--	--	--	--	6	1.2	0	--	--	--	--	--	--	--	--	--
Fairfield	9	0	0	0.0	8	0	7.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Livermore	13	1	10	1.0	9	3	8.4	3.7	1.9	0	7	1.6	0	--	--	--	18.9	33	0	0	42	0	43.0	9.0	11.6
Martinez	--	--	--	--	--	--	--	--	--	--	--	--	--	7	1.6	0	--	--	--	--	--	--	--	--	--
Pittsburg	9	0	0	0.0	8	0	7.5	3.4	1.7	0	6	1.2	0	8	2.1	0	21.1	59	0	1	--	--	--	--	--
SOUTH CENTRAL BAY																									
Fremont	12	0	4	0.0	9	1	6.5	3.2	1.9	0	8	1.7	0	--	--	--	18.2	37	0	0	34	0	37.4	8.7	11.1
Hayward	12	0	3	0.0	9	1	6.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood City	11	0	1	0.0	8	0	5.8	5.4	2.6	0	8	1.5	0	--	--	--	19.8	38	0	0	34	0	37.7	9.0	10.6
San Leandro	10	0	2	0.0	7	0	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SANTA CLARA VALLEY																									
Gilroy	11	0	6	0.0	9	2	8.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Los Gatos	12	0	7	0.0	10	2	7.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose Central	12	0	4	*	8	0	*	5.5	4.0	0	9	2.1	0	--	--	--	23.6	60	0	3	56	0	*	11.7	*
San Jose East	10	0	2	0.0	7	0	5.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose, Tully Road	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24.8	58	0	2	52	0	40.2	10.1	11.1
San Martin	11	0	9	0.0	9	4	8.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sunnyvale	11	0	4	0.0	9	2	6.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Bay Area Days over Standard		**1**	**19**			**7**				**0**			**0**			**0**			**0**	**6**		**0**			

(ppm) = parts per million, (pphm) = parts per hundred million, (ppb) = parts per billion

TABLE 3.2-3
Ten-Year Bay Area Air Quality Summary
Days over standards

YEAR	OZONE			CARBON MONOXIDE				NO_X	SULFUR DIOXIDE		PM10		PM2.5
	1-Hr		8-Hr	1-Hr		8-Hr		1-Hr	24-Hr		24-Hr*		24-Hr**
	Nat	Cal	Nat	Nat	Cal	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat
1993	3	19	-	0	0	0	0	0	0	0	0	10	-
1994	2	13	-	0	0	0	0	0	0	0	0	9	-
1995	11	28	-	0	0	0	0	0	0	0	0	7	-
1996	8	34	-	0	0	0	0	0	0	0	0	3	-
1997	0	8	-	0	0	0	0	0	0	0	0	4	-
1998	8	29	16	0	0	0	0	0	0	0	0	5	-
1999	3	2	9	0	0	0	0	0	0	0	0	12	-
2000	3	12	4	0	0	0	0	0	0	0	0	7	1
2001	1	15	7	0	0	0	0	0	0	0	0	10	5
2002	2	16	7	0	0	0	0	0	0	0	0	6	5
2003	1	19	7	0	0	0	0	0	0	0	0	6	0

* PM10 is sampled every sixth day – actual days over standard can be estimated to be six times the numbers listed.
** 2000 is the first full year for which the Air District measured PM2.5 levels.

3.2.1.2 Health Effects

Ozone

Ozone (O_3), a colorless gas with a sharp odor, is a highly reactive form of oxygen. High ozone concentrations exist naturally in the stratosphere. Some mixing of stratospheric ozone downward through the troposphere to the earth's surface does occur; however, the extent of ozone transport is limited. At the earth's surface in sites remote from urban areas ozone concentrations are normally very low (0.03-0.05 ppm).

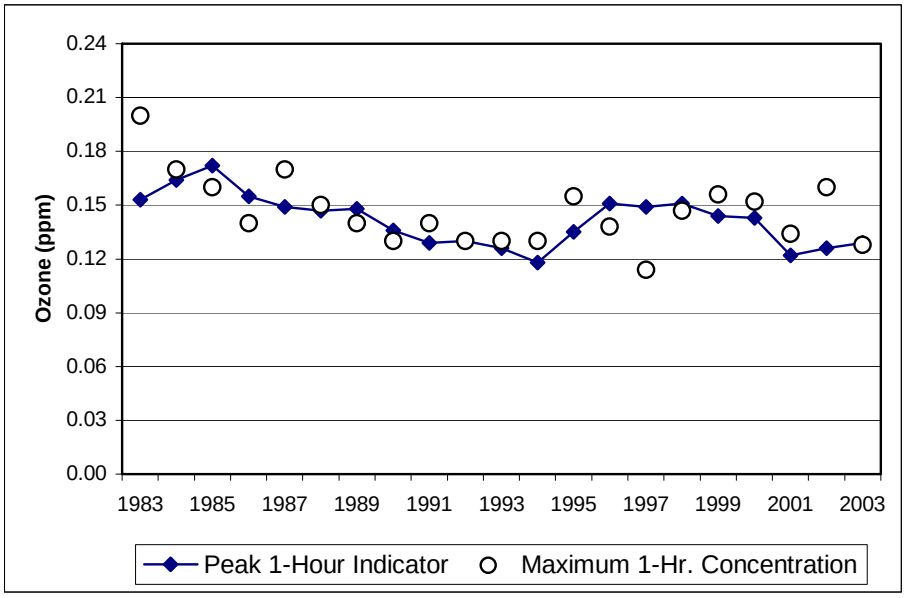
While ozone is beneficial in the stratosphere because it filters out skin cancer-causing ultraviolet radiation, it is a highly reactive oxidant. It is this reactivity which accounts for its damaging effects on materials, plants, and human health at the earth's surface.

The BAAQMD began ozone monitoring in a few places in 1959. A large monitoring ozone network was established in 1965. The monitors indicated that the federal one-hour ozone standards were exceeded at a number of locations in the Bay Area. Ozone concentrations have been decreasing over the past four decades (see Table 3.2-3) leading to fewer days per year where the national and state one-hour standards have been exceeded in the Bay Area. The number of days exceeding the national one-hour ozone standard decreased from the 1960's until about 1990. From 1990 to 1992, no District monitor registered more than two exceedances of the national ozone standard. [Note: the national standard allows up to three expected exceedances at any one site over a three-year period (i.e., less than or equal to an average of one exceedance per year)]. In 1994, the BAAQMD requested that the Bay Area be re-designated to attainment status for the one-hour ozone standard. However, in 1995 there was an increase in the number of days

that the one-hour federal ozone standard was exceeded to about 10 days per year. Since 1996, the number of days per year that exceed the federal ozone standard has generally been decreasing (see Figure 3.2-1). Therefore, the BAAQMD has requested and U.S. EPA has proposed a finding of attainment of the national one-hour ozone standard for the Bay Area. The proposed finding is based on monitoring from the years 2001, 2002, and 2003.

The propensity of ozone for reacting with organic materials causes it to be damaging to living cells, and ambient ozone concentrations in the Bay Area are occasionally sufficient to cause health effects. Ozone enters the human body primarily through the respiratory tract and causes respiratory irritation and discomfort, makes breathing more difficult during exercise, and reduces the respiratory system's ability to remove inhaled particles and fight infection. People with respiratory diseases, children, the elderly, and people who exercise heavily are more susceptible to the effects of ozone.

Plants are sensitive to ozone at concentrations well below the health-based standards and ozone is responsible for significant crop damage. Ozone is also responsible for damage to forests and other ecosystems.



Source: 2004 California Almanac of Emissions and Air Quality, CARB, 2004.

FIGURE 3.2-1
San Francisco Bay Area Ozone Trend

Volatile Organic Compounds (VOCs)

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because VOC emissions contribute to the formation of ozone. They are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

Carbon Monoxide (CO)

CO is a colorless, odorless, relatively inert gas. It is a trace constituent in the unpolluted troposphere, and is produced by both natural processes and human activities. In remote areas far from human habitation, carbon monoxide occurs in the atmosphere at an average background concentration of 0.04 ppm, primarily as a result of natural processes such as forest fires and the oxidation of methane. Global atmospheric mixing of CO from urban and industrial sources creates higher background concentrations (up to 0.20 ppm) near urban areas. The major source of CO in urban areas is incomplete combustion of carbon-containing fuels, mainly gasoline. In 1997, 97 percent of the CO emitted into the Basin's atmosphere was from mobile sources. Consequently, CO concentrations are generally highest in the vicinity of major concentrations of vehicular traffic.

CO is a primary pollutant, meaning that it is directly emitted into the air, not formed in the atmosphere by chemical reaction of precursors, as is the case with ozone and other secondary pollutants. Ambient concentrations of CO in the Basin exhibit large spatial and temporal variations, due to variations in the rate at which CO is emitted, and in the meteorological conditions that govern transport and dilution. Unlike ozone, CO tends to reach high concentrations in the fall and winter months. The highest concentrations frequently occur on weekdays at times consistent with rush hour traffic and late night during the coolest, most stable atmospheric portion of the day.

When CO is inhaled in sufficient concentration, it can displace oxygen and bind with the hemoglobin in the blood, reducing the capacity of the blood to carry oxygen. Individuals most at risk from the effects of CO include heart patients, fetuses (unborn babies), smokers, and people who exercise heavily. Normal healthy individuals are affected at higher concentrations, which may cause impairment of manual dexterity, vision, learning ability, and performance of work. The results of studies concerning the combined effects of CO and other pollutants in animals have shown a synergistic effect after exposure to CO and ozone.

Particulate Matter (PM10)

Of greatest concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM10.

PM10 particles are both directly emitted or formed from diverse emission sources. Major sources of directly emitted (primary) PM10 include re-suspended road dust or soil entrained into the atmosphere by wind or activities such as construction and agriculture. Other components of PM10 form in the atmosphere (secondary PM10) from precursor emissions of the gaseous pollutants.

Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown gas with a bleach-like odor. Nitric oxide (NO) is a colorless gas, formed from the nitrogen (N_2) and oxygen (O_2) in air under conditions of high temperature and pressure which are generally present during combustion of fuels; NO reacts rapidly with the oxygen in air to form NO_2. NO_2 is responsible for the brownish tinge of polluted air. The two gases, NO and NO_2, are referred to collectively as NO_X. In the presence of sunlight, NO_2 reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form ozone, via a complex series of chemical reactions involving hydrocarbons. Nitrogen dioxide may also react to form nitric acid (HNO_3) which reacts further to form nitrates, which are a component of PM10.

NO_2 is a respiratory irritant and reduces resistance to respiratory infection. Children and people with respiratory disease are most susceptible to its effects.

Sulfur Dioxide (SO_2)

SO_2 is a colorless gas with a sharp odor. It reacts in the air to form sulfuric acid (H_2SO_4), which contributes to acid precipitation, and sulfates, which are a component of PM10 and PM2.5. Most of the SO_2 emitted into the atmosphere is produced by the burning of sulfur-containing fuels.

At sufficiently high concentrations, SO_2 affects breathing and the lungs' defenses, and can aggravate respiratory and cardiovascular diseases. Asthmatics and people with chronic lung disease or cardiovascular disease are most sensitive to its effects. SO_2 also causes plant damage, damage to materials, and acidification of lakes and streams.

3.2.1.3 Current Emissions Sources

The two broad categories of emission sources include stationary and mobile sources.

Stationary Sources

Stationary sources can be further divided between point and area sources.

Point Sources

Point sources are those that are identified on an individual facility or source basis, such as refineries and manufacturing plants. BAAQMD maintains a computer data bank with detailed information on operations and emissions characteristics for nearly 4,000 facilities, with roughly 20,000 different sources, throughout the Bay Area. Parameters that affect the quantities of emissions are updated regularly. Refinery flares are considered to be point source of emissions.

Area Sources

Area sources are stationary sources that are individually very small, but that collectively make a large contribution to the inventory. Many area sources do not require permits from the BAAQMD, such as residential heating, and the wide range of consumer products such as paints, solvents, and cleaners. Some facilities considered to be area sources do require permits from the BAAQMD, such as gas stations and dry cleaners. Emissions estimates for area sources may be based on the BAAQMD data bank, calculated by CARB using statewide data, or calculated based on surrogate variables.

Mobile Sources

Mobile sources include on-road motor vehicles such as automobiles, trucks, and buses, as well as off-road sources such as construction equipment, boats, trains, and aircraft. Estimates of on-road motor vehicle emissions include consideration of the fleet mix (vehicle type, model year, and accumulated mileage), miles traveled, ambient temperatures, vehicle speeds, and vehicle emission factors, as developed from comprehensive CARB testing programs. The BAAQMD also receives vehicle registration data from the Department of Motor Vehicles. Some of these variables change from year to year, and the projections are based upon expected changes. Emissions from off-road mobile sources are calculated using various emission factors and methodologies provided by CARB and U.S. EPA.

3.2.1.4 Emissions from Flares

Source of Flare Emissions: Flares produce air pollutants through two primary mechanisms. The first mechanism is by incomplete combustion of a gas stream. Like all combustion devices, flares do not combust all of the fuel directed to them. Combustion efficiency is the extent to which the oxidation reactions that occur in combustion are

complete reactions converting the gases entering the flare into fully oxidized combustion products. Combustion efficiency may be stated in terms of the extent to which all gases entering the flare are combusted, typically called "overall combustion efficiency" or simply "combustion efficiency", or it may be stated as the efficiency of combustion for some constituent of the flare gas as, for example, "hydrocarbon destruction efficiency."

The second mechanism of pollutant generation is through the oxidation of flare gases to form other pollutants. As an example, the gases that are burned in flares typically contain sulfur in varying amounts. Combustion oxidizes these sulfur compounds to form sulfur dioxide, a criteria pollutant. In addition, combustion also produces relatively minor amounts of nitrogen oxides through oxidation of the nitrogen in flare gas or atmospheric nitrogen in combustion air.

Unlike internal combustion devices like engines and turbines, flares combust fuel in the open air, and combustion products are not contained and emitted through a stack, a duct, or an exhaust pipe. As a result, emission measurement is difficult.

Studies can be conducted on scale-model flares under a hood or in a wind tunnel where all combustion products can be captured. Any results for these small flares must be adjusted with scaling factors if they are to be applied to full-size flares. For full-size operating industrial flares, which can have a diameter of four feet or more and a stack height of 100 feet or more, all combustion products cannot be captured and measured. To study emissions from these flares, emissions can be sampled with test probes attached to the stack, a tower, or a crane. Emissions can also be studied using remote sensing technologies like open-path Fourier transform infrared (FTIR) or differential absorption lidar (DIAL). In applying the results of any particular study to a specific flare or flare type, it is important to note any differences in flare design and construction. For example, some flares are simply open pipes, while others, like most refinery flares, have flare tips that are engineered to promote mixing. In addition, studies suggest that composition and the British Thermal Unit (BTU) content of gas burned, gas flow rates, flare operating conditions, and environmental factors like wind speed can affect, to varying extents, the efficiency of flare combustion.

Flare Emission Inventory: Emission data for criteria pollutants from flares have been recently collected as the BAAQMD implemented regulations requiring the monitoring of emissions from flares. The BAAQMD implemented Regulation 12 Rule 11: Flare Monitoring at Refineries. This regulation required refineries to determine vent gas composition, install volumetric flow monitoring instrumentation, install and archive video monitoring of their flares, and submit monthly reports to the District. The data allowed the refineries and the BAAQMD to better estimate emissions from flares.

The emission inventory for refinery flares prior to the Flare Monitoring Rule was included in the Draft December 2002 Technical Assessment Document (TAD) (BAAQMD, 2002). In order to develop emission information for the TAD, refineries were requested to submit their flow and composition data on their flare systems for the period of January 1, 2001 to August 31, 2002. Some refineries had no monitoring, some

used fairly new ultrasonic monitoring systems. To compensate for the wide-variation in information, BAAQMD staff used engineering estimates and determined, from the information submitted, that emissions from flares were approximately 22 tons/day total organic compounds.

While the District staff was studying flare emissions, one Bay Area Refinery installed a fuel gas compressor to recover hydrocarbons previously sent to the flare, which added an additional 8 million standard cubic feet of recovery capacity to the flare system. This project significantly reduced the volume of gases flared and flare emissions. Additionally, all the refineries instituted programs to reduce flaring. Measures implemented include improvements in flare gas compressor reliability, prolonging the interval between major maintenance activities, source reduction efforts and increased scrutiny of flare gas systems.

When the District examines the emissions from an air pollution source category, they typically express the air pollution emission estimates on an annual average basis (usually tons per day) determined from reported annual process throughput or reported emissions. For large, intermittent emission sources such as refinery flares, the air pollution emission estimation process can be quite challenging. First, there is the cyclic nature of refinery process unit startups and shutdowns. Major refining units at a petroleum refinery can go as long as five years between turnaround events. Until the flare monitoring rule was adopted, Bay Area refineries were not required to measure the quantities of vent gases sent to their flare systems. Therefore, engineering assumptions had to be made to estimate air pollution emissions with limited information and the emission estimates for flares prior to the approval of Regulation 12, Rule 11 are considered to be less accurate than more current emission estimates. While daily emissions based on annual averages are consistent with standard emission inventory practices, on any given day, actual refinery flare emissions can vary significantly.

Characterization of Flare Emissions: When the District staff examines the emissions from an air pollution source category, they typically express the air pollution emission estimates on an annual average basis (usually tons per day) determined from reported annual process throughput or reported emissions. For large, intermittent emission sources such as refinery flares, the air pollution emission estimation process can be quite challenging. First, there is the cyclic nature of refinery process unit startups and shutdowns. Major refining units at a petroleum refinery can go as long as five years between turnaround events. Until the flare monitoring rule was adopted, Bay Area refineries were not required to measure the quantities of vent gases sent to their flare systems. Therefore, engineering assumptions had to be made to estimate air pollution emissions with limited information. While daily emissions based on annual averages are consistent with standard emission inventory practices, on any given day, actual refinery flare emissions can vary significantly. District staff characterized the day-to-day variation for the period of June 1, 2001 through September 1, 2002. That distribution is shown in Figure 3.2-2.

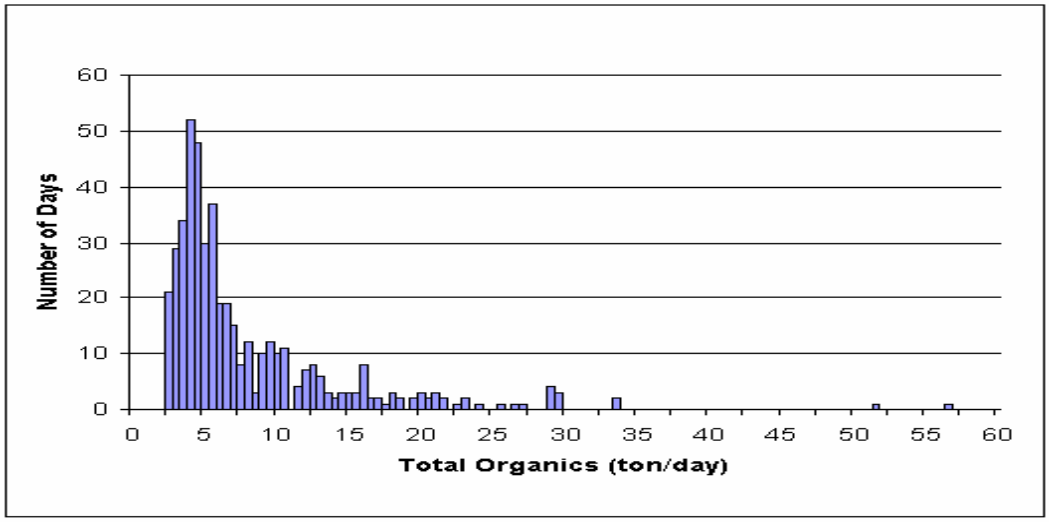


FIGURE 3.2-2

Distribution of Total Organics (tons per day) for the Period of June 1, 2001 Through September 1, 2002

As stated earlier, there was a wide variation in the quality of flare monitoring instrumentation. The limit of detection of the instrumentation, the lower limit where vent gas flows could be detected, was not state of the art. Under typical operating situations, water seals prevent refinery gases from venting to a flare until a certain positive pressure is achieved. Once that positive pressure is exceeded, the refinery gases pass through the water seal and then are combusted in the flare.

The potential exists for refinery gases to travel through the water seal at some nominal flow less than the limit of detection for the monitoring instrumentation that was in place during the TAD period. Uncertainties regarding minimum flows have been greatly reduced due to improved instrumentation requirements that specify much lower limits of detection. These requirements of Regulation 12, Rule 11 became effective in December 2003. Pressure surging, percolation, inadequate or fluctuating water levels, or water seal design may allow refinery gases to reach the flare. To address concerns about minimum flows that could not be easily detected by the instrumentation, the District staff investigated several methods to quantify these emissions. One method was to examine correlations between pressure and level indications at the water seal and the flow meter readings. This method presented limitations for some flares. In some instances the pressure measuring devices were located in different locations or at long distances from the water seal, possible providing measurements that may not represent the actual water seal pressure. Where District staff identified no problems with the water seal readings, these readings were used to adjust minimum flow data. Where the District identified issues with using water seal data, an alternative method was used.

Updated Emission Estimate: The initial emission estimate in the flare TAD caused the refineries to question District staff's analysis and the data submittals themselves. The District worked with each refinery to review the available data and replace the overall averages used in the TAD with refinery-specific information that is more representative of each refinery's flare emissions. Since the publishing of the TAD, the refineries have submitted several modifications to their original data submittals and have met with District staff on numerous occasions to clarify their data re-submittals. After evaluating the data re-submittals and developing refinery-specific gas composition and hydrocarbon molecular weight estimates, the District revised the emission estimate from flares, on an annual average basis, to approximately 8 tons/day of total organic compounds (5 tons/day of non-methane organic compounds) and included an estimate of approximately 20 tons/day of SOx. The daily emissions ranged, during the time period, from 2.5 to 55 tons/day of total organic compounds, and from 6 to 55 tons/day SO_X.

Current Flare Emission Estimate: The data from the refineries that have been submitted after adoption of the monitoring rule is more reliable and based on more accurate data. Table 3.2-4 summarizes the emissions data provided to the District under the requirements of Regulation 12, Rule 11 during the period from January 2004 to December 2004. The emissions in Table 3.2-4 constitute the baseline emissions for this EIR.

TABLE 3.2-4

CURRENT EMISSIONS FROM FLARES IN THE BAY AREA

Pollutants	Emissions (tons/day)[1]		
	Purge Gas	Flare Gas	Total
Flow rates[2]	0.597	6.801	7.398
Organics	0.268	1.703	1.971
SOx	--	3.891	3.891
NOx	0.021	0.384	0.405
CO	0.040	1.634	1.674
PM	0.003	0.022	0.025
Methane	0.251	0.386	0.637
Non-Methane Hydrocarbons	0.172	1.318	1.490

(1) Based on data submitted by the refineries under Regulation 12, Rule 11 from January 2004 to December 2004.

(2) Units on the flow rates are in million standard cubic feet per day

3.2.1.4 Non-Criteria Pollutants

Although the primary mandate of the BAAQMD is attaining and maintaining the national and state Ambient Air Quality Standards for criteria pollutants within the BAAQMD jurisdiction, the BAAQMD also has a general responsibility to control, and where possible, reduce public exposure to airborne toxic compounds. The state and federal governments have set health-based ambient air quality standards for criteria pollutants. The air toxics program was established as a separate and complementary program designed to evaluate and reduce adverse health effects resulting from exposure to TACs.

The major elements of the District's air toxics program are outlined below.

- Preconstruction review of new and modified sources for potential health impacts, and the requirement for new/modified sources with non-trivial TAC emissions to use the Best Available Control Technology.

- The Air Toxics Hot Spots Program, designed to identify industrial and commercial facilities that may result in locally elevated ambient concentrations of TACs, to report significant emissions to the affected public, and to reduce unacceptable health risks.

- Control measures designed to reduce emissions from source categories of TACs, including rules originating from the state Toxic Air Contaminant Act and the federal Clean Air Act.

- The toxic air contaminant emissions inventory, a database that contains information concerning routine and predictable emissions of TACs from permitted stationary sources.

- Ambient monitoring of TAC concentrations at a number of sites throughout the Bay Area.

Historically, the BAAQMD has regulated criteria air pollutants using either a technology-based or an emissions-limit approach. The technology-based approach defines specific control technologies that may be installed to reduce pollutant emissions. The emission limit approach establishes an emission limit, and allows industry to use any emission control equipment, as long as the emission requirements are met. The regulation of TACs requires a different regulatory approach as explained in the following subsections.

Air Toxics New Source Review

New and modified stationary source permit applications have been reviewed for air toxic concerns since 1987 in accordance with the Risk Management Policy established at the request of the District's Board of Directors. A large increase in risk screening analyses has occurred in recent years due primarily to the removal of permit exemptions in District regulations for standby engines. Prior to 2000, the District completed risk screens for an

average of about 175 permit applications per year. This number increased to 255 in 2000, to 440 in 2001, and to 602 in 2002.

Air Toxics Hot Spots Program

The Air Toxics Hot Spot Information and Assessment Act of 1987 (AB 2588) (California Health and Safety Code §39656) establishes a state-wide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with those emissions. The first step in the AB2588 process is the preparation of an air toxics emissions inventory for facilities with operating permits. In the second step, the District prioritizes facilities for additional scrutiny, based on the quantity and toxicity of pollutants emitted. Each facility is categorized as high, medium or low. The high priority facilities are required to prepare a comprehensive health risk assessment (HRA).

Finally, the Air Toxics Hot Spots program requires that exposed persons be notified regarding the results of HRAs, if the calculated risks warrant such notification. Of the 123 HRAs submitted to the BAAQMD, 30 were Level 1 or greater (maximum cancer risks greater than or equal to 10 in one million), and required public notification. In 1992, the number of Level 1 or greater facilities was reduced to 16. All Level 2 and 3 risks (100 in one million or greater) were reduced to Level 1 or lower by 1993. Continued efforts to reduce emissions and to refine estimates of risk reduced the number of facilities requiring public notification to nine in 1993, five in 1994, two in 1995 and one in 1999.

Control Measures for Categories of Sources

TACs are regulated in the District through federal, state, and local programs. At the federal level, TACs are regulated primarily under the authority of the CAA. Prior to the amendment of the CAA in 1990, source-specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) were promulgated under Section 112 of the CAA for certain sources of radionuclides and six Hazardous Air Pollutants (HAPs), including asbestos, benzene, beryllium, arsenic, mercury, and vinyl chloride.

Title III of the 1990 CAA amendments requires U.S. EPA to promulgate NESHAPs on a specified schedule for certain categories of sources identified by U.S. EPA as emitting one or more of the 189 listed HAPs. Emission standards for major sources must require the maximum achievable control technology (MACT). MACT is defined as the maximum degree of emission reduction achievable considering cost and non-air quality health and environmental impacts and energy requirements. The District must implement and enforce all MACT standards or rules that are at least as stringent. The U.S. EPA has already adopted a significant number of new MACT standards, with the last group expected to be adopted by early 2004.

Many of the sources of TACs that have been identified under the CAA are also subject to the California TAC regulatory programs. California's TAC identification and control

program, adopted in 1983 as Assembly Bill 1807 (AB 1807) (California Health and Safety Code §39662), is a two-step program in which substances are identified as TACs, and airborne toxic control measures (ATCMs) are adopted to control emissions from specific sources. Since adoption of the program, CARB has identified 18 TACs in addition to the 189 federal HAPs as TACs that CARB has adopted.

ATCMs are developed by CARB and implemented by the BAAQMD through the adoption of regulations of equal or greater stringency. Generally, the ATCMs reduce emissions to achieve exposure levels below a determined health threshold. If no such threshold levels are determined, emissions are reduced to the lowest level achievable through the use of best available control technology unless it is determined that an alternative level of emission reduction is adequate to protect public health. In addition to developing ATCMs, California Health and Safety Code §39658(b) requires CARB to adopt an ATCM for hazardous air pollutants adopted by U.S. EPA pursuant to Section 112 of the federal CAA.

Air Toxics Emission Inventory

The BAAQMD maintains a database that contains information concerning emissions of TACs from permitted stationary sources in the Bay Area. This inventory, and a similar inventory for mobile and area sources compiled by CARB, is used to plan strategies to reduce public exposure to TACs. The detailed emissions inventory is reported in the BAAQMD, Toxic Air Contaminant Control Program, 2002 Annual Report (BAAQMD, 2004). The 2002 emissions inventory shows decreasing emissions of many TACs in the Bay Area. The most dramatic emission reductions in recent years have been for certain chlorinated compounds that are used as solvents including 1,1,1-trichloroethane, methylene chloride, and perchloroethylene.

Ambient Monitoring Network

Table 3.2-5 contains a summary of average ambient concentrations of TACs measured at monitoring stations in the Bay Area by the District in 2002. The air monitoring network operated by the District includes gaseous samples collected over 24-hour periods on a 12-day sampling frequency. The network began in 1986 with six sites and has expanded to its present size of 23 sites. The sampling sites in the network are generally community oriented, and are most directly influenced by area-wide sources. The network also includes a non-urban background site located at Fort Cronkite on the Pacific Ocean coastline. Ambient benzene levels declined dramatically in 1996 with the introduction of CARB Phase 2 reformulated gasoline, with significant reductions in ambient 1,3-butadiene levels also occurring. Due largely to these observed reductions in ambient benzene and 1,3-butadiene levels, the calculated network average cancer risk has been reduced in recent years.

TABLE 3.2-5
Concentration of Toxic Air Contaminants in the Bay Area (2002)

Monitoring Station (mean ppb)	Chemical[(1)]											
	BENZ	CCl_4	$CHCl_3$	DCM	EDB	EDC	MTBE	PERC	TCA	TCE	TOL	VC
Oakland – Davie Stadium	0.37	0.11	0.02	0.26	0.01	0.05	0.41	0.05	0.04	0.04	0.95	0.15
San Leandro	0.32	0.10	0.01	0.18	0.01	0.05	0.35	0.03	0.03	0.04	1.31	0.15
Livermore	0.48	0.11	0.02	0.29	0.01	0.05	0.86	0.04	0.44	0.04	1.13	0.15
Oakland – Filbert Street	0.49	0.10	0.02	0.50	0.01	0.05	0.68	0.07	0.04	0.04	1.56	0.15
Pittsburg	0.40	0.12	0.02	0.55	0.01	0.05	0.77	0.06	0.03	0.04	1.09	0.15
Martinez	0.32	0.11	0.01	0.31	0.01	0.05	0.75	0.02	0.12	0.04	0.91	0.15
Crockett	0.24	0.11	0.02	0.56	0.01	0.05	0.40	0.02	0.07	0.04	0.45	0.15
Concord – Treat Blvd.	0.51	0.13	0.03	0.29	0.01	0.05	0.71	0.03	0.05	0.04	1.85	0.15
Richmond	0.44	0.11	0.02	0.27	0.01	0.05	0.61	0.06	0.03	0.04	1.16	0.15
Bethel Island	0.33	0.11	0.01	0.26	0.01	0.05	0.45	0.02	0.03	0.04	0.71	0.15
San Pablo – El Portal Center	0.33	0.10	0.03	0.28	0.01	0.05	0.46	0.02	0.03	0.04	0.69	0.15
Concord – Arnold Ind. Way	0.53	0.11	0.02	0.28	0.01	0.05	0.86	0.07	0.12	0.04	1.05	0.15
San Pablo – Rumrill Blvd.	0.51	0.11	0.01	0.35	0.01	0.05	0.84	0.04	0.03	0.04	5.14	0.15
San Rafael	0.42	0.11	0.01	0.27	0.01	0.05	0.49	0.08	0.04	0.04	0.97	0.15
Fort Cronkite – Sausalito	0.16	0.11	0.01	0.25	0.01	0.05	0.28	0.01	0.04	0.04	0.26	0.15
Napa	0.54	0.11	0.03	0.26	0.01	0.05	1.03	0.03	0.04	004	1.14	0.15
San Francisco	0.44	0.11	0.02	0.27	0.01	0.05	0.61	0.06	0.03	0.04	1.16	0.15
Redwood City	0.63	0.11	0.04	0.27	0.01	0.05	0.91	0.05	0.05	0.16	3.05	0.15
San Jose – 4th Street	0.77	0.11	0.03	0.30	0.01	0.05	1.13	0.08	0.06	0.04	2.04	0.15
Sunnyvale	0.39	0.11	0.03	0.47	0.01	0.05	0.55	0.03	0.03	0.04	0.88	0.15
San Jose – Jackson Street	1.00	0.11	0.03	0.72	0.01	0.05	1.91	0.08	0.05	0.04	2.45	0.15
Vallejo	0.51	0.11	0.03	0.88	0.01	0.05	1.00	0.03	0.04	0.04	1.26	0.15
Santa Rosa	0.46	0.11	0.01	0.28	0.01	0.05	0.67	0.02	1.00	0.04	0.95	0.15

(1) BENZ = benzene, CCl_4 = carbon tetrachloride, $CHCl_3$ = chloroform, DCM = methylene chloride, EDB = ethylene dichloride, MTBE = methyl tertiary butyl ether, perc = perchloroethylene, TCA = 1,1,1-trichloroethane, TCE = trichloroethylene, TOL = toluene, and VC = vinyl chloride.
Source: BAAQMD, 2004a.

Health Effects

The primary health risk of concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there are not "safe" levels of exposure to carcinogens. Any exposure to a carcinogen poses some risk to causing cancer. The proportion of cancer deaths attributable to air pollution has not been estimated using epidemiological methods. CARB has estimated the average potential cancer risk from outdoor ambient levels of air toxics for 2000. Based on the evaluation by CARB Diesel exhaust PM10 contributes 71 percent to the total cancer risk (see Table 3.2-6) CARB, 2000).

TABLE 3.2-6

Estimated Statewide Average Potential Cancer Risk From Outdoor Ambient Levels of Air Toxics For 2000(1)

Compound	Potential Cancer Risk(2,3) Excess Cancers/Million	Percent Contribution to Total Risk
Diesel Exhaust PM10	540	71.2
1,3-Butadiene	74	9.8
Benzene	57	7.5
Carbon Tetrachloride	30	4.0
Formaldehyde	19	2.5
Hexavalent Chromium	17	2.2
para-Dichlorobenzene	9	1.2
Acetaldehyde	5	0.7
Perchloroethylene	5	0.7
Methylene Chloride	2	0.1
TOTAL	758	100

(1) CARB, 2000

(2) Diesel exhaust PM10 potential cancer risk based on 2000 emission inventory estimates. All other potential cancer risks based on air toxics network data. 1997 monitoring data were used for para-dichlorobenzene. 1998 monitoring data was used for all other pollutants.

(3) Assumes measured concentrations are equivalent to annual average concentrations and duration of exposure is 70 years, inhalation pathway only.

Based on 2002 ambient monitoring data, the calculated inhalation cancer risk in the District is 163 per million, which is 46 percent less than what was observed in 1995 (BAAQMD, 2004). These figures do not include the risk resulting from exposure to diesel particulate matter. As shown above, recent studies indicate that exposure to diesel particulate matter may contribute to a cancer risk that is greater than all of the other measured TACs combined; however, diesel particulate matter was not sampled in the 2002 monitoring data (BAAQMD, 2004).

Toxic Air Contaminants from Flares

The dominant compounds emitted from hydrocarbon flares are stripped fuel (e.g., natural or hydrocarbons), carbon dioxide and carbon monoxide. However, smaller quantities of "minor species" are also emitted in both the vapor and solid phase from flares. These minor species are important because of their potentially toxic or carcinogenic properties (University of Alberta, 2004).

As indicated above, emission data for criteria pollutants from flares have been recently collected as the BAAQMD implemented Regulation 12, Rule 11. However, little data are available regarding the toxic air contaminant emissions from flares. The sporadic operation of the flares, the variation in the types of material that maybe burned in the flare, and the variation in the combustion efficiencies lead to further difficulties in the quantification of TAC emissions. Other operational factors such as low heat content, high or low exit velocity and high wind speed can significantly reduce flare efficiency. The combustion efficiency of flares is important because the more efficient, the fewer combustion by-products produced, which are potentially TACs.

In controlled studies, the measured efficiencies of natural gas, ethane, and propane flares at calm and low winds were very high (greater than 99.5 percent). With increased wind speed, the efficiency fell slowly and then eventually at high wind speeds there was a dramatic decline in efficiency. The wind speed where the efficiency rapidly drops depended on the exit velocity of the flare stream, the size of flare stack, and the composition of the flare gases (University of Alberta, 2004). The hydrocarbon destruction efficiency considers the waste gas that is destroyed by combustion. Combustion efficiency considers the fraction of hydrocarbons that is completely converted to carbon dioxide and water. The hydrocarbon destruction efficiency may be higher than the combustion efficiency. Hydrocarbons in the waste gas may be destroyed but not completely converted to carbon dioxide, rather carbon monoxide and other carbon containing combustion by-products may be formed. The bulk of the incompletely combusted material is carbon monoxide, as it is the most stable intermediate compound.

A controlled study was completed for hydrocarbon flares that included sampling and testing from selected polynuclear aromatic hydrocarbons (PAHs), cyclic aromatics, and aldehydes in both the vapor and solid phase (i.e., particulates). For the natural gas and propane flares, all compounds analyzed in the vapor phase fell below detectable limits of testing. Natural gas flares did not produce measurable amounts of soot; propane flares produced a measurable, though small, amount of soot. Analysis of the soot (or particulates) showed that these particulates were embedded with several PAHs at measurable levels. The general conclusion of the study was that smoking flares, a visible indication of soot being emitted, need to be avoided to minimize TACs (University of Alberta, 2004).

3.2.2 SIGNIFICANCE CRITERIA

To determine whether or not air quality impacts from the proposed project are significant, impacts will be evaluated and compared to the significance criteria in Table 3.2-7. If impacts equal or exceed any of the following criteria, they will be considered significant.

TABLE 3.2-7

Air Quality Significance Thresholds for Project Operations

Significance Thresholds for Localized Impacts	
Pollutant	**Significance Threshold**
Toxic Air Contaminants (TACs)	Maximum Exposed Individual (MEI) Cancer Risk $\geq$ 10 in 1 million Hazard Index $\geq$ 1.0 at the MEI
Significance Thresholds for Regional Impacts	
Pollutant	**Significance Threshold**
ROG	Regulation 12, Rule 12 results in a net increase in emissions
NOx	Regulation 12, Rule 12 results in a net increase in emissions
PM10	Regulation 12, Rule 12 results in a net increase in emissions

3.2.3 ENVIRONMENTAL IMPACTS

Identifying the physical impacts that may be required at the affected refineries is difficult because the actual modifications that may be required have not yet been determined. Regulation 12, Rule 12 requires each refinery to develop a Flare Management Plan (FMP or Plan). The FMP must include:

- A description and technical information for each flare that is capable of receiving gases and the upstream equipment and processes that send gas to the flare;
- A description of the equipment, processes and procedures installed or implemented within the last five years to reduce the number, volume or duration of flaring events;
- A description of any equipment, process or procedures the owner or operator plans to install or implement to reduce flaring;
- A description and evaluation of flaring that has occurred or may reasonably be expected to occur during planned major maintenance activities, and the feasibility of performing these activities, including startup and shutdown, without flaring;
- A description and evaluation of flaring that may occur due to issues of gas quantity or quality, and the feasibility of recovery, treatment and use as fuel gas or other means to avoid flaring;

- A procedure for elimination of avoidable flaring caused by recurrent breakdown of equipment. In determining whether flaring is avoidable, the flare owner or operator shall consider the adequacy of existing maintenance schedules and protocols for such equipment;

- A description of the process by which the owner or operator will continue to review flare use to identify additional equipment, processes or procedures to minimize use of the flare;

- Any other information requested by the Air Pollution Control Officer as necessary to enable determination of compliance with applicable provisions of the rule.

The rule is general in nature because each flare system is unique. The rule is expected to require modifications at some refineries but little or no modifications to others. In general, the refineries indicate that they expect to use best management practices to comply with Regulation 12, Rule 12. The following are representative of the types of best management practices that could be implemented by the refineries.

- Evaluate existing practices for conducting scheduled refinery process unit turnarounds with the objective of minimizing the need for flaring. Pre-screening would be conducted to identify those process units having the potentially greatest reliance on the flare system during turnaround activities.

- Evaluate existing refinery maintenance practices to minimize the need for flaring. Pre-screening would be conducted to identify those maintenance procedures that having the potentially greatest reliance on the flare system.

- Evaluate the potential practices for preventing the production of excess fuel gas, and the resulting need to flare it.

- Evaluate the potential enhancements to existing equipment reliability programs that could reduce the likelihood of equipment breakdowns and/or process upsets that result in flaring.

- Evaluate the use of periodic surveys of pressure relief values and/or relief gas headers that could identify gas flow conditions.

- Evaluate potential opportunities to economically sell any excess fuel gas to an off-site customer.

- Evaluate the potential for, and cost-effectiveness of, specific equipment changes or additions to reduce flaring.

- Evaluate the installation of new equipment that could indicate the presence of flows into relief gas systems.

- Evaluate enhancements to existing flare flow monitoring and reporting systems for the purpose of improving accuracy and reliability.

- Conduct root-cause analysis for major flaring events.

The best management practices are general in nature and implementation of them would be site specific and largely depend on the specific characteristics of each individual flare system. Other types of concepts for reducing flare emissions that have been implemented and are considered feasible include:

- The installation of additional compressor capacity to collect gases and prevent flaring;

- Addition of gas storage capacity to hold flare gas;

- Installation of redundant equipment;

- Improvement of the reliability of the existing flare gas compressors;

- Installation of a cogeneration facility;

- Elimination of flaring during startup and shutdown for selected processes; and

- Improvement of flare tip designs.

Construction Emission Impacts: Proposed Regulation 12, Rule 12 will prohibit routine flaring and require the refineries to develop Flare Management Plans. Until the Plans are prepared and submitted to the BAAQMD, the specific construction activities required under the rule are unknown. However, extensive construction activities at the refineries are not expected to be required. Many of the activities that may be conducted under the new rule are expected to result in operational changes where little or no construction activities are required. For example, planning and scheduling refinery process unit turnarounds, reviewing maintenance practices, and surveying pressure relief valves and/or gas relief headers would not require any physical construction activities or generate any construction emissions.

An example of a project implemented by one refinery in the Bay Area to reduce the need for flaring was the installation of a fuel gas compressor to recover hydrocarbons previously sent to the flare. The compressor added an additional eight million standard cubic feet of recovery capacity to the flare system and reduced the volume of gases flared and flare emissions (BAAQMD, 2002). The installation of a gas compressor would require construction activities but those construction activities would not be extensive and require substantial ground work, grading, site preparation or trenching. Rather construction activities would be limited to minor modifications to existing industrial

areas. The type of construction equipment that may be required include a crane, welder, dump truck, and air compressor. Therefore, even if construction is required under the rule, construction activities are not expected to be extensive and generate significant construction activities.

The construction of a cogeneration plant would require more construction equipment and workers and generate more construction emissions. The magnitude of the construction activities will depend on the size of the cogeneration facility, which is not currently known. (Note that a cogeneration facility would require its own CEQA review.) Construction activities would be required to employ the current BAAQMD-recommended construction mitigation measures to reduce air quality impacts. Further, construction emissions would be short-term and cease following completion of construction activities. Therefore, no significant air quality impacts from construction are expected due to implementation of proposed Regulation 12, Rule 12.

Operational Emission Impacts: As discussed in the environmental setting, flare emissions are episodic, with great variations on a day-to-day basis. Large emissions can occur during emergency events, such as electricity or equipment failures. These events are relatively rare. On most days, only the flare pilots are operating. Flare pilots combust natural gas and generate relatively small emissions.

The overall impact of Regulation 12, Rule 12 on the operational emissions from flares is unknown. The impact of Regulation 12, Rule 11, which only required monitoring of flares, was to create an incentive for refineries to reduce the frequency and duration of flaring events, thereby reducing overall emissions from the flares. The objective of Regulation 12, Rule 12 is to provide measures and assurances that the emission reductions from flares achieved under Regulation 12, Rule 11 will continue to be achieved and the potential for "backsliding," or increases in emissions from the flares, is prevented.

The objective of the rule is to reduce flare emissions by eliminating non-routine flaring and reducing emissions from other types of flare events. The SCAQMD collected data on the causes that triggered flares to operate at refineries in southern California. The data collected indicates that a greater percentage of flaring was caused by non-emergency events such as planned shutdowns and startups, repair and maintenance activities, unknown flare events, and vent gas flow at low volume or short duration (non-recordable events) (see Table 3.2-8). About 83 percent of flare volume reported to the SCAQMD between the fourth quarter 1999 through the fourth quarter of 2003 was due to non-emergency events (SCAQMD, 2004).

TABLE 3.2-8
Top Reasons for Flare Gases
(Fourth Quarter 1999 through Fourth Quarter 2003)

Reasons for Vent Gas			Total Flow (Mscf)	% of Total
Emergency Event (Recordable Event)			928,013	4.41
Non-Emergency	Non –Recordable Event		9,392,524	44.60
	Recordable Events	Unknown	7,346,275	34.88
		Maintenance	831,928	3.95
		Planned Shutdown and Startup	1,101,877	5.23
		Process Vent	415,266	1.97
		Turnaround Activities	710,438	3.37
		Fuel Gas	334,418	1.59
Total from all sources			21,060,563	100.00

* Source: SCAQMD, 2004

The SCAQMD data indicates that a large percentage of gas was released to the flare at a low flow rate (i.e., non-recordable event). This suggests that flare emissions can potentially be reduced by treating the vent gases prior to being burned in the flares and a gas minimization plan can be incorporated to minimize the amount of vent gases generated and flared during non-emergency operation. By implementing Regulation 12, Rule 12 the BAAQMD believes that the emissions from flares will be further reduced by prohibiting non-routine flaring and requiring that all refineries develop Flare Management Plans to examine measures to prevent flaring. The proposed new rule is expected to decrease the likelihood of flaring by analyzing events that lead to flaring (root cause analysis) and implementing measures to avoid flaring. The amount of emission reductions that may be achieved by the new rule cannot be estimated at this time, but additional emission reductions from flares are expected. At minimum no increase in emissions from flares would be expected. Therefore, the proposed rule is not expected to have significant adverse impacts on air quality and the air quality impacts are less than significant.

Flares are used to burn and dispose of excess combustible process gases that are generated as part of the production processes or during a process upset or other situations. Flares are also used as safety devices to reduce the potential for fires and explosions due to unburned gaseous hydrocarbon releases. Implementation of Regulation 12, Rule 12 will not eliminate all flaring and some flaring will be necessary so that refineries can operate in a safe manner. The rule will not prevent the use of the flare during start up, shut down or emergency conditions or eliminate all flare emissions. On any given day, a flare event could occur and generate emissions. Flares can be large intermittent sources of emissions. The large variation in emissions from flares on a day to day basis will continue to occur. The potential variations in flare emissions are not related to implementation of the new rule, but are related to the events that lead to flaring and are

associated with refinery operations. The sporadic and intermittent nature of flare events are expected to continue, with or without implementing the proposed rule.

By implementing Regulation 12, Rule 12 the BAAQMD believes that the emissions (both criteria pollutants and toxic air contaminants) from flares will be further reduced by prohibiting non-routine flaring and requiring that all refineries develop Flare Management Plans to examine measures to prevent flaring. The proposed new rule is expected to decrease the likelihood of flaring by analyzing events that lead to flaring (root cause analysis) and implementing measures to avoid flaring. Therefore, under Regulation 12, Rule 12 emissions from flares at the refineries are expected to continue to decline on an annual basis. The amount of emission reductions that may be achieved by the new rule cannot be estimated at this time, but additional emission reductions from flares are expected. Emission reductions at flares would include reductions in both criteria and toxic air contaminants. At minimum no increase in emissions from flares would be expected. Therefore, the proposed rule is not expected to have significant adverse impacts on air quality and the air quality impacts are less than significant.

3.2.4 MITIGATION MEASURES

No significant adverse air quality impacts are expected so no mitigation measures are required.

3.2.5 CUMULATIVE AIR QUALITY IMPACTS

Cumulative air quality impacts from the proposed project and all other ozone and other pollutant control measures considered together are not expected to be significant because implementation of all control measures is expected to result in net emission reductions and overall air quality improvement. The proposed project is expected to further reduce emissions from flares. The 2000 CAP and the 2001 Ozone Attainment Plan (BAAQMD, 2001) addresses state and national air quality planning requirements for ozone and includes control measures to reduce VOC and NOx emissions, in order to reduce ozone formation. The 2001 Ozone Attainment Plan included Further Study Measure 8 for flares, blowdown systems and pressure relief devices. Implementation of the flare monitoring requirements specified in Regulation 12, Rule 11, and the currently proposed Regulation 12, Rule 12 implement the commitments made in the 2001 Ozone Attainment Plan. A new Bay Area Ozone Strategy is currently being prepared to update the previous ozone plans and will include additional control measures to minimize VOC and NOx emissions, and ultimately ozone concentrations. The new ozone plan is expected to be available this summer. Future VOC control measures will assist in achieving and maintaining attainment of the state and federal ozone standards. A benefit of some of these control strategies is control of TACs. Cumulative air quality impacts are expected to be less than significant as the overall control strategy in the Bay Area will lead to overall emission reductions.

Implementation of Regulation 12, Rule 12 is not expected to create significant adverse toxic air contaminant impact to air quality, but rather will provide a toxic air quality benefit by minimizing emissions from flares, including emissions of toxic air contaminants, and providing a public health benefit due to reduced exposure to TACs. Other rules implemented by the BAAQMD will generally provide emission reductions and some will provide TAC emission reductions. For example, recently proposed changes to the BAAQMD Air Toxics NSR Program (including new District Rule, Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants) will lead to a reduction in TAC emissions because: (1) dry cleaners will no longer be allowed to exceed the 10 per million cancer threshold when replacing machines; (2) some of the assumptions used in HRAs would be revised, which will lead to an overall reduction in the allowable emissions; and (3) additional TACs would be regulated that are not currently regulated (BAAQMD, 2005). Therefore, the cumulative impact of the BAAQMD's regulatory program is expected to be a reduction in TAC emissions.

3.2.6 CUMULATIVE MITIGATION MEASURES

No mitigation measures are required because existing rules and regulations, as well as implementation of current and future ozone control measures will result in an overall improvement in air quality.

3.3 HAZARDS AND HAZARDOUS MATERIALS

3.3.1 ENVIRONMENTAL SETTING

The goal of Regulation 12, Rule 12 is to reduce flaring and the related emissions, thus improving air quality and protecting public health. Hazard concerns are related to the potential for fires, explosions or the release of hazardous substances in the event of an accident or upset conditions.

The potential hazards associated with industrial activities are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facility. The hazards likely to exist are identified by the physical and chemical properties of the materials being handled and their process conditions, including the following events:

- **Toxic gas clouds:** Toxic gas clouds are releases of volatile chemicals (e.g., anhydrous ammonia, chlorine, and hydrogen sulfide) that could form a cloud and migrate off-site, thus exposing individuals. "Worst-case" conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate rather than disperse.

- **Torch fires (gas and liquefied gas releases), flash fires (liquefied gas releases), pool fires, and vapor cloud explosions (gas and liquefied gas releases):** The "worst-case" upset would be a release that produces a large aerosol cloud with

flammable properties. If the flammable cloud does not ignite after dispersion, the cloud would simply dissipate. If the flammable cloud were to ignite during the release, a flash fire or vapor cloud explosion could occur. If the flammable cloud were to ignite immediately upon release, a torch fire would ensue.

- **Thermal Radiation:** Thermal radiation is the heat generated by a fire and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.

- **Explosion/Overpressure:** Explosions may occur if the flammable/explosive vapors came into contact with an ignition source. An explosion could cause impacts to individuals and structures in the area due to overpressure.

Fires can expose the public or workers to heat. The heat decreases rapidly with distance from the flame and therefore poses a greater risk to workers than to the public. Explosions can generate a shock wave, but the risks from explosion also decrease with distance. Airborne releases of hazardous materials may affect workers or the public, and the risks depend upon the location of the release, the hazards associated with the material, the winds at the time of the release, and the proximity of receptors.

For all refineries, risks to the public are reduced if there is a buffer zone between process units and residences or if prevailing winds blow away from residences. Thus, the risks posed by operations at a given refinery are unique and determined by a variety of factors.

Flares are used as safety devices to reduce the potential for fires and explosions due to unburned gaseous hydrocarbon releases. In general, flares are used to burn and dispose of excess combustible process gases that are generated as part of the production processes or during a process upset or other situations. Flares can be elevated like a stack where the combustion, or burn-off, takes place at the tip of the flare and the flames are visible from a distance. The height of an elevated flare is dictated by the need to limit ground level temperatures that can be produced by radiant heat from the flame. Flares can also be of the ground-flare type, where the burners are located near the ground level in a shrouded space. Both types of flares are capable of destruction of hydrocarbons and other combustible gases. However, as with any type of combustion equipment, they generate air pollutants, such as nitrogen oxides, sulfur dioxide, carbon monoxide, and particulate matter in addition to releasing hydrocarbons that have not been completely combusted. Also, similar to any other combustion device, flares have the potential to generate toxic emissions depending on the type of gases burned and operating parameters. There are 23 flares currently in operation at the five petroleum refineries in the Bay Area.

While flares have the potential to generate emissions, the failure of a flare to operate has the potential to result in significant hazard impacts. Flares are used to combust hydrocarbon and other combustible gases during startup, shutdown, emergency/upset and other conditions. If a flare would fail to operate, flammable and/or toxic gases could

concentrate in the area near the flare, flare header, or process unit. The vent gases would likely reach concentrations that would exceed the lower flammable limit (LFL) or exceed the U.S. EPA's emergency response planning guidelines (ERPG-2) thresholds (for toxic materials, e.g., hydrogen sulfide). Vent gases exceeding the LFL can result in fire or explosion upon contact with an ignition source. The fire or explosion could impact refinery workers or workers/residents in areas adjacent to the refinery depending on the location of the fire or explosion. Vent gases exceeding the ERPG threshold can result in exposure of toxic emissions to workers or residents adjacent to the refinery, depending on the location of the release, concentration, distance to off-site individuals, wind direction, wind speed, and other similar parameters.

The flares and the units that potentially discharge to each of the flares within the refineries in the Bay Area are identified in Table 3.3-1. The units release combustible and/or toxic gases to the flares.

TABLE 3.3-1

Refinery Flare System Parameters

Source	Description	Upstream Feeds
Chevron	LSFO High Level Flare	Crude Distillation, DHT Plant, JHT Plant, NHT Plant, #4&5 Rheniformer, Penhex Unit, 5 H2S
Chevron	South Isomax	20 Plant Hydrogen Recovery, Hydrogen Manufacturing, #4 H2S – 10 Plant, SDA Unit
Chevron	North Isomax	TKC, TKN/ISO, 8 Plant
Chevron	FCC Flare	FCC Units
Chevron	Alky-Poly Flare	Alkylation Unit, Polymerization Unit, DIB/Butamer Plant, FCC Gas Recovery Unit, SRU # 1, 2, & 3
Chevron	RLOP	HNC, LNC, LNHF, HNHF, Gas Recovery Unit, 18 Plant
Shell	LOP Auxiliary Flare	Crude Unit, Vacuum Flasher, Catalytic Reformer, Hydrocracker, Cat Feed Hydrotreater, FCCU, Alkylation, Sulfur Plants #1 & 2, Naphtha and Gas Oil Hydrotreaters, Hydrogen Plant #1, Cat Gas Hydrotreater, Cracked Gas Plant, Utilities
Shell	FXG Flare	Flexicoker, Flexsorb
Shell	OPCEN HC Flare	Flexicoker, Flexsorb, Sulfur Plant #3, CD Tech Column, Flexicoker Gas Plant, Hydrogen Plant #2, Dimersol and Propane Truck Rack during maintenance
Shell	Delayed Coking Flare	Delayed Coker, Distillate Hydrotreater, Isomeration Unit, Hydrogen Plant #3, Vent Gas Treater, Delayed Coker Gas Plant, Heavy Gasoline Hydrotreater, Cat Gas Depentanizer, Sulfur Plant #4
ConocoPhillips	Main Flare	All Units
ConocoPhillips	MP 30 Flare	All Units
Tesoro	East Air Flare	All Units
Tesoro	North Coker Flare	All Units
Tesoro	South Coker Flare	All Units
Tesoro	Emergency Flare	All Units
Tesoro	West Air Flare	All Units
Tesoro	Ammonia Flare	ARU, SCOT, and DEA Stripper
Valero	Acid Gas Flare	Fuel Gas, Acid Gas and high pressure treat gas
Valero	South Flare	Not reported
Valero	North Flare	All Units

3.3.1.3 Hazardous Materials Management Planning

State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released. Federal laws, such as the Emergency Planning and Community-Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act or SARA, Title III)

impose similar requirements. These requirements are enforced by the California Office of Emergency Services.

The Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business or government agency that handles hazardous materials prepare a business plan, which must include the following (HSC, Section 25504):

- details, including floor plans, of the facility and business conducted at the site;
- an inventory of hazardous materials that are handled or stored on the site;
- an emergency response plan; and
- a training program in safety procedures and emergency response for new employees, and an annual refresher course in the same topics for all employees.

3.3.1.4 Hazardous Materials Transportation

The U.S. Department of Transportation (DOT) has the regulatory responsibility for the safe transportation of hazardous materials between states and to foreign countries. DOT regulations govern all means of transportation, except for those packages shipped by mail, which are covered by the U.S. Postal Service (USPS) regulations. DOT regulations are contained in the Code of Federal Regulations, Title 49 (49 CFR); USPS regulations are in 39 CFR.

Common carriers are licensed by the California Highway Patrol (CHP) pursuant to the California Vehicle Code, §32000, which requires licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards.

Under the federal Resource Conservation and Recovery Act (RCRA) of 1976, the U.S. EPA set standards for transporters of hazardous waste. In addition, the State of California regulates the transportation of hazardous waste originating or passing through the state; state regulations are contained in CCR, Title 13. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

3.3.1.5 Hazardous Material Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the

workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations.

Under the authority of the Occupational Safety and Health Act of 1970, Fed/OSHA has adopted numerous regulations pertaining to worker safety (contained in 29 CFR – Labor). These regulations set standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries. Some OSHA regulations contain standards relating to hazardous materials handling, including workplace conditions, employee protection requirements, first aid, and fire protection, as well as material handling and storage. Because California has a federally-approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace (which are detailed in CCR, Title 8) include requirements for employee safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances as well as communicating hazard information related to hazardous substances and their handling. The hazard communication program also requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and emergency evacuation training).

Both federal and state laws include special provisions for hazard communication to employees, including training in chemical work practices. The training must include methods in the safe handling of hazardous materials, an explanation of MSDSs, use of emergency response equipment and supplies, and an explanation of the building emergency response plan and procedures. Chemical safety information must also be available. More detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in 29 CFR. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be kept in accessible places. Compliance with these regulations reduces the risk of accidents, worker health effects, and emissions.

National Fire Codes (NFC), Title 45 (published by the National Fire Protection Association) contains standards for facilities using chemicals, which are not requirements, but are generally employed by organizations in order to protect workers. These standards provide basic protection of life and property through prevention and control of fires and explosions, and also serve to protect personnel from exposure to non-fire health hazards.

While NFC Standard 45 is regarded as a nationally recognized standard, the California Fire Code (24 CCR) contains state standards for the use and storage of hazardous materials and special standards for buildings where hazardous materials are found. Some

of these regulations consist of amendments to NFC Standard 45. State Fire Code regulations require emergency pre-fire plans to include training programs in first aid, the use of fire equipment, and methods of evacuation.

3.3.1.6 Hazardous Waste Handling Requirements

RCRA created a major federal hazardous waste regulatory program that is administered by the U.S. EPA. Under RCRA, U.S. EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from "cradle to grave." RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes. HSWA specifically prohibits the use of certain techniques for the disposal of some hazardous wastes.

Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements. U.S. EPA approved California's program to implement federal regulations as of August 1, 1992.

The Hazardous Waste Control Law (HWCL) is administered by the California Environmental Protection Agency Department of Toxic Substance Control (DTSC). Under HWCL, DTSC has adopted extensive regulations governing the generation, transportation, and disposal of hazardous wastes. HWCL differs little from RCRA; both laws impose "cradle to grave" regulatory systems for handling hazardous wastes in a manner that protects human health and the environment. Regulations implementing HWCL are generally more stringent than regulations implementing RCRA.

Regulations implementing HWCL list over 780 hazardous chemicals as well as 20-30 more common materials that may be hazardous; establish criteria for identifying, packaging and labeling hazardous wastes; prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Under both RCRA and HWCL, hazardous waste manifests are required to be prepared by the facility that generates hazardous waste. The hazardous waste manifest must accompany the hazardous waste as it is transported, treated and/or disposed. Hazardous waste manifests list a description of the waste, its intended destination and regulatory information about the waste. A copy of each manifest must be filed with DTSC. The generator must match copies of hazardous waste manifests with certification notices from the treatment, disposal, or recycling facility.

3.3.1.7 Emergency Response to Hazardous Materials and Wastes Incidents

Pursuant to the Emergency Services Act, the State has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies and private persons. Response to hazardous materials incidents is

one part of this plan. The Plan is administered by the state Office of Emergency Services (OES), which coordinates the responses of other agencies including CalEPA, CHP, the Department of Fish and Game, the Regional Water Quality Control Board (RWQCB), and local fire departments. (See California Government Code, §8550.)

In addition, pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985 (the Business Plan Law), local agencies are required to develop "area plans" for response to releases of hazardous materials and wastes. These emergency response plans depend to a large extent on the business plans submitted by persons who handle hazardous materials. An area plan must include pre-emergency planning of procedures for emergency response, notification and coordination of affected government agencies and responsible parties, training, and follow-up.

3.3.2 SIGNIFICANCE CRITERIA

The impacts associated with hazards will be considered significant if any of the following occur:

> Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
>
> Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

3.3.3 ENVIRONMENTAL IMPACTS

In general, flares are used to burn and dispose of excess combustible process gases that are generated as part of the production processes or during a process upset or other situations. Flares are also used as safety devices to reduce the potential for fires and explosions due to unburned gaseous hydrocarbon releases.

Identifying the physical impacts that may be required at the affected refineries is difficult because the actual modifications that may be required have not yet been determined. Regulation 12, Rule 12 requires each refinery to develop a Flare Management Plan. Until the details of the Plan are prepared for each refinery, the potential physical hazard impacts associated with implementation of the new rule are difficult to determine.

The rule is general in nature because each flare is unique. The rule is expected to require modifications at some refineries but little or no modifications to others. In general, the refineries indicate that they expect to use best management practices to comply with Regulation 12, Rule 12 (see page 3-22). The best management practices are general in nature and implementation of them would be site specific and largely depend on the specific characteristics of each individual flare system.

Implementation of Regulation 12, Rule 12 will not change the units that discharge to the flare system as outlined in Table 3.3-1. Since the rule will not alter the units that discharge to the flare, the hazards related to the operation of each flare system is not expected to change from the baseline conditions. The existing hazards associated with a toxic vapor cloud, torch fire, flash fire, pool fire, vapor cloud explosions, thermal radiation, and explosion/overpressure at a refinery would not be altered by the proposed rule as it would not change to the type or amount of material that could discharge to the flare under worst-case conditions (an emergency release).

The rule, in part, prohibits routine flaring. Concerns about the impact of this provision on the safe operation of the refinery have been expressed by the refinery operators. They are of the opinion that an impact could occur during the refinery operator's decision process, when making the choice to flare or an alternative decision that may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous materials to the atmosphere. The rule has been developed to mitigate this impact; language has been included that requires priority be given to the safe operation of the refinery, and incorporating operational procedures for routine flaring in the flare management plan. The proposed new rule recognizes the safety benefits that the flares provide. Regulation 12, Rule 12 in no way prevents flaring when necessary. The rule only prohibits routine flaring, e.g., the use of the flare as air pollution control equipment on a daily basis.

The existing and potential new operational procedures at refineries and flare management plans as prescribed by the rule will take into account potential risks and minimize the potential for these safety-related impacts. Therefore, the hazard impacts will be less than significant.

3.3.4 MITIGATION MEASURES

No significant adverse hazard impacts are expected so no mitigation measures are required.

3.3.5 CUMULATIVE HAZARD AND HAZARDOUS MATERIALS IMPACTS

Proposed Regulation 12, Rule 12, in combination with other BAAQMD proposed rules as outlined in the 2000 CAP and the 2001 Ozone Attainment Plan, addresses state and national air quality planning requirements for ozone and includes control measures to reduce VOC and NOx emissions, in order to reduce ozone formation.

The Ozone Attainment Plan contains several control measures that could generate hazard/human health impacts through increased usage of consumer products reformulated with acetone or other hazardous formulations. It is expected that the increased use of certain hazardous exemption compounds (e.g., acetone) would generally be balanced by a decreased use of other hazardous and flammable materials (e.g., methyl ethyl ketone, toluene, and xylenes).

The potential adverse hazard impacts associated with other control measures include the additional production of reformulated fuels at refineries, additional use of ammonia in SCRs, and increased use of vapor recovery. These project-specific impacts would be minimized by the impact specific mitigation measures identified so that no additional cumulative impacts were identified and no cumulative mitigation measures are required.

There are no provisions of Regulation 12, Rule 12 that result in either project-specific or cumulative hazard impacts. Since the proposed project is not expected to create significant adverse project-specific hazard impacts, the proposed project's contribution to significant adverse cumulative hazard impacts are less than cumulatively considerable (CEQA Guidelines §15130(a)(3)) and, therefore, are not significant.

3.3.6 CUMULATIVE MITIGATION MEASURES

No significant adverse cumulative hazard impacts are expected so no mitigation measures are required.

CHAPTER 4

ALTERNATIVES

Discussion

4.0 ALTERNATIVES

4.1 DISCUSSION

An EIR is required to describe a reasonable range of feasible alternatives to the proposed project that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project (CEQA Guidelines §15126.6(a)). As discussed in Chapter 3 of this EIR and the Initial Study (see Appendix A), the proposed new rule is not expected to result in significant impacts to any environmental resources including aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities service systems. Because no significant impacts have been identified for the proposed project, alternatives are not required to be analyzed in this EIR. The requirement to develop alternatives under CEQA Guidelines §15126.6 has been satisfied because no significant adverse impacts were identified for the proposed project. No further discussion of alternatives is required for this EIR.

CHAPTER 5

OTHER CEQA TOPICS

Relationship Between Short-Term and Long-Term Productivity
Significant Irreversible Environmental Changes
Growth-Inducing Impacts

5.0 OTHER CEQA TOPICS

5.1 RELATIONSHIP BETWEEN SHORT-TERM AND LONG-TERM PRODUCTIVITY

An important consideration when analyzing the effects of a proposed project is whether it will result in short-term environmental benefits to the detriment of achieving long-term goals or maximizing productivity of these resources. Implementing Regulation 12, Rule 12 is not expected to achieve short-term goals at the expense of long-term environmental productivity or goal achievement. The purpose of the proposed Flare rule is to: (1) allow flaring for the safe operation of the facility; (2) require a management plan for each flare subject to the rule; (3) require prompt notification and detailed investigation of flaring events; (4) continue to develop better emission estimates from flares; and (5) ensure continued emission reductions from flaring minimization. The Rule is expected to minimize flare emissions and to continue the downward trend in flare emissions that started when the BAAQMD began monitoring flares. The rule would reduce both TAC and criteria pollutant emissions. By reducing TAC and criteria emissions, human exposure to air pollutant would also be reduced, providing long-term health benefits.

Implementing the Regulation 12, Rule 12 would not narrow the range of beneficial uses of the environment. Of the potential environmental impacts discussed in Chapter 3, no significant impacts to any environmental resource are expected. Because no short-term environmental benefits are expected at the expense of long-term environmental goals being achieved, there is no justification for delaying the proposed action. The proposed project should be implemented now in order to update and enhance the existing District air quality program and implement control measures identified in the 2001 Ozone Attainment Plan. No short-term benefits at the expense of long-term impacts have been identified. In fact, the proposed project is expected to result in long-term emission reductions and long-term public health benefits.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA requires an EIR to discuss significant irreversible environmental changes which would result from a proposed action should it be implemented. Irreversible changes include a large commitment of nonrenewable resources, committing future generations to specific uses of the environment (e.g., converting undeveloped land to urban uses), or enduring environmental damage due to an accident.

Implementation of the proposed flare rule is not expected to result in significant irreversible adverse environmental changes. Of the potential environmental impacts discussed in Chapter 3, no significant impacts to any environmental resource are expected. Cumulative air quality impacts are expected to be less than significant as implementation of ozone control measures associated with the 2000 CAP and 2001 Ozone Attainment Plan will result in overall emission reductions of NOx and VOCs. In

addition, a new ozone strategy is expected to be available this summer. The rules would place only an incremental demand on nonrenewable and limited resources, such as energy and water supplies, relative to the accelerated rate of use of these resources due to population growth and increased consumer demand. The largely irretrievable conversion of undeveloped/agricultural land to urban uses is a function of the growing population and local land use authority, not the proposed project.

Proposed Regulation 12, Rule 12 is expected to result in long-term benefits associated with improved air quality even though the population of the Bay Area is expected to increase. The project would result in reduced emissions of criteria pollutants and TACs, thereby improving air quality and related public health.

5.3 GROWTH-INDUCING IMPACTS

A growth-inducing impact is defined as the "ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Growth-inducing impacts can generally be characterized in three ways. In the first instance, a project is located in an isolated area and brings with it sufficient urban infrastructure to result in development pressure being placed on the intervening and surrounding land. This type of induced growth leads to conversion of adjacent acreage to higher intensity uses because the adjacent land becomes more conducive to development and, therefore, more valuable because of the availability of the extended infrastructure.

A second type of growth-inducing impact is produced when a large project, relative to the surrounding community or area, affects the surrounding community by facilitating and indirectly promoting further community growth. The additional growth is not necessarily adjacent to the site or of the same land use type as the project itself. A project of sufficient magnitude can initiate a growth cycle in the community that could alter a community's size and character significantly.

A third and more subtle type of growth-inducing impact occurs when a new type of development is allowed in an area, which then subsequently establishes a precedent for additional development of a similar character (e.g., a new university is developed which leads to additional educational facilities, research facilities and companies, housing, commercial centers, etc.)

None of the above scenarios characterize the project in question. Regulation 12, Rule 12 will control emissions from existing flares and no new flares would be required as part of the proposed new rule. The proposed project is part of the strategy in the 2001 Ozone Attainment Plan that was developed, in part to accommodate the projected growth for the region, while still attaining and maintaining the ambient air quality standards. The proposed project would not change jurisdictional authority or responsibility concerning land use or property issues (Section 40716 of the California Health and Safety Code) and, therefore, is not considered to be growth-inducing.

CHAPTER 6

REFERENCES

6.0 REFERENCES

BAAQMD, 1998. BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans, Revised December 1999.

BAAQMD, 2001. Revised 2001 San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard, adopted October 24, 2001.

BAAQMD, 2002. Draft Technical Assessment Document. Further Study Measure 8 – Flares, December 2002.

BAAQMD, 2004. Toxic Air Contaminant Control Program Annual Report 2002 Volume I. June 2004.

BAAQMD, 2005. Draft Environmental Impact Report for the Bay Area Air Quality Management District's Air Toxics NSR Rule, April 2005.

CARB, 1993. Risk Management Guidelines for New and Modified Sources of Toxic Air Pollutants, California Air Resources Board, July 1993.

CARB, 2000. Risk Management Guidance for the Permitting of New Stationary Diesel Fueled-Engines, California Air Resources Board, October 2000.

CARB, 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Stationary Source Division, Mobil Source Control Division, October 2000.

CARB, 2004. 2004 California Almanac of Emissions and Air Quality, CARB, 2004.

South Coast Air Quality Management District, 2004. Evaluation Report on Emissions from Flaring Operations at Refineries, September 3, 2004.

U.S. EPA, EPA Website: http://www.epa.gov/compliance/civil/programs/caa/oil/index.html. October 6th, 2004

University of Alberta, 2004. University of Alberta Flare Research Project. Final Report, November 1996-September 2004, September 1, 2004.

6.2 ORGANIZATIONS AND PERSONS CONSULTED

The CEQA statues and Guidelines require that organizations and persons consulted be provided in the EIR. A number of organizations, state and local agencies, and private

industry have been consulted. The following organizations and persons have provided input into this document.

Organizations

California Air Resources Board
Bay Area Air Quality Management District
South Coast Air Quality Management District
Quest Consultants

List of Environmental Impact Report Preparers

Bay Area Air Quality Management District
San Francisco, California

Environmental Audit, Inc.
Placentia, California

CHAPTER 7

ACRONYMS

AAQS	Ambient Air Quality Standard
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AB1807	California Toxic Air Contaminants Program (Tanner Bill)
AB2728	Revised Tanner Bill
AB2588	Air Toxic "Hot Spots" Information and Assessment Act
AB2595	California Clean Air Act
ACE2588	Assessment of Chemical Exposure for AB2588
APCO	Air Pollution Control Officer
ARB	Air Resources Board
ATCM	Airborne Toxic Control Measure
ATHS	Air Toxics Hot Spots Program
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BTU	British Thermal Unit
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
Caltrans	California Department of Transportation
CalOSHA	California Occupational Safety and Health Administration
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBE	Communities For a Better Environment
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH4	Methane
CHP	California Highway Patrol
CH&SC	California Health & Safety Code
CIWMB	California Integrated Waste Management Board
CO	Carbon monoxide
CO_2	Carbon dioxide
CPUC	California Public Utilities Commission
CWA	Clean Water Act
C4	Butane
DHS	Department of Health Services
DIAL	differential absorption lidar
DMV	Department of Motor Vehicles
DOE	Department of Energy
DOT	U.S. Department of Transportation
DPR	Department of Pesticide Regulation
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control

DWR	California Department of Water Resources
EIR	Environmental Impact Report
ERPG	Emergency Response Planning Guideline
Fed/OSHA	Federal Occupational Safety and Health Administration
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FMP	Flare Management Plan
FTIR	Fourier transform infrared
H_2	Hydrogen
H_2SO_4	Sulfuric Acid
HAP	Hazardous Air Pollutants
HARP	Hotspots Analysis and Reporting Program
HCFs	Hydrochlorofluorcarbons
HNO_3	Nitric Acid
HRA	Health Risk Assessment
HRSA	Health Risk Screening Analysis
HSWA	Hazardous and Solid Waste Act
HMTA	Hazardous Materials Transportation Act
HWCL	Hazardous Waste Control Law
kWh	Kilowatt Hour
lbs	pounds
lbs/hr	pounds per hour
LDAR	Leak Detection and Repair Requirements
LEL	lower explosive limit
LFL	lower flammable limit
MACT	maximum achievable control technology
m/s	meters per second
MEI	maximum exposed individual
MEIR	maximum exposed individual resident
MEIW	maximum exposed individual worker
MICR	Maximum Increased Cancer Risk
MMcfd	Million Cubic Feet per Day
MOP	Manual of Procedures
MSDS	Material Safety Data Sheet
MW	megawatts
N_2	Nitrogen
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NPDES	National Pollutant Discharge Elimination System
NFC	National Fire Codes
NH_3	Ammonia
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOP	Notice of Preparation
NOP/IS	Notice of Preparation/Initial Study
NOx	Nitrogen Oxide

NSR	New Source Review
O_3	Ozone
OES	Office of Emergency Services
OSHA	Occupational Safety and Health Administration
PAHs	Polynuclear Aromatic Hydrocarbons
PM2.5	particulate matter less than 2.5 microns equivalent aerodynamic diameter
PM10	particulate matter less than 10 microns equivalent aerodynamic diameter
ppbv	parts per billion by volume
ppm	parts per million
ppmv	parts per million by volume
psi	pounds per square inch
psia	pounds per square inch absolute
psig	pounds per square inch (gauge)
RCRA	Resource Conservation and Recovery Act
REL	Reference exposure level
REP	Risk Evaluation Process
RMP	Risk Management Plan
ROC	Reactive Organic Compound
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_3	Sulfur Trioxide
SOx	sulfur oxide
SWP	State Water Project
SWMPS	Storm Water Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TBACT	Best Available Control Technology for Toxics
Tcf	trillion cubic feet
TAD	Technical Assessment Document
TOG	Total Organic Gases
TPD	Tons per Day
TPH	total petroleum hydrocarbons
TPY	Tons per Year
TSP	Total Suspended Particulates
TSS	Total Suspended Solids
UFC	Uniform Fire Code
U.S.	United States
USBR	United States Bureau of Reclamation
USDOT	United States Department of Transportation

U.S. EPA	United States Environmental Protection Agency
USPS	U.S. Postal Service
ug/l	micrograms per liter
ug/m^3	micrograms per cubic meter
VOC	volatile organic compounds
WRCB	Water Resources Control Board

APPENDIX A

NOTICE OF PREPARATION AND INITIAL STUDY

CEQA

NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR ADOPTION OF DISTRICT REGULATION 12: MISCELLANEOUS STANDARDS OF PERFORMANCE, RULE 12: FLARES AT PETROLEUM REFINERIES AND AMENDMENT OF REGULATION 8: ORGANIC COMPOUNDS, RULE 2: MISCELLANEOUS OPERATIONS

TO:	**«Company»** **«Address1»** **«Address2»** **«City», «State» «PostalCode»**	**FROM:**	**Bay Area Air Quality Management District** **939 Ellis Street** **San Francisco, CA 94109**

Interested Agencies, Organizations and Individuals:

Subject: Notice is hereby given that the Bay Area Air Quality Management District (Bay Area AQMD or District) will be the lead agency and will prepare an Environmental Impact Report (EIR) in connection with the project described in this notice. This Notice of Preparation is being prepared pursuant to California Public Resources Code § 21080.4 and CEQA Guidelines Section 15082.

Project Title: Bay Area AQMD proposed Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Petroleum Refineries and amendment to Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations.

Project Location: The rule will apply within the Bay Area AQMD, which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, and the southern portions of Solano and Sonoma counties.

Project Description: The District is proposing to adopt a new rule, Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flares at Petroleum Refineries. The proposed rule will prohibit flaring that is not associated with a startup, shutdown or malfunction and not necessary for the safe operation of the refinery. Also, each refinery will have to submit plans to reduce flaring in all circumstances and adhere to those plans when approved by the District. In addition, each refinery will have to update plans yearly and in association with major plant modifications, notify staff of flaring episodes, conduct a causal analysis of flaring episodes, and provide an annual report on flaring at low flow rates. Water seal levels in flare systems will have to be monitored and recorded. The District is also proposing to amend Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations, to clarify that this rule does not apply to sources subject to the new Regulation 12, Rule 12.

Probable Environmental Impacts: Adoption of a new rule to limit flaring operations at petroleum refineries is intended to and expected to benefit public health and the environment. However, the District has chosen to prepare an EIR to ensure a comprehensive evaluation of any potential impacts. Attached to this notice is an Initial Study. The Initial Study outlines the areas of potential environmental impact that will be further reviewed in the draft Environmental Impact Report.

Response: This notice provides information on the above project and provides you an opportunity to submit comments on potential environmental effects that should be considered in the EIR. If the proposed project has no bearing on you or your agency, no action on your part is necessary. Due to the time limits mandated by State law, your response must be sent at the earliest possible date but ***not later than 30 days*** after receipt of this notice. If you or your agency wishes to submit comments, they may be sent to Alex Ezersky, via the contact information below.

Alex Ezersky, Principal Air Quality Specialist
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Phone: (415) 749-4650 Fax: (415) 749-4741
Email: aezersky@baaqmd.gov
Date: March 28, 2005

Chapter 3
Environmental Checklist

ENVIRONMENTAL CHECKLIST FORM

1. Project Title:	Bay Area Air Quality Management District (BAAQMD) Proposed New Regulation 12, "Miscellaneous Standards of Performance," Rule 12, "Flares at Petroleum Refineries"
2. Lead Agency Name and Address:	Bay Area Air Quality Management District 939 Ellis Street San Francisco, California 94109
3. Contact Person and Phone Number:	Alex Ezersky, Planning and Research Division, 415/749-4650 or aezersky@baaqmd.gov
4. Project Location:	This rule applies to the area within the jurisdiction of the Bay Area Air Quality Management District, which encompasses all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The refineries affected by the rule are located in Contra Costa County and Solano County.
5. Project Sponsor's Name and Address:	(same as above)
6. General Plan Designation:	N/A
7. Zoning:	N/A
8. Description of Project:	See "Background" in Chapter 2
9. Surrounding Land Uses and Setting:	See "Affected Area" in Chapter 2
10. Other Public Agencies Whose Approval Is Required:	None

Environmental Factors Potentially Affected:

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact", "Less Than Significant With Mitigation Incorporated", or "Less-than-Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural Resources	☒ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☒ Hazards and Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☐ Mandatory Findings of Significance	

Determination:

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project WOULD NOT have a significant effect on the environment, however, an ENVIRONMENTAL IMPACT REPORT will be prepared.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature Date

Printed Name For

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
I.	**AESTHETICS.**				
	Would the project:				
a.	Have a substantial adverse effect on a scenic vista?	❑	❑	❑	☑
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	❑	❑	❑	☑
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	❑	❑	❑	☑
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. In terms of physiography, the Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges. Because the area of coverage is so vast (approximately 5,600 square miles), land uses vary greatly and include commercial, industrial, residential, and agricultural uses.

Discussion of Impacts

a–c. Some equipment may have to be installed to comply with the proposed rule, but would be installed within existing refineries.. No alterations to the refineries that could affect scenic resources or degrade the visual character or quality of a site are anticipated. There is no impact.

d. No additional sources of light would be required for the facilities under the proposed rule. The proposed rule would not alter existing lighting requirements in any way. Existing light sources are expected to be sufficient. There is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
II.	**AGRICULTURAL RESOURCES**. In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation. Would the project:				
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	❑	❑	❑	☑
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	❑	❑	❑	☑
c.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	❑	❑	❑	☑

Setting

As described under "Aesthetics," land uses within the jurisdiction of the BAAQMD vary greatly and include agricultural lands. Some of these agricultural lands are under Williamson Act contracts.

Discussion of Impacts

a–c. The proposed rule would not require conversion of existing agricultural land to other uses. The proposed rule would not conflict with existing agriculture-related zoning designations or Williamson Act contracts. Williamson Act lands within the boundaries of the BAAQMD would not be affected. No effects on agricultural resources are expected because the proposed rule would apply to existing refinery operations. Because no changes in refinery locations are expected, there is no potential for conversion of farmland or conflicts related to agricultural uses or land under a Williamson Act contract. There is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
III.	**AIR QUALITY.**				
	When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a.	Conflict with or obstruct implementation of the applicable air quality plan?	❑	❑	❑	☑
b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❑	❑	❑	☑
c.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	❑	❑	❑	☑
d.	Expose sensitive receptors to substantial pollutant concentrations?	❑	❑	☑	❑
e.	Create objectionable odors affecting a substantial number of people?	❑	❑	☑	❑

Setting

Existing Conditions

The pollutants of greatest concern in the BAAQMD are various components of photochemical smog (ozone and other pollutants) and particulate matter less than or equal to 10 microns in diameter (PM10). Ozone, a criteria pollutant, is formed from a reaction of volatile organic compounds (VOCs) and oxides of nitrogen (NOx) in the presence of ultraviolet light (sunlight).

As discussed in Chapter 2 ("Affected Area"), the Bay Area is classified as a nonattainment area for both the California and federal ozone standards. Though the Bay Area currently has an attainment record for the federal standard, it has not applied for redesignation to attainment and is still subject to occasional exceedances of the federal standard. Violations of the California standard occur with greater frequency because of the greater stringency of that standard.

The precursor chemicals that form ozone are volatile organic compounds (VOCs) and nitrogen oxides (NOx). Some of these volatile organic compounds are toxic compounds and some are known carcinogens. The BAAQMD maintains a network of monitoring stations to monitor certain toxic compounds in ambient air. In addition, the California Air Resources Board (CARB) maintains several monitoring stations in the Bay Area as part of a statewide toxics monitoring effort. All of the stations monitor for benzene, carbon tetrachloride, chloroform, ethylene dibromide, ethylene dichloride, methyl tert butyl ether (MTBE), methylene chloride, perchloroethylene, toluene, trichloroethane, trichloroethylene, and vinyl chloride. The CARB monitoring covers several additional gaseous compounds (1,3-butadiene, acetaldehyde, and formaldehyde) and several particulate toxics (chromium, nickel, PAHs, and lead). The BAAQMD has calculated the cancer risks associated with exposure to Bay Area average ambient levels in 2000 for these gaseous and particulate toxics to be 167 in one million. The total lifetime risk of cancer from all causes is generally regarded as 300,000 to 400,000 in one million.

There is increasing evidence that exposure to emissions from diesel-fueled engines may exceed the risks attributed to the toxics monitored by the BAAQMD and CARB networks. Based on CARB estimates of population-weighted average ambient diesel PM concentration for the Bay Area in 2000, and the best-estimate cancer potency factor adopted by the California Office of Environmental Health Hazard Assessment (OEHHA), the average cancer risk associated with exposure to diesel particulate matter is 450 in one million.

The mean ambient levels of monitored toxics are listed in the table below and compared to the mean ambient levels for 3 monitoring stations in Contra Costa County. The Richmond station is located on 7th Street downwind from the ChevronTexaco refinery and the Richmond Parkway in Richmond. The Crockett station is located at the end of Kendall Avenue generally downwind of the ConocoPhillips refinery. There are two Concord stations, and the values listed here are for the station on Treat Boulevard, downwind of Highways 680 and 4. The only notable differences in values are for toluene, for which ambient levels are higher than the Bay Area mean for the Concord and Richmond stations. Toluene emissions are generally associated with motor vehicle traffic. The higher mean ambient levels for toluene for these two stations are similar to those found at two other stations near roadways with heavy traffic in San Francisco, San Jose, and San Rafael. Benzene emissions, which are associated with motor vehicle traffic and with refining operations, are higher than the Bay Area mean only at the Concord station.

Compound	Bay Area Mean Conc. (ppb)	Concord Mean Conc. (ppb)	Crockett Mean Conc. (ppb)	Richmond Mean Conc. (ppb)
Benzene	0.46	0.54	0.20	0.35
Chloroform	0.01	<0.02	<0.02	0.01
Carbon tetrachloride	0.10	0.11	0.11	0.01
Ethylene dibromide	0.01	<0.02	<0.02	<0.02
Ethylene dichloride	0.05	<0.10	<0.10	<0.10
MTBE	0.73	0.54	0.67	0.69
Methylene chloride	0.36	0.26	0.30	0.26

Compound	Bay Area Mean Conc. (ppb)	Concord Mean Conc. (ppb)	Crockett Mean Conc. (ppb)	Richmond Mean Conc. (ppb)
Perchloroethylene	0.06	0.04	0.02	0.06
Toluene	1.24	2.32	0.35	1.92
1,1,1-Trichloroethane	0.12	0.06	0.12	0.02
Trichloroethylene	0.05	0.04	<0.08	0.03
Vinyl chloride	0.15	<0.30	<0.30	<0.30

In addition to ozone, two other pollutants for which there are health-based ambient air quality standards are sulfur dioxide and hydrogen sulfide. Sulfur dioxide is created when fossil fuels like petroleum or coal are burned, and the sulfur in the fuel is oxidized to form sulfur oxides. There are California and federal standards for sulfur dioxide, and no Bay Area exceedance of these standards has been recorded for over 25 years. Hydrogen sulfide is a colorless gas with a strong "rotten egg" odor for which California has established an ambient air quality standard. There is no federal standard. Although the State of California has designated one small area in the State as nonattainment for this standard, most areas, including the Bay Area, have not been classified.

The primary purpose of Regulation 12, Rule 12 is to minimize the frequency and duration of flaring at the Bay Area petroleum refineries. This minimization is intended to reduce emissions of VOCs that contribute to ozone formation and of sulfur compounds that may cause odor problems and lung irritation. In addition, emissions of oxides of nitrogen, particulate matter and carbon monoxide will be reduced. Although ozone problems arise primarily from vehicle traffic associated with urban development, stationary sources like refineries contribute to the inventory of ozone precursor emissions.

The nature and level of emissions from flares vary widely, depending upon the volumetric flow rate of gas sent to the flare, the total volume of gas flared, the composition of the gas, the design and operation of the flare, and other variables like wind speed. Over the past several years, refineries have taken steps to reduce flaring, which has resulted in a reduction of emissions from this activity. The annualized average total organic compound (organic compounds including methane) emissions for 2004 were estimated at 2 tons per day. The daily total organic emission range was from 0 (zero) tons per day to 12 tons per day. The annualized average sulfur dioxide emissions for 2004 were estimated at approximately 4 tons per day. The daily sulfur dioxide emission range was from 0 (zero) tons per day to 61 tons per day.

Sensitive land uses, including residences, hospitals, schools, and motels/hotels may adjoin refineries. These land uses are considered sensitive to air pollutants because people are often situated in these areas for extended periods of time.

Regulatory Setting

At the federal level, the federal Clean Air Act (CAA) Amendments of 1990 give EPA additional authority to require states to reduce emissions of ozone precursors and PM10 in nonattainment areas. The amendments set new attainment deadlines based on the severity of problems. At the state level, CARB has traditionally established state ambient air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved state implementation plans. At a more local level, California's air districts (e.g., BAAQMD) are responsible for addressing air pollution caused by stationary sources. To meet this responsibility, the District adopts stationary source control measures and issues permits to regulate these sources. In support of these activities, the District develops emissions inventories and maintains a comprehensive monitoring network to assess air quality within the District.

Bay Area Air Quality Management District

BAAQMD regulates air contaminants from stationary sources. BAAQMD is governed by a 22-member Board of Directors composed of publicly elected officials apportioned according to the population of the represented counties. The Board has the authority to develop and enforce regulations for the control of air pollution within its jurisdiction. The BAAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. It is also responsible for developing planning documents required by both federal and state law.

A number of BAAQMD regulations already regulate emissions from flares. Specifically, Regulation 6 contains limitations on visible emissions (opacity) that may be exceeded if a flare produces smoke rather than burning waste gases cleanly. Regulation 9, Rule 1 and Regulation 9, Rule 2 regulate emissions of sulfur dioxide and hydrogen sulfide, respectively, and flares may be identified as the sources of emissions of these compounds by monitors at the edge of the refining property. Finally, Regulation 1, Section 301 prohibits emissions from sources that cause a public nuisance.

The BAAQMD, in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, is preparing the 2005 Bay Area Ozone Strategy. The Ozone Strategy will address national and state air quality planning requirements. Part of the strategy is to adopt control measures. Proposed Regulation 12, Rule 12 is included as a draft control measure, SS-6. It is derived from further study measure FS-8 in the 2001 Ozone Plan.

Regulation 12, Rule 12 will prohibit routine flaring, defined as flaring that is not associated with a startup, shutdown or malfunction. Also, each refinery will have to submit plans to reduce flaring in all circumstances and adhere to those plans when approved by the District. In addition, each refinery will have to notify the District of flaring events, conduct a causal analysis of flaring events, and provide an annual report on flaring at low flow rates. Plans will have to updated annually and whenever a refinery

makes a major modification of equipment covered by the plan. Water seal levels in flare systems will have to be monitored and recorded.

Discussion of Impacts

a Regulation 12, Rule 12 is being proposed as part of a slate of control measures in the Ozone Strategy currently being developed. Other control measures focus on refineries, but also on commercial and industrial activities for control of organic compound emissions, combustion sources for control of emissions of oxides of nitrogen and mobile and transportation control measures for control of both. The rule is one of 38 measures that, collectively, will reduce emissions of ozone precursors and ensure progress towards meeting the applicable state air quality standards. The measures are not contingent on each other. Consequently, the rule is part of, and will not interfere with the implementation of the air quality plan.

b,c The emissions from flares, on an annualized basis, were approximately 2 tons per day of total organic compounds (organic compounds including methane) in 2004. This is a significant reduction in emissions from emissions estimates made from data obtained in earlier years. However, the usage of flares in refineries, and the resultant emissions, is quite variable. Emissions from a single flaring event have been estimated to be as high as 55 tons of organic compounds, approximately one tenth of the total daily anthropogenic organic compound emissions in the Bay Area. This amount of emissions could, under the right atmospheric conditions, contribute to or cause an air quality excess. While the proposed rule is intended to prevent routine flaring, a flaring event of this magnitude would likely be the result of a significant process upset in the refinery, such as a sudden, unforeseen, widespread electrical outage. The proposed rule would not have an impact on a process upset of this magnitude, and, should such an event occur, would allow flaring to process gases that could not otherwise be contained. Consequently, the proposed rule would have no impact on the potential for a flaring event to violate an air quality standard. The purpose of the rule is to further reduce emissions from flares, by focusing on an overall reduction of flaring, through management of the flare systems, installation of new equipment and developing operating procedures to minimize and utilize waste gases. Consequently, the rule will not result in a cumulatively considerable net increase in any criteria pollutant.

d,e Flares serve as a fundamental component of each refinery's safety relief system allowing gases generated during emergency events to be burned rather than released directly to the atmosphere. These events may be caused by power and equipment failures, process upsets or accidents. They also occur during startup and shutdown activities and during maintenance activities when gases that would normally be burned to heat refinery process vessels must be flared instead because the process vessels have been taken out of service, are not yet up to operating temperature, or are being maintained. To a lesser extent, flares serve as a control device for gases that cannot be recovered and used in the refinery fuel gas system. This may occur when the heating value of the gas stream is insufficient for such use, when the stream is intermittent, or when the stream exceeds what is necessary to satisfy refinery combustion needs. Flaring of gases under all of these circumstances prevents their direct release to the atmosphere and reduces the environmental impact of the gases.

The rule, in part, prohibits routine flaring. As discussed in the Hazards and Hazardous Materials section of this checklist, concerns about the impact of this provision on the safe operation of the refinery have been expressed by the Western States Petroleum Association and its members. They are of the opinion that the rule may affect a refinery operator's decision to flare or not, and that this impact on the decision making process may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous materials to the atmosphere. Should hazardous materials be released, there is the potential that there would be an impact to sensitive receptors or that the release would create objectionable odors. The rule has been developed to mitigate safety concerns; language has been included that requires priority be given to the safe operation of the refinery. Although the scenario as stated could result in a significant impact, existing and potential new operational procedures at refineries and flare management plans as prescribed by the rule will take into account potential risks and minimize the potential for these safety-related impacts. Consequently, the potential that the rule will expose sensitive receptors to pollution or create objectionable odors is less than significant. However, in order to explore these topics more fully, they will be further evaluated in the EIR.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.**				
	Would the project:				
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	❑	❑	❑	☑
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	❑	❑	❑	☑
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	❑	❑	❑	☑
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	❑	❑	❑	☑
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	❑	❑	❑	☑
f.	Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares at five petroleum refineries located in Contra Costa County and Solano County. These refineries are located in areas zoned for

industrial or commercial land use. Typically, these facilities are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to require the preparation of flare minimization plans which could result in the installation of additional equipment within the refineries.

Discussion of Impacts

a-f No impacts on biological resources are anticipated from the proposed flare rule that would apply to existing refinery operations. The flares to be regulated as part of this new rule already exist and are located within the confines of existing refineries. The proposed flare rule does not directly require additional equipment but flare plans may ultimately result in additional equipment at the refineries. Any additional equipment would be constructed within the confines of the existing refineries. No sensitive biological resources are located within the confines of the existing refineries. Therefore, the proposed flare rule neither requires nor is likely to result in activities that would affect sensitive biological resources. Therefore, no significant adverse impacts on biological resources are expected.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V.	**CULTURAL RESOURCES.**				
	Would the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	❑	❑	❑	☑
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	❑	❑	❑	☑
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	❑	❑	❑	☑
d.	Disturb any human remains, including those interred outside of formal cemeteries?	❑	❑	❑	☑

Setting

Cultural resources are defined as buildings, sites, structures, or objects that might have historical, architectural, archaeological, cultural, or scientific importance. The State CEQA Guidelines define a significant cultural resource as a "resource listed or eligible for listing on the California Register of Historical Resources" (Public Resources Code Section 5024.1). A project would have a significant impact if it would cause a substantial adverse change in the significance of a historical resource (State CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance of a historical resource would result from an action that would demolish or adversely alter the physical characteristics of the historical resource that convey its historical significance and that qualify the resource for inclusion in the CRHR or in a local register or survey that meets the requirements of Public Resources Code Sections 5020.1(k) and 5024.1(g).

The affected refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the amount of gases directed to each flare subject to the rule.

Discussion of Impacts

a.-d. No effect on cultural resources is expected because the proposed rule would apply to existing refining operations. The flares already exist, and only minor construction inside the refineries is expected. No construction outside of the

refineries is expected. The proposed rule neither requires nor is likely to result in activities that would affect cultural resources. Therefore, there is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VI.	**GEOLOGY AND SOILS.**				
	Would the project:				
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	❑	❑	❑	☑
	2. Strong seismic groundshaking?	❑	❑	❑	☑
	3. Seismic-related ground failure, including liquefaction?	❑	❑	❑	☑
	4. Landslides?	❑	❑	❑	☑
b.	Result in substantial soil erosion or the loss of topsoil?	❑	❑	❑	☑
c.	Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	❑	❑	❑	☑
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	❑	❑	❑	☑
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses vary greatly and include commercial, industrial,

residential, agricultural, and open space uses. The refiners affected by the proposed rule amendments are located in the industrial portions of Contra Costa and Solano Counties.

The refineries are located in the natural region of California known as the Coast Ranges geomorphic province. The province is characterized by a series of northwest trending ridges and valleys controlled by tectonic folding and faulting, examples of which include the Suisun Bay, East Bay Hills, Briones Hills, Vaca Mountains, Napa Valley, and Diablo Ranges.

Regional basement rocks consist of the highly deformed Great Valley Sequence, which include massive beds of sandstone interfingered with siltstone and shale. Unconsolidated alluvial deposits, artificial fill, and estuarine deposits, (including Bay Mud) underlie the low-lying region along the margins of the Carquinez Straight and Suisun Bay. The estuarine sediments found along the shorelines of Solano County are soft, water-saturated mud, peat and loose sands. The organic, soft, clay-rich sediments along the San Francisco and San Pablo Bays are referred to locally as Bay Mud and can present a variety of engineering challenges due to inherent low strength, compressibility and saturated conditions. Landslides in the region occur in weak, easily weathered bedrock on relatively steep slopes.

The San Francisco Bay Area is a seismically active region, which is situated on a plate boundary marked by the San Andreas Fault System. Several northwest trending active and potentially active faults are included with this fault system. Under the Alquist-Priolo Earthquake Fault Zoning Act, Earthquake Fault Zones were established by the California Division of Mines and Geology along “active” faults, or faults along which surface rupture occurred in Holocene time (the last 11,000 years). In the Bay area, these faults include the San Andreas, Hayward, Rodgers Creek-Healdsburg, Concord-Green Valley, Greenville-Marsh Creek, Seal Cove/San Gregorio and West Napa faults. Other smaller faults in the region classified as potentially active include the Southampton and Franklin faults.

Ground movement intensity during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geological material. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. Earthquake ground shaking may have secondary effects on certain foundation materials, including liquefaction, seismically induced settlement, and lateral spreading.

Regulatory Background

Construction is regulated by the local City or County building codes that provide requirements for construction, grading, excavations, use of fill, and foundation work including type of materials, design, procedures, etc. which are intended to limit the probability of occurrence and the severity of consequences from geological hazards. Necessary permits, plan checks, and inspections are generally required.

The City or County General Plan includes the Seismic Safety Element. The Element serves primarily to identify seismic hazards and their location in order that they may be taken into account in the planning of future development. The Uniform Building Code is the principle mechanism for protection against and relief from the danger of earthquakes and related events.

In addition, the Seismic Hazard Zone Mapping Act (Public Resources Code §§2690 – 2699.6) was passed by the California legislature in 1990 following the Loma Prieta earthquake. The Act required that the California Division of Mines and Geology (DMG) develop maps that identify the areas of the state that require site specific investigation for earthquake-trigger landslides and/or potential liquefaction prior to

permitting most urban developments. The act directs cities, counties and state agencies to use the maps in their land use planning and permitting processes.

Local governments are responsible for implementing the requirements of the Seismic Hazards Mapping Act. The maps and guidelines are tools for local governments to use in establishing their land use management policies and in developing ordinances and review procedures that will reduce losses from ground failure during future earthquakes.

Discussion of Impacts

VI a – e. No impacts on geology and soils are anticipated from the proposed flare rule that would apply to existing refinery operations. The flares to be regulated as part of this new rule already exist and are located within the confines of existing refineries. The proposed flare rule does not directly require additional equipment but flare plans may ultimately result in additional equipment at the refineries.

New structures at each site must be designed to comply with the Uniform Building Code Zone 4 requirements since the Bay Area is located in a seismically active area. The local cities or counties are responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

Any new structures at the refineries will be required to obtain building permits, as applicable, for all new structures at the site. The refineries must receive approval of all building plans and building permits to assure compliance with the latest Building Code prior to commencing construction activities. The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since the project will be required to comply with the Uniform Building Codes. No major construction activities are expected from the proposed flare rule. Therefore, no significant adverse impacts on geology and soils are expected.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VII.	**HAZARDS AND HAZARDOUS MATERIALS.**				
	Would the project:				
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	❑	❑	☑	❑
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	❑	❑	☑	❑
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	❑	❑	☑	❑
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	❑	❑	❑	☑
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	❑	❑	❑	☑
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	❑	❑	❑	☑
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	❑	❑	❑	☑
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	❑	❑	❑	☑

Setting

Oil refineries handle and process large quantities of flammable materials and acutely toxic substances. Accidents involving these substances can result in worker or public exposure to fire, heat, blast from an explosion, or airborne exposure to hazardous substances.

Fires can expose the public or workers to heat. The heat decreases rapidly with distance from the flame and therefore poses a greater risk to refinery workers than to the public. Explosions can generate a shock wave, but the risks from explosion also decrease with distance. Airborne releases of hazardous materials may affect workers or the public, and the risks depend upon the location of the release, the hazards associated with the material, the winds at the time of the release, and the proximity of receptors.

For all refineries, risks to the public are reduced if there is a buffer zone between process units and residences or if prevailing winds blow away from residences. Thus, the risks posed by operations at a given refinery are unique and determined by a variety of factors.

Regulatory Setting

Refineries and other facilities that handle hazardous materials are heavily regulated to reduce risks to workers and to the public. The following summarizes the primary laws and regulations that apply.

Federal Regulations

Two key federal regulations that focus on the risks from hazardous materials are described below.

U.S. Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) Rule

The Process Safety Management(PSM) of Highly Hazardous Chemicals(HHC's) standard (29 CFR 1910.119) is intended to prevent or minimize the consequences of a catastrophic release of toxic, reactive, flammable or explosive chemicals from a process. The PSM rule requires compilation of written process safety information, including hazard information on HHC's, technology information and equipment information on covered processes. The rule specifies that process hazard analyses must be conducted for each covered process. Operating procedures must be in writing and must provide clear instructions for safely conducting activities. The procedures must include steps for each operating phase, operating limits, safety and health considerations, and a description of safety systems and their functions. The procedures must be readily accessible to employees who work on or maintain a covered process, and must be reviewed as often as necessary to assure they reflect current operating practice. The procedures must address

safe work practices for special circumstances such as lockout/tagout and confined space entry.

U.S. EPA Accidental Release Prevention/Risk Management Plan (RMP) Rule

Clean Air Act section 112(r) is intended to prevent accidental releases of regulated substances and other extremely hazardous substances to the air and to minimize the consequences of such releases if they do occur by emphasizing preventative measures for those chemicals which are believed to pose the greatest risk. The Accidental Release Prevention Program rule that implements section 112(r) focuses on accident prevention efforts primarily at the local level with a goal of government and the public working with industry to reduce risk. The rule requires the identification of hazards within a facility which could result in a release, use of design and maintenance practices to ensure safety, and the development of response actions to be taken in the event of a release. Sources subject to the rule must submit a risk management plan (RMP) which includes an offsite consequence analysis, a five-year accident history, and a compliance certification.

Department of Transportation/Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

This part lists and classifies those materials which the Department has designated as hazardous materials for purposes of transportation and prescribes the requirements for shipping papers, package marking, labeling, and transport vehicle placarding applicable to the shipment and transportation of those hazardous materials.

State Regulations

The primary California laws that apply to chemical hazards are listed below.

The California Accidental Release Prevention (CalARP) Program

The California Accidental Release Prevention (CalARP) Program is a merging of the federal and state programs for the prevention of accidental release of regulated toxic and flammable substances. Pursuant to Health and Safety Code sections 25531 to 25543.3, the California Office of Emergency Services (OES) adopted implementing regulations and sought delegation of the federal RMP program. The OES regulations incorporate elements of the federal Risk Management Program into state regulations and eliminate the need for separate federal and California chemical risk management programs.

The California OSHA Injury and Illness Prevention Program

Every California employer must establish, implement and maintain a written Injury and Illness Prevention (IIP) Program, and a copy must be maintained at each workplace or at a central worksite. The requirements for establishing, implementing, and maintaining an effective program are found in Title 8 of the California Code of Regulations, beginning at section 3203. The regulations require that a program include these elements:

- Identification of the person or persons with responsibility for implementing the program.
- A system for identifying and evaluating workplace hazards, including scheduled, periodic inspections and unscheduled inspections to identify unsafe conditions and work practices.
- Methods and procedures to correct unsafe or unhealthy conditions and work practices.
- An occupational health and safety training program to instruct employees in general safety practices and in practices to address the hazards unique to each employee's job assignment.
- A system for communicating with employees on occupational health and safety matters.
- A strategy for ensuring that employees employ safe and healthy work practices.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including the U.S. Environmental Protection Agency, the California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices.

Local Regulations - Contra Costa County Industrial Safety Ordinance

Contra Costa County has adopted an industrial safety ordinance that addresses the human factors that lead to accidents. The ordinance requires stationary sources to develop a written human factors program that includes the following:

- Consideration of human factors in the process hazards analysis process;

- Consideration of human systems as causal factors in the incident investigation process for major accidents or releases or for incidents that could have led to a major accident or release;
- Training of employees in the human factors program;
- Operating procedures;
- Management of changes in staffing, staffing levels, or organization in operations or emergency response;
- Participation of employees and their representatives in the development of the written human factors program;
- Development of a program that includes issues such as staffing, shiftwork and overtime; and
- Incorporation of the human factors program description in the facility safety plan.

Discussion of Impacts

a. The proposed rule requires each facility to develop a flare management plan for each flare subject to the rule. The intent is for each facility to identify the most feasible means to minimize flaring. The rule specifies elements that must be included in the plan, but is not prescriptive in the means to accomplish minimization. A facility might choose to minimize the amount of sulfur in the vent gas so that it may be used as fuel throughout the refinery. This approach may lead to an increase in the amount of molten sulfur that is transported off-site. It is not anticipated that facilities are likely to choose this option, however if used, the impacts would be mitigated by adhering to Department of Transportation Regulations.

b,c. Flares serve as a fundamental component of each refinery's safety relief system and serve to burn gases generated during emergency events, such as power and equipment failures, and during process upsets or accidents. They are also used during startup and shutdown activities and during maintenance activities when gases that would normally be burned to heat refinery process vessels must be flared instead because the process vessels have been taken out of service, are not yet up to operating temperature, or are being maintained. To a lesser extent, flares serve as a control device for gases that cannot be recovered and used in the refinery fuel gas system. This may occur when the heating value of the gas stream is insufficient for such use, when the stream is intermittent, or when the stream exceeds what is necessary to satisfy refinery combustion needs. Flaring of gases under all of these circumstances prevents their direct release to the atmosphere and reduces the environmental impact of the gases.

The rule, in part, prohibits routine flaring. Concerns about the impact of this provision on the safe operation of the refinery have been expressed by the Western States Petroleum Association and its members. They are of the opinion that an impact could occur during the refinery operator's decision process, when making the choice to flare or an alternative decision that may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous

materials to the atmosphere. The rule has been developed to mitigate this impact; language has been included that requires priority be given to the safe operation of the refinery. Although the scenario as stated could result in a significant impact, existing and potential new operational procedures at refineries and flare management plans as prescribed by the rule will take into account potential risks and minimize the potential for these safety-related impacts. Therefore, the impacts will be less than significant. However, in order to explore these topics more fully, they will be further evaluated in the EIR.

d. No impacts on hazardous material sites are anticipated from the proposed rule that would apply to existing refinery operations. Some of the refineries may be located on the hazardous materials sites list pursuant to Government Code Section 65962.5. The flares subject to this rule are located within the confines of existing refineries. The proposed rule amendments neither require nor are likely to result in activities that would affect hazardous materials or existing site contamination. Therefore, no significant adverse impacts on hazards are expected.

e – f. No impacts on airports or airport land use plans are anticipated from the proposed rule that would apply to existing refinery operations. The flares subject to this rule are located within the confines of existing refineries. The proposed rule neither requires nor is likely to result in activities that would affect the environment outside of the refinery boundaries. No major construction activities are expected from the proposed rule amendments. Further, the refineries are not located within two miles of airports. Therefore, no significant adverse impacts on hazards at airports are expected.

g. No impacts on emergency response plans are anticipated from the proposed rule that would apply to existing refinery operations. Each refinery has prepared an emergency response plan; however, the flares subject to this rule already exist and are located within the confines of existing refineries. The proposed rule neither requires nor is likely to result in activities that would impact the emergency response plan. No major construction activities are expected from the proposed rule. Therefore, no significant adverse impacts on emergency response plans is expected.

h. No increase in hazards related to wildfires is anticipated from the proposed rule that would apply to existing refinery operations. The flares subject to the proposed rule already exist and are located within the confines of existing refineries. No major construction activities are expected from the proposed rule and no activities would occur outside the confines of the existing refineries. Vegetation surrounding the operating portions of the refinery has been removed to reduce the potential fire hazards. Therefore, no significant adverse impacts on fire hazards are expected.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
VIII.	**HYDROLOGY AND WATER QUALITY.**				
	Would the project:				
a.	Violate any water quality standards or waste discharge requirements?	❑	❑	❑	☑
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	❑	❑	❑	☑
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	❑	❑	❑	☑
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	❑	❑	❑	☑
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	❑	❑	❑	☑
f.	Otherwise substantially degrade water quality?	❑	❑	❑	☑
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	❑	❑	❑	☑
h.	Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	❑	❑	❑	☑
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	❑	❑	❑	☑

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
j.	Contribute to inundation by seiche, tsunami, or mudflow?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties. The area of coverage is vast (about 5,600 square miles) so that land uses and affected environment vary substantially throughout the area and include commercial, industrial, residential, agricultural, and open space uses.

The refiners affected by the proposed rule amendments are located in the industrial portions of Contra Costa and Solano Counties and are generally surrounded by other commercial and industrial facilities. The refineries are located within rolling, low elevation hills along the shores of the San Francisco Bay, San Pablo Bay, Carquinez Strait, and Suisun Bay. ChevronTexaco is bordered by the San Francisco and San Pablo Bays on the western border of the refinery. The ConocoPhillips refinery is bounded on the north and west by San Pablo Bay. The Valero, Shell, and Tesoro refineries are located adajcent to Suisun Bay along the Carquinez Straits.

Reservoirs and drainage streams are located throughout the area and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located near the refineries.

The refineries are located within the San Francisco Bay Area Hydrologic Basin. The primary regional groundwater water-bearing formations include the recent and Pleistocene (up to two million years old) alluvial deposits and the Pleistocene Huichica formation. Salinity within the unconfined alluvium appears to increase with depth to at least 300 feet. Water of the Huichica formation tends to be soft and relatively high in bicarbonate, although usable for domestic and irrigation needs (CWDR 2002).

Discussion of Impacts

a – j. No impacts on hydrology/water quality resources are anticipated from the proposed rule that would apply to existing refinery operations. The refineries affected by the proposed rule are required to treat and monitor wastewater discharges from their facilities. The flares that are subject to the proposed rule and

are located within the confines of existing refineries. The requirement to prepare a flare minimization plan will have no impact on wastewater discharges, alter drainage patterns, create additional water runoff, place any additional structures within 100-year flood zones or other areas subject to flooding, or contribute to inundation by seiche, tsunami or mudflow. No major construction activities are expected from the proposed rule and no new structures are required. Therefore, no significant adverse impacts on hydrology/water quality are expected.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IX.	**LAND USE AND PLANNING.**				
	Would the project:				
a.	Physically divide an established community?	❑	❑	❑	☑
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	❑	❑	❑	☑
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

Discussion of Impacts

a–c. The flares to be regulated as part of the proposed rule already exist and are located within the confines of existing refineries within industrial areas. The proposed rule neither requires nor is likely to result in construction outside of the existing refinery facilities. Preparation of the Flare Minimization Plan may result in the decision that new equipment would be required at a refinery. The equipment would be constructed within the confines of existing refineries. Therefore, no land use impacts are expected.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
X.	**MINERAL RESOURCES.**				
	Would the project:				
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	❑	❑	❑	☑
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to require the preparation of flare minimization plan, which may lead to the installation of additional equipment within the refineries.

Discussion of Impacts

a–b. The proposed rule is not associated with any action that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The proposed rule is not expected to result in construction outside any existing facility. Therefore, there is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XI.	**NOISE.**				
	Would the project:				
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	❑	❑	❑	☑
b.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	❑	❑	❑	☑
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	❑	☑
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	❑	☑
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	☑
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

Discussion of Impacts

a-d.

The flares to be regulated as part of the proposed rule already exist and are located within the confines of existing refineries within industrial areas. Preparation of the Flare Minimization Plan may result in the decision that new equipment would be required at a refinery. The equipment would be constructed within the confines of existing refineries. The allowable noise levels within industrial areas are generally higher in industrial areas (about 70 decibels) than commercial or residential areas. As compared to the existing operating refineries, equipment that generates significant noise levels is not expected to be required. A reduction in the number of flaring events at the refineries would be expected to reduced noise at the refineries. Therefore, no noise impacts are expected.

e-f. The refineries are not located within an airport land use plan. The preparation of flare minimization plans may result in the installation of additional equipment within the confines of the existing refineries. Additional equipment would not be located near any public or private airports. The proposed new rule is not expected to generate significant noise impacts.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XII.	**POPULATION AND HOUSING.**				
	Would the project:				
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	❑	❑	❑	☑
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	☑
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

Discussion of Impacts

a–c. The proposed rule is not expected to result in the construction of new facilities or the displacement of housing or people. Implementation of the proposed rule will result in very minor modifications at refineries. These modifications would not induce growth or displace housing or people in any way. The proposed rule will not induce population growth or related housing development. There is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII.	**PUBLIC SERVICES.**				
	Would the project:				
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
	Fire protection?	❑	❑	❑	☑
	Police protection?	❑	❑	❑	☑
	Schools?	❑	❑	❑	☑
	Parks?	❑	❑	❑	☑
	Other public facilities?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to minimize the use of flares subject to the rule within the refineries.

Given the large area covered by the BAAQMD, public services are provided by a wide range of entities. Fire protection and police protection/law enforcement services within the BAAQMD is provided by various districts, organizations, and agencies. There are several school districts, private schools, and park departments within the BAAQMD. Public facilities within the BAAQMD are managed by different county, city, and special-use districts.

Discussion of Impacts

a. The facilities affected by the proposed rule are not expected to require any new or additional public services. No effects on the need for public services such as police, schools, or public roadway maintenance are expected. There is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIV.	**RECREATION.**				
	Would the project:				
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	❑	❑	❑	☑
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	❑	❑	❑	☑

Setting

Given the large area covered by the BAAQMD, there are many recreation areas and districts within the affected area.

Discussion of Impacts

a–b. No effect on recreation is expected because the proposed rule applies to existing operations in refineries. No construction outside of these facilities is expected. The proposed rule neither requires nor is likely to result in activities that would affect recreation. There is no impact.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XV.	**TRANSPORTATION/TRAFFIC.**				
	Would the project:				
a.	Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	❑	❑	❑	☑
b.	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	❑	❑	❑	☑
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	❑	❑	❑	☑
d.	Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	❑	❑	❑	☑
e.	Result in inadequate emergency access?	❑	❑	❑	☑
f.	Result in inadequate parking capacity?	❑	❑	❑	☑
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	❑	❑	❑	☑

Setting

Transportation infrastructure within the BAAQMD ranges from single-lane roadways to multilane interstate highways. Transportation systems between major hubs are located within and outside the BAAQMD, including railroads, airports, waterways, and highways. Localized modes of travel include personal vehicles, busses, bicycles, and walking. Transportation to and from the facilities subject to the proposed rule varies by facility location.

Interstate 80 is a major east-west freeway link providing access between Richmond and Oakland/San Francisco to the south and west and Sacramento to the east. Interstate 80 is a six-lane north-south freeway which connects Contra Costa County to Solano County via the Carquinez Bridge. The ConocoPhillips

Refinery is bisected by Interstate 80, south of the Carquinez Bridge, near the interchange with State Route 4.

The ChevronTexaco Refinery is located north and adjacent to Interstate 580. Interstate 580 is a six-lane freeway and connects Interstate 80 east of the ChevronTexaco Refinery with U.S. 101 in Marin County via the Richmond-San Rafael Bridge.

The Shell Martinez Refinery is located north of State Route 4 and west of Interstate 680, south of the Benicia-Martinez Bridge. The Tesoro Avon Refinery is located north of State Route 4 and east of Interstate 680, south of the Benicia-Martinez Bridge and several miles east of the Shell Martinez Refinery.

The Valero Benecia Refinery is also located near Interstate 680. Interstate 680 is a four-lane, north-south freeway near the Valero, Tesoro, and Shell refineries. From the Benicia-Martinez Bridge, Interstate 680 extends north to Interstate 80 in Cordelia. Caltrans constructed a second freeway bridge adjacent and east of the existing Benicia-Martinez Bridge. The new bridge consists of five northbound traffic lanes. The existing bridge was restriped to accommodate four lanes for southbound traffic.

Interstate 780 is a four lane, east-west freeway extending from the Benicia-Martinez Bridge west to I-80 in Vallejo.

Discussion of Impacts

a–b. Additional traffic or significant increases of staffing at existing facilities that would result in changes to traffic patterns or levels is not expected. The proposed rule would not involve any activities that would alter air traffic patterns; substantially increase hazards caused by design features; result in inadequate parking capacity; or conflict with adopted policies, plans, or programs supporting alternative transportation. Additional traffic at the existing facilities that would result in changes to traffic patterns or levels of service at local intersections is not expected. No impacts are expected.

c. The proposed rule includes minor modifications to the operation of existing facilities. The project will not involve the delivery of materials via air so no increase in air traffic is expected.

d - e. The proposed rule is not expected to increase traffic hazards or create incompatible uses at or adjacent to the site. Emergency access is provided at the refinery sites, will continue to be maintained at the refinery sites, and will not be impacted by the proposed rule.

f. Construction activities are expected to be minor, so parking for construction workers if expected to be handled within the confines of the existing refineries. No increase in permanent workers is expected. Therefore, the proposed rule will not result in significant adverse impacts on parking.

g. The proposed rule involves modifications to the operations within the confines of an existing refinery. The proposed rule is not expected to conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks).

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI.	**UTILITIES AND SERVICE SYSTEMS.**				
	Would the project:				
a.	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	❑	❑	❑	☑
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	☑
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	☑
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	❑	❑	❑	☑
e.	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	❑	❑	❑	☑
f.	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	❑	❑	❑	☑
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	❑	❑	❑	☑

Setting

The BAAQMD covers all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and potions of western Solano and southern Sonoma Counties. The land uses and affected environment vary substantially throughout the area. Regulation 12, Rule 12 would apply to flares located at refineries in Contra Costa County and Solano County. The refineries are located in areas zoned for industrial or commercial land use. Typically, they are surrounded by other commercial and industrial facilities. The expected effect of the proposed rule is to require the preparation of flare minimization plan which may require the installation of additional equipment within the refineries.

Discussion of Impacts

a-g. The proposed rule will not generate or affect wastewater or solid waste, will not affect stormwater or stormwater drainage, and will not require water or affect water supplies. No increases in demand for public utilities are expected as a result of the proposed rule. No impacts are anticipated.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII.	**MANDATORY FINDINGS OF SIGNIFICANCE**				
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	❑	❑	❑	☑
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	❑	❑	❑	☑
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	❑	❑	☑	❑

Discussion of Impacts

a. Because of the lack of presence of these resources in the project area and the immediate vicinity, the proposed rule does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. There is no impact.

b. The project does not have adverse environmental impacts that are limited individually, but cumulatively considerable when considered in conjunction with other regulatory control projects. The project does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. There is no impact.

c. The rule, in part, prohibits routine flaring. Concerns about the impact of this provision on the safe operation of the refinery have been expressed by the Western States Petroleum Association and its members. They are of the opinion that the rule may affect a refinery operator's decision to flare or not, and that this impact on the decision making process may compromise the safe operation of the refinery. If gas is directed to the flare, then the operator may be in violation of the rule. If the operator does not direct gas to a flare, there may be an increased risk of accident, fire and direct release of hazardous materials to the atmosphere. Should hazardous materials be released, there is the potential that there would be an impact to sensitive receptors or that the release would create objectionable odors. The rule has been developed to mitigate safety concerns; language has been included that requires priority be given to the safe operation of the refinery. Although the scenario as stated could result in a significant impact, existing and potential new operational procedures at refineries and flare management plans as prescribed by the rule will take into account potential risks and minimize the potential for these safety-related impacts. Consequently, the potential that the rule will expose sensitive receptors to pollution, create objectionable odors, create a hazard through transport of hazardous materials, or release into the environment hazardous materials including within one quarter mile of a school, is less than significant. Nonetheless, because of the high degree of interest on the issue of safety and the related hazard and air quality impacts, the potential for impacts will be further evaluated in the EIR.

APPENDIX B

COMMENTS RECEIVED ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

ADAMS BROADWELL JOSEPH & CARDOZO
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
601 GATEWAY BOULEVARD, SUITE 1000
SOUTH SAN FRANCISCO, CA 94080-7037
TEL: (650) 589-1660
FAX: (650) 589-5062
kgolden@adamsbroadwell.com

SACRAMENTO OFFICE
1225 8th STREET, SUITE 550
SACRAMENTO, CA 95814-4810
TEL: (916) 444-6201
FAX: (916) 444-6209

DANIEL L. CARDOZO
RICHARD T. DRURY
THOMAS A. ENSLOW
TANYA A. GULESSERIAN
MARC D. JOSEPH
OSHA R. MESERVE
SUMA PEESAPATI
GLORIA D. SMITH

FELLOW
KEVIN S. GOLDEN

OF COUNSEL
THOMAS R. ADAMS
ANN BROADWELL

June 27, 2005

Mr. Alex Ezersky
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
aezersky@baaqmd.gov

VIA EMAIL and U.S. MAIL

Re: Comments on BAAQMD's Draft EIR for the Proposed Flare Rule

Dear Ezersky:

We are writing on behalf of the Plumbers and Steamfitters Union Local 342 and the International Brotherhood of Electrical Workers Local 302 ("Unions").

Many members of the Unions live and work in areas in and around the refineries affected by the Flare Rule. They are concerned about the harmful health, environmental, and employment effects that result from unregulated flaring. Union members live in the communities that suffer the impacts of refinery pollution. Union members breathe the same polluted air that others breathe and suffer the same health and safety impacts. Additionally, unregulated flaring from Bay Area refineries may jeopardize future jobs because poorly maintained refineries are less efficient than modernized refineries and tend to shutdown more frequently.

We have reviewed the Draft EIR for the Proposed Flare Rule. BAAQMD's Flare Rule will reduce flare emissions, thereby making the refineries safer and cleaner. The Flare Rule will provide three important benefits:

SAFETY: Prevention is the best way to reduce harm from refinery accidents and air pollution. The creation of *Flare Monitoring Plans* (FMP), and the requirement to do *Root Cause Analyses* after flaring events, will force refineries to investigate and correct problems that lead to accidents and cause flaring. The Rule also allows flaring at any time that it is necessary to protect worker safety.

JOBS: Stricter controls on air pollution have a ***positive*** impact on employment. Studies show that when refineries modernize, they become more efficient, shutdown less, and are more productive. Efficient, modern refineries are the most likely to remain open and ensure that workers stay on the job.

ENVIRONMENTAL PROTECTION: Flaring is a leading cause of uncontrolled refinery air pollution, and one of the last pollution sources to be regulated. This rule could reduce uncontrolled emissions of sulfur oxides by over 97%.[1]

We reserve the right to comment on the EIR at public hearings on the EIR. Thank your for taking the time to take our comments into consideration.

Sincerely,

/s/

Kevin S. Golden

KSG:bh

[1] If the five refineries reduced SOx emissions to the level of the Shell Refinery, then a 97% reduction in SOx would be achieved. Our experts believe that under this rule, all five Bay Area refineries could do even better than Shell's current SOx emissions going beyond a 97% SOx reduction.

COMMUNITIES FOR A
BETTER
ENVIRONMENT

June 27, 2005

VIA EMAIL and US MAIL
Mr. Alex Ezersky
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
(415) 749-4741
aezersky@baaqmd.gov.

Re: Comments on Draft EIR for the District's Proposed Flare Regulation 12-12

Communities for a Better Environment ("CBE") submits the following comments on the Bay Area Air Quality Management District's ("District") draft EIR ("DEIR") for proposed Flare Regulation 12-12.

The District developed a DEIR for the proposed flare regulation in response to comments by the refineries that "prohibiting flaring may have the potential to create or cause an accident or safety hazard of release of flare vent gas into the atmosphere, and that adverse air quality impacts could occur as a result of such an accident, hazard or release."[1] On April 26, 2005, CBE submitted comments on the Notice of Preparation and Scoping Document for the EIR. CBE commented that, among other things, the proposed rule can reduce risks from hazards and hazardous materials due to refinery upsets. CBE thanks the District for correctly concluding that the project will not cause significant adverse environmental or hazard impacts.

Refinery flare pollution has significant local effects that disparately impact low-income communities and communities of color who live near refineries. Refinery flare emissions concentrate in hotspots in the area around refineries. People who live and work in hotspot areas face potential health impacts and increased rates of disease. Flare chemicals specifically can cause breathing irritation, heart problems, eye irritation, asthma attacks, reproductive problems, cancer, and can increase death rates. The District has estimated that refinery flaring has emitted more than 50 tons of hydrocarbons in a single day. EPA has issued a report stating that flaring is frequent at oil refineries, generally.[2] Residents have reported that they regularly see flaring from their homes.[3] Oftentimes, this flaring is accompanied by a smoking cloud, revealing poor combustion efficiency.[4] Thus, based on the background of this project, a strong flare rule is sorely needed.

[1] Notice of Completion of Draft Environmental Impact Report (for Regulation 12, Rule 12), May 23, 2005.
[2] *See* EPA Enforcement Alert, Vol. 3 No. 9, October 2000.
[3] *See* CBE Flare Report, Spring; *see also* "Breathing Fire: In Their Own Words," West County Toxics Coalition, *et al.* 2005.
[4] Comments of CBE on Scope of Flare Control Rule EIR, page 4.

Once again, CBE thanks the District for correctly finding that the rule will not have significant impacts and look forward to a strong flare rule that will benefit refinery safety and the communities who suffer from local air impacts from refineries.

CBE reserves the right to comment at the hearing on the EIR.

Respectfully submitted,

Adrienne L. Bloch	Carla Perez	Greg Karras
CBE Staff Attorney	CBE Community Organizer	CBE Senior Scientist

cc: Kevin Golden, Adams Broadwell Joseph & Cardozo
Kara Christenson, EPA Region IX

APPENDIX C

RESPONSES TO COMMENTS RECEIVED ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

Response to Comments on the Draft EIR

As described in the draft EIR, the project to be analyzed under the California Environmental Quality Act (CEQA) is the adoption of a District rule to reduce emissions of air contaminants from the use of flares at petroleum refineries by minimizing the frequency and duration of flaring. Use of a flare to combust refinery gases results in emissions of volatile organic compounds and oxides of nitrogen, which contribute to the formation of ozone, and sulfur compounds, which may cause odor problems and lung irritation. The proposed rule will reduce all types of emissions associated with flaring of refinery gases.

In response to the Notice of Preparation of Draft Environmental Impact Report and Initial Study for Adoption of Regulation 12: Miscellaneous Standards of Performance, Rule 12: Flare at Petroleum Refineries and Amendment of Regulation 8: Organic Compounds, Rule 2: Miscellaneous Operations ("NOP"), the District received a written comment from Communities for a Better Environment ("CBE") claiming that the NOP identified the wrong impacts for evaluation in the draft EIR, and that it did not identify the significant adverse impacts of the proposal and ignored feasible alternatives to avoid these impacts and reduce flare emissions. The District considered these comments in preparing the draft EIR.

The draft EIR recognized that Western States Petroleum Association ("WSPA") and some Bay Area petroleum refineries have suggested the proposed rule could result in significant adverse environmental impacts if an operator failed to use the flare when necessary to prevent an accident, fire or direct release of hazardous materials to the atmosphere as a result of the District's adoption of a rule to minimize flare use. Having considered this claim, the draft EIR concludes that such impacts would not occur because the rule allows flaring in emergencies to prevent accident, hazard or direct release of vent gas. The District also believes that the rule will require better management of flare systems and refinery equipment and processes that vent to a flare and that these efforts will result in less flaring. Although the draft EIR ultimately rejects the claims of WSPA and others, it was not, as CBE erroneously contends, inappropriate to consider the posited effects.

In comments on the NOP, CBE further suggests that the EIR should evaluate and mitigate the impacts of flaring in various ways. These comments are not relevant to the analysis required under CEQA. CEQA requires the District to consider the potential significant adverse impacts of the project – here the proposed rule – and to evaluate mitigation measures and alternatives to address those impacts. The impacts to be mitigated or avoided under CEQA are those arising from implementation of the rule not the impacts of flaring. The proposed rule will reduce flaring emissions and no other potential impacts have been identified by CBE. Thus there are not potential significant adverse impacts to mitigate or avoid. In fact, in commenting on the draft EIR, CBE has apparently abandoned these arguments and concludes that the flare control rule as discussed in the draft EIR "will not have significant impacts."

CBE's conclusions about the impacts of the rule are echoed by comments on the draft EIR submitted on behalf of the Plumbers and Steamfitters Union Local 342 and the International Brotherhood of Electrical Workers Local 302 ("Unions"). The Unions commented that the proposed flare control rule will make refineries safer and reduce emissions from flares. They do not claim that there are any significant adverse environmental impacts to consider.

COMMENTS and RESPONSES

The following summarizes comments and responses on the proposed rule.

Comment #1: Adams Broadwell Joseph & Cardozo ("ABJ&C") July 5, 2005
All Feasible Control Measures
The current rule requires each refinery to develop a Flare Minimization Plan ("FMP"), however the rule contains no standards for the FMPs.
Modification: Require FMPs to include all feasible flare control measures as expeditiously as practicable.

District Response:
"Standards" for the FMP are contained in the administrative portion of the rule, Section 400. All of these elements must be addressed in the FMP within the timeframe specified by the relevant section of the rule. Although the District believes the definition of "feasible" addresses the proposed modification, the term "expeditious" has been added to Section 12-12-401.4 to clarity that the implementation schedule may not delay a prevention measure beyond "reasonable time" period used to determine feasibility.

Comment #2: ABJ&C" July 5, 2005
5 times weaker than SCAQMD's proposed rule.
BAAQMD should do at least as well as the South Coast Air Quality Management District ("SCAQMD"). As proposed, the BAAQMD Flare Rule has a triggering threshold of 500,000 cubic feet, while the SCAQMD Flare Rule's threshold is 100,000 cubic feet. This allows large flaring events with no Root Cause Analysis. Thus, the BAAQMD Rule is 5 times weaker than the SCAQMD Rule.
Modification: Reduce triggering threshold from 500,000 cubic feet to 100,000 cubic feet.

District Response:
The proposed rule manages all volumes of vent gas to the flare. Section 12-12-407 specifically addresses volumes of vent gas below 500,000 scf and requires that refineries submit an annual summary including the reason for flaring and any prevention measure considered or implemented. In addition, the provision for annual updates to the FMPs includes a requirement to include feasible prevention measures for these volumes of gases vented to the flare.

Comment #3: ABJ&C July 5, 2005
Public Hearing
The Rule currently has no public hearing process.
Modification: Require the Hearing Board to hold hearings if one is required to ensure worker and community participation.

District Response:
The rule provides a 60-day period for the public to review and comment on the plans and a 30-day review and comment period for plan updates. The plans, the quarterly reports prepared during the development of the initial FMPs, and the plan updates are public records and will be made available to the public upon request. Additionally, these documents will be posted on the District's website. This public process reflects the District's opinion that public participation is meaningful only when it precedes any approval so that comments may be considered and appropriately addressed prior to final action on the plans. The FMPs are expected to be detailed and technical and staff expects to expend a considerable amount of resources evaluating them. Staff will enforce the standards in the rule that the FMPs contain all feasible measures to prevent flaring and a schedule to expeditiously implement them. A public hearing would require additional resources, would duplicate the lengthy public comment period already provided, and would delay the implementation of the FMPs. The District does not believe public hearings would provide an added benefit sufficient to offset these undesirable effects.

Comment #4: ABJ&C July 5, 2005
Sulfur Standard
The SCAQMD prohibits flaring of gas containing more than 160 ppm of sulfur. The BAAQMD rule contains no such provision. Sulfur compounds have a foul odor, cause asthma attacks and other health problems.
Modification: Prohibit flaring of gases with sulfur content greater than 160 ppm

District Response:
The 160 ppm limit is derived from the New Source Performance Standard (NSPS) for Petroleum Refinery Flares and applies to flares installed after 1972. However, the NSPS does not necessarily prevent or reduce flaring, rather it *allows* flaring if the 160 ppm standard is met. Furthermore, the 160 ppm standard does not apply during startups, shutdowns, emergencies, malfunctions or to control relief valve leakage. This is contrary to the approach in the proposed rule, which seeks to limit emissions by *reducing* or eliminating flaring from these causes. On the other hand, the request to prohibit flaring in all circumstances if the 160 ppm standard is not met may not be technically feasible for all types of crude oil processed. The proposed rule requires an evaluation of scrubbing capacity to address gas quality issues. "Scrubbing" removes sulfur compounds to allow flare gas to be used in other capacities, such as in process heaters and boilers to provide heat and energy for refinery operations. The flare control rule as currently proposed for the SCAQMD also would exempt startup, shutdown, malfunction, and relief valve leakage from the 160 ppm standard.

Comment #5: Communities for a Better Environment ("CBE") July 5, 2005[1]
The BAAQMD rule does not provide for public participation in determining whether or not all feasible prevention measures have been included in FMPs before the District staff makes its formal determination if a Plan is complete. The public has a right and need to participate in this key decision.
Modification: The rule should provide timely public copies of progress reports to any person upon written notice of their intent, and for the APCO to consult with interested persons before the completeness determination if a request for consideration is made.

District Response:
Progress reports are public records and can easily be obtained on request. The proposed rule contains a provision for public comment on plans and plan updates. One of the issues of concern regarding the approvability of the plans is whether they include all feasible prevention measures and comments regarding this issue will be relevant if submitted during the public comment period. (See response to ABJ&C comment #3)

Comment #6a: Western States Petroleum Association ("WSPA") July 7, 2005
12-12-201 Emergency: WSPA recommends the word "feasibly" or "reasonably" be inserted in front of "non-preventable." Because it is defined in the rule, "feasibly" is preferable; but "reasonably" is acceptable. Though we agree it is not the intent of the rule, literally read the use of "non-preventable" alone could render the rule infeasible because it might require capital and manpower resources that are not cost-effective, thereby rendering the rule infeasible under state law. While the term "reasonable" is previously used in the section, it only pertains to the "reasonable control of the operator", and not "reasonable prevention" measures.

District Response:
The District agrees that the word "non-preventable" could be misinterpreted and has clarified this definition by replacing this word with the phrase "not reasonably preventable."

Comment #6b: Western States Petroleum Association ("WSPA") July 7, 2005

[1] CBE Comments #1 through #4 are the same as ABJ&C #1 through #4 above.

In addition, WSPA believes the staff report should be amplified with an explanation that some flaring events are required by other District rules to ensure the maximum destruction of gases. Multiple regulations have this requirement, and the public should be made aware, wherever possible, of flare causes other than emergencies that are not "reasonably preventable." We are not sure of the most appropriate location for this explanation, but suggest it might go into the explanation of this section, or following Section 301.

District Response:
The District acknowledges that some District regulations or other regulatory mandates may require destruction of gases in a flare. The proposed rule addresses this situation, directing the refinery to provide an explanation why the flaring was required by a regulatory mandate rather than identifying prevention measures or demonstrating consistency with the FMP. The District believes it is necessary to evaluate those situations to ensure facilities properly identify mandates, therefore this provision is retained in the current proposal.

Comment #7: WSPA (July 7, 2005)
12-12-206 Malfunction & 12-12-301 Flare Minimization: The term "malfunction" is not used elsewhere in the rule. WSPA recommends inserting into Section 12-12-301 after "…caused by an emergency" the words "or malfunction". Sudden flaring following a malfunction is a safety measure to PREVENT an emergency. We believe this language is more descriptive of the operating environment.

District Response:
The term "malfunction" was used in an earlier version of a draft rule. Since the current version does not use the term it was deleted. The District believes that in any situation where relief from Section 12-12-301 was appropriate as the result of an equipment or process malfunction, the exemption provision in that section together with the definition of the term "emergency" would provide such relief.

Comment #8: WSPA (July 7, 2005)
12-12-209 Reportable Flaring Event: Because all flares do not have water seals, the District should make clear that such flares are subject to the 0.5 feet per second standard AFTER November 1, 2006. Because this section and Section 12-12-405 appear inconsistent, WSPA requests the District clarify its intent on flare event reporting.

District Response:
The language in 12-12-209 has be changed to clarify that for flares without water seals a reportable flaring event ends when the vent gas flow rate falls below 0.5 feet per second. This provision is effective upon the date of rule adoption. The definition specifies the criteria for flares with water seals and water seal monitors. For flares without water seal *monitoring* as required by Section 12-12-501, until August 1, 2006, the effective date of Section 501, the criteria for when a reportable flaring event ends is when the vent gas flow rate falls below 0.5 feet per second.

Comment #9: WSPA (July 7, 2005) 12-12-211 Shutdown: WSPA recommends the District add, "operational requirements" before "or repair." The existing definition does not cover all the operating conditions leading to shutdown. Units are regularly taken out of service or brought to an idling condition for causes outside those included.
Modification: WSPA recommends the District add "operational requirements" before "or repair."

District Response:
The District agrees, the term "operational requirements" has been added in Section 12-12-211.

Comment #10: WSPA (July 7, 2005)
401.2 Reductions Previously Realized; 401.4 Prevention Measures: The rule requires the facility to look back five years to report previously achieved reductions and future prevention measures. In its staff report, the District should make clear that such review is for records of events that are

available, and that causal analyses are not expected to be performed for events prior to the adoption of Regulation 12, Rule 12.

District Response:
The District does not require causal analyses for events prior to the adoption of Regulation 12, Rule 12. Section 12-12-401.2 requires a description of the equipment, processes and procedure installed or implemented within the last five years. It does not require information about flaring events.

Section 12-12-401.4.1 requires a review of flaring during major maintenance activities including flaring that occurred during the past five years. While this provision requires a refinery to take a look back at historical information that can provide a credible basis for identifying causes of flaring that can be reduced or eliminated in future turn-arounds, it does not require a causal analysis under Section 12-12-406 for such flaring. See response to comment #27a.

Comment #11: WSPA (July 7, 2005)
404.2 Update of Flare Minimization Plans: WSPA recommends the District delete "obtain an approved" and insert "submit an [updated FMP….]" The District should review the update concurrent with its review of the permit application, ensuring the permitting process is not delayed by the FMP approval.

District Response:
The rule requires a refinery to obtain an approved plan update prior to installing or modifying equipment that requires permitting. The refinery must already have a permit to construct a new or modified source. The District anticipates review of the update will be concurrent with the review of the permit application and is likely to involve the same staff. The intent is to have refiners consider the impact of these new projects on flaring and to minimize that impact. The District does not anticipate a delay in permitting due to these types of updates.

Comment #12: WSPA (July 7, 2005)
12-12-406 Determination and Reporting of Cause: WSPA recommends the District insert after "APCO within 60 days" the words "of the end of the month." A rolling 60-day reporting period, submitting one report at a time, is administratively cumbersome and, more importantly, yields a lower quality result. By combining all these reports into a single consolidated monthly report, managers can review the month's events collectively. In addition, many of these reports require a higher level of review due to other local, state and federal mandates. Thus, it is important that this higher authority be able to review all the reports that might be related, rather than piecemeal.

District Response:
The District agrees; language has been changed to "The owner or operator of a flare subject to this rule shall submit a report to the APCO within 60 days following the end of the month in which a reportable flaring event occurs."

Comment #13: Bob Craft (July 11, 2005)
a. It is my assumption that the reporting requirements contained in the proposed regulation do not modify the day by day monthly reports required in Reg 12, rule 11. I find those to be very interesting and would be opposed to any modification of the 12-11 reporting specs.
b. It is not clear to me what happens if a given FMP is not approved (perhaps I am missing something). I assume that the refinery continues to operate, but is there a penalty of some sort? This should be clearly stated in the reg.
c. All *approved* FMP's should be posted on the AQD website. I understand there will be opportunity for public comment as they are developed but the final version should also be readily available.

District Response:
a. The District does not intend to modify Regulation 12, Rule 11 at this time.

b. Section 12-112-301 states in part… "flaring is prohibited unless it is consistent with an approved FMP"… If a FMP has not been approved, then effective November 1, 2006 any flaring that is not caused by an emergency necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere is a violation of the rule and subject to enforcement action. State law provides that violation of any District rule is subject to a panoply of civil and criminal enforcement penalties. It is not necessary nor is it District policy to restate the consequences of noncompliance as a part of individual District regulations.
c. The District will make the approved FMPs available to the public. The District intends to post the plans and other relevant documents on its website.

Comment #14: Bob Craft July 10, 2005
I want to commend you for the staff report on 12-12 dated July 8. It is *very informative, helpful and readable*. I do have one question on the report. On page 10 in the second full paragraph there is a statement that says, ".... the prohibition on flaring takes effect November 1. 2006." Am I misreading this? Will there be a total prohibition at that date?

District Response:
The prohibition is applicable to flaring that is not consistent with an approved FMP that is being implemented on a timely basis. Also, the prohibition does not apply to flaring caused by an emergency if necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere as determined by the casual analysis required in Section 12-12-406.

Comment #15: Bob Craft July 10, 2005
Finally, I urge the Board of Directors to adopt Reg 12, Rule 12 without delay.

District Response:
The public hearing to consider adoption is scheduled for July 20, 2005.

Comment #16: ABJ&C on behalf of Plumbers and Steamfitters Union Local 342, the International Brotherhood of Electrical Workers Local 302 ("Unions"), and Communities for a Better Environment ("CBE"). July 12, 2005
Include a time standard to the prevention measure requirement.

District Response:
The term "expeditious" has been added to Section 12-12-401.4.

Comment #17: ABJ&C July 12, 2005
Reduce the root cause analysis triggering threshold.

District Response:
See response to Comment #2.

Comment # 18: ABJ&C July 12, 2005
Adopt a 160 ppm sulfur standard.

District Response:
See response to comment #4. The 160 ppm limit is derived from the New Source Performance Standard (NSPS) for Petroleum Refinery Flares that affects flares installed after 1972. However, the NSPS does not prevent or reduce flaring, it *allows* flaring if the 160 ppm standard is met, furthermore, the 160 ppm standard does not apply during startups, shutdowns, emergencies, malfunctions or to control relief valve leakage. This is contrary to the approach in the proposed rule, which seeks to limit emissions by *reducing* flaring. Also, the request to prohibit flaring in all circumstances if the 160 ppm standard is not met may not be technically feasible for all types of crude oil processed. The proposed rule requires an evaluation of scrubbing capacity to address gas quality issues. "Scrubbing" removes sulfur compounds to allow flare gas to be used in other capacities, such as in process heaters and boilers to provide heat and energy for refinery

operations. The SCAQMD currently proposed rule exempts startup, shutdown, malfunction, and relief valve leakage from the 160 ppm standard. Flares subject to the Santa Barbara rule are not associated with large petroleum refineries, they are on production wells and asphalt/fuel oil facilities.

Comment # 19: ABJ&C July 12, 2005
Include a public hearing opportunity.

District Response:
See response to comment #3.

Comment # 20: ABJ&C July 12, 2005
Include public participation before the completeness determination.

District Response:
See response to comment #3.

Comment #21: DataCenter, Kim Rodgers July 12, 2005
The DataCenter is submitting the following analysis in support of community demands for a stronger and more enforceable petroleum refinery flare management plan. In particular, we support all of the demands articulated by Communities for a Better Environment:

- *Require FMPs to include all feasible flare control measures as expeditiously as practicable*
- *Reduce triggering threshold from 500,000 cubic feet to 100,000 cubic feet so that the rule is at least as strong as that required by the South Coast Air Quality Management District*
- *Prohibit flaring of gases with sulfur content greater than 160 ppm*
- *Require the Hearing Board to hold hearings if one is requested to ensure worker and community participation*
- *The rule should provide timely public copies of progress reports to any person upon written notice of their interest, and for the APCO to consult with interested persons before the completeness determination if a request for consultation is made.*

We believe these demands help to ensure that the BAAQMD's proposed rule will meet environmental justice criteria of reducing disproportionate impact on local communities and providing clear opportunities for impacted communities to effectively participate in the decision-making process. We are happy to see the BAAQMD moving forward with a flare rule after many years of citizen activism. We urge the District to set a strong standard that will protect the health of local Bay Area communities, and will serve as a model for other communities around the country.

District Response:
The rule will result in less flaring and fewer emissions from flaring. It will capture the reductions that have already occurred since the District began development of the flare monitoring rule, and will require additional reductions as feasible prevention measures become availability. These benefits will be realized by the communities affected by flaring. See responses to comments #1 through #5 above.

Comment #22: Valero Refinery July 12, 2005
12-12-201 Definition of Emergency
Non-preventable read literally could mean prevent without regard to resources (capital, manpower), safety or cost-effectiveness.

District Response:
See response to comment #6b.

Comment #23: Valero Refinery July 12, 2005
12-12-206 Definition of Malfunction
Malfunction is defined but not used any where in proposed rule.

District Response:
The definition was deleted.

Comment #24a: Valero Refinery July 12, 2005
12-12-301 Standard: Flare Minimization
To be exempt from the standard, District is requiring both emergency *and* need to prevent accident, hazard or venting gas to atmosphere. Sudden flaring following a malfunction is a safety measure to PREVENT an emergency. Not all malfunctions are emergencies.

District Response:
Where a malfunction qualifies as an "emergency," including where the emergency is averted only by flaring in response to the malfunction, and where flaring is necessary to prevent an accident, hazard, or direct release of vent gas to the atmosphere, such flaring would be covered by the exemption in Section 12-12-301. Where a malfunction does not create an emergency as described above, the District anticipates flaring caused by the malfunction would be incorporated into a FMP either originally or via a causal analysis and FMP updates.

Comment #24b: Valero Refinery July 12, 2005
Staff report dated July 8, 2005 provides for use of a flare only in an emergency *IF* necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere (pg 8). District language is inconsistent with federal language cited in the staff report that would recognize flaring of gases released due to upset conditions or as a result of relief valve leakage, startup/shutdown, or other emergency malfunctions (pg 5), and in Table 5 Regulatory Matrix and Federal Requirements (pg 26).

District Response:
The intent of the rule is to go beyond what is currently required by federal standards, for example Section 401.4.3 …"to develop a FMP that address recurrent failure of process equipment or a process to operate in a normal manner."

Comment #25a: Valero Refinery July 12, 2005
12-12-209 Definition: Reportable Flaring Event
All flares do not have water seals; therefore, District should establish that such flares are subject to 0.5 feet per second standard AFTER November 1, 2006.

District Response:
See response #8.

Comment #25b: Valero Refinery July 12, 2005
Language defining flare event as 0.5 feet per second is not consistent with language in Section 12-12-405 (500,000 SCF calendar day). Section 12-12-407 requires annual reporting of flaring LESS than 500,000 SCF calendar day where SO2 emissions > 500 lbs / day.

District Response:
The regulation does not define a flaring event as 0.5 feet per second. That is the condition that signals the end of a reportable flaring event under certain circumstances. Notification and causal analyses are required whenever more than 500,000 scf of vent gas is flared in a calendar day. The annual reporting threshold is not intended to be consistent with the threshold for notification or preparation of a causal analysis; rather the threshold for annual reporting was developed to manage low volume regimes.

Comment #26: Valero Refinery July 12, 2005
12-12-211 Definition: Shutdown
Existing definition does not cover all potential operating conditions leading to shutdown.

District Response:
The language was changed to include these regimes.

Comment #27a: Valero Refinery July 12, 2005
12-12-401 Administrative Requirements: FMP
401.2 Staff Report should clarify the requirement to report on activities for past five years. It is an unreasonable requirement to require data and information that predates the regulation prior to any requirement to keep such records and prior to implementing Regulation 12-11 Monitoring of Flares.

District Response:
The timeframe for this requirement reflects the timeframe of the beginning of the District's work on flares for the 2001 Ozone Attainment Plan. As part of this project, the District requested historical information from refiners and received data as far back as the early eighties. The District would consider this data adequate for purposes of developing the FMP.

Comment #27b: Valero Refinery July 12, 2005
401.4.3 Determination of "recurrent" is subject to interpretation. The staff report should clarify that "recurrent" refers to a condition that occurs repeatedly for the same cause or reason on the exact same item. Failure very broadly defined. No distinction for minor administrative failures. No allowance for Notice to Comply mechanism for procedural and/or administrative items.

District Response:
401.4 A recurrent failure is defined in this section as a failure that occurs more than two times in five years as a result of the same cause as determined by the causal analysis. This section applies to failures that result in flaring, not to minor administrative failures or other failures that would qualify as a minor violation under Regulation 1, Rule 2: Notice to Comply (see Section 1-2-204). In any event, the section operates independently of Regulation 1, Rule 2.

Comment #28: Valero Refinery July 12, 2005
12-12-403 Administrative Requirements: Review and Approval of FMPs
The staff report should clarify that following public comment, the District may designate a FMP to be conditionally approved if further discrepancies are identified. If FMP is disapproved, only the section of concern will be disapproved and not the entire FMP.
The owner / operator should not be prevented from using a flare if the FMP has been submitted and deemed to be complete by the APCO but the approval of the FMP has been delayed due to factors beyond the reasonable control of the owner / operator.

District Response:
The APCO is authorized to approve an FMP that complies with the requirements of Section 12-12-401; if the plan does not comply with those requirements, the APCO will disapprove it. Unless specifically limited, the power to approve or disapprove carries with it the power to approve conditionally or to approve in part. The District will exercise these authorities as appropriate to achieve the purposes of the regulation, i.e., to ensure that steps to minimize flaring are undertaken on an expeditious schedule. Any decision to approve conditionally or approve in part will depend on the specific facts that prevent full, unconditional approval. The regulation as written provides that the owner or operator of a flare who has submitted a complete plan in accordance with Section 12-12-402 will be allowed to use the flare consistent with that submittal pending final action by the APCO.

Comment #29: Valero Refinery July 12, 2005
12-12-404 Administrative Requirements: Update FMP

Request District review updated FMP concurrent with permit application review to ensure permitting process is not delayed by FMP approval.

District Response:
See response to comment #11.

Comment #30: Valero Refinery July 12, 2005
12-12-406 Administrative Requirements: Determination and Reporting of Cause
Administratively burdensome and cumbersome to track each flaring event on rolling 60-day reporting period. A monthly report of flare events if consistent with reporting requirements under Reg 12-11 and will consolidate daily event reports allowing review of all events for month at one time.

District Response:
The language was changed to co-ordinate with the reporting schedule of the flare monitoring rule. See response to comment #12.

Comments Received After the Deadline:
In addition to comments received during the designated comment period, the District received late comments. Although under no obligation to respond to these comments and without waiving any objections to the submission of late comments, the District provides the following responses:

Comment #31: WSPA
12-12-201 Emergency: As an extension of WSPA's previous remarks on this section, WSPA is concerned that the current definition in the proposed rule language COULD be construed to prohibit flaring from some malfunctions, even when such flaring is necessary for the safe and reliable operation of the refinery. WSPA encourages the District staff to either include "malfunction" in Section 201 of the proposed rule language or, in the alternative, make it clear in the Staff Report that such flaring is contemplated to be an emergency and is covered under the emergency definition. Additional technical input is available upon request.

District Response:
Section 301 states in part… "This standard shall not apply if the APCO determines, based on an analysis conducted in accordance with Section 12-12-406, that the flaring is caused by an emergency and is necessary to prevent an accident, hazard or release of vent gas directly to the atmosphere." The District believes that malfunctions that result in flaring will often qualify under this exemption. If the analysis proves otherwise, then facilities will be required to update the FMP to include these scenarios.

Comment #32:
Characterization of Emissions: The District staff has been inflating and mischaracterizing emissions from flares. Illustrative of our concerns are:

> Total Organic Gases (TOG): From both the EIR and Staff Report, the reader is left with the false impression that TOG is the main emissions from flares to be controlled. However, as the District is aware, TOG includes methane (natural gas) that IS NOT a criteria pollutant and not subject to District control. As a result, this misrepresentation leads a reasonable reader to assume that harmful emissions from flaring are nearly double what they truly are. Accordingly, to alleviate this potential misrepresentation, WSPA requests that where TOG emissions are discussed in the Staff Report, the District should use ROG (reactive organic gases).
>
> "Low Flow" Measurement: The District continues to assert that flaring may exist during low flows even when there is no evidence that the water seals are broken. Refineries submitted significant information to refute this assertion. District staff investigated water seals at each refinery, and WSPA was assured (verbally) that the issue was no longer of concern. As a result of this investigation, District staff was informed and is readily aware that flow meters regularly indicate flows when no flaring is occurring. However, despite

WSPA's and its members' efforts and District staff's understanding of the issue and promises to the contrary, the Staff Report shows flaring emission estimates indicating flaring that NEVER occurred. Unfortunately, it was only upon reading the Staff Report did WSPA become aware that the District was artificially adjusting emissions upward for these "ghost flows," which dramatically increase actually measured emissions. Accordingly, to alleviate this potential misrepresentation, WSPA requests that the "ghost flows" be removed from the District's flaring and flaring emission estimates.

Inflated Emissions from Incidents: It also appears that the Staff Report increases emission estimates from incidents for reasons beyond our understanding, though no such adjustments were reviewed with WSPA or its members. Illustrative of this is:

- o The Staff Report reflects the highest SO2 emissions day in 2004 as 61-tons, while flare monitoring only shows 36-tons. We suspect that this adjustment to flaring emissions is made from an emergency event that occurred that day. WSPA suspects the maximum TOG shown in the Staff Report has also been inflated.
- o The average daily flaring of ROG in 2004 was reported at 0.82 tons/day. However, Staff Report shows 1.5 tons/day of ROG and 2 tons/day of TOG.

In addition, staff should reflect the ground level monitoring of emissions read during events. For instance, WSPA reviewed the downwind monitor form the event on the highest SO2 day. The monitor reflected 11ppb of SO2 when the health-based standard is 250ppb. The characterization by activists of flare emissions as a local public health issue SHOULD be refuted by BAAQMD as having no scientific basis.

District Response:
Since the initiation of this project and on numerous occasions including hearings and workshops, the District has made it very clear how it characterizes emissions for inventory and planning purposes, and in evaluating incidents. The District clearly states on its web site that the information presented is refinery reported data in accordance with the flare monitoring rule. In addition, the District presents its emission inventory in clearly defined terms. The staff report for Regulation 12, Rule 12 clearly states that organic emissions include methane and the approximate percentage methane in the calculation.

There are many factors that affect emissions: flow rate, vent gas composition, combustion efficiency, steam rates, and flare tip design, to name a few. The flare monitoring rule and the monitoring requirement in the proposed rule was developed to further refine the District's emission inventory. The District has used sound science and reasonable engineering assumptions to characterize emission estimates. In any event, this is not a comment on the viability of the proposed rule. The rule is structured to require each refinery to develop plans to minimize flaring, it does not depend on an emission threshold.

Comment #33:
Cost Effectiveness Analysis: The Staff Report, in its "case studies" on page 21, leaves the reader to believe that a future project of up to $20,000,000 in capital costs would be "feasible."
However, this is misleading as it is based on emission reductions that have already been achieved and not on the cost-effectiveness of the slight reductions, which still have not been identified in the Staff Report, in the future as a result of the proposed rule. It is unlikely that any WSPA members have sufficient emissions reductions remaining that would make the case studies cost effective in the future. WSPA is still analyzing the other SocioEconomic Analysis issues and reserves the right to enhance and supplement these comments in the future.

District Response:
The staff report clearly states this is a case study. This information provides information relevant to the recent reductions in flaring emissions that the District will capture through this rulemaking to prevent backsliding. The $20,000,000 estimate related to a project already undertaken that realized significant emission reductions. The District agrees, that going forward, the benefits of

the rule are not likely to come in the form of large increments of emission reductions for any given prevention measure, on the other hand the measures that produce more modest reductions will not call for large capital improvement projects of the type addressed by the case study. The proposed rule requires a FMP that includes expeditious implementation of feasible prevention measures. With the flexibility built into the rule, it is reasonable to expect that the refiners will implement the most cost-effective measures to achieve the purposes of the rule.

FLARE MANAGEMENT PLAN TIMELINE